



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY

CONTRACT I-19-4495
I-294 WIDENING
RAMP C FLYOVER, DIXIE CREEK BRIDGE,
RAMP F2 AND RAMP D

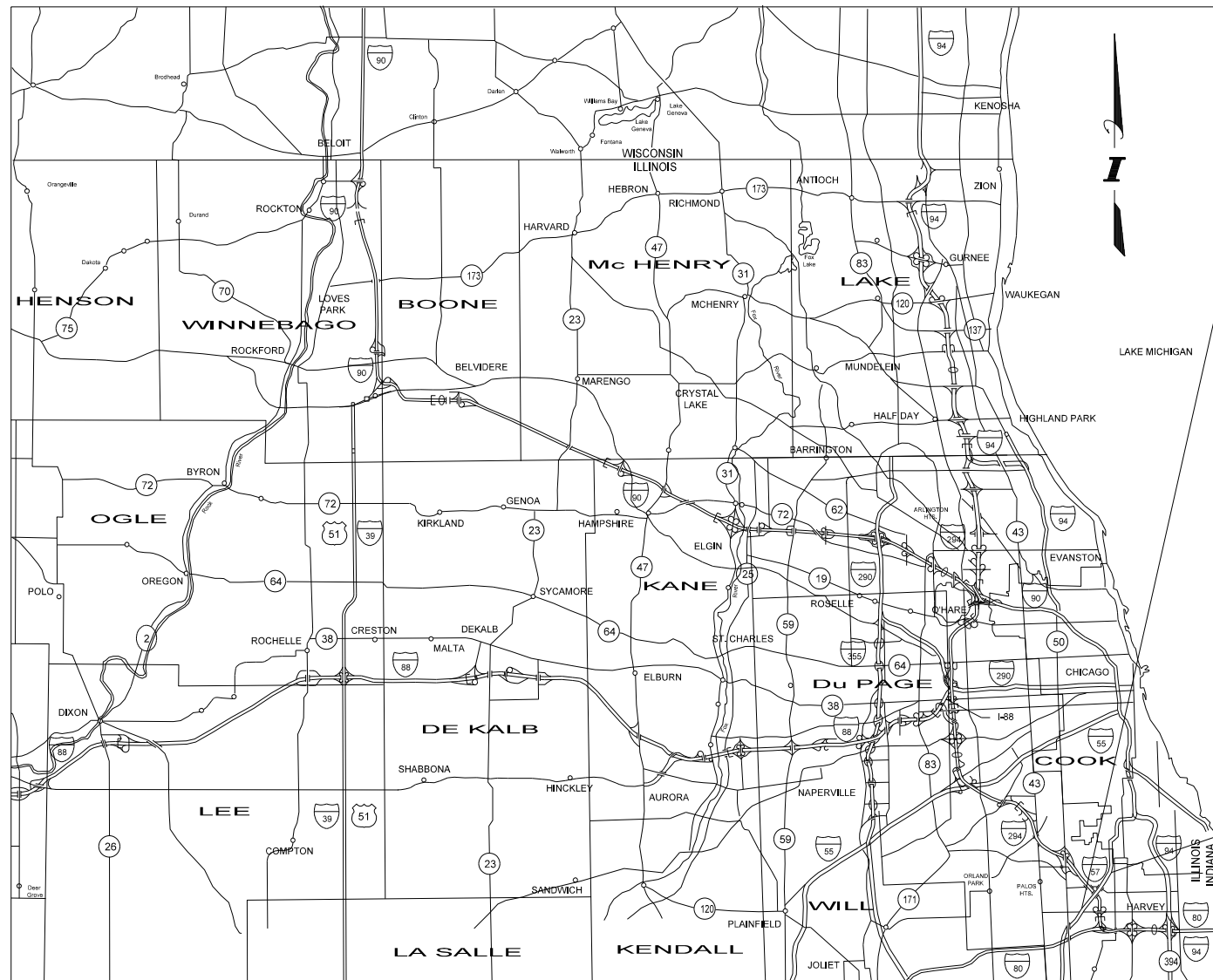
GENERAL NOTES, SUMMARY OF QUANTITIES, ALIGNMENT AND TIES, TYPICAL SECTIONS, MAINTENANCE OF TRAFFIC, REMOVAL PLANS, ROADWAY PLANS AND PROFILES, GRADING PLANS, DRAINAGE PLANS AND PROFILES, P&E PLANS, TEMPORARY EROSION CONTROL, PAVEMENT MARKING, SIGNING, AND LANDSCAPE PLANS, LIGHTING PLANS, SURVEILLANCE PLANS, STRUCTURAL PLANS, AND CROSS SECTIONS.

SHEETS BY AMERICAN SURVEY & ENGINEERING (SUE SHEETS).

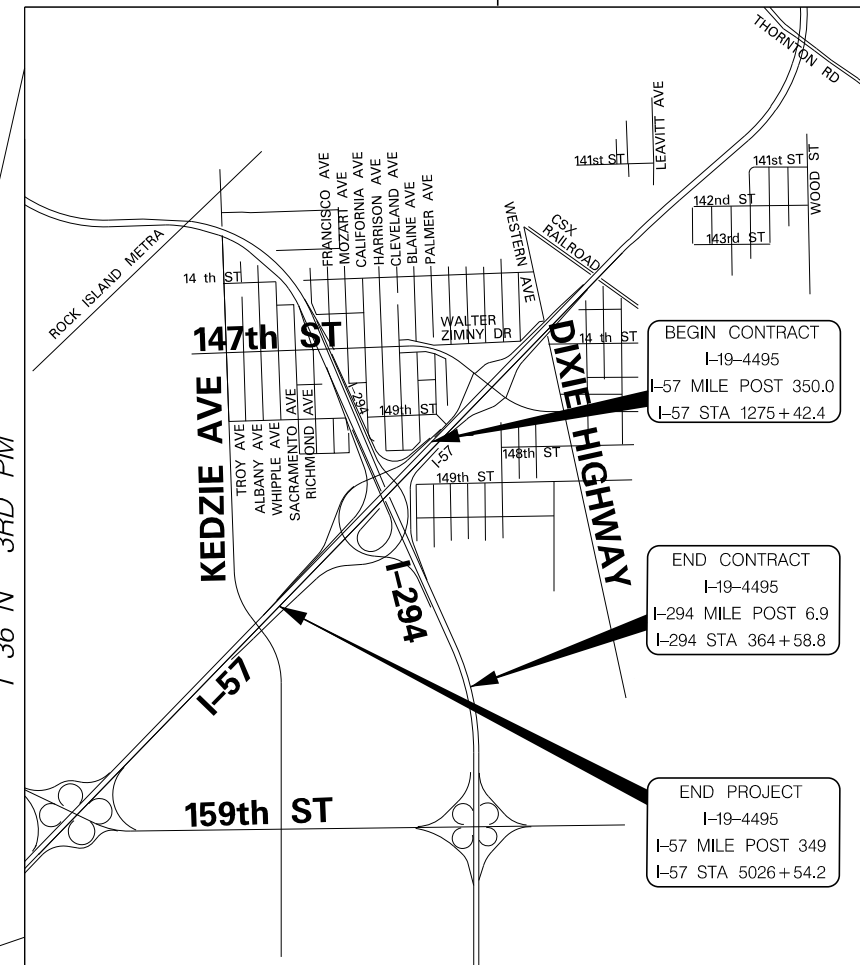
I-57 MILE POST 350.0 TO I-294 MILE POST 6.9
I-57 STA 1275+43.4 TO I-294 STA 364+58.8

VOLUME III OF III

R. 13 E. | R. 14 E.



LOCATION MAP



CONSTRUCTION AREA MAP

VILLAGE OF POSEN

DESIGN SECTION ENGINEER:

TYLIN INTERNATIONAL
200 S. WACKER DR.
SUITE 1400
CHICAGO, IL 60606
TEL: 312-777-2900

INDEX OF DRAWINGS

VOL 1

DRAWING NO.	SHEET NO.	TITLE
1	G-001	COVER SHEET - VOLUME 1
2 - 3	G-002 - G-003	INDEX OF SHEETS & INDEX OF STANDARDS
4	G-004	GENERAL NOTES
5	G-005	PROGRESS SCHEDULE
6 - 13	G-006 - G-013	SUMMARY OF QUANTITIES
14 - 18	G-014 - G-018	SCHEDULE OF QUANTITIES
19 - 23	G-019 - G-023	ALIGNMENT PLANS
24	G-024	BENCHMARK DESCRIPTIONS
25 - 28	G-025 - G-028	SURVEY TIES FOR CONTROL POINTS
29 - 30	TYPEX-01 - TYPEX-02	EXISTING TYPICAL SECTIONS
31 - 34	TYPES-01 - TYPES-04	PROPOSED TYPICAL SECTIONS
35	MOT-01	MAINTENANCE OF TRAFFIC - GENERAL NOTES
36 - 37	MOT-02 - MOT-03	MAINTENANCE OF TRAFFIC - TYPICAL SECTIONS & STAGING
38 - 51	MOT-04 - MOT-17	MAINTENANCE OF TRAFFIC PLANS
52 - 53	MOT-18 - MOT-19	MAINTENANCE OF TRAFFIC DETAILS
54 - 64	REM-01 - REM-11	REMOVAL PLANS
65 - 74	PLAN-01 - PLAN-10	PROPOSED PLANS
75 - 84	DTL-01 - DTL-10	MISCELLANEOUS ROADWAY DETAILS
85 - 90	PRF-001 - PRF-006	ROADWAY PROFILES
91 - 94	GP-001 - GP-004	GRADING PLAN
95 - 98	SCH-01 - SCH-04	DRAINAGE SCHEDULES
99 - 106	DR-01 - DR-08	DRAINAGE REMOVAL PLANS
107 - 114	PD-01 - PD-08	PROPOSED DRAINAGE PLANS
115 - 117	PDP-01 - PDP-03	PROPOSED DRAINAGE PROFILES
118 - 119	DT-01 - DT-02	DRAINAGE DETAILS
120 - 124	SUE-01 - SUE-05	SUBSURFACE UTILITY LOCATIONS
125 - 138	PJE-01 - PJE-14	PAVEMENT JOINTING AND ELEVATION PLANS
139 - 141	SCH-05 - SCH-07	EROSION CONTROL SCHEDULES
142 - 143	EC-01 - EC-02	EROSION CONTROL GENERAL NOTES
144 - 158	EC-03 - EC-17	EROSION CONTROL PLANS
159	EC-18	EROSION CONTROL DETAILS
160 - 174	PMK-01 - PMK-15	PAVEMENT MARKING, SIGNING AND LANDSCAPE PLANS
175 - 176	SIGN_SCH-01 - SIGN_SCH-02	SIGNING SCHEDULES
177 - 183	SIGN_XS-01 - SIGN_XS-07	SIGNING SECTIONS
184 - 193	SIGN-01 - SIGN-10	SIGN DETAIL
194 - 209	SIGN-STD-DET-01 - SIGN-STD-DET-16	SIGN STANDARD DETAILS
210	EL-01	TOLLWAY LIGHTING LEGEND AND SCHEDULE OF QUANTITIES
211 - 214	EL-02 - EL-05	TEMPORARY TOLLWAY LIGHTING AND REMOVAL PLAN
215 - 218	EL-06 - EL-09	PROPOSED TOLLWAY LIGHTING PLAN
219 - 220	EL-10 - EL-11	LIGHTING CONTROLLER DETAILS AND SCHEDULES
221	EL-12	IDOT LIGHTING LEGEND AND SCHEDULE OF QUANTITIES
222 - 232	EL-13 - EL-23	PROPOSED IDOT LIGHTING PLAN
233 - 235	EL-24 - EL-26	SINGLE LINE DIAGRAMS IDOT CONTROLLERS
236	EL-27	IDOT ELECTRICAL DETAILS
237 - 243	EL-28 - EL-34	DISTRICT 1 ELECTRICAL STANDARDS
244 - 250	ITS-01 - ITS-07	ITS GENERAL NOTES, PLANS, AND DETAILS
251 - 260	TS-01 - TS-10	TRAFFIC SURVEILLANCE GENERAL NOTES, PLANS AND DETAILS
VOL 2		
261	G-001	COVER SHEET - VOLUME 2
262 - 263	G-002 - G-003	INDEX OF SHEETS & INDEX OF STANDARDS
264 - 270	SA-1 - SA-7	STRUCTURE PLANS - SN 016-2202 (WALL 41)
271 - 275	SB-1 - SB-5	STRUCTURE PLANS - ISTHA CULVERT NO. T1-17 (I-294 OVER BELAIRE CREEK)
276 - 509	SC-001 - SC-234	STRUCTURE PLANS - SN 016-2101 (RAMP C OVER I-294 AND I-57)
VOL 3		
510	G-001	COVER SHEET - VOLUME 3
511 - 512	G-002 - G-003	INDEX OF SHEETS & INDEX OF STANDARDS
513 - 550	SD-01 - SD-38	STRUCTURE PLANS - SN 016-2102 (RAMP C OVER DIXIE CREEK)
551 - 553	SE - 01 - SE - 03	PERFORMANCE BASED WALL - TS7.29R,NB (RAMP C)
554 - 563	XS-294-01 - XS-294-10	PROPOSED CROSS SECTIONS: I-294
564 - 573	XS-C-01 - XS-C-10	PROPOSED CROSS SECTIONS: RAMP C
574 - 584	XS-CN-001 - XS-CN-011	PROPOSED CROSS SECTIONS: RAMP C NORTH
585 - 595	SX-F2-01 - SX-F2-11	PROPOSED CROSS SECTIONS: RAMP F2
596	DS1-001	BD-27: CONCRETE BARRIER TRANSITION & GENERAL DETAILS CONCRETE BARRIER BASE
597	DS1-002	BD-51: BENCHING DETAIL FOR EMBANKMENT WIDENING

VOL 2

VOL 3

R

INDEX OF DRAWINGS, CONT.

DRAWING NO.	SHEET NO.	TITLE
598	DS1-003	TC-08: FREEWAY ENTRANCE AND EXIT RAMP CLOSURE DETAILS
599	DS1-004	TC-09: TRAFFIC CONTROL DETAILS FOR FREEWAY SINGLE & MULTI-LANE WEAVE
600	DS1-005	TC-11: RAISED REFLECTIVE PAVEMENT MARKERS (SNOW PLOW RESISTANT)
601 - 602	DS1-006 - DS1-007	TC-12: MULTI-LANE FREEWAY PAVEMENT MARKING DETAILS
603	DS1-008	TC-13: DISTRICT ONE TYPICAL PAVEMENT MARKINGS
604	DS1-009	TC-17: TRAFFIC CONTRL FOR SHOULDER CLOSURES AND PARTIAL RAMP CLOSURES
605	DS1-010	TC-18: SIGNING FOR FLAGGING OPERATIONS AT WORK ZONE OPENINGS
606	DS1-011	TC-22: ARTERIAL ROAD INFORMATION SIGN

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DRAWN BY *KDW*
 CHECKED BY

DATE *4-3-2020*
 SCALE *NONE*

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 AT 294 RAMPS C AND F2
 INDEX OF DRAWINGS

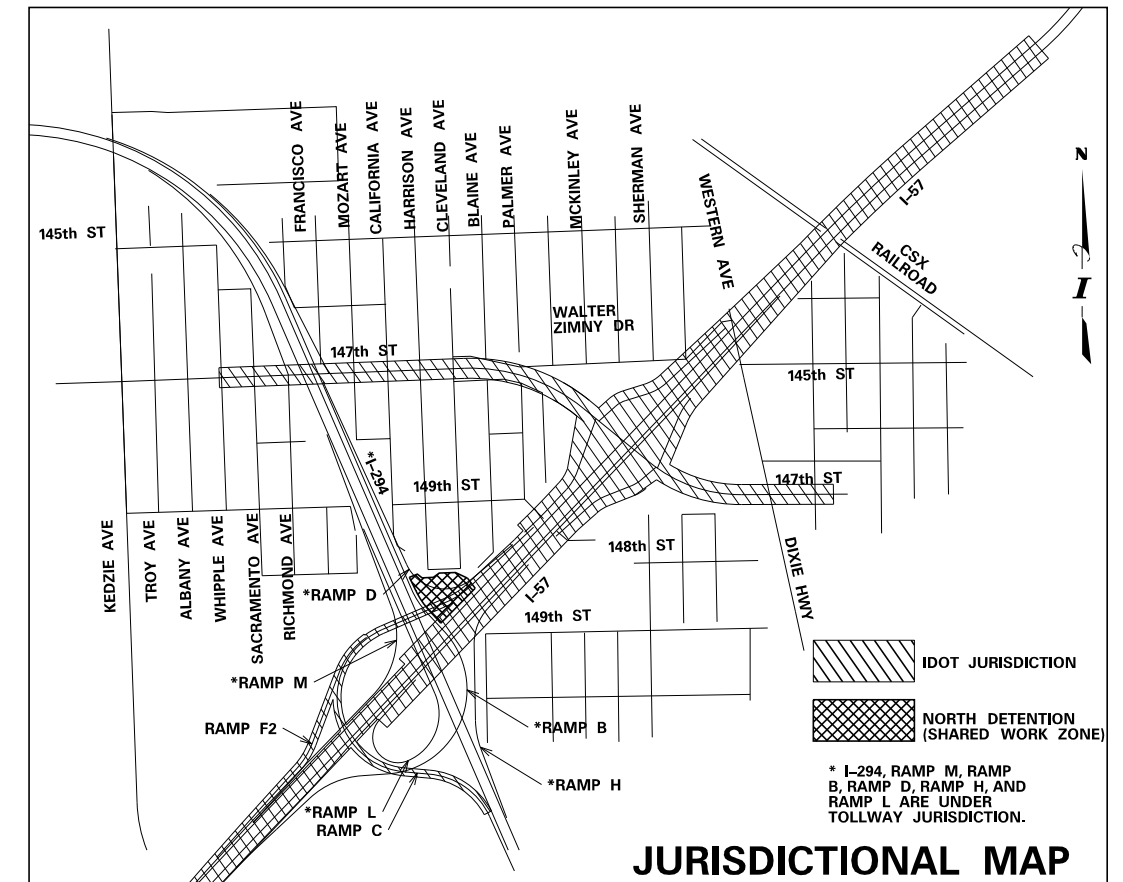
SHEET *G-002*
 511 OF 606

LIST OF ISTHA STANDARDS

STANDARD NO.	TITLE
SECTION A - ROADWAY/PAVEMENT	
A5-05	J.P.C. PAVEMENT
A7-03	PAVEMENT JOINTS
A12-00	JOINTING PLAN ENTRANCE RAMP TERMINAL WITH AUXILIARY LANE
SECTION B - DRAINAGE STRUCTURES, CURBS, CURB AND GUTTER AND DITCHES	
B4-01	DITCHES AND DITCH DIKE
BB-06	CATCH BASINS TYPE G AND TYPE G MODIFIED, FRAMES AND GRATES
B10-10	SLOPED HEADWALL TYPE III DETAILS
B19-02	EROSION PROTECTION
B24-07	PIPE UNDERDRAINS
B25-01	FRAME AND GRATE TYPE 20A
SECTION C - GUARDRAIL/MEDIAN BARRIER	
C1-10	GALVANIZED STEEL PLATE BEAM GUARDRAIL
C3-07	CONCRETE BARRIER SINGLE FACE, REINFORCED 42 INCH
C5-06	CONCRETE BARRIER BASE AND CONCRETE BARRIER, DOUBLE FACE, 44" AND VARIABLE HEIGHT
C6-10	SHOULDER WIDENING FOR TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT
C10-08	TRAFFIC BARRIER TERMINAL, TYPE T6B
C11-07	TRAFFIC BARRIER TERMINAL, TYPE T10
C13-05	CONCRETE MEDIAN BARRIER TRANSITION, TYPE V-DF AT BRIDGE PIERS
SECTION D - ROADWAY APPURTENANCES (FENCE, SYMBOLS, MARKERS, AND DELINEATORS)	
D1-05	RIGHT OF WAY FENCE
D2-04	SYMBOLS AND PATTERNS
D3-02	PERMANENT SURVEY MONUMENTS AND RIGHT-OF-WAY MARKERS
D4-07	ROADWAY DELINEATORS AND REFLECTORS
D5-06	PERMANENT PAVEMENT MARKINGS
D6-08	PAVEMENT MARKING AND SHOULDER RUMBLE STRIP DETAILS
D8-03	RAISED PAVEMENT LANE MARKER
SECTION E - MAINTENANCE OF TRAFFIC	
E1-07	CONSTRUCTION SIGNS
E2-08	LANE CLOSURE DETAILS
E3-07	SHOULDER CLOSURE DETAILS
E4-07	MAINTENANCE OF TRAFFIC REVERSE CURVE
E5-08	TEMPORARY GORE DETAILS
E6-05	CONTRACTOR ACCESS TO WORK AREA
E7-04	PULL-OUT AREA
SECTION F - SIGN STRUCTURE	
F4-10	OVERHEAD SIGN STRUCTURE CANTILEVER TYPE STRUCTURE DETAILS
F8-07	OVERHEAD SIGN STRUCTURE SIGN AND LUMINAIRE SUPPORTS
F9-05	BREAKAWAY SIGN SUPORT DETAILS
F10-03	MISCELLANEOUS DETAILS AND ALUMINUM SIGN PANELS
F11-05	MILEPOST MARKER
SECTION H - ROADWAY LIGHTING AND ELECTRICAL	
H1-08	LIGHT STANDARD FOUNDATION
H2-07	LIGHT STANDARD DETAILS
H4-04	HEAVY-DUTY HANDHOLE AND BURIED WIRING DETAILS
H5-05	SERVICE POLE AND PEDESTAL DETAILS
H6-06	EXTERIOR CONTROL CONSOLE DETAILS
H7-03	EXTERIOR CONTROL CONSOLE FOUNDATION DETAILS
H8-03	INTERIOR CONTROL CONSOLE DETAILS
H17-00	MAST ARM CABLE ASSEMBLY (SINGLE MAST ARM)
SECTION K - TEMPORARY EROSION CONTROL	
K1-08	TEMPORARY EROSION AND SEDIMENT CONTROLS
SECTION L - FIBER OPTIC DETAILS	
L1-01	FIBER OPTIC SYSTEM TYPICALS AND DRAWINGS
L2-00	FIBER OPTIC SPLICING DETAILS

LIST OF IDOT STANDARDS

STANDARD NO.	TITLE
000001-07	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
420001-09	PAVEMENT JOINTS
420201-11	ENTRANCE RAMP TERMINAL (JPCC TO JPCC)
420401-13	PAVEMENT CONNECTOR (PCC) FOR BRIDGE APPROACH SLAB
483001-05	PCC SHOULDER
515001-03	NAME PLATES FOR BRIDGES
542301-03	PRECAST REINFORCED CONCRETE FLARED END SECTION
601001-05	PIPE UNDERDRAINS
601101-02	CONCRETE HEADWALL FOR PIPE UNDERDRAINS
602001-02	CATCH BASIN, TYPE A
602011-02	CATCH BASIN, TYPE C
602106-02	DRAINAGE STRUCTURES TYPES 4 & 5
602401-06	PRECAST MANHOLE TYPE A 4' (1.22m) DIAMETER
602601-06	PRECAST REINFORCED CONCRETE FLAT SLAB TOP
602701-02	MANHOLE STEPS
604001-05	FRAME & LIDS TYPE 1
604036-03	GRATE, TYPE 8
604071-05	FRAME AND GRATE TYPE 20
604081-04	FRAME AND GRATE TYPE 22
630001-12	STEEL PLATE BEAM GUARDRAIL
630301-09	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
635001-02	DELINEATORS
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
635011-02	REFLECTOR MARKER AND MOUNTING DETAILS
642001-02	SHOULDER RUMBLE STRIPS, 16 IN.
701011-05	OFF-ROAD OPERATIONS, MULTILANE, 15' (4.5m) TO 24" (600mm) FROM PAVEMENT EDGE
701106-02	OFF-ROAD OPERATIONS, MULTILANE, MORE THAN 15' AWAY
701400-09	APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY
701401-12	LANE CLOSURE, FREEWAY/EXPRESSWAY
701402-12	LANE CLOSURE, FREEWAY/EXPRESSWAY, WITH BARRIER
701406-12	LANE CLOSURE, FREEWAY/EXPRESSWAY DAY OPERATIONS ONLY
701411-09	LANE CLOSURE, MULTILANE, AT ENTRANCE OR EXIT RAMPS, FOR SPEEDS >= 45 MPH
701423-10	LANE CLOSURE, MULTILANE, WITH BARRIER, FOR SPEEDS >OR= 45 MPH TO 55 MPH
701426-09	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPER., FOR SPEEDS >OR= 45 MPH
701428-01	TRAFFIC CONTROL SETUP AND REMOVAL FREEWAY/EXPRESSWAY
701901-08	TRAFFIC CONTROL DEVICES
704001-08	TEMPORARY CONCRETE BARRIER
720001-01	SIGN PANEL MOUNTING DETAILS
720006-04	SIGN PANEL ERECTION DETAILS
720011-01	METAL POSTS FOR SIGNS, MARKERS & DELINEATORS
720021-02	SIGN PANELS - EXTRUDED ALUMINUM TYPE
725001-01	OBJECT AND TERMINAL MARKERS
728001-01	TELESCOPING STEEL SIGN SUPPORT
729001-01	APPLICATIONS OF TYPES A & B METAL POSTS (FOR SIGNS & MARKERS)
780001-05	TYPICAL PAVEMENT MARKINGS
781001-05	TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS
782006-01	GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS
812001-01	RACEWAY EMBEDDED IN STRUCTURE
814001-03	HANDHOLES



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TYLIN INTERNATIONAL

THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
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CONTRACT I-19-4495
I-57 AT 294 RAMPS C AND F2
INDEX OF STANDARDS

SHEET **G-003**
512 OF **606**

BENCHMARK: CROSS CUT IN N.W. FIRE HYDRANT BOLT AT NE CORNER OF 151st ST AND KEDZIE AVE. ELEV. 609.98

EXISTING STRUCTURE: NONE

DESIGN SPECIFICATIONS
2017 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS,
8th EDITION

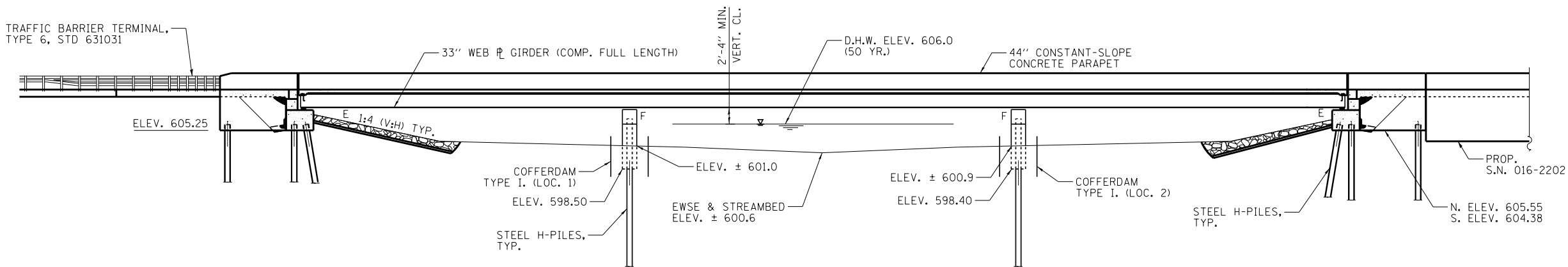
LOADING HL-93
ALLOW 50#/SQ. FT. FOR FUTURE WEARING SURFACE.

DESIGN STRESSES
FIELD UNITS

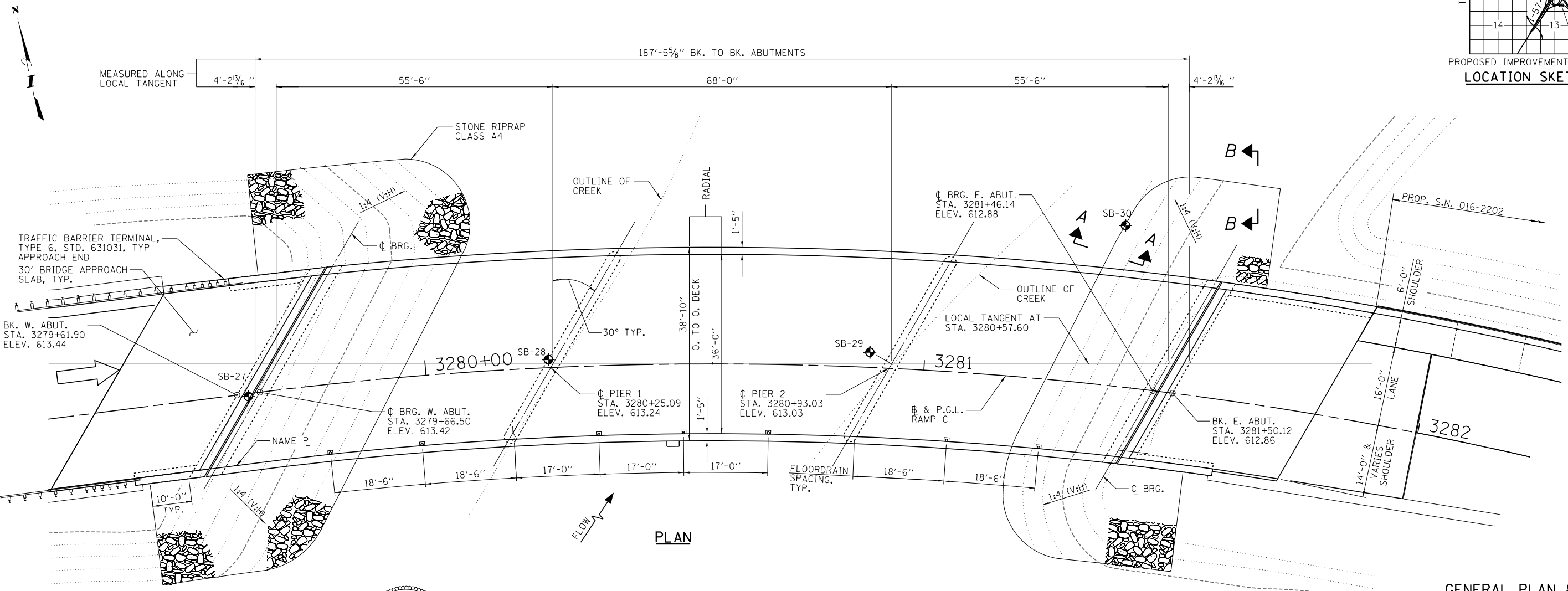
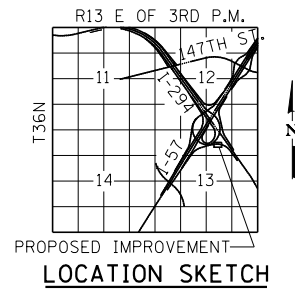
$f'_c = 3,500$ PSI
 $f'_c = 4,000$ PSI (SUPERSTRUCTURE CONCRETE)
 $f_y = 60,000$ PSI (REINFORCEMENT)
 $f_y = 50,000$ PSI (M270 GRADE 50)

SEISMIC DATA

SEISMIC PERFORMANCE ZONE (SPZ) = 1
DESIGN SPECTRAL ACCELERATION AT 1.0 SEC. (S_{D1}) = 0.063g
DESIGN SPECTRAL ACCELERATION AT 0.2 SEC. (S_{D5}) = 0.114g
SOIL SITE CLASS = C



ELEVATION



PLAN

Professional Engineer Seal for Spiros Pantazis, State of Illinois, No. 081-006448, Expires 11-30-2020. Date: 12-5-19

NOTES:
UP TO 1/4" MAY BE GROUND OFF THE BRIDGE DECK AND THE APPROACH SLABS.
FOR SECTION A-A AND B-B, SEE SHT. SD-3 OF SD-38.

GENERAL PLAN & ELEVATION
RAMP C OVER DIXIE CREEK
F.A.I. 57 SECTION 1314.4B
COOK COUNTY
STATION 3280+59.51
STRUCTURE NUMBER 016-2102

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DATE 4-9-2020
CHECKED BY PDF
SCALE NONE

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THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

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CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
GENERAL PLAN AND ELEVATION
SHEET SD - 1 OF 38
513 OF 606

GENERAL NOTES

1. FASTENERS SHALL BE ASTM F3125 GRADE A325, TYPE 1, HOT DIPPED GALVANIZED BOLTS. BOLTS 1/8 IN. Ø, HOLES 1/8 IN. Ø, UNLESS OTHERWISE NOTED.
2. CALCULATED WEIGHT OF STRUCTURAL STEEL = 204,260 LBS.
3. ALL STRUCTURAL STEEL SHALL BE AASHTO M 270 GRADE 50.
4. NO FIELD WELDING IS PERMITTED EXCEPT AS SPECIFIED IN THE CONTRACT DOCUMENTS.
5. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
6. BEARING SEAT SURFACES SHALL BE CONSTRUCTED TO THE DESIGNATED ELEVATIONS WITHIN A TOLERANCE OF 1/8 IN. (0.01 FT.). ADJUSTMENTS SHALL BE MADE EITHER BY GRINDING THE SURFACE OR SHIMMING THE BEARINGS.
7. CONCRETE SEALER SHALL BE APPLIED TO DESIGNATED AREAS OF THE ABUTMENTS.
8. ALL NEW STRUCTURAL STEEL SHALL BE METALLIZED. SEE SPECIAL PROVISION FOR "METALLIZING OF STRUCTURAL STEEL."
9. LAYOUT OF THE SLOPE PROTECTION SYSTEM MAY BE VARIED TO SUIT GROUND CONDITIONS IN THE FIELD AS DIRECTED BY THE ENGINEER.
10. THE EMBANKMENT CONFIGURATION SHOWN SHALL BE THE MINIMUM THAT MUST BE PLACED AND COMPACTED PRIOR TO CONSTRUCTION OF THE ABUTMENTS.
11. SLIPFORMING OF THE PARAPETS IS NOT ALLOWED.

SHEET INDEX


- SD-1 GENERAL PLAN AND ELEVATION
- SD-2 GEN. NOTES/BILL OF MATERIALS
- SD-3 GENERAL DATA
- SD-4 SUBSTRUCTURE LAYOUT
- SD-5 TOP OF SLAB ELEVATION LAYOUT
- SD-6 TOP OF SLAB ELEVATION - 1
- SD-7 TOP OF SLAB ELEVATION - 2
- SD-8 APPROACH SLAB ELEVATIONS
- SD-9 DECK PLAN
- SD-10 PARAPET ELEVATIONS
- SD-11 DECK DETAILS 1 OF 2
- SD-12 DECK DETAILS 2 OF 2
- SD-13 WEST APPROACH SLAB PLAN
- SD-14 EAST APPROACH SLAB PLAN
- SD-15 APPROACH SLAB DETAILS
- SD-16 PREFORMED JOINT STRIP SEAL
- SD-17 FRAMING LAYOUT
- SD-18 FRAMING PLAN
- SD-19 GIRDER ELEVATION
- SD-20 STEEL DETAILS
- SD-21 EXPANSION BEARINGS
- SD-22 FIXED BEARINGS
- SD-23 WEST ABUTMENT FOOTING
- SD-24 WEST ABUTMENT PLAN AND ELEVATION
- SD-25 WEST ABUTMENT WINGWALLS
- SD-26 WEST ABUTMENT DETAILS
- SD-27 EAST ABUTMENT FOOTING
- SD-28 EAST ABUTMENT PLAN
- SD-29 EAST ABUTMENT ELEVATION
- SD-30 EAST ABUTMENT WINGWALL
- SD-31 EAST ABUTMENT DETAILS
- SD-32 PIER 1
- SD-33 PIER 2
- SD-34 HP PILE DETAILS
- SD-35 BORING LOGS 1
- SD-36 BORING LOGS 2
- SD-37 BORING LOGS 3
- SD-38 BORING LOGS 4

TOTAL BILL OF MATERIAL

PAY ITEM NO.	ITEM	UNIT	SUPER	SUB	TOTAL
28100107	STONE RIPRAP, CLASS A4	SQ YD		524	524
28200200	FILTER FABRIC	SQ YD		524	524
50200100	STRUCTURE EXCAVATION	CU YD		265	265
50201101	COFFERDAM (TYPE 1) (LOCATION-1)	EACH		1	1
50201102	COFFERDAM (TYPE 1) (LOCATION-2)	EACH		1	1
50300100	FLOOR DRAINS	EACH	7		7
50300225	CONCRETE STRUCTURES	CU YD		263.9	263.9
50300255	CONCRETE SUPERSTRUCTURE	CU YD	269.2		269.2
50300280	CONCRETE ENCASEMENT	CU YD		18.1	18.1
50300300	PROTECTIVE COAT	SQ YD	1,232		1,232
50301350	CONCRETE SUPERSTRUCTURE (APPROACH SLAB)	CU YD	103.1		103.1
50500105	FURNISHING AND ERECTING STRUCTURAL STEEL	L SUM	0.03		0.05
50500505	STUD SHEAR CONNECTORS	EACH	6,024		6,024
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	107,820	22,790	130,610
51201800	FURNISHING STEEL PILES HP 14X73	FOOT		1,061	1,061
51201900	FURNISHING STEEL PILES HP 14X89	FOOT		608	608
51202305	DRIVING PILES	FOOT		1,669	1,669
51203800	TEST PILE STEEL HP 14X73	EACH		2	2
51203900	TEST PILE STEEL HP 14X89	EACH		2	2
51204650	PILE SHOES	EACH		51	51
51500100	NAME PLATES	EACH	1		1
52000110	PREFORMED JOINT STRIP SEAL	FOOT	88		88
52100520	ANCHOR BOLTS, 1"	EACH	72		72
58700300	CONCRETE SEALER	SQ FT		889	889
59100100	GEOCOMPOSITE WALL DRAIN	SQ YD		66	66
X5030250	BRIDGE DECK GROOVING (LONGITUDINAL)	SQ YD	433		433
X5210090	HIGH LOAD MULTI-ROTATIONAL BEARINGS, GUIDED EXPANSION, 100K	EACH	12		12
X5210110	HIGH LOAD MULTI-ROTATIONAL BEARINGS, GUIDED EXPANSION, 200K	EACH	12		12
58600101	GRANULAR BACKFILL FOR STRUCTURES	CU YD		124	124
Z0029090	DIAMOND GRINDING (BRIDGE SECTION)	SQ YD	1019		1019
Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT		90	90

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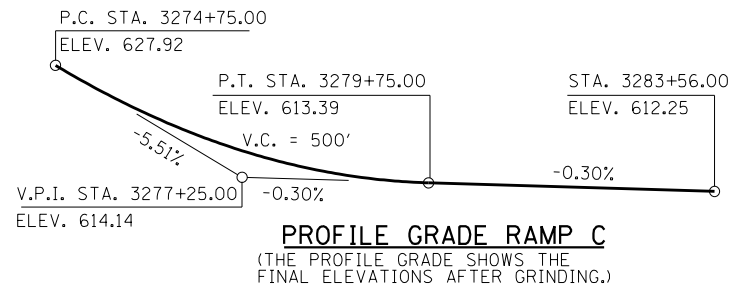
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CONTRACT I-19-4495	SHEET SD - 2 OF 38
I-57 AT 294 RAMPS C, D, AND F2 SN 016-2102 GEN. NOTES/BILL OF MATERIALS	514 OF 606

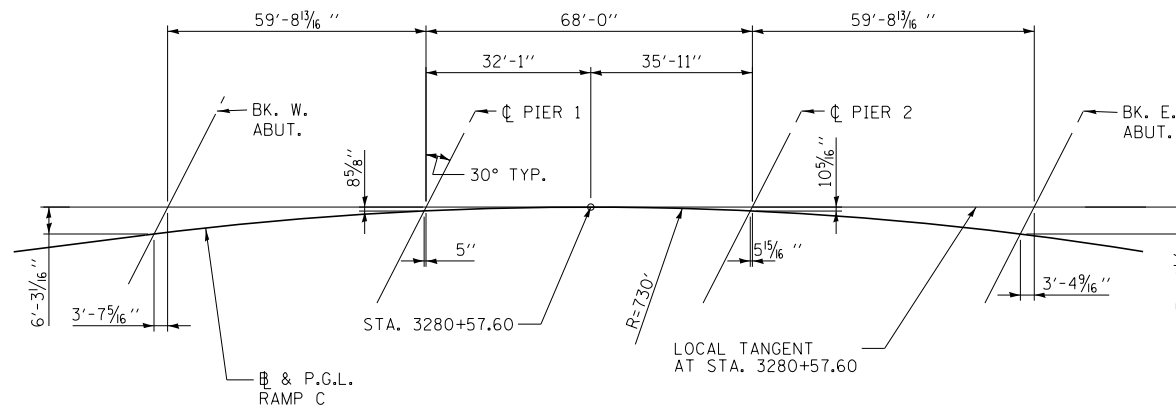


CURVE DATA

Δ = 60°47'01" RT
 D = 7°50'55"
 T = 428.15'
 L = 774.44'
 E = 116.29'
 R = 730.00'
 S.E. = 6.0% MAX.
 P.C. = STA. 3279+65.29
 P.T. = STA. 3287+39.73
 P.I. = STA. 3283+93.44

STATION 3280+59.51
 BUILT 20 BY
 ILLINOIS TOLLWAY
 F.A.I. RT. 57 SEC. 1314.4B
 LOADING HL93
 STR. NO. 016-2102

NAME PLATE



OFFSET SKETCH

WATERWAY INFORMATION

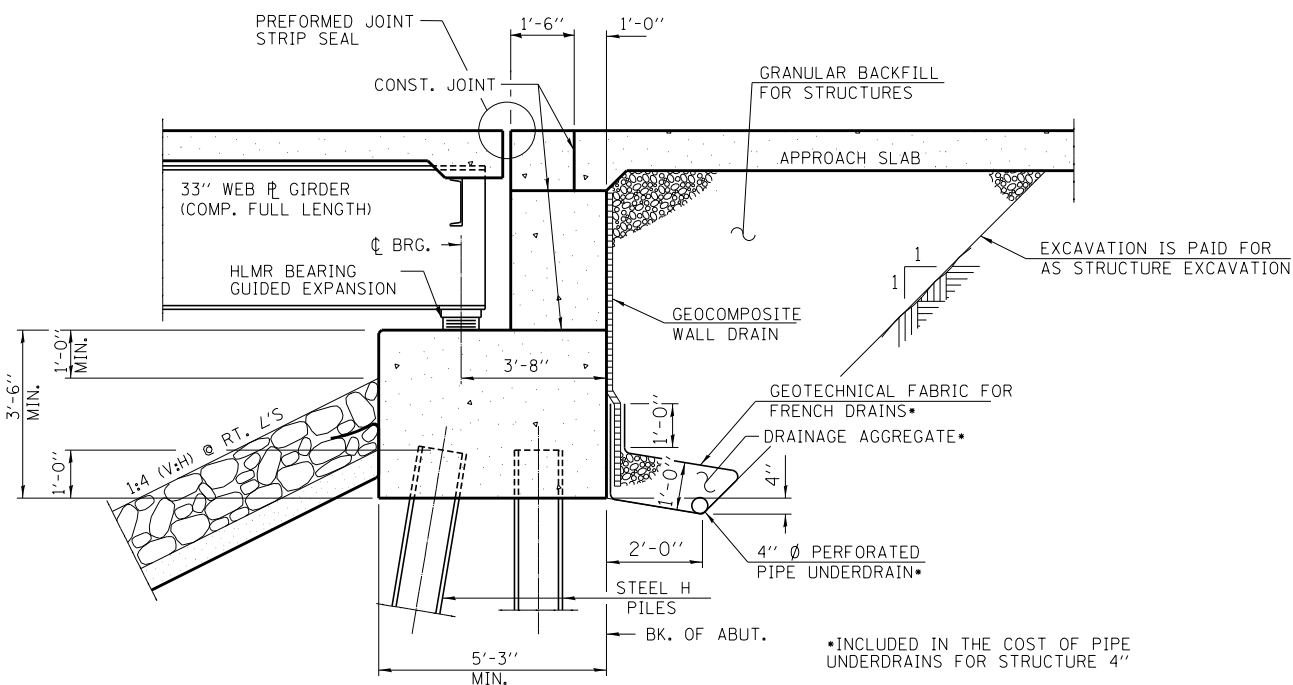
DRAINAGE AREA = 1.23 SQ. MI. LOW GRADE ELEV. 612.14 @ STA. 3284+31

FLOOD	FREQ. YR.	Q C.F.S.	OPENING EXIST.	SO. FT. PROP.	NAT. H.W.E.	HEAD - FT. EXIST.	PROP. EXIST.	HEADWATER EL. PROP.
DESIGN	10	12	-	309	605.1	-	0.0	- 605.1
BASE	50	16	-	399	606.0	-	0.0	- 606.0
OVERTOPPING	100	40	-	444	606.4	-	0.0	- 606.4
MAX. CALC.	500	126	-	508	607.0	-	0.0	- 607.0

NOTE: DIXIE CREEK HAS NO BASE FLOW.

DESIGN SCOUR ELEVATION TABLE

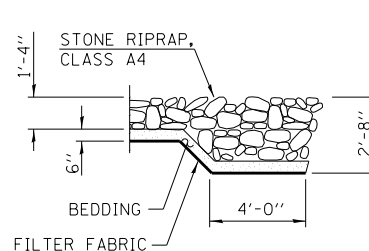
EVENT/LIMIT STATE	DESIGN SCOUR ELEVATIONS (FT.)	ITEM
	W. ABUT. PIER 1 PIER 2 E. ABUT.	
Q100	605.25 598.50 598.40 604.38	8
Q200	605.25 598.50 598.40 604.38	
DESIGN	605.25 598.50 598.40 604.38	
CHECK	605.25 598.50 598.40 604.38	



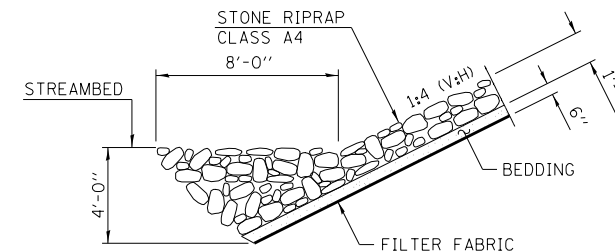
SECTION THRU PILE SUPPORTED STUB ABUTMENT
 (HORIZ. DIM. @ RT. L'S)

*INCLUDED IN THE COST OF PIPE UNDERDRAINS FOR STRUCTURE 4"

ALL DRAINAGE SYSTEM COMPONENTS SHALL EXTEND 2'-0" FROM THE END OF EACH WINGWALL EXCEPT AN OUTLET PIPE SHALL EXTEND UNTIL INTERSECTING WITH THE SIDE SLOPES. FOR LAYOUT DETAILS, SEE SHT SD-4. THE PIPES SHALL DRAIN INTO CONCRETE HEADWALLS. (SEE ARTICLE 601.05 OF THE STANDARD SPECIFICATIONS AND HIGHWAY STANDARD 601101).



SECTION B-B



SECTION A-A

DRAWN BY SP
 CHECKED BY PDF

DATE 4-9-2020
 SCALE NONE

TYLIN INTERNATIONAL

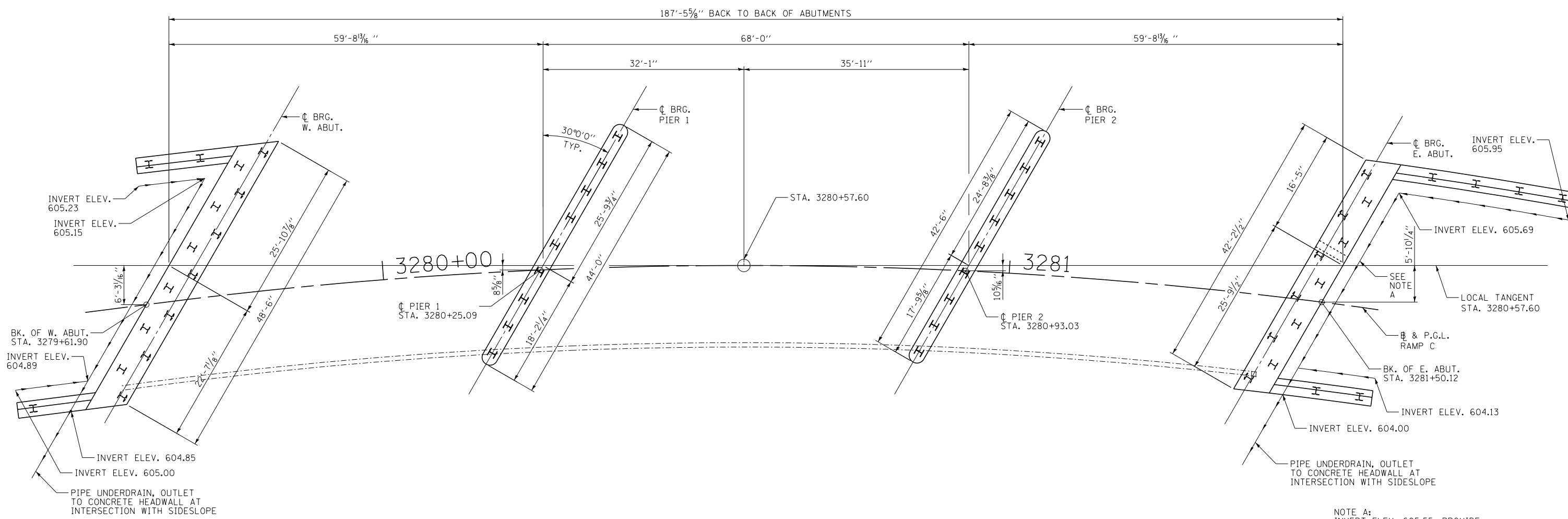


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 GENERAL DATA

SHEET SD - 3 OF 38
 515 OF 606



NOTE A:
 INVERT ELEV. 605.55. PROVIDE
 BEND IN PIPE UNDERDRAIN AT
 STEP IN FOOTING. MIN. PIPE
 SLOPE TO SOUTH WINGWALL
 0.75%.

FOOTING LAYOUT

P:\62540157-294-5-91\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_Foundation_Layout.dgn
 2/20/2020

DRAWN BY SP	DATE . 4-9-2020
CHECKED BY SP	SCALE NONE

TYLIN INTERNATIONAL

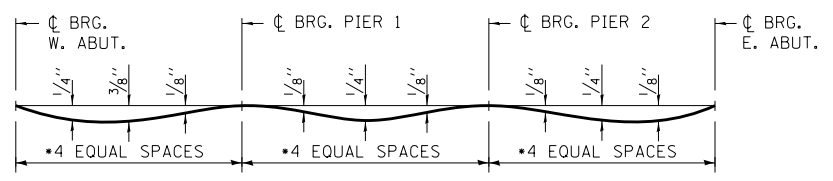
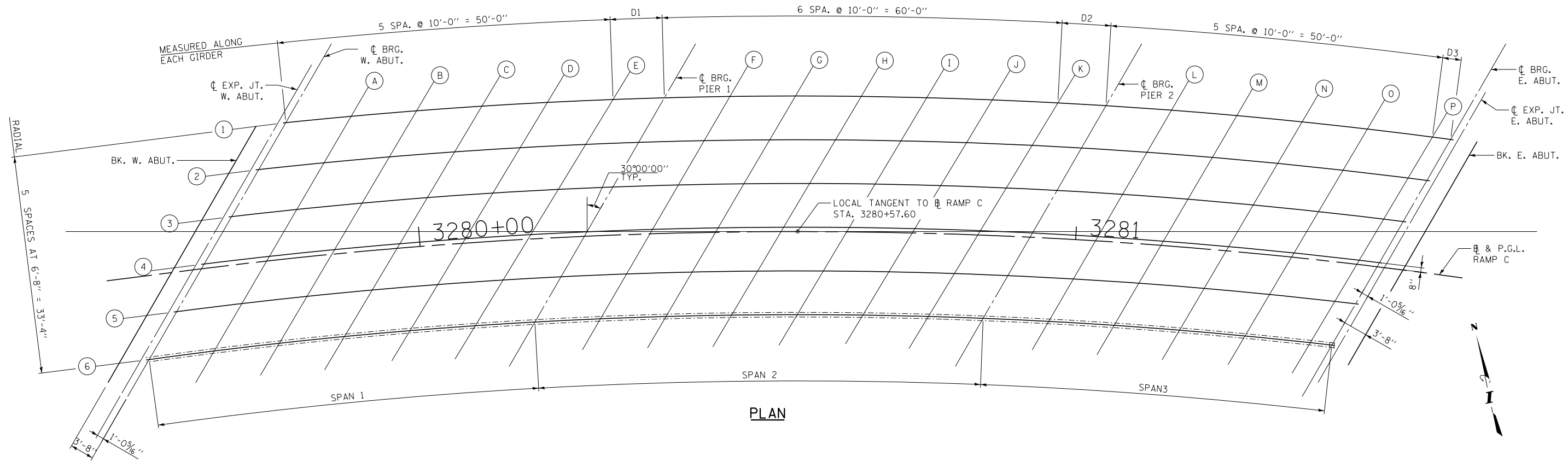


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 SUBSTRUCTURE LAYOUT

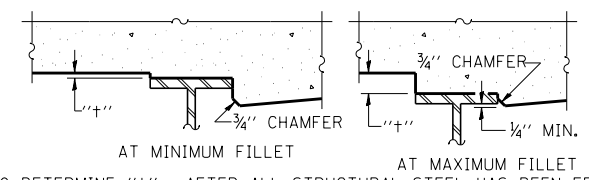
SHEET 5D - 4 OF 38
 516 OF 606



DEAD LOAD DEFLECTION DIAGRAM
(INCLUDES WEIGHT OF CONCRETE ONLY.) *SEE SHEET SD-18 OF 38 FOR SPAN DIMENSIONS

END OF SPAN DIMENSIONS

GIRDER	D1	D2	D3
1	7'-9 1/8"	7'-4 1/8"	2'-9 1/2"
2	8'-0 1/8"	7'-6 1/2"	2'-10 3/4"
3	8'-3 1/8"	7'-8 1/8"	3'-0"
4	8'-7"	7'-11 1/4"	3'-1 1/4"
P.G.L.	8'-7 1/4"	7'-11 1/2"	3'-1 3/8"
5	8'-10"	8'-1 3/4"	3'-2 1/2"
6	9'-1 1/4"	8'-4 1/4"	3'-3 3/4"



TO DETERMINE "+": AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED, ELEVATIONS OF THE TOP FLANGES OF THE BEAMS SHALL BE TAKEN AT INTERVALS SHOWN ABOVE. THESE ELEVATIONS SUBTRACTED FROM THE "THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION AND GRINDING" SHOWN ON SHTS. SD-6 & SD-7 OF 38, MINUS THE INITIAL SLAB THICKNESS PRIOR TO GRINDING, EQUALS THE FILLET HEIGHTS "+".

THE SLAB IS TO BE GROUND AFTER CURING TO ACHIEVE SMOOTHNESS, BUT THE SLAB IS NOT TO BE GROUND TO ELEVATIONS BELOW THE "THEORETICAL GRADE ELEVATIONS" SHOWN ON SHTS. SD-6 & SD-7 OF 38. FOR GRINDING THE DECK, SEE SPECIAL PROVISIONS.

FILLET HEIGHTS

NOTES:

1. THE ABOVE DEFLECTIONS ARE NOT TO BE USED IN THE FIELD IF THE ENGINEER IS WORKING FROM THE GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTIONS AND GRINDING AS SHOWN ON SHTS. SD-6 & SD-7 OF 38.
2. HORIZONTAL DIMENSIONS ARE GIVEN ALONG C OF INDIVIDUAL BEAMS.

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 CHECKED BY . . . SP SCALE NONE

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 TOP OF SLAB ELEVATION LAYOUT

GIRDER 1

Table with 5 columns: LOCATION, STATION, OFFSET, THEORETICAL GRADE ELEVATIONS, THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION AND GRINDING. Rows include BK. OF W. ABUT., EXP. JT. W. ABUT., BRG. W. ABUT., and BRG. PIER 1 through BRG. E. ABUT.

GIRDER 2

Table with 5 columns: LOCATION, STATION, OFFSET, THEORETICAL GRADE ELEVATIONS, THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION AND GRINDING. Rows include BK. OF W. ABUT., EXP. JT. W. ABUT., BRG. W. ABUT., and BRG. PIER 1 through BRG. E. ABUT.

GIRDER 3

Table with 5 columns: LOCATION, STATION, OFFSET, THEORETICAL GRADE ELEVATIONS, THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION AND GRINDING. Rows include BK. OF W. ABUT., EXP. JT. W. ABUT., BRG. W. ABUT., and BRG. PIER 1 through BRG. E. ABUT.

GIRDER 4

Table with 5 columns: LOCATION, STATION, OFFSET, THEORETICAL GRADE ELEVATIONS, THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION AND GRINDING. Rows include BK. OF W. ABUT., EXP. JT. W. ABUT., BRG. W. ABUT., and BRG. PIER 1 through BRG. E. ABUT.

B AND P.G.L.

Table with 5 columns: LOCATION, STATION, OFFSET, THEORETICAL GRADE ELEVATIONS, THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION AND GRINDING. Rows include BK. OF W. ABUT., EXP. JT. W. ABUT., BRG. W. ABUT., and BRG. PIER 1 through BRG. E. ABUT.

GIRDER 5

Table with 5 columns: LOCATION, STATION, OFFSET, THEORETICAL GRADE ELEVATIONS, THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION AND GRINDING. Rows include BK. OF W. ABUT., EXP. JT. W. ABUT., BRG. W. ABUT., and BRG. PIER 1 through BRG. E. ABUT.

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DRAWN BY CTH
CHECKED BY SP

DATE 4-9-2020
SCALE NONE

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

Table with 3 columns: NO., DATE, DESCRIPTION under the heading REVISIONS.


CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
TOP OF SLAB ELEVATION - 1

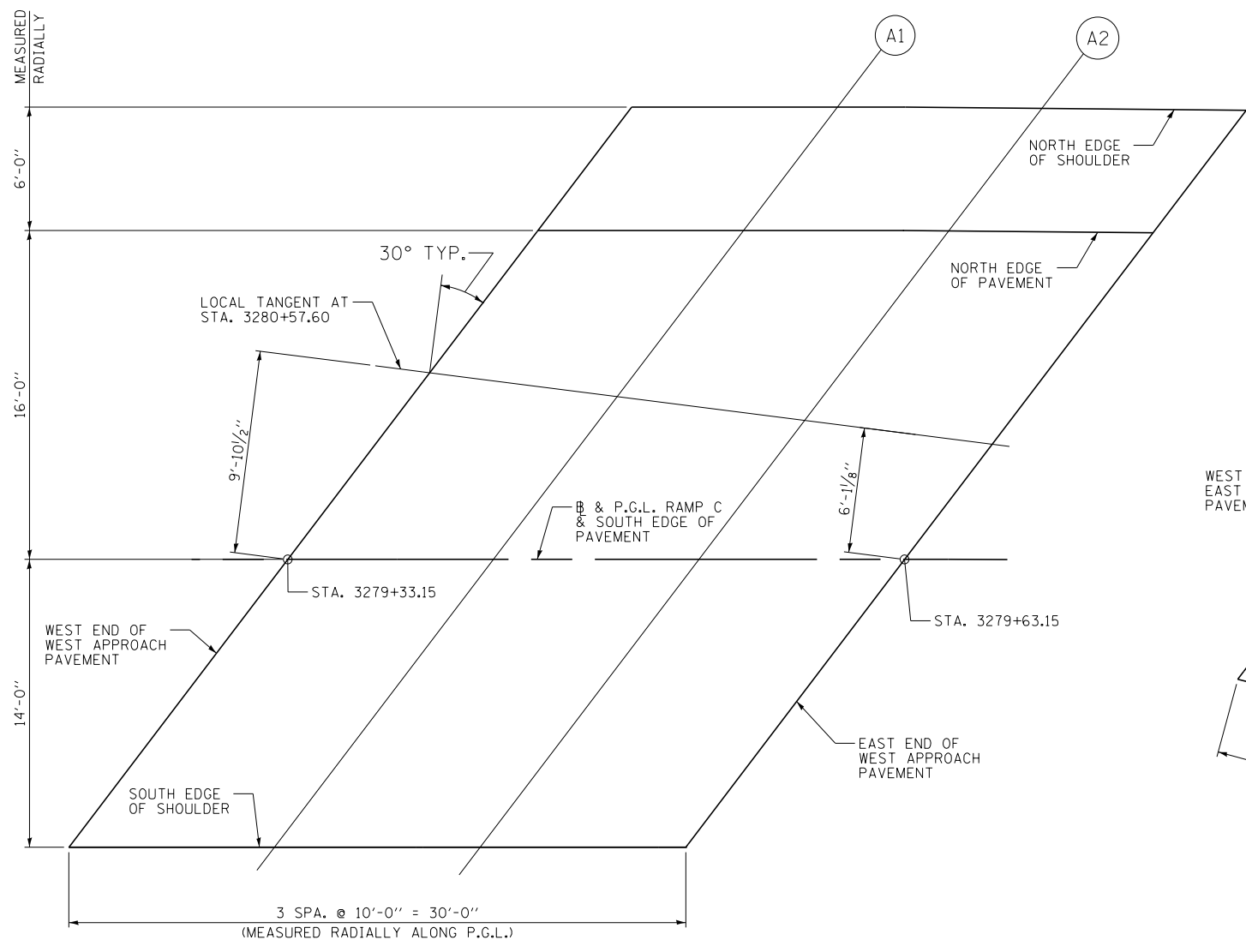
SHEET 5D - 6 OF 38
518 OF 606

GIRDER 6

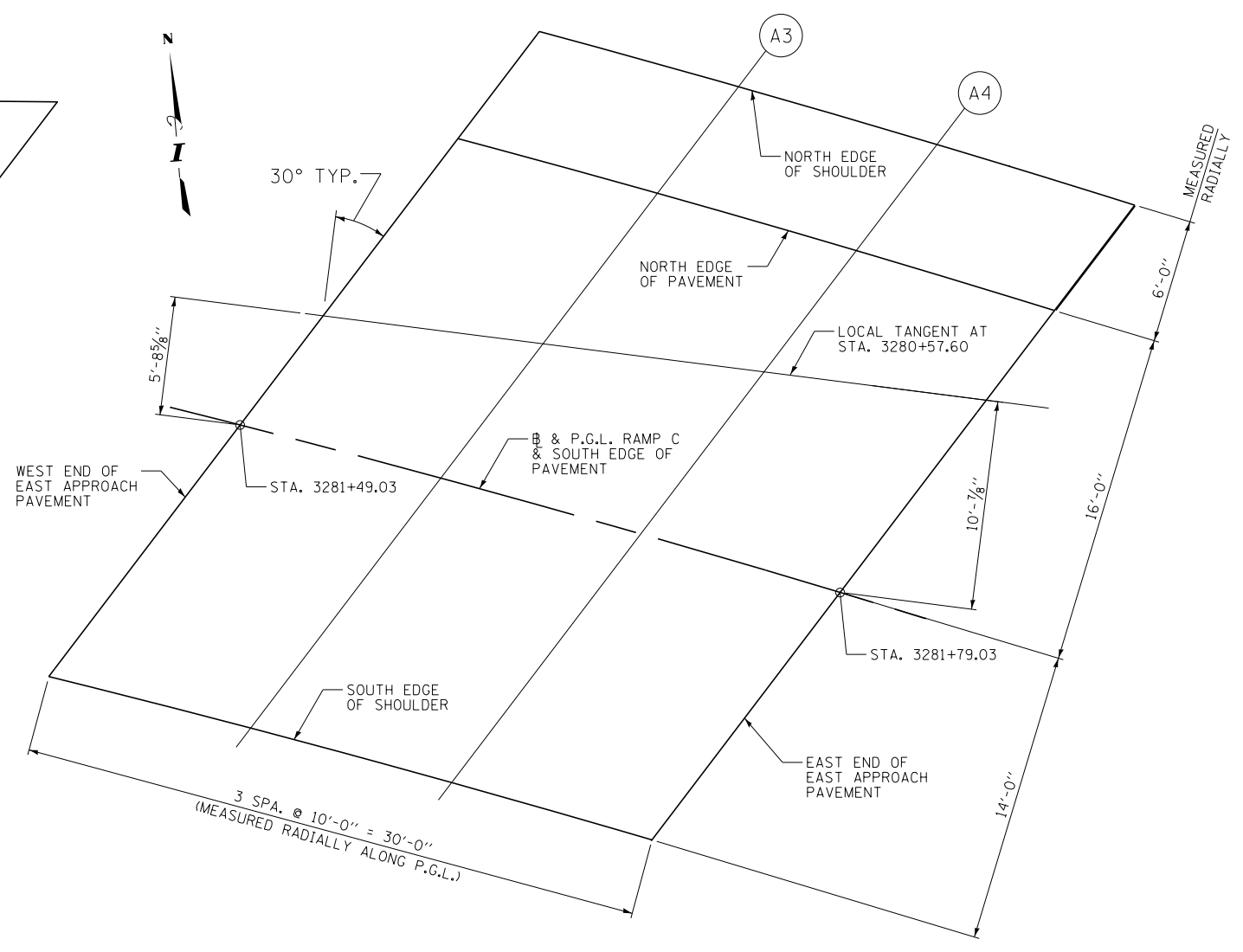
LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION AND GRINDING
BK. OF W. ABUT.	3279+52.18	12.667	613.04	613.06
EXP. JT. W. ABUT.	3279+55.36	12.667	613.01	613.03
BRG. W. ABUT.	3279+56.83	12.667	612.99	613.01
A	3279+67.01	12.667	612.90	612.94
B	3279+77.18	12.667	612.83	612.88
C	3279+87.36	12.667	612.75	612.80
D	3279+97.54	12.667	612.68	612.72
E	3280+07.72	12.667	612.61	612.63
BRG. PIER 1	3280+16.83	12.667	612.54	612.56
F	3280+27.01	12.667	612.48	612.50
G	3280+37.18	12.667	612.44	612.48
H	3280+47.36	12.667	612.41	612.46
I	3280+57.54	12.667	612.38	612.43
J	3280+67.72	12.667	612.35	612.39
K	3280+77.89	12.667	612.32	612.35
BRG. PIER 2	3280+86.39	12.667	612.30	612.32
L	3280+96.57	12.667	612.27	612.29
M	3281+06.74	12.667	612.24	612.27
N	3281+16.92	12.667	612.21	612.25
O	3281+27.10	12.667	612.18	612.21
P	3281+37.28	12.667	612.15	612.17
BRG. E. ABUT.	3281+40.64	12.667	612.14	612.16
EXP. JT. E. ABUT.	3281+41.78	12.667	612.13	612.15
BK. OF E. ABUT.	3281+44.71	12.667	612.12	612.14

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DRAWN BY CTH	DATE 4-9-2020		 THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY 2700 OGDEN AVENUE DOWNERS GROVE, ILLINOIS 60515	REVISIONS		CONTRACT I-19-4495	SHEET 5D - 7 OF 38
				NO.	DATE		
CHECKED BY SP	SCALE NONE						519 OF 606



WEST APPROACH SLAB PLAN



EAST APPROACH SLAB PLAN

NOTE:
THE SLAB IS TO BE GROUND AFTER CURING TO ACHIEVE SMOOTHNESS, BUT THE SLAB IS NOT TO BE GROUND TO ELEVATIONS BELOW THE "THEORETICAL GRADE ELEVATIONS" SHOWN ON THIS SHEET. FOR GRINDING THE SLAB, SEE SPECIAL PROVISIONS.

NORTH EDGE OF SHOULDER

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR GRINDING
W. END OF W. APPR. PAV'T.	3279+49.88	-22.00	614.26	614.29
A1	3279+59.88	-22.00	614.29	614.31
A2	3279+69.73	-22.00	614.32	614.34
E. END OF W. APPR. PAV'T.	3279+79.35	-22.00	614.36	614.38
W. END OF E. APPR. PAV'T.	3281+58.00	-22.00	614.16	614.18
A3	3281+67.66	-22.00	614.13	614.15
A4	3281+77.32	-22.00	614.11	614.13
E. END OF E. APPR. PAV'T.	3281+86.99	-22.00	614.08	614.10

NORTH EDGE OF PAVEMENT

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR GRINDING
W. END OF W. APPR. PAV'T.	3279+45.33	-16.00	614.06	614.08
A1	3279+55.33	-16.00	614.06	614.08
A2	3279+65.31	-16.00	614.07	614.09
E. END OF W. APPR. PAV'T.	3279+75.02	-16.00	614.08	614.10
W. END OF E. APPR. PAV'T.	3281+55.61	-16.00	613.81	613.83
A3	3281+65.36	-16.00	613.78	613.80
A4	3281+75.08	-16.00	613.75	613.77
E. END OF E. APPR. PAV'T.	3281+84.87	-16.00	613.72	613.74

PROFILE GRADE LINE & SOUTH EDGE OF PAVEMENT

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR GRINDING
W. END OF W. APPR. PAV'T.	3279+33.15	0.00	613.61	613.63
A1	3279+43.15	0.00	613.54	613.56
A2	3279+53.15	0.00	613.48	613.50
E. END OF W. APPR. PAV'T.	3279+63.15	0.00	613.43	613.45
W. END OF E. APPR. PAV'T.	3281+49.03	0.00	612.87	612.89
A3	3281+59.03	0.00	612.84	612.86
A4	3281+69.03	0.00	612.81	612.83
E. END OF E. APPR. PAV'T.	3281+79.03	0.00	612.78	612.80

SOUTH EDGE OF SHOULDER

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR GRINDING
W. END OF W. APPR. PAV'T.	3279+22.51	14.00	613.33	613.36
A1	3279+32.51	14.00	613.21	613.23
A2	3279+42.51	14.00	613.09	613.11
E. END OF W. APPR. PAV'T.	3279+52.51	14.00	612.99	613.01
W. END OF E. APPR. PAV'T.	3281+43.01	14.00	612.05	612.07
A3	3281+53.24	14.00	612.02	612.04
A4	3281+63.47	14.00	611.99	612.01
E. END OF E. APPR. PAV'T.	3281+73.70	14.00	611.96	611.98

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 CHECKED BY *SP* SCALE *NONE*

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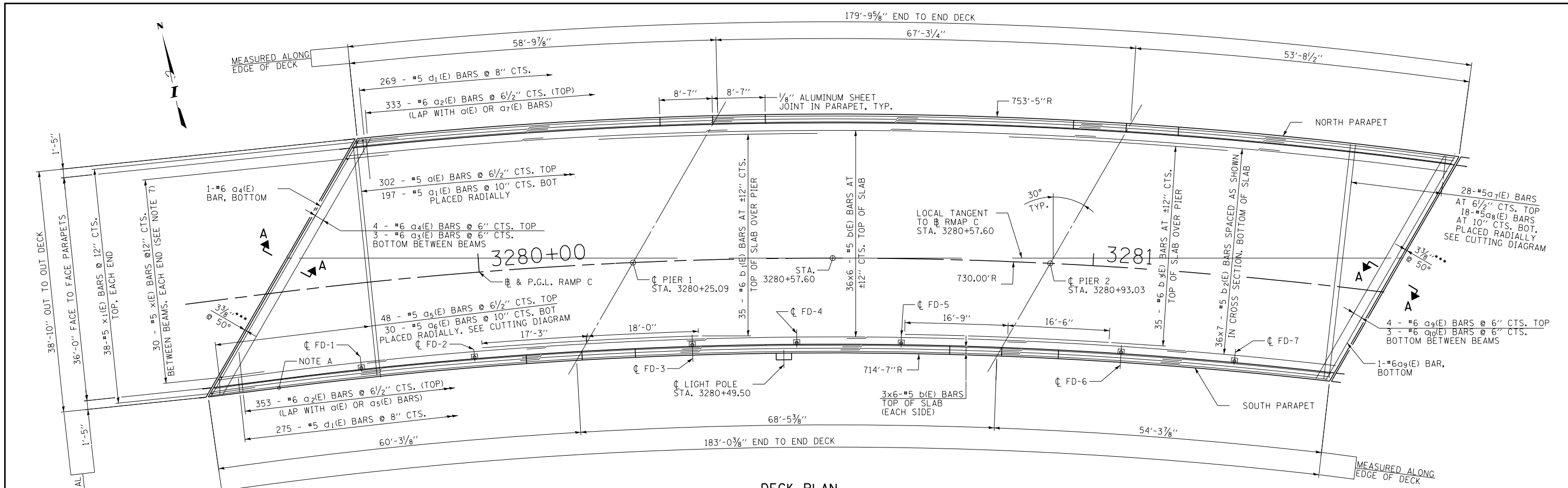


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 APPROACH SLAB ELEVATIONS

SHEET 5D - 8 OF 38
 520 OF 606



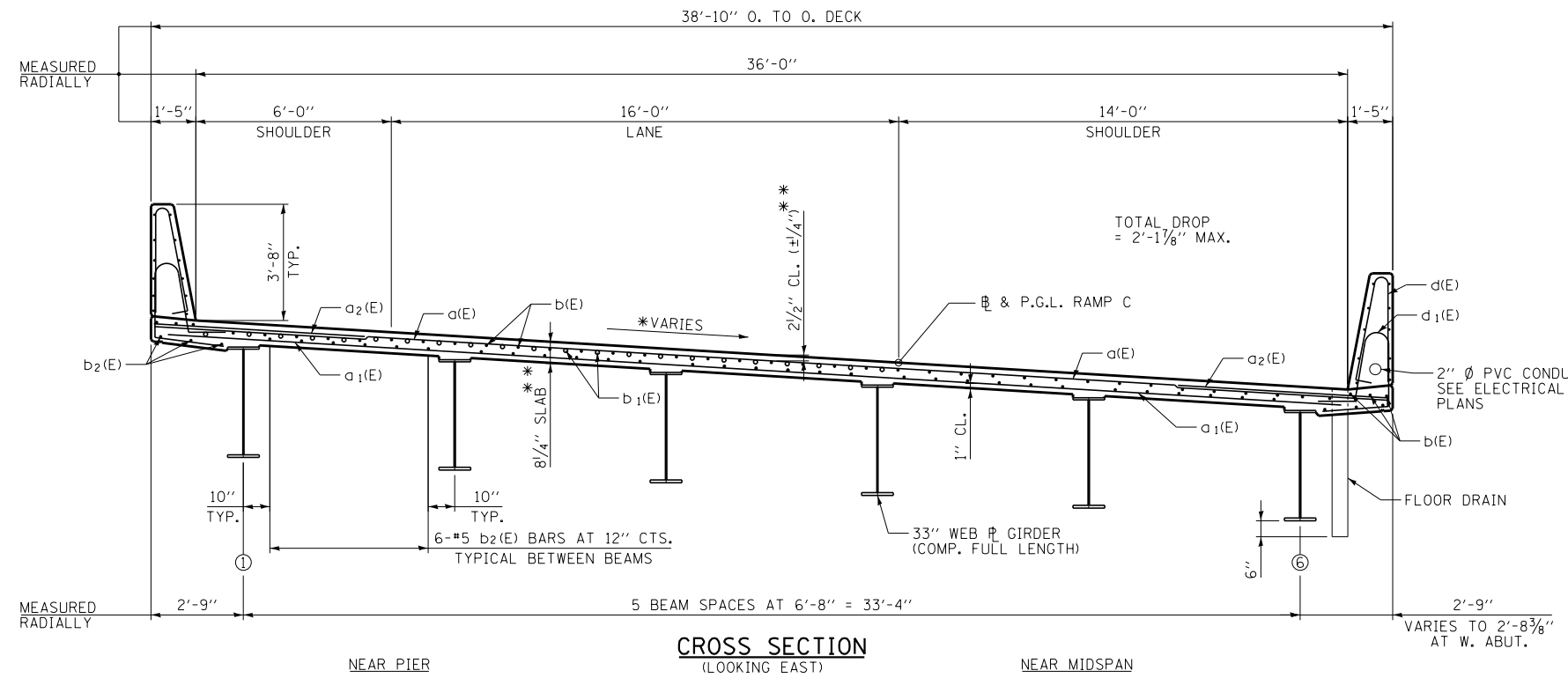
DECK PLAN

NOTE A:
P.C. STA. 279+65.29
OFFSET = 11.03' RT.

*** DIMENSION SHOWING CONCRETE
OPENING. FOR JOINT OPENING
SEE SHT SD-16 OF 38.

FLOOR DRAIN LOCATIONS

FLOOR DRAIN	STATION
FD-1	3279+79.74
FD-2	3279+98.48
FD-3	3280+34.45
FD-4	3280+51.68
FD-5	3280+68.90
FD-6	3281+05.19
FD-7	3281+23.93



CROSS SECTION
(LOOKING EAST)

* 0% AT STA. 3278+46.89 TO 6.0% AT STA. 3280+24.54
& 6.0% BEYOND.
** PRIOR TO GRINDING.

MINIMUM BAR LAP

#5 BARS = 3'-6"
#6 BARS = 3'-7"

NOTES:

- FOR SECTION A-A, SEE SHEET SD-11.
- FOR PARAPET REINFORCEMENT, SEE SHEET SD-10.
- FOR SUPERSTRUCTURE DETAILS AND BILL OF MATERIAL, SEE SHEET SD-11.
- BARS INDICATED THUS 20x3-#5 ETC. INDICATES 20 LINES OF BARS WITH 3 LENGTHS PER LINE.
- LONGITUDINAL BARS SHALL BE SPRUNG INTO PLACE TO BE CONCENTRIC WITH THE SPACING NOTED.
- TRANSVERSE BARS SHALL BE PLACED RADIALLY AT THE SPACING NOTED. THE SPACING IS MEASURED ALONG THE RIGHT EDGE OF DECK WHEN LOOKING UPSTATION.
- PLACE 6-x(E) BARS AT 12" CTS., SPACE 10" FROM BEAM C.
- FOR LIGHT POLE DETAILS SEE SHEET SD-12 OF 38.

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TYLIN INTERNATIONAL

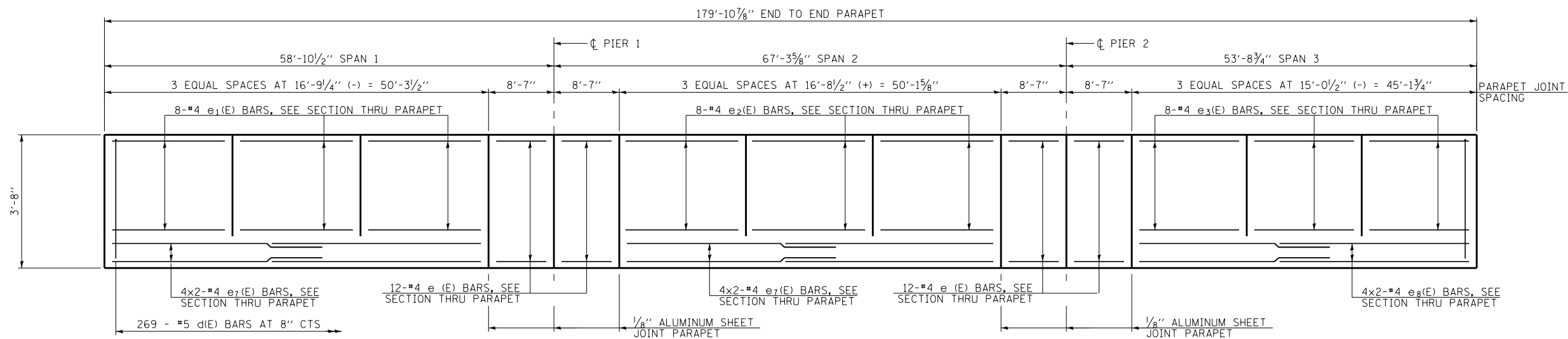


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS	
NO.	DESCRIPTION

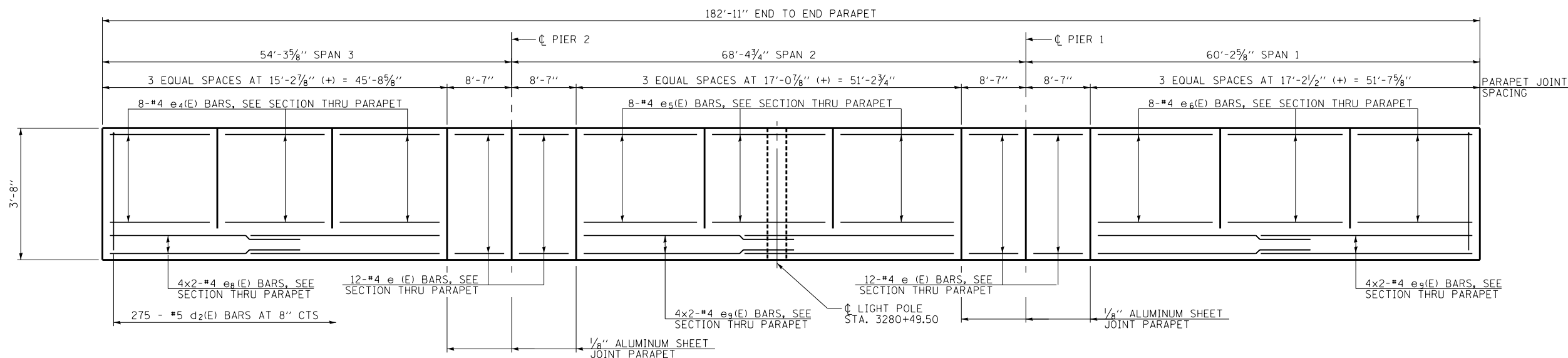
CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
DECK PLAN

SHEET SD - 9 OF 38
521 OF 606

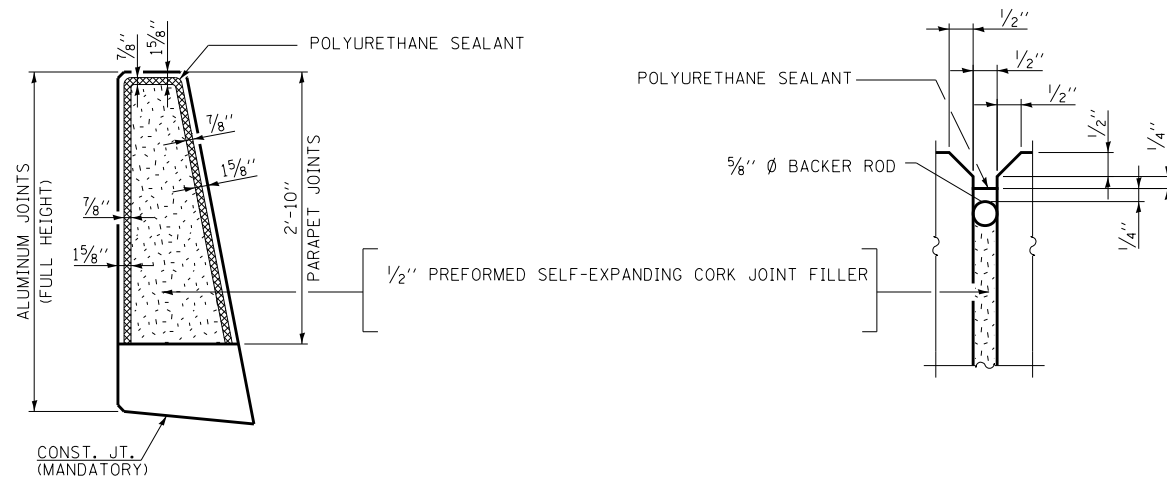


INSIDE ELEVATION OF NORTH PARAPET

MINIMUM BAR LAP
(PARAPET)
#4 BAR = 2'-5"



INSIDE ELEVATION OF SOUTH PARAPET



PARAPET JOINT DETAILS

NOTES:

THE 1/8" ALUMINUM SHEET SHALL BE ASTM B 209 ALLOY 3003-H14 AND COATED TO MINIMIZE REACTION WITH WET CONCRETE. COST INCLUDED WITH CONCRETE SUPERSTRUCTURE.

THE POLYURETHANE SEALANT SHALL BE ACCORDING TO ARTICLE 1050.04 OF THE STANDARD SPECIFICATION AND THE COLOR SHALL BE GRAY.

BAR INDICATED THUS 20x3-#5 ETC. INDICATED 20 LINES OF BARS WITH 3 LENGTHS PER LINE.

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DRAWN BY . . . CTH . . .
CHECKED BY . . . SP . . .

DATE . 4-9-2020 . . .
SCALE NONE . . .

TYLIN INTERNATIONAL

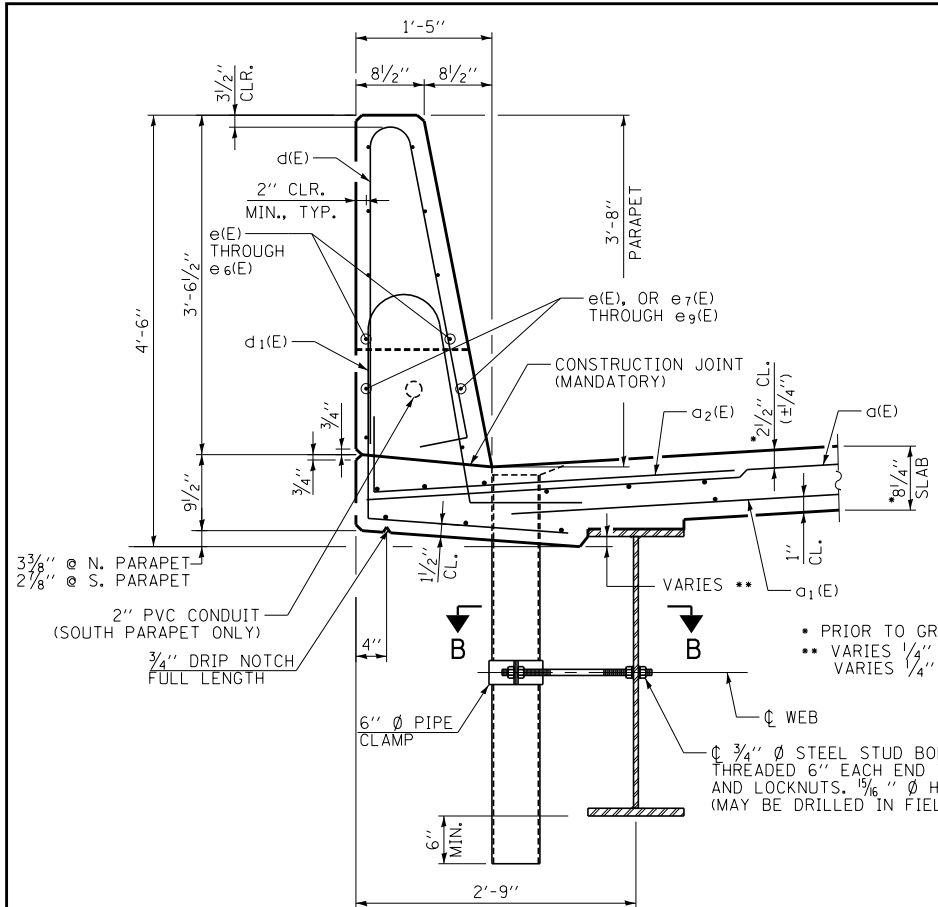


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

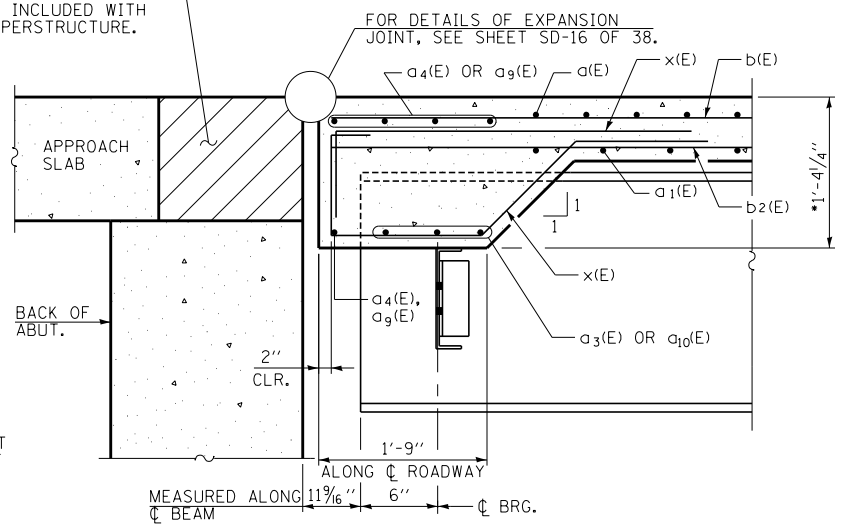
CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
PARAPET ELEVATIONS

SHEET 5D - 10 OF 38
522 OF **606**

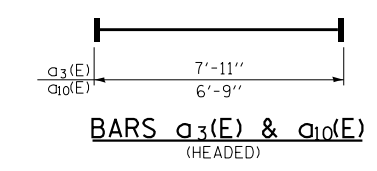


SECTION THRU PARAPET

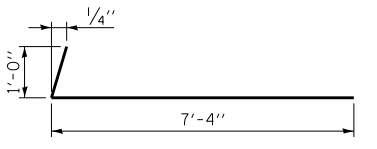
HATCHED AREA TO BE POURED AFTER SUPERSTRUCTURE FORMS HAVE BEEN REMOVED. QUANTITY OF CONCRETE INCLUDED WITH CONCRETE SUPERSTRUCTURE.



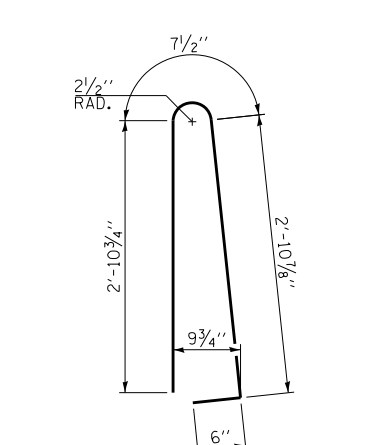
SECTION A-A (AT RIGHT ANGLES)



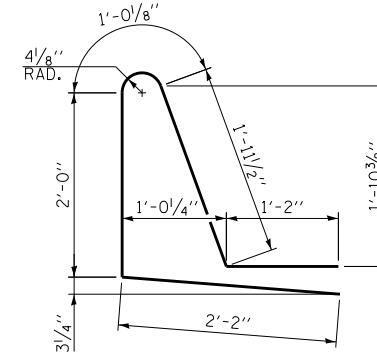
BARS a3(E) & a10(E) (HEADED)



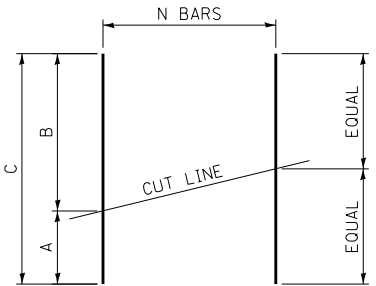
BAR a2(E)



BAR d(E)

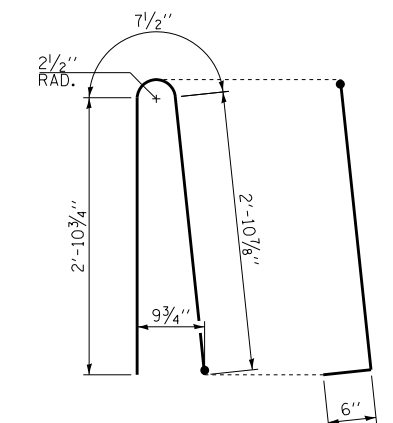


BAR d1(E)

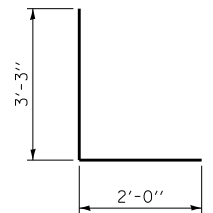


BAR CUTTING DIAGRAM

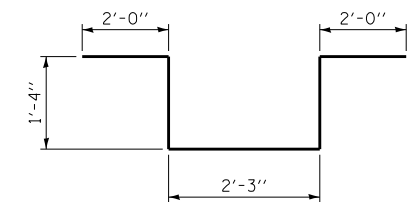
BAR	A	B	C	N
a5(E)	1'-11"	38'-1"	40'-0"	24
a6(E)	2'-6"	37'-8"	40'-2"	15
a7(E)	2'-7"	38'-10"	41'-5"	14
a8(E)	4'-2"	36'-11"	41'-1"	9



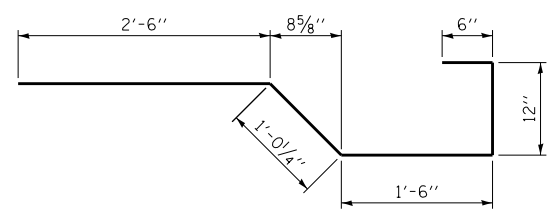
BAR d2(E)



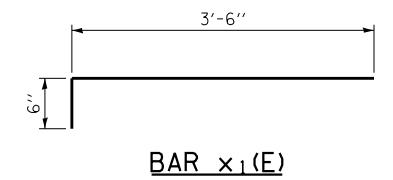
BAR d4(E)



BAR d3(E)



BAR x(E)



BAR x1(E)

BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE	
a(E)	303	#5	38'-10"	—	
a1(E)	197	#5	37'-1"	—	
a2(E)	672	#6	8'-4"	—	
a3(E)	15	#6	7'-11"	—	
a4(E)	5	#6	48'-2"	—	
a5(E)	24	#5	40'-2"	—	
a6(E)	15	#5	41'-4"	—	
a7(E)	14	#5	39'-11"	—	
a8(E)	9	#5	39'-3"	—	
a9(E)	5	#6	41'-9"	—	
a10(E)	15	#6	6'-9"	—	
b(E)	252	#5	33'-5"	—	
b1(E)	35	#6	35'-3"	—	
b2(E)	252	#5	29'-3"	—	
b3(E)	35	#6	33'-3"	—	
d(E)	269	#5	6'-11"	—	
d1(E)	544	#5	8'-4"	—	
d2(E)	275	#5	6'-11"	—	
d3(E)	6	#6	6'-3"	—	
d4(E)	3	#6	5'-3"	—	
e(E)	96	#4	8'-3"	—	
e1(E)	24	#4	16'-6"	—	
e2(E)	24	#4	16'-4"	—	
e3(E)	24	#4	14'-9"	—	
e4(E)	24	#4	15'-0"	—	
e5(E)	24	#4	16'-9"	—	
e6(E)	24	#4	17'-0"	—	
e7(E)	16	#4	26'-3"	—	
e8(E)	16	#4	24'-0"	—	
e9(E)	16	#4	27'-0"	—	
x(E)	60	#5	6'-6"	—	
x1(E)	76	#5	4'-0"	—	
CONCRETE SUPERSTRUCTURE				CU. YD.	267.3
REINFORCEMENT BARS, EPOXY COATED				POUND	62,280
BRIDGE DECK GROOVING (LONGITUDINAL)				SQ. YD.	325
DIAMOND GRINDING (BRIDGE SECTION)				SQ. YD.	648
PROTECTIVE COAT				SQ. YD.	907

NOTES:

- FIBERGLASS PIPE SHALL CONFORM TO ASTM D2296, WITH SHORT-TIME RUPTURE STRENGTH HOOP TENSILE STRESS OF 30,000 P.S.I. MINIMUM.
- THE FLOOR DRAINS NEED NOT TO BE PAINTED.
- THE TOP PORTION OF ALUMINUM FLOOR DRAINS SHALL BE COATED TO MINIMIZE REACTION WITH WET CONCRETE.
- THE CLAMPING DEVICE SHALL BE GALVANIZED ACCORDING TO AASHTO M 232. COST OF CLAMPING DEVICE INCLUDED WITH FLOOR DRAINS.
- HEADED BARS SHALL CONFORM TO ASTM A970 WITH THREADED ATTACHMENT; CLASS HA; AND REINFORCEMENT BARS CONFORMING TO ASTM A706. COST INCLUDED WITH REINFORCEMENT BARS, EPOXY COATED.
- DRAINS SHALL BE LOCATED CLEAR OF ALL DIAPHRAGMS.

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DRAWN BY	HL	DATE	4-9-2020
CHECKED BY	SP	SCALE	NONE

TYLIN INTERNATIONAL

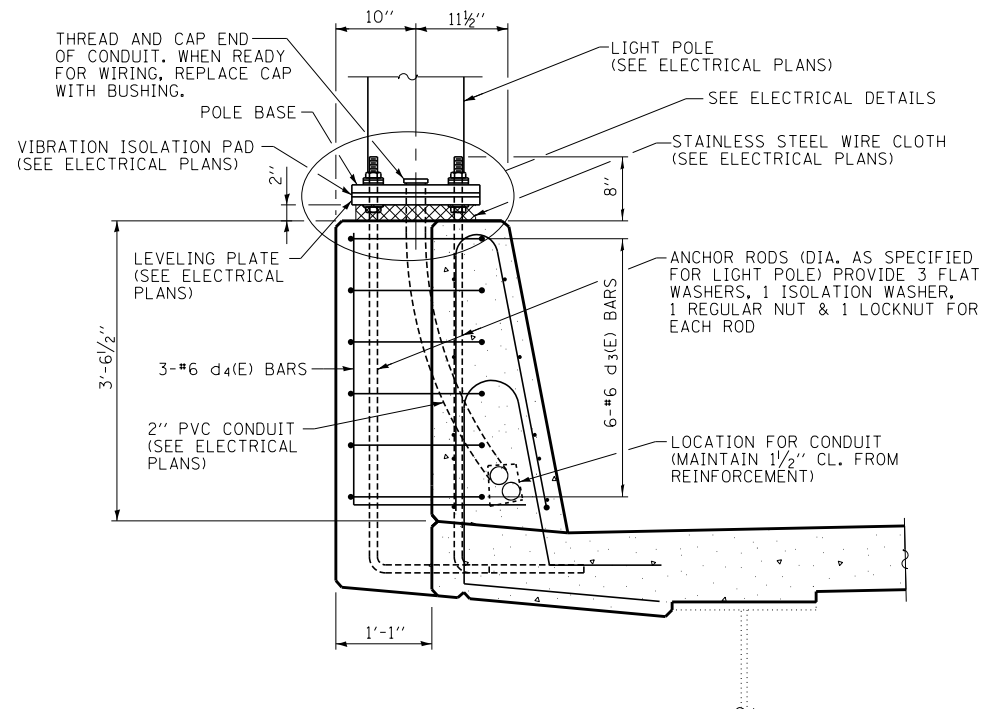


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2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

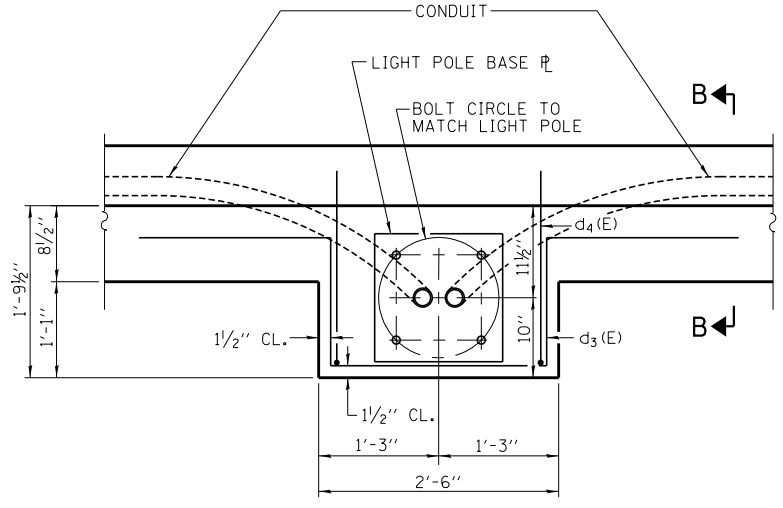
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
DECK DETAILS 1 OF 2

SHEET SD - 11 OF 38
523 OF 606

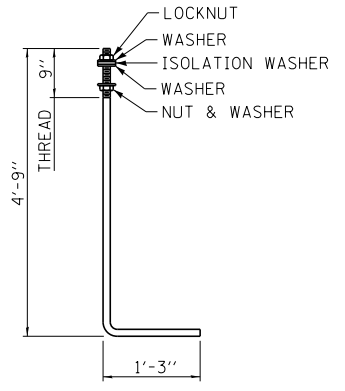


SECTION B-B



LIGHT POLE PLAN

NOTE:
COST OF ANCHOR RODS IS INCLUDED
WITH CONCRETE SUPERSTRUCTURE.



ANCHOR ROD

DIAMETER AS SPECIFIED FOR LIGHT POLES.
(ASTM F 1554 GRADE 105) FULL LENGTH
HOT DIPPED GALVANIZED.

P:\6825\0157-294-5-9\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_super-detail1.dgn 2/20/2020

DRAWN BY	DATE
CHECKED BY	SCALE

TYLIN INTERNATIONAL

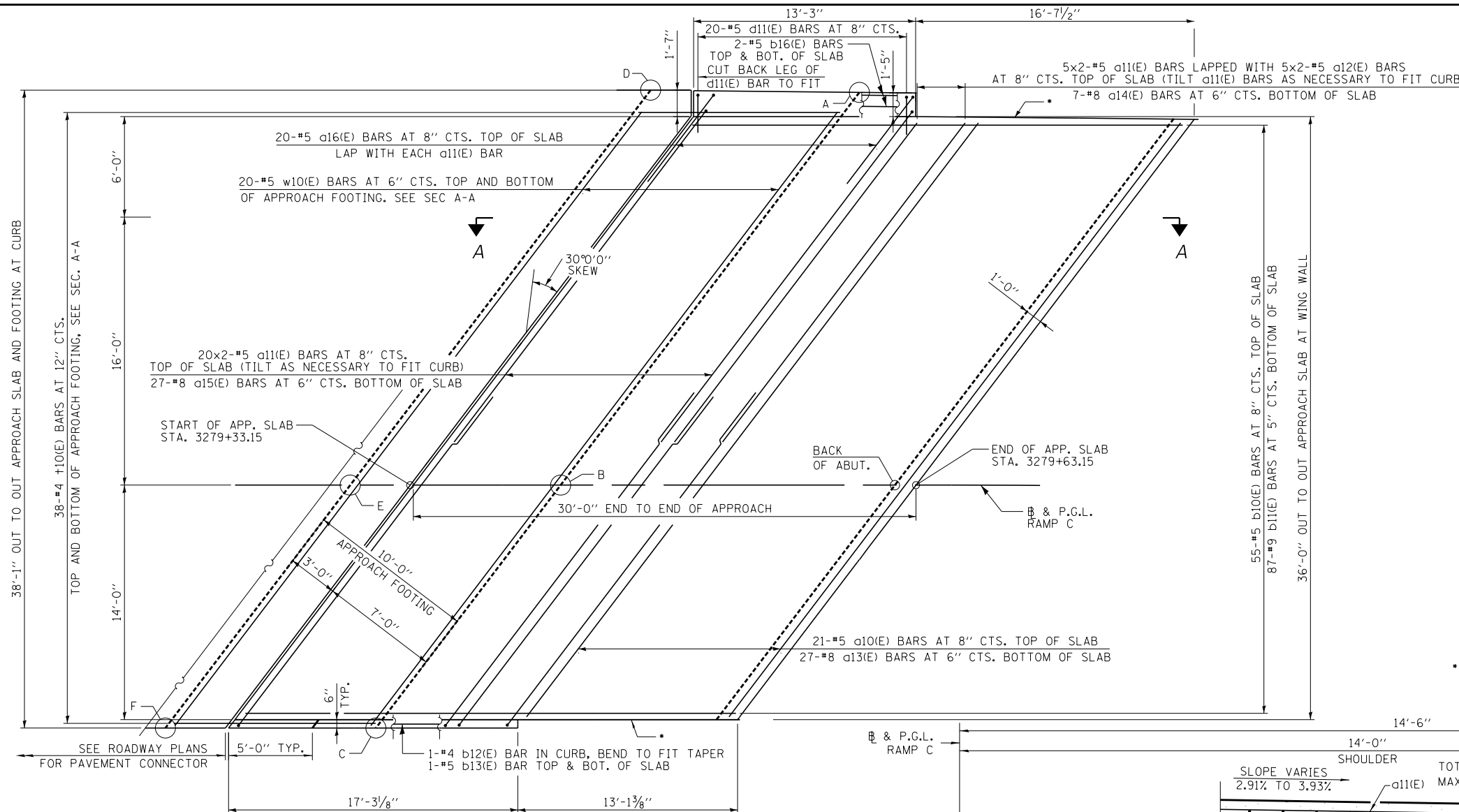


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
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NO.	DATE	DESCRIPTION

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SN 016-2102
DECK DETAILS 2 OF 2

SHEET 5D - 12 OF 38
524 OF 606



WEST APPROACH SLAB PLAN

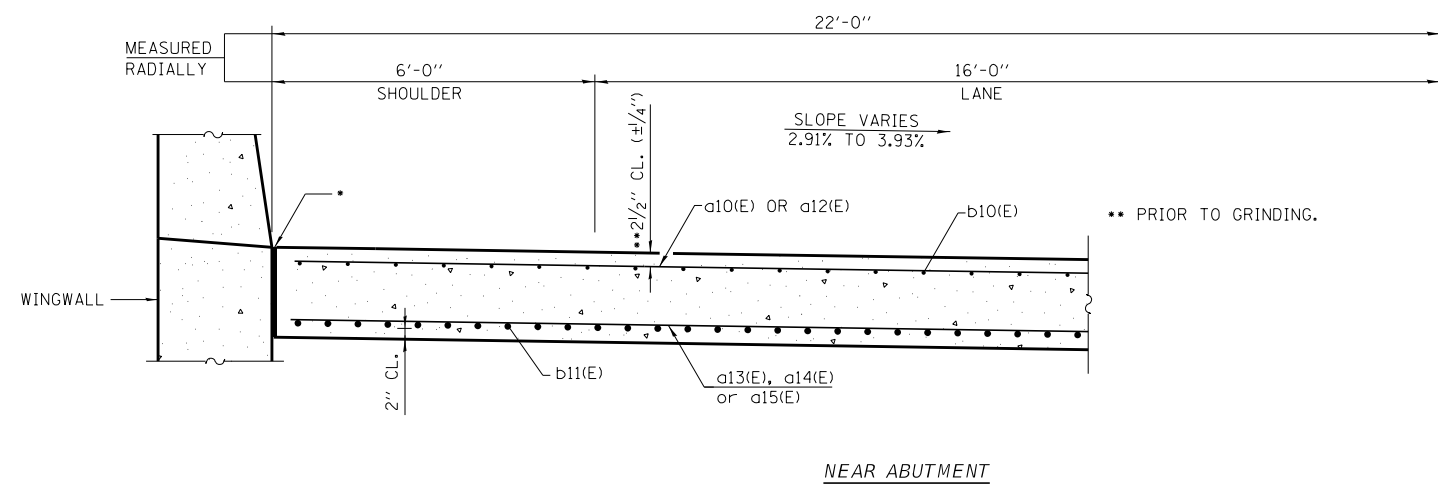
TOP AND BOTTOM ELEVATIONS FOR APPROACH FOOTING

POINT	APPROACH	
	TOP	BOTTOM
A	613.09	612.26
B	612.30	611.46
C	611.96	611.13
D	613.06	612.23
E	612.39	611.55
F	612.13	611.29

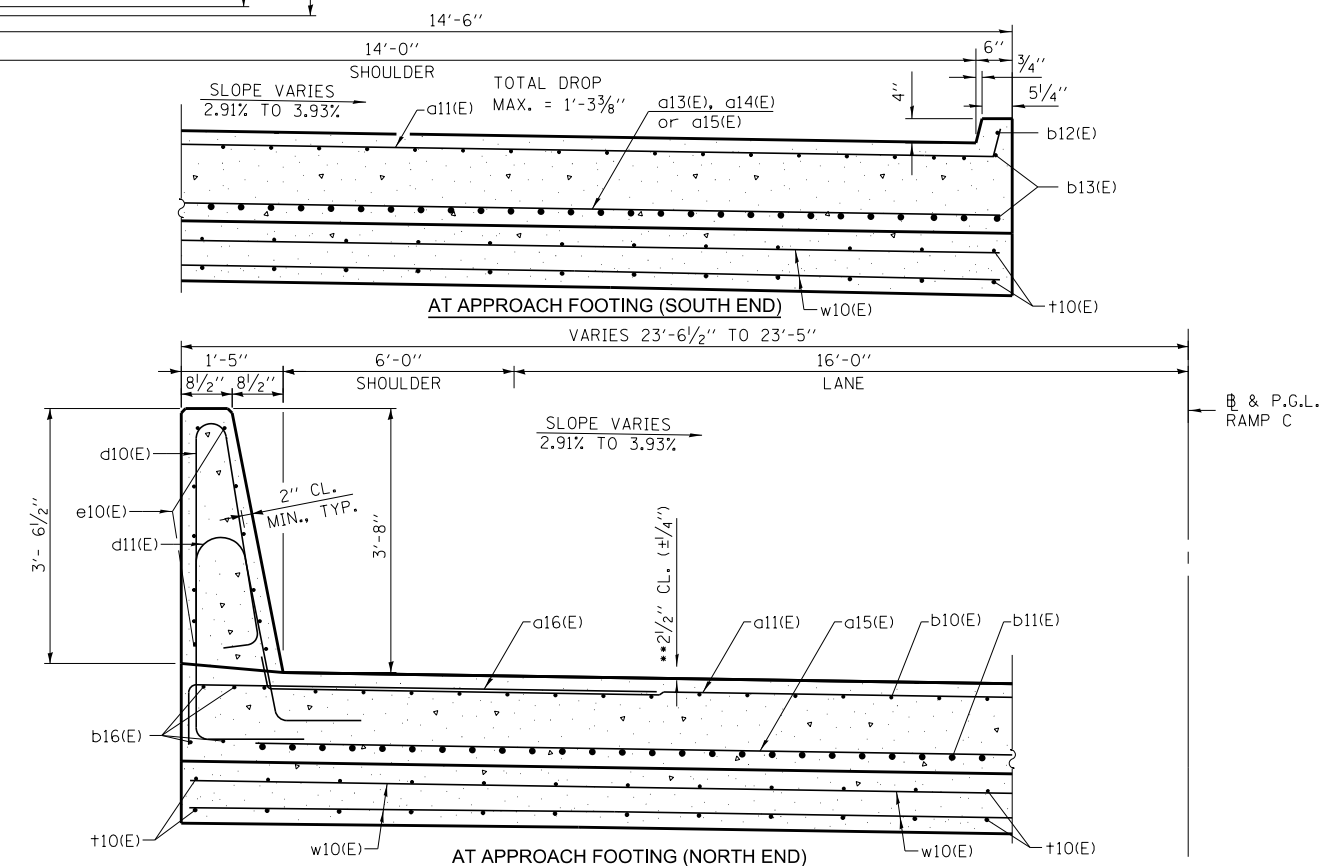
MINIMUM BAR LAP

#5 BARS = 3'-4"

• 1/2" PREFORMED EXPANSION JOINT FILLER ACCORDING TO ARTICLE 1051.09 OF THE STANDARD SPECIFICATIONS; FULL DEPTH OF SLAB, FULL LENGTH OF PARAPET. TYP. EACH PARAPET.



CROSS SECTION (LOOKING EAST)



AT APPROACH FOOTING (SOUTH END)

AT APPROACH FOOTING (NORTH END)

P:\6254017-294-5-9\STRUCTURAL\WESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5.appr.slab.west.dgn 2/20/2020

DRAWN BY CTH
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DATE 4-9-2020
SCALE NONE

TYLIN INTERNATIONAL

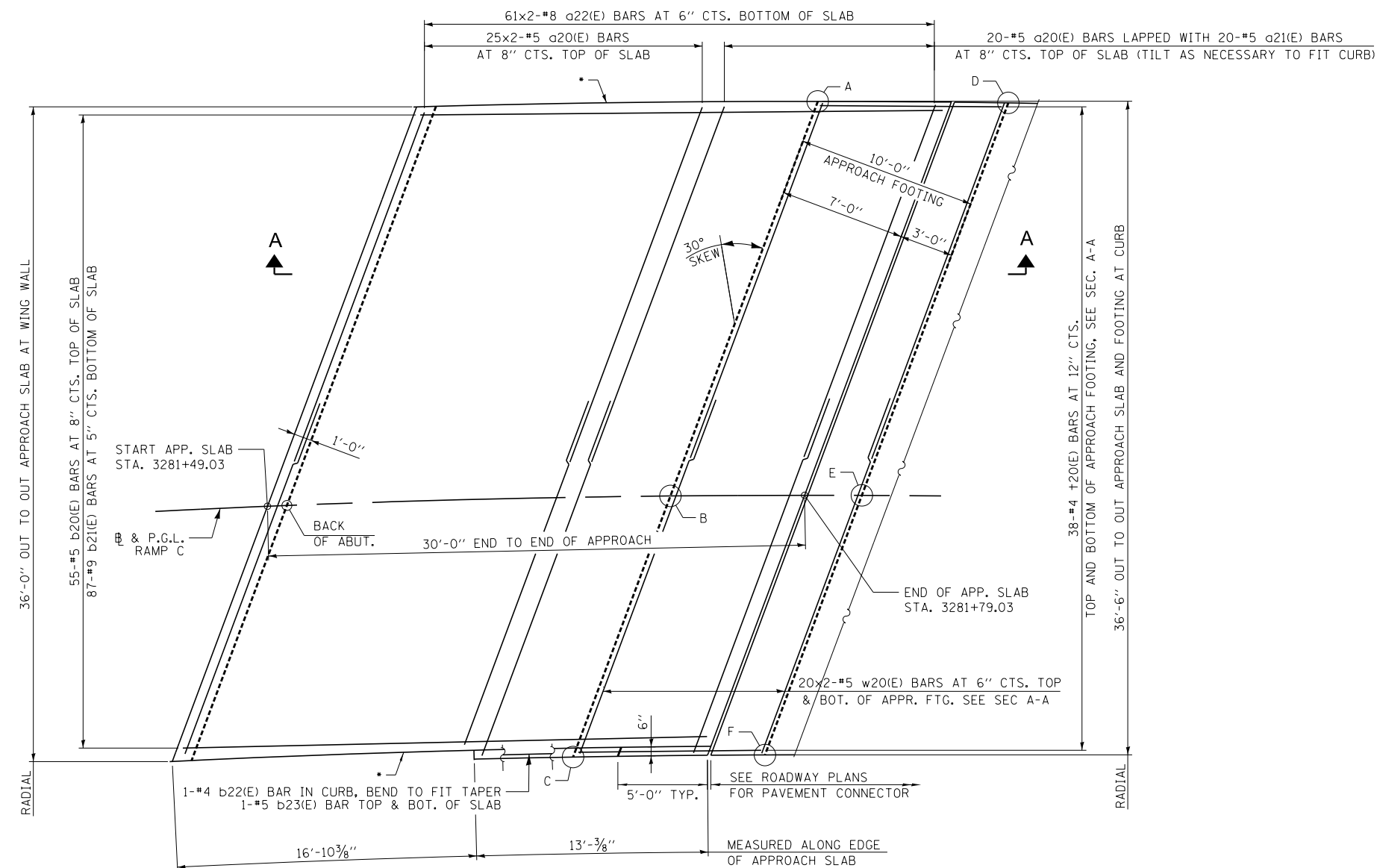


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
WEST APPROACH SLAB PLAN

SHEET 5D - 13 OF 38
525 OF 606



TOP AND BOTTOM ELEVATIONS FOR APPROACH FOOTING

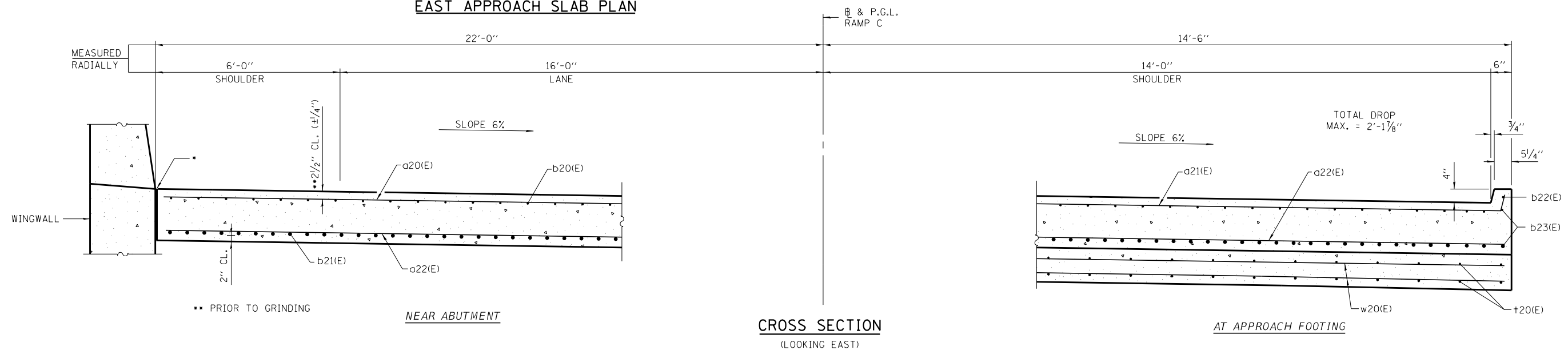
POINT	APPROACH	
	TOP	BOTTOM
A	612.85	612.01
B	611.55	610.72
C	610.70	609.87
D	612.82	611.98
E	611.52	610.69
F	610.67	609.83

MINIMUM BAR LAP

- *5 BARS = 3'-4"
- *8 BARS = 4'-9"

• 1/2" PREFORMED EXPANSION JOINT FILLER ACCORDING TO ARTICLE 1051.09 OF THE STANDARD SPECIFICATIONS; FULL DEPTH OF SLAB, FULL LENGTH OF PARAPET. TYP. EACH PARAPET.

EAST APPROACH SLAB PLAN



CROSS SECTION (LOOKING EAST)

P:\6825\017-294-5-9\STRUCTURAL\WESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_appr_slab_east.dgn 2/20/2020

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 CHECKED BY SP
 DATE 4-9-2020
 SCALE NONE

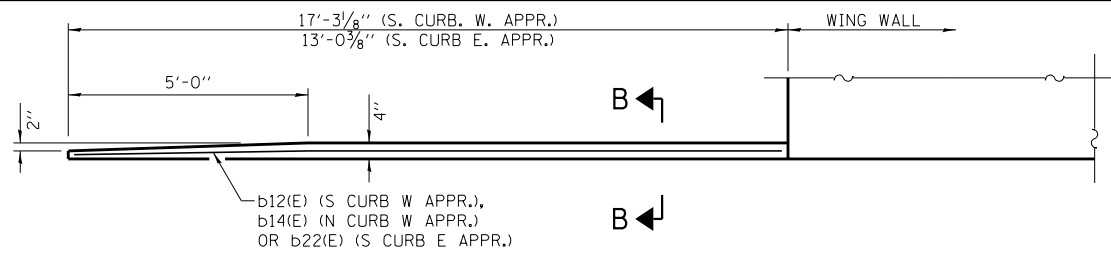
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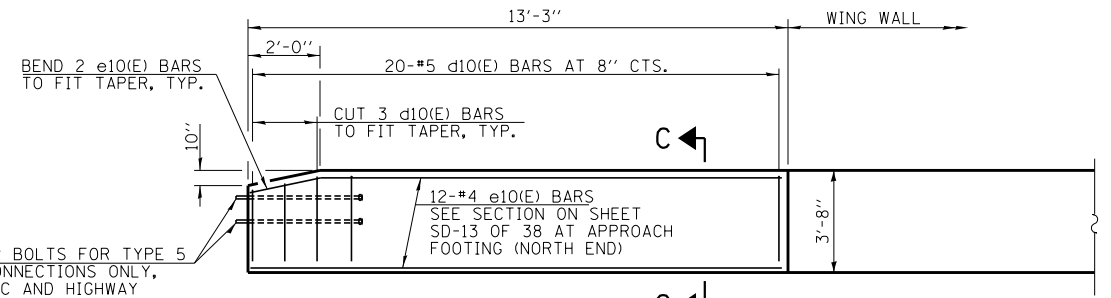
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 EAST APPROACH SLAB PLAN

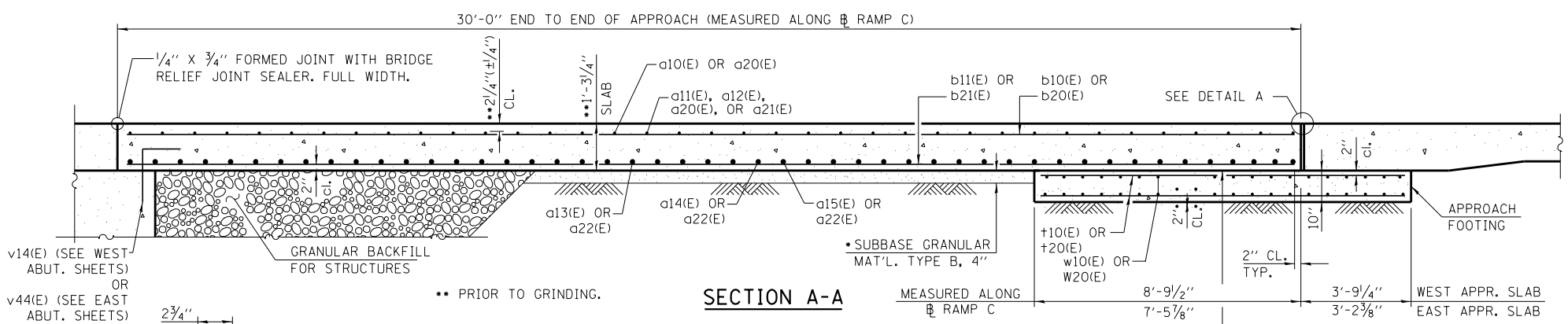
SHEET 5D - 14 OF 38
 526 OF 606



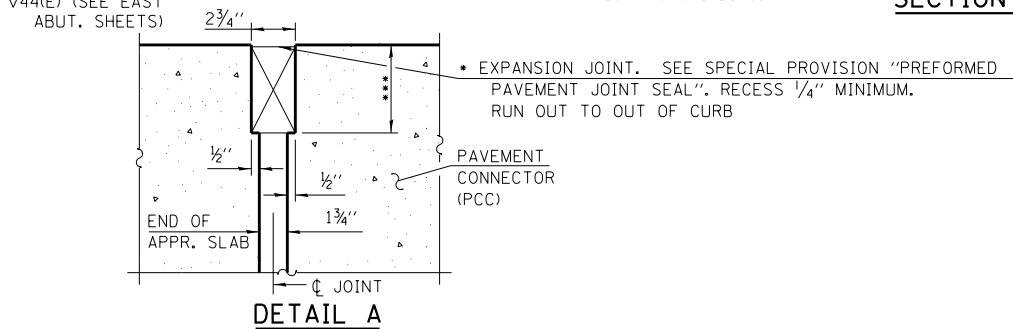
INSIDE ELEVATION OF WING WALL AND CURB
SOUTH CURB OF WEST APPROACH ORIENTATION IS REVERSED



INSIDE ELEVATION OF PARAPET AND WING WALL

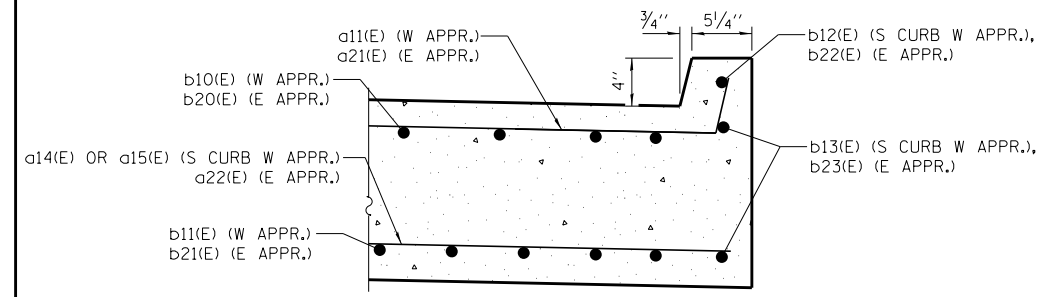


SECTION A-A

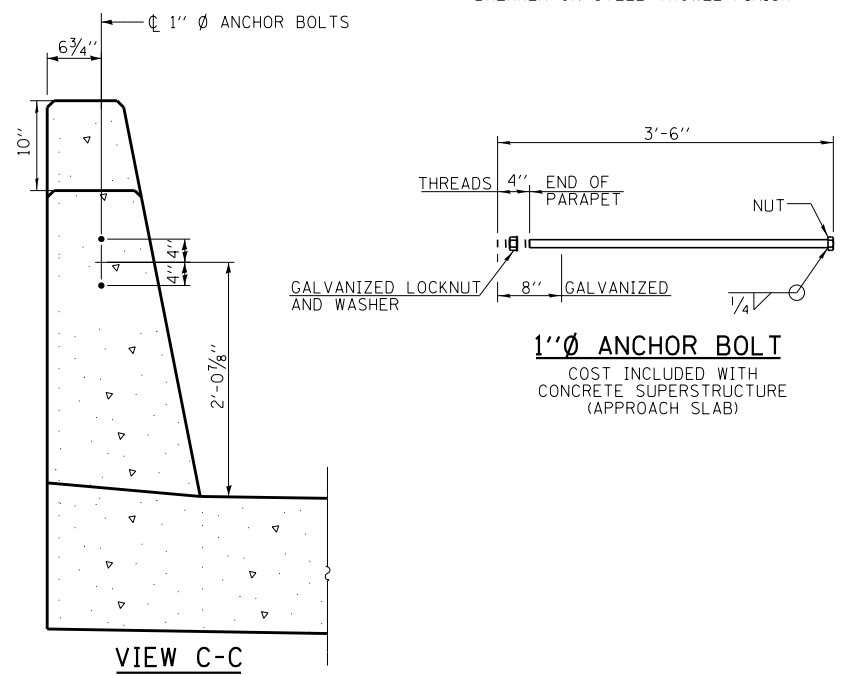


DETAIL A

(DETAIL A SHOWN, APPLIES TO HIGHWAY STANDARD 420401 ONLY. DETAIL A FOR PAVEMENT CONNECTOR (HMA) MAY BE FOUND ON HIGHWAY STANDARD 420406.)

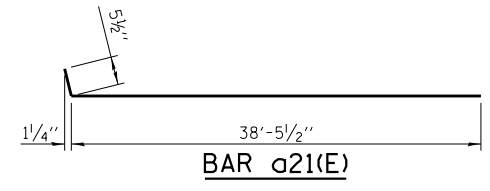


SECTION B-B

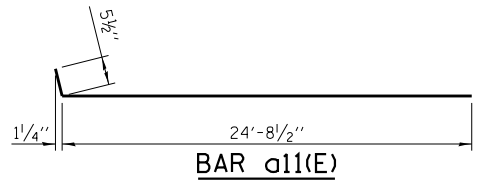


VIEW C-C

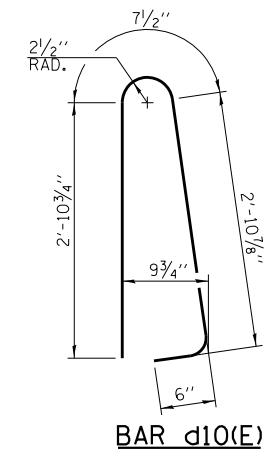
NOTES:
PARAPET CONCRETE SHALL BE PAID FOR AS CONCRETE SUPERSTRUCTURE.
APPROACH SLAB SHALL BE PAID FOR AS CONCRETE SUPERSTRUCTURE (APPROACH SLAB).
APPROACH FOOTING CONCRETE SHALL BE PAID FOR AS CONCRETE STRUCTURES.
THE APPROACH FOOTING MAXIMUM APPLIED SERVICE BEARING PRESSURE (OMAX) = 2.0 KSF.
COST OF EXCAVATION FOR APPROACH FOOTING INCLUDED WITH CONCRETE STRUCTURES.
FOR GRANULAR BACKFILL FOR STRUCTURES AND DRAINAGE TREATMENT DETAILS, SEE SHEET SD-3 OF 38.



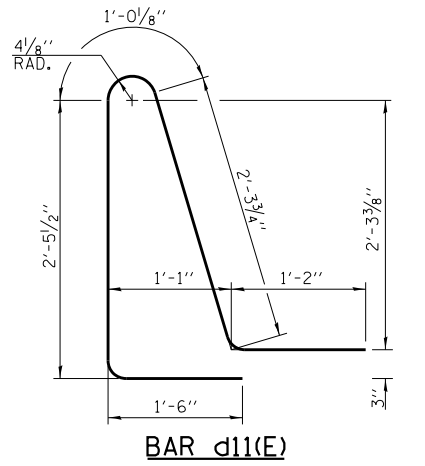
BAR a21(E)



BAR a11(E)



BAR d10(E)



BAR d11(E)

WEST APPROACH BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
a10(E)	21	#5	44'-8"	—
a11(E)	50	#5	25'-2"	—
a12(E)	10	#5	25'-2"	—
a13(E)	27	#8	44'-8"	—
a14(E)	7	#8	45'-6"	—
a15(E)	27	#8	46'-1"	—
a16(E)	20	#5	8'-4"	—
b10(E)	55	#5	29'-8"	—
b11(E)	87	#9	29'-8"	—
b12(E)	1	#4	16'-11"	—
b13(E)	2	#5	16'-11"	—
b16(E)	4	#5	12'-11"	—
d10(E)	20	5	6'-11"	—
d11(E)	20	5	8'-6"	—
e10(E)	12	4	12'-11"	—
+10(E)	76	#4	12'-2"	—
w10(E)	40	#5	46'-1"	—
CONCRETE SUPERSTRUCTURE (APPROACH SLAB)		CU. YD.	51.8	
CONCRETE SUPERSTRUCTURES		CU. YD.	1.9	
CONCRETE STRUCTURES		CU. YD.	14.8	
PROTECTIVE COAT		SO. YD.	172	
REINFORCEMENT BARS, EPOXY COATED		POUND	23,670	
DIAMOND GRINDING (BRIDGE SECTION)****		SO. YD.	201	
BRIDGE DECK GROOVING (LONGITUDINAL)		SO. YD.	54	

**** INCLUDES THE AREA FOR THE APPROACH PAVEMENT CONNECTOR.

EAST APPROACH BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
a20(E)	70	#5	20'-11"	—
a21(E)	20	#5	21'-3"	—
a22(E)	122	#8	21'-10"	—
b20(E)	55	#5	29'-8"	—
b21(E)	87	#9	29'-8"	—
b22(E)	1	#4	12'-8"	—
b23(E)	2	#5	12'-8"	—
+20(E)	76	#4	10'-4"	—
w20(E)	80	#5	20'-11"	—
CONCRETE SUPERSTRUCTURE (APPROACH SLAB)		CU. YD.	51.3	
CONCRETE STRUCTURES		CU. YD.	12.1	
PROTECTIVE COAT		SO. YD.	153	
REINFORCEMENT BARS, EPOXY COATED		POUND	21,870	
DIAMOND GRINDING (BRIDGE SECTION)****		SO. YD.	170	
BRIDGE DECK GROOVING (LONGITUDINAL)		SO. YD.	54	

**** INCLUDES THE AREA FOR THE APPROACH PAVEMENT CONNECTOR. DOES NOT INCLUDE ADJACENT ANCHORAGE SLAB (S.N. 016-2202).

P:\62540157-294-5-9\STRUCTURAL WEST\RT-2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_appr_slabs_detail.dgn 2/20/2020

DRAWN BY CTH
DATE 4-9-2020
CHECKED BY SP
SCALE NONE

TYLIN INTERNATIONAL

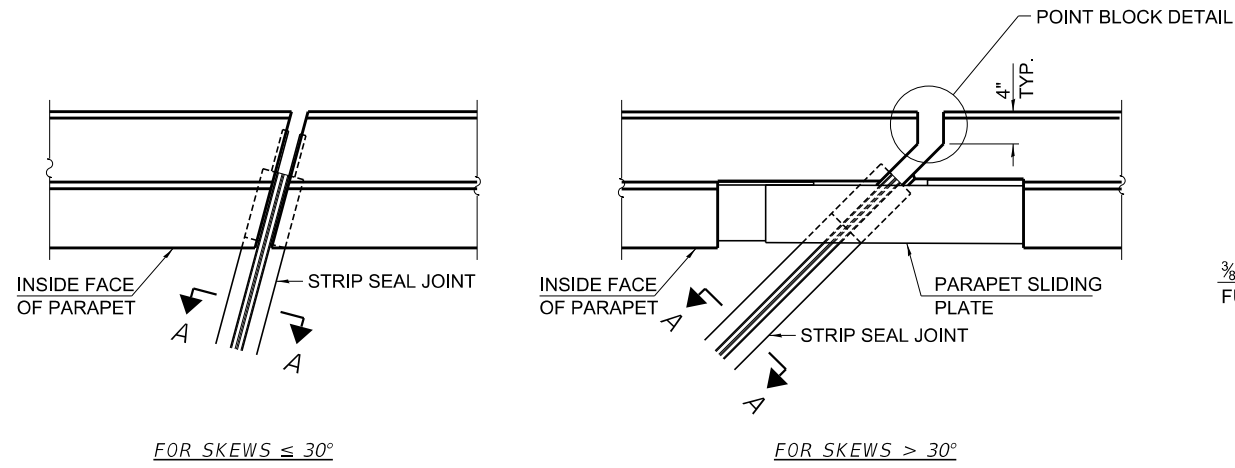


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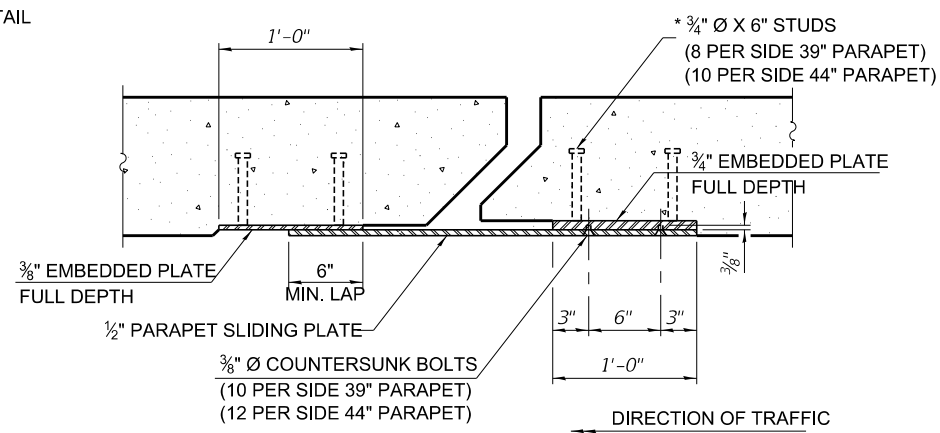
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
APPROACH SLAB DETAILS

SHEET SD - 15 OF 38
527 OF 606

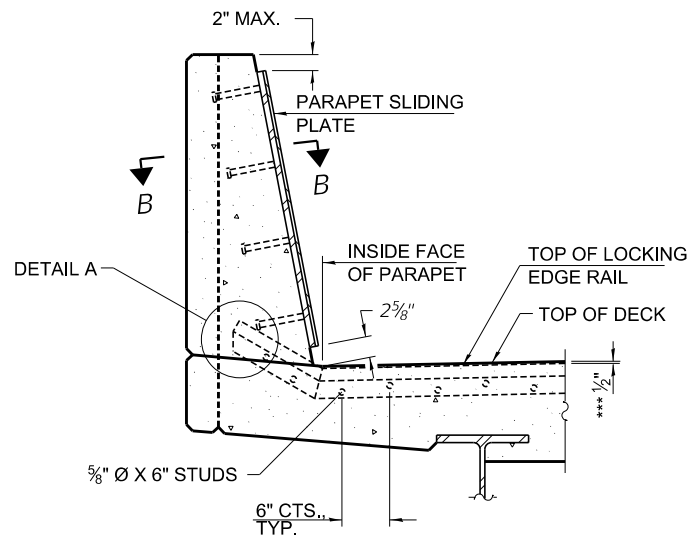


PLAN AT PARAPET



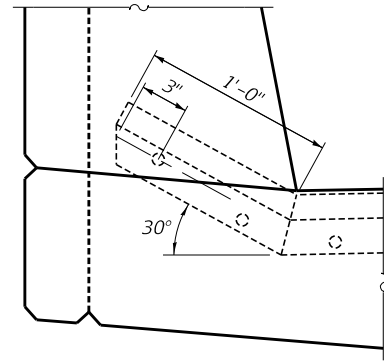
SECTION B-B

NOTES:
 THE STRIP SEAL SHALL BE MADE CONTINUOUS AND SHALL HAVE A MINIMUM THICKNESS OF 1/4". THE CONFIGURATION OF THE STRIP SEAL SHALL MATCH THE CONFIGURATION OF THE LOCKING EDGE RAILS. OPEN OR "WEBBED" STRIP SEAL GLAND CONFIGURATIONS ARE NOT PERMITTED. THE GLAND SHALL BE SIZED FOR A MAXIMUM RATED MOVEMENT OF 4 INCHES.
 THE LOCKING EDGE RAILS DEPICTED ARE CONFIGURED FOR TYPICAL APPLICATIONS AND ARE CONCEPTUAL ONLY. THE ACTUAL CONFIGURATION OF THE LOCKING EDGE RAILS AND MATCHING STRIP SEAL MAY VARY FROM MANUFACTURER TO MANUFACTURER PROVIDED THEY FIT THE APPLICATION AND MEET THE MINIMUM ANCHORAGE SHOWN. FLANGED EDGE RAILS, HOWEVER, WILL NOT BE ALLOWED. LOCKING EDGE RAILS MAY EXCEED THE 4 1/2" MAXIMUM DEPTH PROVIDED THE ANCHORAGE SYSTEM IS REVISED ACCORDING TO THE MANUFACTURER'S RECOMMENDATION.
 THE MANUFACTURER'S RECOMMENDED INSTALLATION METHODS SHALL BE FOLLOWED.
 ALL STEEL COMPONENTS SHALL BE GALVANIZED AFTER FABRICATION ACCORDING TO ARTICLE 520.03 OF THE STANDARD SPECIFICATIONS.
 THE MAXIMUM SPACE BETWEEN LOCKING EDGE RAIL SEGMENTS SHALL BE 3/16" AND SEALED WITH A SUITABLE SEALANT; HOWEVER, ANY RAIL JOINT WITHIN 10' MEASURED PERPENDICULAR TO THE FACE OF THE CURB OR PARAPET SHALL BE WELDED AS SHOWN IN THE LOCKING EDGE RAIL SPLICE DETAIL.
 COST OF PARAPET SLIDING PLATES, EMBEDDED PLATES, ANCHORAGE STUDS INCLUDED WITH PREFORMED JOINT STRIP SEAL.
 39' CONSTANT SLOPE BARRIER SHOWN, 44' CONSTANT SLOPE BARRIER SIMILAR AS NOTED.
 THE CONCRETE OPENING BELOW THE STRIP SEAL WILL VARY BASED ON THE LOCKING EDGE RAIL CHOSEN BY THE CONTRACTOR. DECK AND PARAPET LENGTHS SHOWN ELSEWHERE IN THE PLANS ARE DIMENSIONED TO THE CONCRETE OPENING, NOT THE JOINT OPENING, AND ARE BASED ON THE ROLLED LOCKING EDGE RAIL. IF THE CONTRACTOR ELECTS TO USE A DIFFERENT LOCKING EDGE RAIL, DIMENSIONAL ADJUSTMENTS MAY BE REQUIRED. ONE EXCEPTION TO THIS WOULD BE THE STRIP SEAL JOINT AT THE END OF THE PRECAST BRIDGE APPROACH SLAB. FOR THESE CASES THE PAVEMENT CONNECTOR LENGTH SHALL BE ADJUSTED, NOT THE LENGTH OF THE BRIDGE APPROACH SLAB.

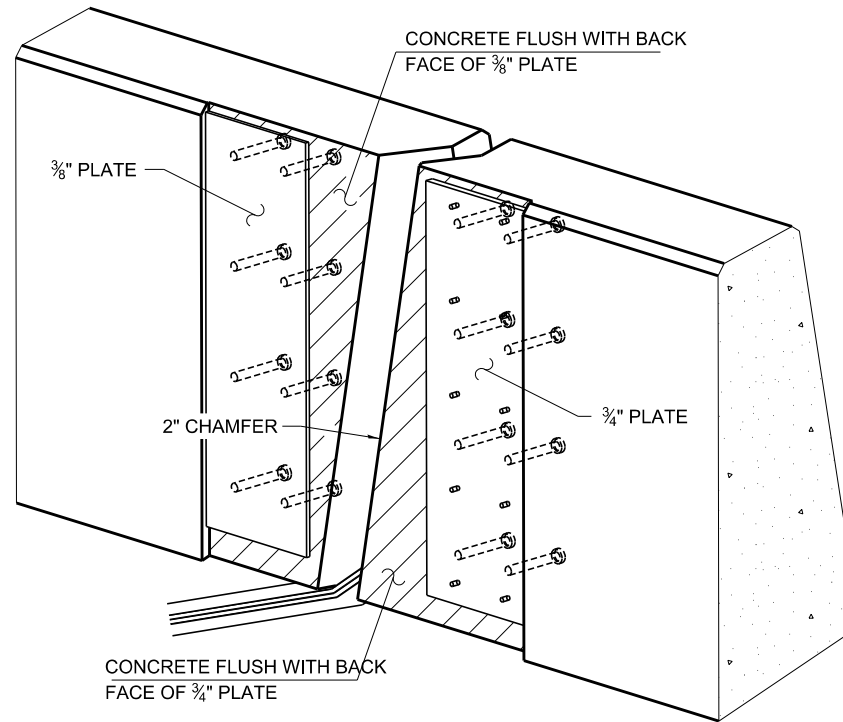


SECTION AT PARAPET

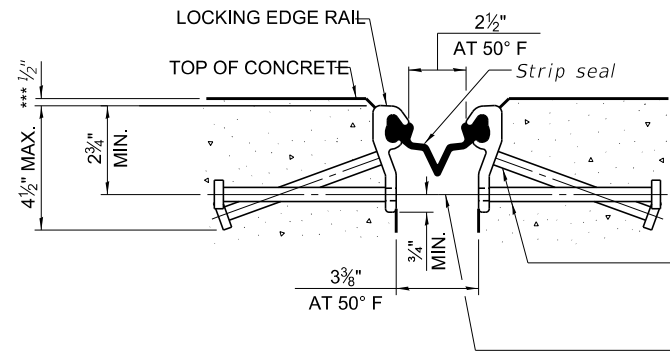
(SKEWS > 30° SHOWN. SKEWS ≤ 30° SIMILAR EXCEPT AS SHOWN IN PLAN VIEW.)
 *** PRIOR TO GRINDING.



DETAIL A



TRIMETRIC VIEW (SHOWING EMBEDDED PLATES ONLY)

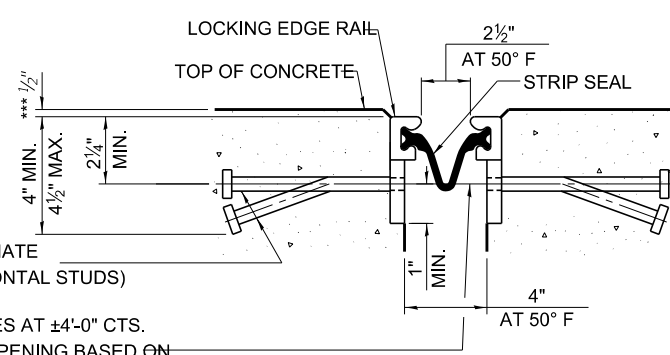


SHOWING ROLLED RAIL JOINT

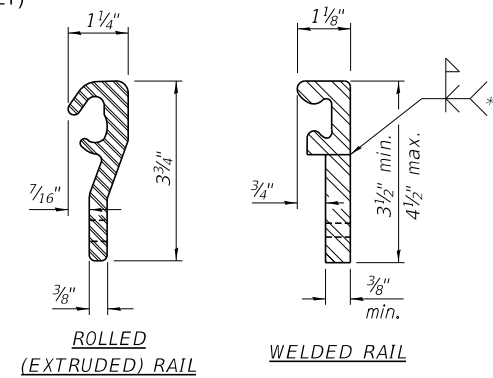
* 5/8" Ø X 6" STUDS @ 6" CTS. (ALTERNATE ANGLED/BENT STUDS WITH HORIZONTAL STUDS)
 3/8" Ø THREADED RODS IN 7/16" Ø HOLES AT ±4'-0" CTS. FOR HOLDING THE PROPER JOINT OPENING BASED ON THE TEMPERATURE DURING THE DECK POUR. PLACE TO MISS STUDS. ALL RODS SHALL BE BURNED, OR SAWED OFF FLUSH WITH THE PLATES AFTER CONCRETE IS SET.

SECTION A-A

* GRANULAR OR SOLID FLUX FILLED HEADED STUDS CONFORMING TO ARTICLE 1006.32 OF THE STD. SPECS., AUTOMATICALLY END WELDED.
 *** PRIOR TO GRINDING.

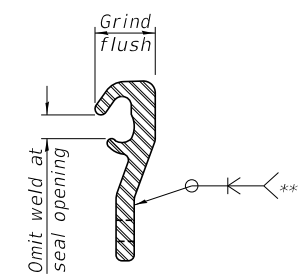


SHOWING WELDED RAIL JOINT



LOCKING EDGE RAILS

** BACK GOUGE NOT REQUIRED IF COMPLETE JOINT PENETRATION IS VERIFIED BY MOCK-UP.



LOCKING EDGE RAIL SPLICE

THE INSIDE OF THE LOCKING EDGE RAIL GROOVE SHALL BE FREE OF WELD RESIDUE. ROLLED RAIL SHOWN, WELDED RAIL SIMILAR.

BILL OF MATERIAL

ITEM	UNIT	TOTAL
PREFORMED JOINT STRIP SEAL	FOOT	88

47' AT THE WEST ABUTMENT

EJ-SS (MODIFIED) 4-4-2019

DRAWN BY VPS
 CHECKED BY SP

DATE 4-9-2020
 SCALE NONE

TYLIN INTERNATIONAL

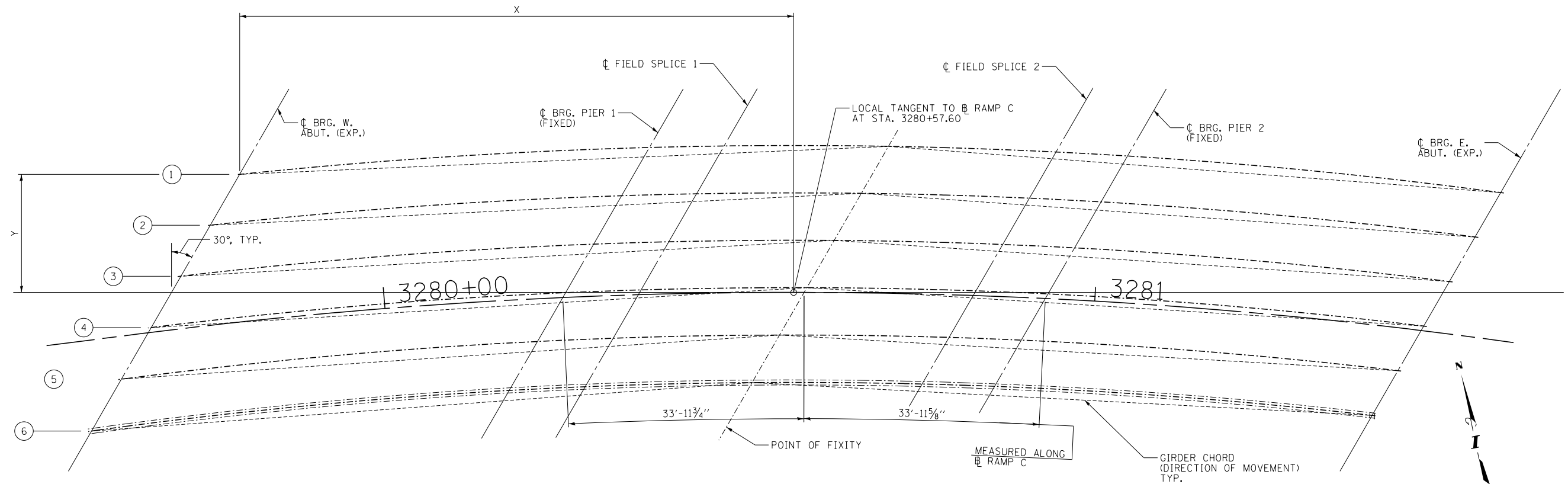


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 PREFORMED JOINT STRIP SEAL

SHEET 5D - 16 OF 38
 528 OF 606

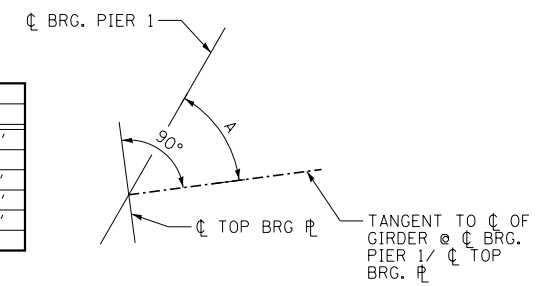


GIRDER LAYOUT PLAN

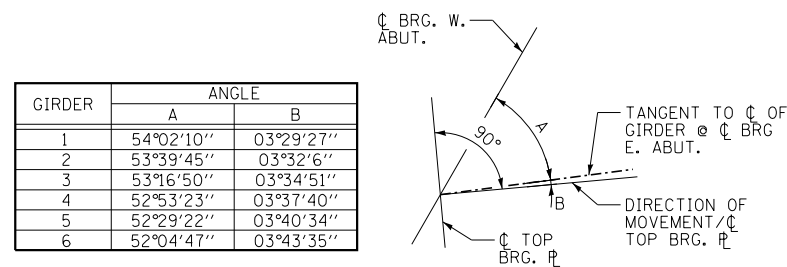
LAYOUT DIMENSIONS

GIRDER	CL BRG. W. ABUT.		CL BRG. PIER 1		CL SPLICE 1		CL SPLICE 2		CL BRG. PIER 2		CL BRG. E. ABUT.	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	-77.996	16.606	-20.309	20.394	-9.795	20.605	36.932	19.760	46.999	19.169	99.523	14.043
2	-82.124	9.456	-24.227	13.608	-13.680	13.877	33.181	13.262	43.273	12.743	95.916	7.794
3	-86.272	2.271	-28.159	6.798	-17.577	7.126	29.420	6.749	39.539	6.275	92.303	1.536
4	-90.441	-4.950	-32.105	-0.036	-21.488	0.353	25.650	0.219	35.796	-0.208	88.684	-4.733
5	-94.632	-12.209	-36.065	-6.869	-25.412	-6.444	21.870	-6.328	32.044	-6.707	85.059	-11.011
6	-98.846	-19.507	-40.041	-13.783	-29.350	-13.265	18.081	-12.892	28.282	-13.222	81.427	-17.301

GIRDER	ANGLE
	A
1	58°26'59"
2	58°08'2"
3	57°48'41"
4	57°28'29"
5	57°08'41"
6	56°48'0"

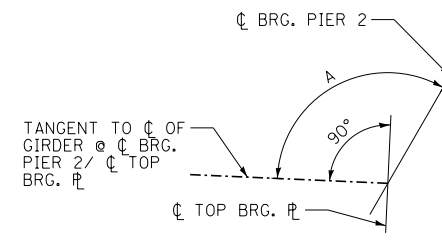


BEARING ORIENTATION - PIER 1



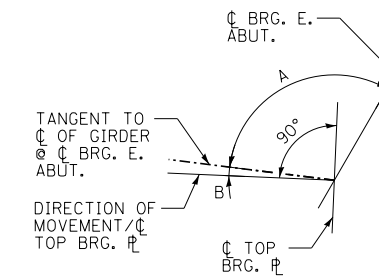
BEARING ORIENTATION - W. ABUT.

GIRDER	ANGLE	
	A	B
1	54°02'10"	03°29'27"
2	53°39'45"	03°32'6"
3	53°16'50"	03°34'51"
4	52°53'23"	03°37'40"
5	52°29'22"	03°40'34"
6	52°04'47"	03°43'35"



BEARING ORIENTATION - PIER 2

GIRDER	ANGLE
	A
1	116°24'37"
2	116°39'56"
3	116°55'34"
4	117°11'31"
5	117°27'48"
6	117°44'25"



BEARING ORIENTATION - E. ABUT.

GIRDER	ANGLE	
	A	B
1	112°22'53"	03°18'2"
2	112°35'34"	03°20'14"
3	112°48'31"	03°22'29"
4	113°01'43"	03°24'47"
5	113°15'11"	03°27'9"
6	113°28'53"	03°29'34"

P:\6825\017-294-5-9\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_Frame_Layout.dgn 2/20/2020

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DATE 4-9-2020
SCALE NONE

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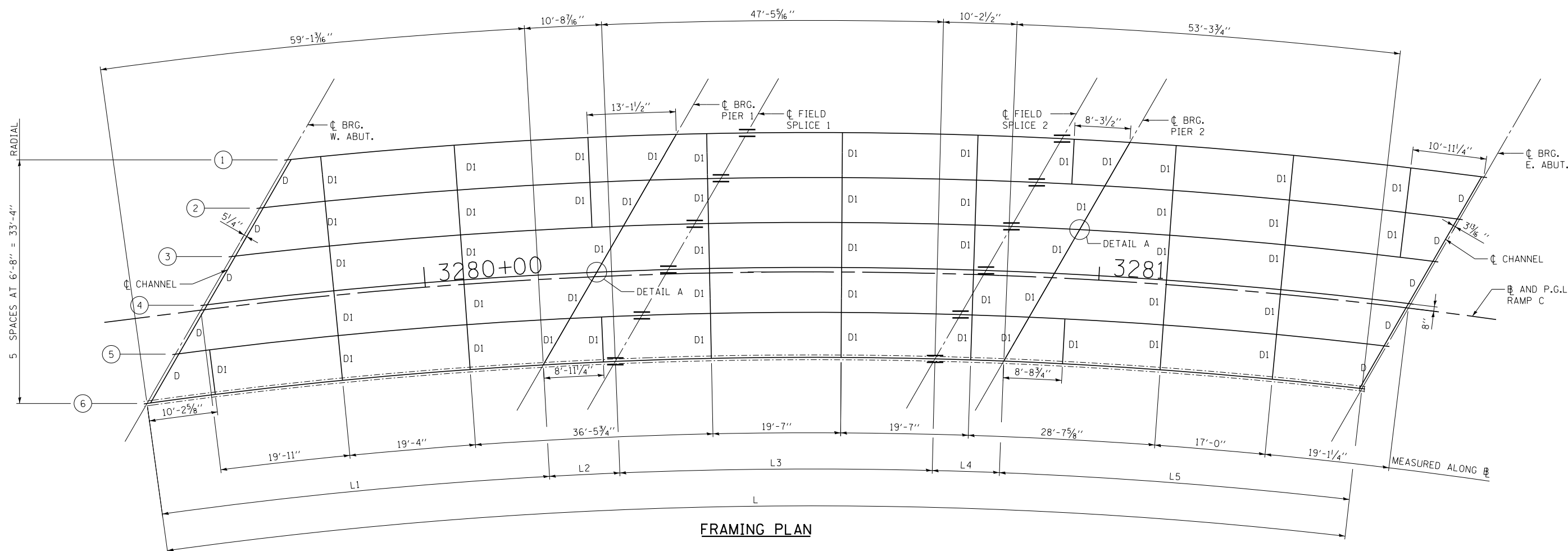
THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
FRAMING LAYOUT

SHEET 5D - 17 OF 38

529 OF 606



FRAMING PLAN

FRAMING DIMENSIONS

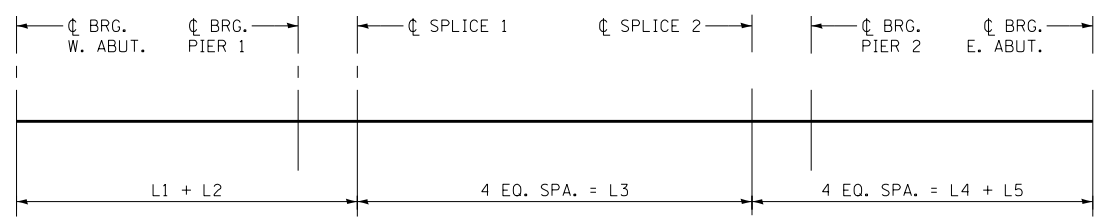
GIRDER	RADIUS	L	L1	L2	L3	L4	L5
1	750.67'	177'-11 1/2"	57'-9 5/8"	10'-6 3/8"	46'-8 5/8"	10'-1"	52'-9 1/8"
2	744.00'	178'-5 1/8"	58'-0 3/4"	10'-6 5/8"	46'-10 1/8"	10'-1 1/4"	52'-10 5/8"
3	737.33'	179'-0 3/8"	58'-3 5/8"	10'-7 1/8"	47'-0 1/8"	10'-1 1/8"	52'-11 1/8"
4	730.67'	179'-6 1/8"	58'-6 1/8"	10'-7 1/2"	47'-1 3/4"	10'-1 1/8"	53'-1 1/8"
5	724.00'	180'-1 5/8"	58'-9 1/8"	10'-7 5/8"	47'-3 1/2"	10'-2 1/8"	53'-2 1/8"
6	717.33'	180'-9 1/8"	59'-1 3/8"	10'-8 1/8"	47'-5 1/8"	10'-2 1/2"	53'-3 1/4"

NOTES:

- ALL CROSS FRAMES OR DIAPHRAGMS BETWEEN BEAMS OR GIRDERS SHALL BE INSTALLED WITH ERECTION PINS AND BOLTS IN ACCORDANCE WITH THE ERECTION PLAN APPROVED BY THE ENGINEER. INDIVIDUAL CROSS FRAMES OR DIAPHRAGMS AT SUPPORTS MAY BE TEMPORARILY DISCONNECTED TO INSTALL BEARING ANCHOR RODS.
- FOR BEAM DETAILS SEE SHEET SD-19.
- FOR DIAPHRAGM DETAILS AND DETAIL A SEE SHEET SD-20.
- "CVN" DENOTES CHARPY-V-NOTCH IMPACT ENERGY, ZONE 2.

TOP OF WEB ELEVATIONS
(FOR FABRICATION ONLY)

GIRDER	CL BRG. W. ABUT.	CL BRG. PIER 1	CL FIELD SPLICE 1	CL FIELD SPLICE 2	CL BRG. PIER 2	CL BRG. E. ABUT.
1	613.47	613.51	613.52	613.38	613.36	613.25
2	613.16	613.14	613.13	612.99	612.97	612.85
3	612.87	612.76	612.74	612.60	612.58	612.46
4	612.61	612.39	612.35	612.21	612.19	612.07
5	612.37	612.03	611.97	611.83	611.80	611.79
6	612.16	611.67	611.58	611.44	611.41	611.29



CAMBER DIAGRAM
(NO CAMBER REQUIRED)

P:\62540157-294-5-9\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_framing.dgn 2/20/2020

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TYLIN INTERNATIONAL

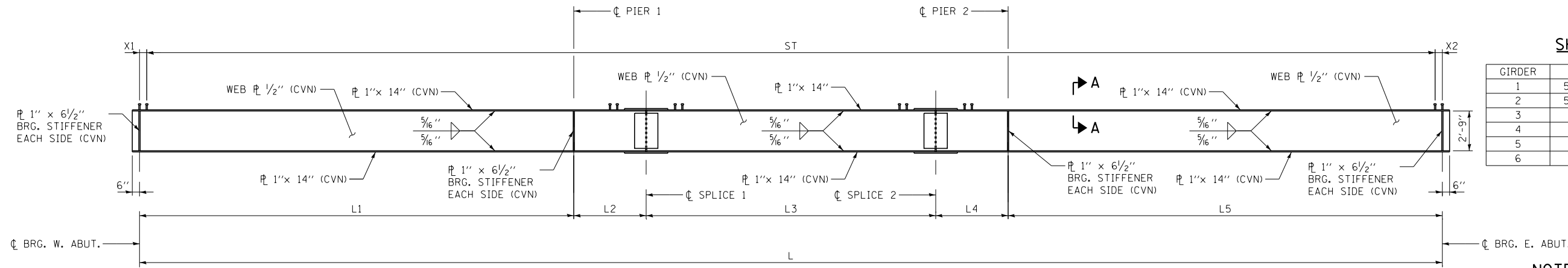


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CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 FRAMING PLAN

SHEET SD - 18 OF 38
 530 OF 606



SHEAR STUD SPACING

GIRDER	X1	X2	ST
1	5 1/2"	6"	354 SPA. @ 6"
2	5 3/4"	6"	355 SPA. @ 6"
3	3"	3 1/4"	357 SPA. @ 6"
4	3"	3	307 SPA. @ 7"
5	4"	4	359 SPA. @ 6"
6	4"	5 1/4"	270 SPA. @ 8"

NOTE:

1. "CVN" DENOTES CHARPY-V-NOTCH IMPACT ENERGY REQUIREMENTS, ZONE 2.

BEAM ELEVATION

NOTE: FOR FRAMING DIMENSIONS SEE SHEET SD-18 OF 38.

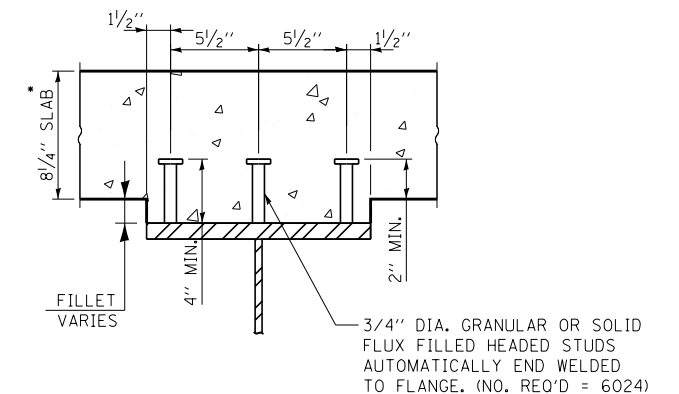
	INTERIOR GIRDER MOMENT TABLE					
	0.4 SP. 1	PIER 1	0.5 SP. 2	PIER 2	0.6 SP. 3	
I_s	(IN ⁴)	9,592	9,592	9,592	9,592	
$I_c(n)$	(IN ⁴)	22,299	22,299	22,299	22,299	
$I_c(3n)$	(IN ⁴)	16,997	16,997	16,997	16,997	
$I_c(cr)$	(IN ⁴)		12,451		12,451	
S_s	(IN ³)	548	548	548	548	
$S_c(n)$	(IN ³)	721	721	721	721	
$S_c(3n)$	(IN ³)	668	668	668	668	
$S_c(cr)$	(IN ³)		610		610	
S_{xc}	(IN ³)	698	598	703	600	703
DC1	(K/')	0.84	0.84	0.84	0.84	0.84
M _{DC1}	(K)	209	362	162	320	169
DC2	(K/')	0.19	0.19	0.19	0.19	0.19
M _{DC2}	(K)	45	77	36	68	36
DW	(K/')	0.33	0.33	0.33	0.33	0.33
M _{DW}	(K)	79	133	62	119	63
M _{L+IM}	(K)	601	586	547	537	532
f _L (STRENGTH I)	(KSI)	3.91	3.57	4.28	4.57	3.15
M _{L+1/2 f_L S_{xc}}	(K)	1,564	1,834	1,382	1,680	1,344
φ _f M _n	(K)					
f _s DC1	(KSI)	4.58	7.93	3.55	7.01	3.70
f _s DC2	(KSI)	0.81	1.51	0.65	1.34	0.65
f _s DW	(KSI)	1.42	2.62	1.11	2.34	1.13
f _s (L+IM)	(KSI)	10.00	11.53	9.10	10.56	8.85
f _L (SERVICE II)	(KSI)	2.93	2.67	3.21	3.44	2.36
f _s + 1/2 (SERVICE II)	(KSI)	21.27	28.38	18.75	26.14	18.17
0.95R _n F _{yf}	(KSI)	47.50	47.50	47.50	47.50	47.50
f _s + 1/3 (TOTAL)(STRENGTH I)	(KSI)	27.7	37.1	24.3	34.0	23.7
φ _f F _n	(KSI)	50.0	50.0	50	50.0	50.0
V _f	(K)	35.50	38.20	26.60	37.20	34.70

NOTE: GIRDER 3 CONTROLS

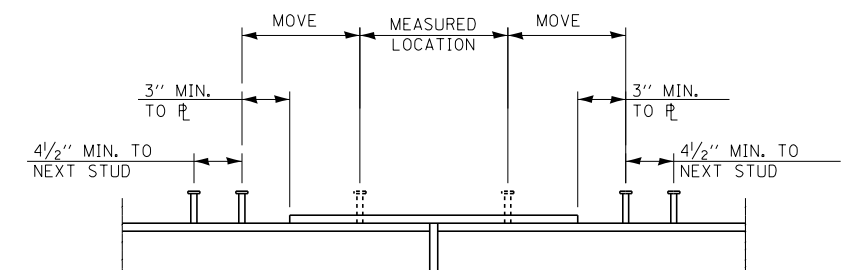
	INTERIOR GIRDER REACTION TABLE				
	E. ABUT.	PIER 1	PIER 2	W. ABUT.	
R _{DC1}	(K)	20.4	60.8	57.6	17.9
R _{DC2}	(K)	4.2	13.3	12.5	3.7
R _{DW}	(K)	7.4	23.0	21.7	6.4
R _{L+IM}	(K)	69.3	109.6	104.0	69.2
R _{Total}	(K)	101.3	206.7	195.8	97.2

- I_s, S_s : NON-COMPOSITE MOMENT OF INERTIA AND SECTION MODULUS OF THE STEEL SECTION USED FOR COMPUTING F_s (TOTAL-STRENGTH I, AND SERVICE II) DUE TO NON-COMPOSITE DEAD LOADS (IN.⁴ AND IN.³).
- $I_c(n), S_c(n)$: COMPOSITE MOMENT OF INERTIA AND SECTION MODULUS OF THE STEEL AND DECK BASED UPON THE MODULAR RATIO, "N", USED FOR COMPUTING F_s (TOTAL-STRENGTH I, AND SERVICE II) IN UNCRACKED SECTIONS DUE TO SHORT TERM COMPOSITE LIVE LOADS (IN.⁴ AND IN.³).
- $I_c(3n), S_c(3n)$: COMPOSITE MOMENT OF INERTIA AND SECTION MODULUS OF THE STEEL AND DECK BASED UPON 3 TIMES THE MODULAR RATIO, "3N", USED FOR COMPUTING F_s (TOTAL-STRENGTH I, AND SERVICE II) IN UNCRACKED SECTIONS DUE TO LONG-TERM COMPOSITE (SUPERIMPOSED) DEAD LOADS (IN.⁴ AND IN.³).
- $I_c(cr), S_c(cr)$: COMPOSITE MOMENT OF INERTIA AND SECTION MODULUS OF THE STEEL AND LONGITUDINAL DECK REINFORCEMENT, USED FOR COMPUTING F_s (TOTAL-STRENGTH I AND SERVICE II) IN CRACKED SECTIONS, DUE TO BOTH SHORT-TERM COMPOSITE LIVE LOADS AND LONG-TERM COMPOSITE (SUPERIMPOSED) DEAD LOADS (IN.⁴ AND IN.³).
- S_{xc} : SECTION MODULUS ABOUT THE MAJOR AXIS OF SECTION TO THE CONTROLLING FLANGE, TENSION OR COMPRESSION, TAKEN AS YIELD MOMENT WITH RESPECT TO THE CONTROLLING FLANGE OVER THE YIELD STRENGTH OF THE CONTROLLING FLANGE (IN.³).
- DC1: UN-FACTORED NON-COMPOSITE DEAD LOAD (KIPS/FT.).
- M_{DC1}: UN-FACTORED MOMENT DUE TO NON-COMPOSITE DEAD LOAD (KIP-FT.).
- DC2: UN-FACTORED LONG-TERM COMPOSITE (SUPERIMPOSED EXCLUDING FUTURE WEARING SURFACE) DEAD LOAD (KIPS/FT.).
- M_{DC2}: UN-FACTORED MOMENT DUE TO LONG-TERM COMPOSITE (SUPERIMPOSED EXCLUDING FUTURE WEARING SURFACE) DEAD LOAD (KIP-FT.).
- DW: UN-FACTORED LONG-TERM COMPOSITE (SUPERIMPOSED FUTURE WEARING SURFACE ONLY) DEAD LOAD (KIPS/FT.).
- M_{DW}: UN-FACTORED MOMENT DUE TO LONG-TERM COMPOSITE (SUPERIMPOSED FUTURE WEARING SURFACE ONLY) DEAD LOAD (KIP-FT.).
- M_{L+IM}: UN-FACTORED LIVE LOAD MOMENT PLUS DYNAMIC LOAD ALLOWANCE (IMPACT)(KIP-FT.).
- M_U (STRENGTH I): FACTORED DESIGN MOMENT (KIP-FT.).
1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{L+IM}
- f_L: FACTORED CALCULATED NORMAL STRESS AT EDGE OF FLANGE FOR CONTROLLING FLANGE PLATE DUE TO LATERAL BENDING, STRENGTH I OR SERVICE II AS APPLICABLE (KIP-FT.).
- φ_f M_n: COMPACT COMPOSITE POSITIVE MOMENT CAPACITY COMPUTED ACCORDING TO ARTICLE 6.10.7.1 OR NON-SLENDER NEGATIVE MOMENT CAPACITY ACCORDING TO ARTICLE A6.1.1 OR A6.1.2 (KIP-FT.).
- f_s DC1: UN-FACTORED STRESS AT EDGE OF FLANGE FOR CONTROLLING STEEL FLANGE DUE TO VERTICAL NON-COMPOSITE DEAD LOADS AS CALCULATED BELOW (KSI).
M_{DC1}/S_{nc}
- f_s DC2: UN-FACTORED STRESS AT EDGE OF FLANGE FOR CONTROLLING STEEL FLANGE DUE TO VERTICAL COMPOSITE DEAD LOADS AS CALCULATED BELOW (KSI).
M_{DC2}/S_c (3N) OR M_{DC2}/S_c (CR) AS APPLICABLE.
- f_s DW: UN-FACTORED STRESS AT EDGE OF FLANGE FOR CONTROLLING STEEL FLANGE DUE TO VERTICAL COMPOSITE FUTURE WEARING SURFACE LOADS AS CALCULATED BELOW (KSI).
M_{DW}/S_c (3N) OR M_{DW}/S_c (CR) AS APPLICABLE.
- f_s (L+IM): UN-FACTORED STRESS AT EDGE OF FLANGE FOR CONTROLLING STEEL FLANGE DUE TO VERTICAL COMPOSITE LIVE PLUS IMPACT LOADS AS CALCULATED BELOW (KSI).
M_{L+IM}/S_c (N) OR M_{L+IM}/S_c (CR) AS APPLICABLE.
- f_s + 1/2 (SERVICE II): SUM OF STRESSES AS COMPUTED BELOW (KSI).
F_{sDC1} + F_{sDC2} + F_{sDW} + 1.3 F_s (L+IM) + 1/2 (0.95R_n F_{yf})
- f_s + 1/3 (TOTAL)(STRENGTH I): SUM OF STRESSES AS COMPUTED BELOW ON NON-COMPACT SECTION (KSI).
1.25 (F_{sDC1} + F_{sDC2}) + 1.5 F_{sDW} + 1.75 F_s (L+IM) + 1/3 (0.95R_n F_{yf})
- φ_f F_n: NON-COMPACT POSITIVE OR NEGATIVE STRESS CAPACITY FOR STRENGTH I LOADING ACCORDING TO ARTICLE 6.10.7 OR 6.10.8 (KSI).
- V_f: MAXIMUM FACTORED SHEAR RANGE IN SPAN COMPUTED ACCORDING TO ARTICLE 6.10.10.

NOTE: M_L AND R_L INCLUDE THE EFFECTS OF CENTRIFUGAL FORCE AND SUPERELEVATION.



SECTION A-A



DO NOT PLACE SHEAR STUDS ON SPLICE PLATES. MOVE ROW OF STUDS TO 6" BEYOND NEAREST EDGE OF SPLICE PLATE FROM MEASURED LOCATION. SIMILARLY, MOVE STUDS AS REQUIRED TO MAINTAIN 6" CLEAR BETWEEN STUDS AND WELDED FLANGE TRANSITIONS.

DETAIL 1

P:\6825\017-294-5-9\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_girder-01.dgn 3/20/2020

DRAWN BY	HL	DATE	4-9-2020
CHECKED BY	SP	SCALE	NONE

TYLIN INTERNATIONAL

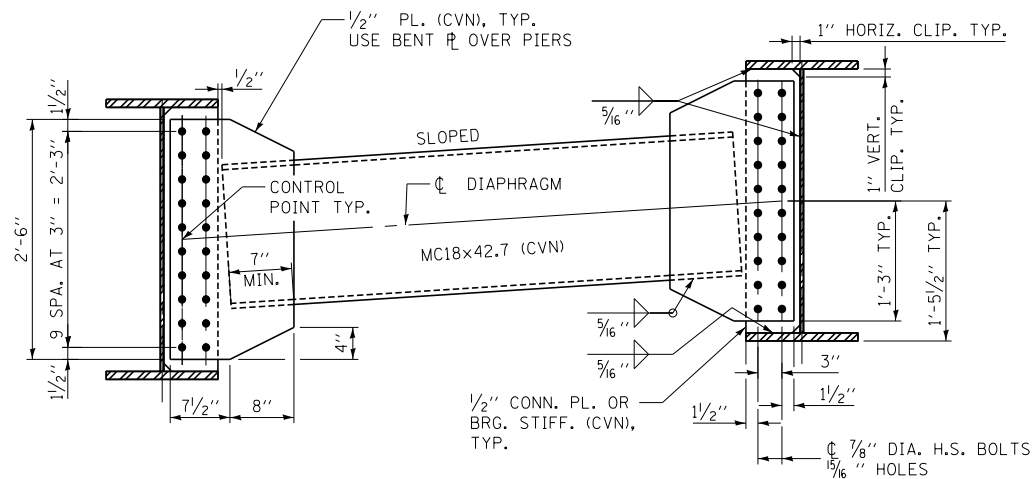


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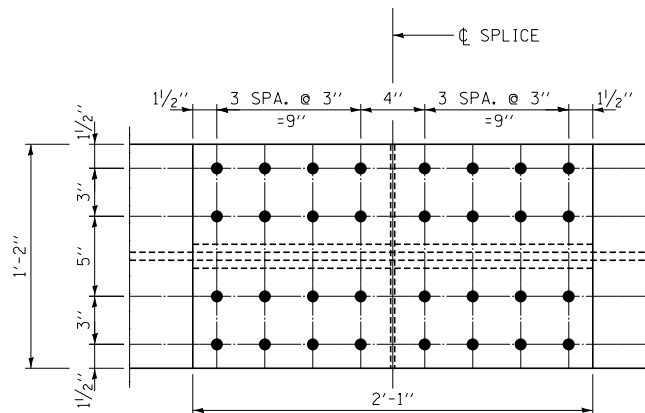
CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
GIRDER ELEVATION

SHEET SD - 19 OF 38
531 OF 606

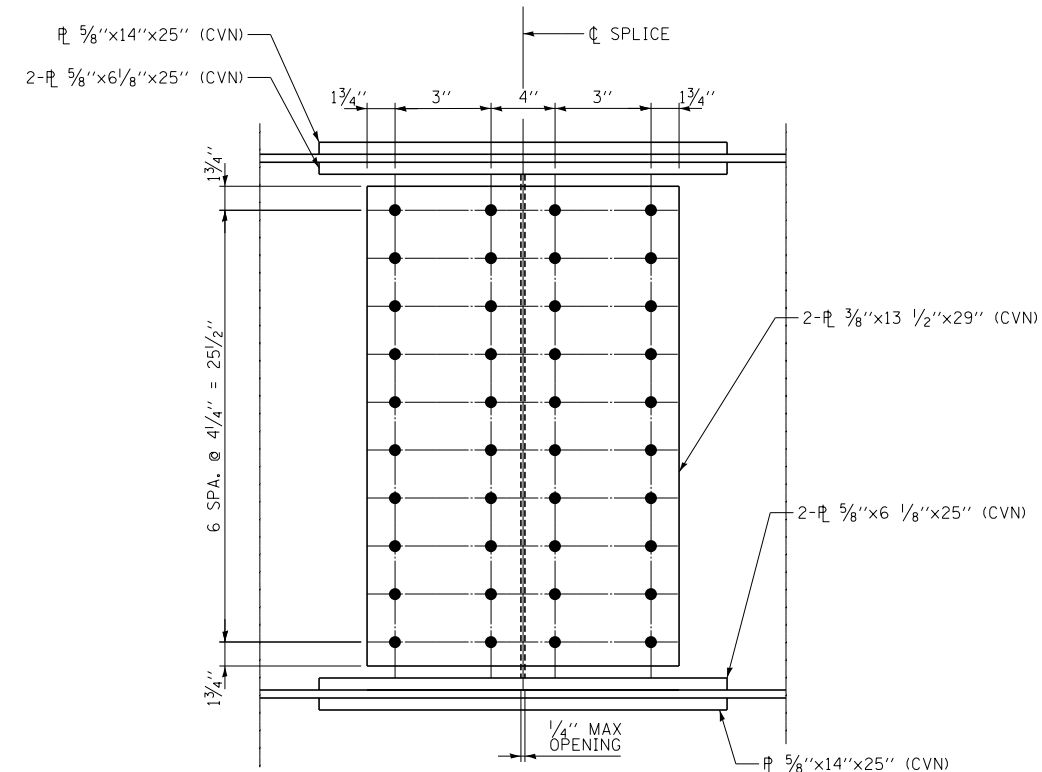


DIAPHRAGM - D1

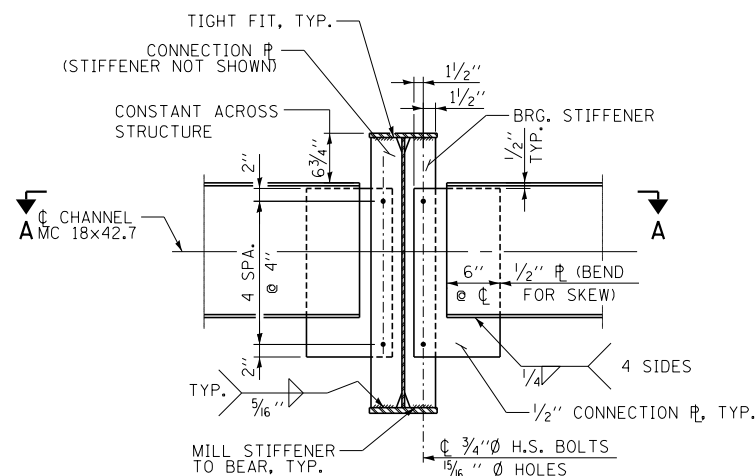
NOTE: TWO HARDENED WASHERS REQUIRED FOR EACH SET OF OVERSIZED HOLES.



FLANGE SPLICE PLATE

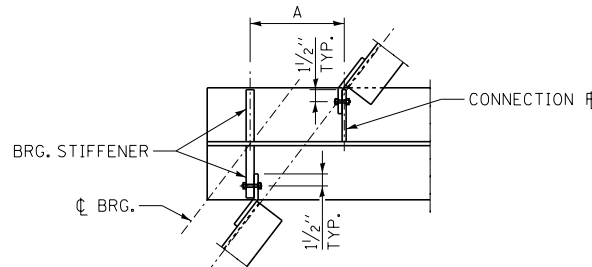


FIELD SPLICE ELEVATION



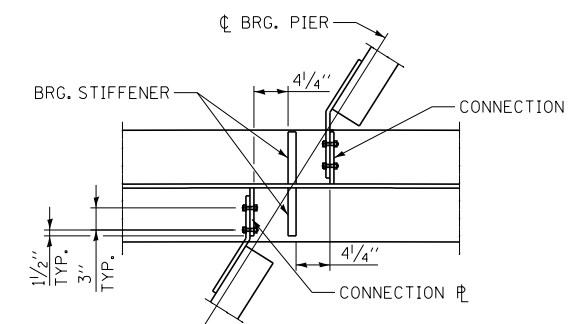
END DIAPHRAGM - D

NOTES:
TWO HARDENED WASHERS REQUIRED FOR EACH SET OF OVERSIZED HOLES.
ALTERNATE CHANNELS OF EQUAL DEPTH AND LARGER WEIGHT ARE PERMITTED TO FACILITATE MATERIAL ACQUISITION. ALTERNATE CHANNELS, IF UTILIZED, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE DEPARTMENT.
SEE END DIAPHRAGM/CROSS-FRAME FRAMING DETAILS FOR CONNECTION PLATE ORIENTATION.



DIMENSION "A" (MEASURED ϕ OF BRG. STIFF. TO ϕ OF CONNECTION ϕ):
11 3/4" (W. ABUT.)
8 1/8" (E. ABUT.)

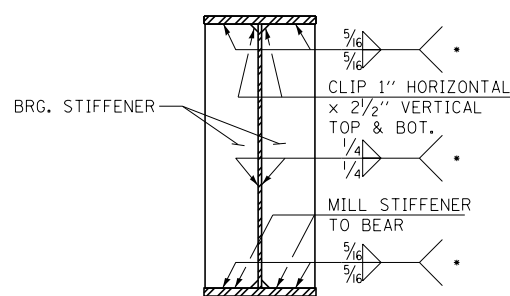
SECTION A-A



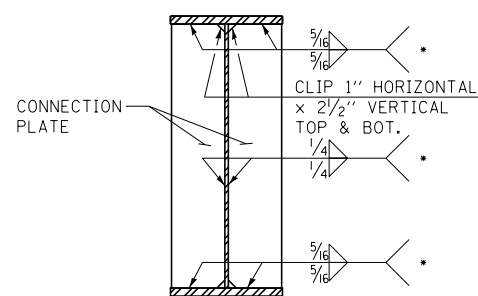
DETAIL A - DIAPHRAGM D1 AT PIER

NOTE:

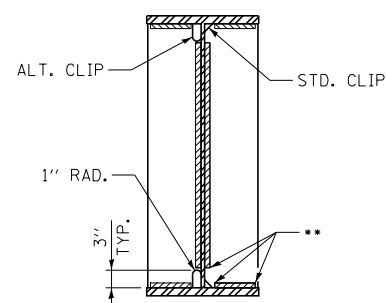
1. "CVN" DENOTES CHARPY-V-NOTCH IMPACT ENERGY REQUIREMENTS, ZONE 2.



BEARING STIFFENER



CONNECTION PLATE



WELD LIMITS AND CLIP DETAILS

** STOP WELDS 1/4" (\pm 1/8") FROM EDGE AS SHOWN, TYP.

• TERMINATE 1/4" (\pm 1/8") FROM THE END OF ϕ INTERSECTS.

P:\6254017-294-5-9\STRUCTURAL WEST\ART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5.steel details.dgn 2/20/2020

DRAWN BY **HL**
CHECKED BY **SP**

DATE **4-9-2020**
SCALE **NONE**

TYLIN INTERNATIONAL

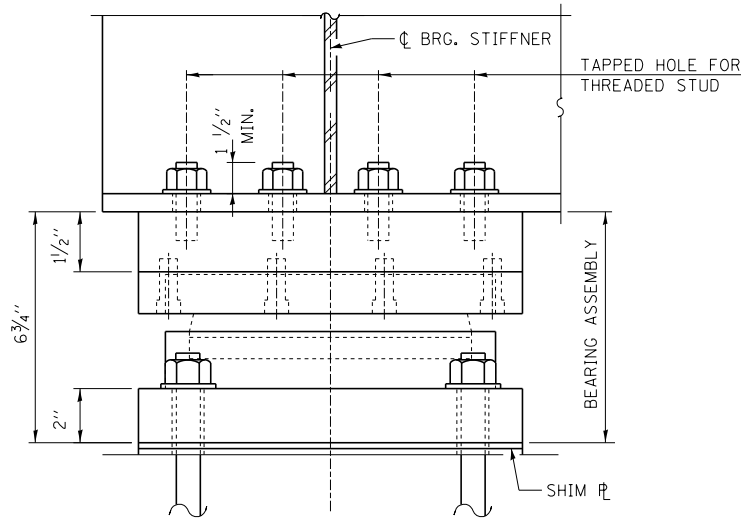


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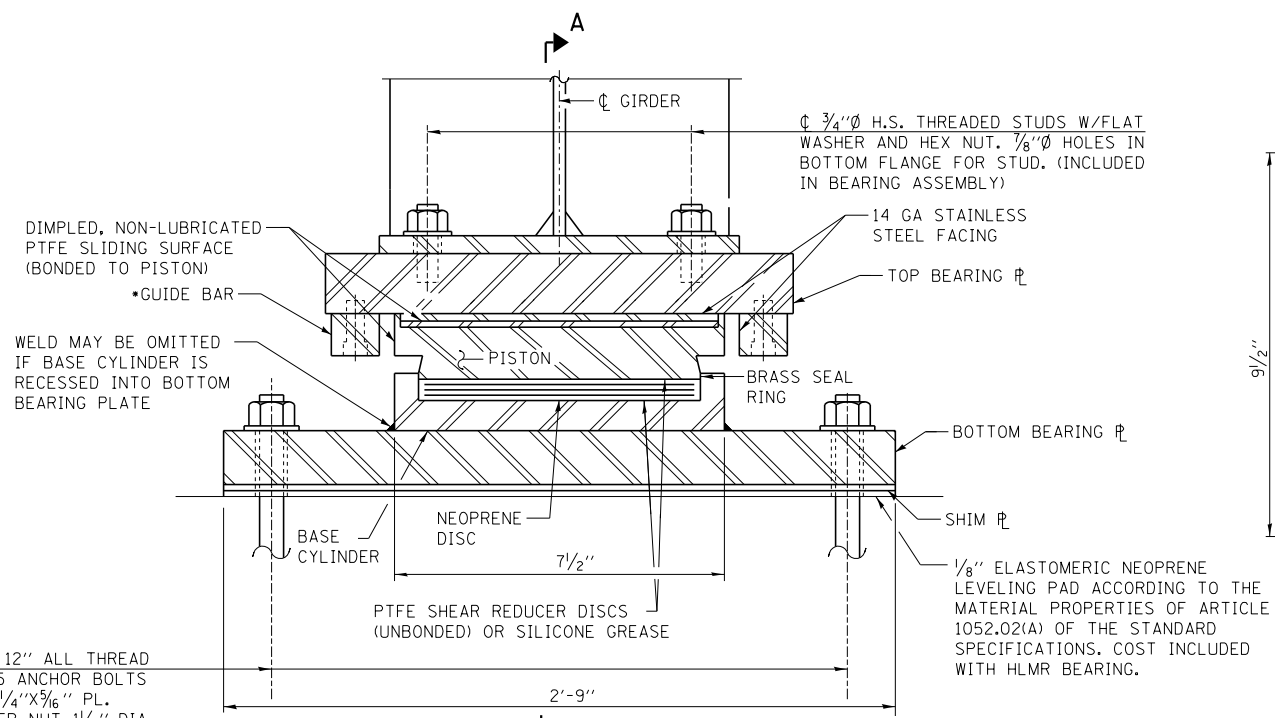
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT **I-19-4495**
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
STEEL DETAILS

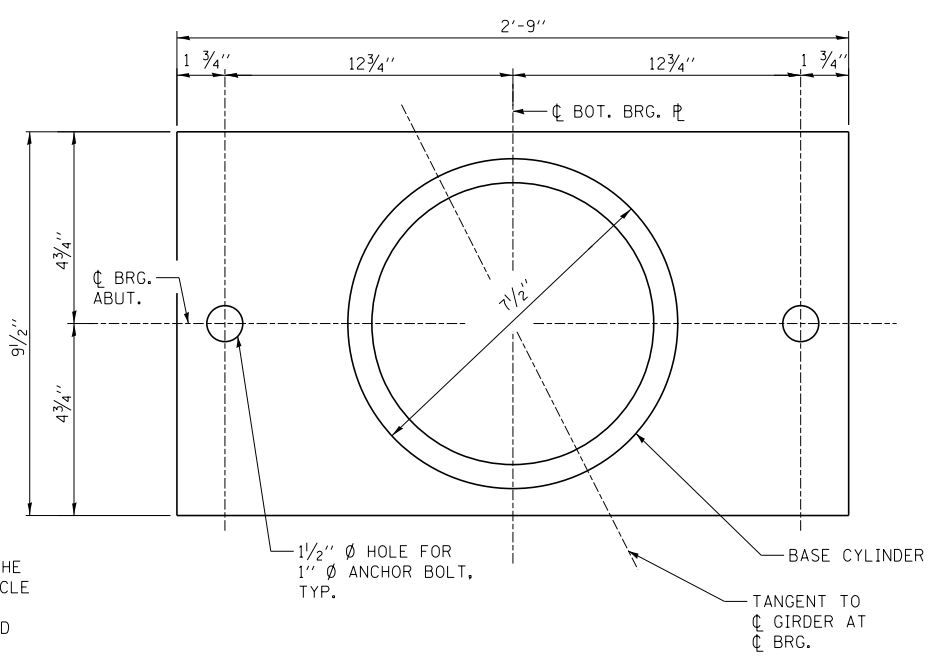
SHEET **SD - 20** OF **38**
532 OF **606**



SECTION A-A



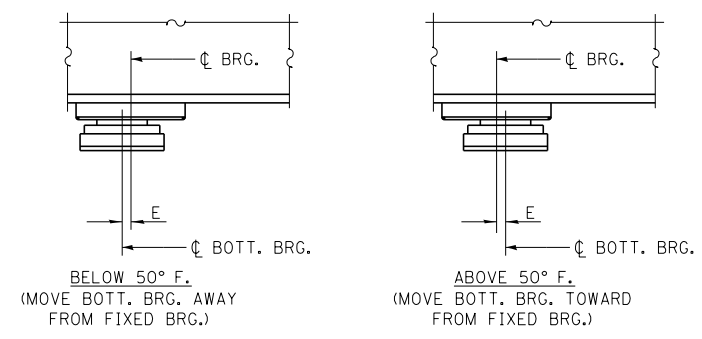
GUIDED HLMR EXPANSION BEARING



BOTTOM BEARING PL AND BASE CYLINDER PLAN

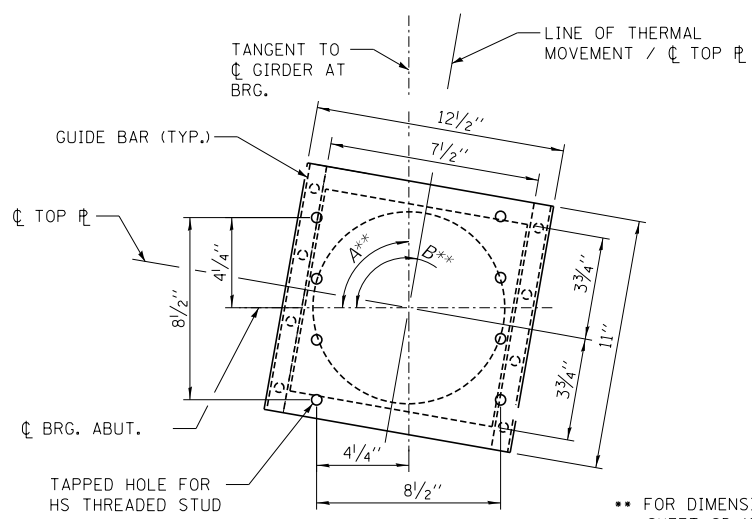
• AS ALTERNATES TO THE BOLTED CONNECTION SHOWN, THE GUIDE BARS MAY BE CONNECTED TO THE TOP BEARING PLATE BY GROOVE WELDS OR THE GUIDE BARS AND TOP BEARING PLATE MAY BE FABRICATED AS A SINGLE PIECE.

1" DIA. X 12" ALL THREAD F1554 GR. 55 ANCHOR BOLTS WITH 2 1/4" X 2 1/4" X 5/16" PL. WASHER UNDER NUT 1 1/2" DIA. HOLES IN BOTTOM PL.



SETTING ANCHOR BOLTS AT EXP. BRG.

$E = \frac{1}{8}$ " PER EACH 100' OF EXPANSION FOR EVERY 15° TEMP. CHANGE FROM THE NORMAL TEMP. OF 50° F.



TOP BEARING PL AND PISTON PLAN

** FOR DIMENSIONS "A" AND "B" SEE SHEET SD-17 OF 38.

BILL OF MATERIAL

Item	Unit	Total
HIGH LOAD MULTI-ROTATIONAL BEARINGS, GUIDED EXPANSION, 100K	EACH	12
ANCHOR BOLTS, 1"	EACH	24

BEARING DATA

VERTICAL DESIGN LOAD	87 KIPS
TOTAL REQUIRED MOVEMENT	3/4"
LATERAL DESIGN LOAD	18 KIPS
MAX. FACTORED ULTIMATE (STRENGTH) DESIGN ROTATION (RADIANS)	0.02

NOTES:
 THE STRUCTURAL STEEL PLATES FOR THE BEARING ASSEMBLY SHALL BE AASHTO M270, GRADE 50.
 ANCHOR BOLTS AT ALL SUPPORTS SHALL BE INSTALLED AS EACH MEMBER IS ERECTED UNLESS AN EQUIVALENT MEANS OF LATERAL RESTRAINT IS USED.
 IF BASE CYLINDER IS RECESSED INTO THE BOTTOM BEARING PLATE SHALL INCREASE FOR THE DEPTH OF THE RECESS.
 ALL BEARING PLATES, ANCHOR BOLTS, NUTS, WASHERS AND THREADED STUDS SHALL BE GALVANIZED ACCORDING TO AASHTO M111 OF M232 AS APPLICABLE.
 TWO 1/8" ADJUSTING SHIMS SHALL BE PROVIDED FOR EACH BEARING IN ADDITION TO ALL OTHER PLATES OF SHIMS AND PLACED AS SHOWN ON BEARING DETAILS.

P:\6825\0157-294-5-9\STRUCTURAL\RESTART_2018\Temp C over Dixie Creek\OFFICIAL\062102_5_bearings_1.dgn 2/20/2020

DRAWN BY	HL	DATE	4-9-2020
CHECKED BY	SP	SCALE	NONE

TYLIN INTERNATIONAL

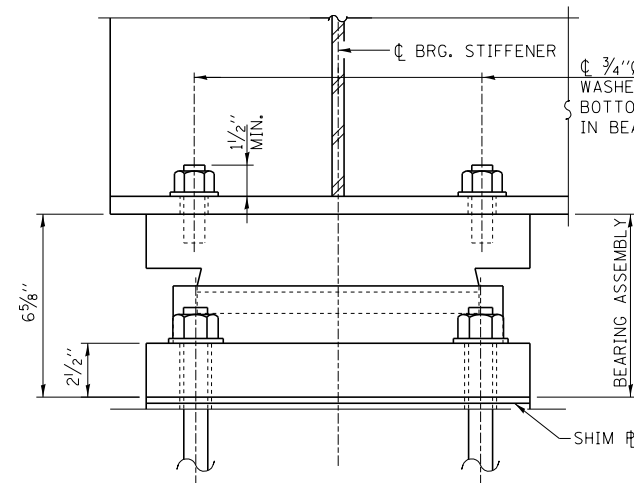


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

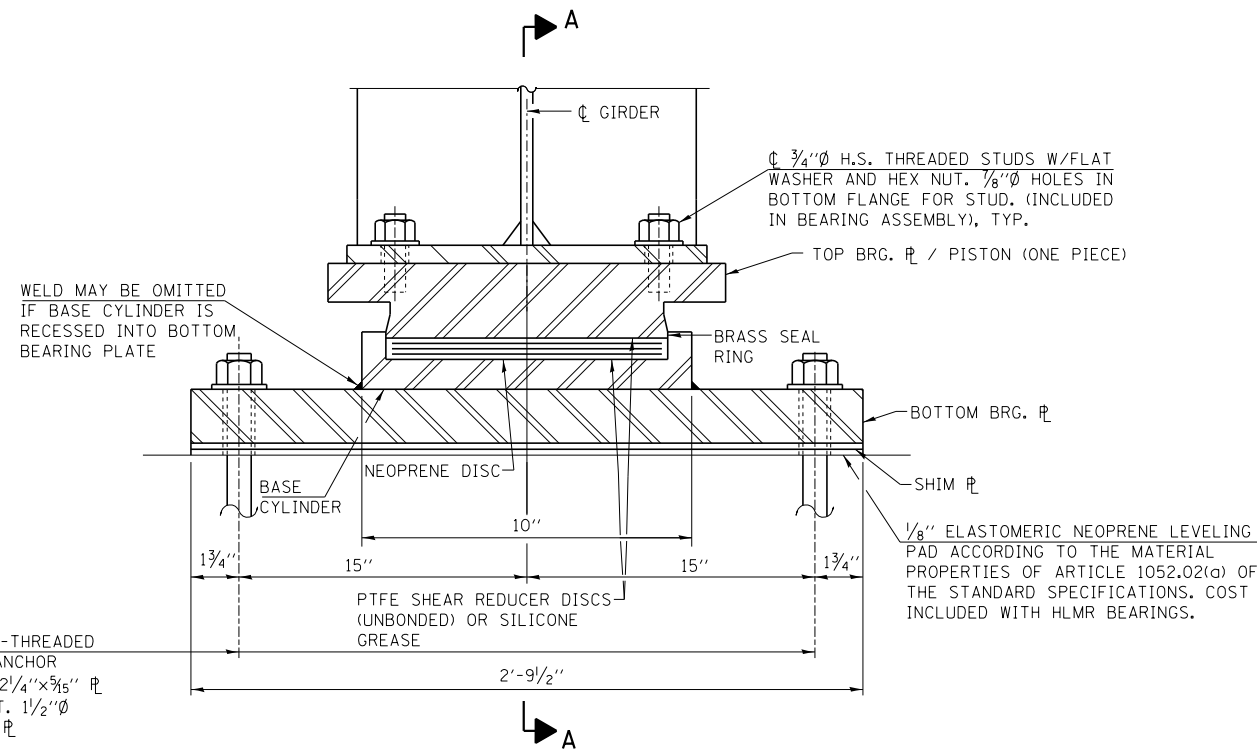
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 EXPANSION BEARINGS

SHEET SD - 21 OF 38
 533 OF 606

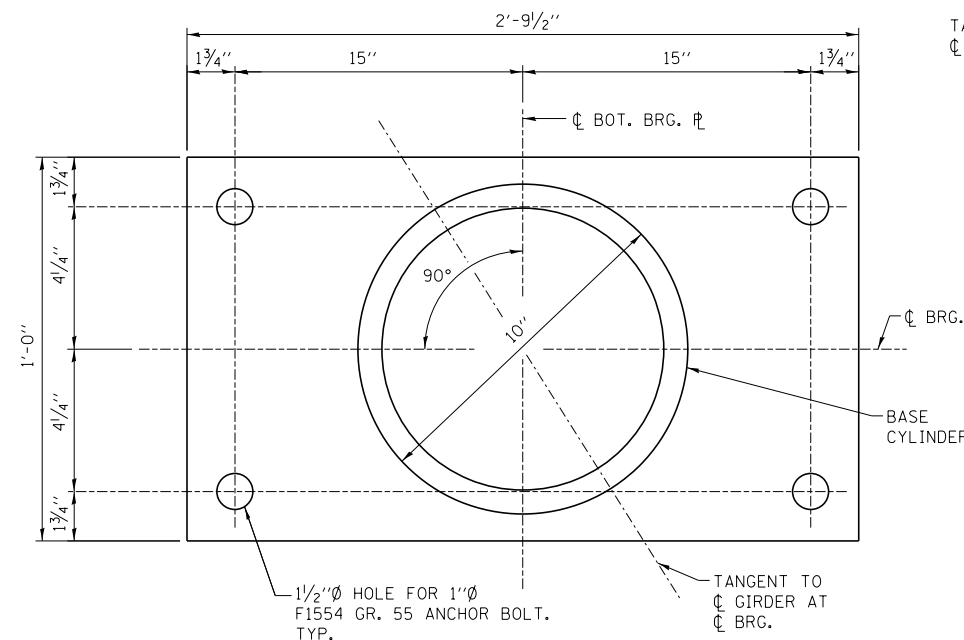


SECTION A-A

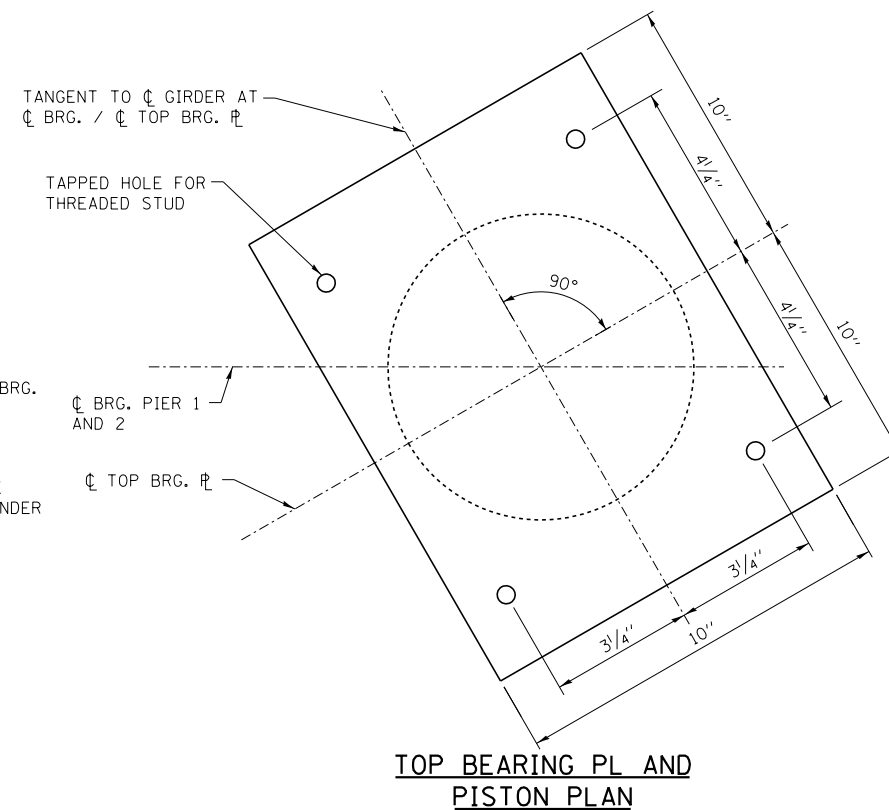


FIXED HLMR BEARING

Ø 1"Ø x 1'-0" ALL-THREADED F1554, GRADE 55 ANCHOR BOLTS WITH 2 1/4" x 2 1/4" x 3/16" PL WASHER UNDER NUT. 1 1/2"Ø HOLES IN BOTTOM PL



BOTTOM BEARING PL AND BASE CYLINDER PLAN



TOP BEARING PL AND PISTON PLAN

BEARING DATA

VERTICAL DESIGN LOAD	187 KIPS
PAY ITEM SIZE	200 KIPS
LATERAL DESIGN LOAD	38 KIPS
MAX. FACTORED ULTIMATE (STRENGTH) DESIGN ROTATION	0.02 RAD.

BILL OF MATERIAL

Item	Unit	Total
HIGH LOAD MULTI-ROTATIONAL BEARING, FIXED - 200K	EACH	12
ANCHOR BOLTS, 1"	EACH	48

NOTES:
 THE STRUCTURAL STEEL PLATES FOR THE BEARING ASSEMBLY SHALL BE AASHTO M270, GRADE 50.
 ANCHOR BOLTS AT ALL SUPPORTS SHALL BE INSTALLED AS EACH MEMBER IS ERECTED UNLESS AN EQUIVALENT MEANS OF LATERAL RESTRAINT IS USED.
 IF BASE CYLINDER IS RECESSED INTO THE BOTTOM BEARING PLATE SHALL INCREASE FOR THE DEPTH OF THE RECESS.
 ALL BEARING PLATES, ANCHOR BOLTS, NUTS, WASHERS AND THREADED STUDS SHALL BE GALVANIZED ACCORDING TO AASHTO M111 OF M232 AS APPLICABLE.
 TWO 1/8" ADJUSTING SHIMS SHALL BE PROVIDED FOR EACH BEARING IN ADDITION TO ALL OTHER PLATES OF SHIMS AND PLACED AS SHOWN ON BEARING DETAILS.
 ANCHOR BOLTS AT HLMR BEARING MAY BE EITHER CAST IN PLACE OF INSTALLED IN HOLES DRILLED AFTER THE SUPPORTED MEMBER IS IN PLACE.

P:\625\017-294-5-9\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_bearings 2_Fixed.dgn 2/20/2020

DRAWN BY HL
 CHECKED BY SP

DATE 4-9-2020
 SCALE NONE

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

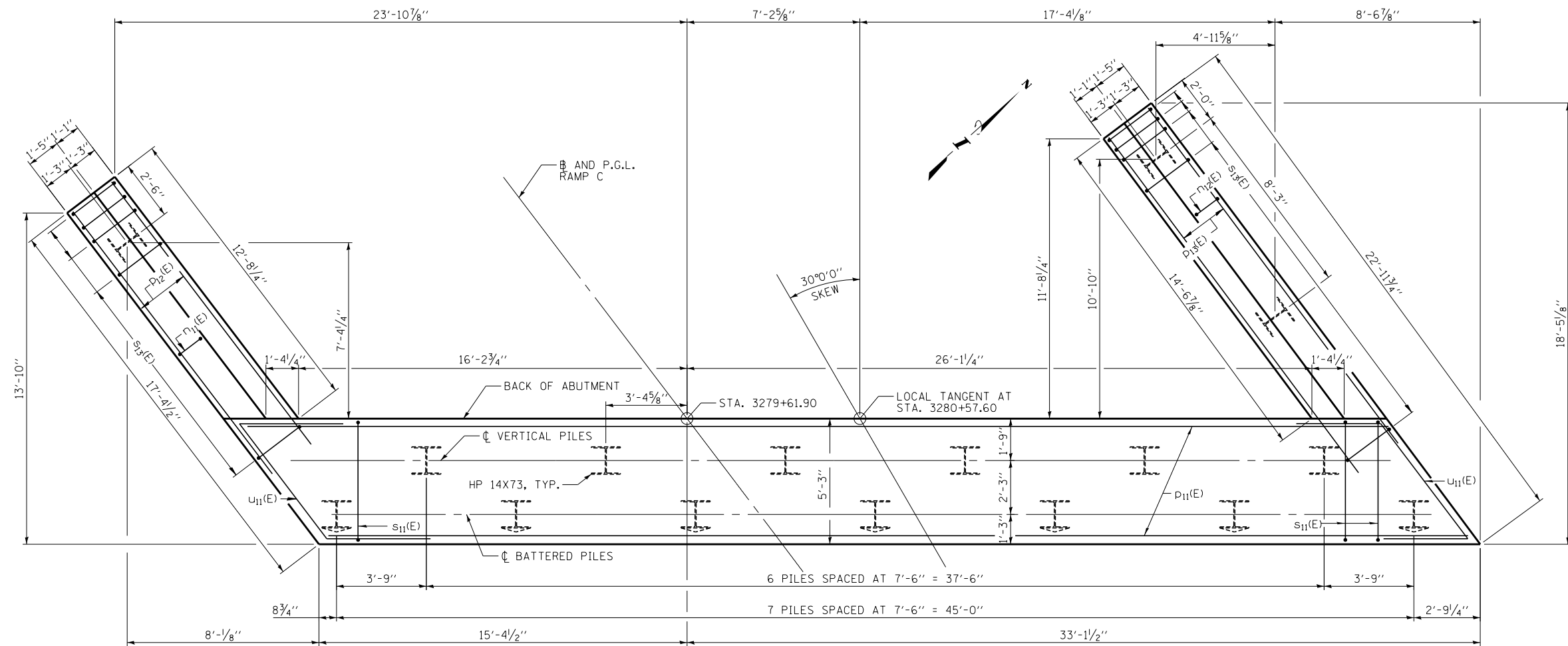
CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 FIXED BEARINGS

SHEET 5D - 22 OF 38
 534 OF 606

PILE DATA

TYPE: STEEL HP14X73 WITH PILE SHOES
 NOMINAL REQUIRED BEARING: 433 KIPS
 FACTORED RESISTANCE AVAILABLE: 199 KIPS
 EST. LENGTH: 43 FEET
 NO. PRODUCTION PILES: 15
 NO. TEST PILES: 1

 INDICATES BATTERED PILE.



PLAN-PILE CAP

NOTES

1. BARS NOTED THUS 3x2-#5, ETC. INDICATES 3 LINES OF BARS WITH 2 LENGTHS OF BARS PER LINE.
2. FOR BILL OF MATERIAL, SEE SHEET SD-26.
3. FOR PILE DETAILS, SEE SHEET SD-34.

P:\6825\0157-294-5-9\STRUCTURAL\WESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_west_abut.pile.cap.pln.dgn 2/20/2020

DRAWN BY . . . CTH
 CHECKED BY . . . SP

DATE . 4-9-2020
 SCALE NONE

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

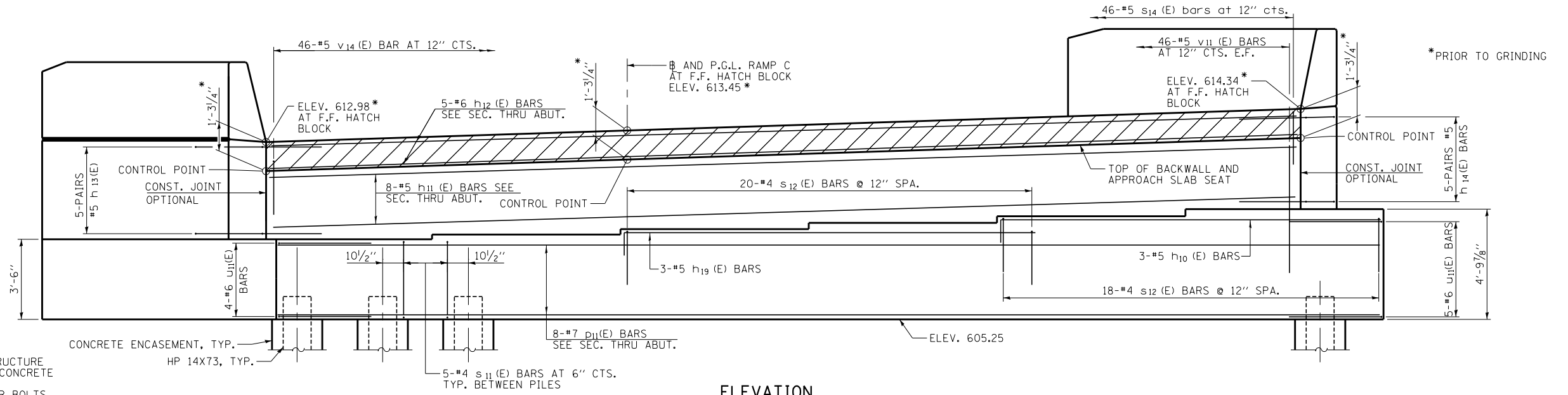
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 WEST ABUTMENT FOOTING

SHEET SD - 23 OF 38

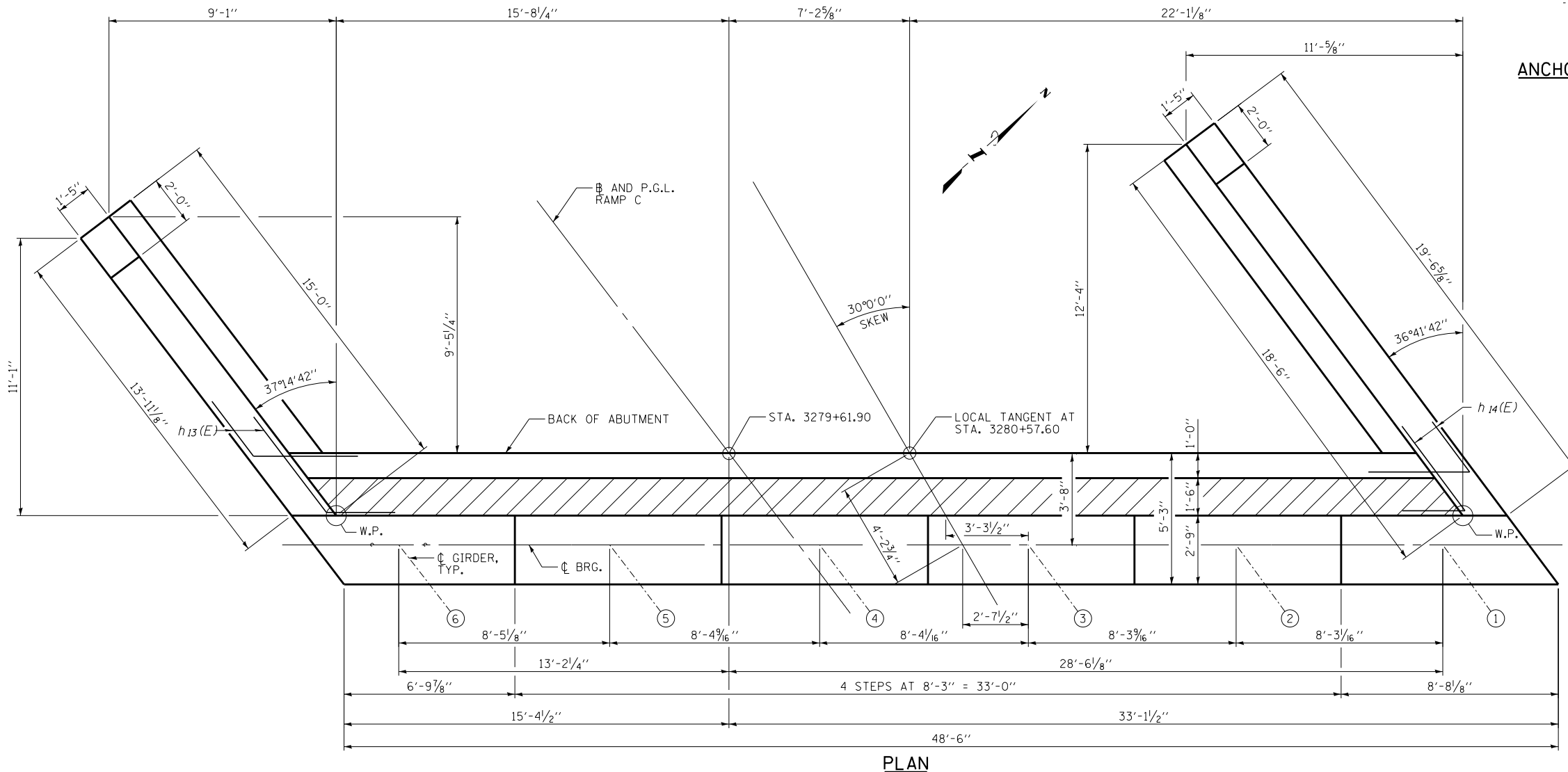
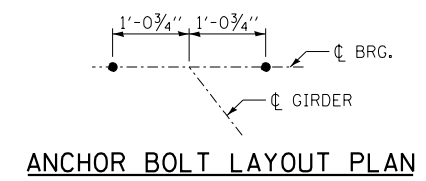
535 OF 606

GIRDER	SEAT ELEV.	STEP HEIGHT
1	610.07	3 3/4"
2	609.76	3 1/2"
3	609.47	3 1/4"
4	609.20	2 7/8"
5	608.96	2 1/2"
6	608.75	2 1/2"



NOTES:
 HATCHED AREA TO BE POURED AFTER SUPERSTRUCTURE FALSE WORK HAS BEEN REMOVED. QUANTITY OF CONCRETE INCLUDED WITH CONCRETE SUPERSTRUCTURE.
 SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS. POUR STEPS MONOLITHICALLY WITH CAP.
 QUANTITY OF CONCRETE IN END POST INCLUDED WITH CONCRETE SUPERSTRUCTURE ON SHEET SD-11.
 FOR CONCRETE ENCASEMENT DETAILS, SEE SHEET SD-34.

ELEVATION



PLAN

P:\6025\0157-294-5-9\STRUCTURAL\WESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_west_abut.dgn 2/20/2020

DRAWN BY . . . CTH
 CHECKED BY . . . SP
 DATE . 4-9-2020
 SCALE NONE

TYLIN INTERNATIONAL

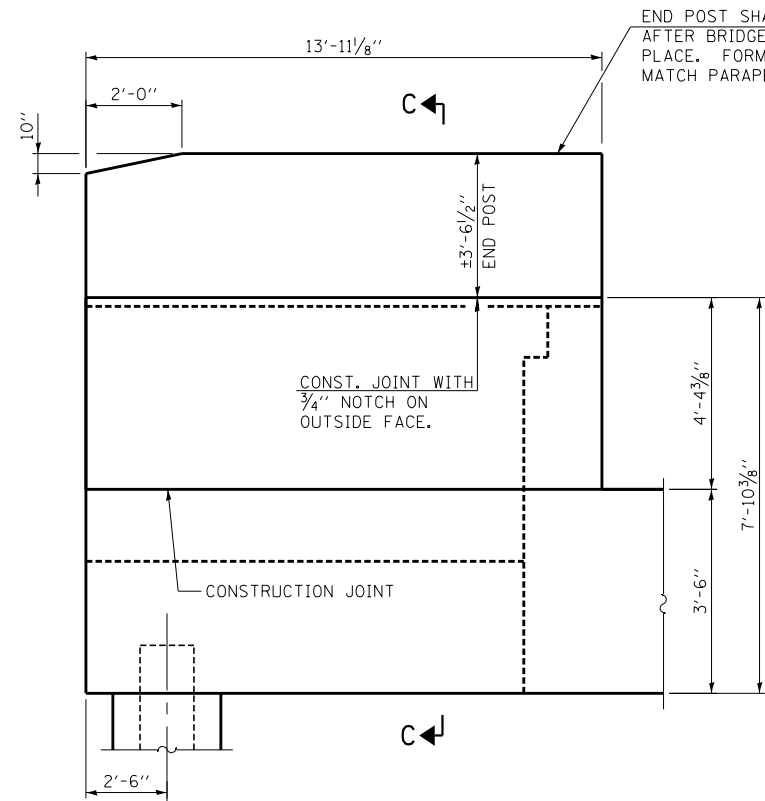


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

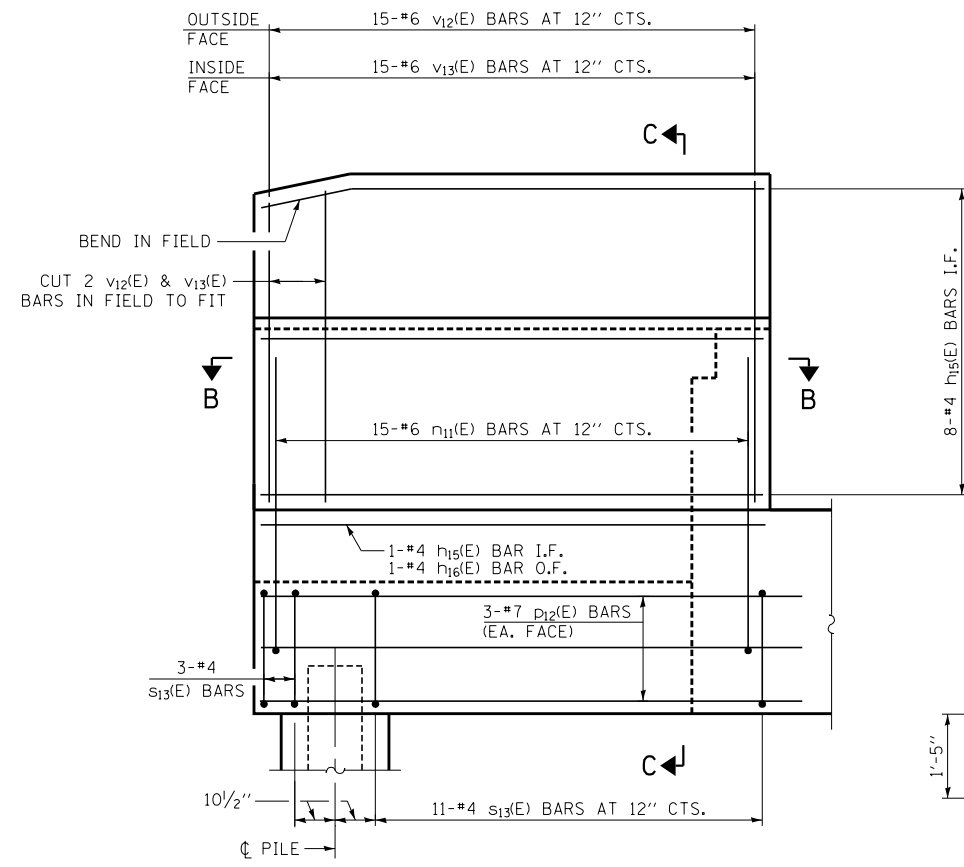
CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 WEST ABUTMENT PLAN AND ELEV.

SHEET SD - 24 OF 38
 536 OF 606



SOUTH WEST WING WALL ELEVATION

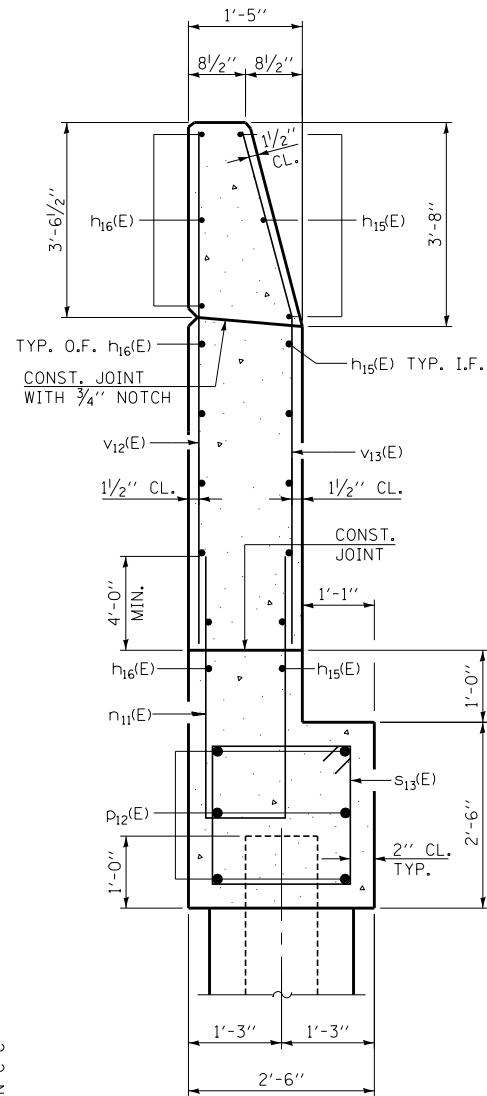
SHOWING DIMENSIONS (LOOKING NORTH)



SOUTH WEST WING WALL ELEVATION

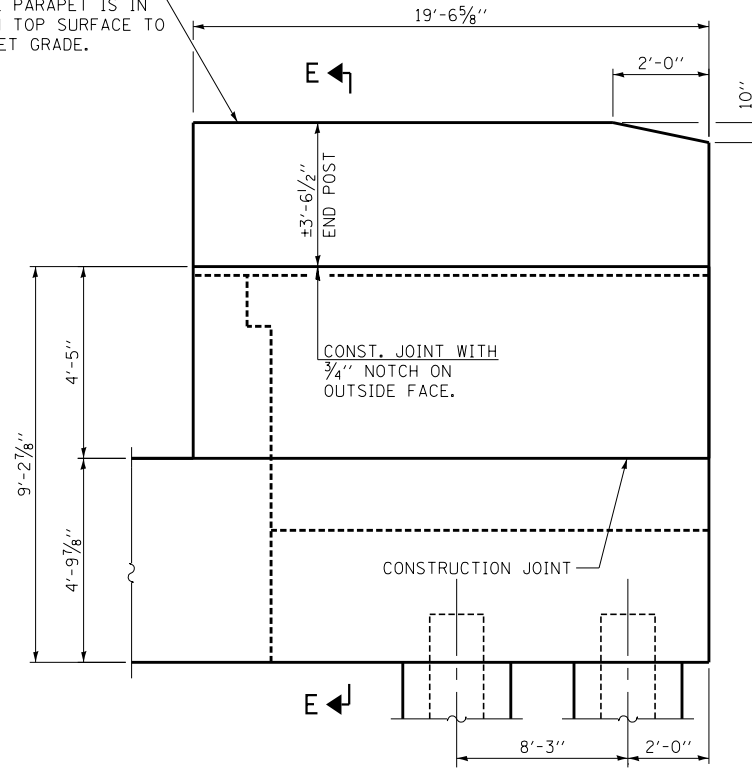
SHOWING REINFORCEMENT (LOOKING NORTH)

END POST SHALL BE POURED AFTER BRIDGE PARAPET IS IN PLACE. FORM TOP SURFACE TO MATCH PARAPET GRADE.



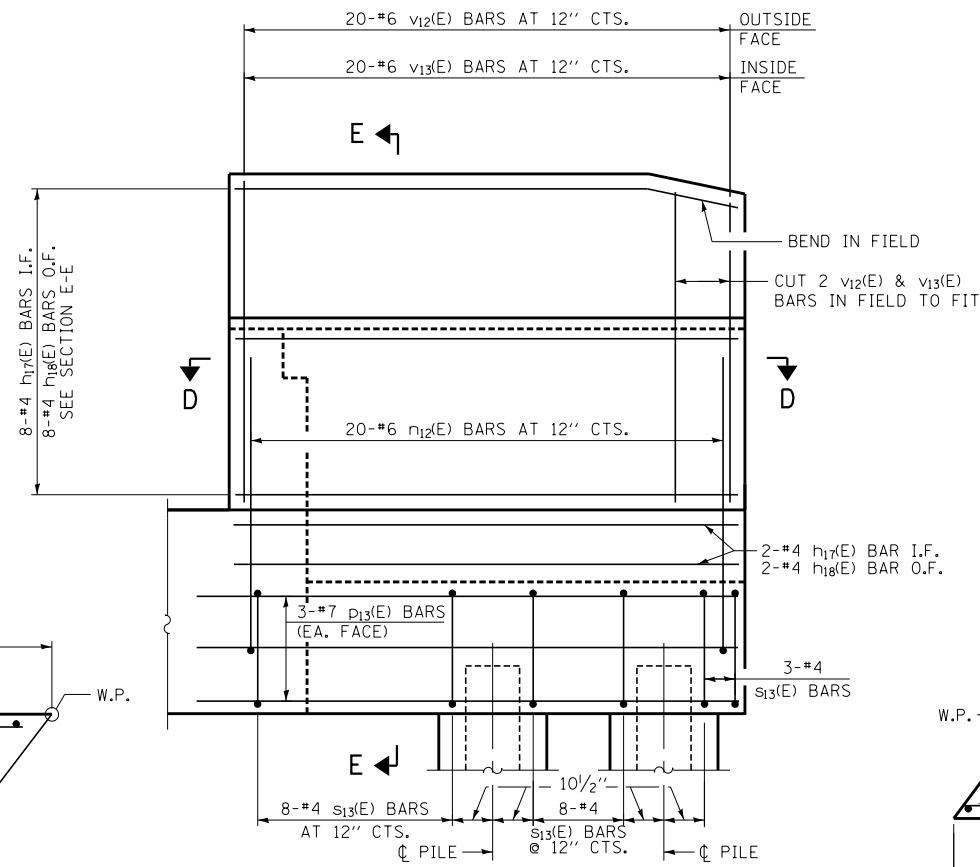
SECTION C-C

END POST SHALL BE POURED AFTER BRIDGE PARAPET IS IN PLACE. FORM TOP SURFACE TO MATCH PARAPET GRADE.



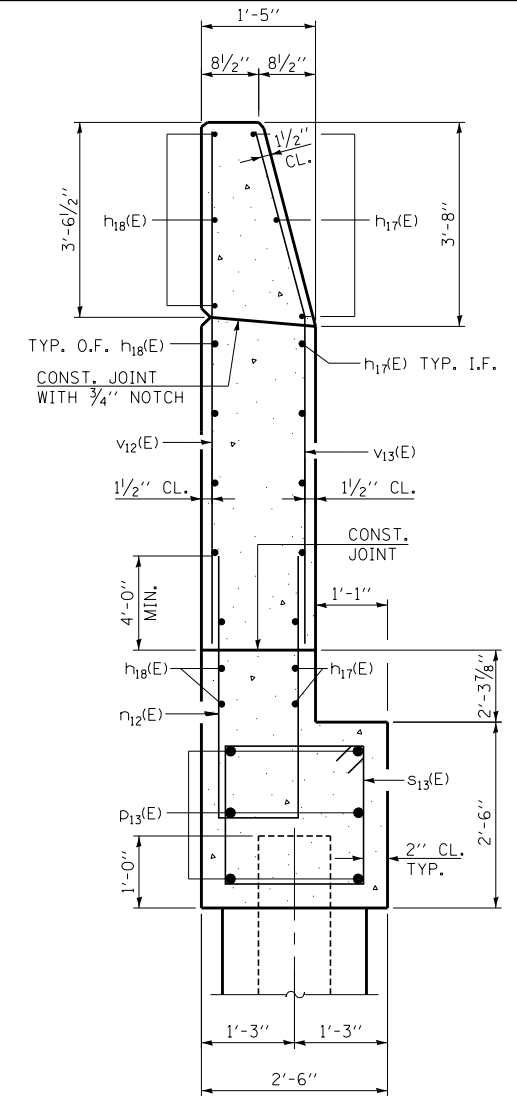
NORTH WEST WING WALL ELEVATION

SHOWING DIMENSIONS (LOOKING SOUTH)

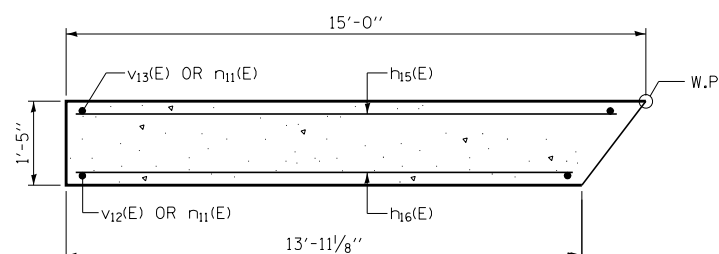


NORTH WEST WING WALL ELEVATION

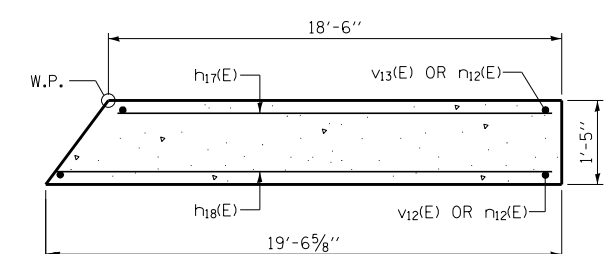
SHOWING REINFORCEMENT (LOOKING SOUTH)



SECTION E-E



SECTION B-B



SECTION D-D

P:\625\017-294-5-9\STRUCTURAL\WESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_west_abut_wingwall.dgn 2/20/2020

DRAWN BY CTH
CHECKED BY SP

DATE 4-9-2020
SCALE NONE

TYLIN INTERNATIONAL



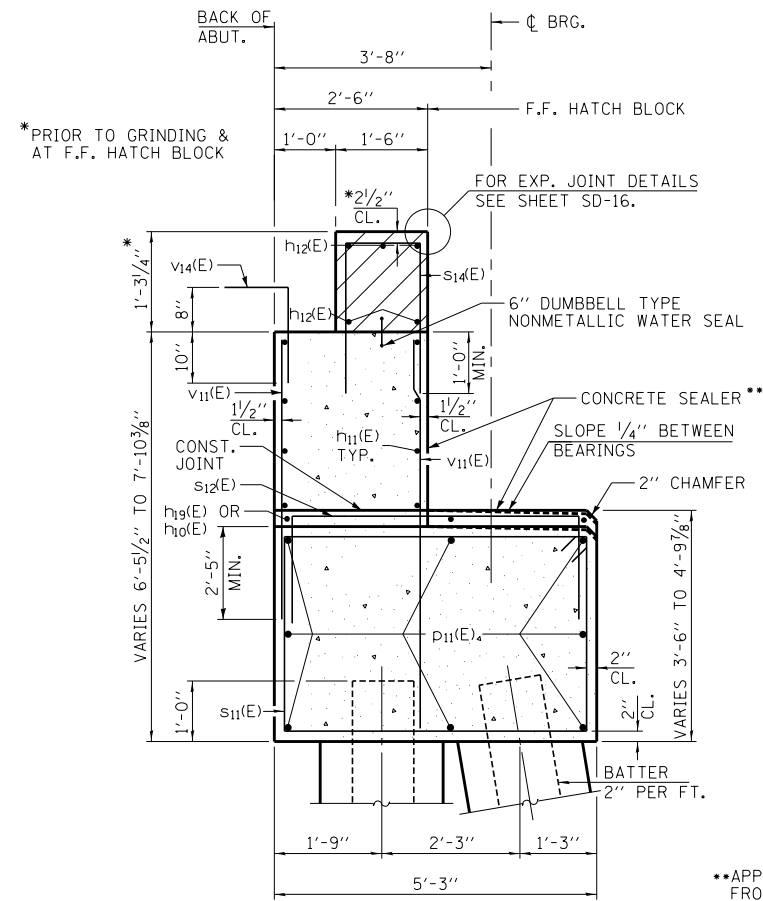
THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
WEST ABUTMENT WINGWALLS

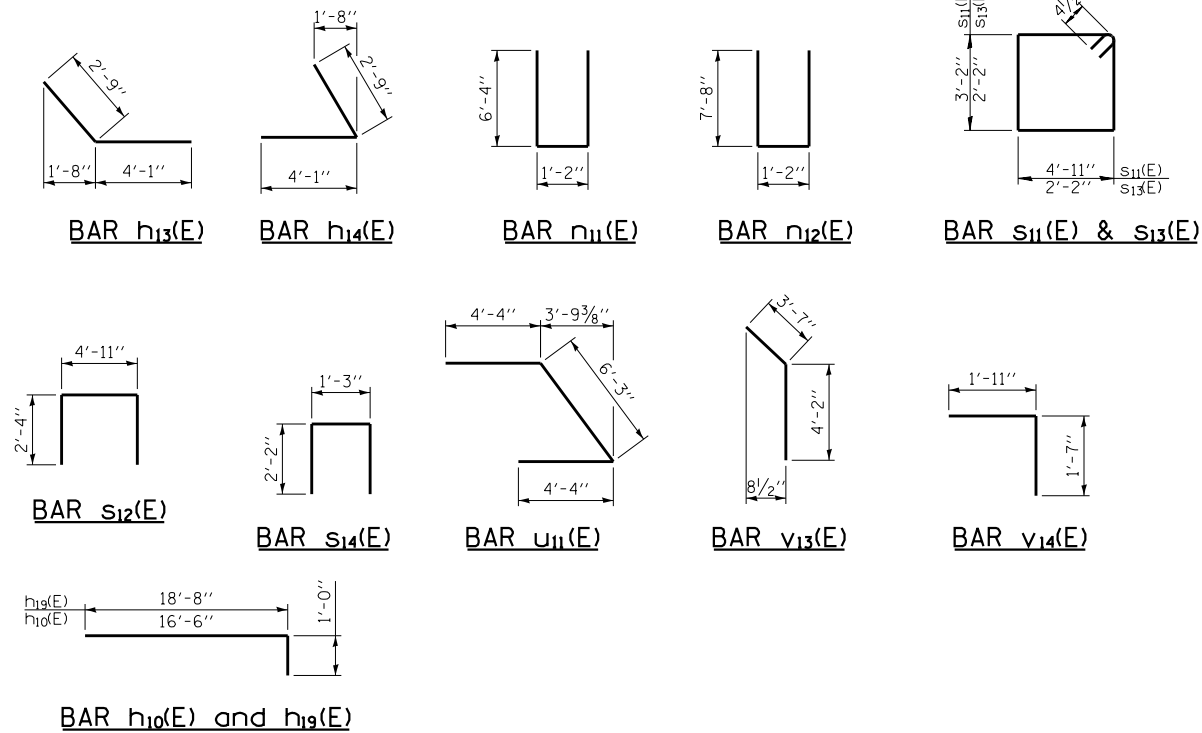
SHEET SD - 25 OF 38
537 OF 606

P:\6825\0157-294-5-9\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_west_abut_detail.dgn 2/20/2020



SECTION THRU ABUT.

**APPLY CONCRETE SEALER TO EXPOSED FRONT FACE OF ABUTMENT CAP AS WELL.



BILL OF MATERIAL				
BAR	NO.	SIZE	LENGTH	SHAPE
h10(E)	3	#5	17'-6"	┌
h11(E)	8	#5	44'-8"	┌
h12(E)	5	#6	44'-8"	┌
h13(E)	10	#5	6'-10"	└
h14(E)	10	#5	6'-10"	└
h15(E)	9	#4	14'-8"	┌
h16(E)	9	#4	13'-8"	┌
h17(E)	10	#4	18'-2"	┌
h18(E)	10	#4	19'-2"	┌
h19(E)	3	#5	19'-8"	┌
n11(E)	15	#6	13'-10"	U
n12(E)	20	#6	16'-6"	U
p11(E)	8	#7	48'-2"	┌
p12(E)	6	#7	14'-8"	┌
p13(E)	6	#7	18'-2"	┌
s11(E)	60	#4	16'-11"	□
s12(E)	38	#4	9'-7"	□
s13(E)	33	#4	9'-5"	□
s14(E)	46	#5	5'-7"	□
u11(E)	9	#6	14'-11"	└
v11(E)	92	#5	7'-5"	┌
v12(E)	35	#6	7'-8"	┌
v13(E)	35	#6	7'-9"	└
v14(E)	46	#5	3'-6"	└

BILL OF MATERIAL		
ITEM	UNIT	QUANTITY
STRUCTURE EXCAVATION	CU. YD.	107
CONCRETE STRUCTURES	CU. YD.	71.9
CONCRETE ENCASEMENT	CU. YD.	8.8
REINFORCEMENT BARS, EPOXY COATED	POUND	6,700
FURNISHING STEEL PILES HP14x73	FOOT	645
DRIVING PILES	FOOT	645
TEST PILE STEEL HP14x73	EACH	1
PILE SHOES	EACH	16
CONCRETE SEALER	SQ. FT.	462

DRAWN BY CTH
CHECKED BY SP

DATE 4-9-2020
SCALE NONE

TYLIN INTERNATIONAL

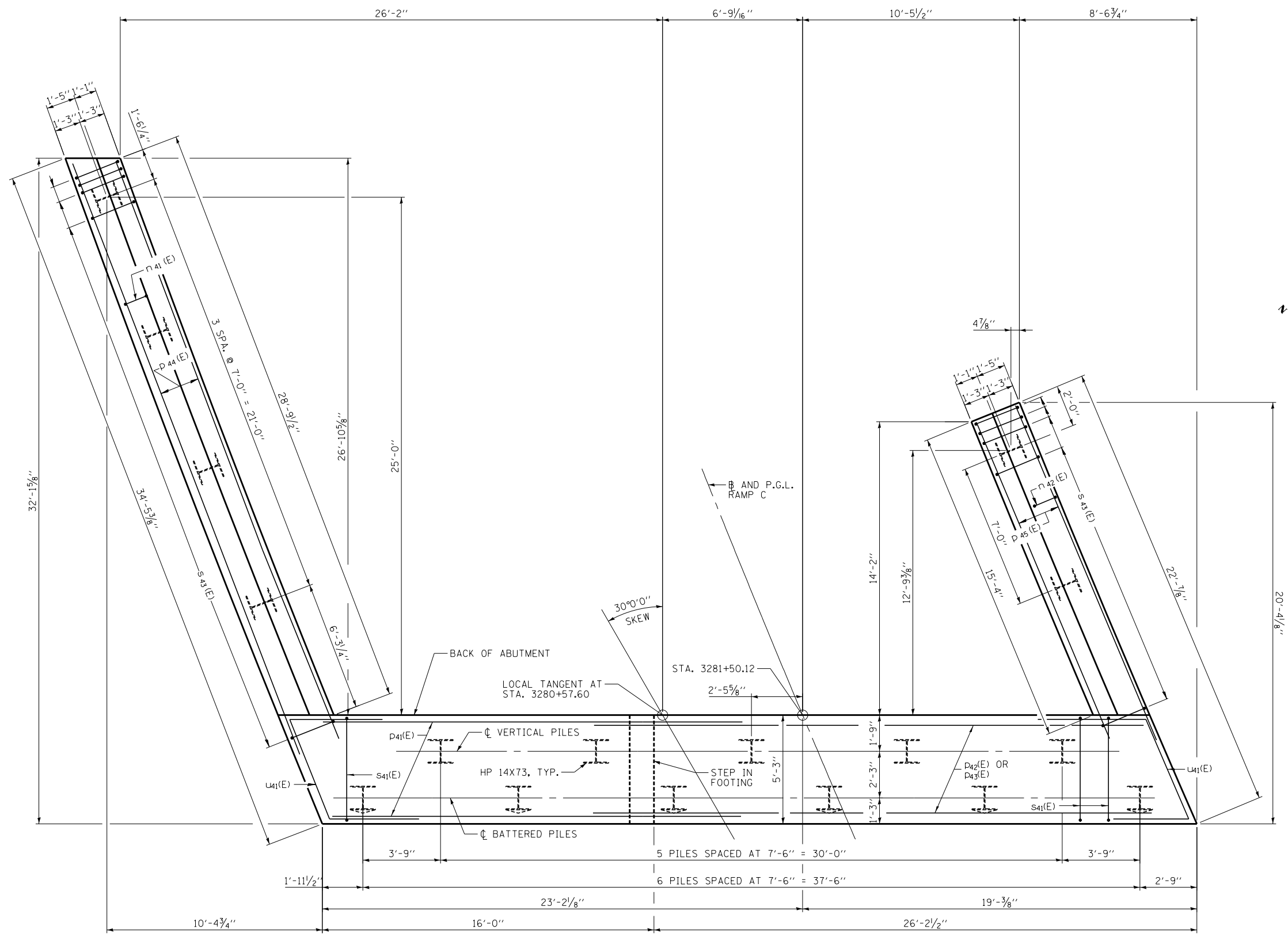


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
WEST ABUTMENT DETAILS

SHEET SD - 26 OF 38
538 OF 606



PILE DATA

TYPE: STEEL HP14X73 WITH PILE SHOES
 NOMINAL REQUIRED BEARING: 420 KIPS
 FACTORED RESISTANCE AVAILABLE: 231 KIPS
 EST. LENGTH: 26 FEET
 NO. PRODUCTION PILES: 16
 NO. TEST PILES: 1



PLAN-PILE CAP

NOTES

1. BARS NOTED THUS 3x2-#5, ETC. INDICATES 3 LINES OF BARS WITH 2 LENGTHS OF BARS PER LINE.
2. FOR BILL OF MATERIAL, SEE SHEET SD-31.
3. FOR PILE DETAILS, SEE SHEET SD-34.

P:\6825\017-294-5-9\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5 east.abut.pile.cap.plan.dgn 2/20/2020

DRAWN BY . . . CTH
 CHECKED BY . . . SP

DATE . 4-9-2020
 SCALE NONE

TYLIN INTERNATIONAL

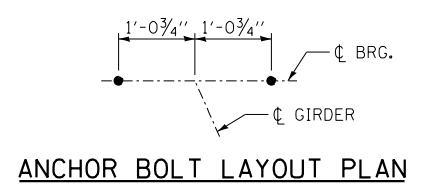
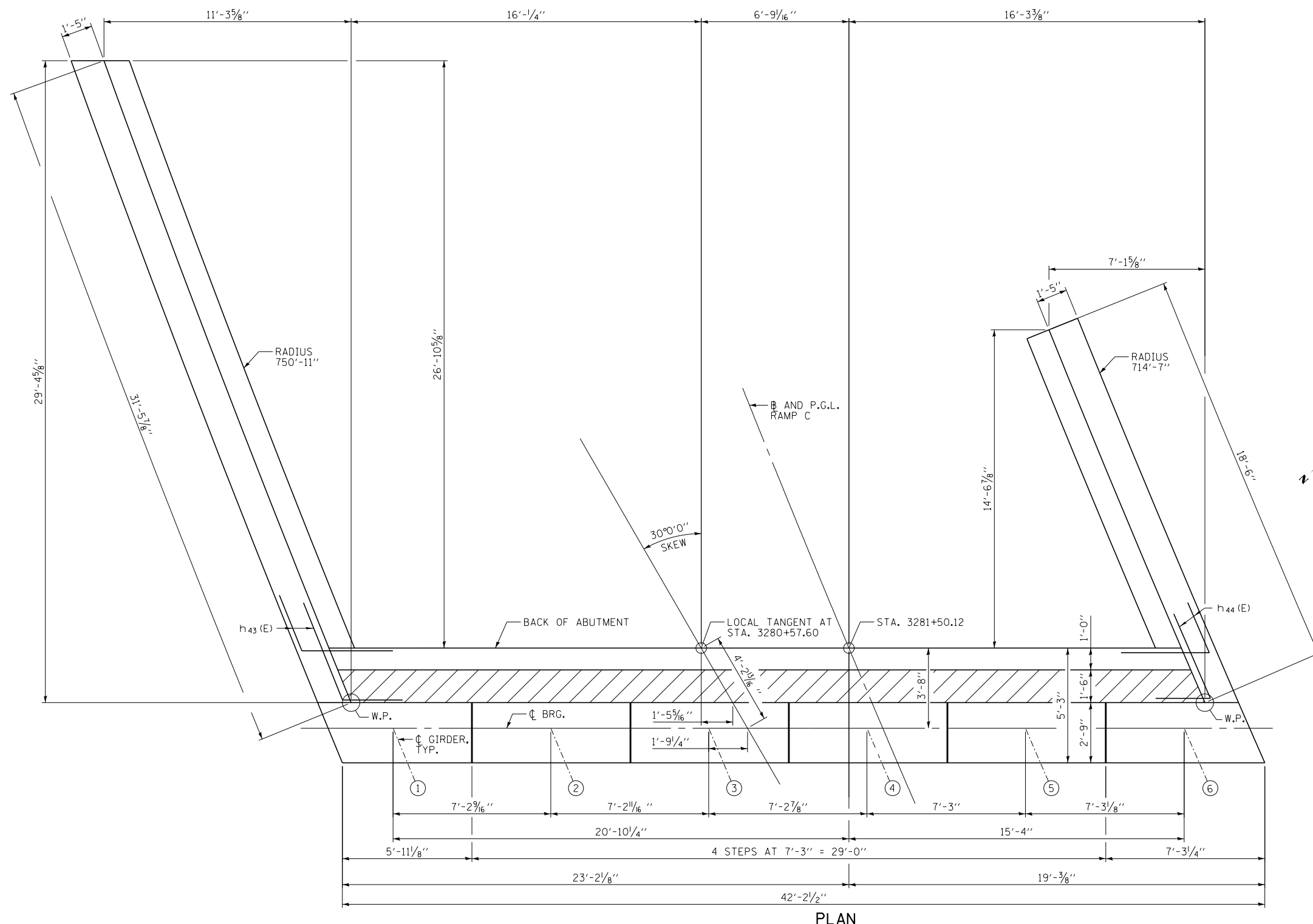


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 EAST ABUTMENT FOOTING

SHEET SD - 27 OF 38
 539 OF 606



PLAN

P:\6825\0157-294-5-9\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_east_abut_plandgn 2/20/2020

DRAWN BY PAK	DATE 4-9-2020
CHECKED BY SP	SCALE NONE

TYLIN INTERNATIONAL

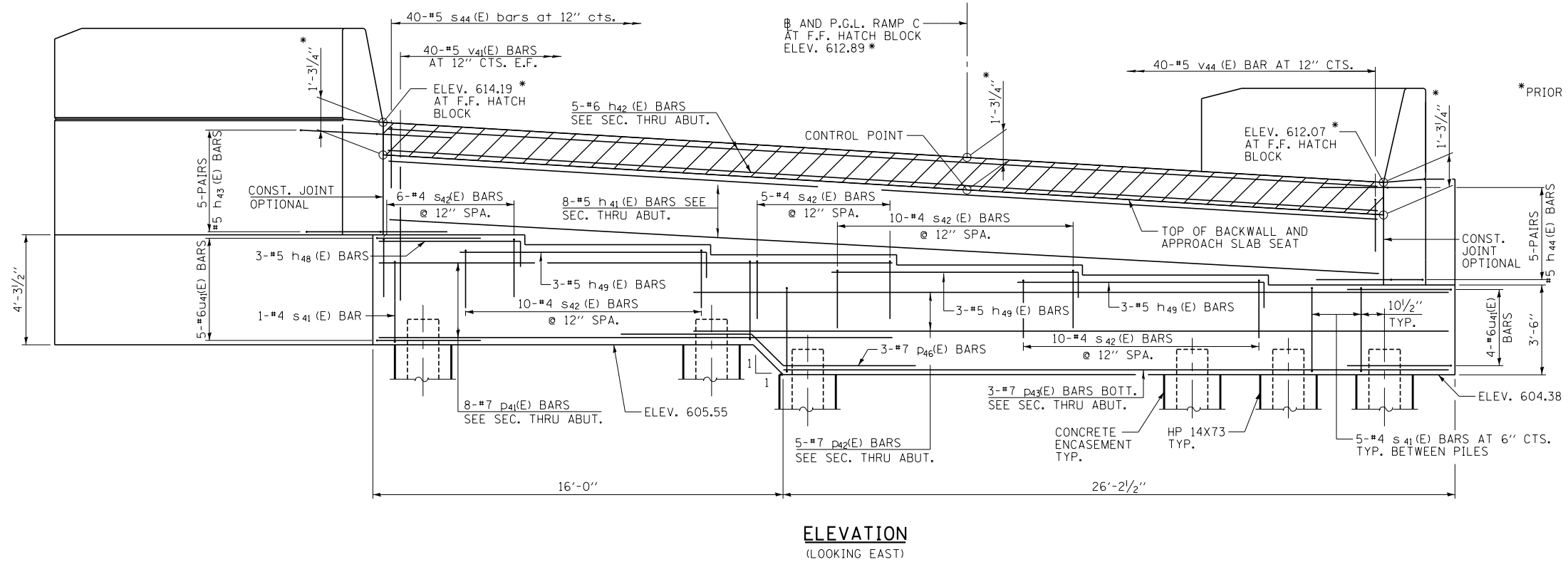

THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
EAST ABUTMENT PLAN

SHEET 5D - 28 OF 38
540 OF **606**

GIRDER	SEAT ELEV.	STEP HEIGHT
1	609.84	4 ⁵ / ₈ "
2	609.45	4 ⁵ / ₈ "
3	609.06	4 ³ / ₄ "
4	608.66	4 ⁵ / ₈ "
5	608.27	4 ⁵ / ₈ "
6	607.88	4 ⁵ / ₈ "



NOTES:
 HATCHED AREA TO BE POURED AFTER SUPERSTRUCTURE FALSE WORK HAS BEEN REMOVED. QUANTITY OF CONCRETE INCLUDED WITH CONCRETE SUPERSTRUCTURE.
 SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS. POUR STEPS MONOLITHICALLY WITH CAP.
 QUANTITY OF CONCRETE IN END POST INCLUDED WITH CONCRETE SUPERSTRUCTURE ON SHEET SD-11.
 FOR CONCRETE ENCASEMENT DETAILS, SEE SHEET SD-34.

P:\6025\0157-294-5-9\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5 east_abut_elevation.dgn 3/20/2020

DRAWN BY . . . PAK
 CHECKED BY . . . SP

DATE . 4-9-2020
 SCALE NONE

TYLIN INTERNATIONAL

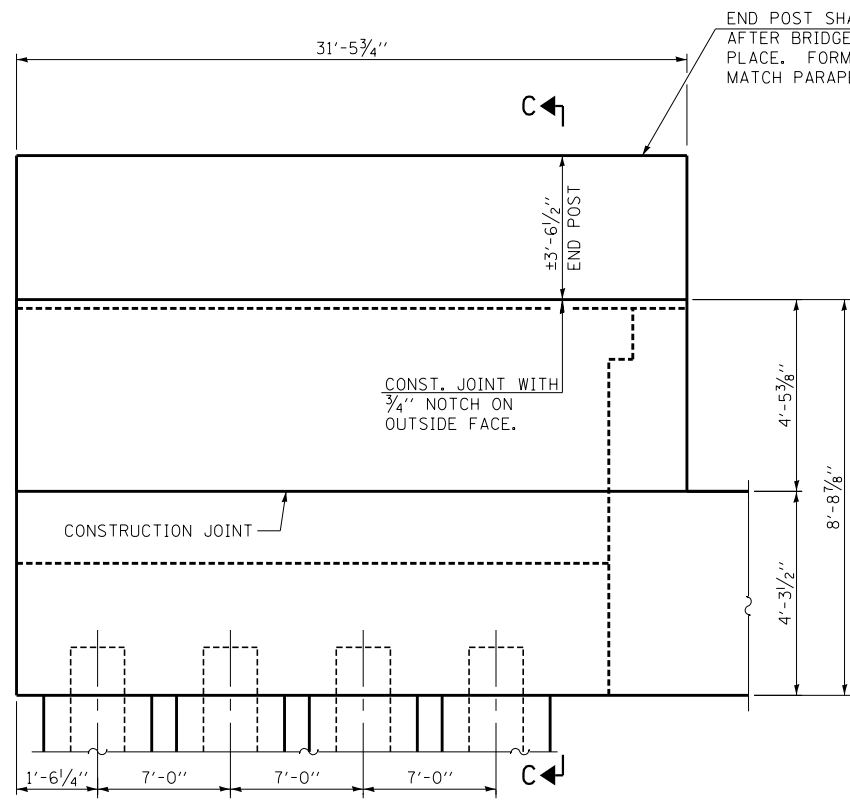


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

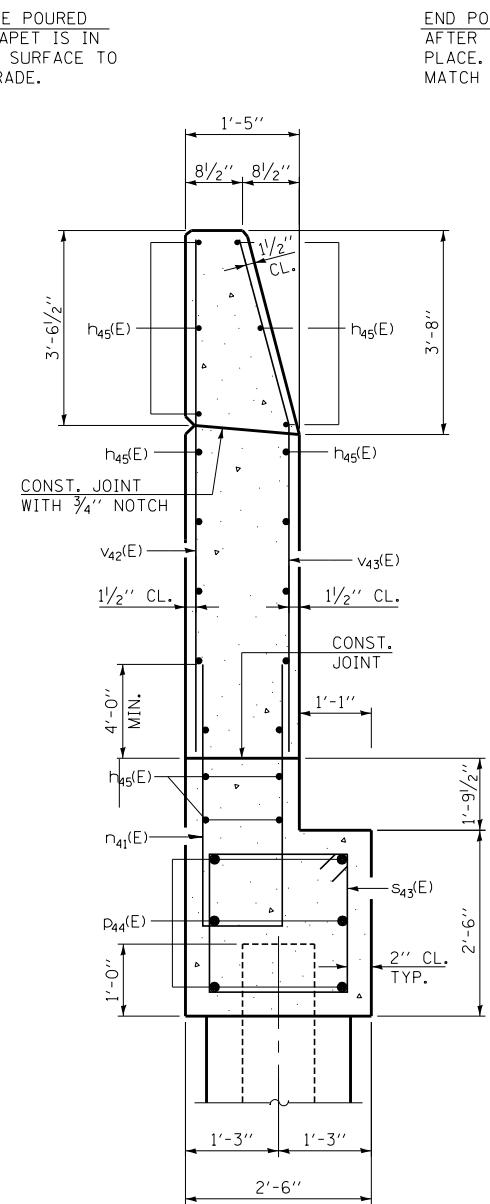
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 EAST ABUTMENT ELEVATION

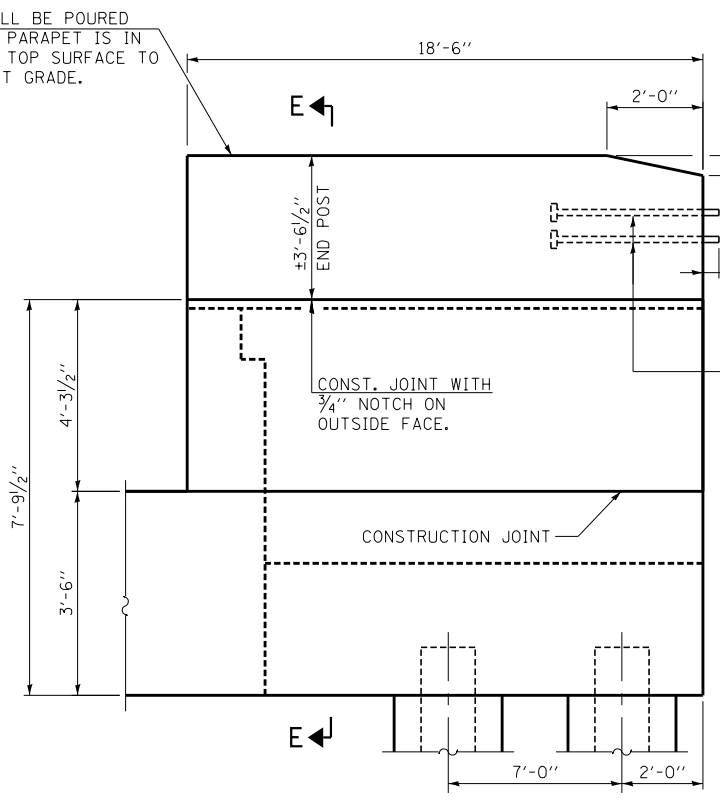
SHEET SD - 29 OF 38
 541 OF 606



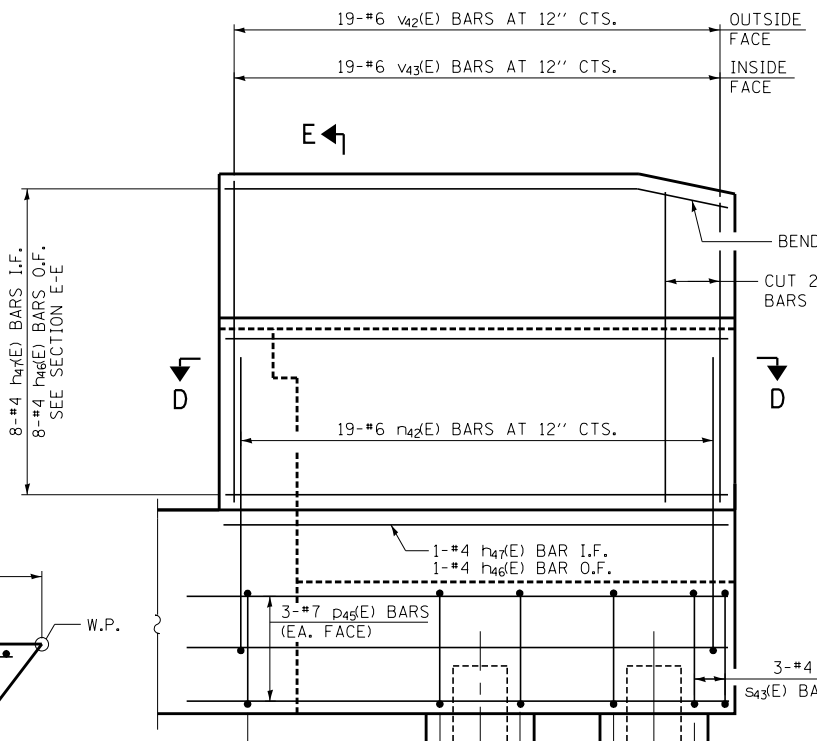
NORTH EAST WING WALL ELEVATION
SHOWING DIMENSIONS
(LOOKING SOUTH)



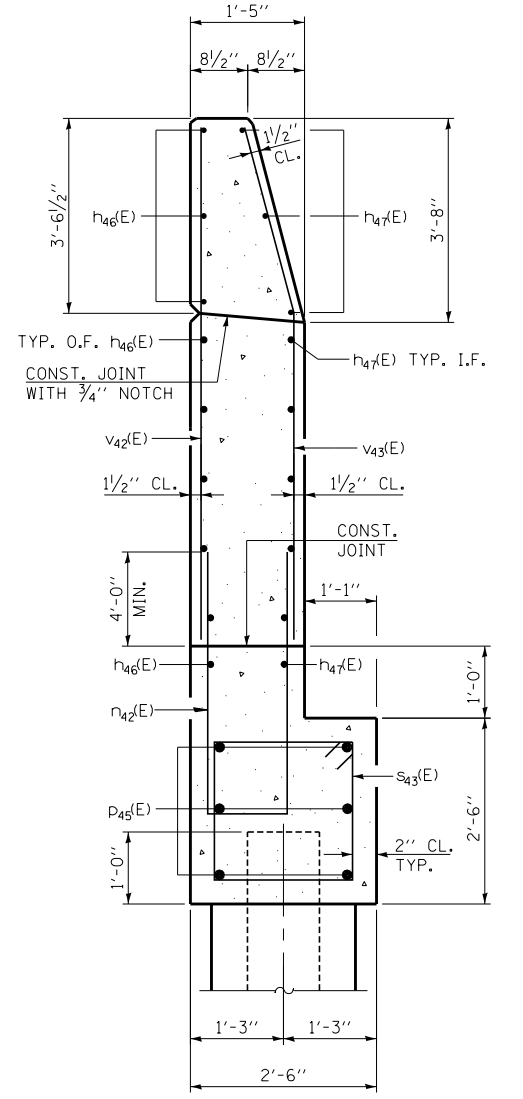
SECTION C-C



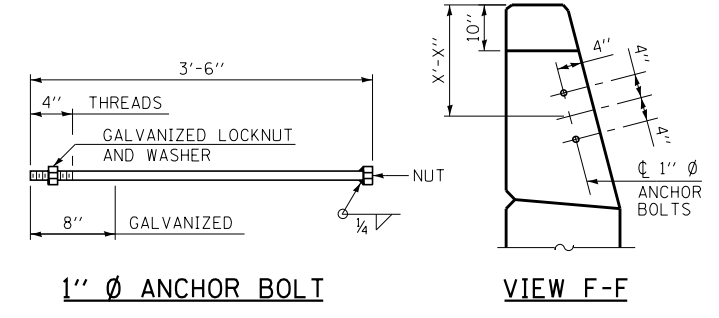
SOUTH EAST WING WALL ELEVATION
SHOWING DIMENSIONS
(LOOKING NORTH)



SOUTH EAST WING WALL ELEVATION
SHOWING REINFORCEMENT
(LOOKING NORTH)

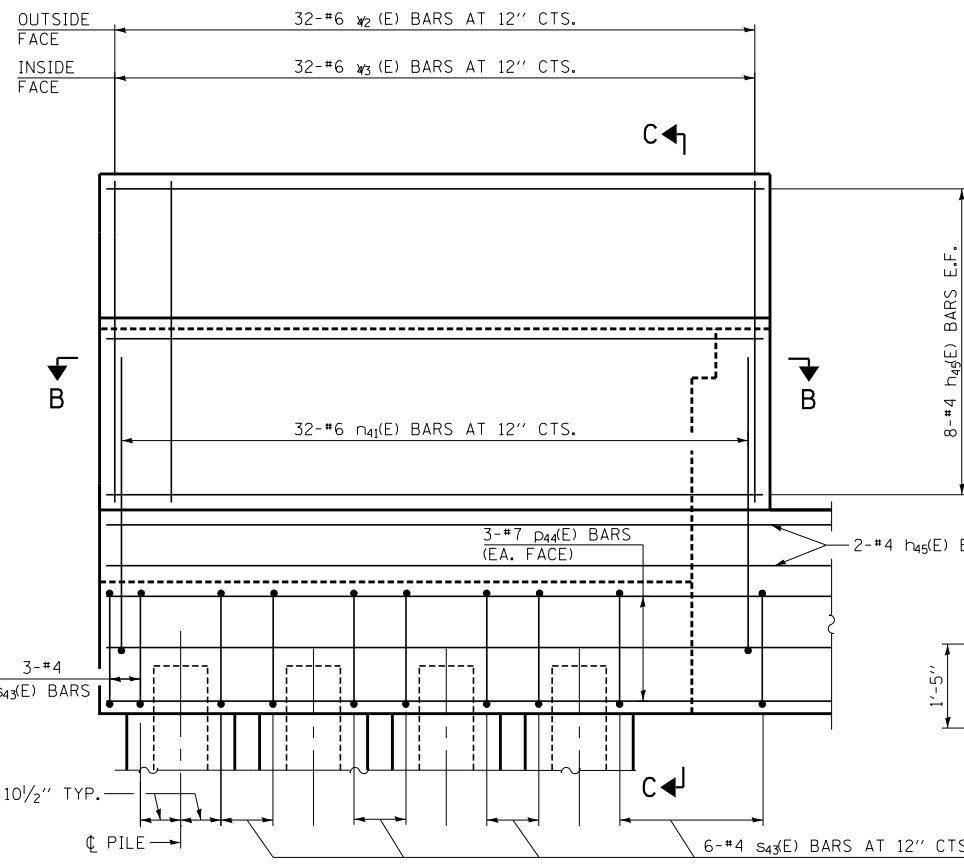


SECTION E-E

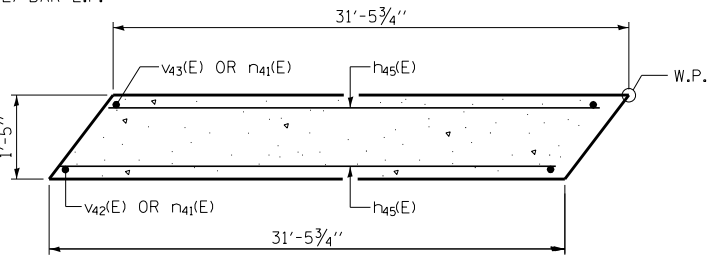


1" Ø ANCHOR BOLT

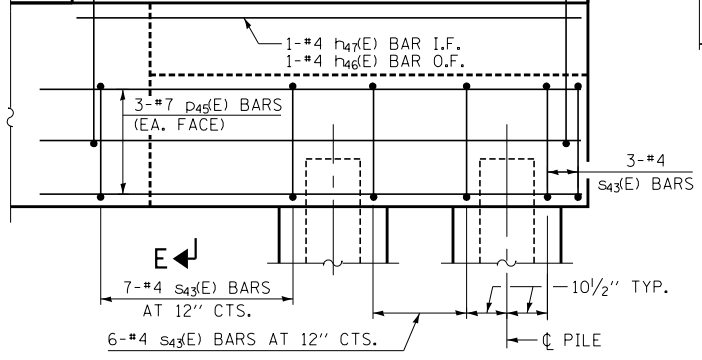
VIEW F-F



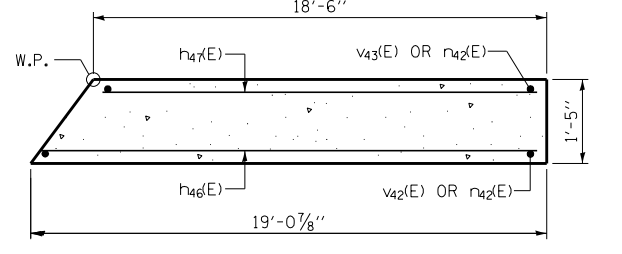
NORTH EAST WING WALL ELEVATION
SHOWING REINFORCEMENT
(LOOKING SOUTH)



SECTION B-B



SOUTH EAST WING WALL ELEVATION
SHOWING REINFORCEMENT
(LOOKING NORTH)



SECTION D-D

P:\62540157-294-5-9\STRUCTURAL\WEST\RT-2018\Ramp C over Dixie Creek\OFFICIAL\062102_5 east.abut.wall.dwg

DRAWN BY *CTH*
DATE *4-9-2020*
CHECKED BY *SP*
SCALE *NONE*

TYLIN INTERNATIONAL

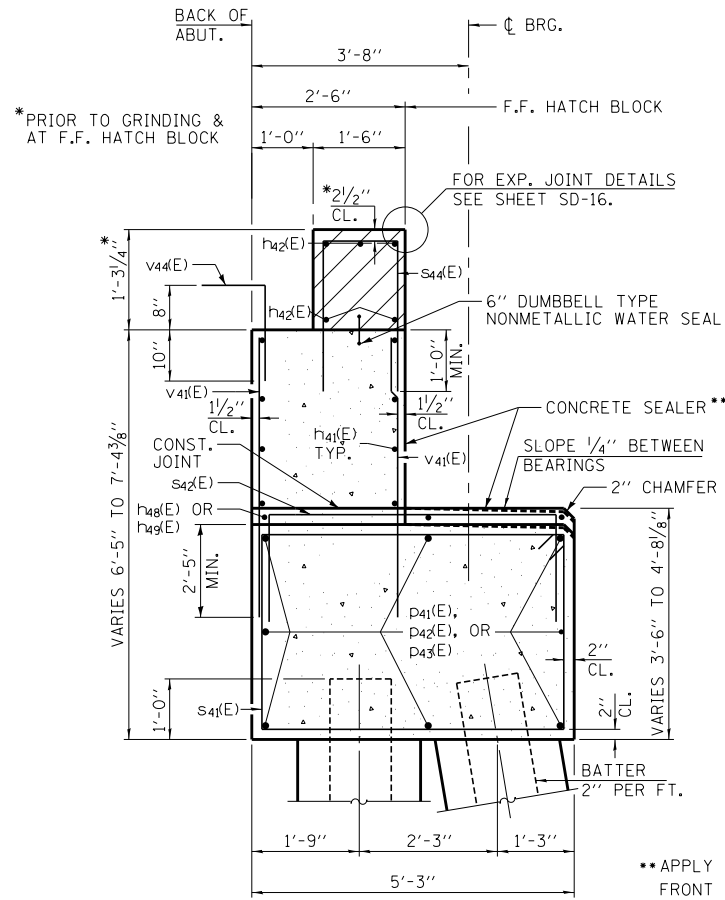


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

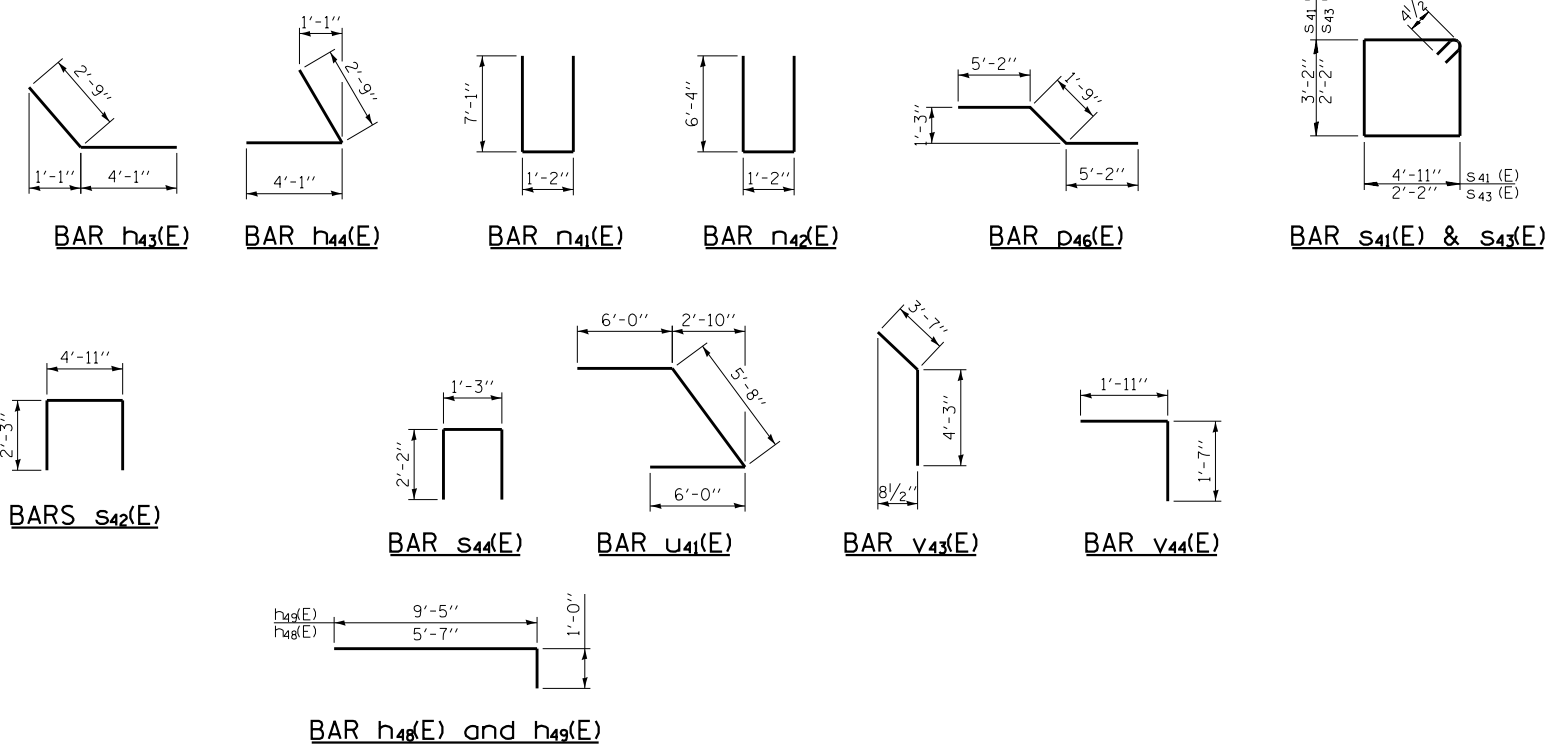
CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
EAST ABUTMENT WINGWALLS

SHEET SD - 30 OF 38
542 OF 606



SECTION THRU ABUT.

**APPLY CONCRETE SEALER TO EXPOSED FRONT FACE OF ABUTMENT CAP AS WELL.



REINFORCEMENT BAR LIST

BAR	NO.	SIZE	LENGTH	SHAPE
h41(E)	8	#5	38'-8"	—
h42(E)	5	#6	38'-8"	—
h43(E)	10	#5	6'-10"	└
h44(E)	10	#5	6'-10"	└
h45(E)	20	#4	31'-2"	—
h46(E)	9	#4	18'-9"	—
h47(E)	9	#4	18'-2"	—
h48(E)	3	#5	6'-7"	—
h49(E)	9	#5	10'-5"	—
n41(E)	32	#6	15'-4"	U
n42(E)	19	#6	13'-10"	U
p41(E)	8	#7	20'-1"	—
p42(E)	5	#7	27'-2"	—
p43(E)	3	#7	26'-0"	—
p44(E)	6	#7	31'-2"	—
p45(E)	6	#7	18'-2"	—
p46(E)	3	#7	12'-1"	—
s41(E)	51	#4	16'-11"	□
s42(E)	41	#4	9'-5"	□
s43(E)	43	#4	9'-5"	□
s44(E)	40	#5	5'-7"	□
u41(E)	9	#6	17'-8"	└
v41(E)	80	#5	6'-5"	—
v42(E)	51	#6	7'-8"	—
v43(E)	51	#6	7'-10"	└
v44(E)	40	#5	3'-6"	└

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
STRUCTURE EXCAVATION	CU. YD.	99
CONCRETE STRUCTURES	CU. YD.	71.9
CONCRETE ENCASEMENT	CU. YD.	9.3
REINFORCEMENT BARS, EPOXY COATED	POUND	7,310
FURNISHING STEEL PILES HP14x73	FOOT	416
DRIVING PILES	FOOT	416
TEST PILE STEEL HP14x73	EACH	1
PILE SHOES	EACH	17
CONCRETE SEALER	SQ. FT.	427

P:\6825\017-294-5-9\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5.east.abut.details.dgn 3/20/2020

DRAWN BY PAK
 CHECKED BY SP
 DATE 4-9-2020
 SCALE NONE

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

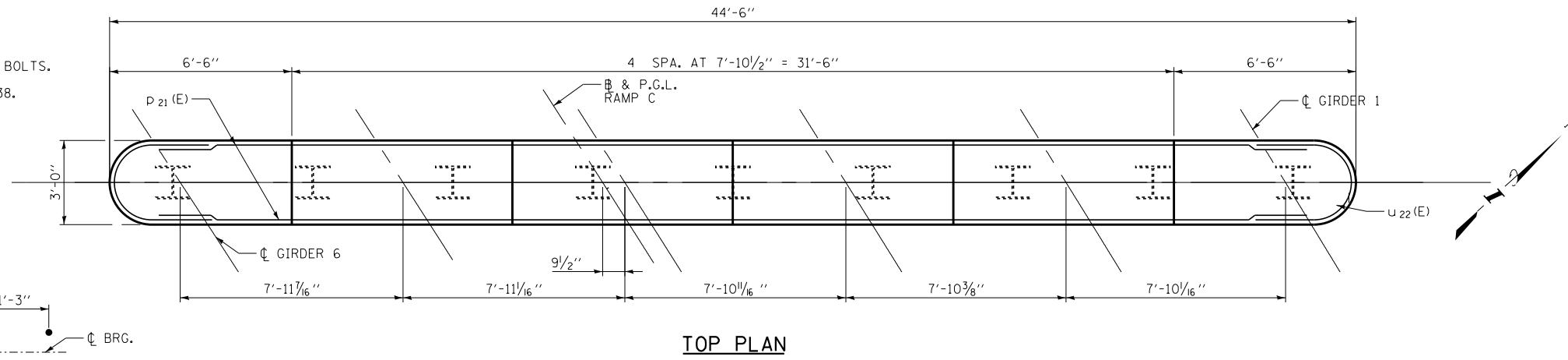
CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 EAST ABUTMENT DETAILS

SHEET SD - 31 OF 38
 543 OF 606

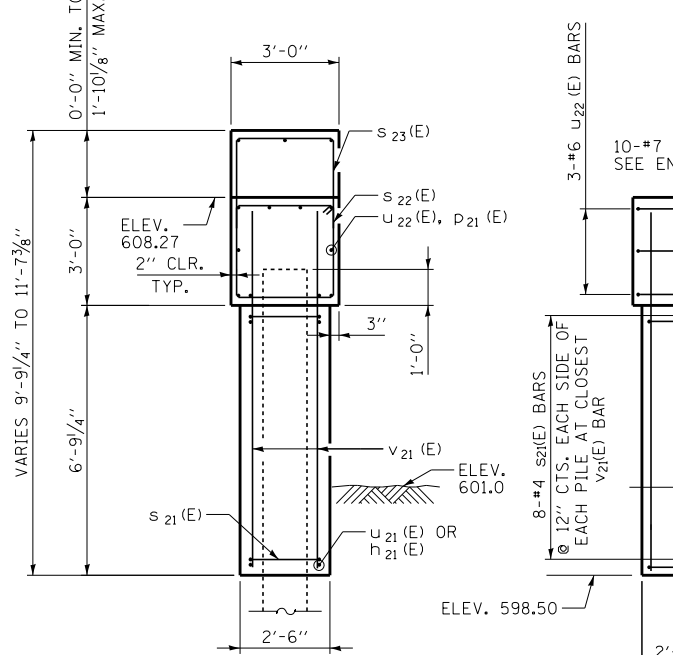
NOTES:
 SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS.
 POUR STEPS MONOLITHICALLY WITH CAP.
 FOR DETAILS OF PILES, SEE SHEET SD-34 OF 38.

PILE DATA

TYPE: HP14x89 WITH PILE SHOES
 NOMINAL REQUIRED BEARING: 605 KIPS
 FACTORED RESISTENCE AVAILABLE: 332 KIPS
 EST. LENGTH: 39'
 NO. PRODUCTION PILES: 8
 NO. TEST PILES: 1



ANCHOR BOLT LAYOUT PLAN

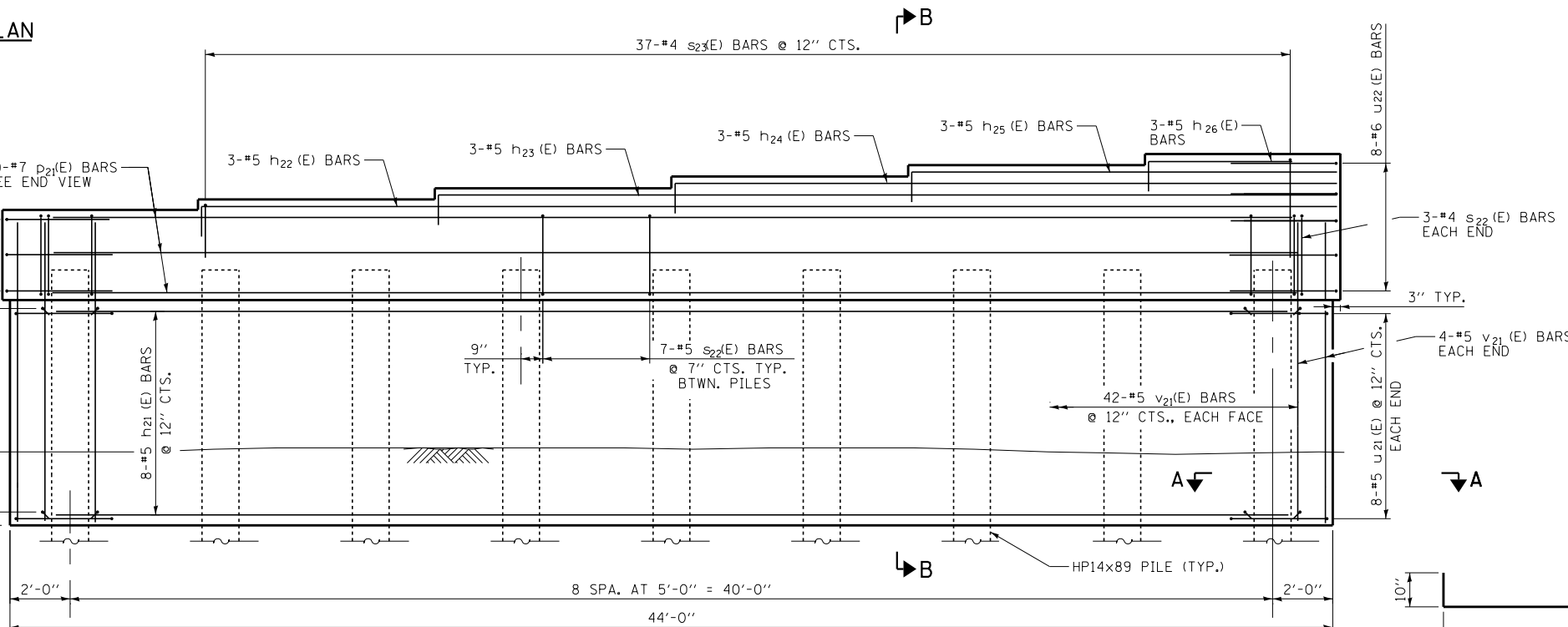


END VIEW

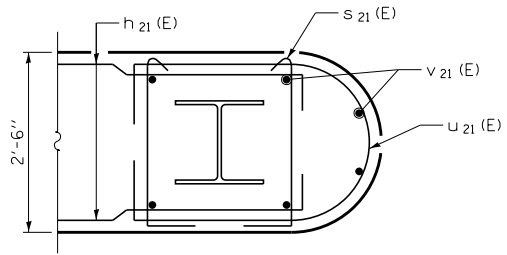
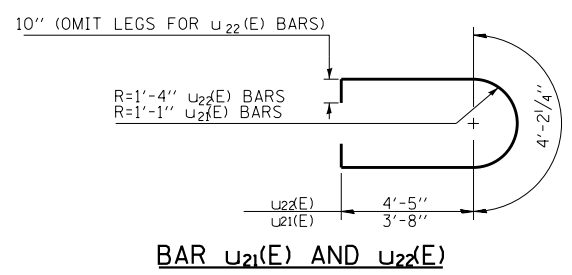
EST. TOP OF ROCK
 ELEV. 568.3

BEARING SEAT ELEVATIONS

GIRDER	ELEVATION	STEP HEIGHT
1	610.12	4 1/2"
2	609.74	4 3/8"
3	609.37	4 3/8"
4	609.00	4 3/8"
5	608.63	4 3/8"
6	608.27	4 3/8"



ELEVATION
 (LOOKING WEST, DOWNSTATION)

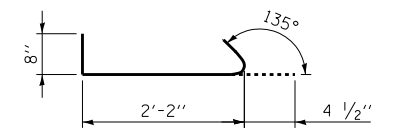


SECTION A-A

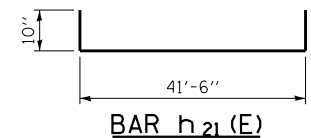
BAR	"A"
h 22 (E)	36'-4"
h 23 (E)	28'-6"
h 24 (E)	20'-8"
h 25 (E)	12'-10"
h 26 (E)	5'-0"

BAR h 22 (E) TO h 26 (E)

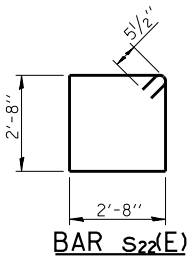
BILL OF MATERIAL				
BAR	NO.	SIZE	LENGTH	SHAPE
h 21 (E)	16	#5	43'-2"	U
h 22 (E)	3	#5	37'-7"	U
h 23 (E)	3	#5	29'-9"	U
h 24 (E)	3	#5	21'-11"	U
h 25 (E)	3	#5	14'-1"	U
h 26 (E)	3	#5	6'-3"	U
v 21 (E)	92	#5	9'-5"	U
u 21 (E)	16	#5	12'-5"	U
u 22 (E)	11	#6	13'-1"	U
p 21 (E)	10	#7	41'-6"	U
s 21 (E)	144	#4	3'-3"	U
s 22 (E)	62	#5	11'-7"	U
s 23 (E)	37	#4	8'-4"	U
STRUCTURE EXCAVATION	CU. YD.	29		
CONCRETE STRUCTURES	CU. YD.	48.3		
REINFORCEMENT BARS, EPOXY COATED	POUND	4510		
DRIVING PILES	FOOT	312		
FURNISHING STEEL PILES HP14x89	FOOT	312		
TEST STEEL PILE HP14x89	EACH	1		
PILE SHOES	EACH	9		



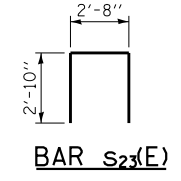
BAR S 21 (E)



BAR h 21 (E)



BAR S 22 (E)



BAR S 23 (E)

DRAWN BY SP
 CHECKED BY SP
 DATE 4-9-2020
 SCALE NONE

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

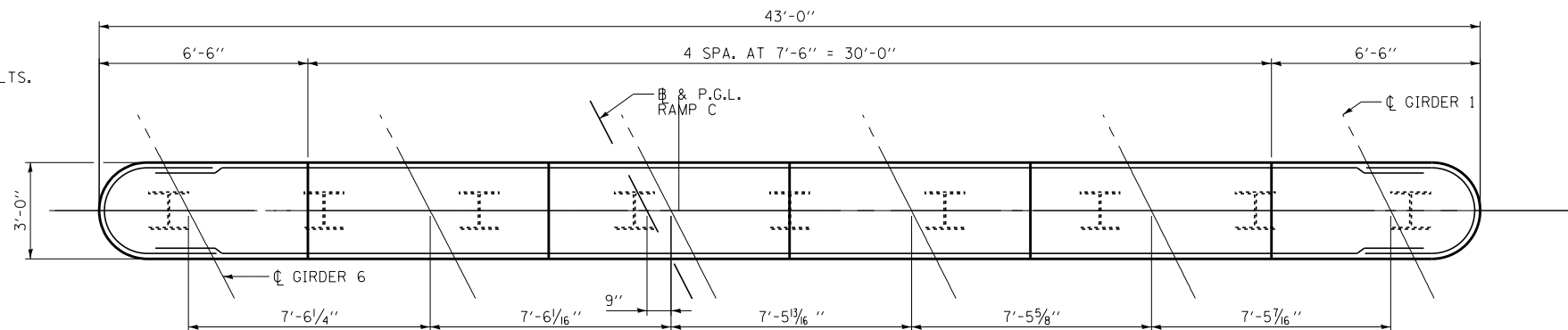
CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 PIER 1

SHEET SD - 32 OF 38
 544 OF 606

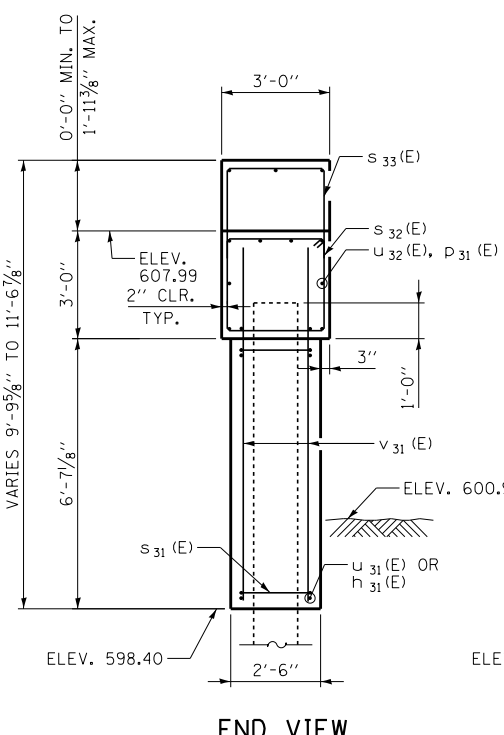
NOTES:
 SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS.
 POUR STEPS MONOLITHICALLY WITH CAP.
 FOR DETAILS OF PILES, SEE SHEET SD-34 OF 38.

PILE DATA

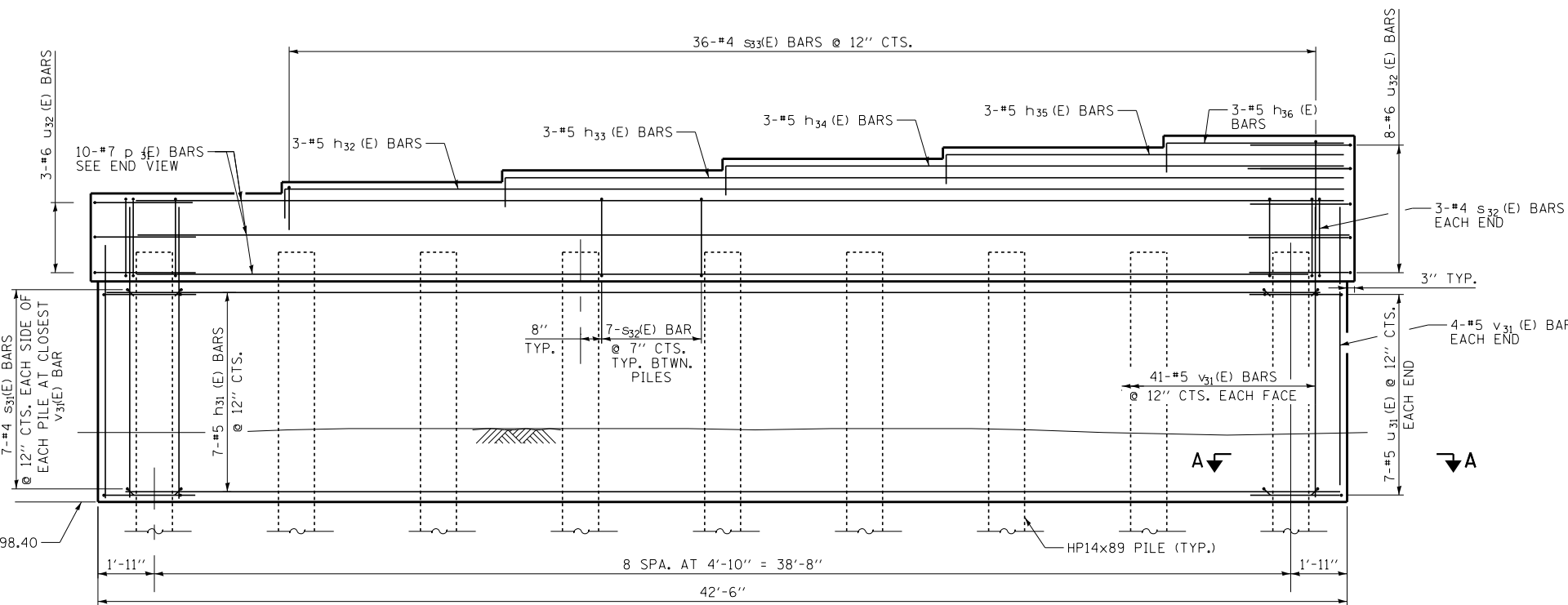
TYPE: HP14x89 WITH PILE SHOES
 NOMINAL REQUIRED BEARING: 629 KIPS
 FACTORED RESISTENCE AVAILABLE: 346 KIPS
 EST. LENGTH: 37'
 NO. PRODUCTION PILES: 8
 NO. TEST PILES: 1



TOP PLAN



END VIEW

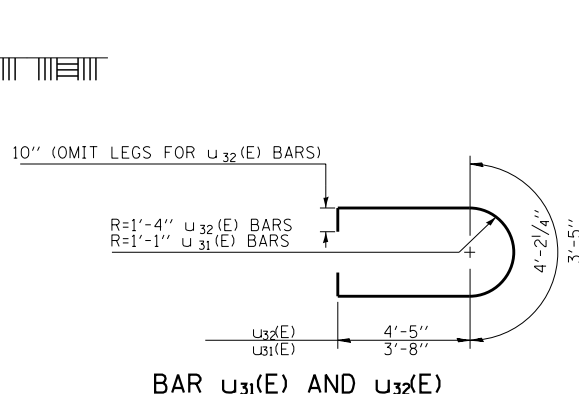


ELEVATION

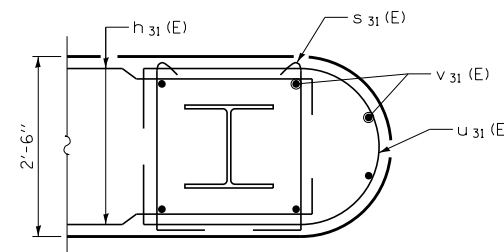
(LOOKING WEST, DOWNSTATION)

BEARING SEAT ELEVATIONS

GIRDER	ELEVATION	STEP HEIGHT
1	609.97	4 5/8"
2	609.58	4 5/8"
3	609.19	4 5/8"
4	608.80	4 5/8"
5	608.41	4 5/8"
6	608.02	4 5/8"



ANCHOR BOLTS LAYOUT PLAN



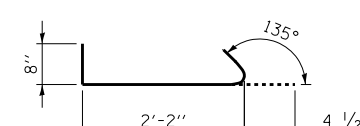
SECTION A-A

REINFORCEMENT BAR LIST

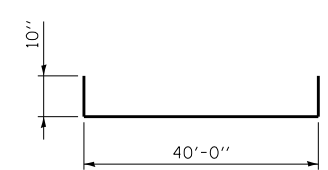
BAR	NO.	SIZE	LENGTH	SHAPE
h31 (E)	14	#5	41'-8"	U
h32 (E)	3	#5	36'-1"	U
h33 (E)	3	#5	28'-7"	U
h34 (E)	3	#5	21'-1"	U
h35 (E)	3	#5	13'-7"	U
h36 (E)	3	#5	6'-1"	U
v31 (E)	90	#5	9'-5"	U
u31 (E)	14	#6	12'-5"	U
u32 (E)	11	#6	13'-1"	U
p31 (E)	10	#7	40'-0"	U
s31 (E)	126	#4	3'-3"	U
s32 (E)	62	#5	11'-7"	U
s33 (E)	36	#4	8'-4"	U

BILL OF MATERIAL

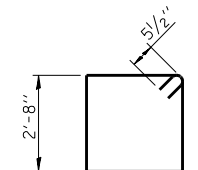
ITEM	UNIT	QUANTITY
STRUCTURE EXCAVATION	CU. YD.	30
CONCRETE STRUCTURES	CU. YD.	44.9
REINFORCEMENT BARS, EPOXY COATED	POUND	4270
DRIVING PILES	FOOT	296
FURNISHING STEEL PILES HP14x89	FOOT	296
TEST STEEL PILE HP14x89	EACH	1
PILE SHOES	EACH	9



BAR S31(E)



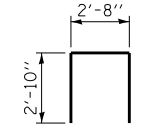
BAR h31(E)



BAR S32(E)

BAR	"A"
h32 (E)	34'-0"
h33 (E)	27'-4"
h34 (E)	19'-10"
h35 (E)	12'-4"
h36 (E)	4'-10"

BAR h32(E) TO h36(E)



BAR S33(E)

P:\625\0157-294-5-9\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5.pier2.dgn 2/20/2020

DRAWN BY DATE 4-9-2020
 CHECKED BY SP SCALE NONE

TYLIN INTERNATIONAL

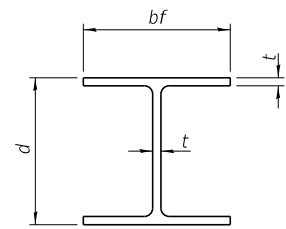


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

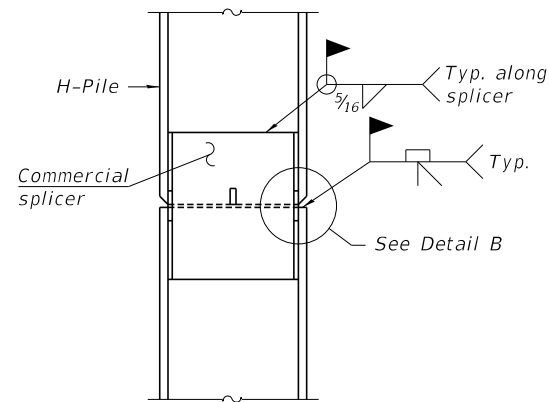
CONTRACT I-19-4495
 I-57 AT 294 RAMPS C, D, AND F2
 SN 016-2102
 PIER 2

SHEET SD - 33 OF 38
 545 OF 606

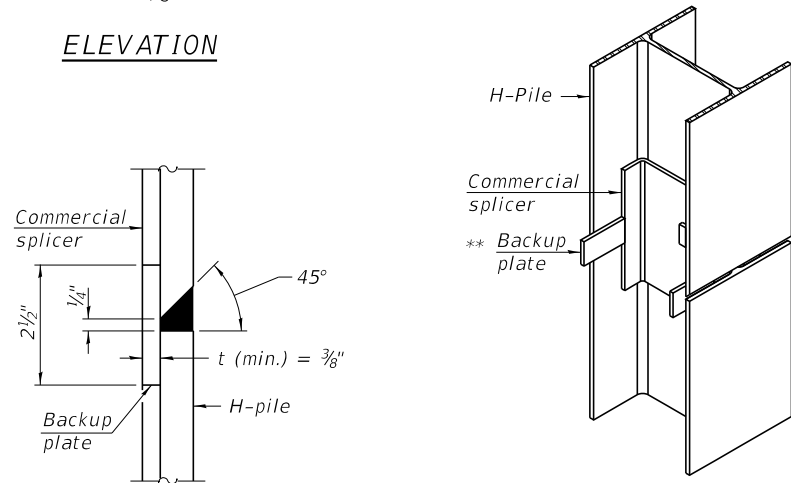


STEEL PILE TABLE

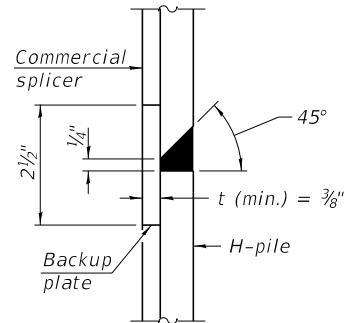
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	1 3/16"	30"
x102	14"	14 3/4"	1 1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 3/8"	14 3/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1 1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



ELEVATION

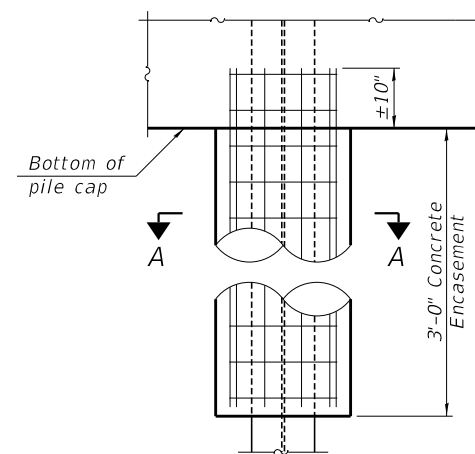


ISOMETRIC VIEW

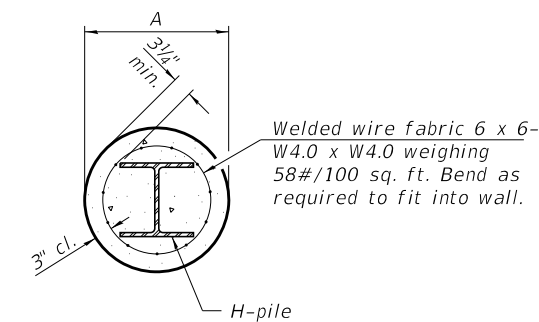


DETAIL "B"

WELDED COMMERCIAL SPLICE

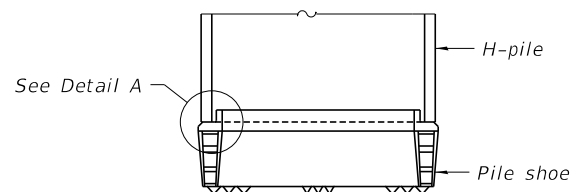


ELEVATION

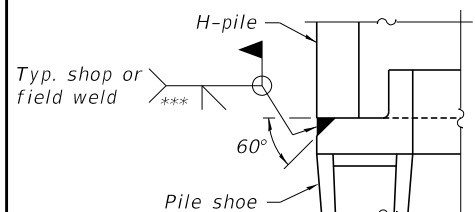


SECTION A-A

INDIVIDUAL PILE CONCRETE ENCASEMENT
(Forms for encasement may be omitted when soil conditions permit).



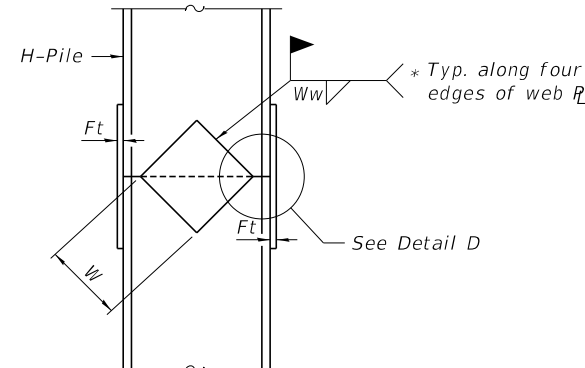
ELEVATION



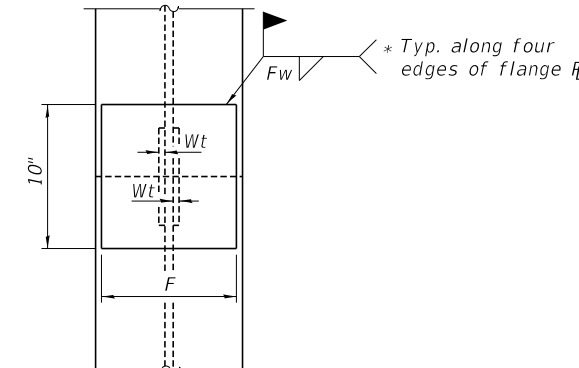
DETAIL A

SHOE ATTACHMENT

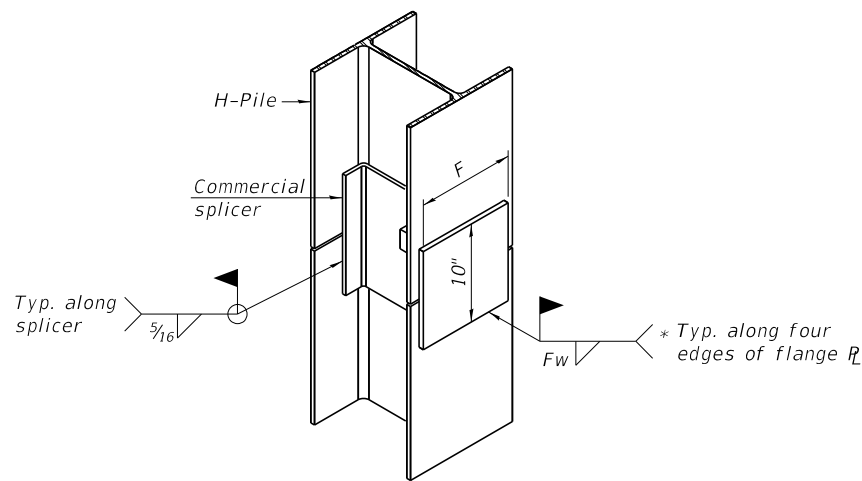
Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.



ELEVATION



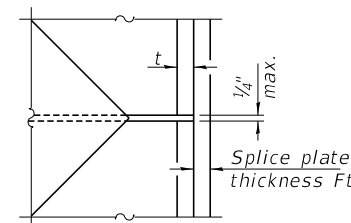
END VIEW



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

- * Interrupt welds 1/4" from end of web and/or each flange.
- ** Remove portions of backup plates that extend outside the flanges.
- *** Weld size per pile shoe manufacturer (5/16" min.).



DETAIL D

WELDED PLATE FIELD SPLICE

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	1 1/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

F-HP 8-11-2017

DRAWN BY JM
CHECKED BY SP

DATE 4-9-2020
SCALE NONE

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS	
NO.	DATE DESCRIPTION

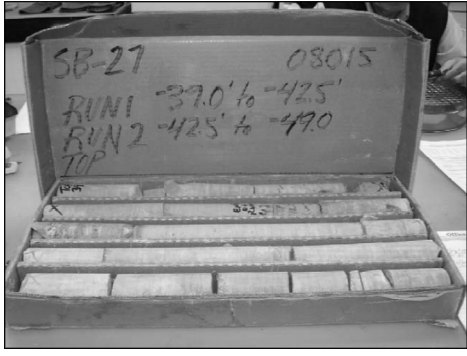
CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
SN 016-2102
HP PILE DETAILS

SHEET 8D - 34 OF 38
546 OF 606

SOIL BORING LOG				SOIL BORING LOG					
PAGE 1 of 2				PAGE 2 of 2					
Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60563 (630) 355-2838				Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60563 (630) 355-2838					
JOB NUMBER P-91-186-08				JOB NUMBER P-91-186-08					
DATE 1/14/2010				DATE 1/14/2010					
LOGGED BY DR				LOGGED BY DR					
ROUTE I-294 & I-57				ROUTE I-294 & I-57					
DESCRIPTION I-57 & I-294 Interchange Improvements (PTB 146, Item 1)				DESCRIPTION I-57 & I-294 Interchange Improvements (PTB 146, Item 1)					
SECTION --				SECTION --					
LOCATION Ramp C Bridge				LOCATION Ramp C Bridge					
COUNTY Cook				COUNTY Cook					
DRILLING METHOD Hollow Stem Auger/Rotary				DRILLING METHOD Hollow Stem Auger/Rotary					
HAMMER TYPE CME Automatic				HAMMER TYPE CME Automatic					
STRUCT. NO. XXX	DEPT	BULGE	UCS	MOIST	Surface Water Elev.	DEPT	BULGE	UCS	MOIST
Station --	H	S	Qu	T	Stream Bed Elev.	H	S	Qu	T
BORING NO. SB-27					Groundwater Elevation:				
Station: 3279+6.3					First Encounter <u>599.1</u>				
Offset: 0.4' Left					Upon Completion <u>n/a</u>				
Ground Surface Elev. <u>604.1</u>	(ft)	(/6")	(tsf)	(%)	After _____ Hrs.	(ft)	(/6")	(tsf)	(%)
14.0" TOPSOIL-black	602.9	AS	-	27	SILTY CLAY LOAM-gray-dense (A-4)	583.1			
CLAY LOAM-dark brown & gray-very stiff (A-6) Possible Fill			2.25P	17	CLAY LOAM-gray-hard (A-4/A-6)			2.88	11
SILTY CLAY LOAM-brown & gray-loose (A-4)	600.1								
CLAY-brown & gray-medium stiff (A-6) Wet			0.6B	27					
CLAY LOAM-gray-hard (A-6)					SILTY LOAM-gray-loose to medium dense (A-4)				
SILTY CLAY-gray-stiff to very stiff (A-6)			1.4B	19					
SILT-gray-very dense (A-4)			NP	19					
SILTY CLAY LOAM-gray-dense (A-4)									

SOIL BORING LOG				SOIL BORING LOG					
PAGE 2 of 2				PAGE 2 of 2					
Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60563 (630) 355-2838				Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60563 (630) 355-2838					
JOB NUMBER P-91-186-08				JOB NUMBER P-91-186-08					
DATE 1/14/2010				DATE 1/14/2010					
LOGGED BY DR				LOGGED BY DR					
ROUTE I-294 & I-57				ROUTE I-294 & I-57					
DESCRIPTION I-57 & I-294 Interchange Improvements (PTB 146, Item 1)				DESCRIPTION I-57 & I-294 Interchange Improvements (PTB 146, Item 1)					
SECTION --				SECTION --					
LOCATION Ramp C Bridge				LOCATION Ramp C Bridge					
COUNTY Cook				COUNTY Cook					
DRILLING METHOD Hollow Stem Auger/Rotary				DRILLING METHOD Hollow Stem Auger/Rotary					
HAMMER TYPE CME Automatic				HAMMER TYPE CME Automatic					
STRUCT. NO. XXX	DEPT	BULGE	UCS	MOIST	Surface Water Elev.	DEPT	BULGE	UCS	MOIST
Station --	H	S	Qu	T	Stream Bed Elev.	H	S	Qu	T
BORING NO. SB-27					Groundwater Elevation:				
Station: 3279+6.3					First Encounter <u>599.1</u>				
Offset: 0.4' Left					Upon Completion <u>n/a</u>				
Ground Surface Elev. <u>604.1</u>	(ft)	(/6")	(tsf)	(%)	After _____ Hrs.	(ft)	(/6")	(tsf)	(%)
Light gray to gray & fine grained with horizontal bedding. Horizontal fractures @ -39.5', -39.7', -40.1', -40.7', -41.6' & -42.2'. Recovery=98.6% R.Q.D.=64.3% 100.0% Water Loss @ -39.0'									
Light gray to gray & fine grained with horizontal bedding. Horizontal fractures @ -43.0', -43.5', -44.7', -45.4', -46.3', -47.4', -47.9', -48.2', -48.5', -48.6' & -48.7'. Recovery=100.0% R.Q.D.=74.6%									
End of Boring @ -49.0' Hollow Stem Augers to -10.0' Rotary Drilling To Completion 12.0' of 4.0" Casing Used 41.0' of 3.0" Casing Used CME Automatic Hammer									

ROCK CORE LOG				ROCK CORE LOG			
PAGE 1 of 1				PAGE 1 of 1			
Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60563 (630) 355-2838				Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60563 (630) 355-2838			
JOB NUMBER P-91-186-08				JOB NUMBER P-91-186-08			
DATE 1/14/2010				DATE 1/14/2010			
LOGGED BY DR				LOGGED BY DR			
ROUTE I-294 & I-57				ROUTE I-294 & I-57			
DESCRIPTION I-57 & I-294 Interchange Improvements (PTB 146, Item 1)				DESCRIPTION I-57 & I-294 Interchange Improvements (PTB 146, Item 1)			
SECTION --				SECTION --			
LOCATION Ramp C Bridge				LOCATION Ramp C Bridge			
COUNTY Cook				COUNTY Cook			
CORING METHOD Rotary Wash				CORING METHOD Rotary Wash			
STRUCT. NO. XXX	DEPT	CORING BARREL TYPE & SIZE	RECOVERY	R.Q.D.	CORRECTION	STRENGTH	
Station --	H	NX Double Swivel-10 ft	(%)	(%)	(min /ft)	(tsf)	
BORING NO. SB-27		Core Diameter 2.0 in					
Station: 3279+6.3		Top of Rock Elev. <u>566.1</u>					
Offset: 0.4' Left		Begin Core Elev. <u>565.1</u>					
Ground Surface Elev. <u>604.1</u>	(ft)						
RUN 1 (-39.0' to -42.5') Silurian System Niagaran Series Dolomite			565.1	1	98.6	64.3	n/a 13016-40.8
Light gray to gray & fine grained with horizontal bedding. Horizontal fractures @ -39.5', -39.7', -40.1', -40.7', -41.6' & -42.2'. 100.0% Water Loss @ -39.0'							
RUN 2 (-42.5' to -49.0') Silurian System Niagaran Series Dolomite			561.6				
Light gray to gray & fine grained with horizontal bedding. Horizontal fractures @ -43.0', -43.5', -44.7', -45.4', -46.3', -47.4', -47.9', -48.2', -48.5', -48.6' & -48.7'. Recovery=100.0% R.Q.D.=74.6%				2	100.0	74.6	n/a 14000-46.3
End of Boring @ -49.0' Hollow Stem Augers to -10.0' Rotary Drilling To Completion 12.0' of 4.0" Casing Used 41.0' of 3.0" Casing Used CME Automatic Hammer							



Color pictures of the cores. Yes Cores will be stored for examination for XX. The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2936)

P:\6825\0157-294-5-9\STRUCTURAL RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_bar1.dgn 2/20/2020

DRAWN BY VPS	DATE 4-10-2020			<table border="1"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			REVISIONS			NO.	DATE	DESCRIPTION							CONTRACT I-20-4520 I-57 AT RAMP D SN 016-2102 BORING LOGS 1	SHEET 5D - 35 OF 38 547 OF 606
REVISIONS																				
NO.	DATE	DESCRIPTION																		
CHECKED BY POF	SCALE NONE																			

Geo Services, Inc. SOIL BORING LOG PAGE 1 of 2
 Geotechnical, Environmental & Civil Engineering DATE 1/21/2010
 805 Amherst Court, Suite 204 LOGGED BY DR
 Naperville, Illinois 60563
 (630) 355-2838 JOB NUMBER P-91-186-08 GSI JOB No. 08015

ROUTE I-294 & I-57 DESCRIPTION I-57 & I-294 Interchange Improvements (PTB 146, Item 1)
 SECTION LOCATION Ramp C Bridge
 COUNTY Cook DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. XXX
 Station -
 BORING NO. SB-28
 Station: 3280+24
 Offset: 2.7' Left
 Ground Surface Elev. 605.8

DEPTH (ft)	BLOW COUNT (blows/ft)	UCS (tsf)	MOISTURE (%)	DESCRIPTION	DEPTH (ft)	BLOW COUNT (blows/ft)	UCS (tsf)	MOISTURE (%)
0.0	AS		29	SILT-gray-dense (A-4)	584.8			
1.0	2				5			
2.0	2			CLAY LOAM-dark brown to black-very stiff (A-6)	7			
3.0	2.25P	17			7	3.75P	12	
					582.3			
4.0					9			
5.0	1.15Q			SILTY CLAY-brown & gray-stiff (A-4/A-6)	9			
6.0	12.7%	23			9			14
				SILTY LOAM with Fractured Rock-gray-medium dense (A-2)	9			
					25			
7.0	NP	18			7			
				SAND-dark brown-loose (A-3)	4			
					11	NP	13	
8.0					17			
					21			
9.0	4.8B	12		FRACTURED ROCK-gray-dense (A-1)	30	31	NP	18
					31			
10.0					573.8			
11.0								
				SANDY LOAM with Fractured Rock-gray-very dense (A-2)	20			
					40			
12.0	3.5B	13			39	40	NP	9
					40			
13.0					569.3			
					568.3			
14.0				Drillers Observation: Apparent Bedrock				
15.0								
				RUN 1 (-37.5' to -47.5') Silurian System Niagara Series Dolomite				RUN 1
16.0								
17.0								
18.0	NP	19						
19.0								
20.0								
21.0								
22.0								
23.0								
24.0								
25.0								
26.0								
27.0								
28.0								
29.0								
30.0								
31.0								
32.0								
33.0								
34.0								
35.0								
36.0								
37.0								
38.0								
39.0								
40.0								

Geo Services, Inc. SOIL BORING LOG PAGE 2 of 2
 Geotechnical, Environmental & Civil Engineering DATE 1/21/2010
 805 Amherst Court, Suite 204 LOGGED BY DR
 Naperville, Illinois 60563
 (630) 355-2838 JOB NUMBER P-91-186-08 GSI JOB No. 08015

ROUTE I-294 & I-57 DESCRIPTION I-57 & I-294 Interchange Improvements (PTB 146, Item 1)
 SECTION LOCATION Ramp C Bridge
 COUNTY Cook DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. XXX
 Station -
 BORING NO. SB-28
 Station: 3280+24
 Offset: 2.7' Left
 Ground Surface Elev. 605.8

Light gray to gray with horizontal bedding. Fine grained with some varving. Some oil staining from -38.3' to -38.7'. Weathered horizontal fracture @ -38.7'. Horizontal fractures @ -40.0', -40.1', -40.2', -40.5' & -41.0'. Weathered horizontal fracture @ -42.0'. Horizontal fracture with thin clay parting @ -44.5'. Horizontal fractures @ -45.5' & -46.5'.
 Recovery=93.1%
 R.Q.D.=83.5%
 100.0% Water Loss @ -39.0'

End Of Boring @ -47.5'
 Hollow Stem Augers to -10.0'
 Rotary Drilling To Completion
 10.0' of 4.0" Casing Used
 39.0' of 3.0" Casing Used
 CME Automatic Hammer

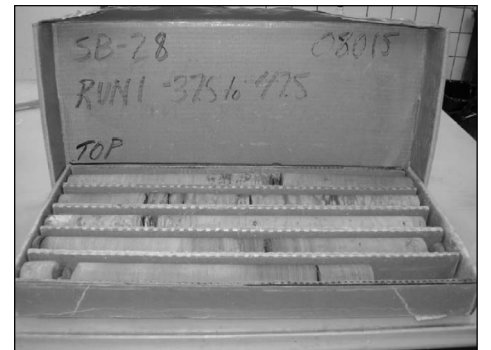
Geo Services, Inc. ROCK CORE LOG PAGE 1 of 1
 Geotechnical, Environmental & Civil Engineering DATE 1/21/2010
 805 Amherst Court, Suite 204 LOGGED BY DR
 Naperville, Illinois 60563
 (630) 355-2838 JOB NUMBER P-91-186-08 GSI JOB No. 08015

ROUTE I-294 & I-57 DESCRIPTION I-57 & I-294 Interchange Improvements (PTB 146, Item 1)
 SECTION LOCATION Ramp C Bridge
 COUNTY Cook CORING METHOD Rotary Wash

STRUCT. NO. XXX
 Station -
 BORING NO. SB-28
 Station: 3280+24
 Offset: 2.7' Left
 Ground Surface Elev. 605.8

Core Diameter 2.0 in
 Top of Rock Elev. 569.3
 Begin Core Elev. 568.3

DEPTH (ft)	RECOVERY (%)	R.Q.D. (%)	UCS (tsf)	COMMENTS
37.5	93.1	83.5	n/a	RUN 1 (-37.5' to -47.5') Silurian System Niagara Series Dolomite
47.5				Light gray to gray with horizontal bedding. Fine grained with some varving. Some oil staining from -38.3' to -38.7'. Weathered horizontal fracture @ -38.7'. Horizontal fractures @ -40.0', -40.1', -40.2', -40.5' & -41.0'. Weathered horizontal fracture @ -42.0'. Horizontal fracture with thin clay parting @ -44.5'. Horizontal fractures @ -45.5' & -46.5'. Recovery=93.1% R.Q.D.=83.5% 100.0% Water Loss @ -39.0'



Color pictures of the cores. Yes. Cores will be stored for examination for XX. The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

P:\60254017-294-5-9\STRUCTURAL\RESTA\RT_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_bar2.dgn 2/20/2020

DRAWN BY VPS **DATE** 4-10-2020
CHECKED BY P.D.F. **SCALE** NONE

TYLIN INTERNATIONAL

THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

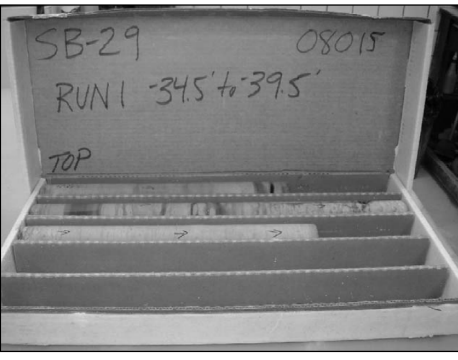
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-20-4520 **SHEET 8D - 36 OF 38**
I-57 AT RAMP D
SN 016-2102
BORING LOGS 2 **548** OF **606**

SOIL BORING LOG		PAGE 1 of 1						
Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60563 (630) 355-2838		DATE 4/21/2010 LOGGED BY DR						
ROUTE I-294 & I-57 SECTION -- COUNTY Cook LOCATION Ramp C Bridge DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic		JOB NUMBER P-91-186-08 GSI JOB No. 08015						
DEPTH (ft)	BLU (ft)	UCS (tsf)	MOIST (%)	DESCRIPTION	DEPTH (ft)	BLU (ft)	UCS (tsf)	MOIST (%)
0				14.0" TOPSOIL-black	0			
2				SANDY LOAM with Fractured Rock-gray-medium dense to very dense (A-2)	2			
4	3.0P	20			4			
3					3			
5	1.5P	20			5			
598.8				598.8				
5		109		SAND, GRAVEL & FRACTURED ROCK-gray-very dense (A-1)	5			
7					7			
11	5.8B	19			11			
596.3				596.3				
8				SILT-gray-medium dense (A-4)	8			
11					11			
10	NP	19			10			
593.8				593.8				
13				SANDY CLAY LOAM-gray-dense (A-4/A-6)	13			
17					17			
21	4.5+P	10			21			
591.3				591.3				
7		124		CLAY LOAM-gray-very stiff (A-6)	7			
8					8			
10	2.7B	11			10			
588.8				588.8				
10				SAND & GRAVEL-gray-medium dense (A-1)	10			
11					11			
13	NP	10			13			
586.3				586.3				
11				SANDY LOAM with Fractured Rock-gray-medium dense to very dense (A-2)	11			
13					13			
14	NP	13			14			
20					20			

The Unclassified Compressive Strength (UCS) Failure Mode is indicated by (SB-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR-No Recovery

ROCK CORE LOG		PAGE 1 of 1		
Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60563 (630) 355-2838		DATE 4/21/2010 LOGGED BY DR		
ROUTE I-294 & I-57 SECTION -- COUNTY Cook LOCATION Ramp C Bridge CORING METHOD Rotary Wash		JOB NUMBER P-91-186-08 GSI JOB No. 08015		
DEPTH (ft)	RECOVERY (%)	CORRECTION (%)	STRENGTH (tsf)	DESCRIPTION
0				RUN 1 (-34.5' to -39.5') Silurian System Niagara Series Dolomite
1	97.0	95.0	n/a	Light gray to gray with becoming darker gray with some varving from -35.7' to -37.0'. Horizontal fractures @ -35.8' & -35.9'. Small vug with oil staining A -37.6'. Horizontal fracture @ -37.8'.
569.8				569.8
-39.5				-39.5
-44.5				-44.5



Color pictures of the cores Yes Cores will be stored for examination for XX
 The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

SOIL BORING LOG		PAGE 1 of 1						
Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60563 (630) 355-2838		DATE 4/20-21/2010 LOGGED BY DR						
ROUTE I-294 & I-57 SECTION -- COUNTY Cook LOCATION Ramp C Bridge DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic		JOB NUMBER P-91-186-08 GSI JOB No. 08015						
DEPTH (ft)	BLU (ft)	UCS (tsf)	MOIST (%)	DESCRIPTION	DEPTH (ft)	BLU (ft)	UCS (tsf)	MOIST (%)
0				14.0" TOPSOIL-black	0			
4				SILTY CLAY LOAM-brown & gray-loose to medium dense (A-4)	4			
5					5			
5	2.25P	25			5			
2					2			
603.2				603.2				
9				CLAY LOAM-gray-hard (A-6)	9			
9					9			
11	4.5+P	9			11			
600.7				600.7				
8				SANDY LOAM-gray-dense (A-2)	8			
12					12			
10	NP	9			10			
598.2				598.2				
12		115		CLAY LOAM-gray-very stiff (A-6)	12			
16					16			
17	3.8B	16			17			
595.7				595.7				
19				SAND & GRAVEL-gray-dense (A-1)	19			
21					21			
15	NP	10			15			
593.2				593.2				
24				FRACTURED ROCK-gray-dense to very dense (A-1)	24			
50/3'					50/3'			
22					22			
570.2				570.2				
20	NP	7						

The Unclassified Compressive Strength (UCS) Failure Mode is indicated by (SB-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR-No Recovery

P:\6825\087-294-5-91\STRUCTURAL\RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_bor-3.dgn 2/20/2020

DRAWN BY VPS	DATE 4-10-2020			REVISIONS NO. DATE DESCRIPTION			CONTRACT I-20-4520 I-57 AT RAMP D SN 016-2102 BORING LOGS 3	SHEET 8D - 37 OF 38 549 OF 606
CHECKED BY POF	SCALE NONE							

ROCK CORE LOG

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60563
(630) 355-2838

PAGE 1 of 1
DATE 4/20-21/2010
LOGGED BY DR

JOB NUMBER P-91-186-08 GSI JOB No. 08015

ROUTE I-294 & I-57 DESCRIPTION I-57 & I-294 Interchange Improvements (PTB 146, Item 1)


SECTION - LOCATION Ramp C Bridge

COUNTY Cook CORING METHOD Rotary Wash

STRUCT. NO. XXX CORING BARREL TYPE & SIZE NX Double Swivel-10 ft
Station - Core Diameter 2.0 in
BORING NO. SB-30 Top of Rock Elev. n/a
Station: 3281+36 Begin Core Elev. 574.5
Offset: 33.5' Left
Ground Surface Elev. 608.7

DEPTH	CORER RUN	RECOVERY	R.Q.D. (%)	CORRECTION (min)	STRENGTH (tsf)
574.5	1	n/a	n/a	n/a	n/a
-38.5					
-43.5					

RUN 1 (-33.5' to -38.5')
Cobbles & Boulders



Color pictures of the cores Yes Cores will be stored for examination for XX
The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

P:\6025\0157-294-5-9\STRUCTURAL RESTART_2018\Ramp C over Dixie Creek\OFFICIAL\062102_5_bor4.dgn 3/20/2020

DRAWN BY VPS DATE 4-10-2020
CHECKED BY POF SCALE NONE

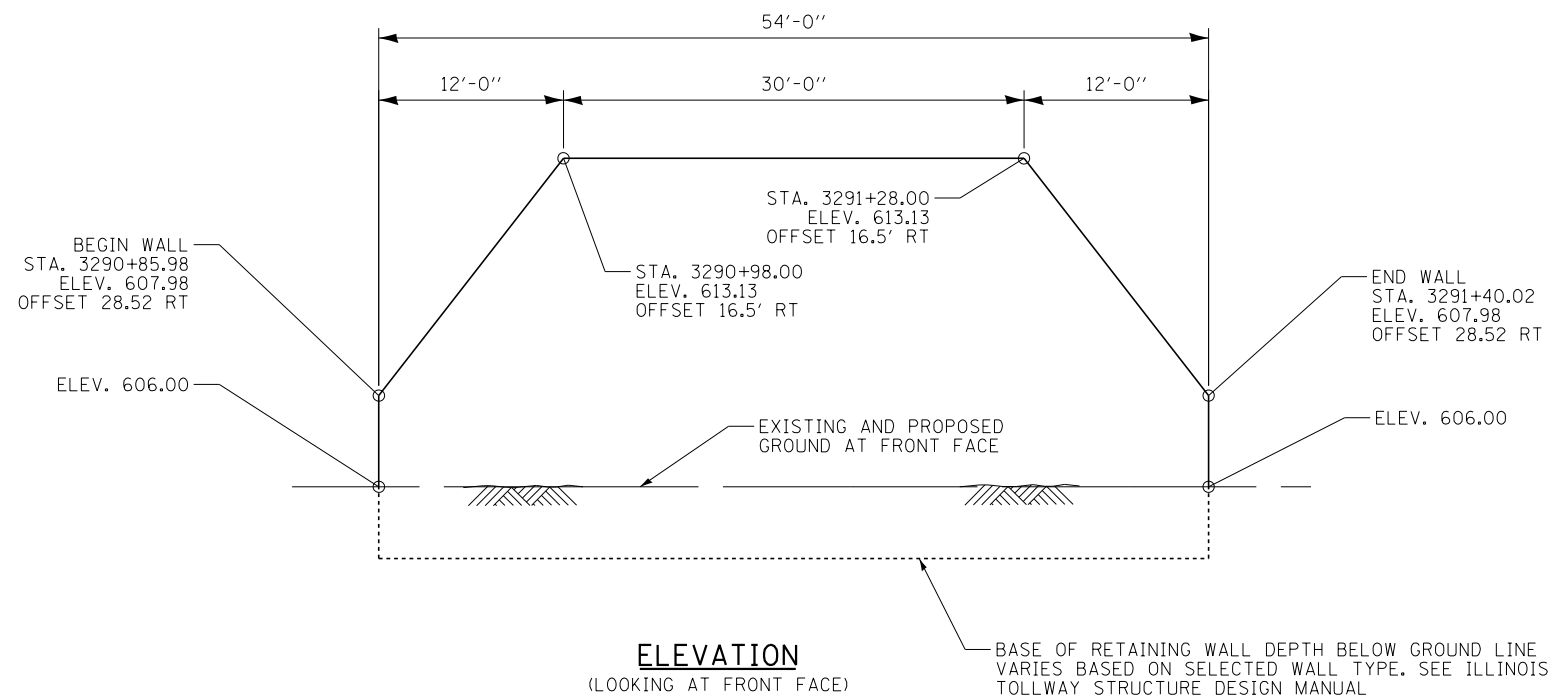


REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-20-4520
I-57 AT RAMP D
SN 016-2102
BORING LOGS 4

BENCHMARK: MAG NAIL AT THE INTERSECTION OF 155TH STREET AND ALBANY AVENUE. ELEVATION 606.14. C.P.111.

EXISTING STRUCTURE: NONE.



NOTES:

1. OFFSETS ARE MEASURED FROM THE \perp OF RAMP C TO THE FRONT FACE OF WALL.
2. HORIZONTAL DIMENSIONS ARE MEASURED ALONG FRONT FACE OF WALL.
3. RETAINING WALL TS7.29R,SB(R) TO BE PAID FOR AS "PERFORMANCE BASED RETAINING WALL, LOCATION 1".
4. DMS SIGN AND CONTROLLER (STA 290+99 AND 329+19) MUST REMAIN OPERATIONAL THROUGHOUT CONSTRUCTION OF RETAINING WALL.
5. EXISTING FIBER OPTICS LINE REMOVED BY OTHERS PRIOR TO CONTRACT.

LEGEND

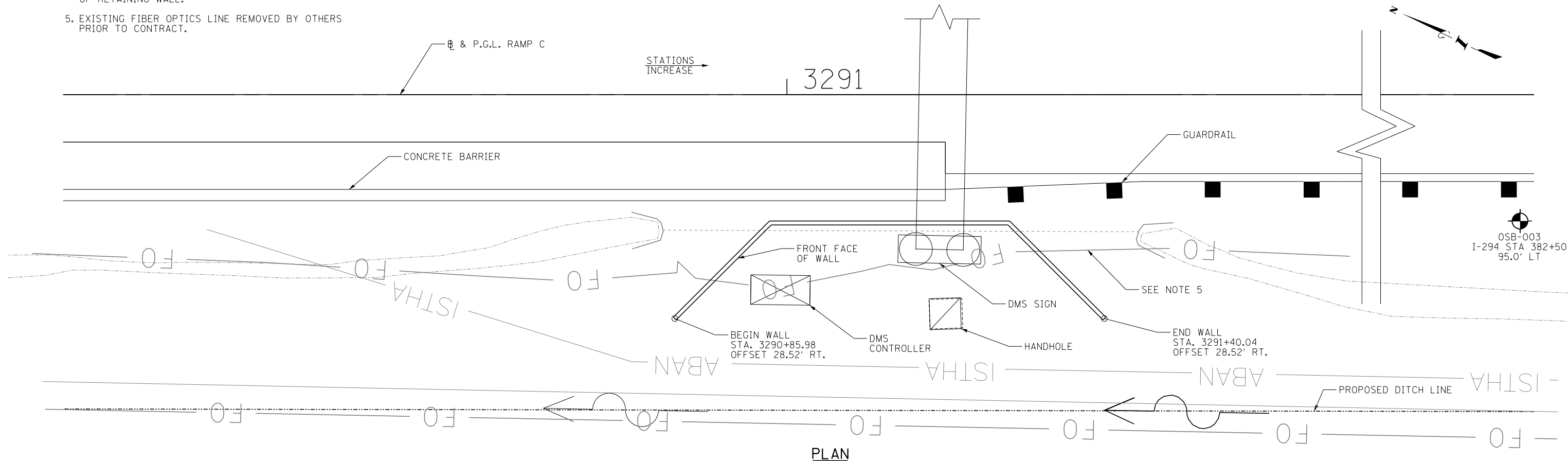
- ◆ SOIL BORING LOCATION
- CATCH BASIN
- MAN HOLE

INDEX OF SHEETS

- SH-1 GENERAL PLAN AND ELEVATION
- SH-2 GENERAL DATA
- SH-3 DETAILS
- SH-4 BORING LOGS 1

BILL OF MATERIAL

PAY ITEM NUMBER	ITEM	UNIT	QUANTITY
JT570P51	PERFORMANCE BASED RETAINING WALL, LOCATION 1	L SUM	1



P:\62540157-294-5-1\Road\95NEW_Ramps_C&F2_01020095_Revised11(PE).dgn 2/12/2020

DRAWN BY BG
CHECKED BY SP

DATE 1-22-2020
SCALE NONE

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
I-57 AT 294 RAMPS C, D, AND F2
TS7.29R,NB(R)
PERFORMANCE BASED WALL

SHEET SE - 01 OF 03
551 OF 606

DESIGN LOADS

DEAD LOADS:
 EARTH = 120 PCF
 CONCRETE = 150 PCF

LIVE LOADS:
 LIVE LOAD SURCHARGE EQUIVALENT TO 2 FEET OF EARTH

EARTH PRESSURE:
 USE COULUMB'S EQUATION FOR THE LATERAL SOIL PRESSURE THAT IS PARALLEL TO THE BACKFILL SLOPE BASED ON SOIL DATA FROM BORINGS ACCOUNTING FOR WATER LEVEL AND LONG-TERM DRAINAGE CONDITIONS FOR PASSIVE RESISTANCE.

GENERAL NOTES

REINFORCEMENT BARS, INCLUDING EPOXY-COATED REINFORCEMENT BARS, SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 (ASTM A706), GRADE 60, DEFORMED BARS.

REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.

COVER FROM THE FACE OF CONCRETE TO FACE OF REINFORCEMENT BARS SHALL BE 3" FOR SURFACES FORMED AGAINST EARTH AND 2" FOR ALL OTHER SURFACES UNLESS OTHERWISE SHOWN.

ALL EXPOSED CONCRETE EDGES SHALL HAVE A "X 45° CHAMFER, EXCEPT WHERE SHOWN OTHERWISE. CHAMFER ON VERTICAL EDGES SHALL BE CONTINUED A MINIMUM OF ONE FOOT BELOW FINISHED GROUND LEVEL.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO STARTING CONSTRUCTION. CONTACT J.U.L.I.E., 800-892-0123.

THE CONTRACTOR MAY REQUEST COPIES OF EXISTING CONSTRUCTION PLANS THAT ARE CURRENTLY ON FILE WITH THE TOLLWAY. THE REQUEST SHALL BE IN WRITING WITH THE UNDERSTANDING THAT ANY REPRODUCTION COST WILL BE AT THE CONTRACTORS EXPENSE.

CONTRACTOR SHALL NOT SCALE DIMENSIONS FROM THE CONTRACT PLANS FOR CONSTRUCTION PURPOSES. SCALES SHOWN ARE FOR INFORMATION ONLY.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL FIBER OPTIC UTILITIES PRIOR TO STARTING CONSTRUCTION. THE CONTRACTOR SHALL INITIATE THE LOCATION PROCESS FOR THE FIBER OPTIC CABLE BY COMPLETING A "REQUEST TOLLWAY UTILITIES LOCATE" FORM FILLED IN ONLINE AT THE TOLLWAY WEBSITE UNDER "DOING BUSINESS" AT LEAST FOUR (4) BUSINESS DAYS PRIOR TO STARTING ANY UNDERGROUND OPERATIONS, EXCAVATIONS OR DIGGING OF ANY TYPE IN THE GENERAL AREA OF THE FIBER OPTIC CABLE.

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.

DESIGN SPECIFICATIONS

2017 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, EIGHTH EDITION (EXCEPT AS MODIFIED BY THE IDOT AND ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL)

ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL, DATED MARCH 2019

ILLINOIS DEPARTMENT OF TRANSPORTATION BRIDGE MANUAL, JANUARY 2012

ILLINOIS TOLLWAY GEOTECHNICAL ENGINEER'S MANUAL, DATED MARCH 2019

CONSTRUCTION SPECIFICATIONS

ILLINOIS DEPARTMENT OF TRANSPORTATION GUIDE BRIDGE SPECIAL PROVISIONS (GBSP'S)

TOLLWAY SUPPLEMENTAL SPECIFICATIONS TO THE ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ISSUED MARCH, 2019

ILLINOIS DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS ADOPTED JANUARY 1, 2020

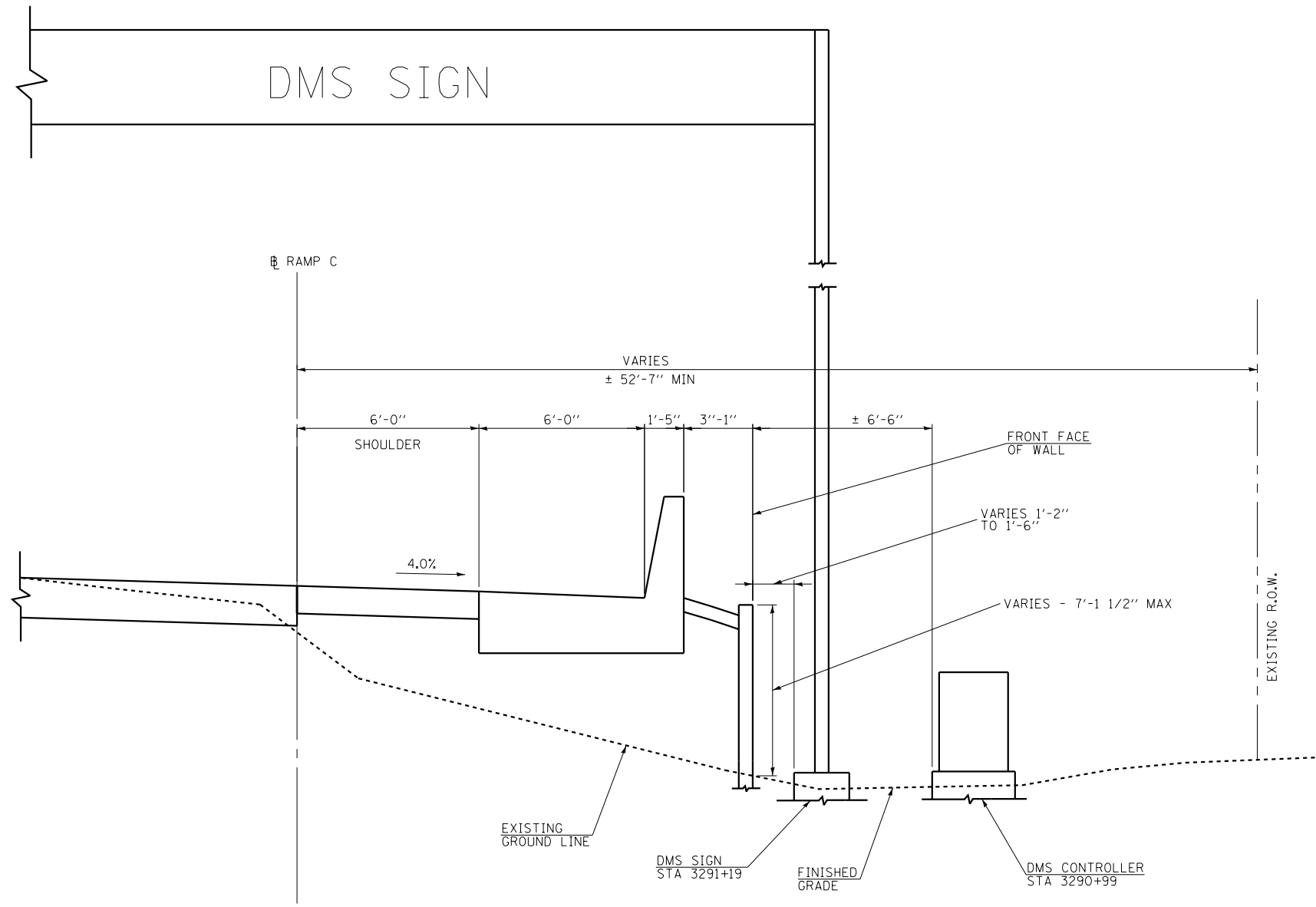
ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED APRIL 1, 2016

DESIGN STRESSES

F'C = 3,500 PSI (REINFORCED CONCRETE)
 FY = 60,000 PSI (REINFORCEMENT)
 F'C = 4,500 PSI (PRECAST PANELS)

HIGHWAY CLASSIFICATION

RAMP C
 FUNCTIONAL CLASS: INTERSTATE
 ADT: N/A (2012); 10,450 (2030)
 ADTT: N/A (2012); 620 (2030)
 DHV: 810
 DESIGN SPEED: 45 M.P.H.
 POSTED SPEED: 45 M.P.H.



TYPICAL WALL SECTION
 (LOOKING SOUTH)

P:\62540157-294-5-19\Road\PSNEW_Ramps_C&F2\01000095_Revised\DWG.dgn 3/12/2020

DRAWN BY **BG**
 CHECKED BY **SP**

DATE **1-22-2020**
 SCALE **NONE**

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT **I-19-4495**
I-57 AT 294 RAMPS C, D, AND F2
TS7.29R,NB(R)
DETAILS

SHEET **SE** - 02 OF 03

552 OF **606**



SOIL BORING LOG

GSI Job No. 19016

Page 1 of 2

Date 7/22/19

ROUTE I-57/I-294 DESCRIPTION ISHTA PSB 18-3 Item 10 LOGGED BY ML

SECTION LOCATION NE 1/4, SEC. 13, TWP. T36N, RNG. R13E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/Rotary HAMMER TYPE CME Automatic

Table with columns for Depth (ft), Blows (B), Penetration (P), Unconfined Compressive Strength (UCS), and Soil Description. Includes data for layers like 14.0' ASPHALT, CLAY LOAM, SILTY CLAY LOAM, and SAND.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSI Job No. 19016

Page 2 of 2

Date 7/22/19

ROUTE I-57/I-294 DESCRIPTION ISHTA PSB 18-3 Item 10 LOGGED BY ML

SECTION LOCATION NE 1/4, SEC. 13, TWP. T36N, RNG. R13E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/Rotary HAMMER TYPE CME Automatic

Table with columns for Depth (ft), Blows (B), Penetration (P), Unconfined Compressive Strength (UCS), and Soil Description. Includes data for layers like CLAY LOAM, SILTY SAND & GRAVEL, and Drillers Observation: Apparent Bedrock.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)

ROCK CORE LOG form with fields for Project No., Location, Date, and a table for Core Data. Includes a photo of a rock core sample labeled OSB-003.

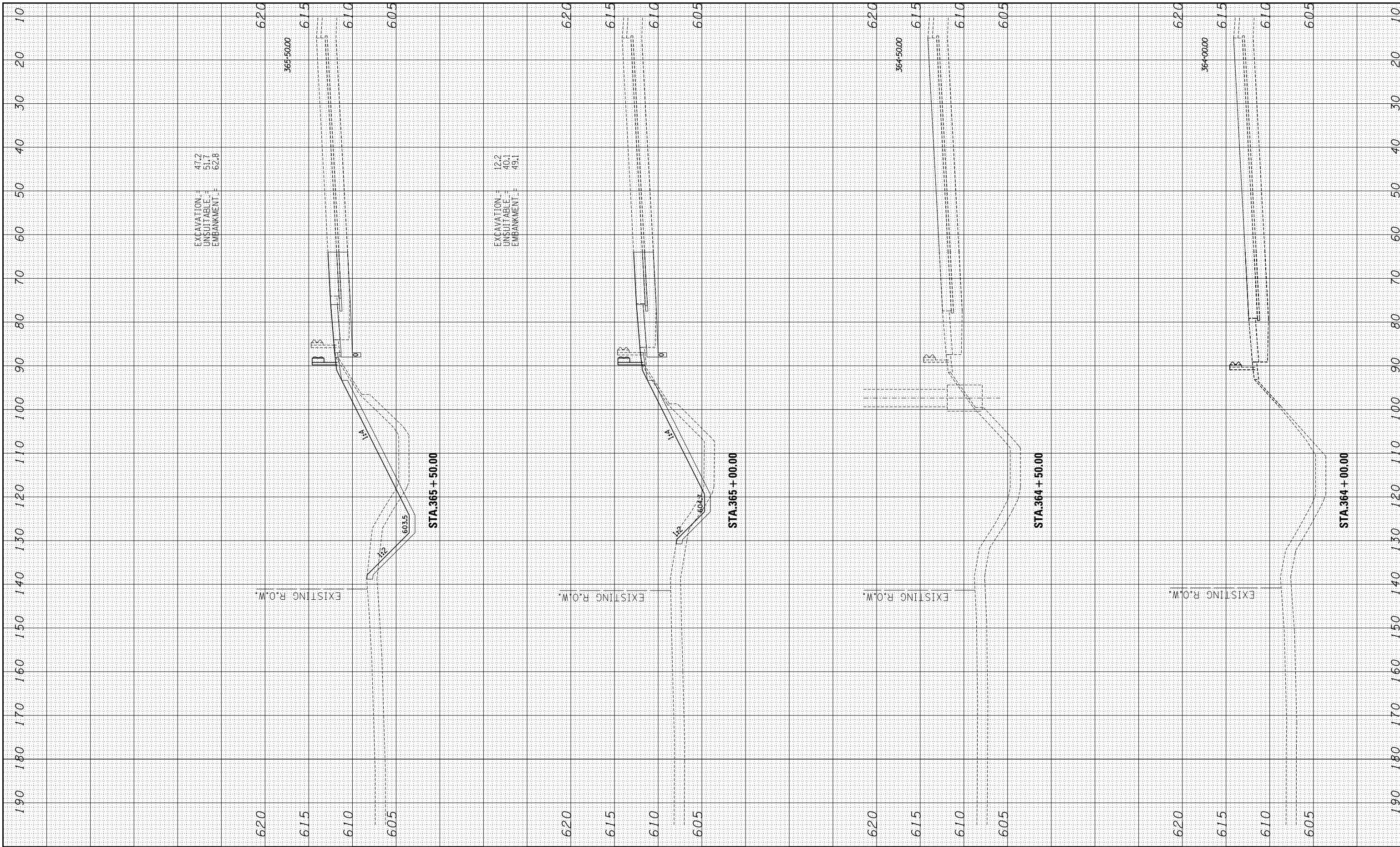
Color pictures of the cores Yes Cores will be stored for examination for 5 years after construction. The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

NOTE: STATION AND OFFSETS ARE FROM THE CENTER LINE OF I-294.

P:\62540157-294-5-19\Revised\PSNEW_Ramps_C&F2_01020095_Revised\11DR01.dgn 2/12/2020

Project information block including Drawn by (BG), Date (1-22-2020), Checked by (SP), Scale (NONE), Tylin International logo, The Illinois State Toll Highway Authority logo, Revisions table, Contract I-19-4495, and Sheet SX-03 of 03.

P:\602540157-294_5-9\Road\PSNEW_Ramps_C&F2\01000005-XSBH-1-294_x50.dgn
3/12/2020



DRAWN BY *DM*
CHECKED BY *JPM*

DATE *April 3, 2020*
SCALE *1" = 10' Horiz.
1" = 5' Vert.*

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

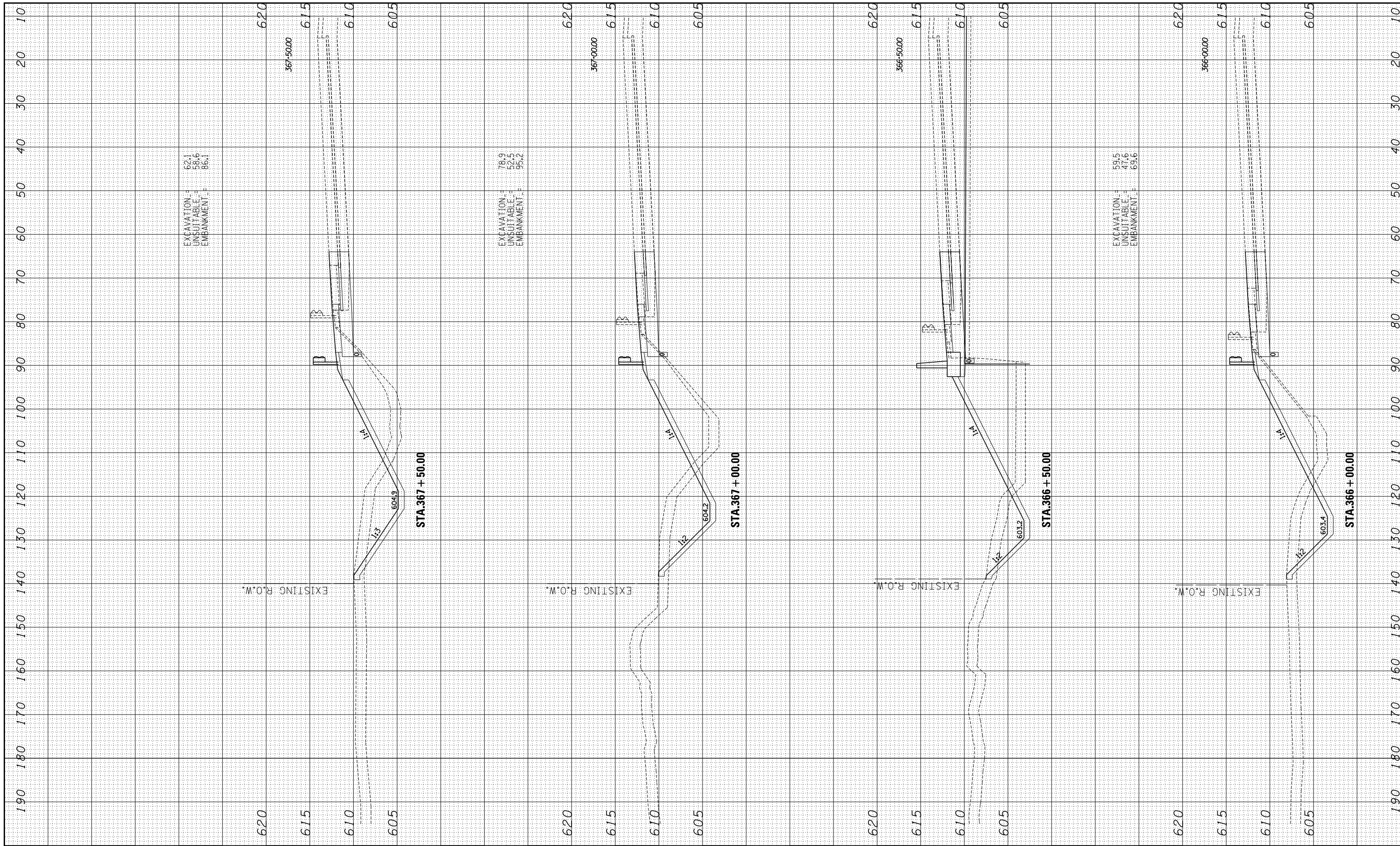
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C ALONG SB I-294
PROPOSED CROSS SECTIONS
STA. 364+00.00 TO STA. 365+50.00

SHEET XS-294-01
554 OF 606

P:\602540157-294_5-9\Road\PSNEW_Ramps_C&F2\01000005-XSBH-1-294_x50.dgn
3/12/2020

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3/13/2020



DRAWN BY . . . DM
CHECKED BY . . . JPM

DATE . . . April 3, 2020
SCALE 1" = 10' Horiz.
1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

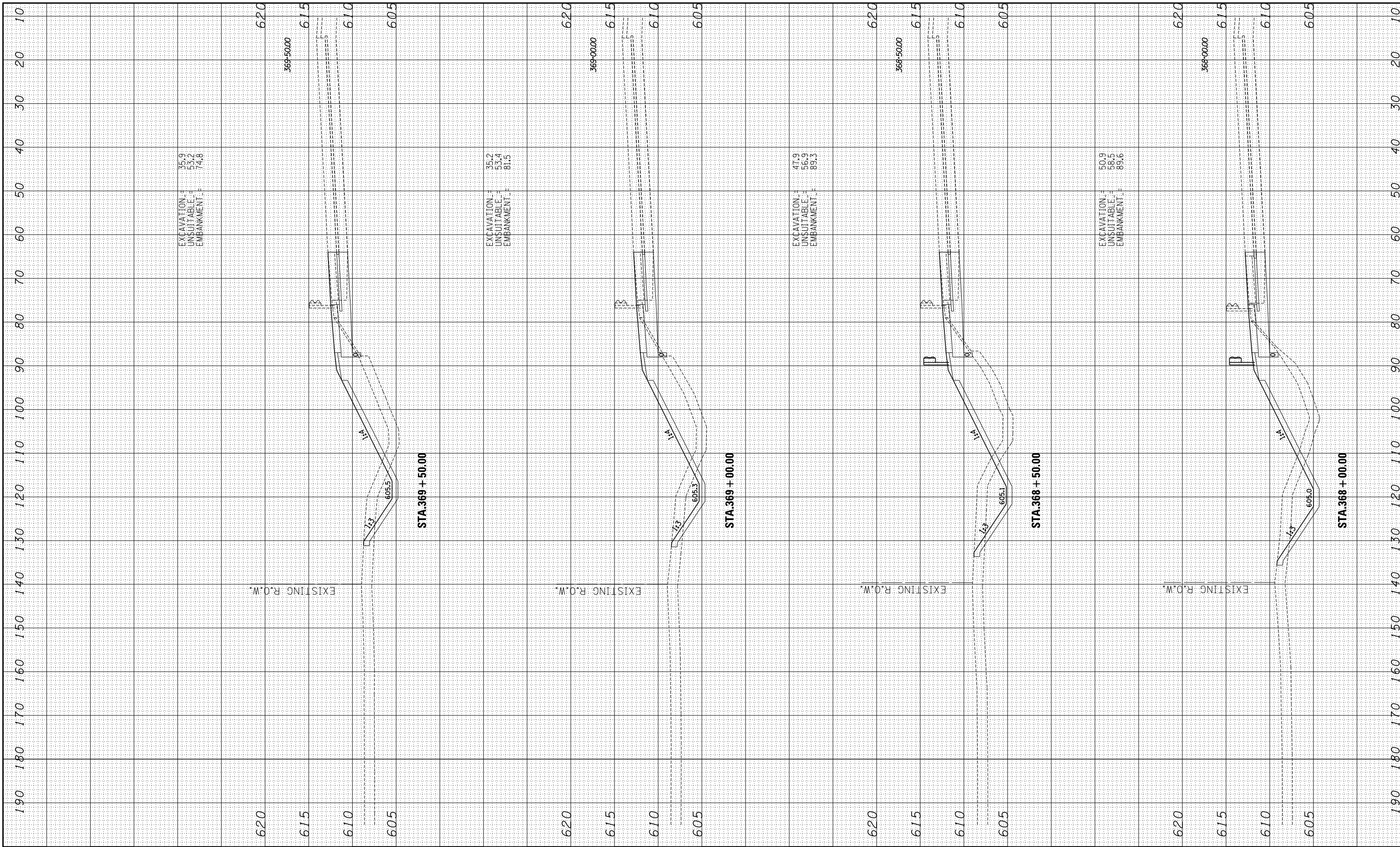
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C ALONG SB I-294
PROPOSED CROSS SECTIONS
STA. 366+00.00 TO STA. 367+50.00

SHEET XS-294-02
555 OF 606

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3/13/2020

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3/12/2020



DRAWN BY *DM*
CHECKED BY *JPM*

DATE *April 3, 2020*
SCALE *1" = 10' Horiz.
1" = 5' Vert.*

TYLIM INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

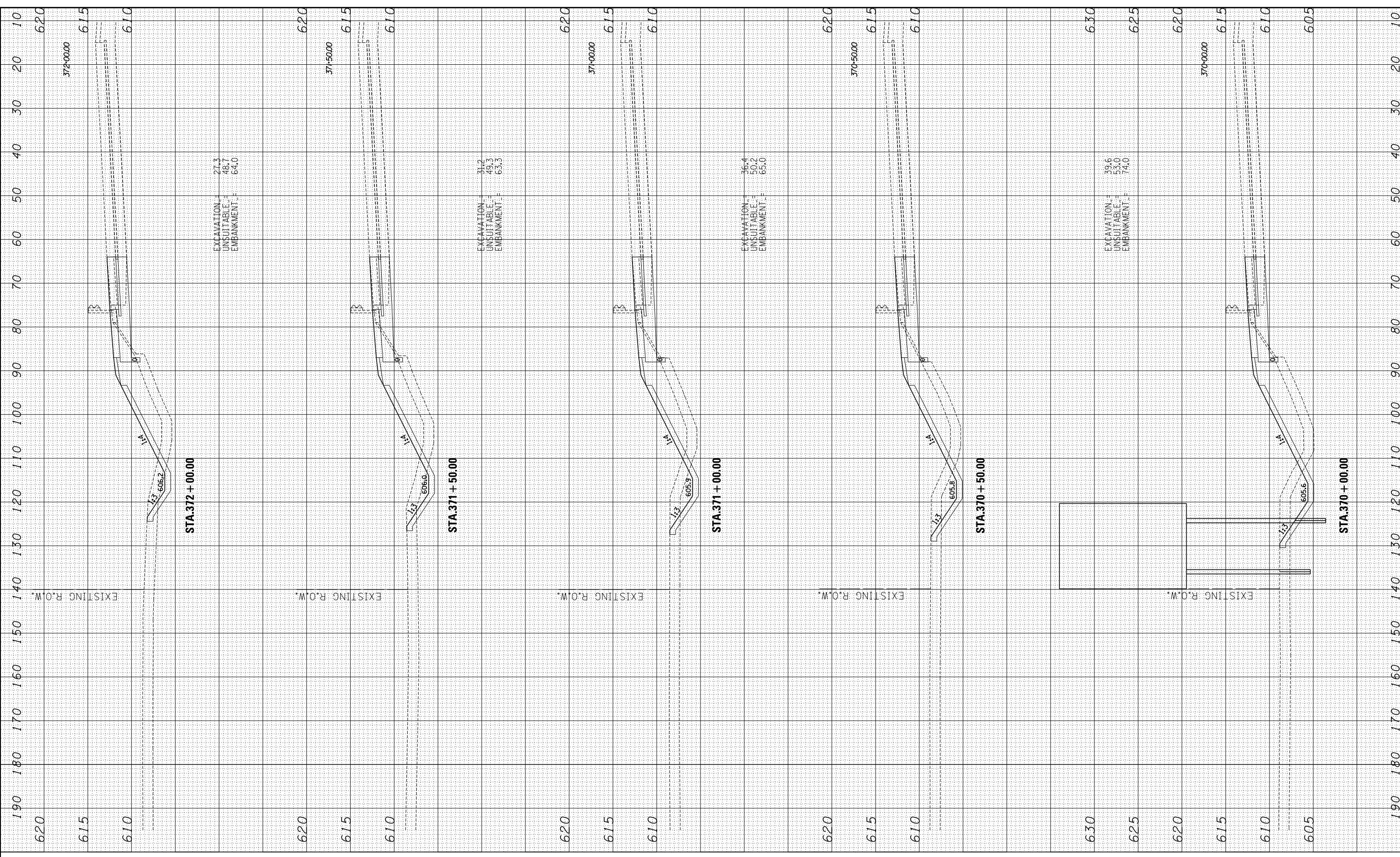
CONTRACT I-19-4495
RAMP C ALONG SB I-294
PROPOSED CROSS SECTIONS
STA. 368+00.00 TO STA. 369+50.00

SHEET XS-294-03
556 OF 606

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3/12/2020

EXCAVATION = 21.9
 UNSUITABLE = 46.6
 EMBANKMENT = 67.5

P:\602540157-294_5-9\Road\PS\NEW_Ramps_C&F2\01000005-XSSH-1-294_x50.dgn
 3/12/2020



EXCAVATION = 27.3
 UNSUITABLE = 48.7
 EMBANKMENT = 64.0

EXCAVATION = 31.2
 UNSUITABLE = 49.3
 EMBANKMENT = 63.3

EXCAVATION = 36.4
 UNSUITABLE = 50.2
 EMBANKMENT = 65.0

EXCAVATION = 39.6
 UNSUITABLE = 53.0
 EMBANKMENT = 74.0

DRAWN BY ... DM
 CHECKED BY ... JPM

DATE ... April 3, 2020
 SCALE 1" = 10' Horiz.
 1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 ORDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

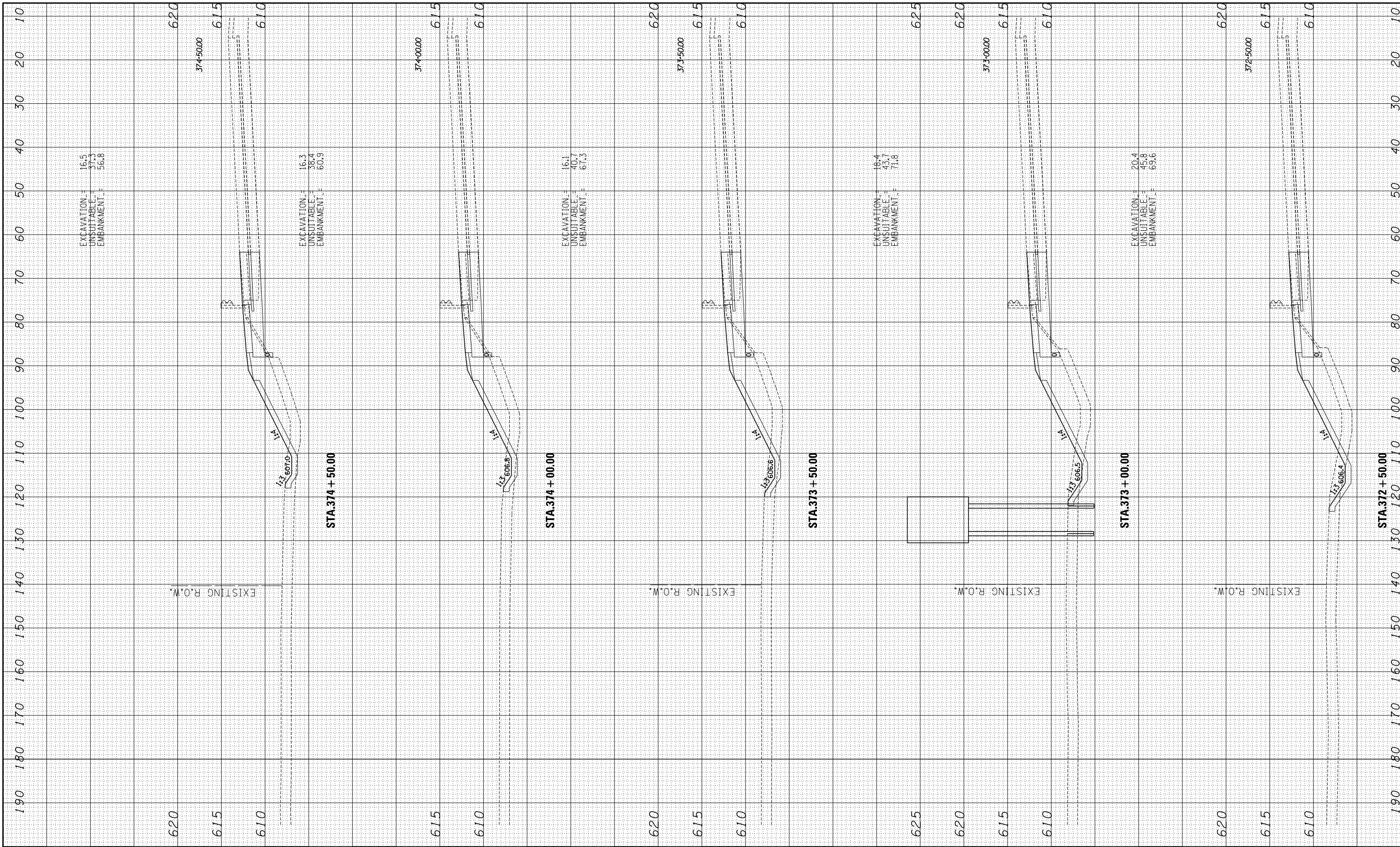
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 RAMP C ALONG SB I-294
 PROPOSED CROSS SECTIONS
 STA. 370+00.00 TO STA. 372+00.00

SHEET XS-294-04
 557 OF 606

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3/12/2020



DRAWN BY . . . DM
CHECKED BY . . . JPM

DATE . . . April 3, 2020
SCALE . . . 1" = 10' Horiz.
 . . . 1" = 5' Vert.

TYLIM INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

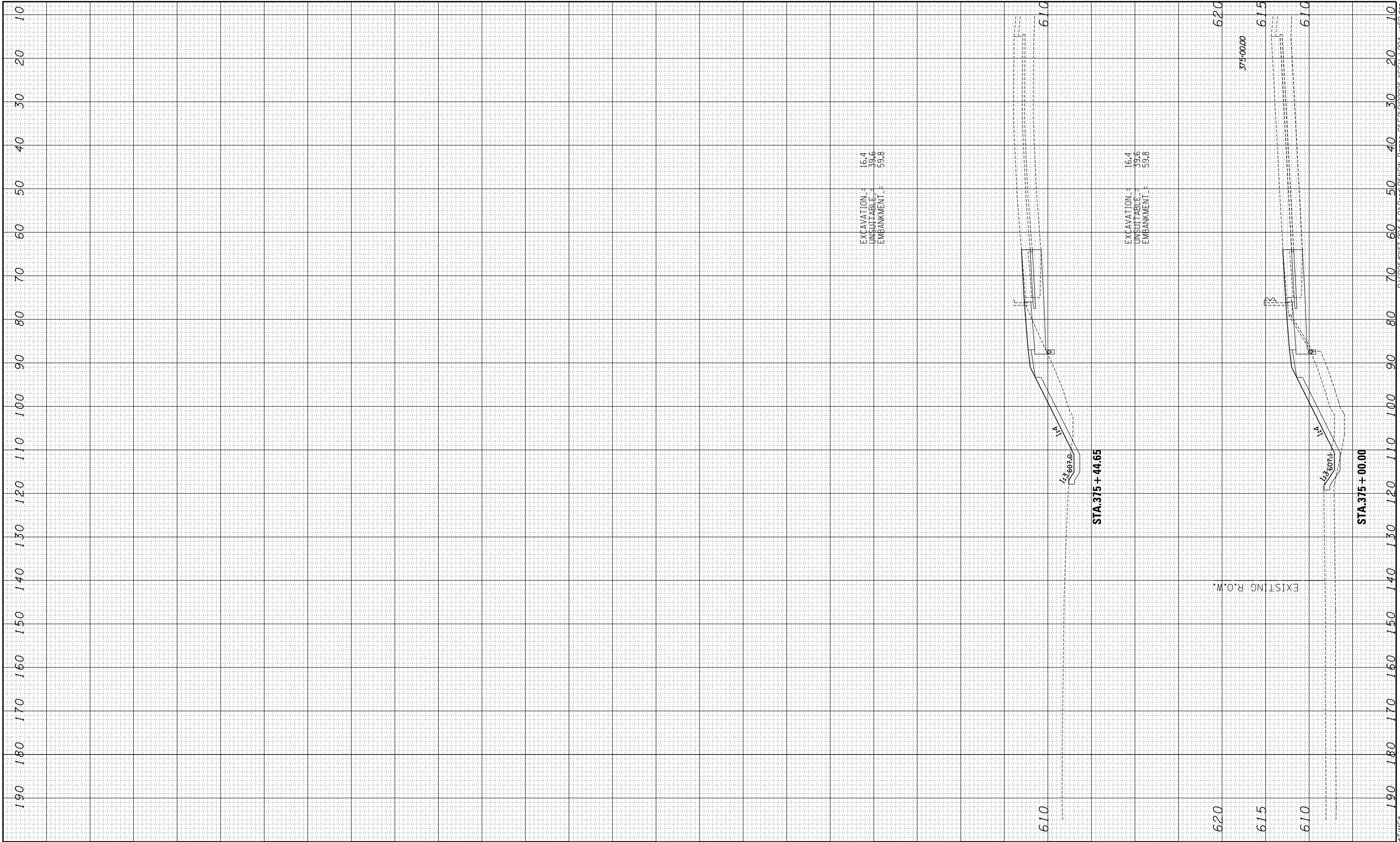
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C ALONG SB I-294
PROPOSED CROSS SECTIONS
STA. 372+50.00 TO STA. 374+50.00

SHEET XS-294-05
558 OF 606

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3/12/2020

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3/12/2020



DRAWN BY . . . DM
CHECKED BY . . . JPM

DATE . . . April 3, 2020
SCALE . . . 1" = 10' Horiz.
1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

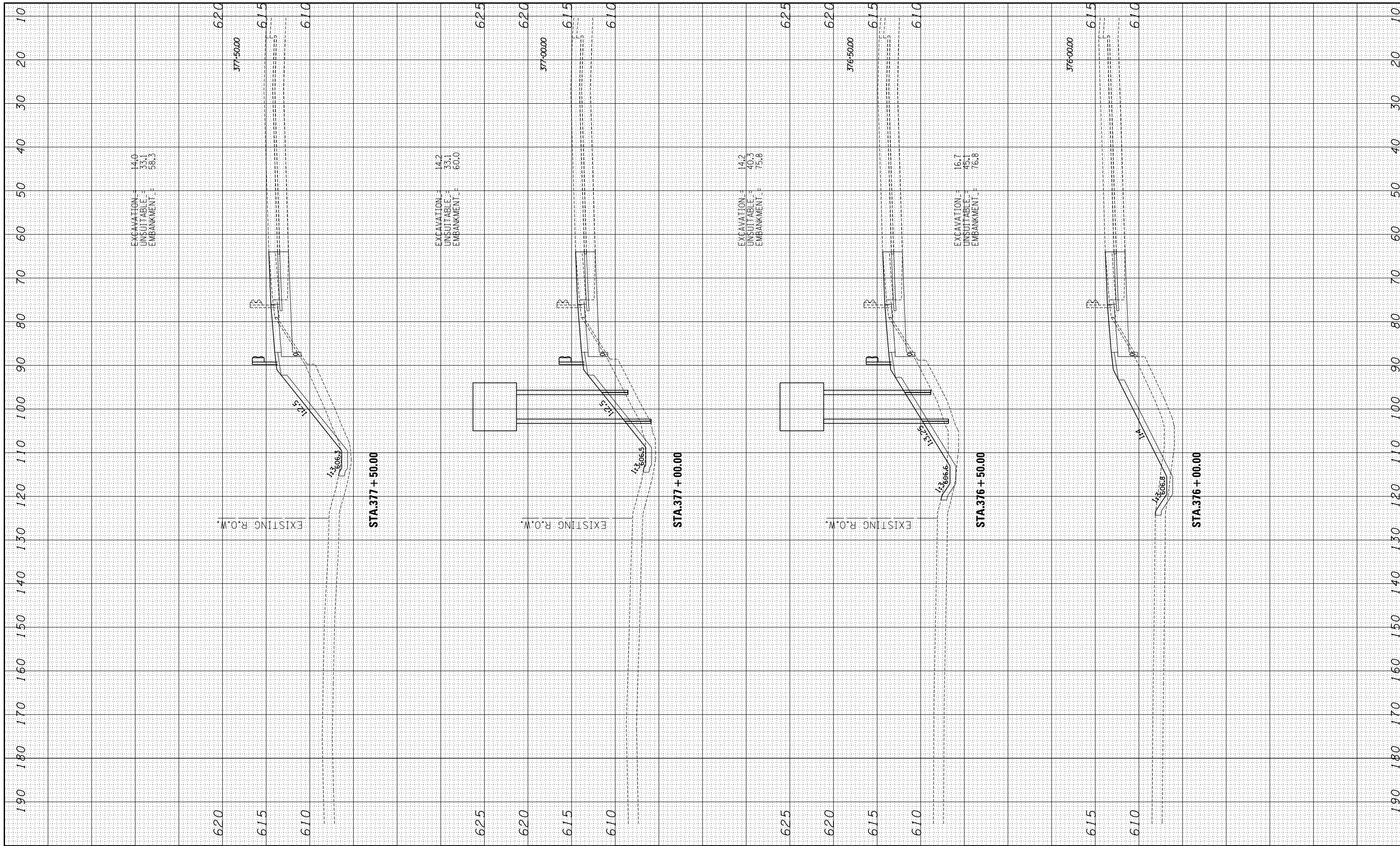
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C ALONG SB I-294
PROPOSED CROSS SECTIONS
STA. 375+00.00 TO STA. 375+44.65

SHEET XS-294-06
559 OF 606

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3/12/2020



DRAWN BY *DM*
CHECKED BY *JPM*

DATE *April 3, 2020*
SCALE *1" = 10' Horiz.
1" = 5' Vert.*

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

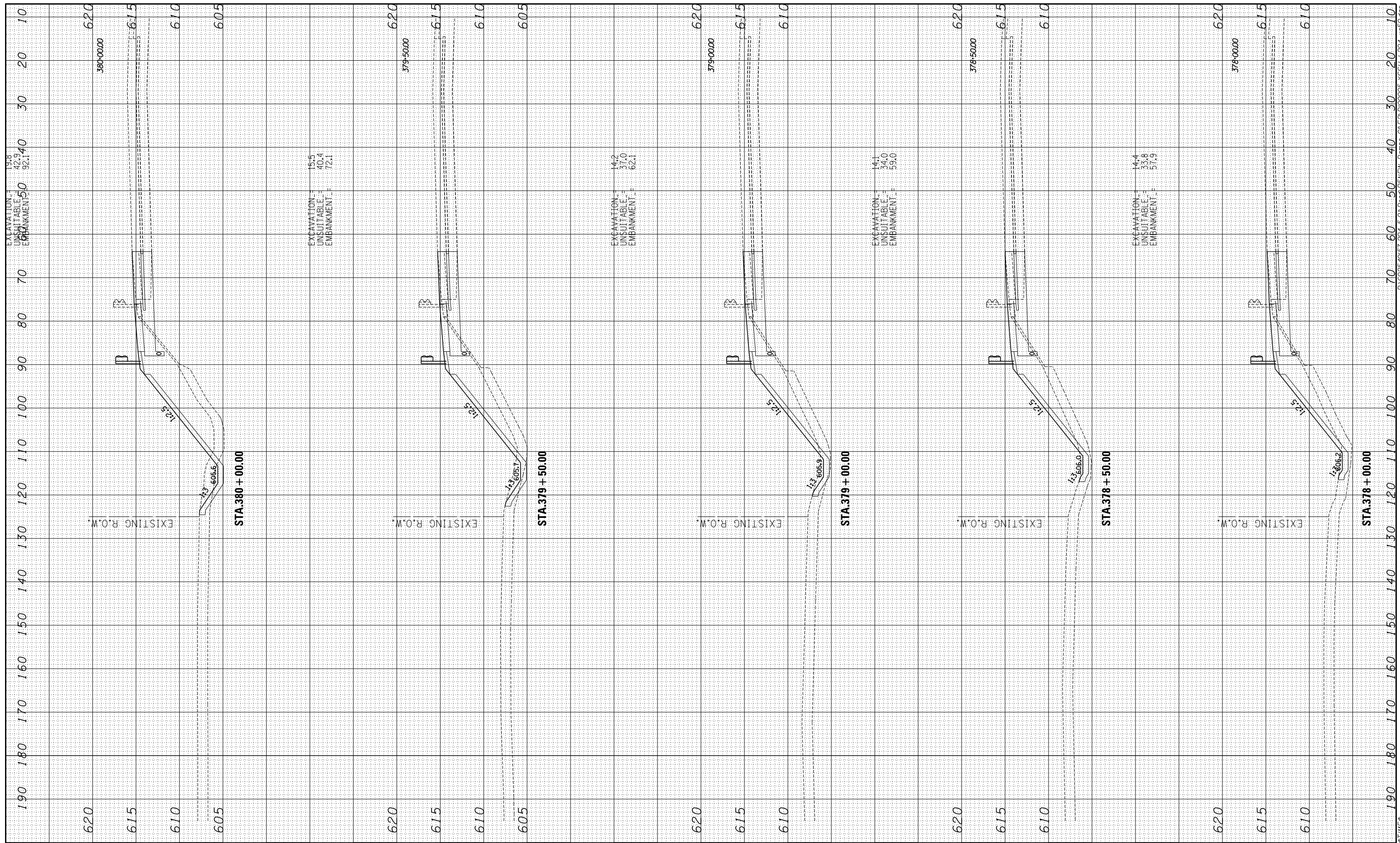
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C ALONG SB I-294
PROPOSED CROSS SECTIONS
STA. 375+50.27 TO STA. 377+50.00

SHEET XS-294-07
560 OF 606

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3/12/2020



DRAWN BY . . . DM
CHECKED BY . . . JPM

DATE . . . April 3, 2020
SCALE . . . 1" = 10' Horiz.
1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

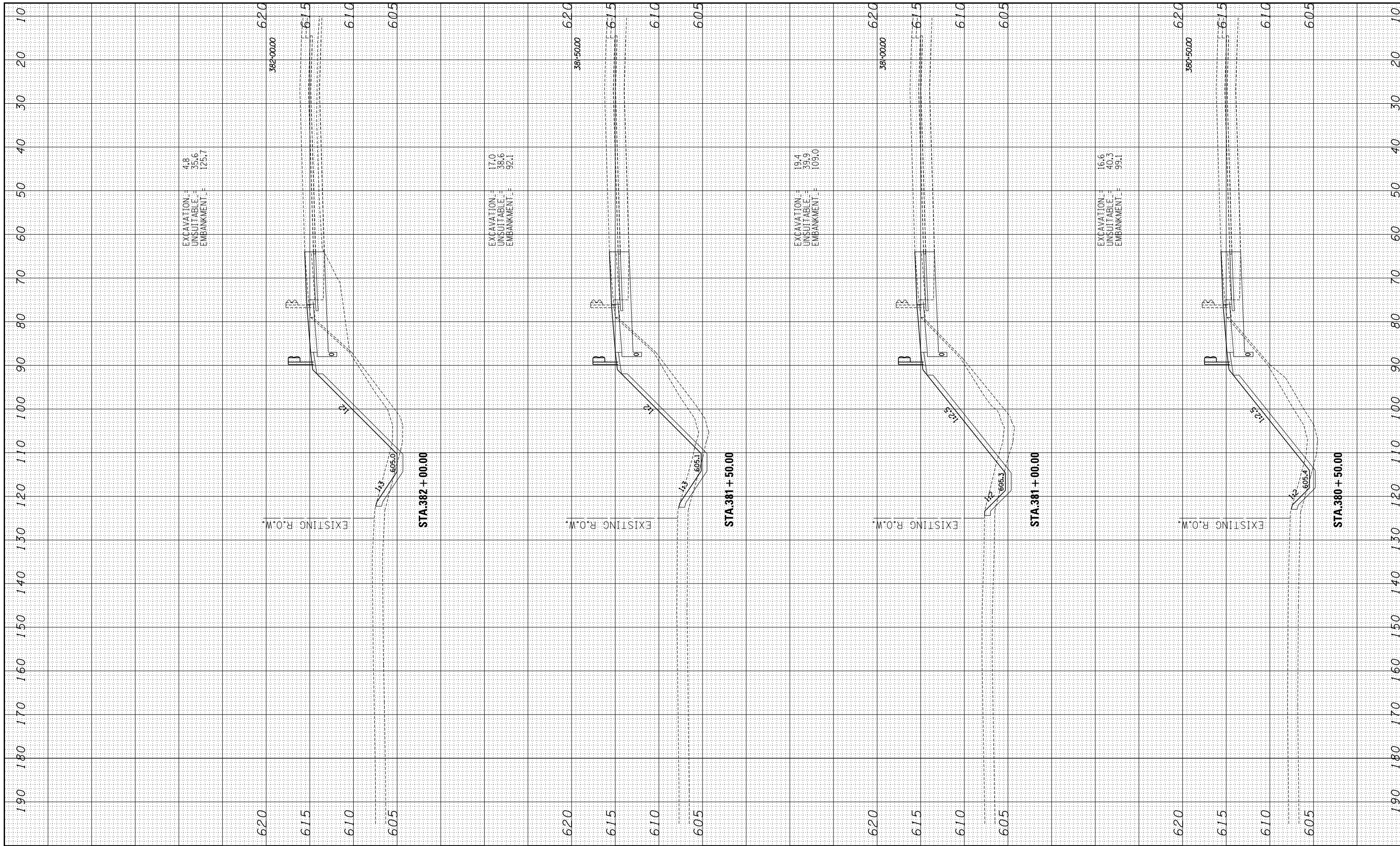
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C ALONG SB I-294
PROPOSED CROSS SECTIONS
STA. 378+00.00 TO STA. 380+00.00

SHEET XS-294-08
561 OF 606

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3/12/2020



DRAWN BY . . . DM
CHECKED BY . . . JPM

DATE . . . April 3, 2020
SCALE 1" = 10' Horiz.
1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

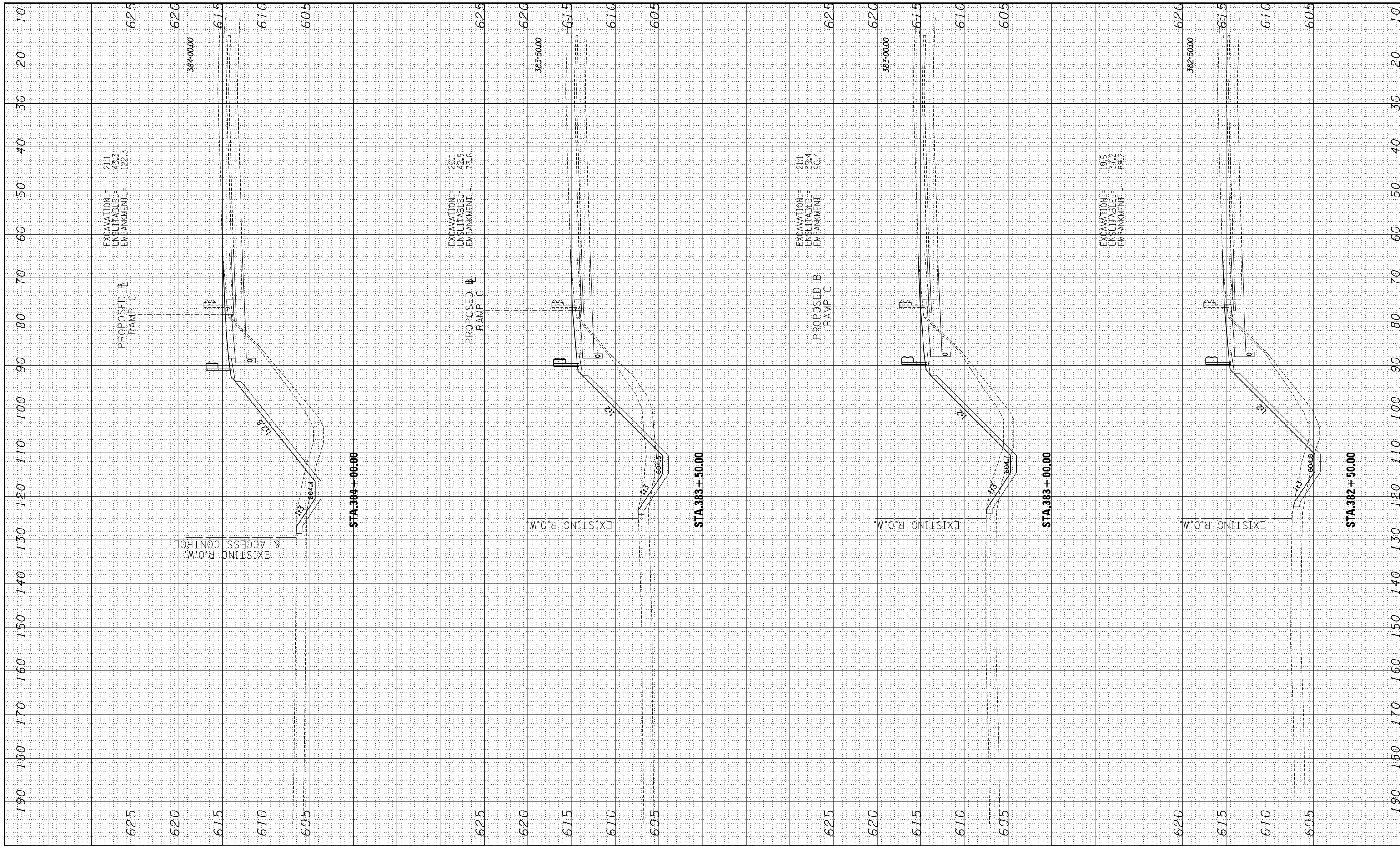
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C ALONG SB I-294
PROPOSED CROSS SECTIONS
STA. 380+50.00 TO STA. 382+00.00

SHEET XS-294-09
562 OF 606

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3/12/2020



EXCAVATION = 21.1
UNSUITABLE = 43.3
EMBANKMENT = 122.3

PROPOSED RAMP C

EXISTING R.O.W. & ACCESS CONTROL

STA.384 + 00.00

EXCAVATION = 26.1
UNSUITABLE = 42.9
EMBANKMENT = 73.6

PROPOSED RAMP C

EXISTING R.O.W.

STA.383 + 50.00

EXCAVATION = 21.1
UNSUITABLE = 39.4
EMBANKMENT = 90.4

PROPOSED RAMP C

EXISTING R.O.W.

STA.383 + 00.00

EXCAVATION = 19.5
UNSUITABLE = 37.2
EMBANKMENT = 88.2

EXISTING R.O.W.

STA.382 + 50.00

DRAWN BY *DM*
CHECKED BY *JFM*

DATE *April 3, 2020*
SCALE *1" = 10' Horiz.
1" = 5' Vert.*

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

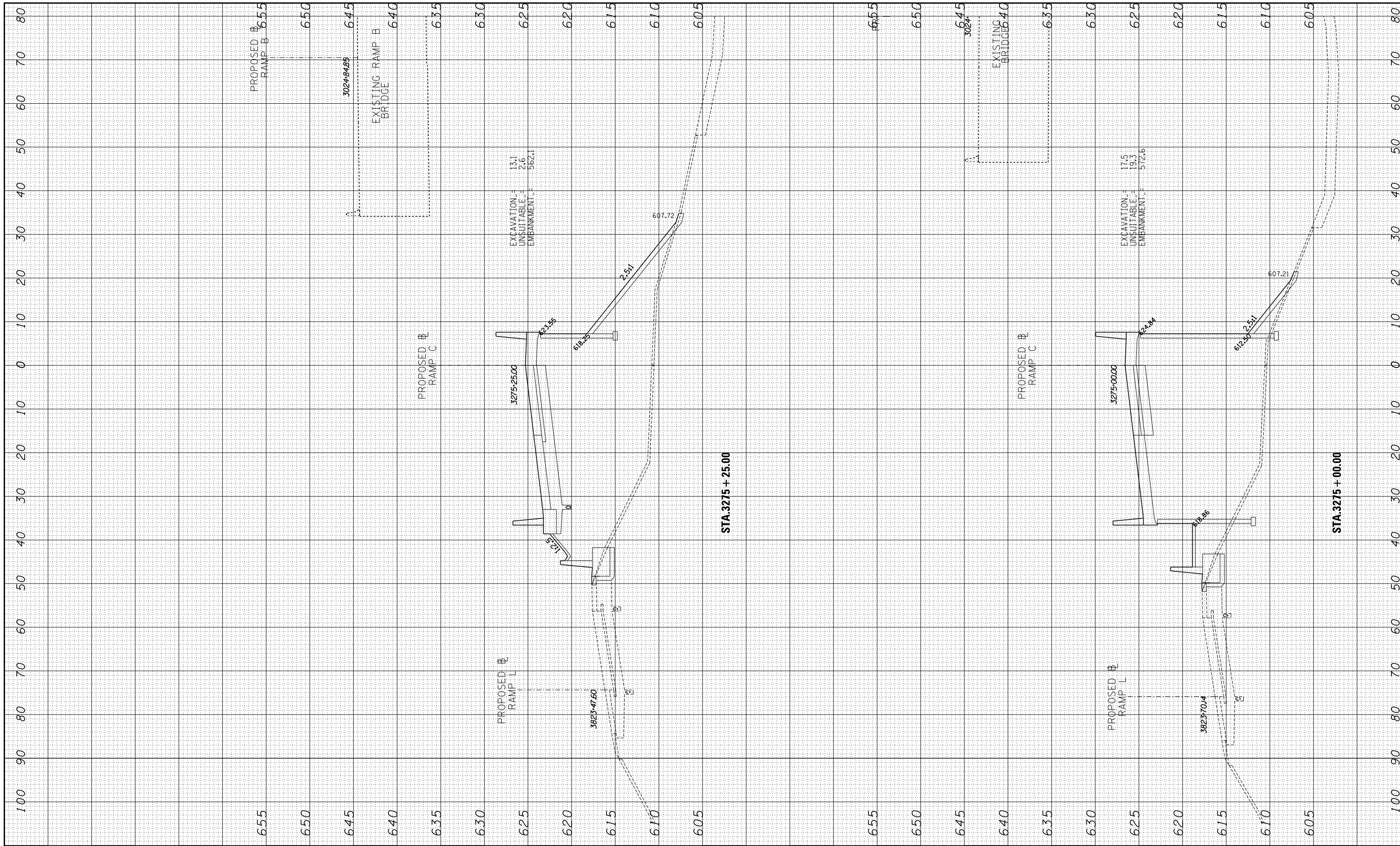
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C ALONG SB I-294
PROPOSED CROSS SECTIONS
STA. 382+50.00 TO STA. 384+00.00

SHEET XS-294-10
563 OF 606

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3/12/2020



DRAWN BY . . . JPM
CHECKED BY . . . JPM

DATE . . . April 3, 2020
SCALE . . . 1" = 10' Horiz.
 1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 ORDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

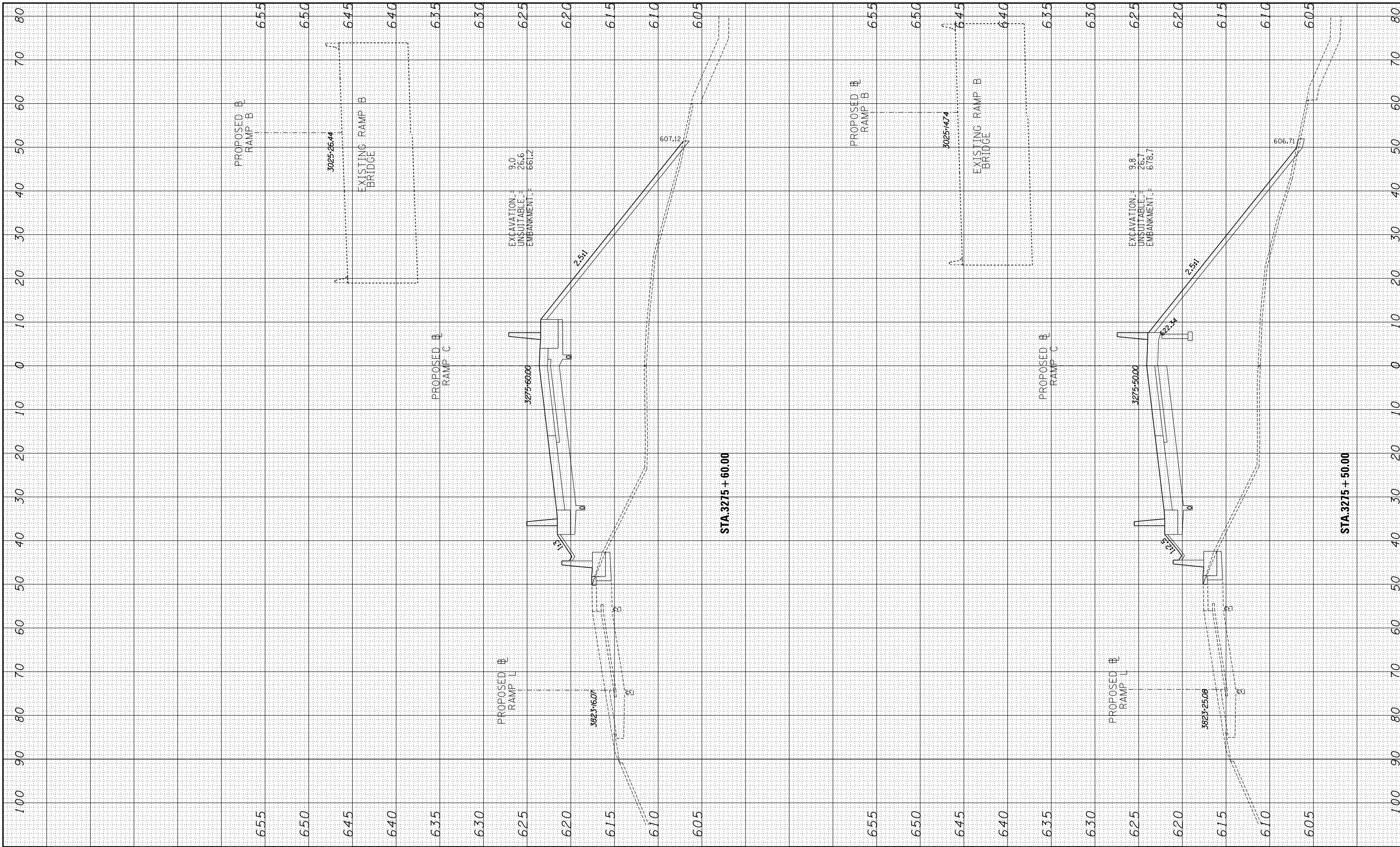
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C
PROPOSED CROSS SECTIONS
STA. 3275+00.00 TO STA. 3275+25.00

SHEET XS-C-01
564 OF 606

3/12/2020

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3/12/2020



DRAWN BY JPM
CHECKED BY JPM

DATE April 3, 2020
SCALE 1" = 10' Horiz.
1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 ORDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

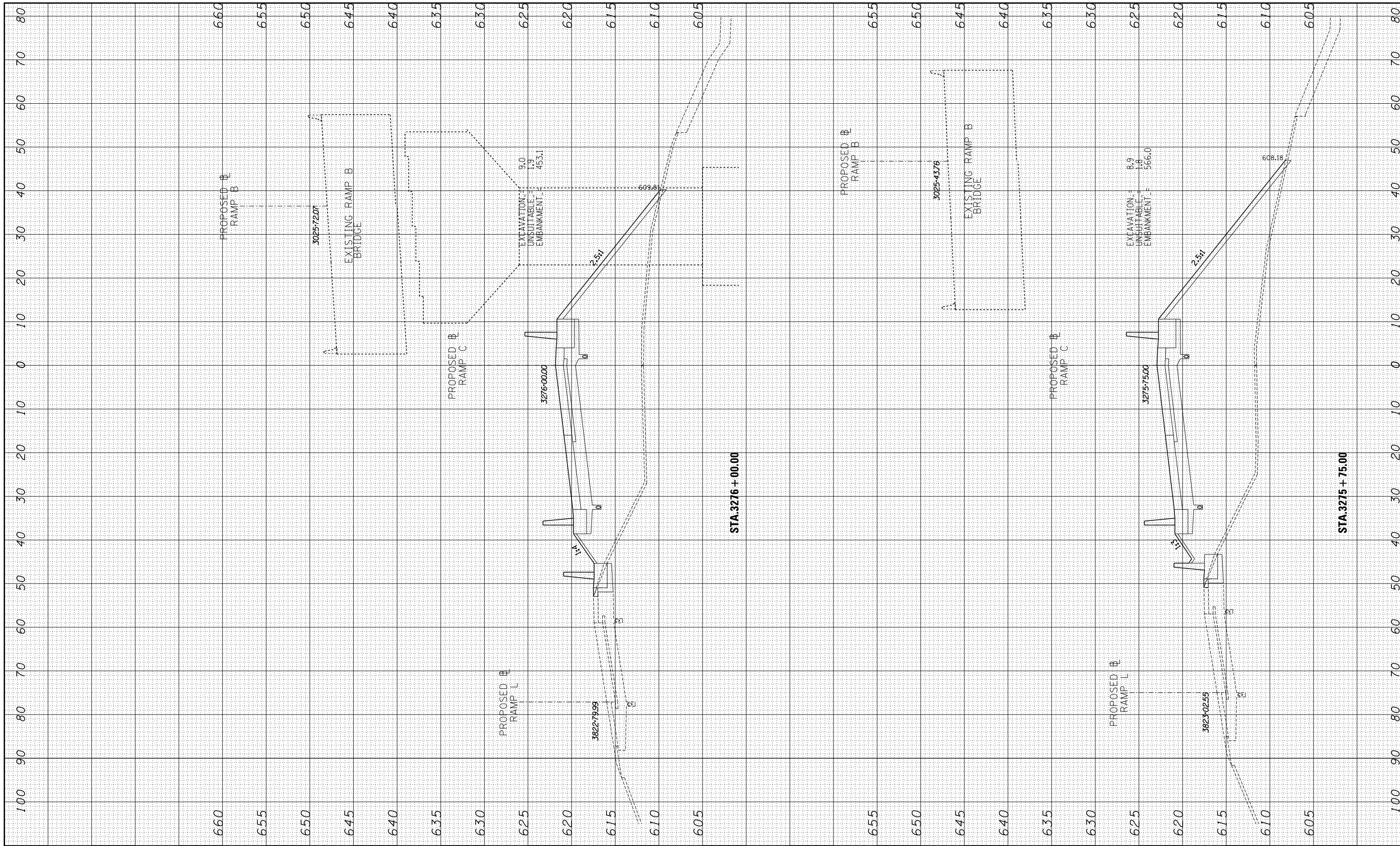
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C
PROPOSED CROSS SECTIONS
STA. 3275+50.00 TO STA. 3275+60.00

SHEET XS-C-02
565 OF 606

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3/12/2020



DRAWN BY . . . JPM
CHECKED BY . . . JPM

DATE . . . April 3, 2020
SCALE 1" = 10' Horiz.
1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 ORDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

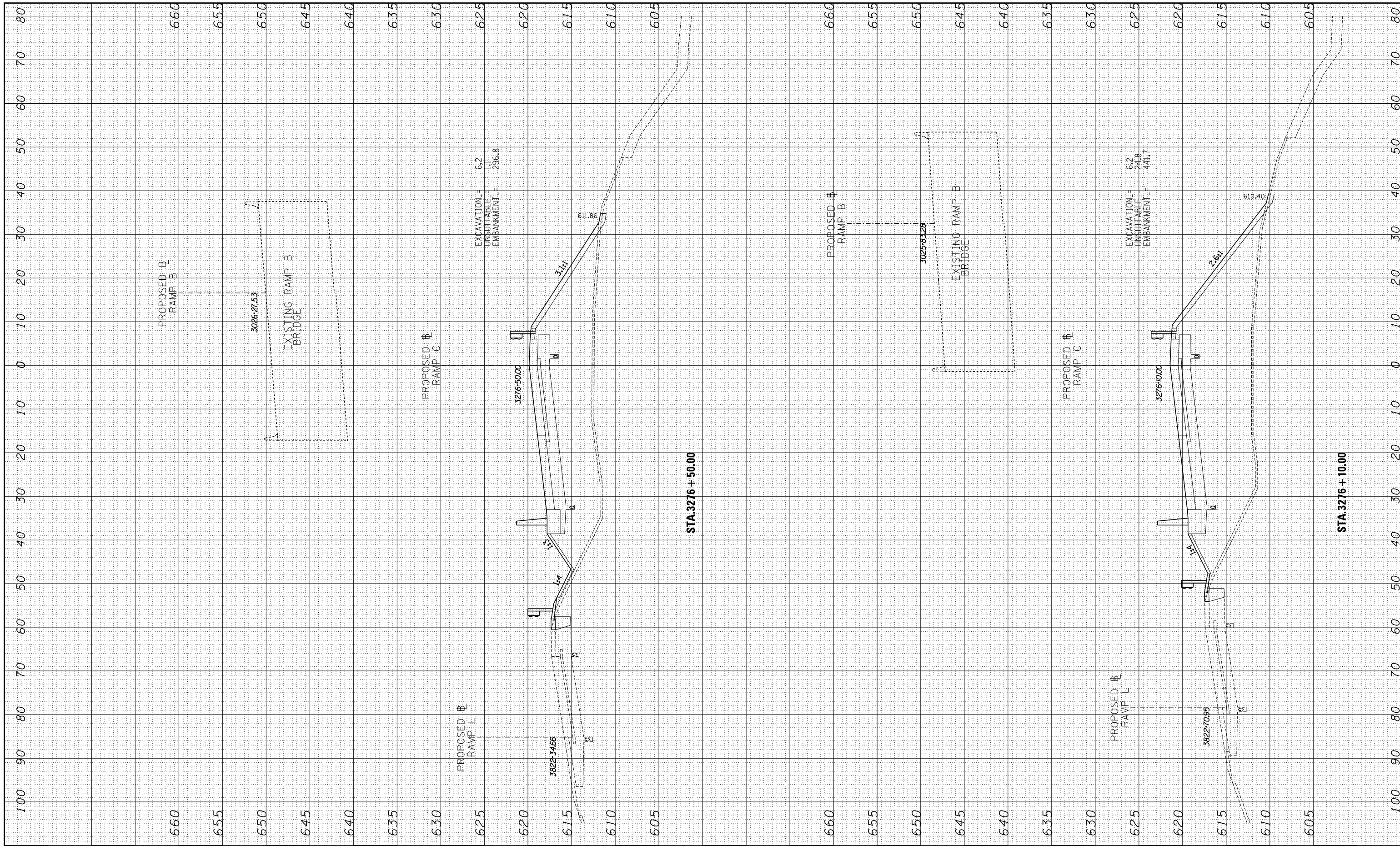
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C
PROPOSED CROSS SECTIONS
STA. 3275+75.00 TO STA. 3276+00.00

SHEET XS-C-03
566 OF 606

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3/12/2020



DRAWN BY . . . JPM
CHECKED BY . . . JPM

DATE . . . April 3, 2020
SCALE . . . 1" = 10' Horiz.
 1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

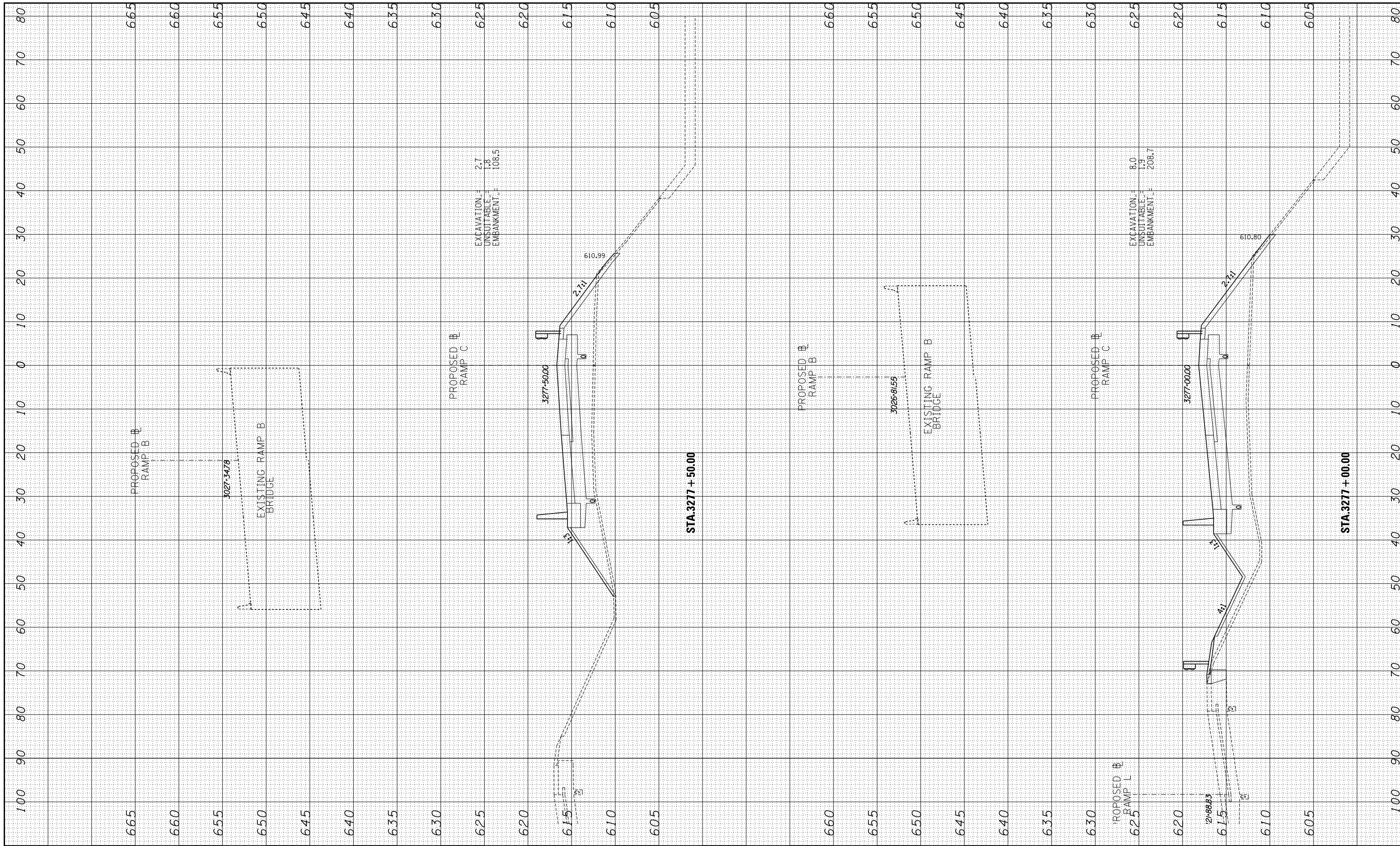
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C
PROPOSED CROSS SECTIONS
STA. 3276+10.00 TO STA. 3276+50.00

SHEET XS-C-04
567 OF 606

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3/12/2020



DRAWN BY . . . JPM
CHECKED BY . . . JPM

DATE . . . April 3, 2020
SCALE . . . 1" = 10' Horiz.
1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

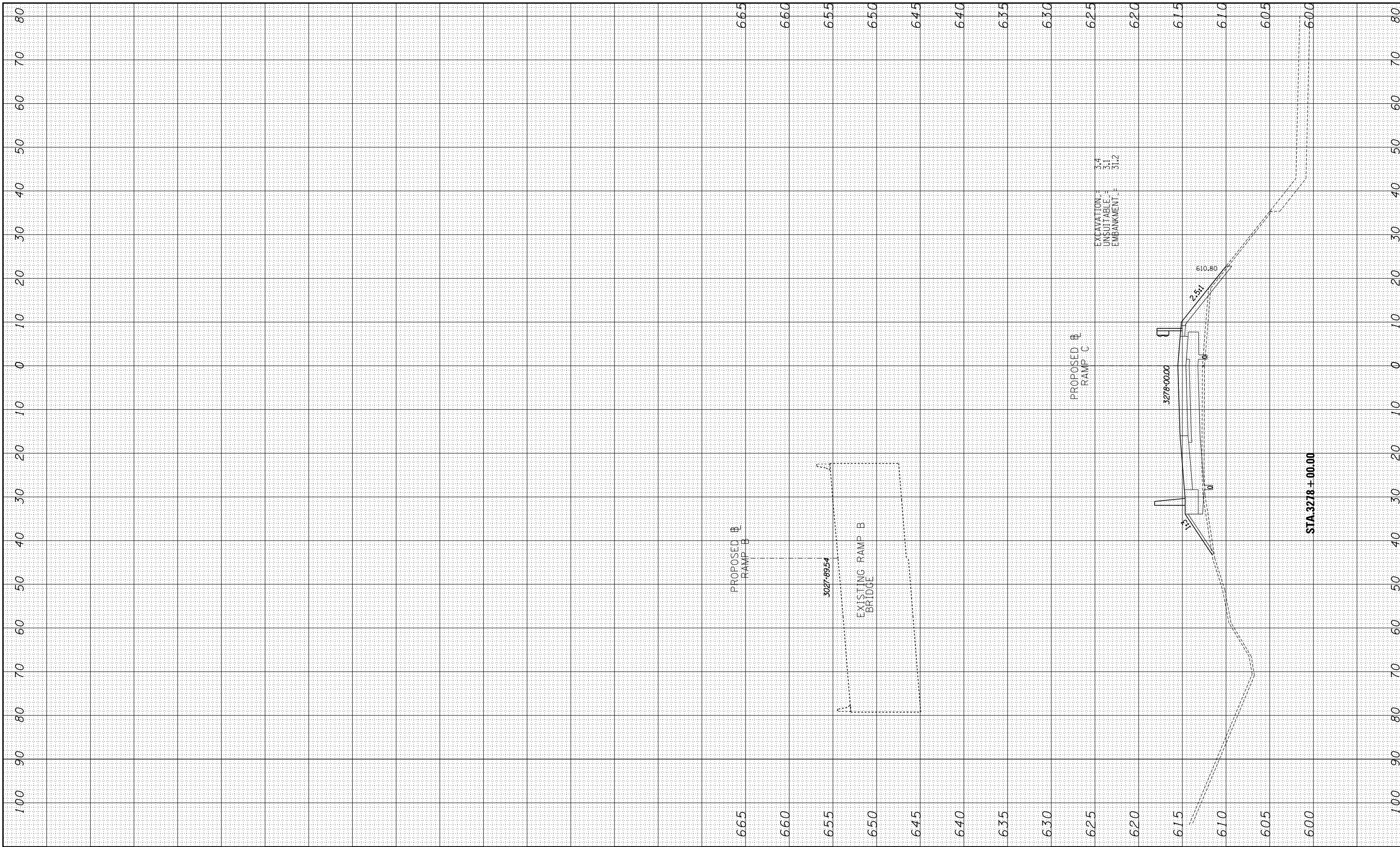
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C
PROPOSED CROSS SECTIONS
STA. 3277+00.00 TO STA. 3277+50.00

SHEET XS-C-05
568 OF 606

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DRAWN BY . . . JPM
CHECKED BY . . . JPM

DATE . . . April 3, 2020
SCALE . . . 1" = 10' Horiz.
 . . . 1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

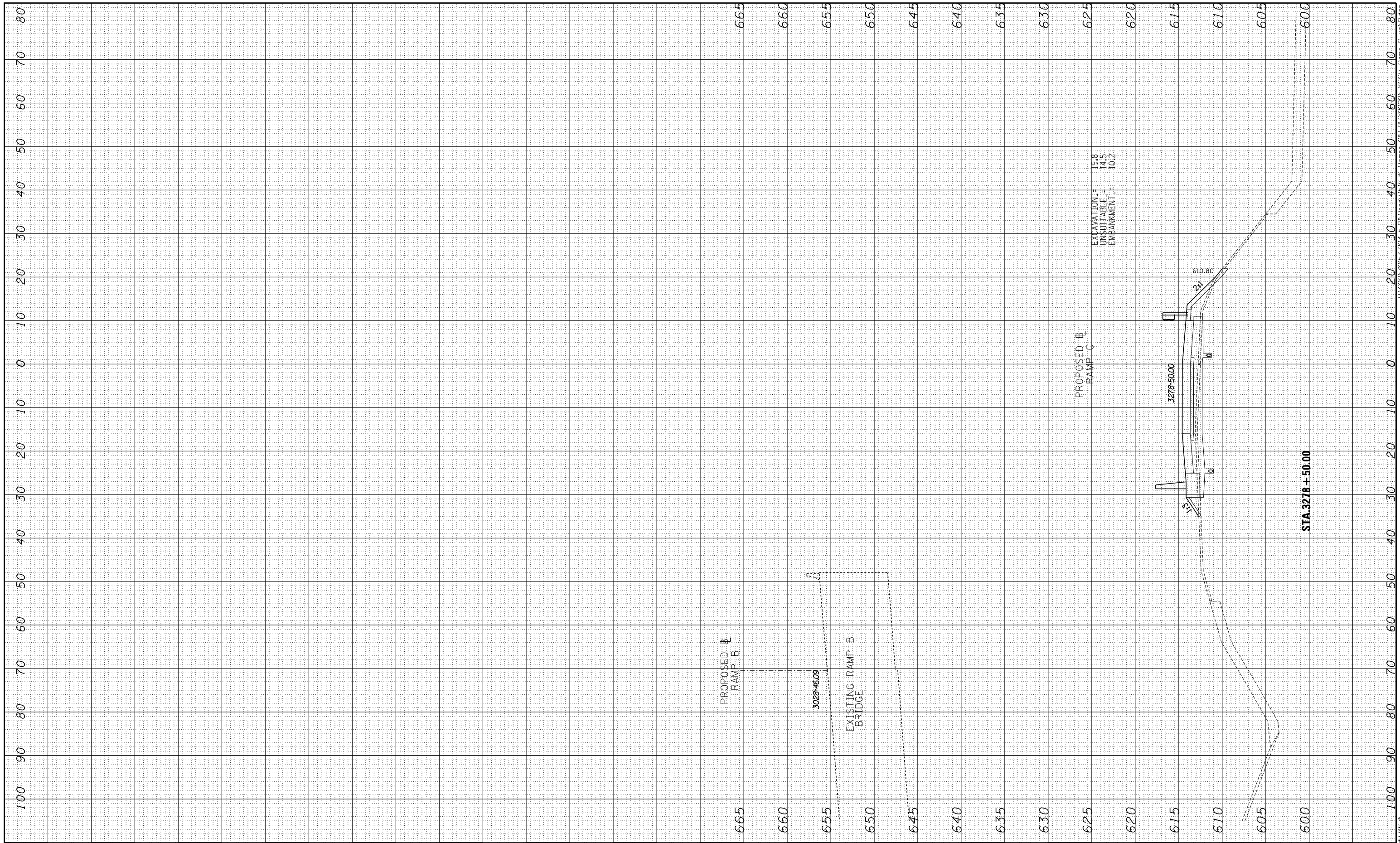
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C
PROPOSED CROSS SECTIONS
STA. 3278+00.00 TO STA. 3278+00.00

SHEET XS-C-06
569 OF 606

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3/12/2020



DRAWN BY . . . JPM
CHECKED BY . . . JPM

DATE . . . April 3, 2020
SCALE . . . 1" = 10' Horiz.
1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

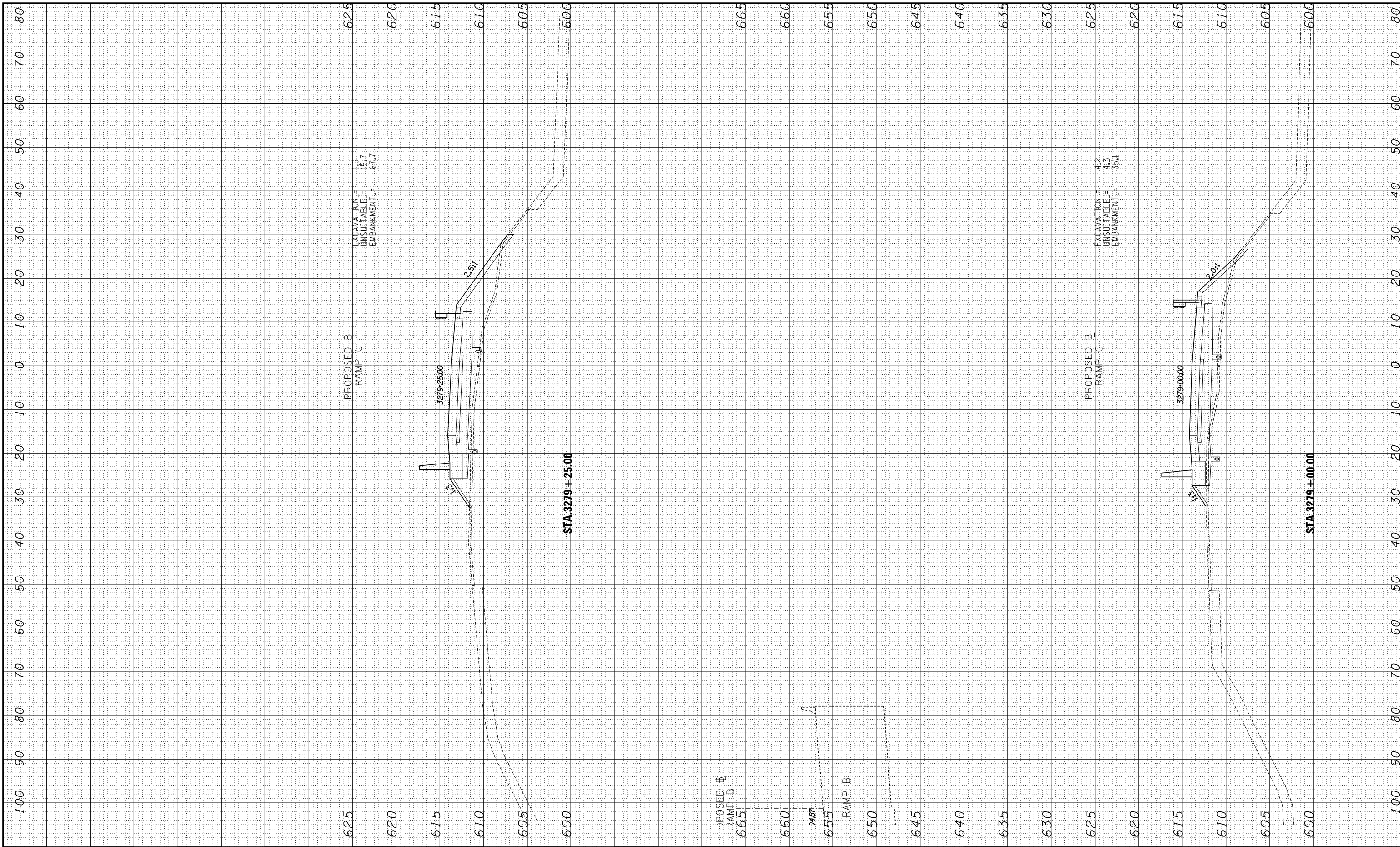
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C
PROPOSED CROSS SECTIONS
STA. 3278+50.00 TO STA. 3278+50.00

SHEET XS-C-07
570 OF 606

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3/12/2020



DRAWN BY . . . JPM
 CHECKED BY . . . JPM

DATE . . . April 3, 2020
 SCALE . . . 1" = 10' Horiz.
 . . . 1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

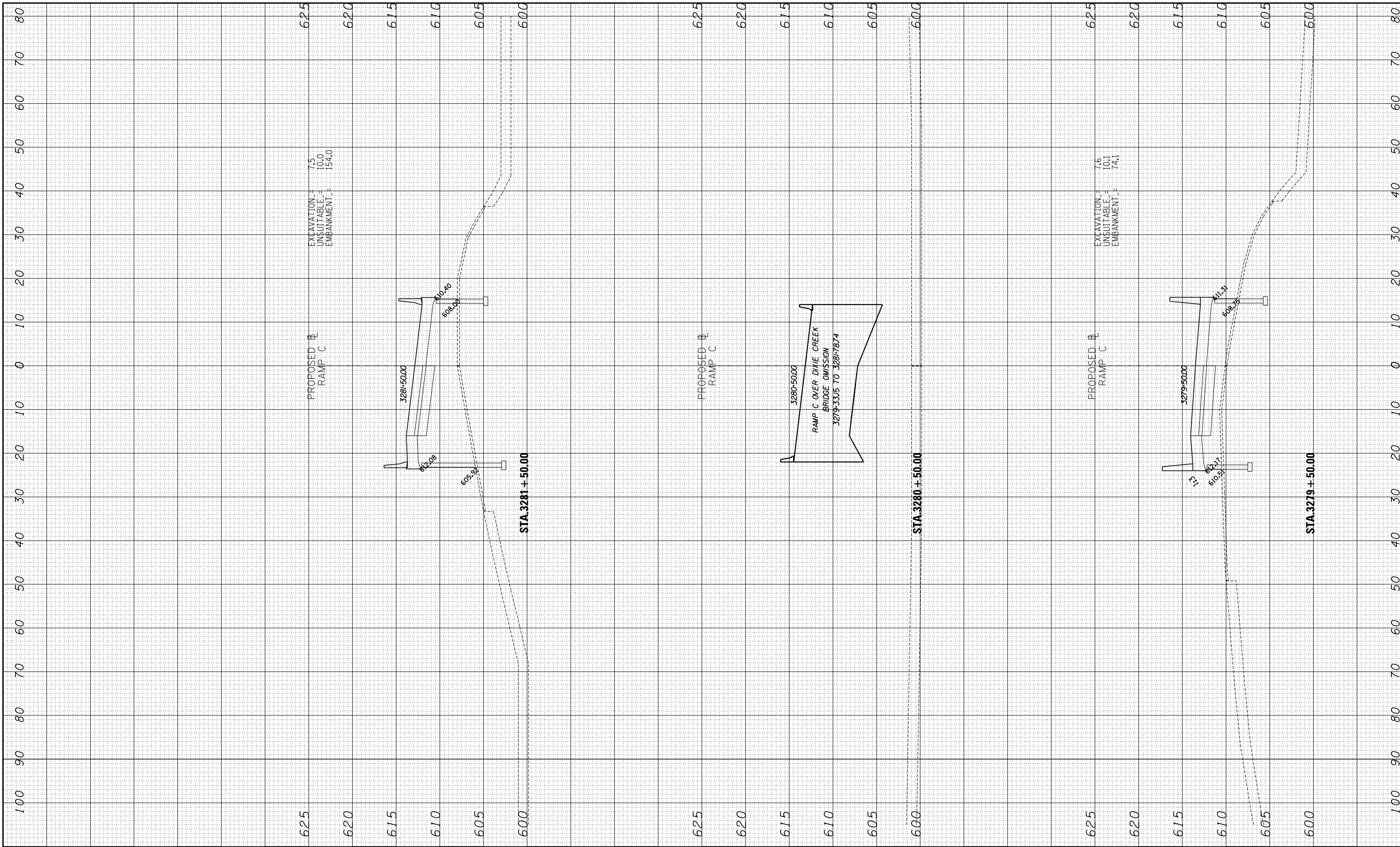
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 RAMP C
 PROPOSED CROSS SECTIONS
 STA. 3279+00.00 TO STA. 3279+25.00

SHEET XS-C-08
 571 OF 606

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3/12/2020



DRAWN BY . . . JPM
CHECKED BY . . . JPM

DATE . . . April 3, 2020
SCALE . . . 1" = 10' Horiz.
 . . . 1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

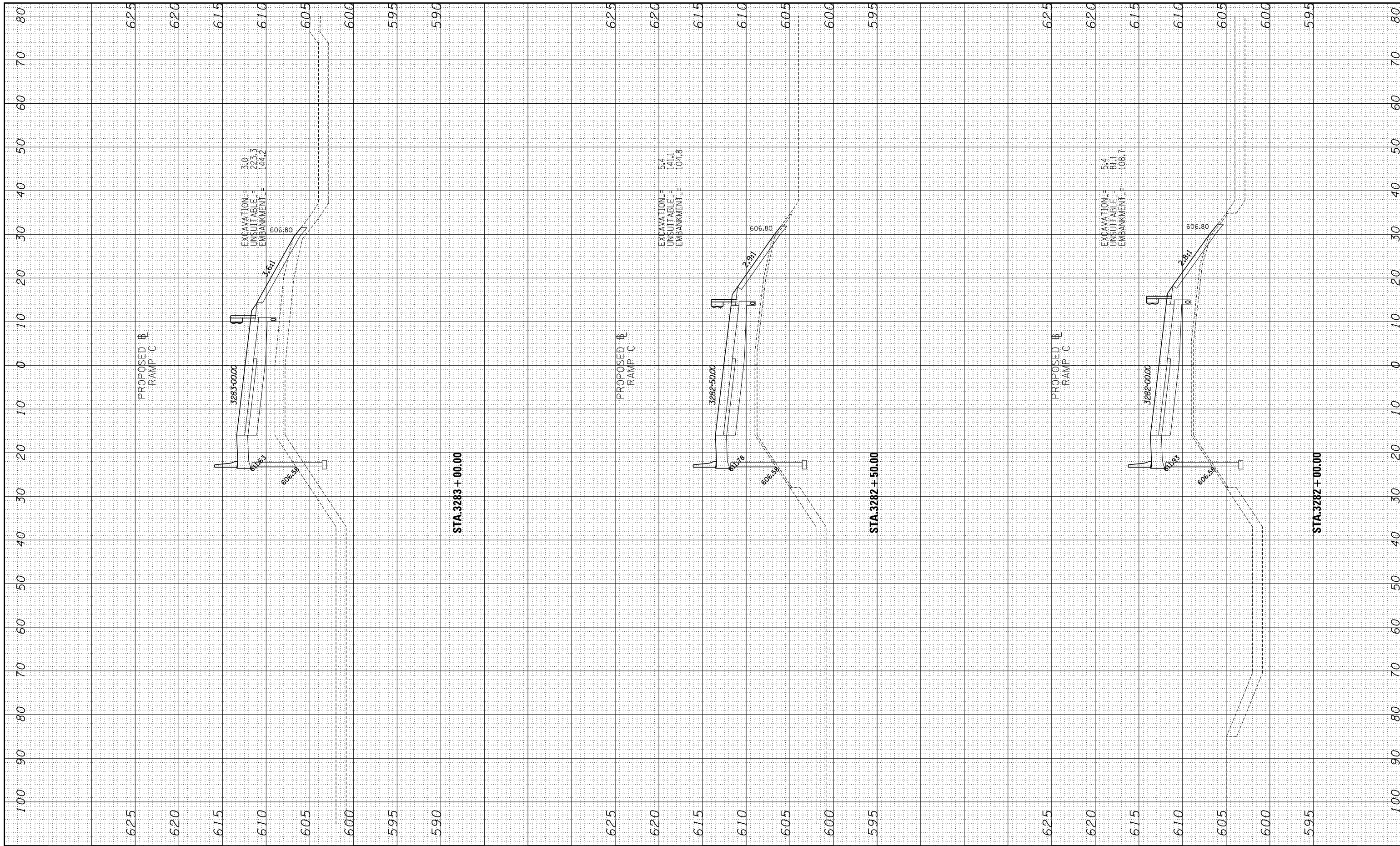
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C
PROPOSED CROSS SECTIONS
STA. 3279+50.00 TO STA. 3281+50.00

SHEET XS-C-09
572 OF 606

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3/12/2020 \$TIME\$

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DRAWN BY JPM
CHECKED BY JPM

DATE April 3, 2020
SCALE 1" = 10' Horiz.
1" = 5' Vert.

TYLIN INTERNATIONAL



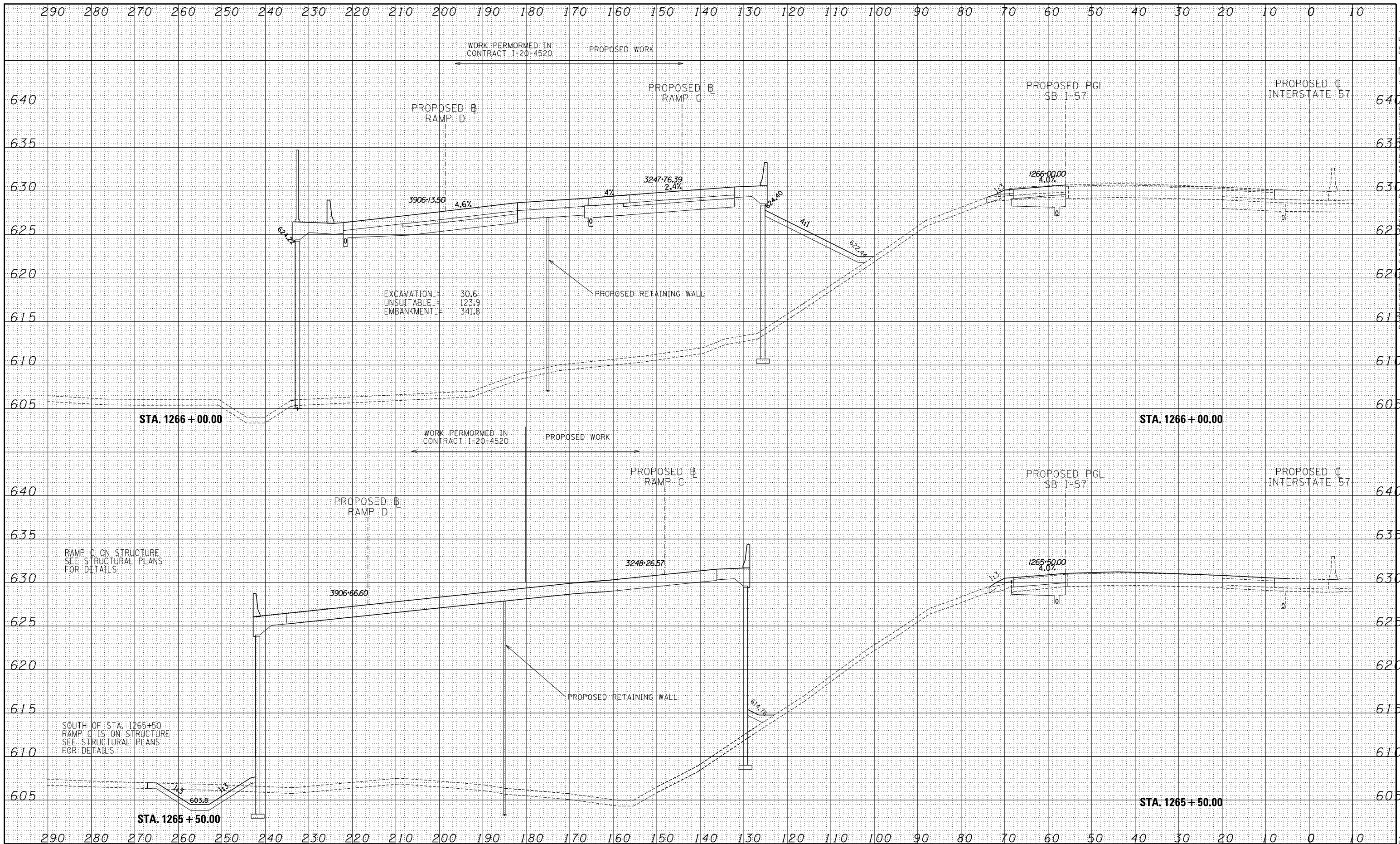
THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP C
PROPOSED CROSS SECTIONS
STA. 3282+00.00 TO STA. 3283+00.00

SHEET XS-C-10
573 OF 606

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3/12/2020



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 3/12/2020

DRAWN BY . . . JPM
 CHECKED BY . . . JPM

DATE . . . 4-3-2020
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 . . . 1" = 5' Vert.

TYLIN INTERNATIONAL



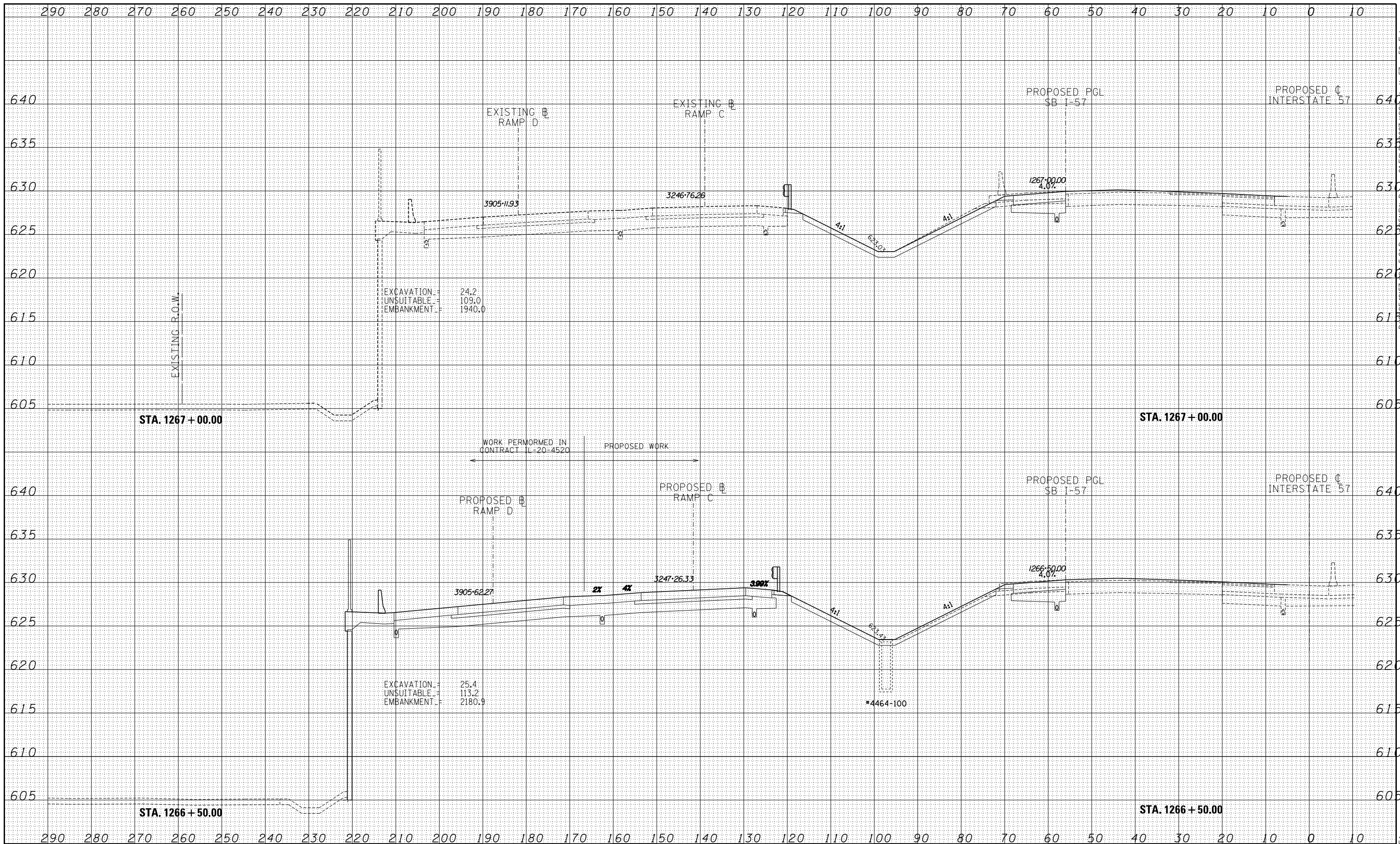
THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 SOUTHBOUND WIDENING
 PROPOSED CROSS SECTIONS
 STA. 1265+50.00 TO STA. 1266+00.00

SHEET XS-CN- 001
 574 OF 606

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 3/12/2020



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DRAWN BY . . . JPM
 CHECKED BY . . . JPM

DATE . . . 4-3-2020
 SCALE . . . 1" = 10' Horiz.
 . . . 1" = 5' Vert.

TYLIN INTERNATIONAL



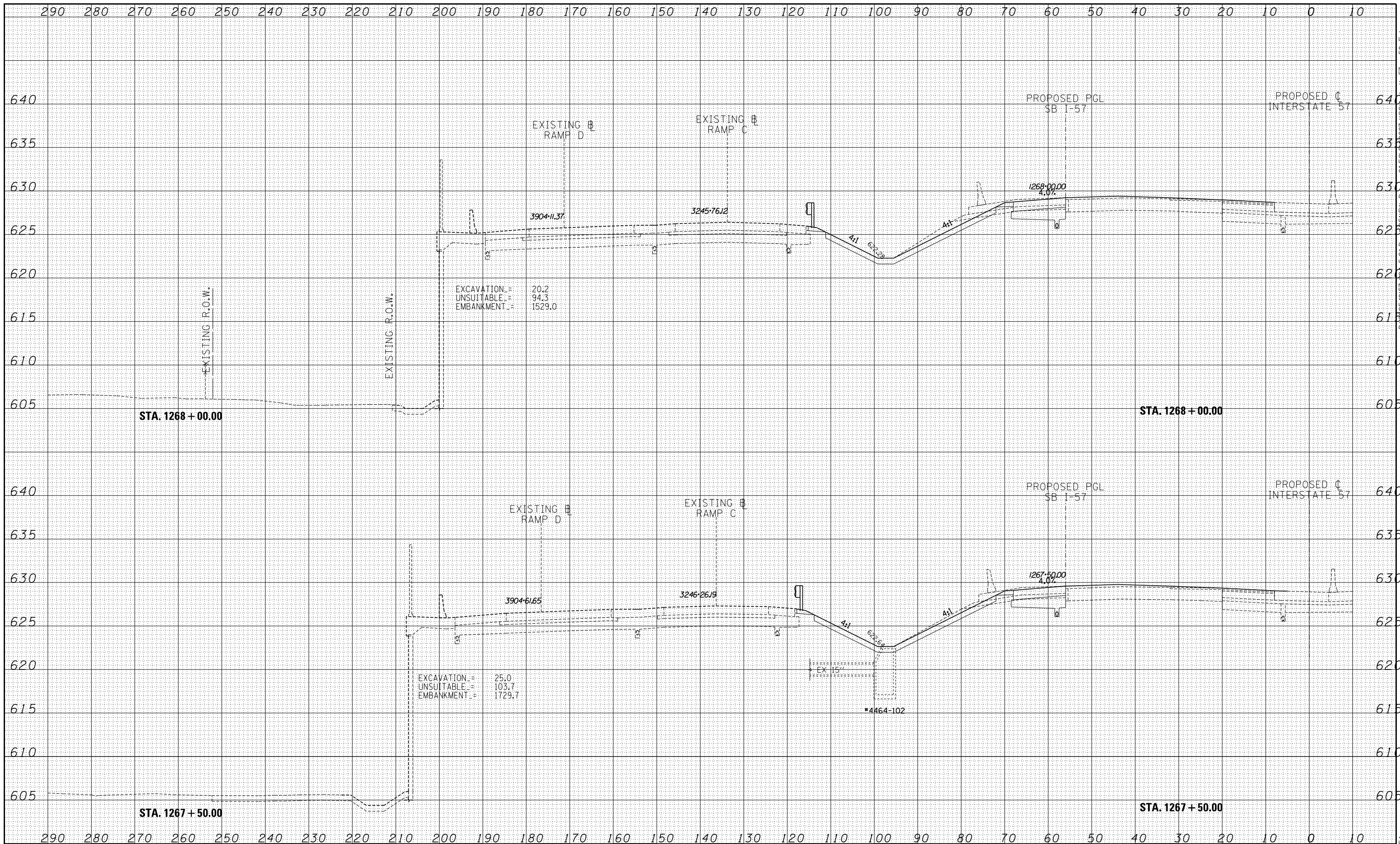
THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
I-57 SOUTHBOUND WIDENING
PROPOSED CROSS SECTIONS
 STA. 1266+50.00 TO STA. 1267+00.00

SHEET XS-CN- 002
575 OF **606**

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DRAWN BY JPM
 CHECKED BY JPM

DATE 4-3-2020
 SCALE 1" = 10' Horiz.
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TYLIN INTERNATIONAL

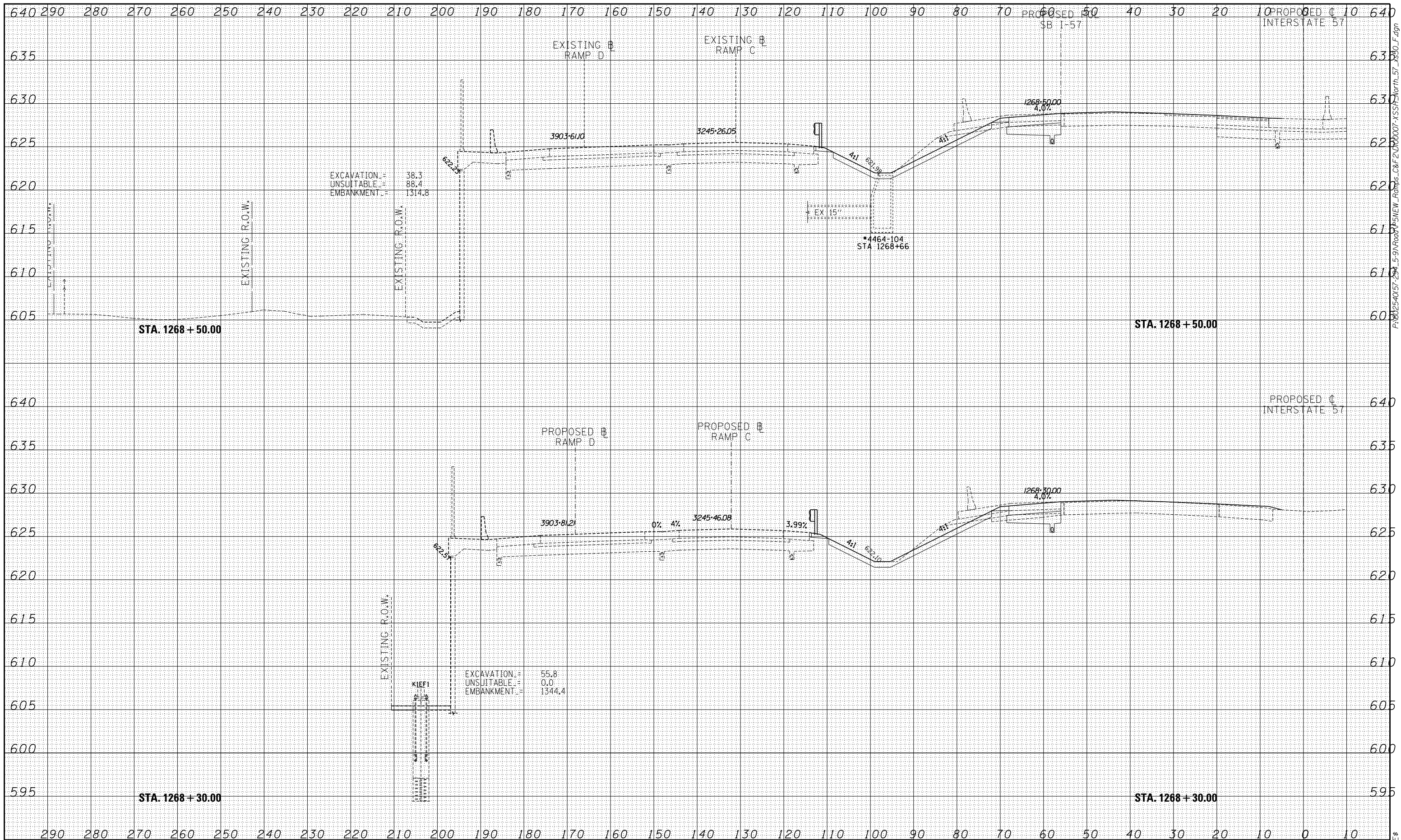


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 SOUTHBOUND WIDENING
 PROPOSED CROSS SECTIONS
 STA. 1267+50.00 TO STA. 1268+00.00

SHEET XS-CN- 003
 576 OF 606



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TYLIN INTERNATIONAL

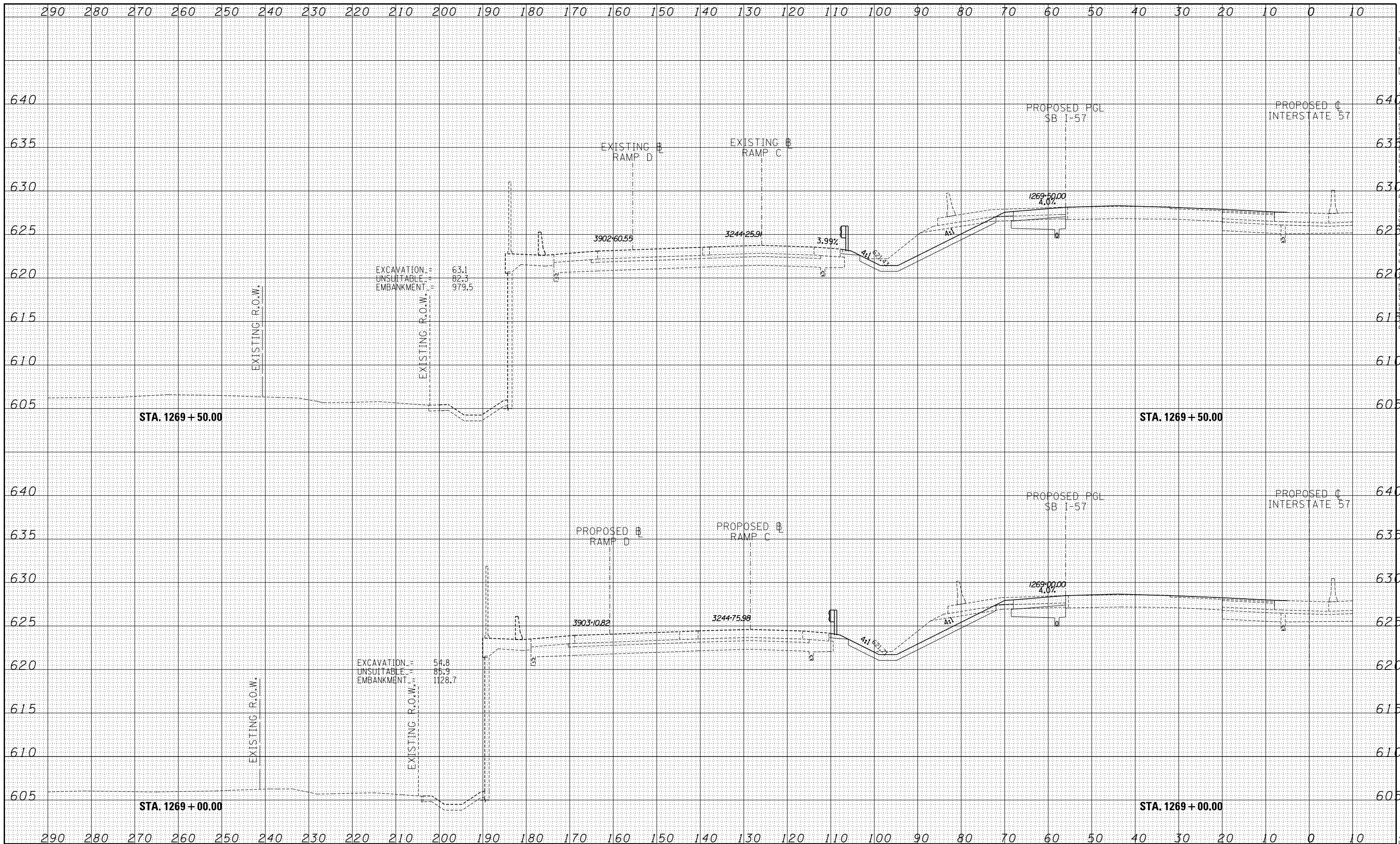


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 SOUTHBOUND WIDENING
 PROPOSED CROSS SECTIONS
 STA. 1268+30.00 TO STA. 1268+50.00

SHEET XS-CN- 004
 577 OF 606



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TYLIN INTERNATIONAL



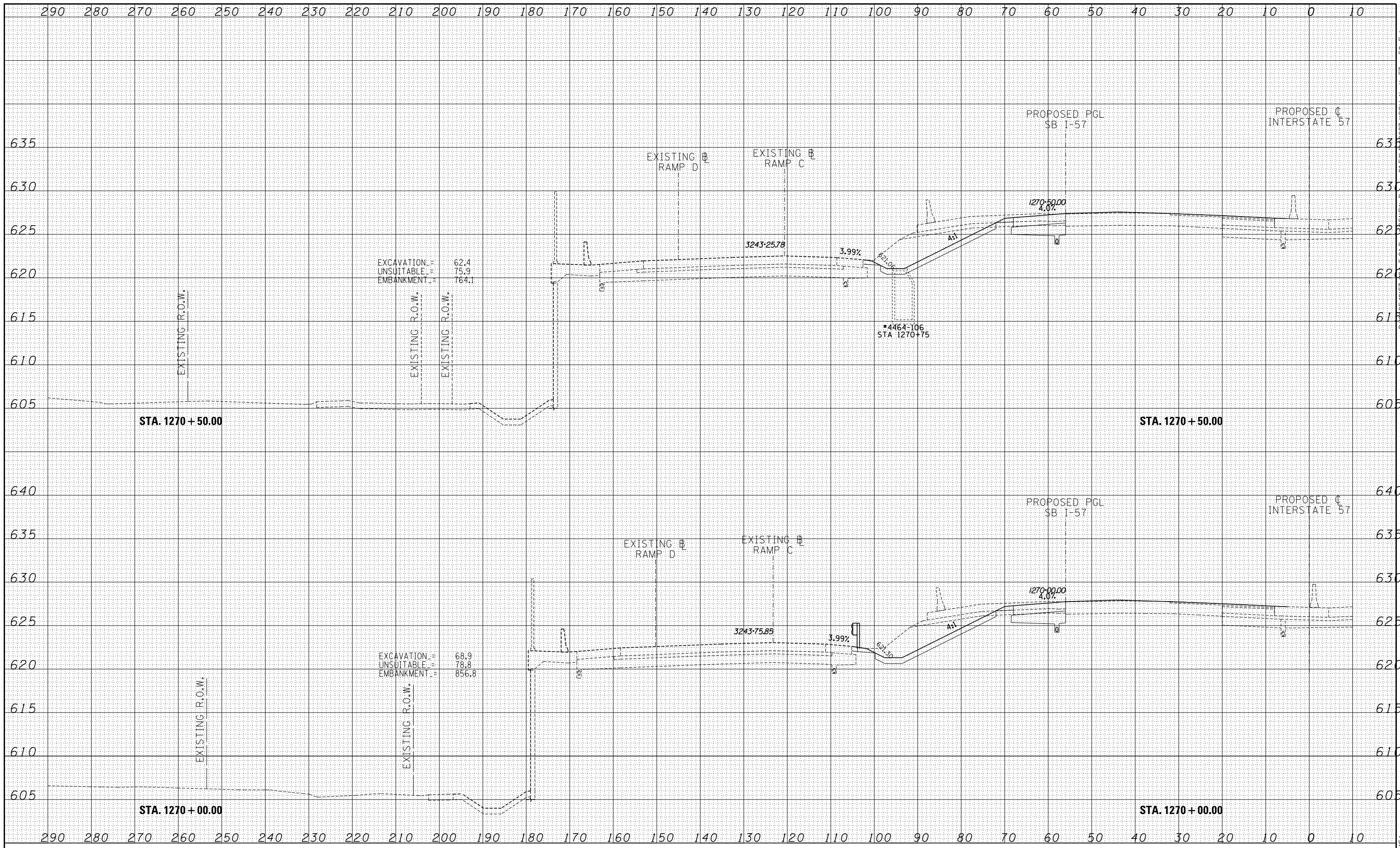
THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 SOUTHBOUND WIDENING
 PROPOSED CROSS SECTIONS
 STA. 1269+00.00 TO STA. 1269+50.00

SHEET XS-CN-005
 578 OF 606

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DRAWN BY . . . JPM
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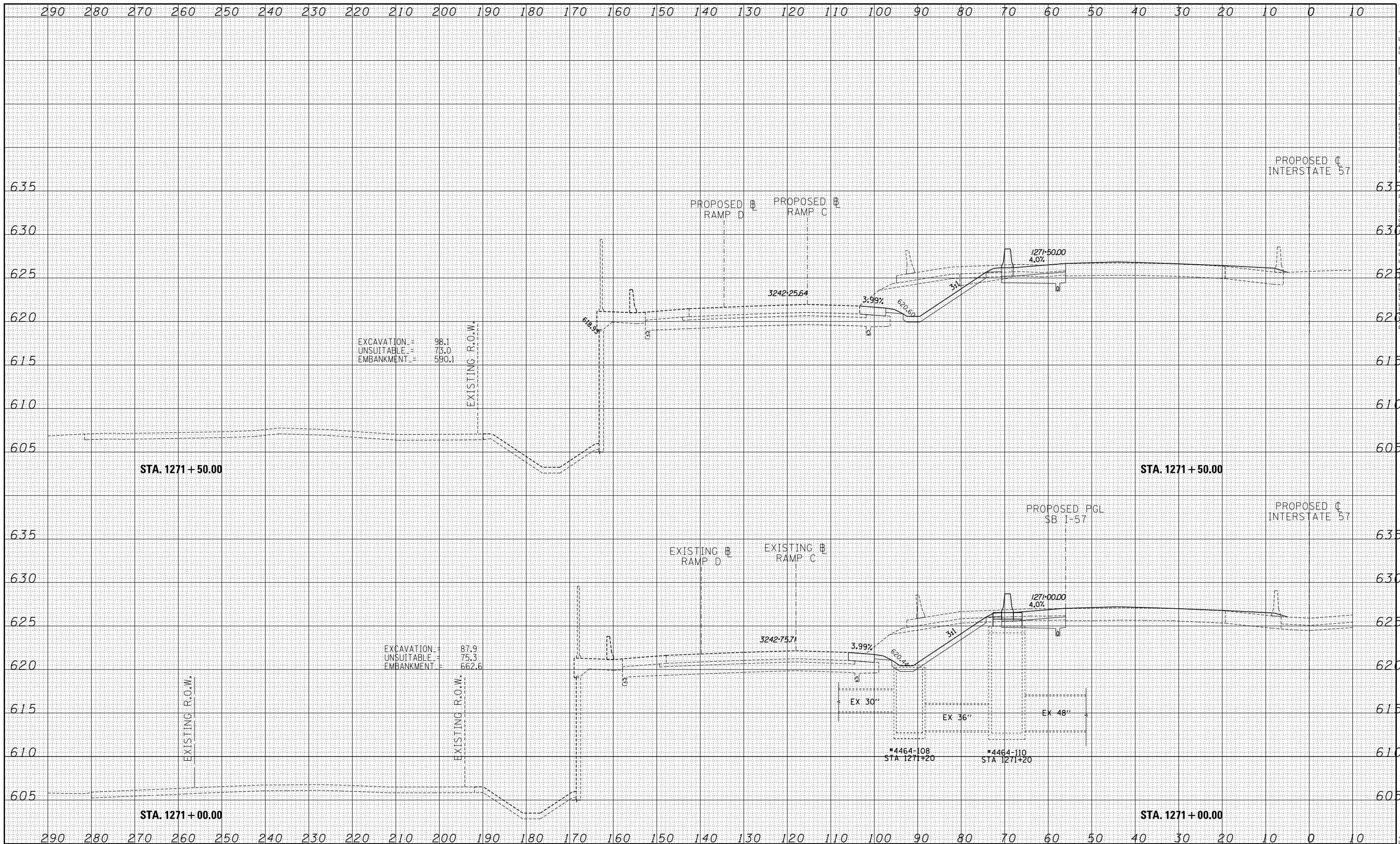


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 SOUTHBOUND WIDENING
 PROPOSED CROSS SECTIONS
 STA. 1270+00.00 TO STA. 1270+50.00

SHEET XS-CN- 006
 579 OF 606



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DATE . . . 4-3-2020
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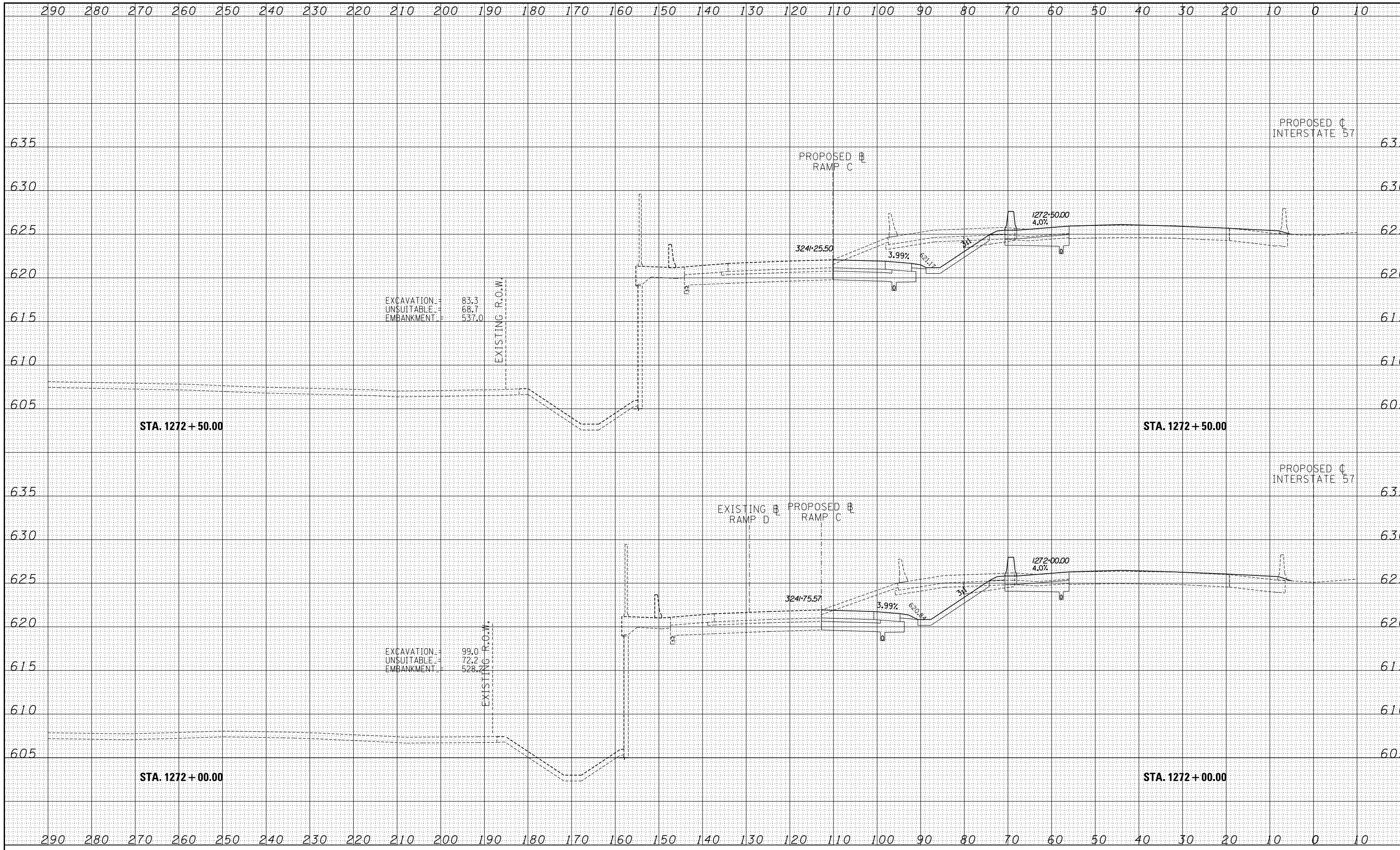


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 SOUTHBOUND WIDENING
 PROPOSED CROSS SECTIONS
 STA. 1271+00.00 TO STA. 1271+50.00

SHEET XS-CN- 007
 580 OF 606



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DATE 4-3-2020
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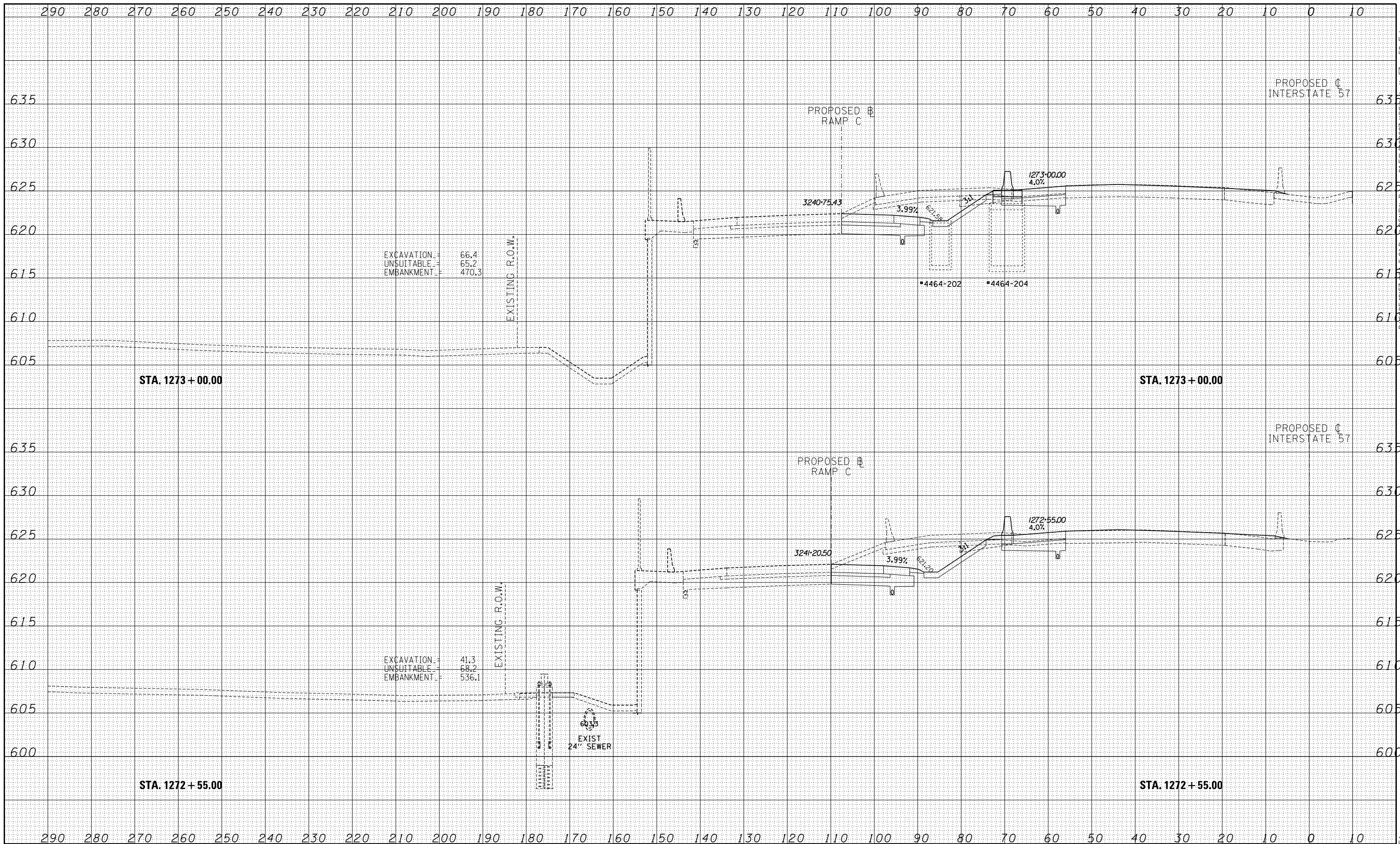
TYLIN INTERNATIONAL


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 SOUTHBOUND WIDENING
 PROPOSED CROSS SECTIONS
 STA. 1272+00.00 TO STA. 1272+50.00

SHEET XS-CN- 008
 581 OF 606



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 CHECKED BY . . . JPM

DATE . . . 4-3-2020
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TYLIN INTERNATIONAL

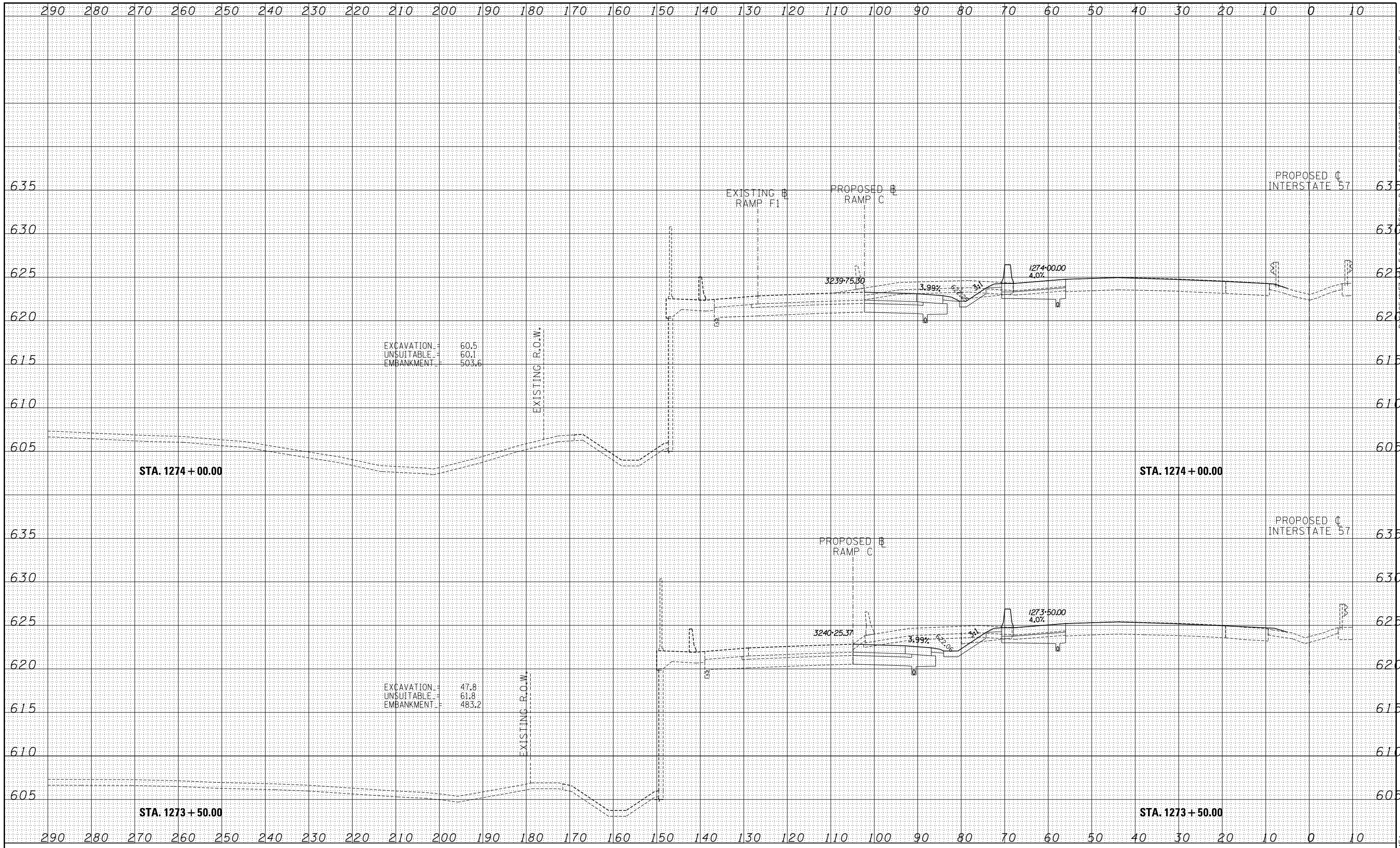


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 SOUTHBOUND WIDENING
 PROPOSED CROSS SECTIONS
 STA. 1272+55.00 TO STA. 1273+00.00

SHEET XS-CN-009
 582 OF 606



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DRAWN BY . . . JPM
 CHECKED BY . . . JPM

DATE . . . 4-3-2020
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 . . . 1" = 5' Vert.

TYLIN INTERNATIONAL

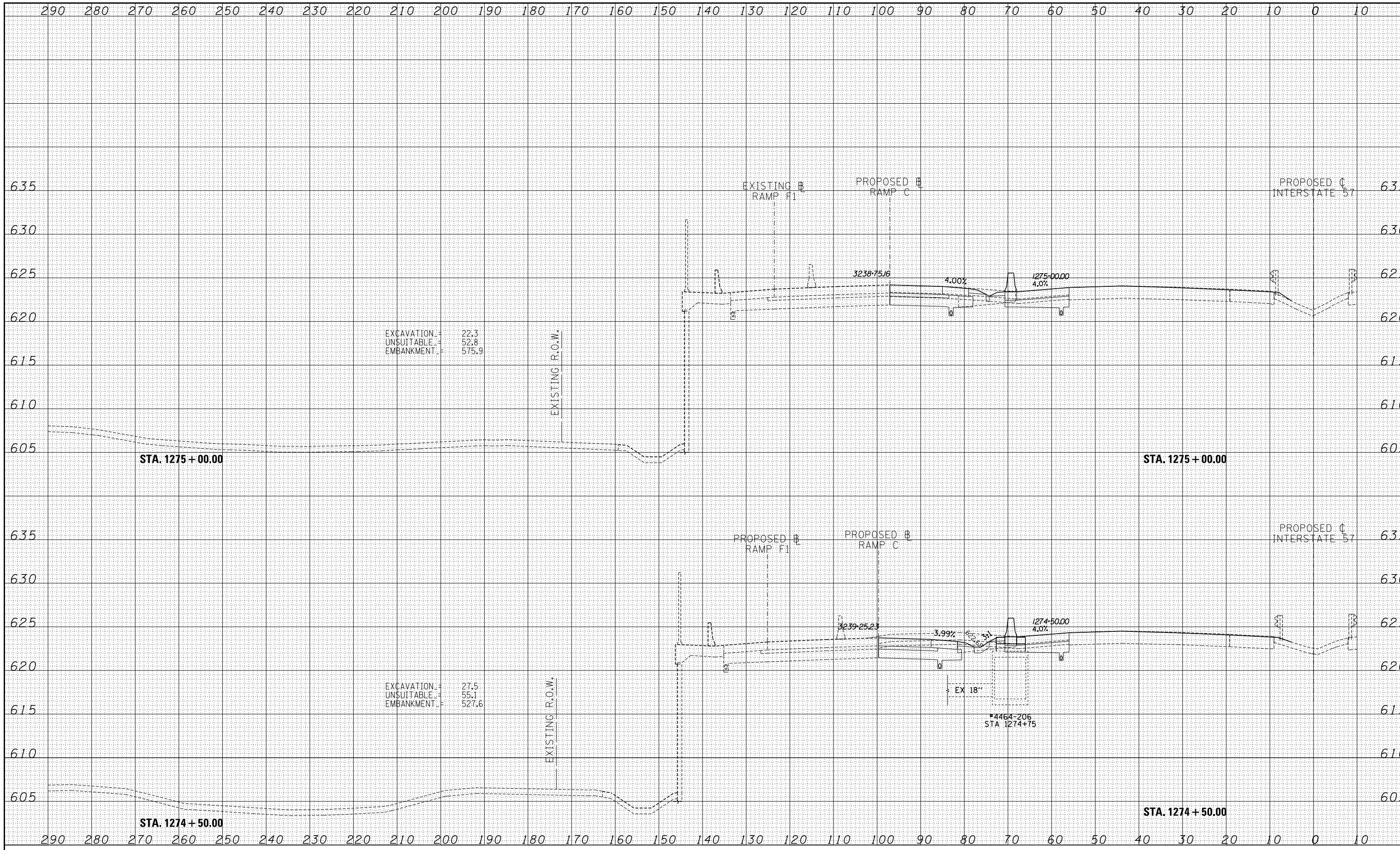


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 I-57 SOUTHBOUND WIDENING
 PROPOSED CROSS SECTIONS
 STA. 1273+50.00 TO STA. 1274+00.00

SHEET XS-CN-010
 583 OF 606



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DATE . . . 4-3-2020
 SCALE . . . 1" = 10' Horiz.
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TYLIN INTERNATIONAL



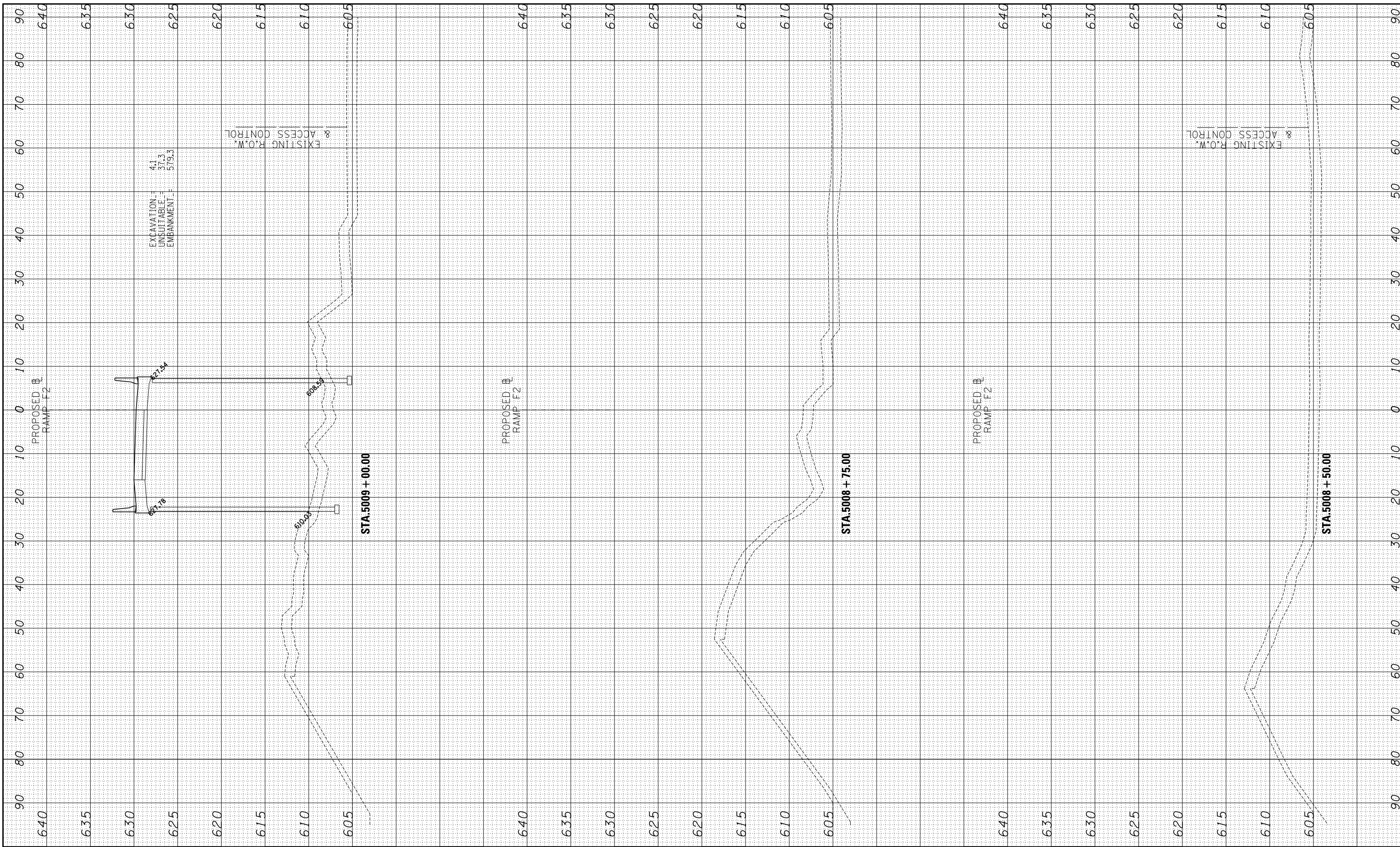
THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
I-57 SOUTHBOUND WIDENING
PROPOSED CROSS SECTIONS
 STA. 1274+50.00 TO STA. 1275+00.00

SHEET XS-CN-011
584 OF **606**

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CHECKED BY . . . JPM

DATE . . . 4-3-2020
SCALE . . . 1" = 10' Horiz.
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TYLIM INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

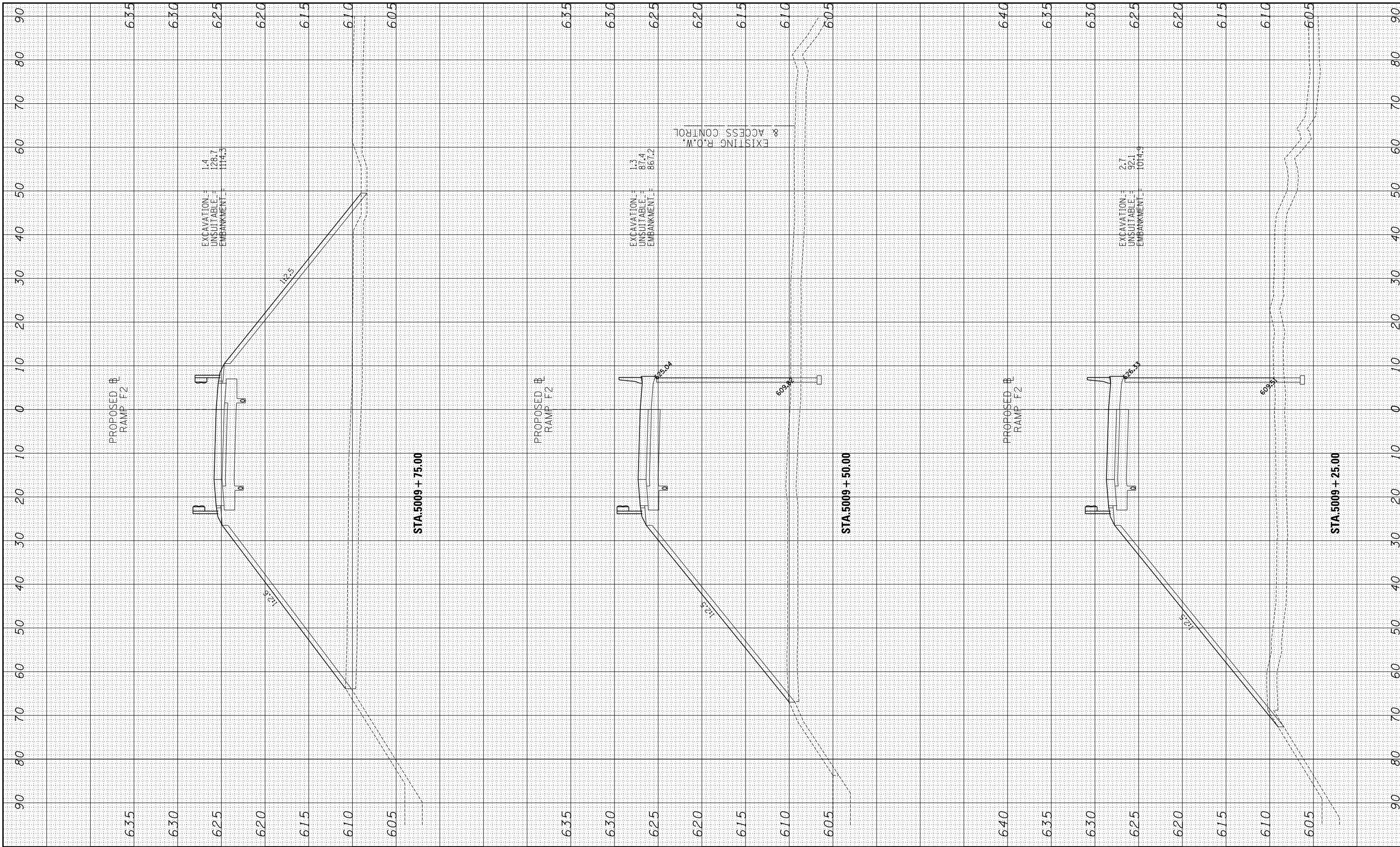
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP F2
PROPOSED CROSS SECTIONS
STA. 5008+50.00 TO STA. 5009+00.00

SHEET XS-F2-01
585 OF 606

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3/12/2020



DRAWN BY . . . DM
CHECKED BY . . . JPM

DATE . . . 4-3-2020
SCALE . . . 1" = 10' Horiz.
 1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

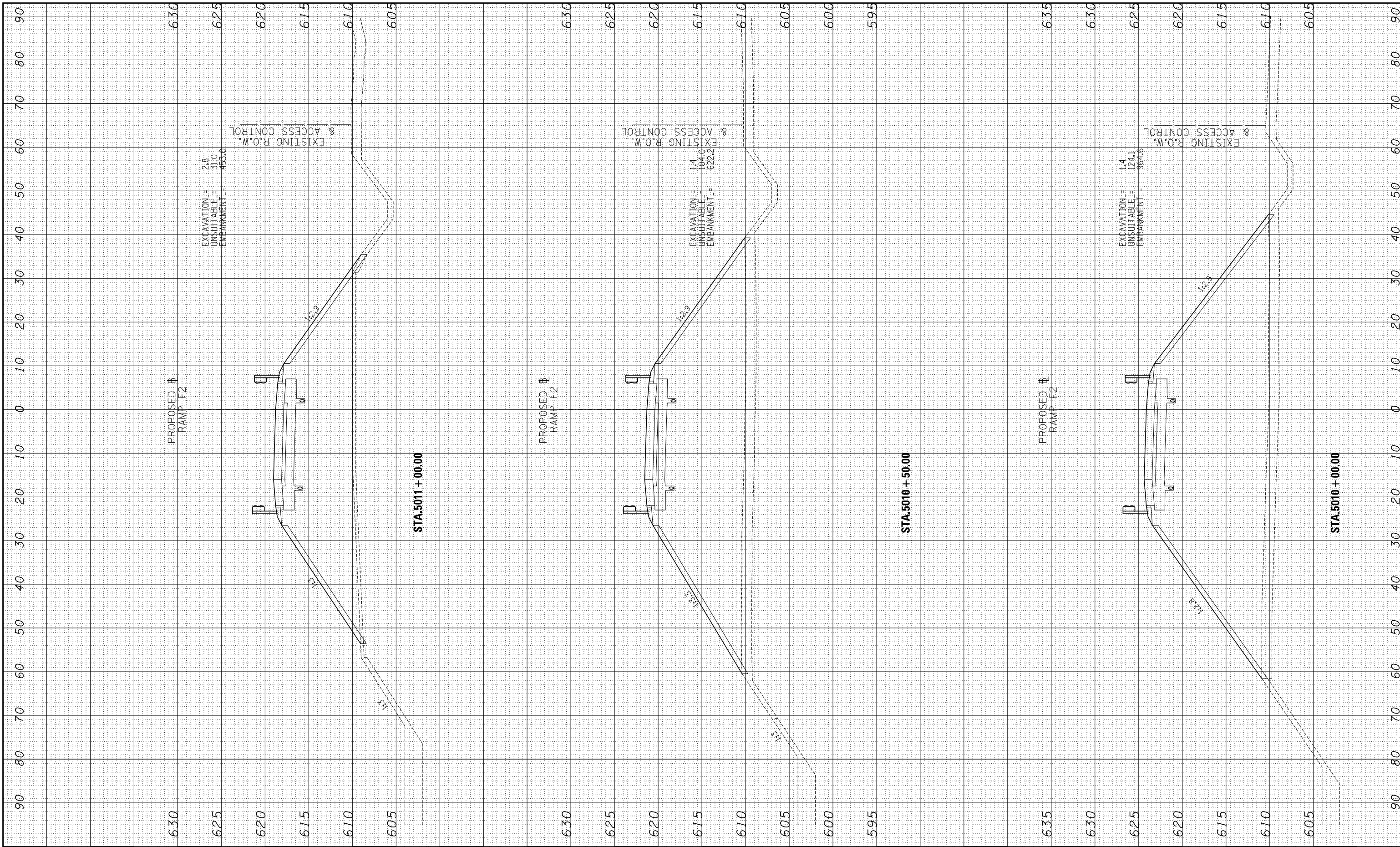
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP F2
PROPOSED CROSS SECTIONS
STA. 5009+25.00 TO STA. 5009+75.00

SHEET XS-F2-02
586 OF 606

3/12/2020 \$TIME\$

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3/12/2020



DRAWN BY *DM*
CHECKED BY *JPM*

DATE *4-3-2020*
SCALE *1" = 10' Horiz.
1" = 5' Vert.*

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

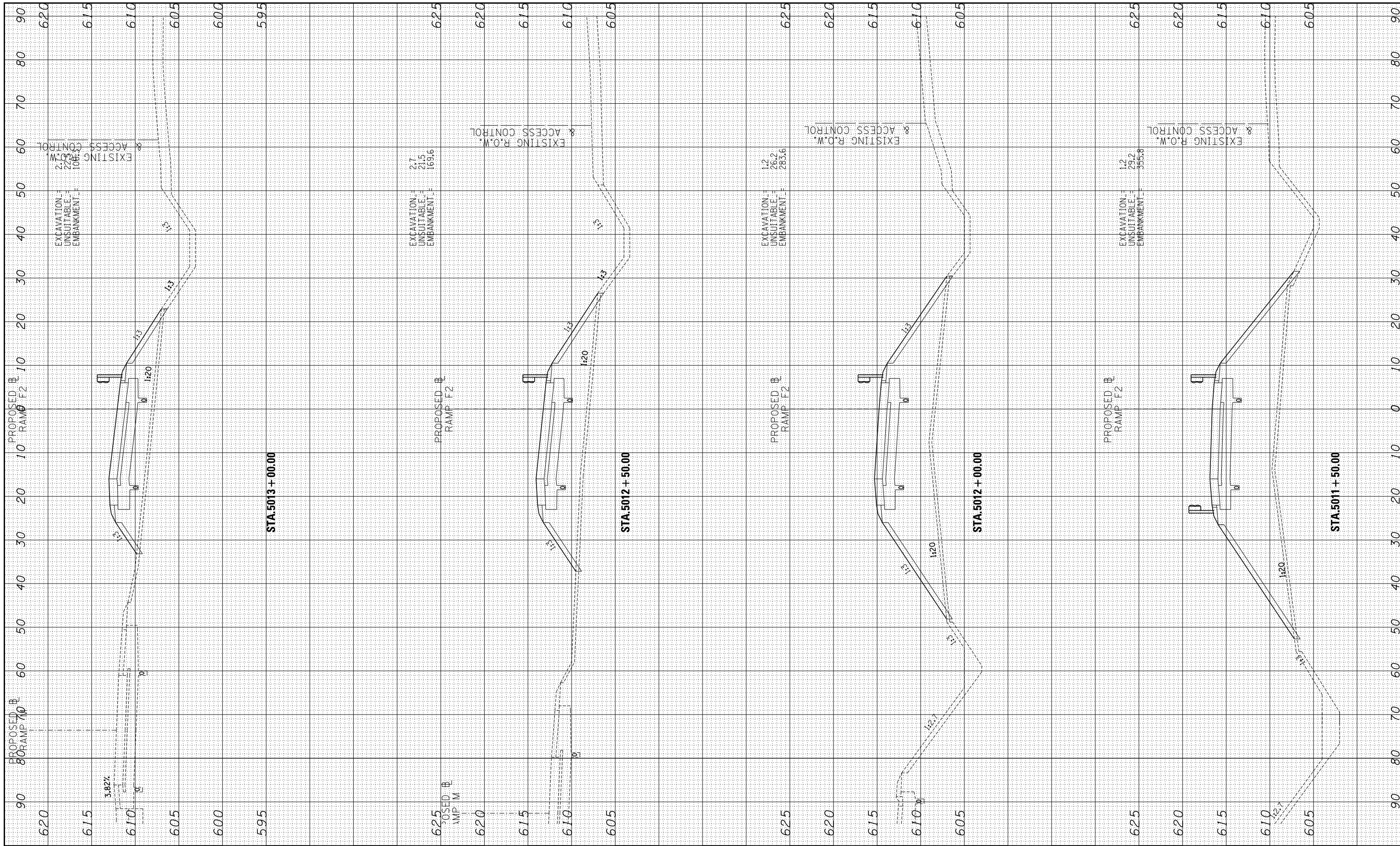
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP F2
PROPOSED CROSS SECTIONS
STA. 5010+00.00 TO STA. 5011+00.00

SHEET XS-F2-03
587 OF 606

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DRAWN BY *DM*
CHECKED BY *JPM*

DATE *4-3-2020*
SCALE *1" = 10' Horiz.*
1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

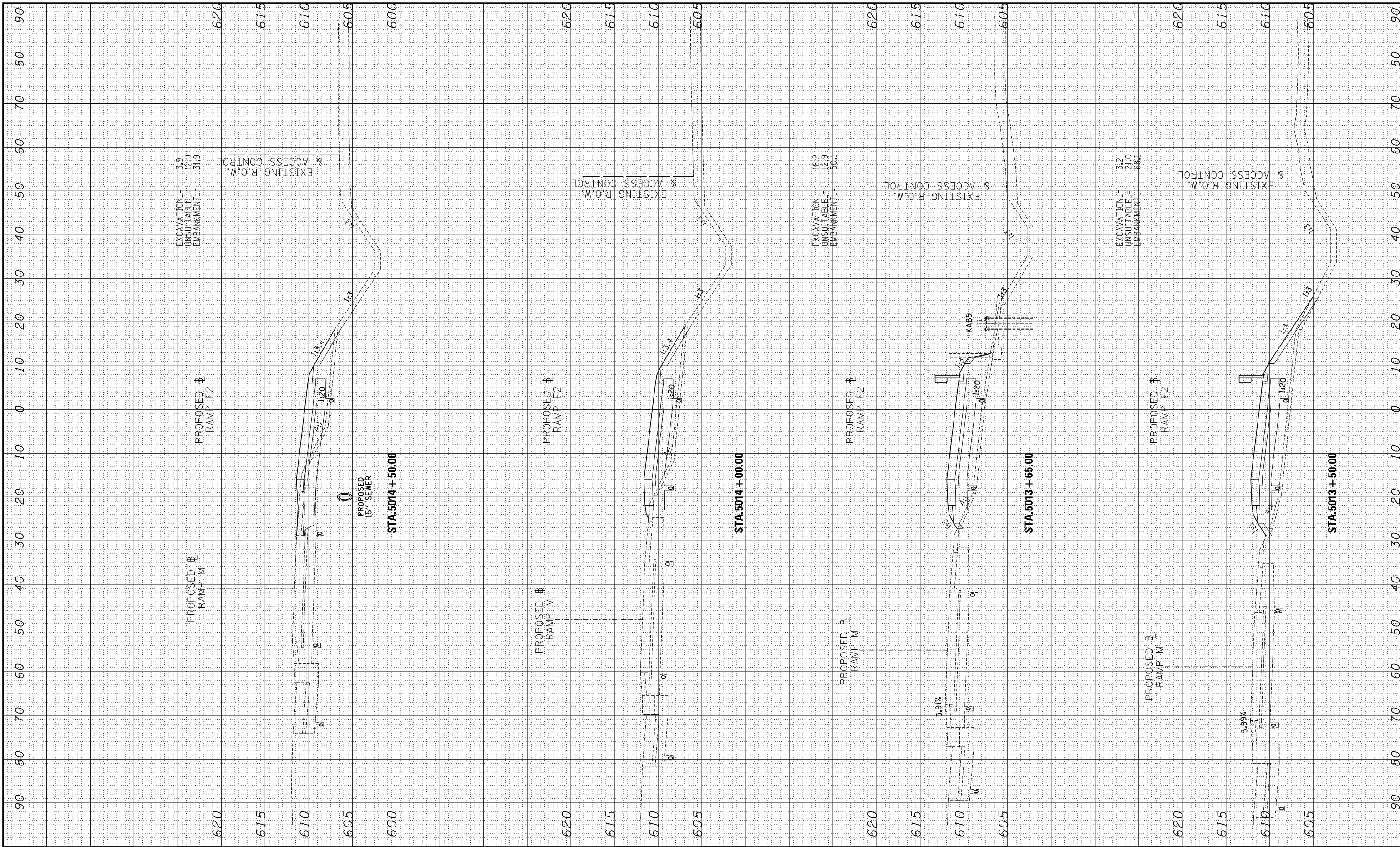
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP F2
PROPOSED CROSS SECTIONS
STA. 5011+50.00 TO STA. 5013+00.00

SHEET XS-F2-04
588 OF 606

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DRAWN BY *DM*
CHECKED BY *JPM*

DATE *4-3-2020*
SCALE *1" = 10' Horiz.*
1" = 5' Vert.

TYLIM INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

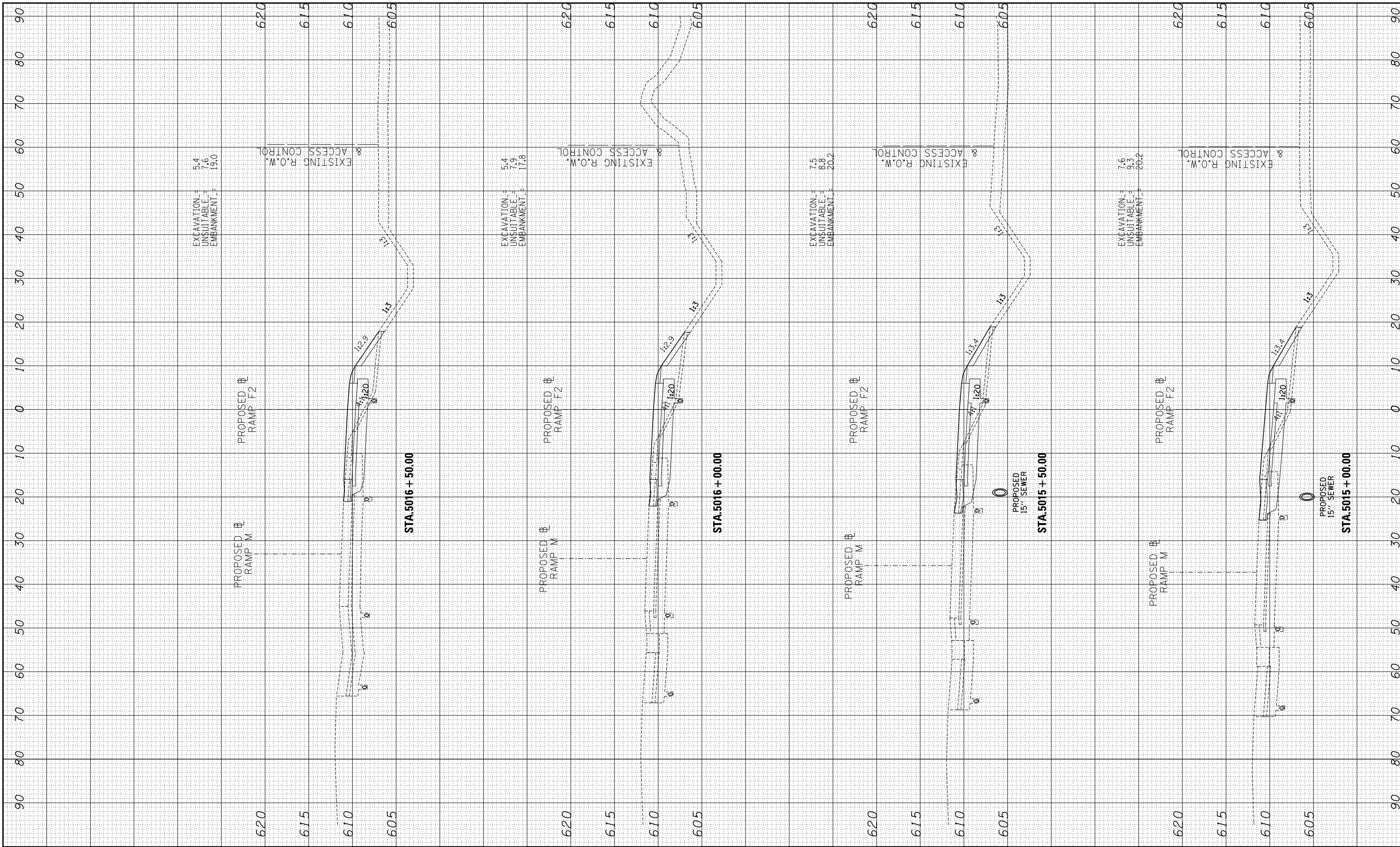
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP F2
PROPOSED CROSS SECTIONS
STA. 5013+50.00 TO STA. 5014+50.00

SHEET XS-F2-05
589 OF 606

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CHECKED BY *JPM*

DATE *4-3-2020*
SCALE *1" = 10' Horiz.
1" = 5' Vert.*

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

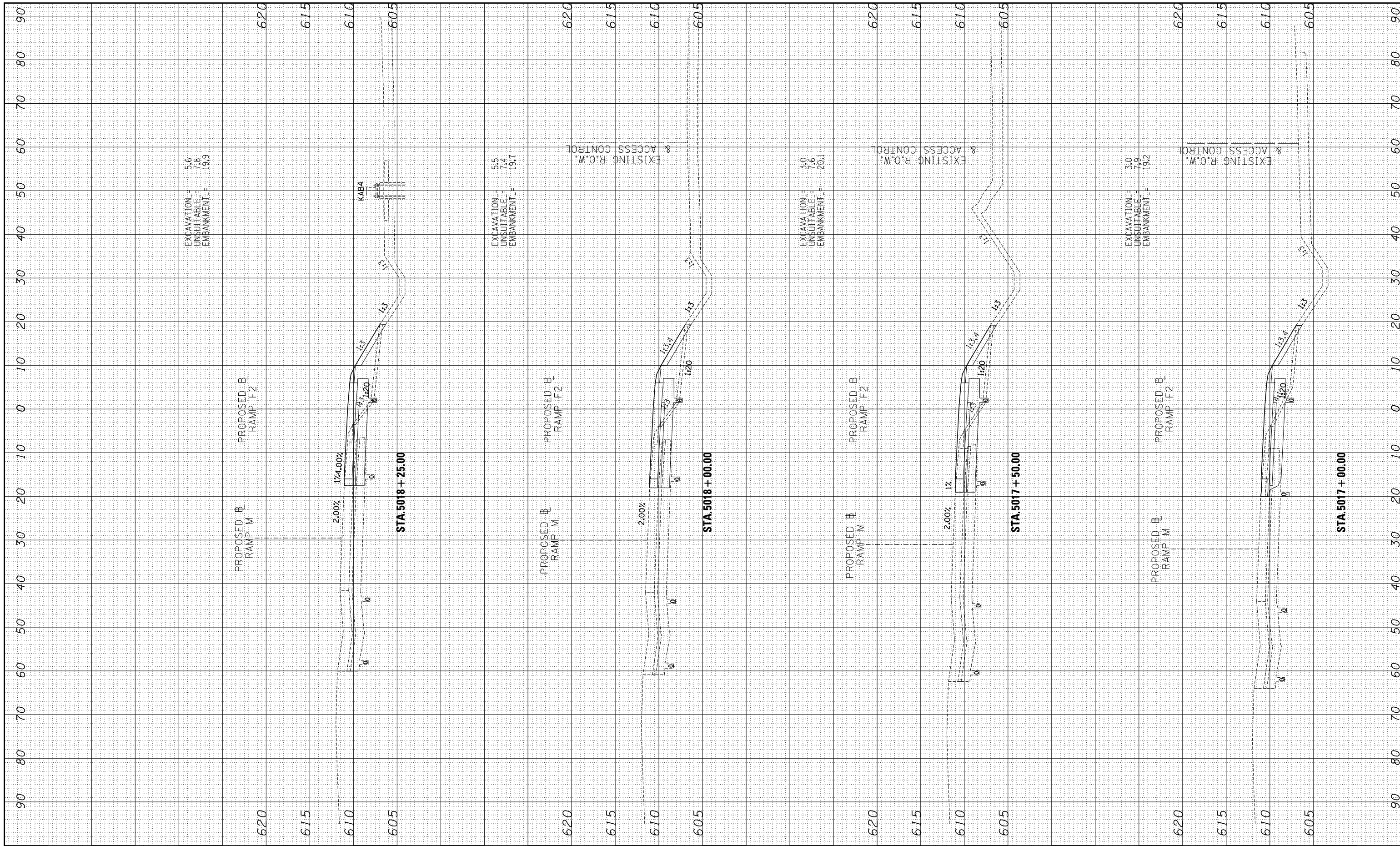
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP F2
PROPOSED CROSS SECTIONS
STA. 5015+00.00 TO STA. 5016+50.00

SHEET XS-F2-06
590 OF 606

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CHECKED BY . . . JPM

DATE . . . 4-3-2020
SCALE . . . 1" = 10' Horiz.
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TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

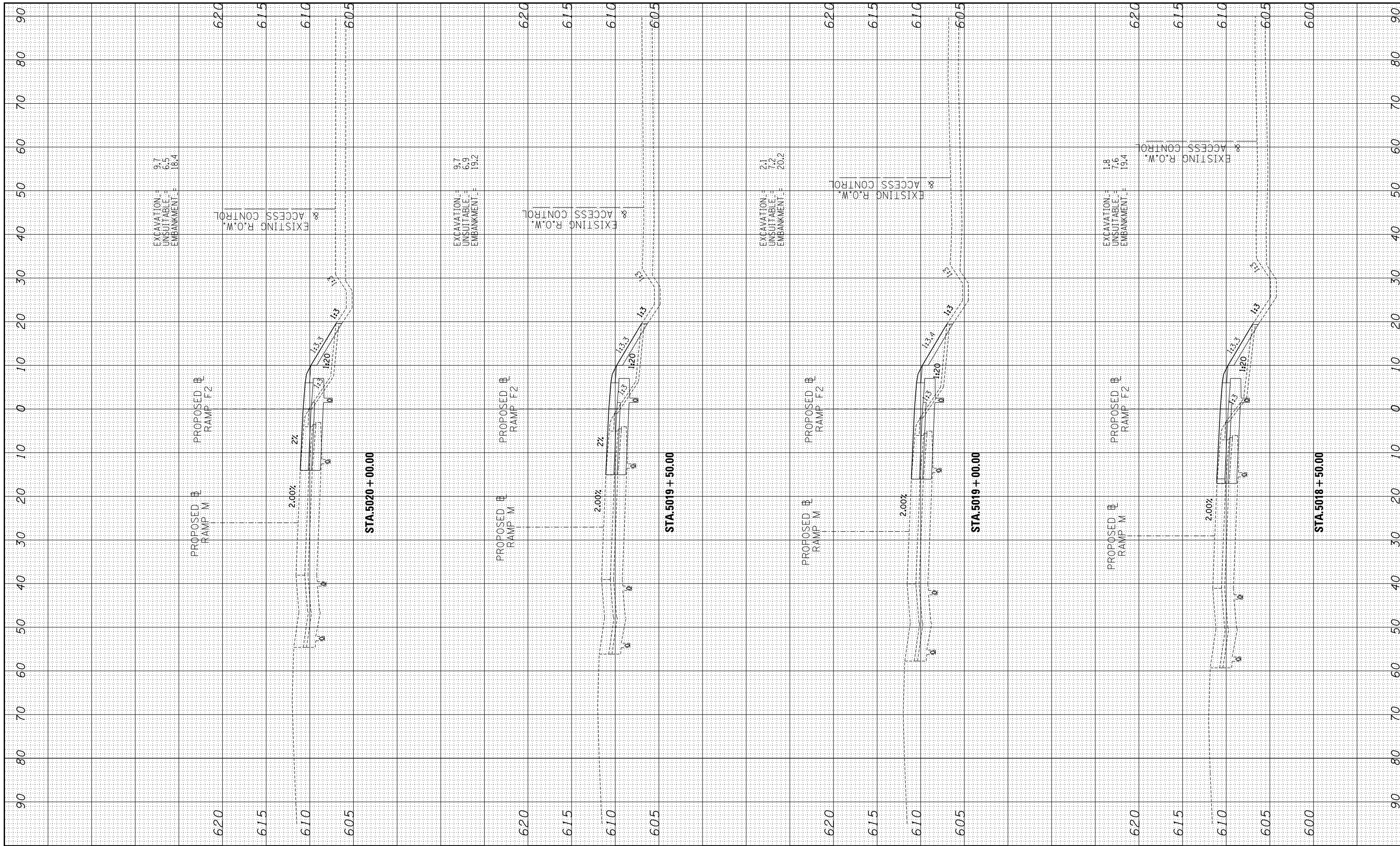
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP F2
PROPOSED CROSS SECTIONS
STA. 5017+00.00 TO STA. 5018+25.00

SHEET XS-F2-07
591 OF 606

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DRAWN BY *DM*
CHECKED BY *JFM*

DATE *4-3-2020*
SCALE *1" = 10' Horiz.*
1" = 5' Vert.

TYLIN INTERNATIONAL



THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

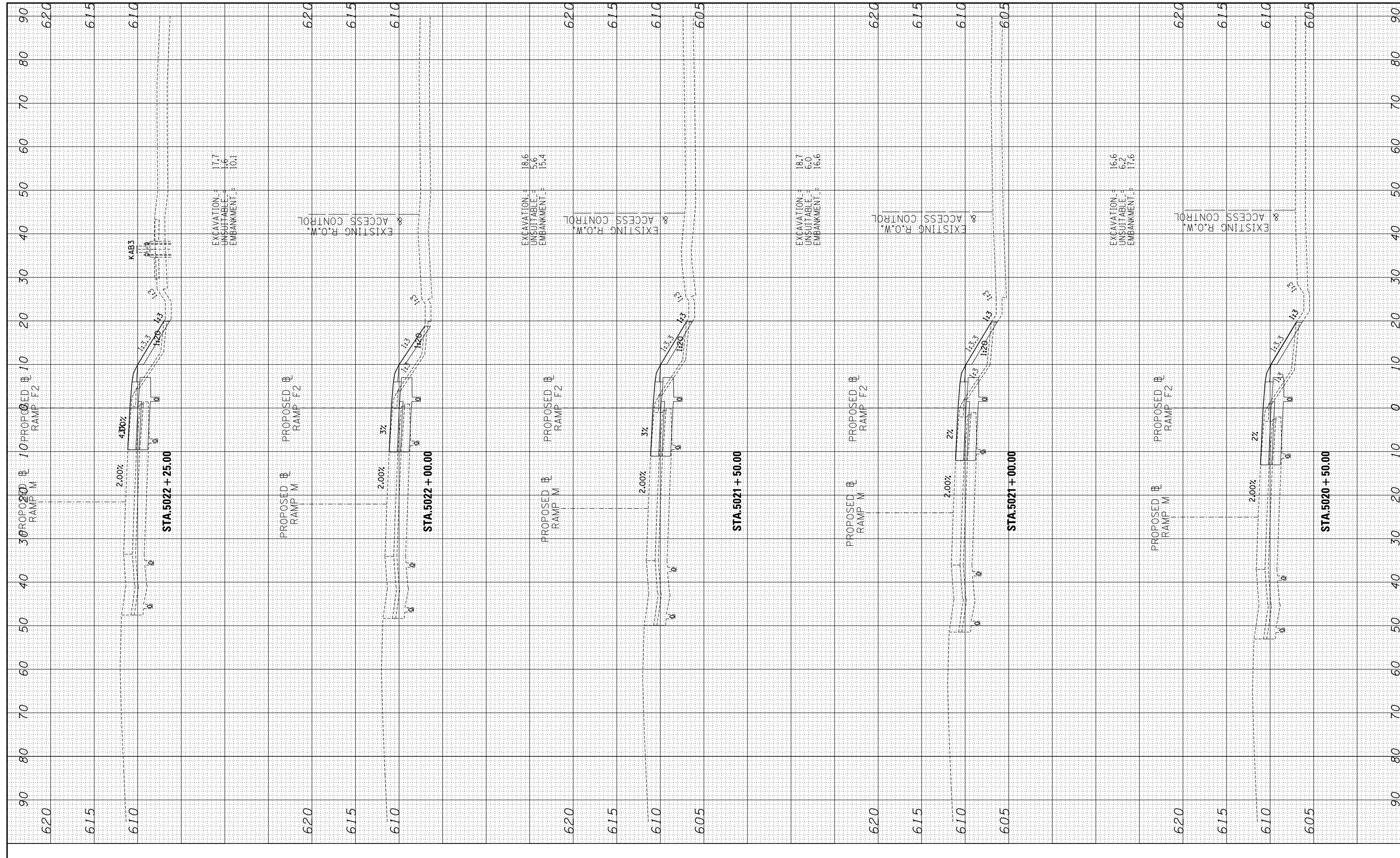
CONTRACT I-19-4495
RAMP F2
PROPOSED CROSS SECTIONS
STA. 5018+50.00 TO STA. 5020+00.00

SHEET XS-F2-08
592 OF 606

P:\60254057-294_5-9\Road\PS\NEW_Ramps_C&F2\01000005-XSSH-F2.s590.dgn 3/12/2020 \$TIME\$

EXCAVATION = 17.1
 UNSUITABLE = 5.3
 EMBANKMENT = 13.8

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 3/12/2020



DRAWN BY *DM*
 CHECKED BY *JPM*

DATE *4-3-2020*
 SCALE *1" = 10' Horiz.
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TYLIN INTERNATIONAL



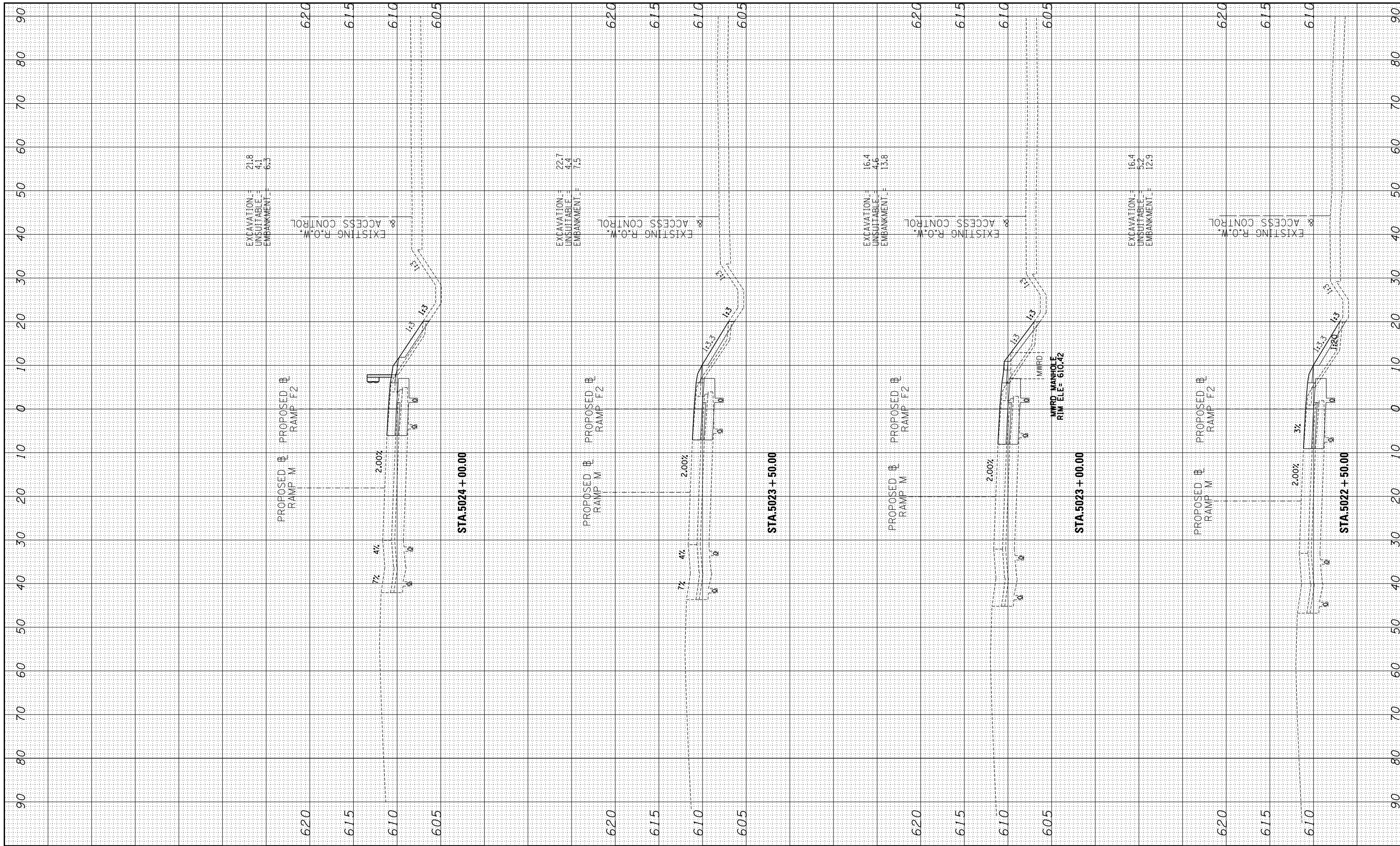
THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
 2700 OGDEN AVENUE
 DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
 RAMP F2
 PROPOSED CROSS SECTIONS
 STA. 5020+50.00 TO STA. 5022+25.00

SHEET XS-F2-09
 593 OF 606

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 3/12/2020



DRAWN BY *DM*
CHECKED BY *JPM*

DATE *4-3-2020*
SCALE *1" = 10' Horiz.
1" = 5' Vert.*

TYLIN INTERNATIONAL

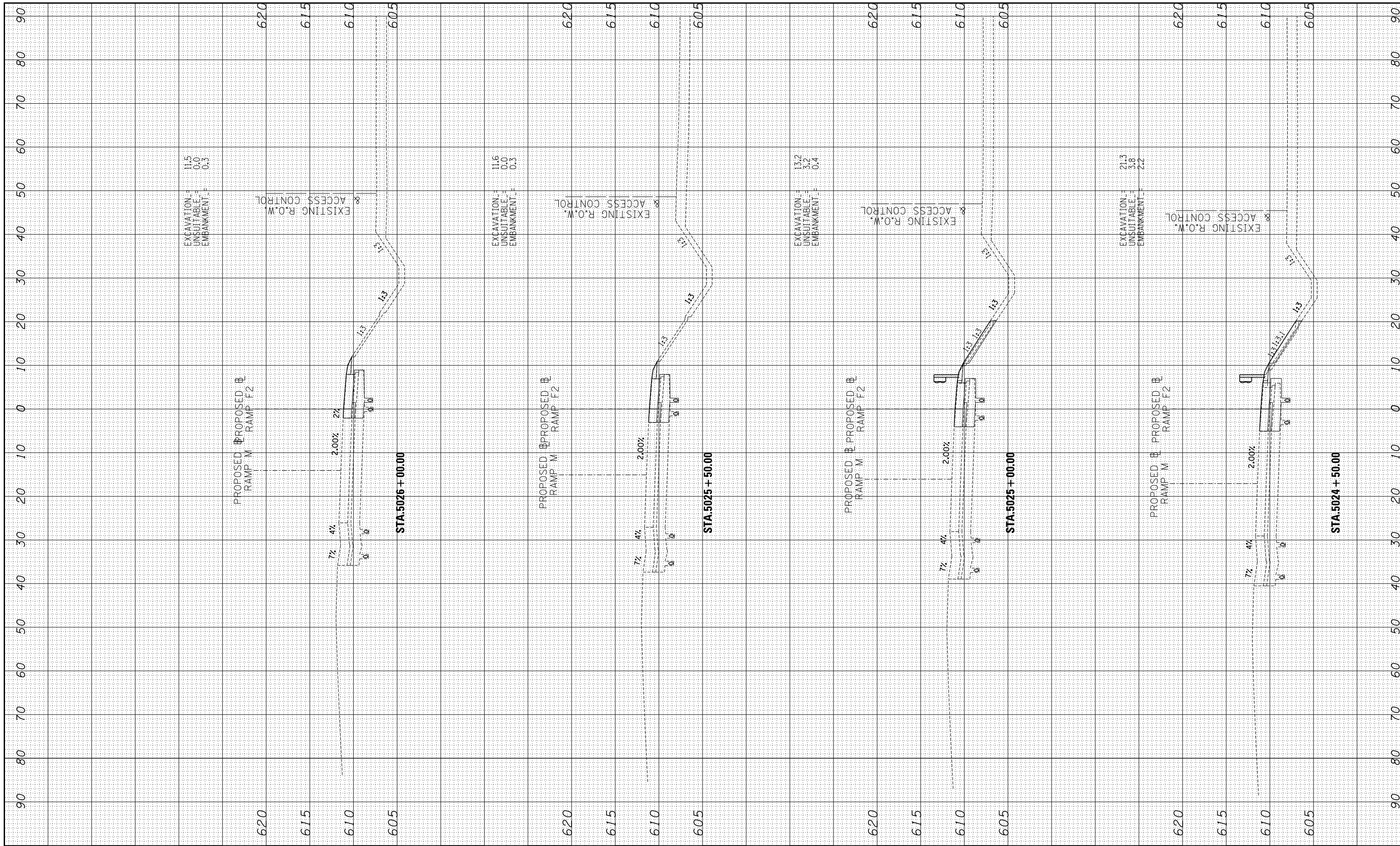


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP F2
PROPOSED CROSS SECTIONS
STA. 5022+50.00 TO STA. 5024+00.00

SHEET XS-F2-10
594 OF 606



DRAWN BY *DM*
CHECKED BY *JFM*

DATE *4-3-2020*
SCALE *1" = 10' Horiz.
1" = 5' Vert.*

TYLIN INTERNATIONAL

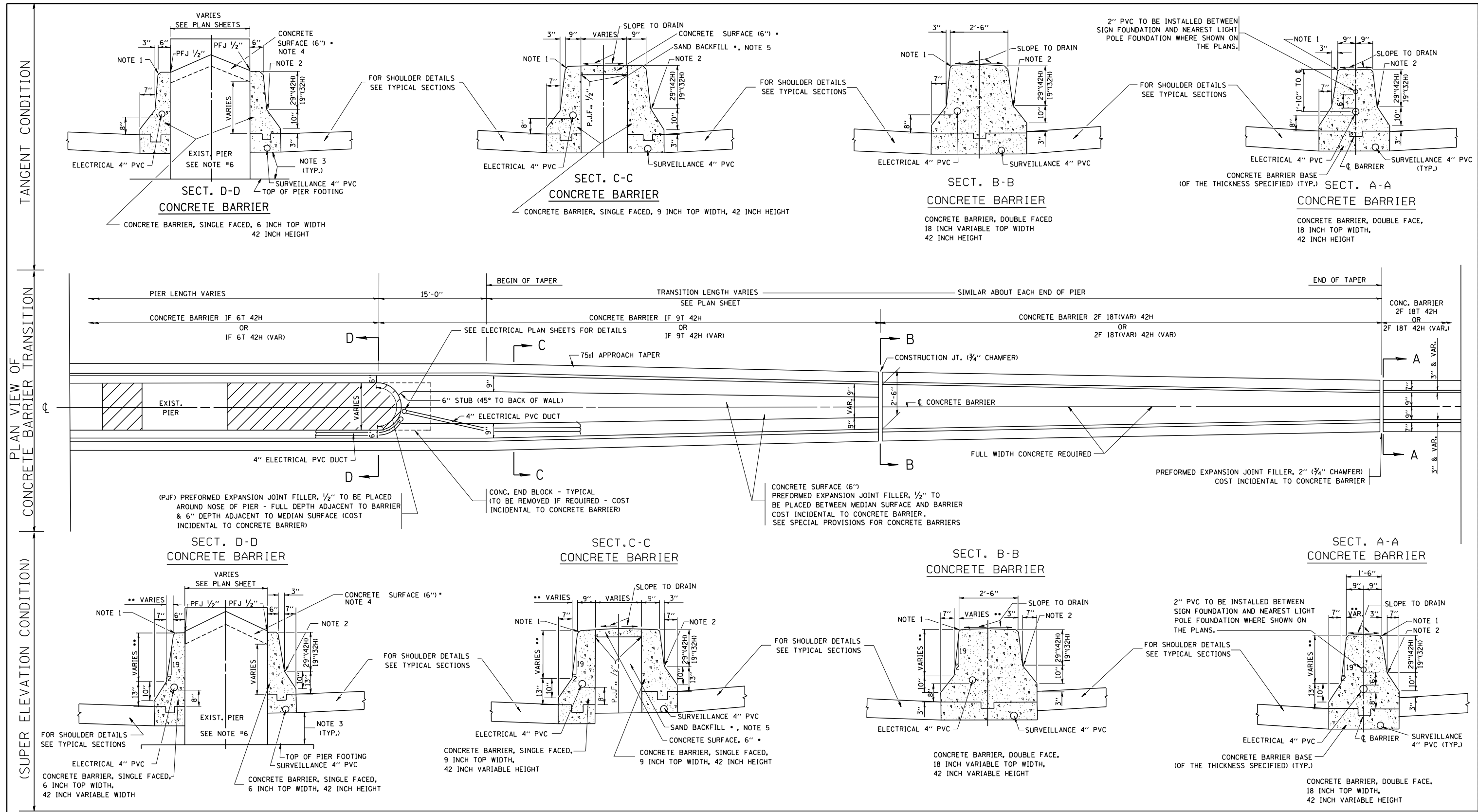


THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY
2700 OGDEN AVENUE
DOWNERS GROVE, ILLINOIS 60515

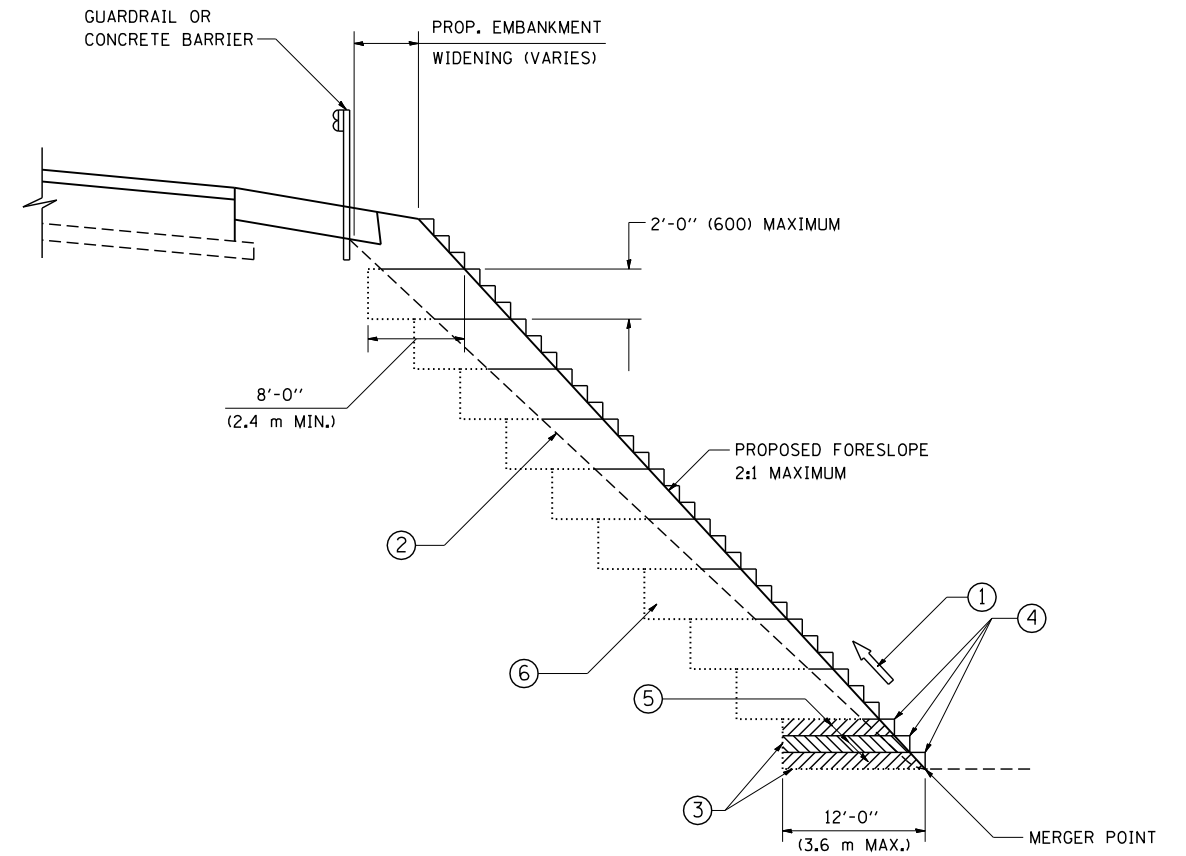
REVISIONS		
NO.	DATE	DESCRIPTION

CONTRACT I-19-4495
RAMP F2
PROPOSED CROSS SECTIONS
STA. 5024+50.00 TO STA. 5026+00.00

SHEET XS-F2-11
595 OF 606



FILE NAME = W:\diststd\22x34\bd27.dgn	USER NAME = gaglianobt	DESIGNED - FORD	REVISED - FORD 12-06-88	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CONCRETE BARRIER TRANSITION & GENERAL DETAILS, CONCRETE BARRIER BASE			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 50.0000' / IN.	CHECKED -	REVISED -		SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	BD-27	CONTRACT NO.	606	596
	PLOT DATE = 1/4/2008	DATE - 09-09-88	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							



TYPICAL BENCHING DETAIL
FOR EMBANKMENT

NOTES:

- ① CONSTRUCT SUCCEEDING BENCH CUTS AND EMBANKMENT PLACEMENT AND COMPACTION FROM BOTTOM TO TOP IN STAIRSTEP FASHION.
- ② EXISTING FORESLOPE PREPARED IN ACCORDANCE WITH ARTICLE 205.03 OF THE STANDARD SPECIFICATIONS.
- ③ BENCH CUT EXISTING SLOPE TYPICAL FOR EACH STEP.
- ④ TRIM TO FINAL SLOPE.
- ⑤ EQUAL 8-INCH (200) LIFTS OF EMBANKMENT COMPACTED IN ACCORDANCE WITH ARTICLE 205.05 OF THE STANDARD SPECIFICATIONS.
- ⑥ EXCAVATION OF BENCH CUTS WITHIN EXISTING EMBANKMENT WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC METER OR CUBIC YARD FOR "EARTH EXCAVATION". THIS PRICE WILL INCLUDE ALL LABOR AND MATERIAL, NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- ⑦ SLOPES SHALL BE BENCHED ACCORDING TO THIS DETAIL WHEN THE SLOPE IS STEEPER THAN 4:1 AND THE HEIGHT IS GREATER THAN 5' (1.5 m).

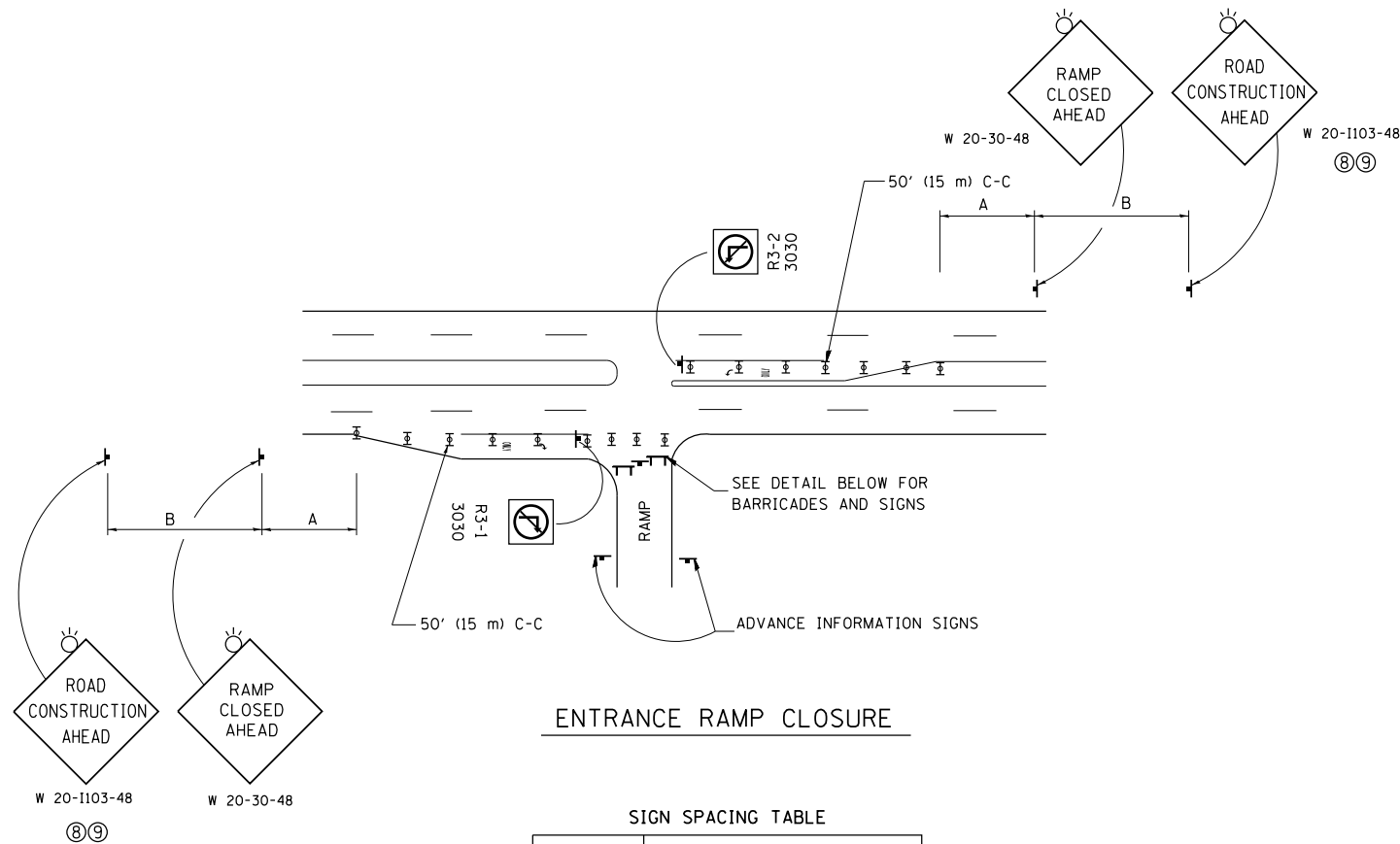
ALL DIMENSIONS ARE IN INCHES (MILLIMETERS)
UNLESS OTHERWISE SHOWN.

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PLOT SCALE = 50.0000' / IN.	CHECKED - S.E.B.	REVISED -	REVISED -
PLOT DATE = 1/4/2008	DATE - 06-16-04	REVISED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BENCHING DETAIL			
FOR EMBANKMENT WIDENING			
SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			606	597
BD-51			CONTRACT NO.	
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

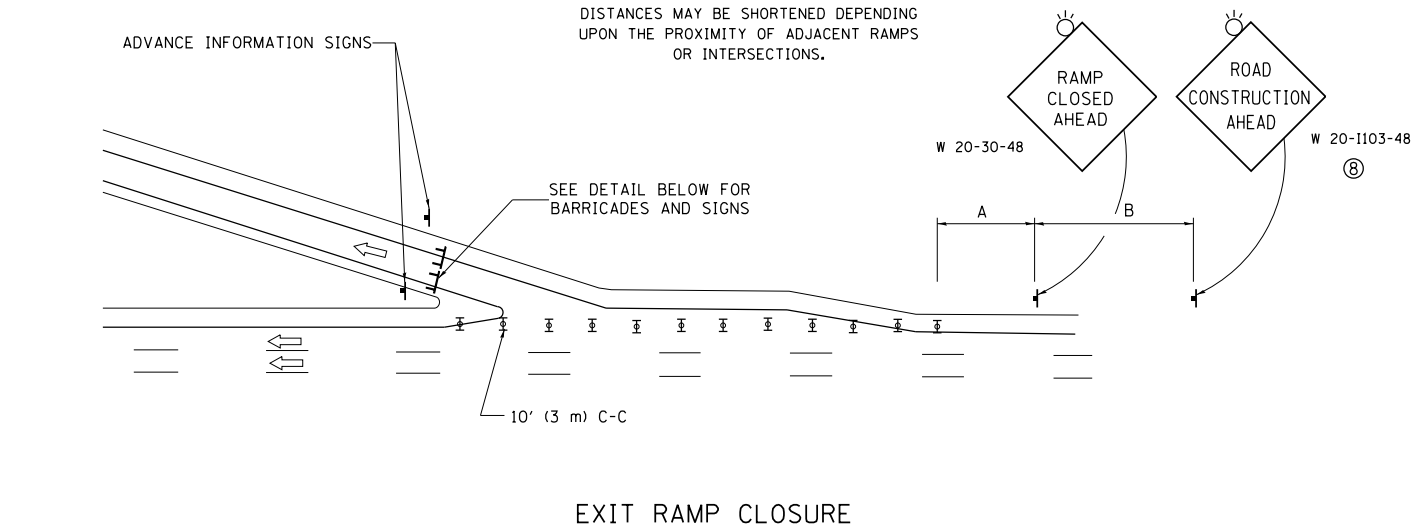


ENTRANCE RAMP CLOSURE

SIGN SPACING TABLE

FACILITY	DISTANCE BETWEEN SIGNS	
	A	B
EXPRESSWAY >24 HOURS	1000' (300 m)	1500' (450 m)
EXPRESSWAY <24 HOURS	500' (150 m)	500' (150 m)
ARTERIAL 55 MPH	500' (150 m)	500' (150 m)
ARTERIAL 50-45 MPH	350' (100 m)	350' (100 m)
ARTERIAL <45 MPH	200' (60 m)	200' (60 m)

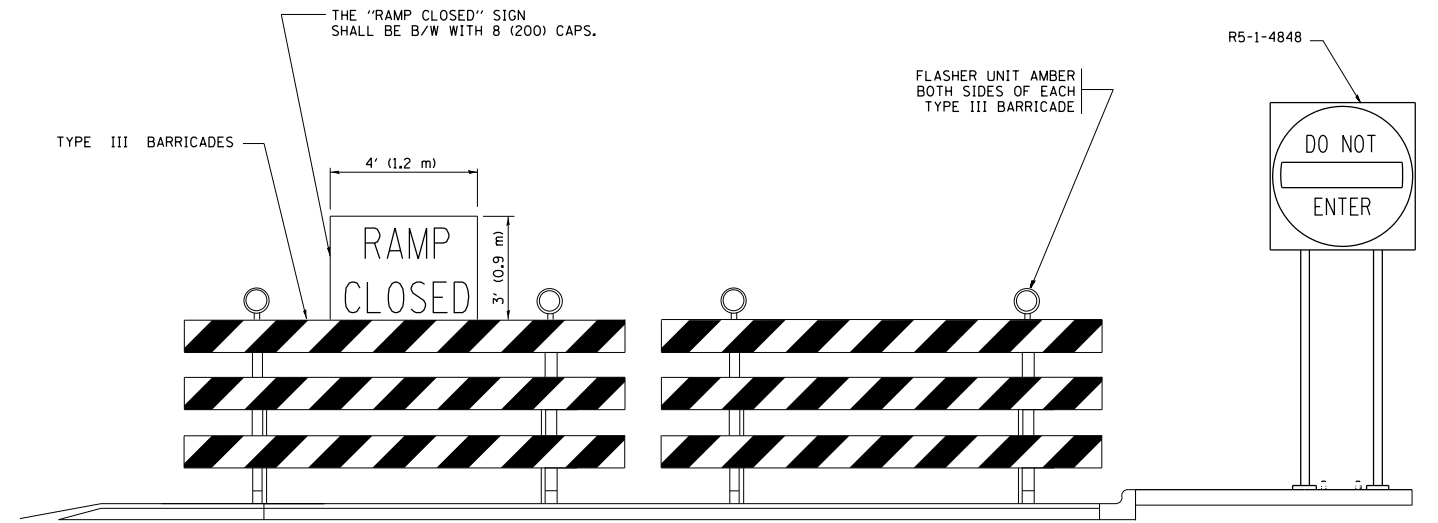
DISTANCES MAY BE SHORTENED DEPENDING UPON THE PROXIMITY OF ADJACENT RAMPS OR INTERSECTIONS.



EXIT RAMP CLOSURE

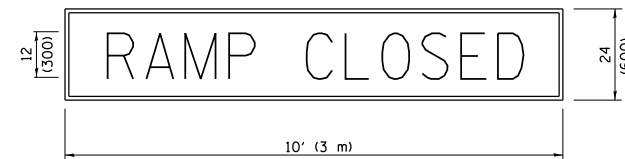
SYMBOLS

- ⊥ TYPE II BARRICADE OR DRUM
- ⊥ TYPE III BARRICADE WITH 2 FLASHING LIGHTS



DETAIL FOR REQUIRED BARRICADES & SIGNS

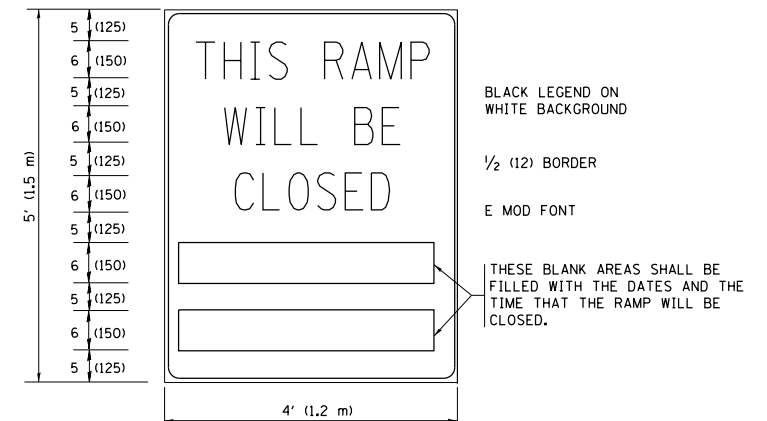
RAMP CLOSURE ADVANCE WARNING SIGN



BLACK LEGEND ON ORANGE BACKGROUND MOUNTED DIAGONALLY
E MOD FONT
1 (25) BORDER

THESE SIGNS ARE REQUIRED ON ALL THE EXIT GUIDE SIGNS FOR EXIT RAMPS THAT WILL BE CLOSED FOR MORE THAN FOUR (4) CONSECUTIVE DAYS.

RAMP CLOSURE ADVANCE INFORMATION SIGN



BLACK LEGEND ON WHITE BACKGROUND

1/2 (12) BORDER

E MOD FONT

THESE BLANK AREAS SHALL BE FILLED WITH THE DATES AND THE TIME THAT THE RAMP WILL BE CLOSED.

THESE SIGNS ARE REQUIRED ON BOTH SIDES OF THE RAMP, MINIMUM OF 1 WEEK IN ADVANCE OF THE CLOSURE.

THESE SIGNS SHALL BE FABRICATED AND PAID FOR ACCORDING TO THE TEMPORARY INFORMATION SIGNING SPECIAL PROVISION

GENERAL NOTES:

- ① CONES MAY BE SUBSTITUTED FOR DRUMS OR TYPE II BARRICADES DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 28 (700) HIGH.
- ② VERTICAL BARRICADES SHALL NOT BE USED FOR RAMP CLOSURES.
- ③ A FLAGGER SHALL BE POSITIONED AT EACH CLOSED RAMP THAT IS OPEN TO CONSTRUCTION VEHICLES, PRECEDED BY A W20-7 FLAGGER WARNING SIGN.
- ④ ALL ROUTE MARKERS AND TRAILBLAZER ASSEMBLIES WHICH DIRECT MOTORISTS TO A CLOSED ENTRANCE RAMP SHALL BE COVERED WHEN THE RAMP IS CLOSED FOR MORE THAN FOUR (4) DAYS.
- ⑤ THE SIGNING AND BARRICADING WHICH IS REQUIRED BY THIS DETAIL SHALL BE INCLUDED IN THE COST OF TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS).
- ⑥ AUTHORIZATION FROM THE DISTRICT'S BUREAU OF TRAFFIC IS REQUIRED FOR ALL RAMP CLOSURES.
- ⑦ THE RAMP CLOSURE ADVANCE INFORMATION SIGNS SHALL BE ERECTED IF THE CLOSURE TIME EXCEEDS TWENTY-FOUR (24) HOURS. ADDITIONAL ADVANCE WARNING SIGNS ON EXIT GUIDE SIGNING WILL BE REQUIRED FOR EXIT RAMP CLOSURES THAT EXCEED FOUR (4) DAYS IN LENGTH.
- ⑧ ROAD CONSTRUCTION AHEAD SIGNS MAY BE OMITTED WHEN THIS DETAIL IS USED IN CONJUNCTION WITH OTHER TRAFFIC CONTROL THAT ALREADY INCLUDES A ROAD CONSTRUCTION AHEAD SIGN.
- ⑨ ARTERIAL ROAD CONSTRUCTION AHEAD SIGNS SHALL BE INSTALLED ON THE LEFT SIDE OF TRAFFIC IF THE MEDIAN IS MORE THAN 10 FT WIDE.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

FILE NAME =	USER NAME = footemj	DESIGNED - D.W.S.	REVISED - S.P.B. 01-07
pw:\IL\084EBIDINTEG\illinois.gov\PIDOT\Documents\IDOT Offices\District 1\Projects\Dist 1\084EBIDINTEG\CADD\Drawings\CD\Drawings\to08.dgn		CHECKED -	REVISED - S.P.B. 12-09
Default	PLOT SCALE = 50.000' / in.	DATE - 02-83	REVISED - M.D. 06-13
	PLOT DATE = 11/27/2017		REVISED - M.D. 01-18

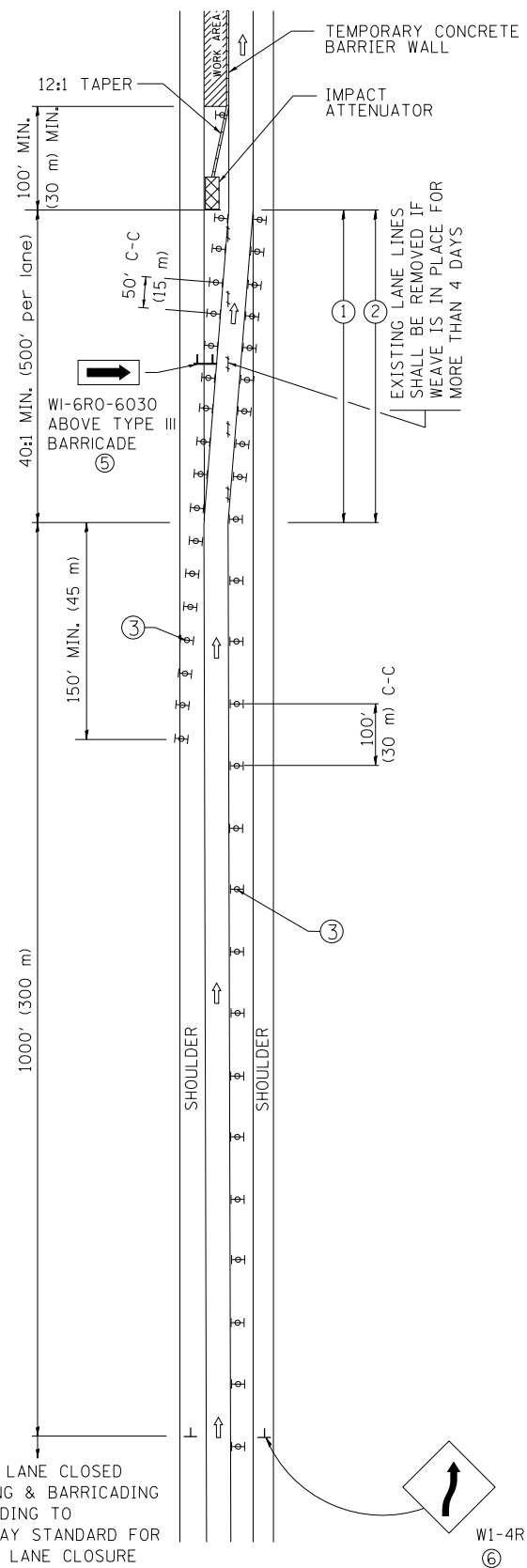
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ENTRANCE AND EXIT RAMP
CLOSURE DETAILS

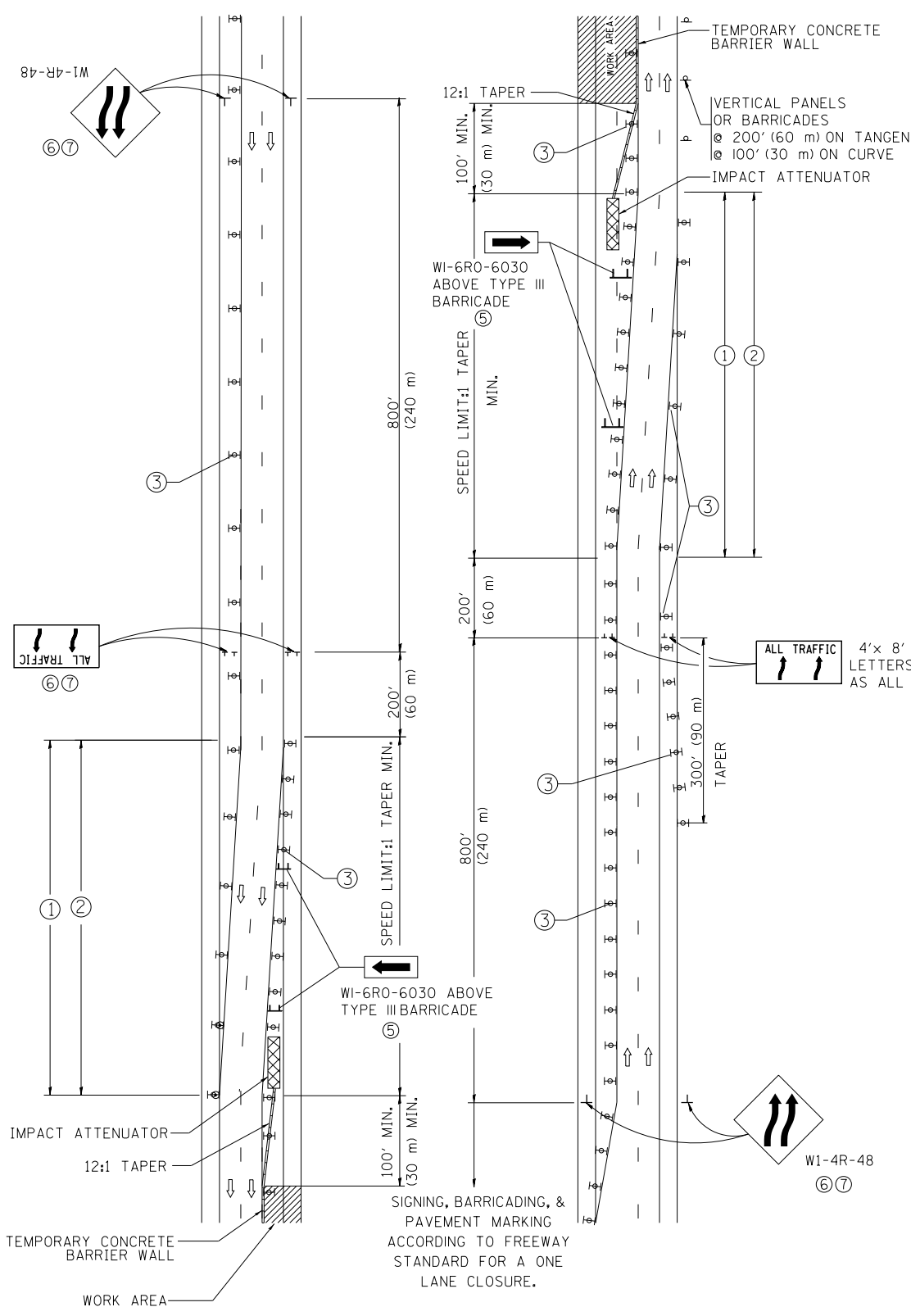
SCALE: NONE SHEET 1 OF 1 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TC-08		606	598
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

SINGLE LANE WEAVE



MULTI-LANE WEAVE



GENERAL NOTES

- ① EXISTING CONFLICTING PAVEMENT MARKING LINES SHALL BE REMOVED. PAVEMENT MARKING REMOVAL SHALL NOT BE REQUIRED FOR SINGLE LANE WEAVES UNDER 4 DAYS IN DURATION.
- ② CONTINUOUS REFLECTIVE TEMPORARY PAVEMENT MARKING TAPE SHALL BE PLACED THROUGHOUT THE TAPER AND FOR 300' (90 m) ALONG SIDE THE WORK AREA WHERE THE CLOSURE TIME IS GREATER THAN FOURTEEN DAYS. THE LEFT EDGE LINE SHALL BE YELLOW AND THE RIGHT EDGE LINE SHALL BE WHITE. FOR MULTI-LANE WEAVES LANE LINES SHALL BE 5 INCH, 10'-30' (3 m-9 m) SKIP DASH, WHITE.
- ③ PLASTIC DRUMS WITH STEADY BURN LIGHTS AT 50' (15 m) C-C SPACING IN TAPERS AND 100' (30 m) C-C SPACING IN TANGENTS.
- ④ ALL SIGNS SHALL BE POST MOUNTED IF THE CLOSURE TIME EXCEEDS FOUR DAYS.
- ⑤ TYPE III BARRICADES MAY BE OMITTED FOR SINGLE-LANE WEAVES UNDER 24-HOURS IN DURATION. W1-6 SIGNS WILL STILL BE REQUIRED. IF THE WIDTH OF OFFSET IS LESS THAN 6' THEN THE TYPE III BARRICADE WITH ATTACHED ARROW SIGN PANEL CAN BE ELIMINATED IN THE TAPER AREAS.
- ⑥ WHEN THE LENGTH OF THE SHIFTED SEGMENT (DISTANCE BETWEEN WEAVE POINTS) IS LESS THAN 1500', DOUBLE REVERSE CURVE SIGNS (W24-1) SHOULD BE USED INSTEAD OF THE REVERSE CURVE (W1-4) SIGNS. ARROWS ON THE 4'X8' "ALL TRAFFIC" SIGNS SHALL BE THE SAME SHAPE.
- ⑦ THE NUMBER OF ARROWS ON THESE SIGNS SHALL MATCH THE NUMBER OF LANES OPEN TO TRAFFIC.

SYMBOLS

- DIRECTION OF TRAFFIC
- WORK AREA
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- TYPE II BARRICADE OR DRUM WITH MONO-DIRECTIONAL STEADY BURNING LIGHT
- TEMPORARY CONCRETE BARRIER WALL
- IMPACT ATTENUATOR
- W1-4R-48
- W24-1-48

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN

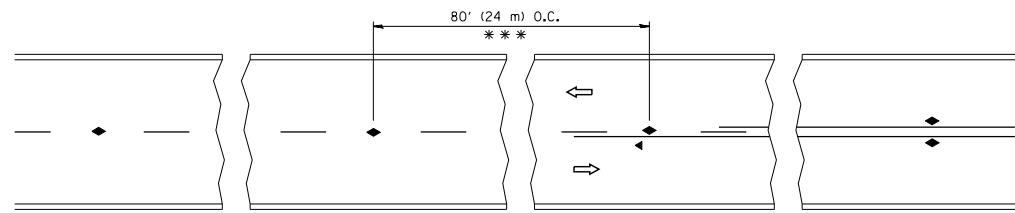
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	PLOT SCALE = 50.000' / in.	CHECKED -	REVISED - SPB 12-09
	PLOT DATE = 7/1/2013	DATE - 02-87	REVISED - MD 06-13

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS FOR FREEWAY SINGLE & MULTI-LANE WEAVE

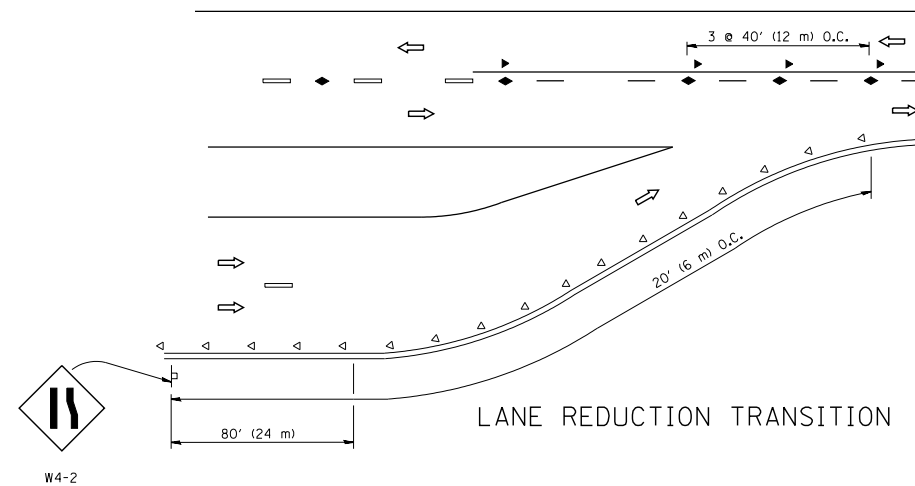
SCALE: NONE SHEET NO. 1 OF 1 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TC-09		606	599
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT			CONTRACT NO.	

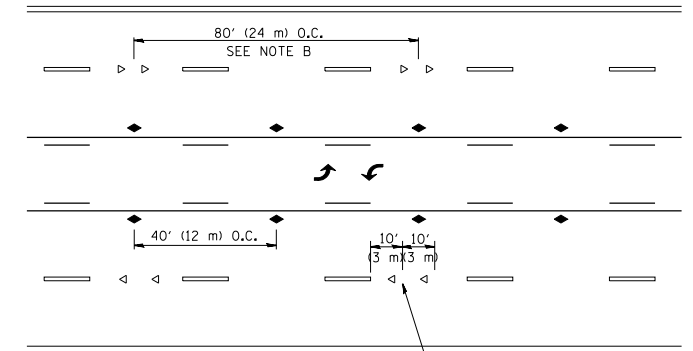


*** REDUCE TO 40' (12 m) O.C. ON CURVES WITH POSTED OR ADVISORY SPEED 45 M.P.H. (70 km/h) OR LESS.

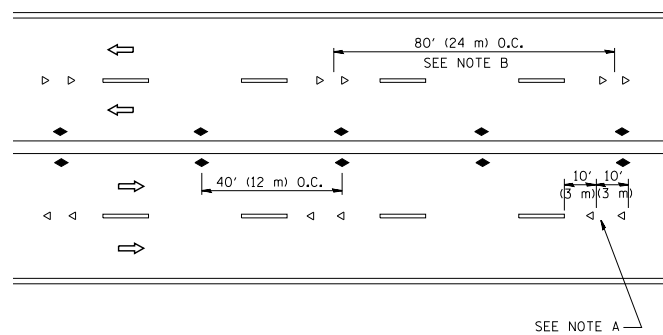
TWO-LANE/TWO-WAY



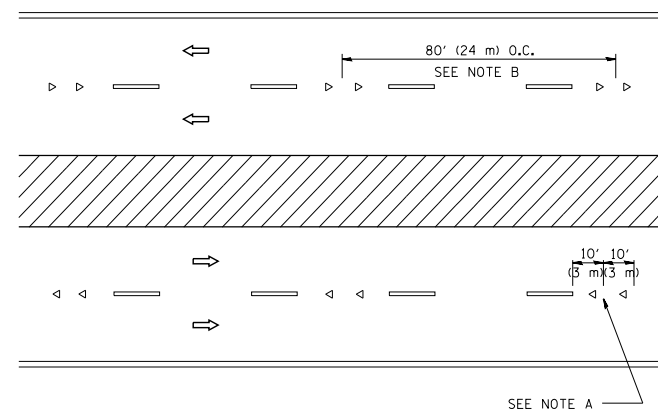
LANE REDUCTION TRANSITION



TWO-WAY LEFT TURN



MULTI-LANE/UNDIVIDED



MULTI-LANE/DIVIDED

GENERAL NOTES

1. MARKERS USED WITH DASHED LINES SHALL BE CENTERED IN THE GAP BETWEEN SEGMENTS.
2. MARKERS USED ADJACENT TO SOLID LINES SHALL BE OFFSET 2 TO 3 (50 TO 75) TOWARD TRAFFIC AS SHOWN.
3. MARKERS THROUGH TANGENTS LESS THAN 500' (150 m) IN LENGTH BETWEEN CURVES SHALL BE INSTALLED AT THE LESSER OF THE TWO CURVE SPACINGS.

SYMBOLS

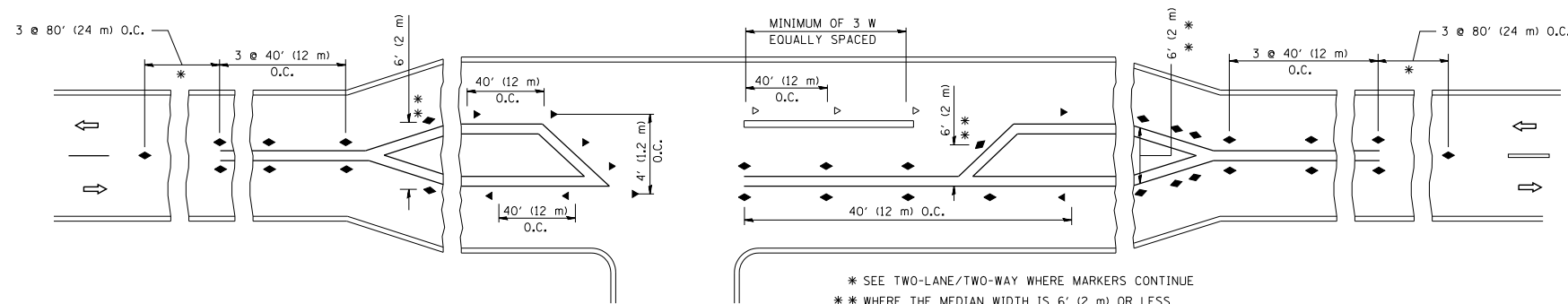
- YELLOW STRIPE
- WHITE STRIPE
- ◀ ONE-WAY AMBER MARKER
- ◁ ONE-WAY CRYSTAL MARKER (W/O)
- ◆ TWO-WAY AMBER MARKER

LANE MARKER NOTES

- A. USE DOUBLE LANE LINE MARKERS SPACED AS SHOWN.
- B. REDUCE TO 40' (12 m) O.C. ON CURVES WHERE ADVISORY SPEEDS ARE 10 M.P.H (20 km/h) LOWER THAN POSTED SPEEDS.

DESIGN NOTES

1. DOUBLE LANE LINE MARKERS SHALL BE USED UNLESS SPECIFIED OTHERWISE.
2. EXCEPT AS SHOWN ON THE LANE REDUCTION TRANSITION AND FREEWAY EXIT RAMP DETAIL, MARKERS ARE NOT TO BE SPECIFIED ON RIGHT EDGE LINES.
3. THE EXACT MARKER LIMITS, SPACING, AND COLOR SHALL BE INCLUDED IN THE PLANS WHEN STANDARD SPECIFICATIONS ARE NOT BEING USED.
4. MARKERS SHOULD NOT BE USED ALONGSIDE CURBS EXCEPT FOR EXTREMELY SHORT SECTIONS OF CURBS WHERE NOT MORE THAN TWO MARKERS WOULD BE INVOLVED.



LEFT TURN

* SEE TWO-LANE/TWO-WAY WHERE MARKERS CONTINUE
 ** WHERE THE MEDIAN WIDTH IS 6' (2 m) OR LESS USE TWO-WAY MARKERS.

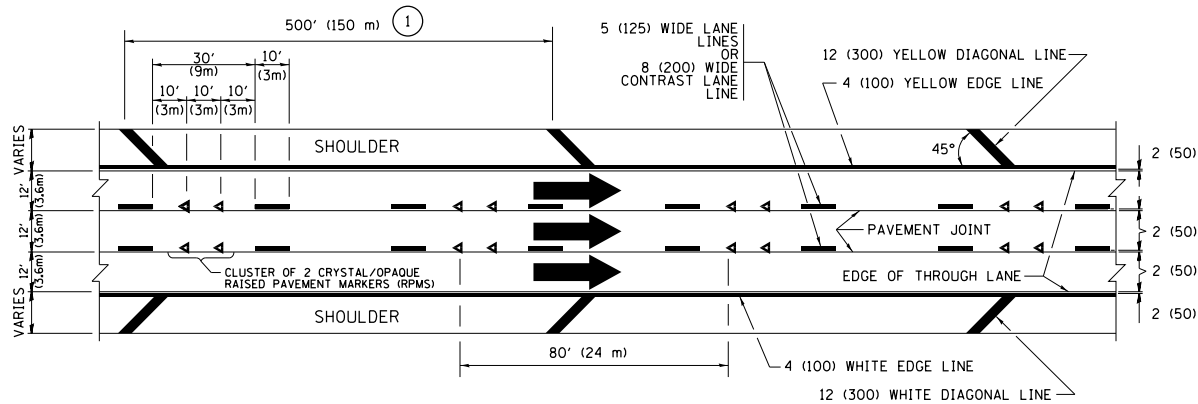
All dimensions are in inches (millimeters) unless otherwise shown.

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		PLOT SCALE = 50.000' / IN.	REVISED - T. RAMMACHER 01-06-00
		PLOT DATE = 3/2/2011	REVISED - C. JUCIUS 09-09-09

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

TYPICAL APPLICATIONS			
RAISED REFLECTIVE PAVEMENT MARKERS (SNOW-PLOW RESISTANT)			
SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.

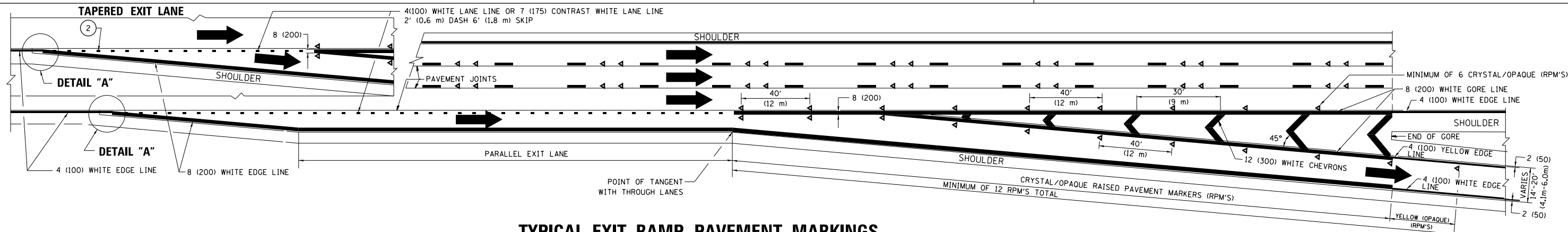
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			606	600
TC-11			CONTRACT NO.	
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				



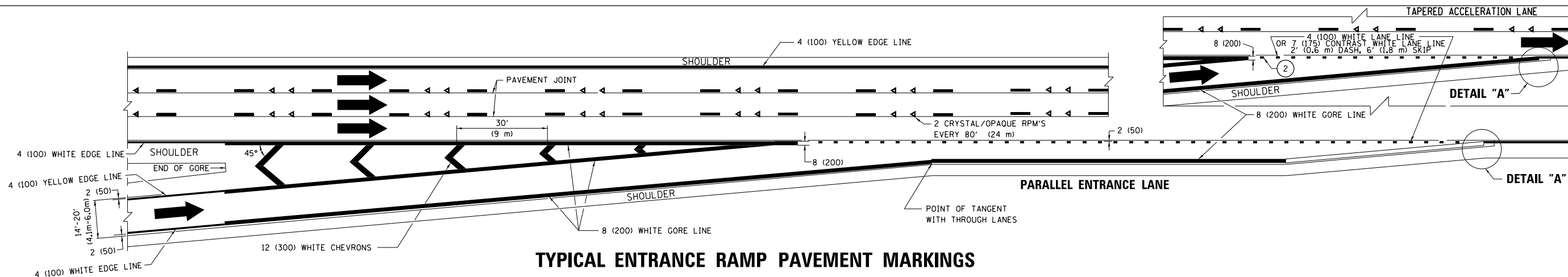
TYPICAL EDGE LINES & LANE LINES

PAVEMENT MARKING MATERIALS

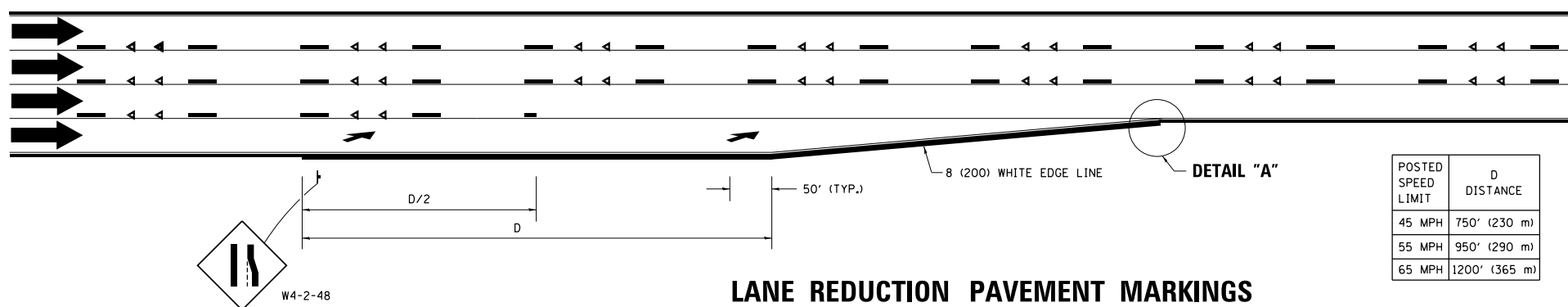
1. THERMOPLASTIC PAVEMENT MARKING LINE SHALL BE USED FOR ALL EDGE LINES, GORE LINES, AND DIAGONAL LINES ON HMA PAVEMENTS.
2. POLYUREA OR MODIFIED URETHANE PAVEMENT MARKING LINE SHALL BE USED FOR ALL EDGE LINES, GORE LINES, AND DIAGONAL LINES ON PCC PAVEMENTS.
3. PREFORMED PLASTIC PAVEMENT MARKING LINE TYPE B, INLAID OR GROOVE IN, SHALL BE USED FOR ALL LANE LINES ON HMA PAVEMENTS.
4. CONTRAST PREFORMED PLASTIC PAVEMENT MARKING LINE TYPE B, GROOVE IN, SHALL BE USED FOR ALL LANE LINES ON PCC PAVEMENT.



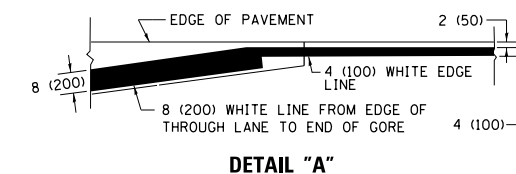
TYPICAL EXIT RAMP PAVEMENT MARKINGS



TYPICAL ENTRANCE RAMP PAVEMENT MARKINGS



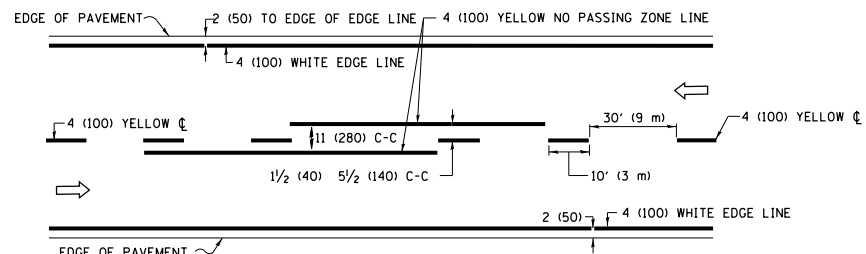
LANE REDUCTION PAVEMENT MARKINGS



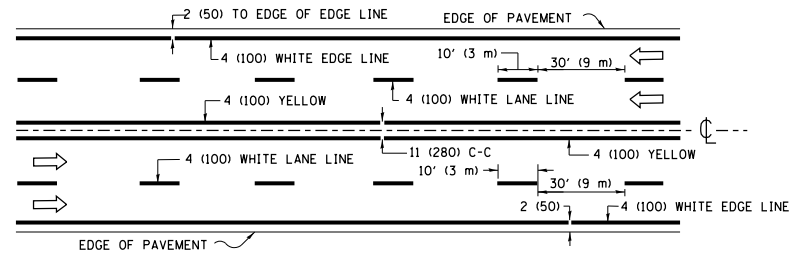
NOTES:

1. THE DIAGONAL LINES SHALL BE SPACED AT 40' (12 m) C-C ACROSS ALL STRUCTURES WHICH ARE 500' (150 m) OR LESS IN LENGTH. THE DIAGONAL LINES ARE NOT REQUIRED ON SHOULDERS WHICH ARE 6' (1.8 m) OR LESS IN WIDTH.
2. 4" (2' DASH, 6' SKIP) MARKING ON TAPERED ENTRANCE AND EXIT RAMP SHALL BE OMITTED ON TANGENT SECTIONS.

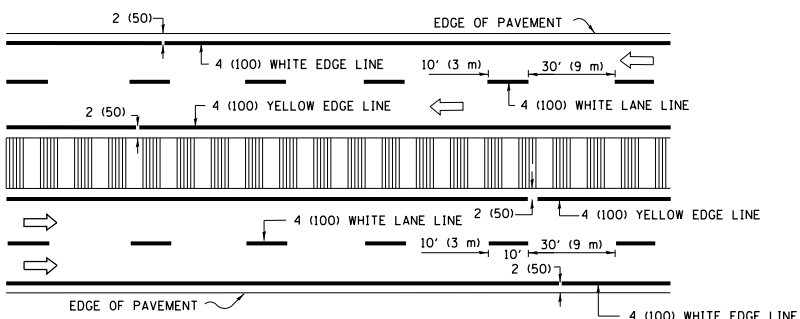
POSTED SPEED LIMIT	D DISTANCE
45 MPH	750' (230 m)
55 MPH	950' (290 m)
65 MPH	1200' (365 m)



2-LANE ROADWAY

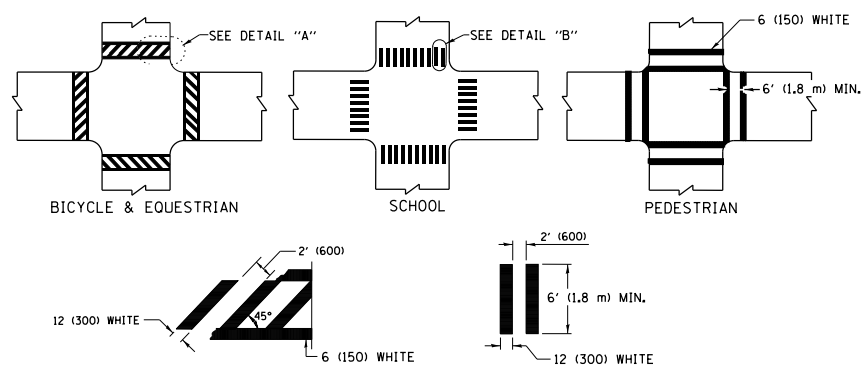


MULTI-LANE UNDIVIDED



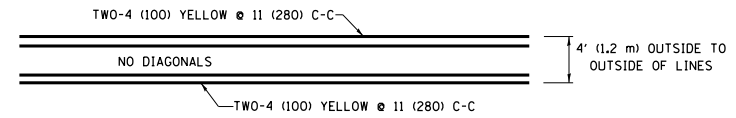
MULTI-LANE DIVIDED WITH MEDIAN

TYPICAL LANE AND EDGE LINE MARKING

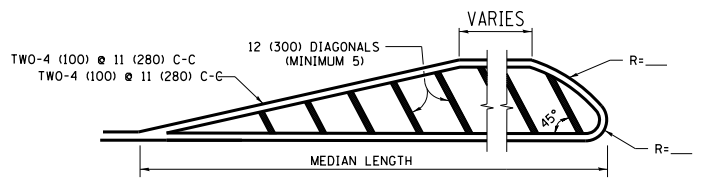


TYPICAL CROSSWALK MARKING

* MARKINGS SHALL BE INSTALLED PARALLEL TO THE CENTERLINE OF THE ROAD WHICH IT CROSSES

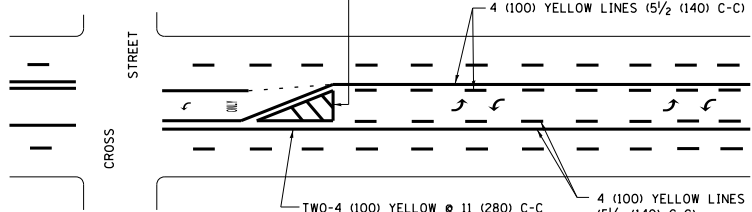


4' (1.2 m) WIDE MEDIANS ONLY

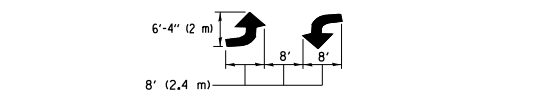


MEDIANS OVER 4' (1.2 m) WIDE

DIAGONAL LINE SPACING: 50' (15 m) C-C (LESS THAN 30MPH (50 km/h))
75' (25 m) C-C 30MPH (50 km/h) TO 45MPH (70 km/h)
150' (45 m) C-C (MORE THAN 45MPH (70 km/h))

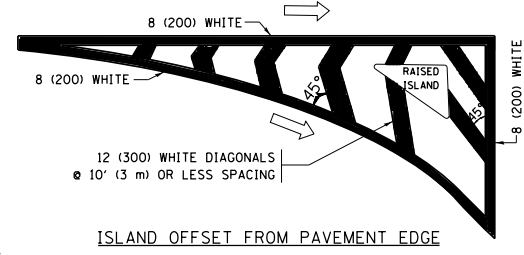


MEDIAN WITH TWO-WAY LEFT TURN LANE TYPICAL PAINTED MEDIAN MARKING

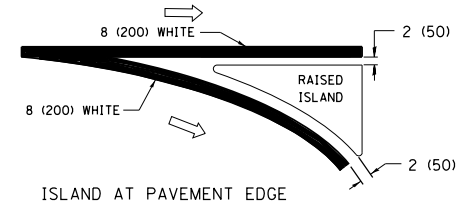


TYPICAL LEFT (OR RIGHT) TURN LANE TYPICAL TURN LANE MARKING

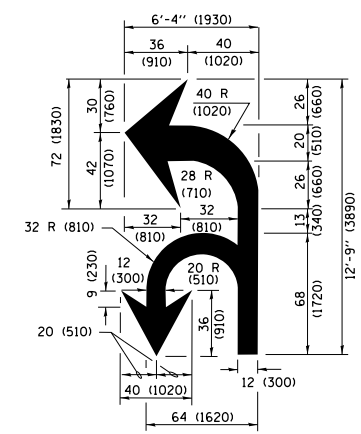
FULL SIZE LETTERS 8' (2.4 m) AND ARROWS SHALL BE USED.
AREA = 15.6 SQ. FT. (1.5 m²) ONLY AREA = 20.8 SQ. FT. (1.9 m²)
* TURN LANES IN EXCESS OF 400' (120 m) IN LENGTH MAY HAVE AN ADDITIONAL SET OF ARROW - "ONLY" INSTALLED MIDWAY BETWEEN THE OTHER TWO SETS OF ARROW - "ONLY".



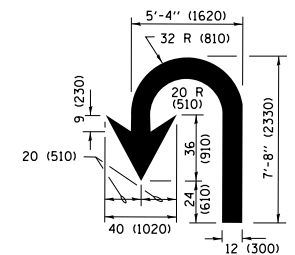
ISLAND OFFSET FROM PAVEMENT EDGE



ISLAND AT PAVEMENT EDGE TYPICAL ISLAND MARKING



COMBINATION LEFT AND U-TURN



U-TURN

LANE REDUCTION TRANSITION

* LANE REDUCTION ARROWS REQUIRED AT SPEEDS OF 45 MPH OR GREATER OR WHEN SPECIFIED IN PLANS.

D(FT)	SPEED LIMIT
345	30
425	35
500	40
580	45
665	50
750	55

TYPE OF MARKING	WIDTH OF LINE	PATTERN	COLOR	SPACING /REMARKS
CENTERLINE ON 2 LANE PAVEMENT	4 (100)	SKIP-DASH	YELLOW	10' (3 m) LINE WITH 30' (9 m) SPACE
CENTERLINE ON MULTI-LANE UNDIVIDED PAVEMENT	2 @ 4 (100)	SOLID	YELLOW	11 (280) C-C
NO PASSING ZONE LINES FOR ONE DIRECTION FOR BOTH DIRECTIONS	4 (100) 2 @ 4 (100)	SOLID SOLID	YELLOW YELLOW	5 1/2 (140) C-C FROM SKIP-DASH CENTERLINE 11 (280) C-C OMIT SKIP-DASH CENTERLINE BETWEEN
LANE LINES	4 (100) 5 (125) ON FREEWAYS	SKIP-DASH SKIP-DASH	WHITE WHITE	10' (3 m) LINE WITH 30' (9 m) SPACE
DOTTED LINES (EXTENSIONS OF CENTER, LANE OR TURN LANE MARKINGS)	SAME AS LINE BEING EXTENDED	SKIP-DASH	SAME AS LINE BEING EXTENDED	2' (600) LINE WITH 6' (1.8 m) SPACE
EDGE LINES	4 (100)	SOLID	YELLOW-LEFT WHITE-RIGHT	OUTLINE MEDIANS IN YELLOW
TURN LANE MARKINGS	6 (150) LINE; FULL SIZE LETTERS & SYMBOLS (8' (2.4m))	SOLID	WHITE	SEE TYPICAL TURN LANE MARKING DETAIL
TWO WAY LEFT TURN MARKING	2 @ 4 (100) EACH DIRECTION 8' (2.4m) LEFT ARROW	SKIP-DASH AND SOLID IN PAIRS	YELLOW WHITE	10' (3 m) LINE WITH 30' (9 m) SPACE FOR SKIP-DASH; 5 1/2 (140) C-C BETWEEN SOLID LINE AND SKIP-DASH LINE SEE TYPICAL TWO-WAY LEFT TURN MARKING DETAIL
CROSSWALK LINES (PEDESTRIAN) A. DIAGONALS (BIKE & EQUESTRIAN) B. LONGITUDINAL BARS (SCHOOL)	2 @ 6 (150) 12 (300) @ 45° 12 (300) @ 90°	SOLID SOLID SOLID	WHITE WHITE WHITE	NOT LESS THAN 6' (1.8 m) APART 2' (600) APART 2' (600) APART SEE TYPICAL CROSSWALK MARKING DETAILS.
STOP LINES	24 (600)	SOLID	WHITE	PLACE 4' (1.2 m) IN ADVANCE OF AND PARALLEL TO CROSSWALK, IF PRESENT, OTHERWISE, PLACE AT DESIRED STOPPING POINT, PARALLEL TO CROSSROAD CENTERLINE, WHERE POSSIBLE
PAINTED MEDIANS	2 @ 4 (100) WITH 12 (300) DIAGONALS @ 45° NO DIAGONALS USED FOR 4' (1.2 m) WIDE MEDIANS	SOLID	YELLOW; TWO WAY TRAFFIC WHITE; ONE WAY TRAFFIC	11 (280) C-C FOR THE DOUBLE LINE SEE TYPICAL PAINTED MEDIAN MARKING.
GORE MARKING AND CHANNELIZING LINES	8 (200) WITH 12 (300) DIAGONALS @ 45°	SOLID	WHITE	DIAGONALS: 15' (4.5 m) C-C (LESS THAN 30MPH (50 km/h)) 20' (6 m) C-C 30MPH (50 km/h) TO 45MPH (70 km/h) 30' (9 m) C-C (OVER 45MPH (70 km/h))
RAILROAD CROSSING	24 (600) TRANSVERSE LINES; "RR" IS 6' (1.8 m) LETTERS; 16 (400) LINE FOR "X"	SOLID	WHITE	SEE STATE STANDARD 780001 AREA OF: "R"=3.6 SQ. FT. (0.33 m ²) EACH "X"=54.0 SQ. FT. (5.0 m ²)
SHOULDER DIAGONALS (REQUIRED FOR SHOULDERS ≥ 8')	12 (300) @ 45°	SOLID	WHITE - RIGHT YELLOW - LEFT	50' (15 m) C-C (LESS THAN 30MPH (50 km/h)) 75' (25 m) C-C (30 MPH (50 km/h) TO 45MPH (70 km/h)) 150' (45 m) C-C (OVER 45MPH (70 km/h))
U TURN ARROW	SEE DETAIL	SOLID	WHITE	16.3 SF
2 ARROW COMBINATION LEFT AND U TURN	SEE DETAIL	SOLID	WHITE	30.4 SF

FOR FURTHER DETAILS ON PAVEMENT MARKING REFER TO STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND STATE STANDARD 780001.

All dimensions are in inches (millimeters) unless otherwise shown.

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Default	PLOT SCALE = 50.000' / in.	DRAWN -	REVISED - C. JUCIUS 07-01-13
	PLOT DATE = 6/23/2017	CHECKED -	REVISED - C. JUCIUS 12-21-15
		DATE - 03-19-90	REVISED - C. JUCIUS 04-12-16

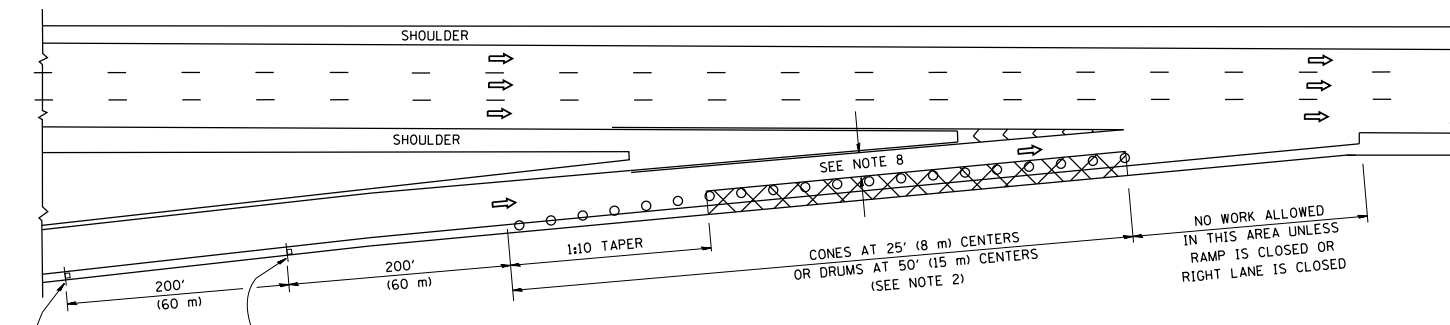
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

DISTRICT ONE TYPICAL PAVEMENT MARKINGS

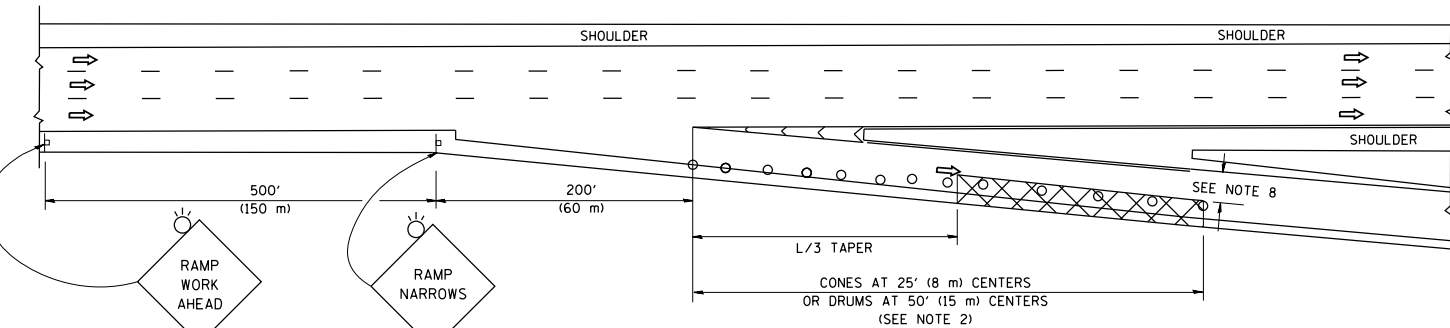
SCALE: NONE	SHEET 1 OF 1 SHEETS	STA. TO STA.
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TC-13		606	603
ILLINOIS FED. AID PROJECT			CONTRACT NO.	

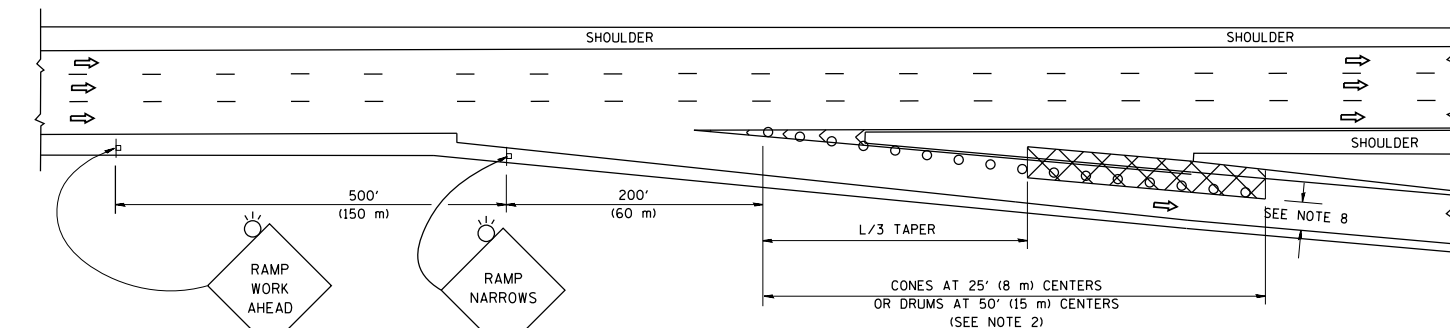
PARTIAL RAMP CLOSURE DETAILS



TYPICAL ENTRANCE RAMP



TYPICAL EXIT RAMP



TYPICAL EXIT RAMP

SYMBOLS

- ACTIVE WORK AREA
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- FLAGGER WITH CONTROL SIGN
- TYPE II BARRICADE OR DRUM
- CONE, DRUM OR BARRICADE
- IMPACT ATTENUATOR OF TYPE AND TEST LEVEL SPECIFIED

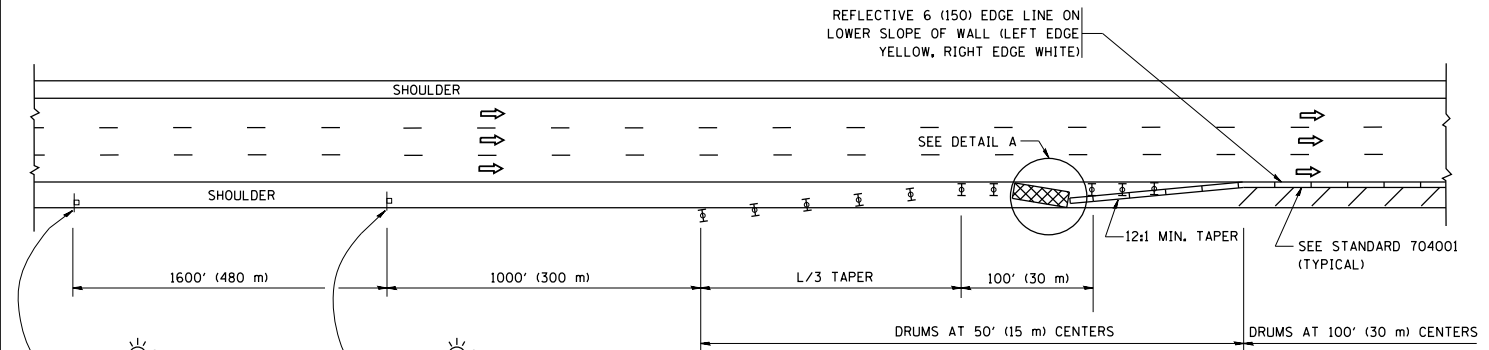
GENERAL NOTES

1. THE "L" DISTANCE EQUALS:

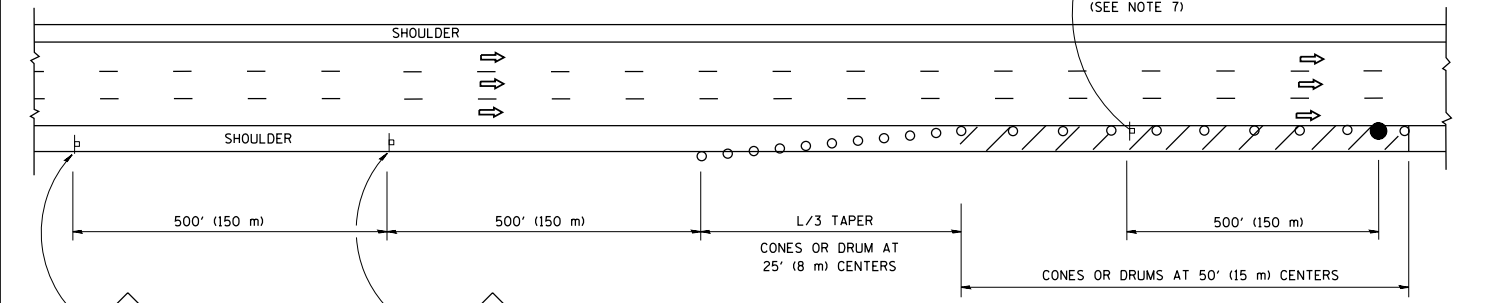
SPEED LIMIT	FORMULAS
45 mph (80 km/h)	METRIC ENGLISH
OR GREATER:	$L=0.65(W)(S)$ $L=(W)(S)$

W = WIDTH OF OFFSET IN FEET (METERS)
 S = NORMAL POSTED SPEED MPH (KM/H)
2. TYPE II BARRICADES OR DRUMS ARE REQUIRED FOR ALL NIGHTTIME CLOSURES. TYPE II BARRICADES OR DRUMS WITH MONODIRECTIONAL STEADY BURN LIGHTS ARE REQUIRED FOR DELINEATING OBSTACLES, EXCAVATIONS, OR HAZARDS EXCEEDING 100 FT (30m) IN LENGTH AT NIGHT.
3. ALL SIGNS SHALL BE POST MOUNTED IF THE CLOSURE TIME EXCEEDS FOUR DAYS.
4. FLASHING LIGHTS SHALL BE USED DURING THE HOURS OF DARKNESS AND SHALL BE INSTALLED ABOVE THE FIRST TWO SETS OF SIGNS.
5. THE IMPACT ATTENUATOR, TEMPORARY IS NOT REQUIRED WHEN THE TEMPORARY CONCRETE BARRIER WALL IS PROTECTED BY OR IS TIED INTO THE EXISTING GUARDRAIL. IF OFFSET IS LESS THAN 5 FEET USE NARROW USE TYPE DEVICE TO MEET NCHRP350/MASH.
6. AUTHORIZATION FROM THE DISTRICT'S BUREAU OF TRAFFIC IS REQUIRED FOR ALL FREEWAY CLOSURES.
7. THE FLAGGER AND FLAGGER SIGN ARE REQUIRED AT THE ABOVE WORK SITES WHEN:
 - a. FOUR OR MORE WORK VEHICLES ENTER THE TRAFFIC LANES IN A ONE HOUR PERIOD.
 - b. THE WORK ACTIVITY REQUIRES FREQUENT ENCROACHMENT INTO THE LANE OPEN TO TRAFFIC.
 THE FLAGGER SHALL BE STATIONED APPROXIMATELY 100' (30 m) TO 200' (60 m) IN ADVANCE OF THE WORKERS.
8. 12' MIN. WIDTH TANGENT SECTION
 16' MIN. WIDTH CURVE SECTION.

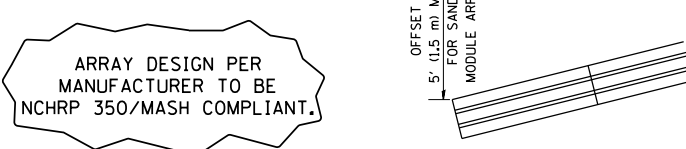
SHOULDER CLOSURE DETAILS



PERMANENT SHOULDER CLOSURE



DAYTIME SHOULDER CLOSURE



ARRAY DESIGN PER MANUFACTURER TO BE NCHRP 350/MASH COMPLIANT.

DETAIL "A"
IMPACT ATTENUATOR, TEMPORARY
(SEE NOTE 5)

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

FILE NAME =	USER NAME = footemj	DESIGNED -	REVISED - S.P.B. 01-07
pw:\IL\084EBID\INTEG\illinois.gov\PIDOT\Documents\IDOT Offices\District 1\Projects\Dist 1\084EBID\CADD\Drawings\17.dgn		CHECKED -	REVISED - S.P.B. 12-09
Default	PLOT SCALE = 50.0000' / in.	DATE - 11-96	REVISED - M.D. 06-13
	PLOT DATE = 11/27/2017		REVISED - M.D. 01-18

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

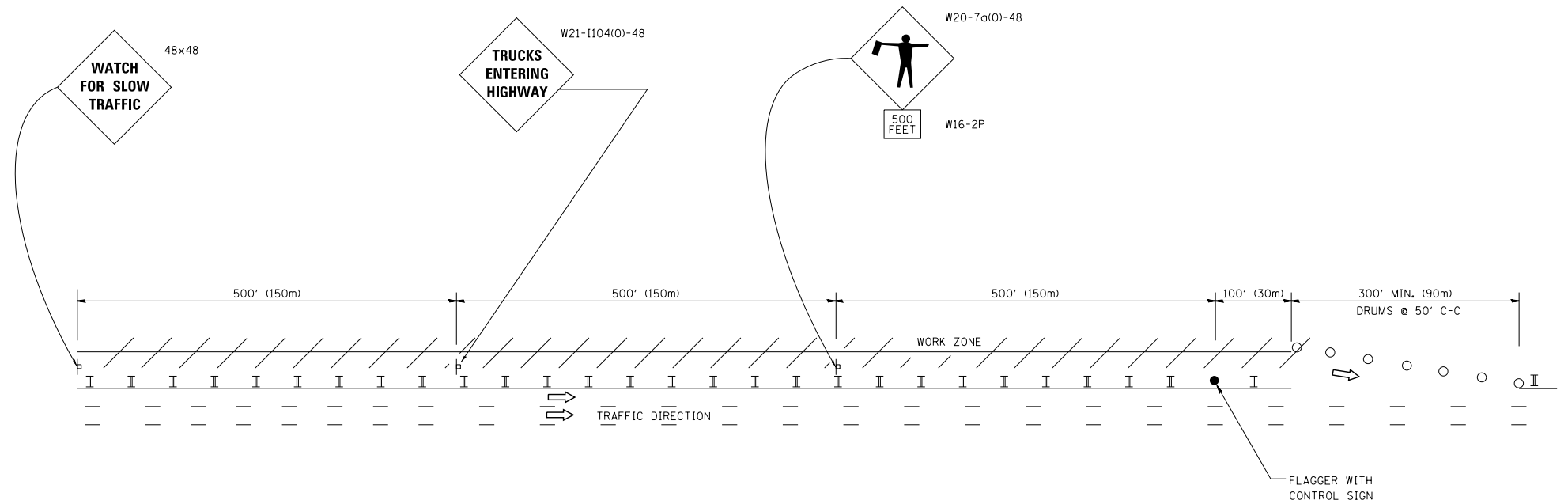
TRAFFIC CONTROL DETAILS FOR FREEWAY
SHOULDER CLOSURES AND PARTIAL RAMP CLOSURES

SCALE: NONE SHEET 1 OF 1 SHEETS STA. TO STA.

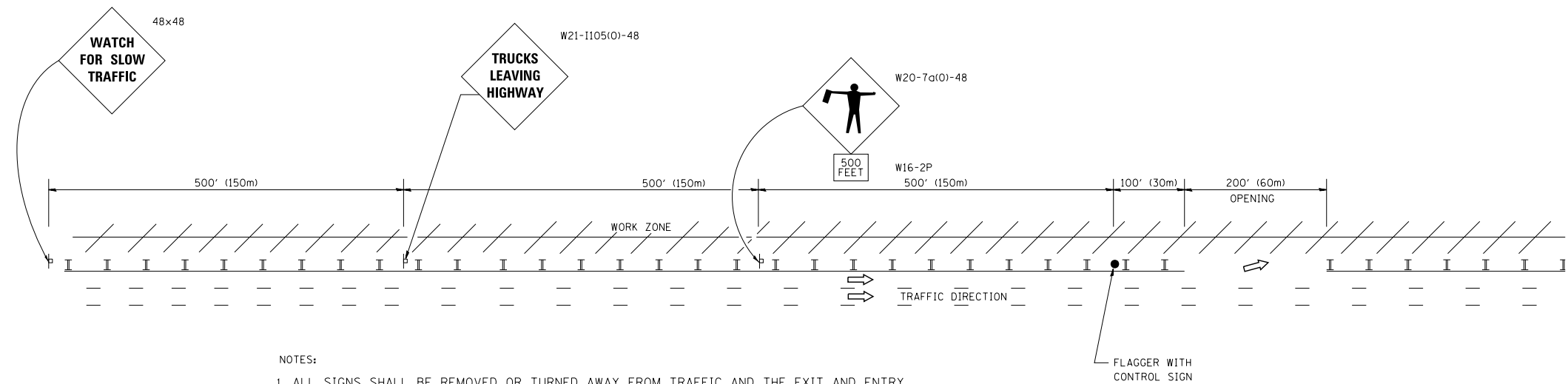
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TC-17		606	604
ILLINOIS FED. AID PROJECT		CONTRACT NO.		

SIGNING FOR FLAGGING OPERATIONS AT WORK ZONE OPENINGS

WORK ZONE EXIT OPENING



WORK ZONE ENTRY OPENING

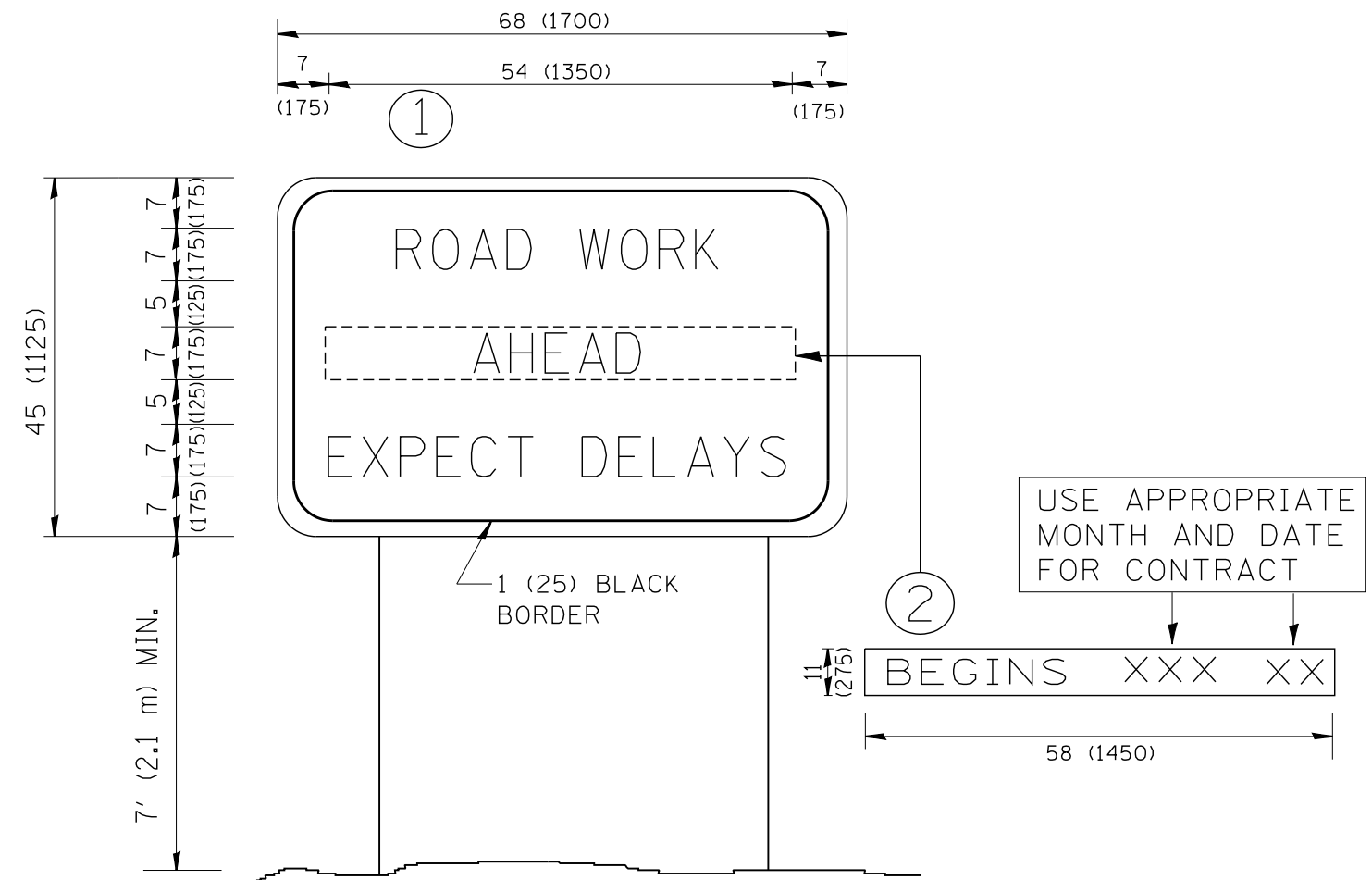


NOTES:

1. ALL SIGNS SHALL BE REMOVED OR TURNED AWAY FROM TRAFFIC AND THE EXIT AND ENTRY OPENINGS SHALL BE CLOSED WHEN THE FLAGGING OPERATION CEASES. NON OPERATING EQUIPMENT SHALL COMPLY WITH ARTICLE 701.11
2. WORK ZONE OPENINGS SHALL BE A MINIMUM OF ONE HALF MILE APART AND A MINIMUM OF ONE QUARTER MILE FROM ALL ENTRANCE AND EXIT RAMP.
3. EXITING THE WORK ZONE AT ANY PLACE OTHER THAN AT A WORK ZONE EXIT OPENING WILL BE PROHIBITED.
4. ALL VEHICLES SHALL ENTER THE WORK ZONE AT ENTRY OPENINGS, USING THEIR TURN SIGNALS TO WARN MOTORISTS
5. FLAGGERS SHALL NOT STOP TRAFFIC OR DIRECT TRAFFIC INTO AN ADJACENT LANE.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN

FILE NAME =	USER NAME = footemj	DESIGNED -	REVISED - J.A.F. 02-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FREEWAY/EXPRESSWAY SIGNING FOR FLAGGING OPERATIONS AT WORK ZONE OPENINGS ON FREEWAYS/EXPRESSWAYS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
ct:\pwork\pwork\footemj\d0108315\tc18.dgn		DRAWN -	REVISED - S.P.B. 01-07							606	605
		CHECKED -	REVISED - S.P.B. 12-09							CONTRACT NO.	
		DATE -	REVISED - M.D. 06-13			SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT	



NOTES:

1. USE BLACK LETTERING ON ORANGE BACKGROUND.
2. ERECT SIGNS IN ADVANCE OF THE LOCATION FOR THE "ROAD CONSTRUCTION AHEAD" SIGN AT LOCATIONS AS DIRECTED BY THE ENGINEER.
3. ERECT SIGN ① WITH INSTALLED PANEL ② ONE WEEK PRIOR TO THE START OF CONSTRUCTION.
4. REMOVE PANEL ② SOON AFTER THE START OF CONSTRUCTION.
5. SEE SPECIAL PROVISION FOR "TEMPORARY INFORMATION SIGNING" FOR ADDITIONAL INFORMATION.
6. ONE SIGN ASSEMBLY EQUALS 25.70 SQ. FT. (2.3 SQ. M.)
7. SHALL BE PAID FOR AS TEMPORARY INFORMATION SIGNING.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

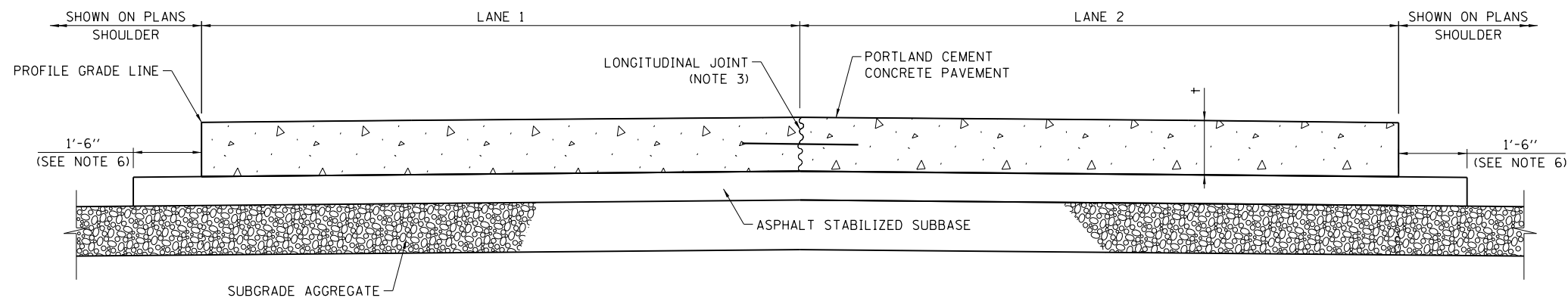
FILE NAME = W:\diststd\22x34\tc22.dgn	USER NAME = gegl@nbt	DESIGNED -	REVISED - R. MIRS 09-15-97
		DRAWN -	REVISED - R. MIRS 12-11-97
	PLOT SCALE = 50.000' / IN.	CHECKED -	REVISED - T. RAMMACHER 02-02-99
	PLOT DATE = 1/4/2008	DATE -	REVISED - C. JUCIUS 01-31-07

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**ARTERIAL ROAD
INFORMATION SIGN**

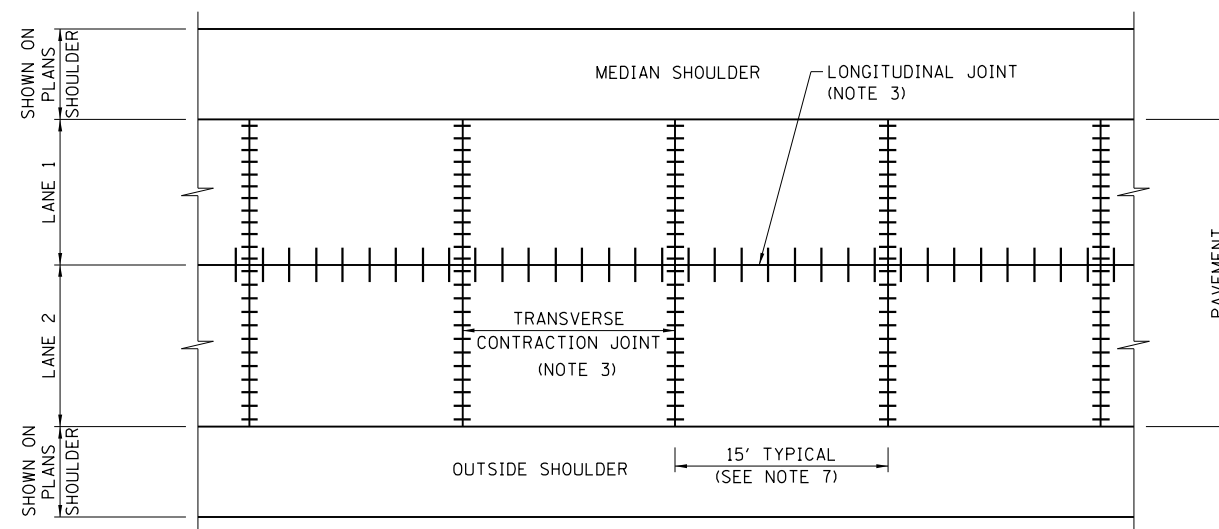
SCALE: NONE SHEET NO. 1 OF 1 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			606	606
TC-22			CONTRACT NO.	
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				



PAVEMENT CROSS - SECTION (2 LANES)

± = CONCRETE PAVEMENT THICKNESS



PAVEMENT PLAN
2 - LANE SECTION

GENERAL NOTES:

1. DOWEL BASKET ASSEMBLIES, WHERE USED, SHALL BE SUPPORTED AND ANCHORED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND CONCRETE SPECIAL PROVISION.
2. MATERIALS ARE PROJECT SPECIFIC. REFER TO PROJECT PLANS AND CONTRACT DOCUMENTS FOR DETAILS.
3. SEE ILLINOIS TOLLWAY STANDARD DRAWING A7 (PAVEMENT JOINTS) AND IDOT HIGHWAY STANDARD 420001 (PAVEMENT JOINTS) FOR DETAILS OF JOINTS AND TIE BARS NOT SHOWN.
4. PAVEMENT DESIGNS ARE PROJECT SPECIFIC, OTHER MATERIALS MAY BE SUBSTITUTED FOR ASPHALT STABILIZED SUBBASE AND SUBGRADE AGGREGATE. REFER TO PROJECTS PLANS FOR DETAILS AND MATERIAL THICKNESS.
5. THE TIE BAR FOR THE LONGITUDINAL SAWED JOINT SHALL BE 15" FROM THE TRANSVERSE CONTRACTION JOINT.
6. THE 1'-6" WIDE ASPHALT STABILIZED SUBBASE MAY BE REDUCED TO 1'-0" WHEN PAVING EQUIPMENT UTILIZED FOR CONSTRUCTION OF THE PCC PAVEMENT WILL ALLOW.
7. THE 15'-0" TYPICAL TRANSVERSE JOINT SPACING DIMENSION SHALL BE ADJUSTED TO 12'-0" MIN. TO 18'-0" MAX. WHEN PLACED ADJACENT TO EXISTING PCC PAVEMENT STRUCTURE SO THAT THE JOINTS ARE IN PROLONGATION. ADJUST THE TIE BAR SPACING TO MAINTAIN A CLEARANCE OF 6 (150) FROM DOWEL BARS.

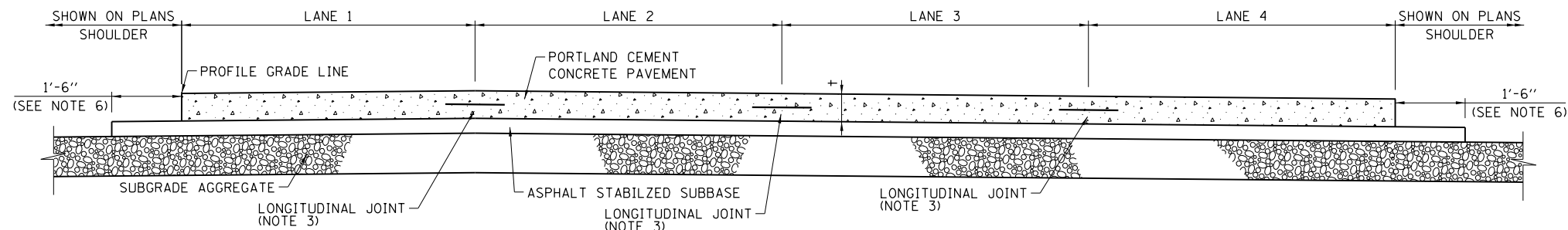


J.P.C. PAVEMENT

STANDARD A5-05

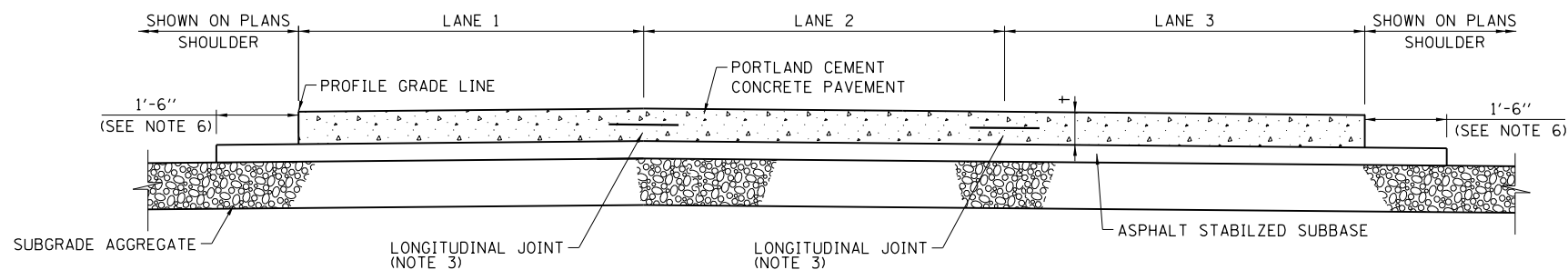
DATE	REVISIONS
3-11-2015	REVISED NOTES
3-31-2016	SHOW SUBBASE WIDENED
3-31-2017	COMBINED WITH A6
	REVISED WIDTH
03-01-18	CORRECTED DIMENSION
03-01-19	UPDATED NOTES


 APPROVED, CHIEF ENGINEERING OFFICER DATE 5-1-2009

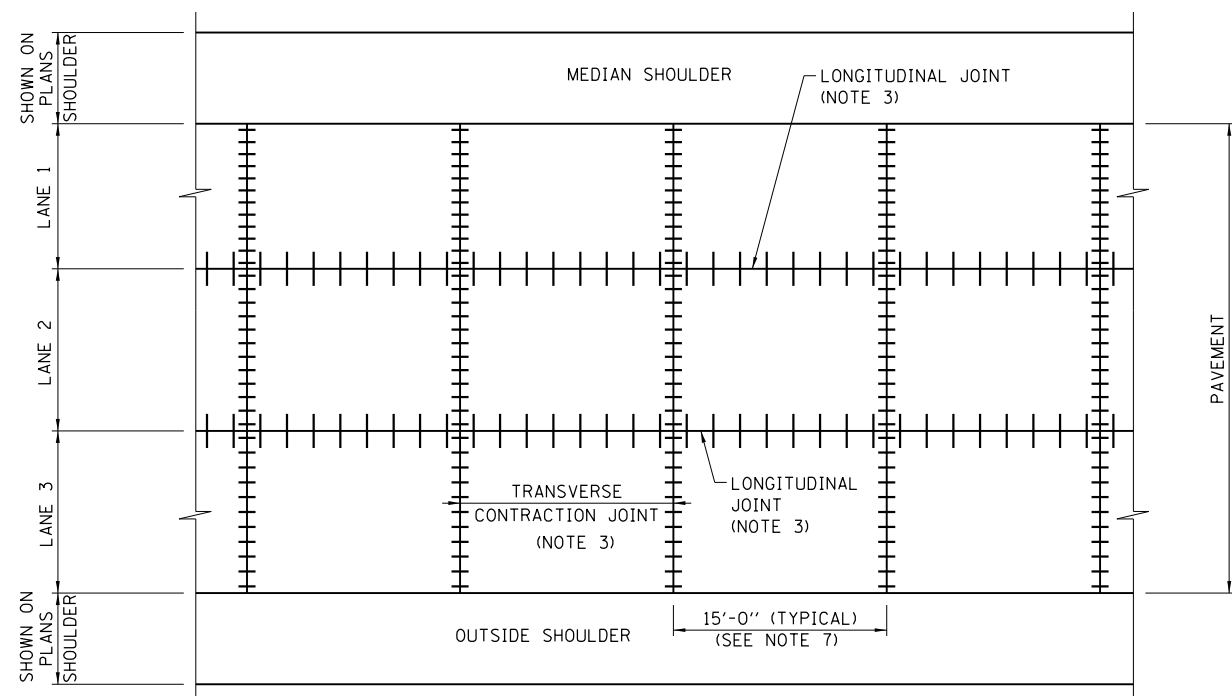


PAVEMENT CROSS - SECTION (4 LANES)

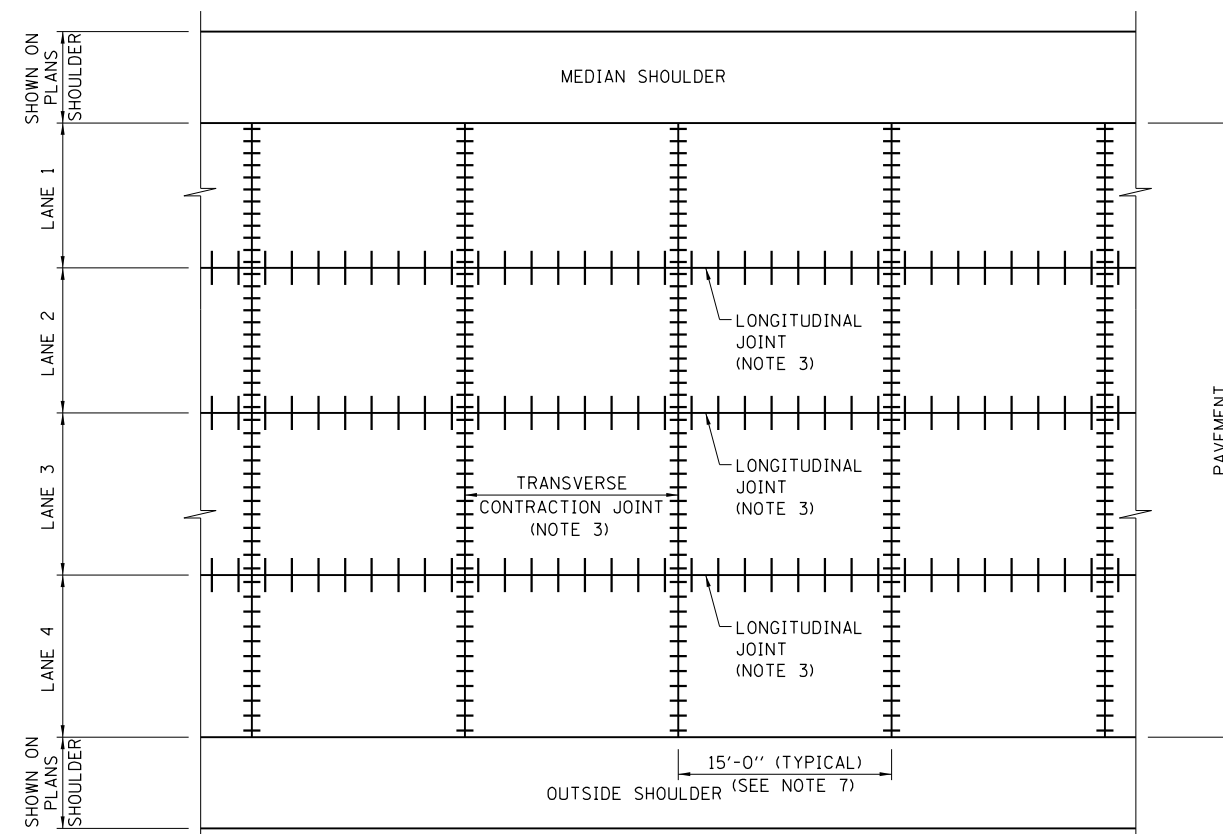
+ = CONCRETE PAVEMENT THICKNESS



PAVEMENT CROSS - SECTION (3 LANES)



PAVEMENT PLAN
3 - LANE SECTION



PAVEMENT PLAN
4 - LANE SECTION

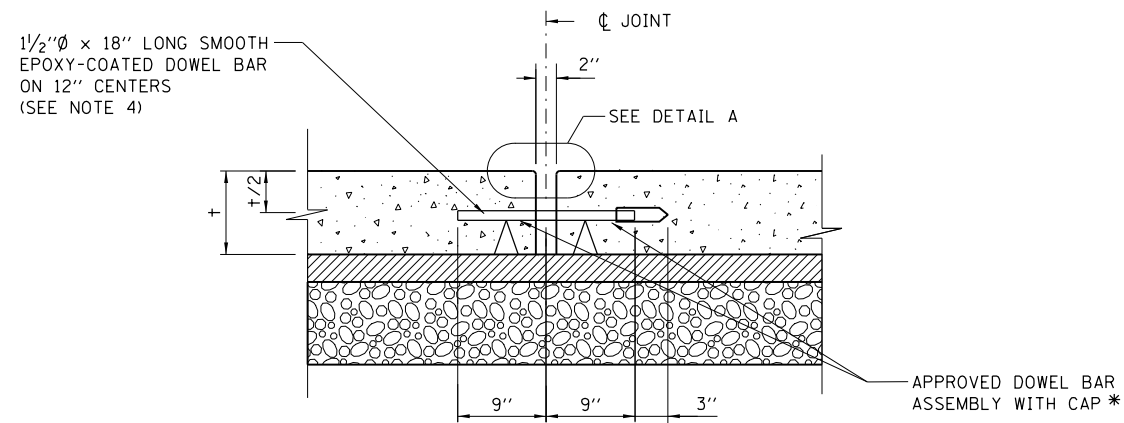
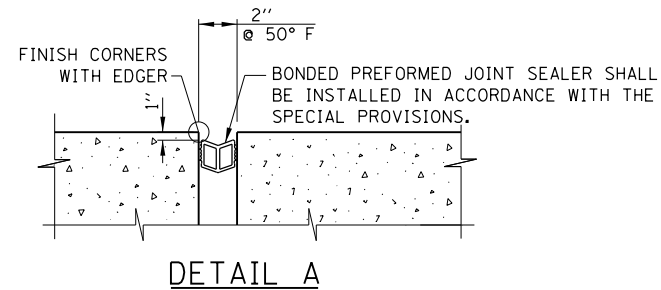
SEE SHEET 1 IN THIS SERIES FOR GENERAL NOTES.



J.P.C. PAVEMENT

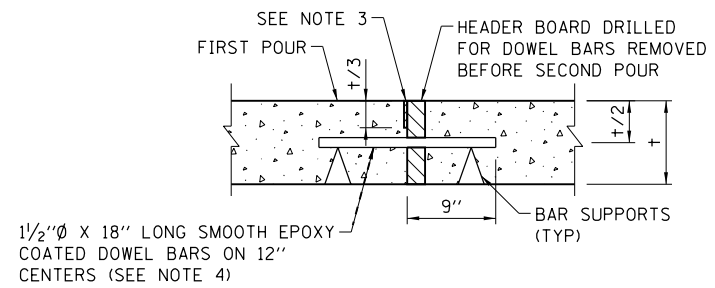
STANDARD A5-05

APPROVED *Paul Kovacs* DATE 5-1-2009
CHIEF ENGINEERING OFFICER



TRANSVERSE EXPANSION JOINT
(JOINTED PLAIN CONCRETE PAVEMENT)

* EXPANSION CAPS SHALL BE INSTALLED ON THE EXPOSED END OF EACH DOWEL BAR ONCE THE HEADER HAS BEEN REMOVED.



TRANSVERSE CONSTRUCTION JOINT
(JOINTED PLAIN CONCRETE PAVEMENT)

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SHOWN.
2. † = PAVEMENT THICKNESS
3. A 3/8" SAW CUT SHALL BE PROVIDED FOR PAVEMENT CRACK CONTROL.
4. FOR 13" PAVEMENT USE THE FOLLOWING DOWELS:
1-1/2"Ø X 18" LONG SMOOTH EPOXY COATED DOWEL BARS ON 9" CENTERS OR
1-3/4"Ø X 18" LONG SMOOTH EPOXY COATED DOWEL BARS ON 12" CENTERS

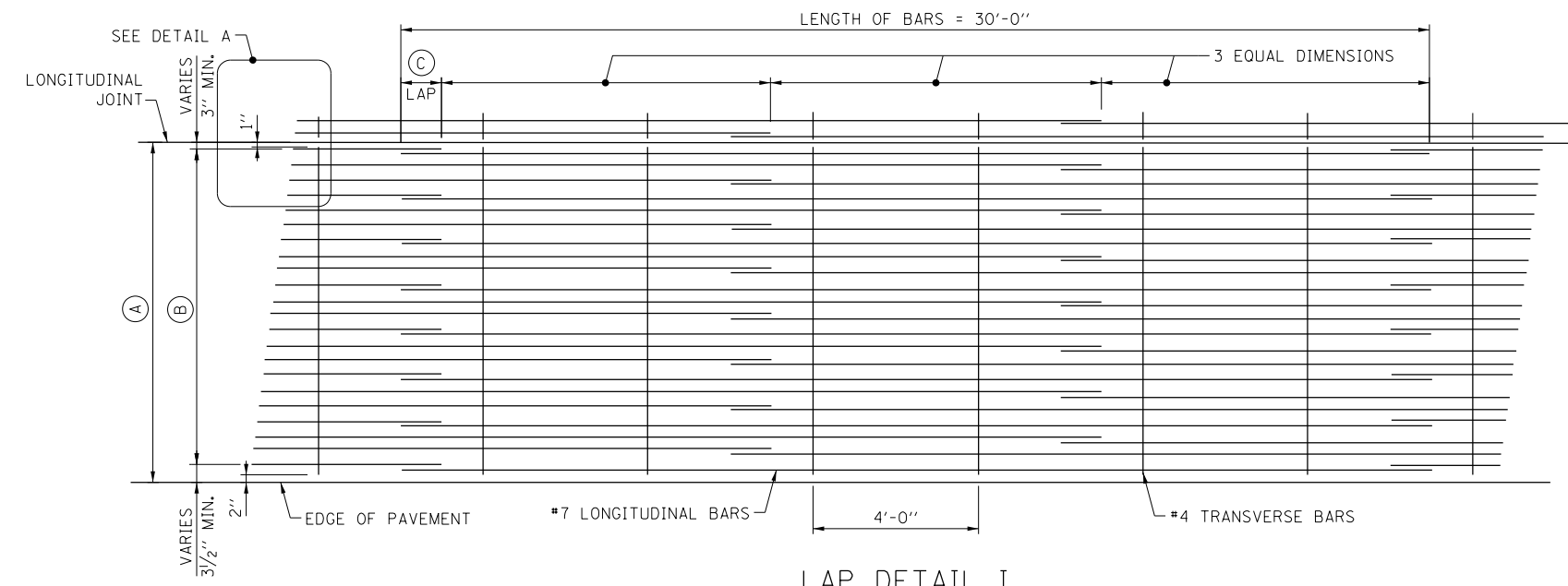
Paul Kovacs
APPROVED..... CHIEF ENGINEER..... DATE 5-1-2009..

DATE	REVISIONS
5-01-2017	MODIFIED JOINT DETAIL, REVISED NOTES
3-31-2016	REVISED 13" PAVEMENT NOTE FOR DOWEL BARS
3-31-2017	ADDED TRANSVERSE EXPANSION JOINT



PAVEMENT JOINTS

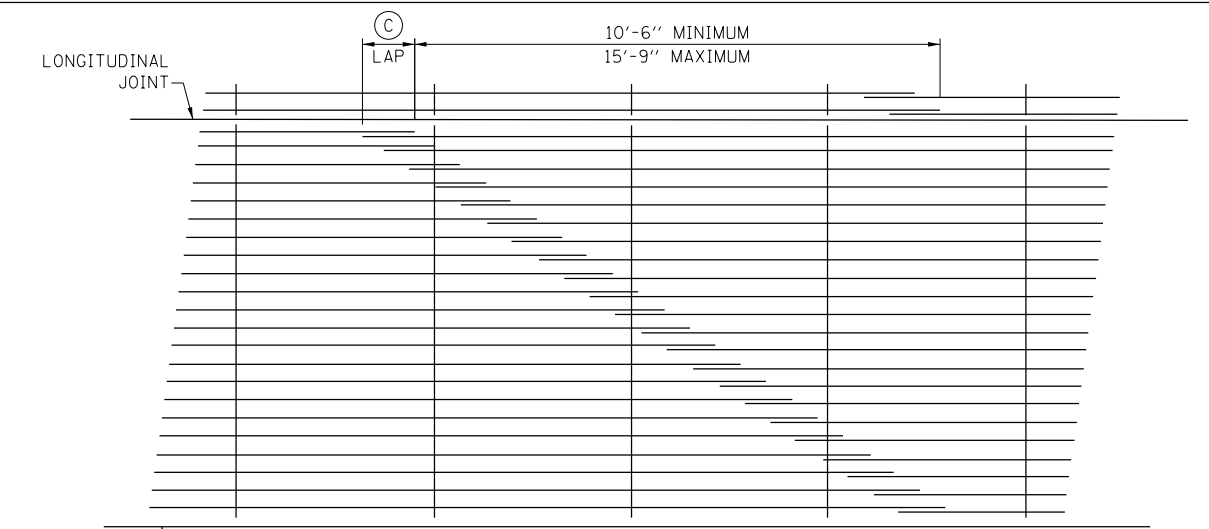
STANDARD A7-03



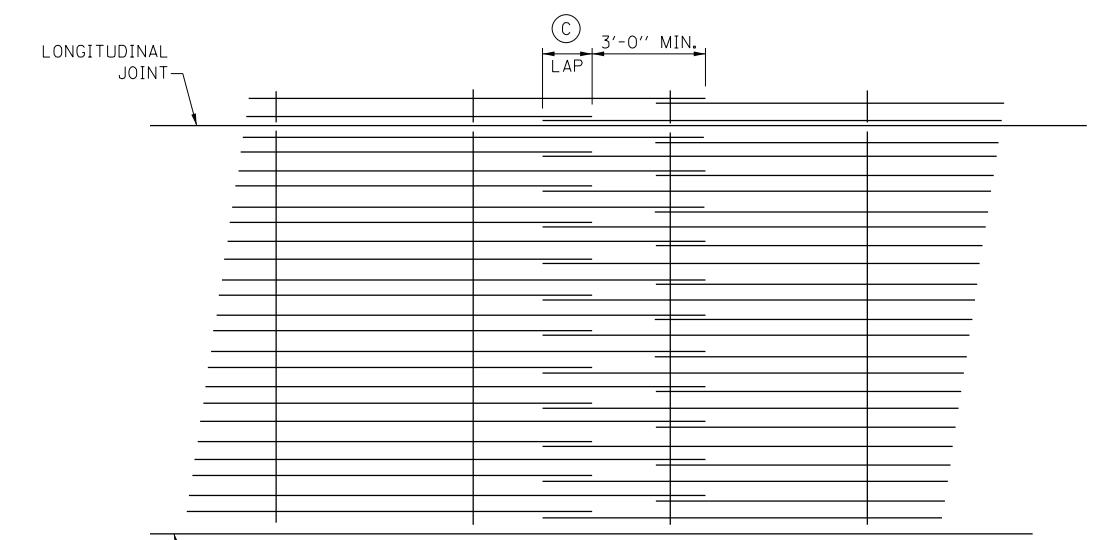
LAP DETAIL I
REINFORCEMENT BAR LAP PLAN LONGITUDINAL REINFORCEMENT BARS

(A) LANE WIDTH	(B)
12'-0"	11'-9"
13'-0"	12'-9"

BAR SIZE	(C) LAP
#7	26"



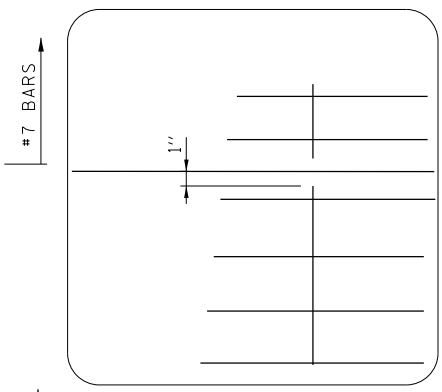
LAP DETAIL II



LAP DETAIL III

12'-0" LANE		PAVEMENT THICKNESS (IN.) (+)													
		10		10.5		11		11.5		12		12.5		13	
		NO. OF BARS (EA.)	SPACING (IN.)	NO. OF BARS (EA.)	SPACING (IN.)	NO. OF BARS (EA.)	SPACING (IN.)	NO. OF BARS (EA.)	SPACING (IN.)	NO. OF BARS (EA.)	SPACING (IN.)	NO. OF BARS (EA.)	SPACING (IN.)	NO. OF BARS (EA.)	SPACING (IN.)
PERCENTAGE OF STEEL REINFORCEMENT	0.65%	16	9 1/8	17	8 5/8	18	8 1/8	18	8 1/8	20	7 1/4	19	7 5/8	20	7 1/4
	0.70%	17	8 5/8	18	8 1/8	19	7 5/8	19	7 5/8	21	6 3/8	21	6 3/8	22	6 1/2
	0.75%	18	8 1/8	19	7 5/8	20	7 1/4	21	6 3/8	22	6 1/2	23	6 1/4	24	6
	0.80%	19	7 5/8	20	7 1/4	22	6 1/2	22	6 1/2	23	6 1/4	24	6	25	5 3/4
	0.85%	20	7 1/4	22	6 1/2	23	6 1/4	24	6	25	5 3/4	26	5 1/2	27	5 1/4

13'-0" LANE		PAVEMENT THICKNESS (IN.) (+)													
		10		10.5		11		11.5		12		12.5		13	
		NO. OF BARS (EA.)	SPACING (IN.)	NO. OF BARS (EA.)	SPACING (IN.)	NO. OF BARS (EA.)	SPACING (IN.)	NO. OF BARS (EA.)	SPACING (IN.)	NO. OF BARS (EA.)	SPACING (IN.)	NO. OF BARS (EA.)	SPACING (IN.)	NO. OF BARS (EA.)	SPACING (IN.)
PERCENTAGE OF STEEL REINFORCEMENT	0.65%	17	9 3/8	18	8 3/4	19	8 1/4	19	8 1/4	20	7 3/8	21	7 1/2	22	7 1/8
	0.70%	18	8 3/4	19	8 1/4	20	7 3/8	21	7 1/2	22	7 1/8	23	6 3/4	24	6 1/2
	0.75%	20	7 3/8	21	7 1/2	22	7 1/8	23	6 3/4	24	6 1/2	25	6 1/4	26	6
	0.80%	21	7 1/2	22	7 1/8	23	6 3/4	24	6 1/2	25	6 1/4	26	6	27	5 3/4
	0.85%	23	6 3/4	24	6 1/2	25	6 1/4	26	6	27	5 3/4	28	5 1/2	29	5 3/8



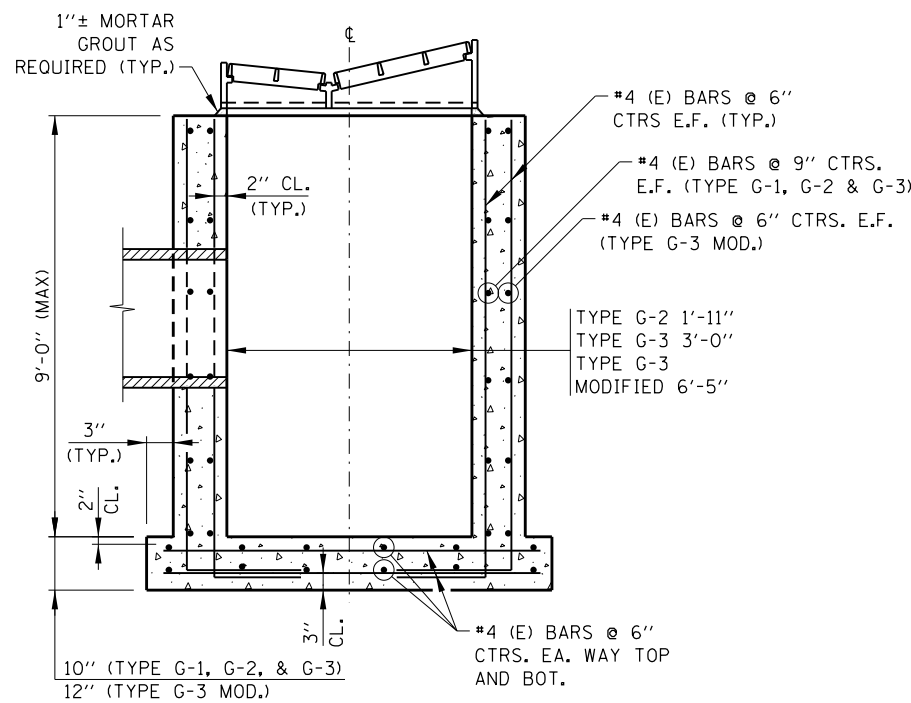
DETAIL A

- GENERAL NOTES:**
- EXCEPT AS NOTED OR SHOWN, THE DIMENSIONS AND NOTES SPECIFIED FOR LAP DETAIL I ARE TYPICAL FOR LAP DETAIL II AND III.
 - #7 REINFORCEMENT BARS ARE USED THROUGHOUT THESE TABLES.
 - THE DISTANCE FROM THE END OF THE TRANSVERSE BAR TO THE EDGE OF PAVEMENT MAY BE INCREASED BY 1" FOR SLIP FORM PAVING.
 - THE PERCENT OF STEEL REINFORCEMENT IS PROJECT SPECIFIC. REFER TO PROJECT PLANS AND CONTRACT DOCUMENTS FOR DETAILS.

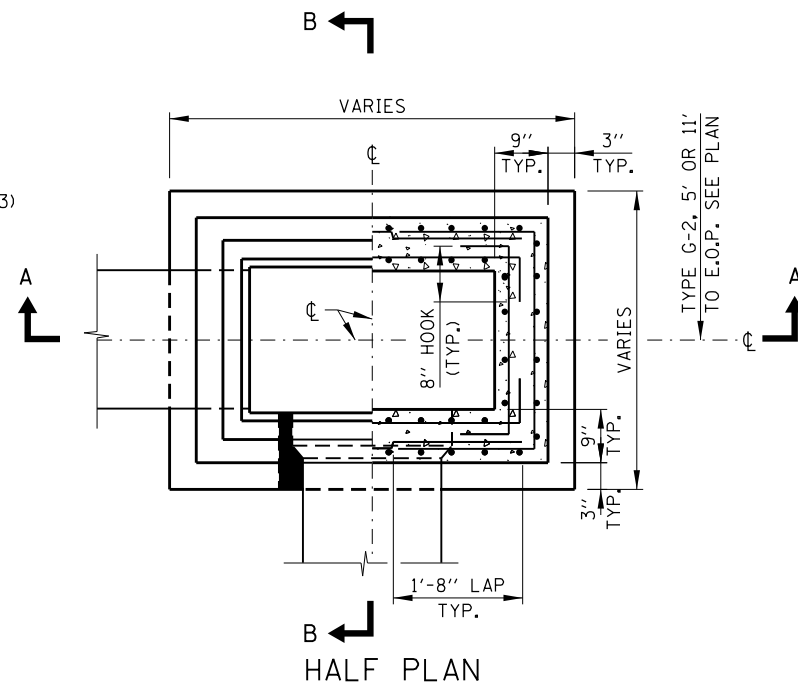
APPROVED: *Jeff Daley*
CHIEF ENGINEER DATE: 1-1-2007

DATE	REVISIONS

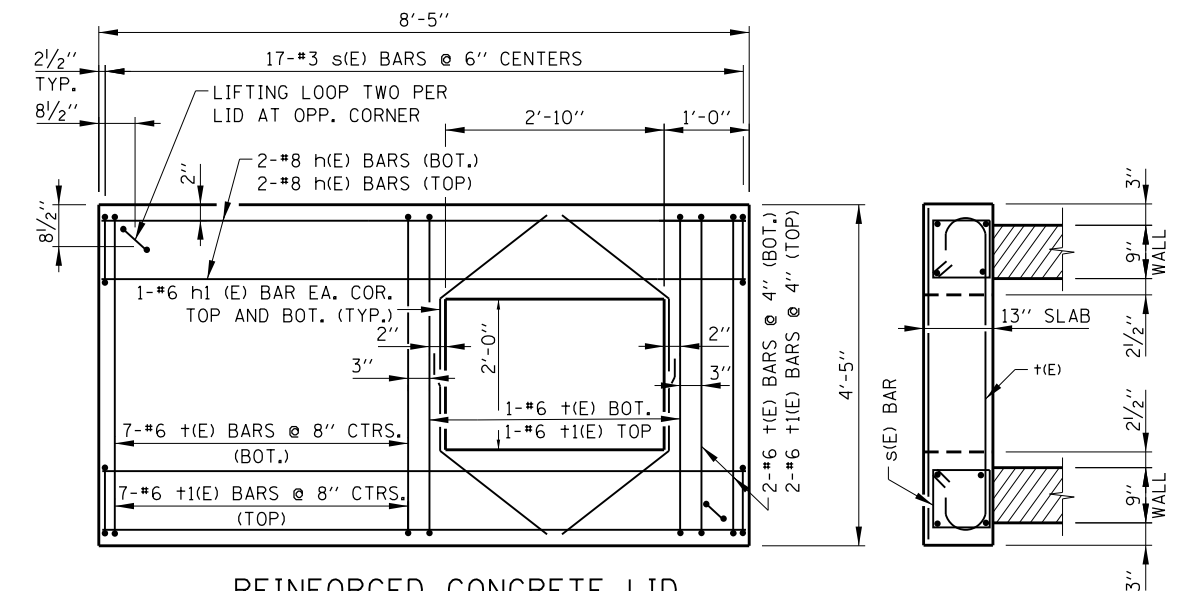
REINFORCEMENT BARS FOR CRC PAVEMENT
STANDARD A12-00



SECTION A-A



HALF PLAN

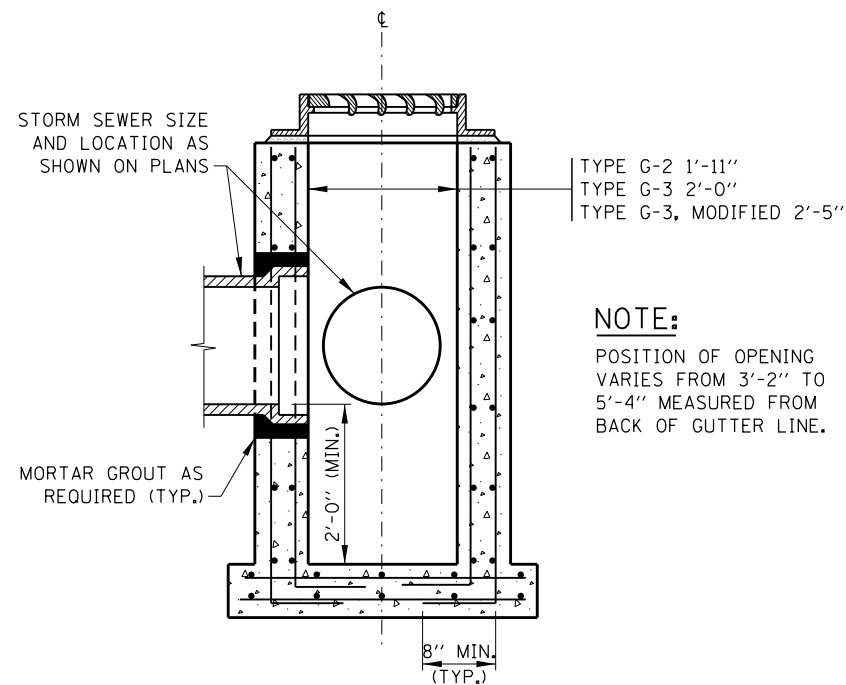


REINFORCED CONCRETE LID

CATCH BASIN, TYPE G-3, MODIFIED

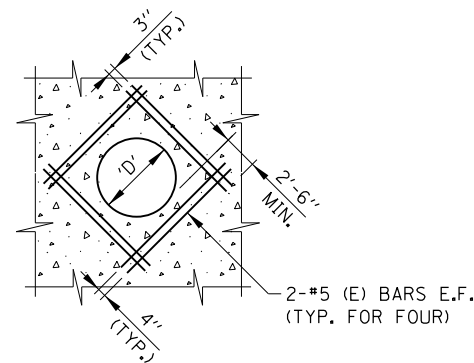
NOTES:

1. PRECAST CONCRETE UNITS WILL BE ACCEPTABLE PROVIDED THEY MEET ALL THE REQUIREMENTS AS SHOWN ON THIS DRAWING. BASE EXTENSION OF 3" NOT REQUIRED FOR PRECAST UNITS. FABRICATION DRAWINGS SHOWING PIPE OPENINGS, REINFORCEMENT AND OTHER PERTINENT DIMENSIONS WILL BE REQUIRED FOR EACH UNIT, FOR APPROVAL BY THE ENGINEER PRIOR TO FABRICATION.
2. CATCH BASIN, TYPE G-2 SHALL BE USED ALONG RAMPS WHERE GUTTER TYPE G-2 IS PROVIDED.
3. CATCH BASIN, TYPE G-3 SHALL BE USED WHERE GUTTER TYPE G-3 IS PROVIDED.
4. CATCH BASIN, TYPE G-3 MODIFIED SHALL BE USED IN PAVEMENT SECTIONS AND ON THE LOW SIDE OF SUPERELEVATED PAVEMENT.
5. CATCH BASIN, TYPE G-3 MODIFIED SHALL BE PROVIDED WITH A REINFORCED CONCRETE SLAB TOP AS DETAILED ON THIS DRAWING.
6. TYPE G-2 FRAME AND GRATE SHALL BE NEENAH R-3508-A2, EAST JORDAN IRON WORKS 7300 OR APPROVED EQUAL.
7. TYPE G-3 FRAME AND GRATE SHALL BE NEENAH INLET FOR ROLL TYPE CURB R-3501-U OR EAST JORDAN IRON WORKS 7545 OR APPROVED EQUAL.
8. TYPE G-3, MODIFIED FRAME AND GRATE SHALL BE NEENAH INLET FOR ROLL TYPE CURB SPECIAL R-3501-U1, EAST JORDAN IRON WORKS 7546 OR APPROVED EQUAL.
9. TYPE G-2, MODIFIED FRAME AND GRATE FOR ROLL TYPE CURB R-3508-B2 OR APPROVED EQUAL.
10. MORTAR OR SEALER SHALL BE USED WHEN A PRECAST REINFORCED CONCRETE LID IS USED.
11. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
12. E.O.P. = EDGE OF PAVEMENT.
13. ALL CONCRETE SHALL BE CLASS SI CONCRETE.
14. FRAME AND GRATE RIM ELEVATION AND OFFSET MEASURED AT THE EDGE OF SHOULDER.

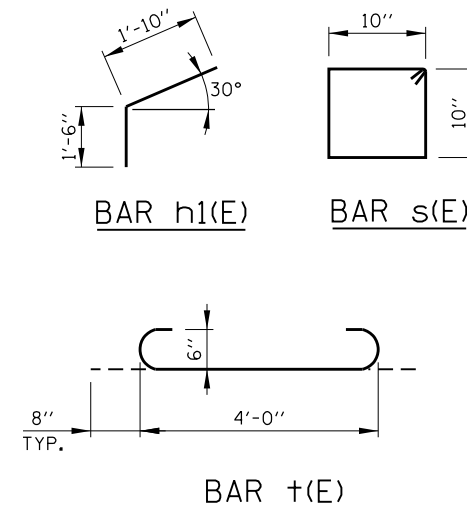


SECTION B-B

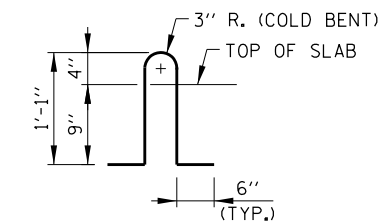
CATCH BASIN TYPE "G" SERIES



TYPICAL REINFORCEMENT AROUND STORM SEWER PIPE



LIFTING LOOP TO BE 1/2" Ø x 270 KSI STRANDS TO BE BURNED AFTER PRECAST CONCRETE LID IS SET IN PLACE.



LIFTING LOOP DETAIL

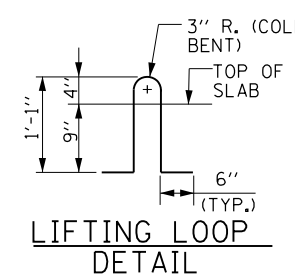
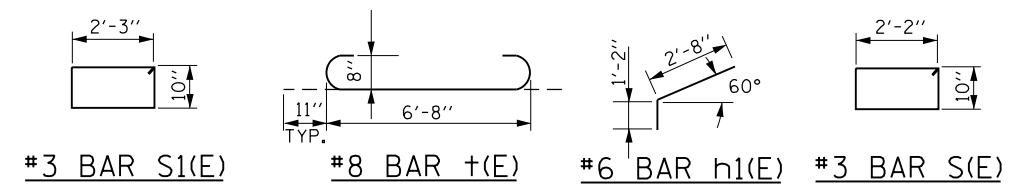
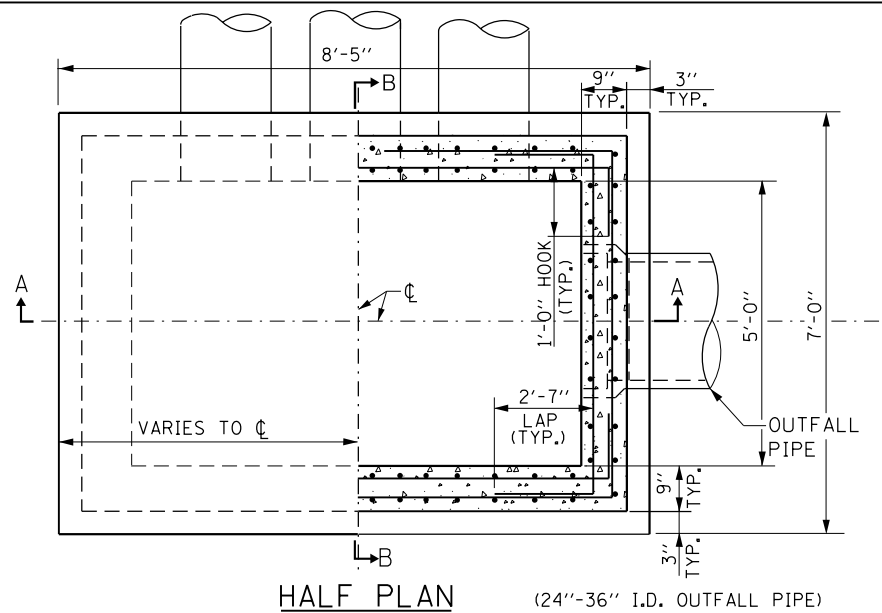
DATE	REVISIONS
3-31-2014	ADDED FRAME AND GRATE CASTINGS
3-11-2015	REVISED NOTES AND ADDED CATCH BASIN TYPE G-4 AND TYPE G-5
3-01-2019	NOTED MAXIMUM HEIGHT, AND PROVIDED RIM ELEVATION AND OFFSET LOCATION FOR CATCH BASINS TYPE G-2, G-3, AND G-3 MODIFIED

SHEET 1 OF 4

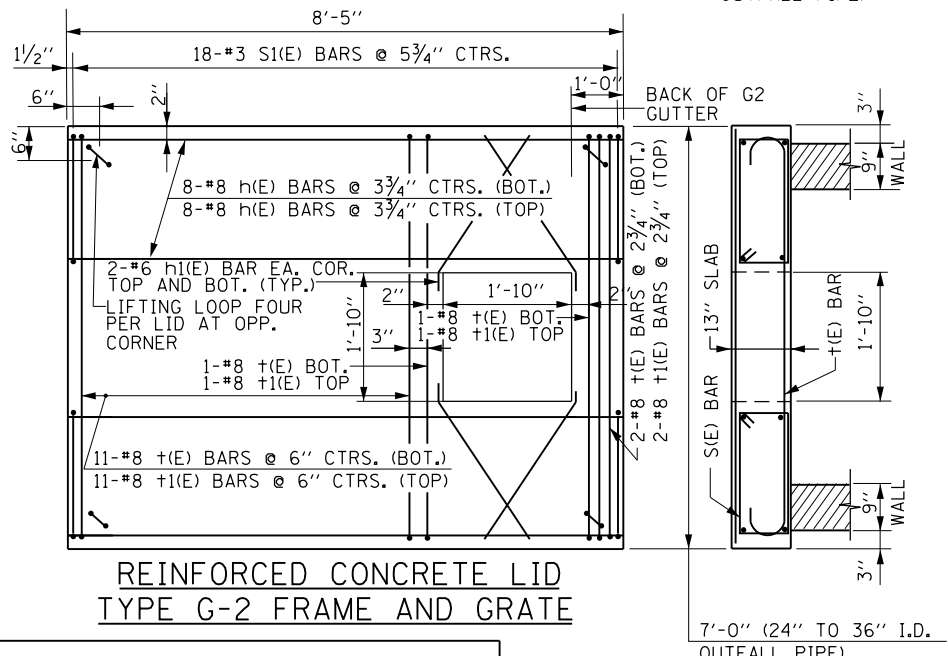
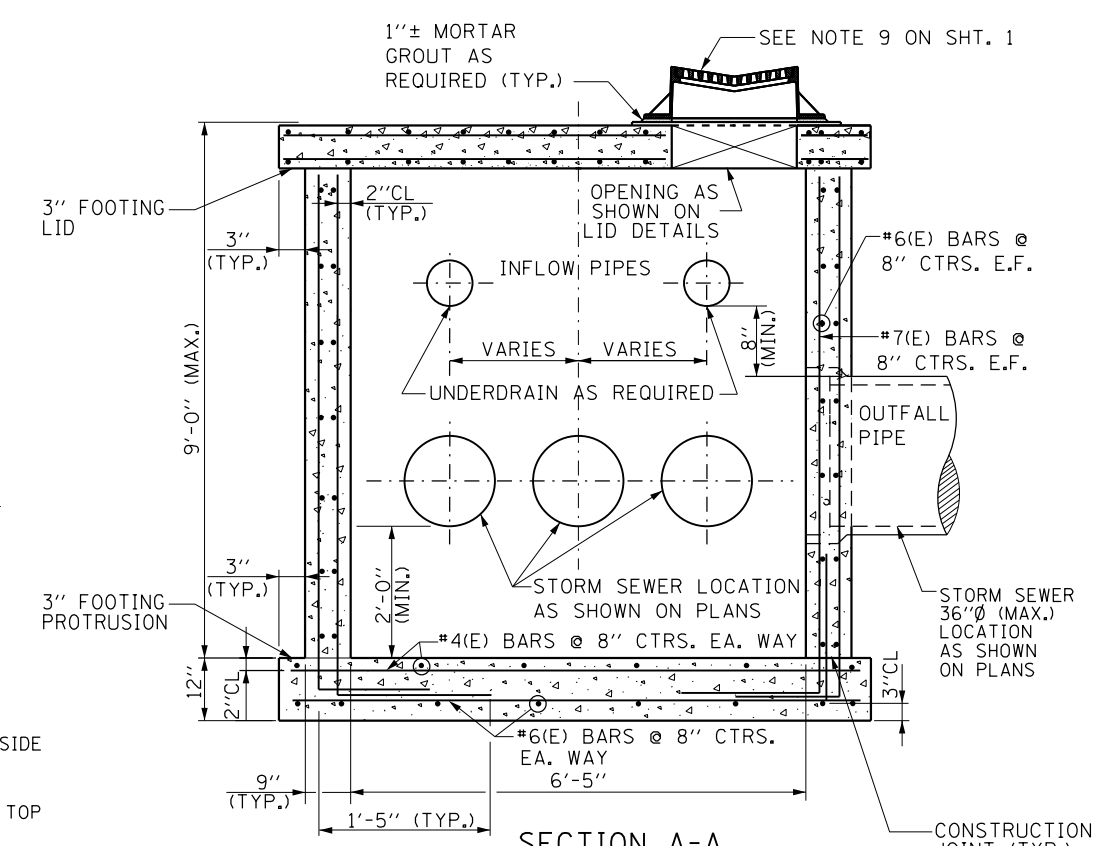
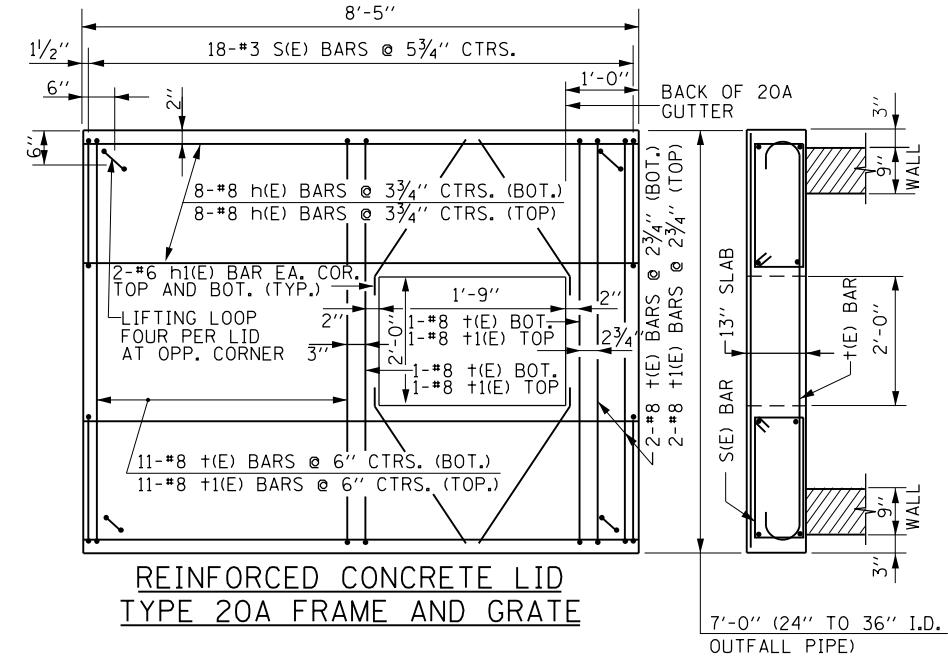
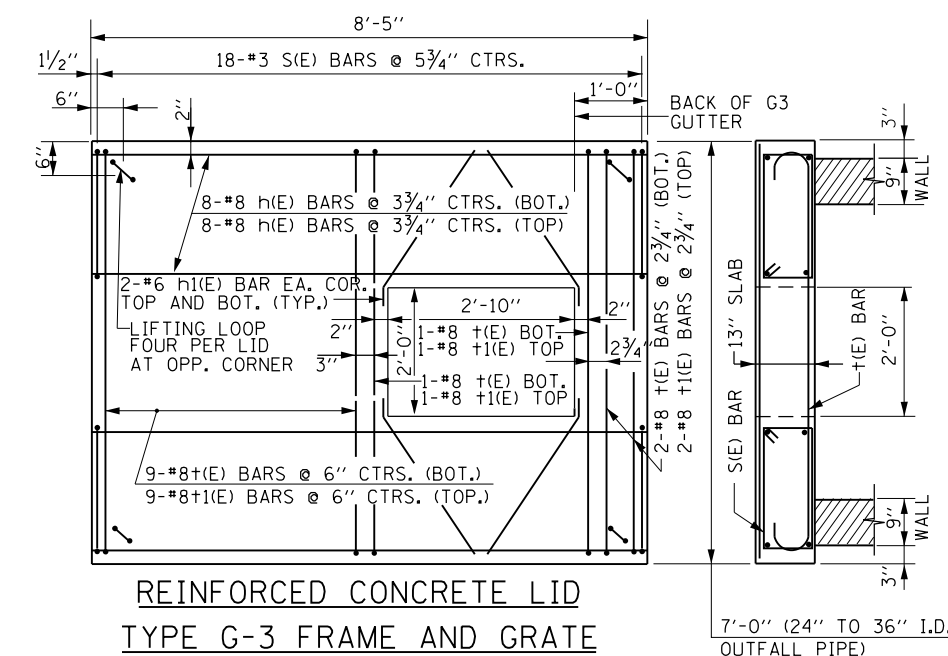
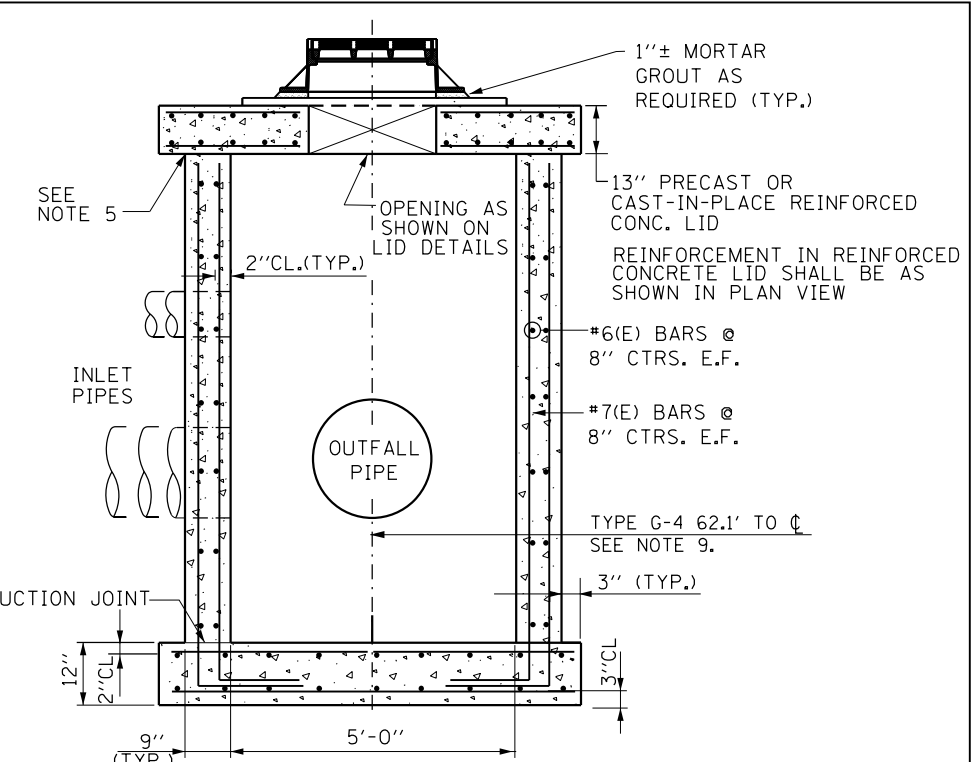
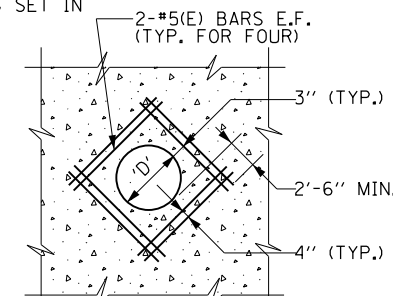
CATCH BASINS TYPE G AND TYPE G MODIFIED, FRAMES AND GRATES

STANDARD B8-06

APPROVED: *Paul Kovacs* DATE 6-1-2009
CHIEF ENGINEERING OFFICER



LIFTING LOOP TO BE 1/2"Øx270ksi STRANDS TO BE BURNED AFTER PRECAST CONCRETE LID IS SET IN PLACE.



CATCH BASIN TYPE G-4

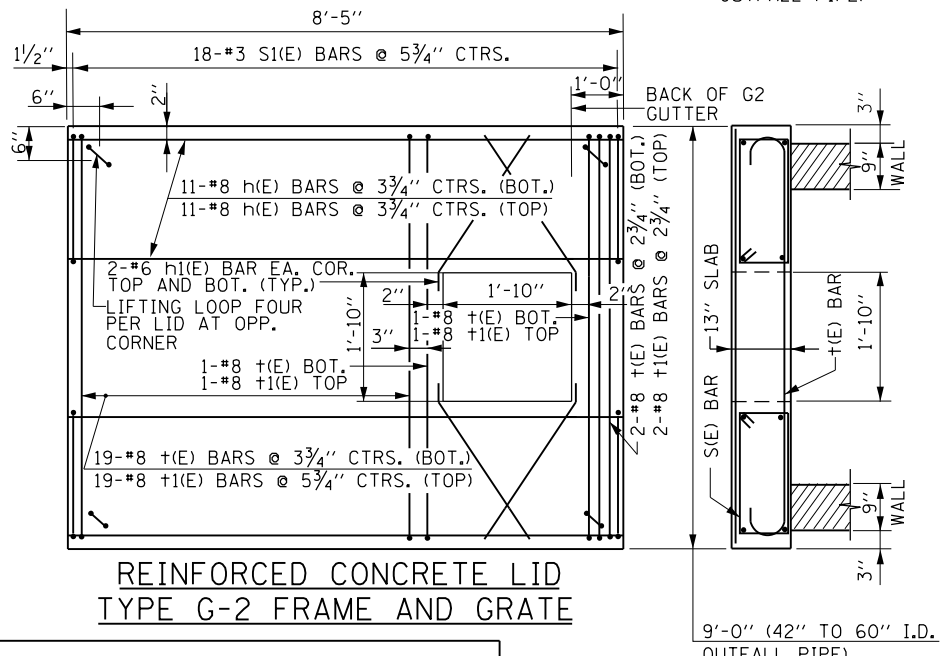
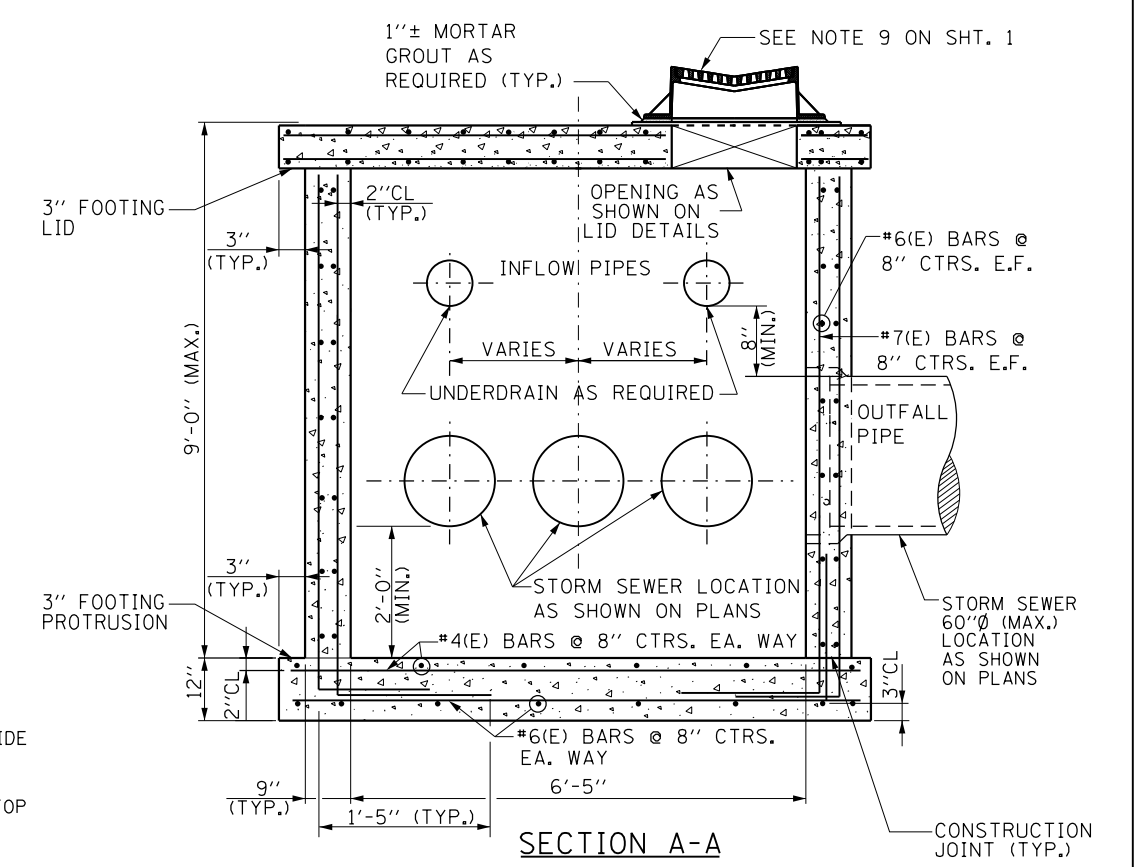
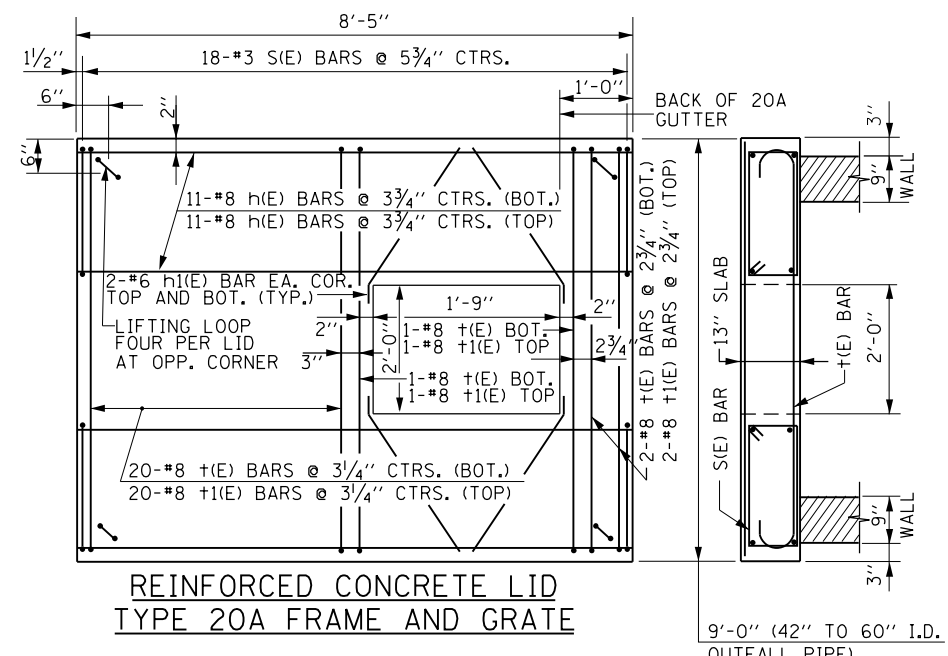
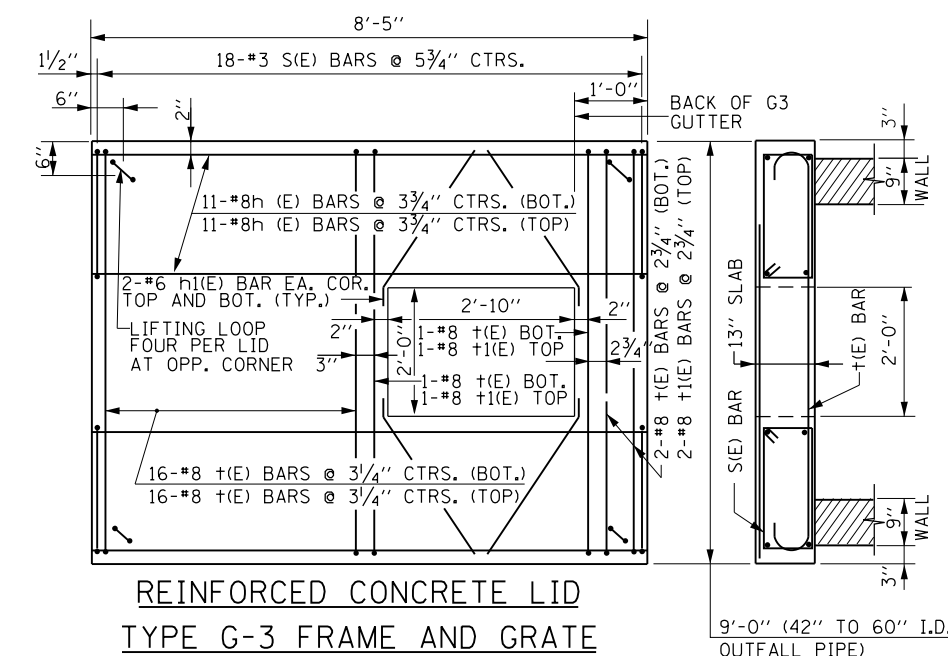
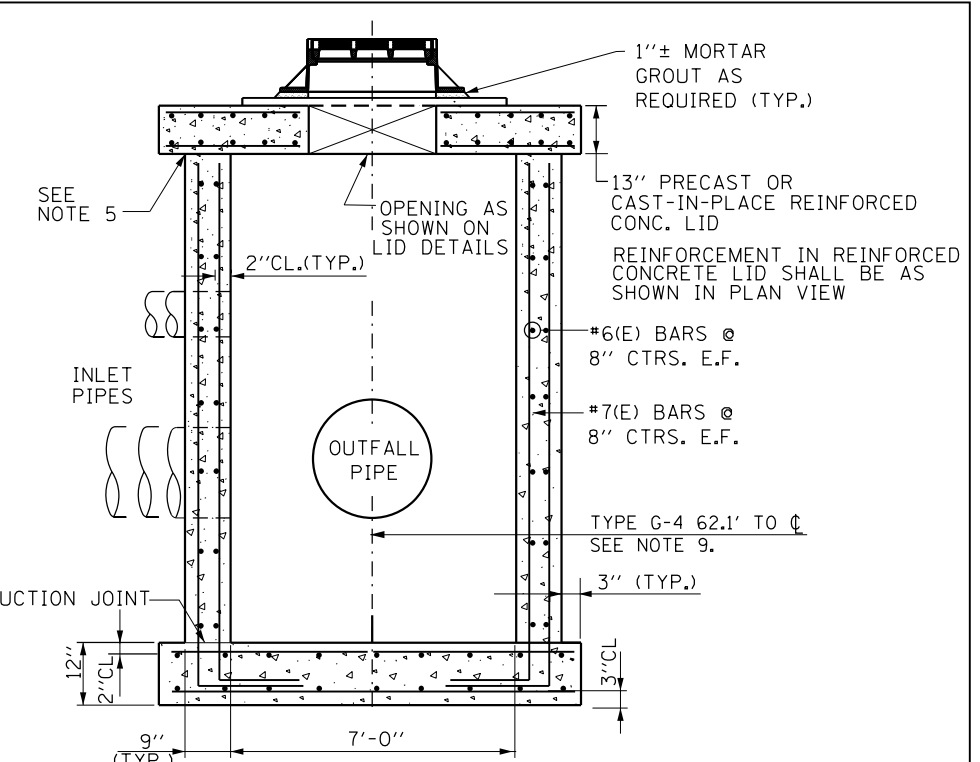
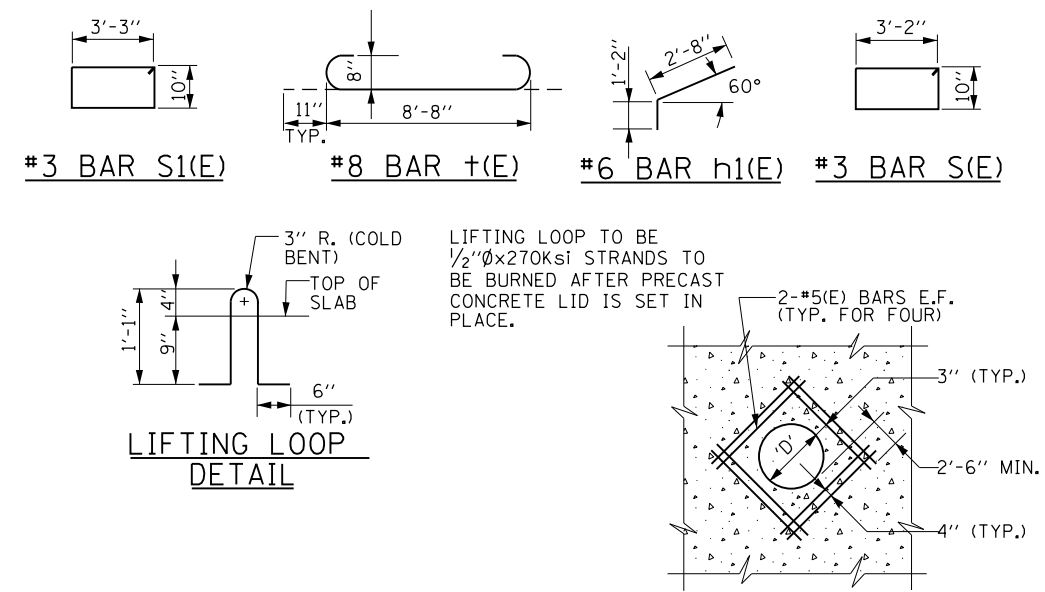
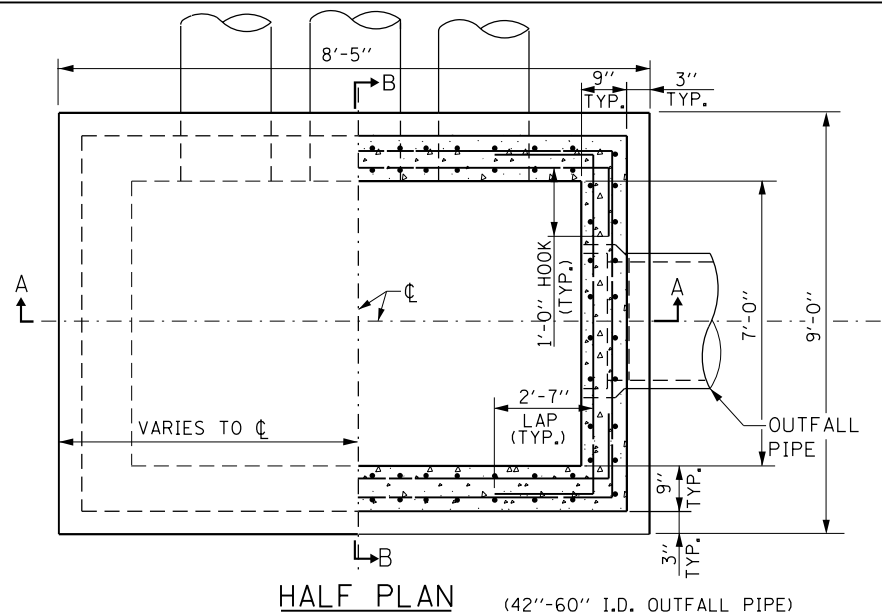
- NOTES:**
- SEE SHEET 1 OF THIS SERIES FOR ADDITIONAL NOTES.
 - CATCH BASINS TYPE G-4 SHALL BE USED IN TANGENT SECTIONS AND ON THE LOW SIDE OF SUPERELEVATED PAVEMENT.
 - CATCH BASINS TYPE G-4 SHALL BE PROVIDED WITH A REINFORCED CONCRETE SLAB TOP AS DETAILED ON THIS DRAWING.
 - CATCH BASINS TYPE G-4 SHALL BE USED WHEN GUTTER, TYPE G-3 IS PROVIDED.
 - MORTAR OR SEALER SHALL BE USED WHEN A PRECAST REINFORCED CONCRETE LID IS USED.
 - FRAME AND GRATE RIM ELEVATION AND OFFSET MEASURED AT THE EDGE OF SHOULDER.
 - 36"Ø MAX. OUTFALL PIPE FOR TYPE G-4 CATCH BASIN.
 - ALL CONCRETE SHALL BE CLASS SI CONCRETE.
 - DISTANCE FROM ϕ OUTFALL PIPE TO ϕ ROADWAY TO BE VERIFIED BY ENGINEER.



CATCH BASINS TYPE G AND TYPE G MODIFIED, FRAMES AND GRATES

STANDARD B8-06

APPROVED: *Paul Kovacs* DATE: 6-1-2009
CHIEF ENGINEERING OFFICER



CATCH BASIN TYPE G-5

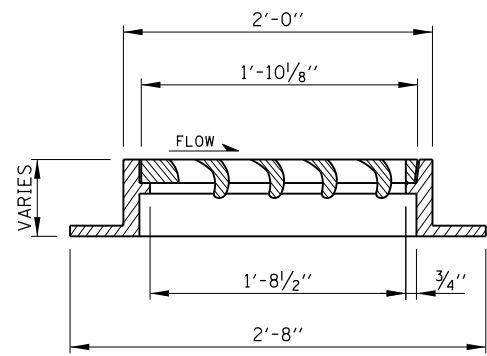
- NOTES:**
- SEE SHEET 1 OF THIS SERIES FOR ADDITIONAL NOTES.
 - CATCH BASINS TYPE G-5 SHALL BE USED IN TANGENT SECTIONS AND ON THE LOW SIDE OF SUPERELEVATED PAVEMENT.
 - CATCH BASINS TYPE G-5 SHALL BE PROVIDED WITH A REINFORCED CONCRETE SLAB TOP AS DETAILED ON THIS DRAWING.
 - CATCH BASINS TYPE G-5 SHALL BE USED WHEN GUTTER, TYPE G-3 IS PROVIDED.
 - MORTAR OR SEALER SHALL BE USED WHEN A PRECAST REINFORCED CONCRETE LID IS USED.
 - FRAME AND GRATE RIM ELEVATION AND OFFSET MEASURED AT THE EDGE OF SHOULDER.
 - 60"Ø MAX. OUTFALL PIPE FOR TYPE G-5 CATCH BASIN.
 - ALL CONCRETE SHALL BE CLASS S1 CONCRETE.
 - DISTANCE FROM ϕ OUTFALL PIPE TO ϕ ROADWAY TO BE VERIFIED BY ENGINEER.



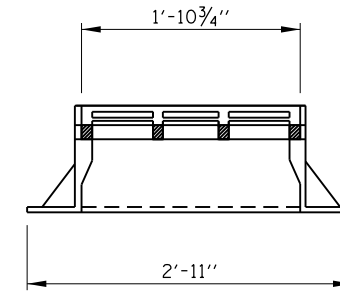
CATCH BASINS TYPE G AND TYPE G MODIFIED, FRAMES AND GRATES

STANDARD B8-06

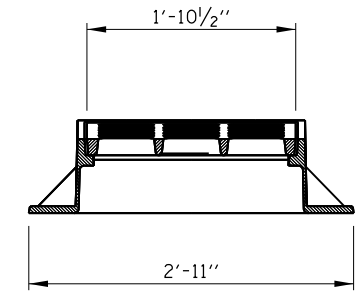
APPROVED: *Paul Kovacs* DATE: 6-1-2009
CHIEF ENGINEERING OFFICER



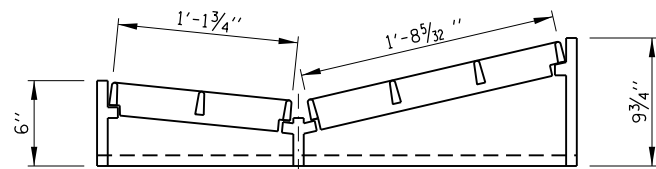
SECTION T-T



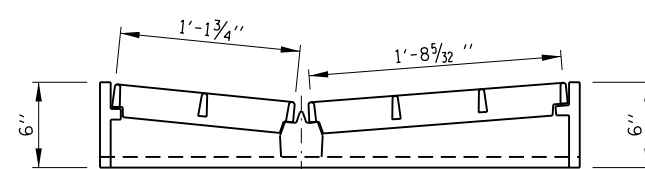
SECTION Y-Y



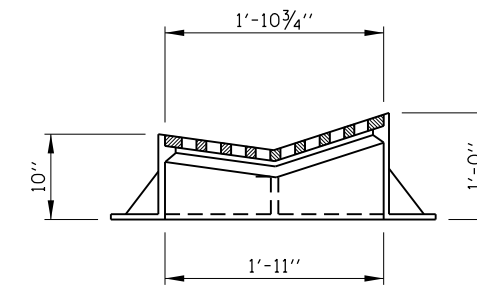
SECTION S-S



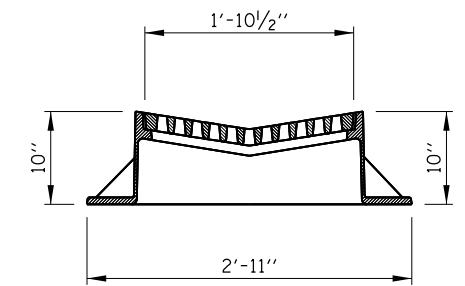
SECTION U-U



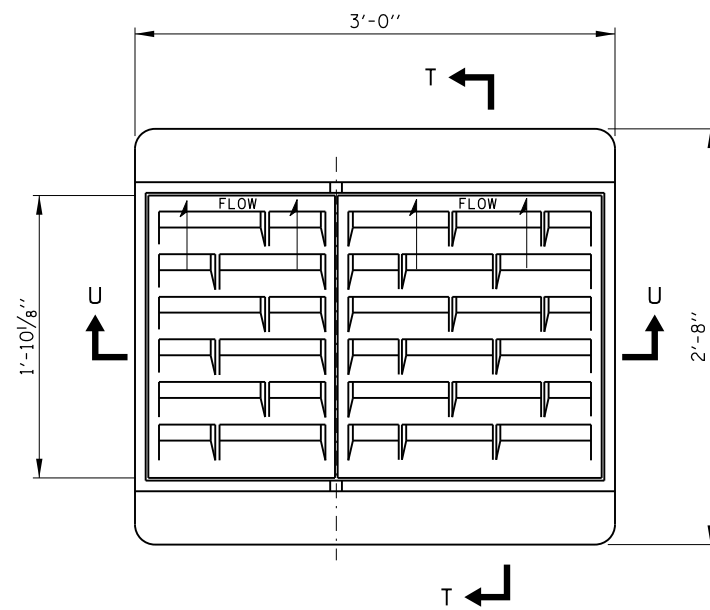
SECTION W-W



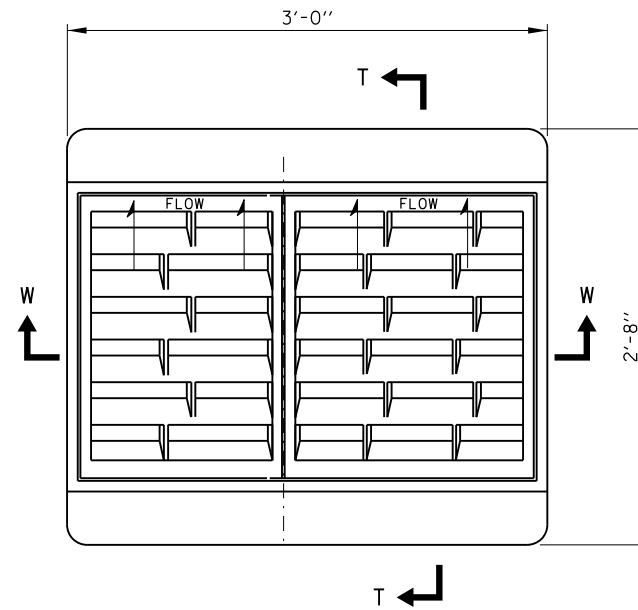
SECTION Z-Z



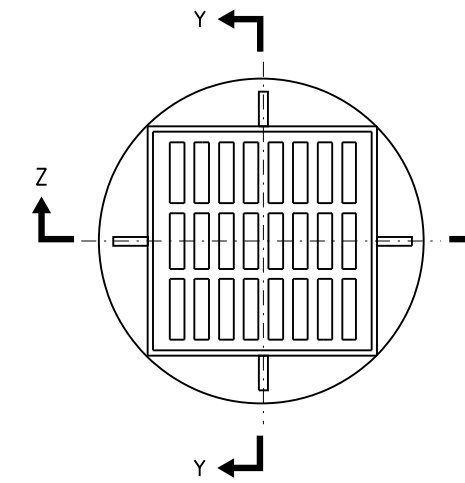
SECTION V-V



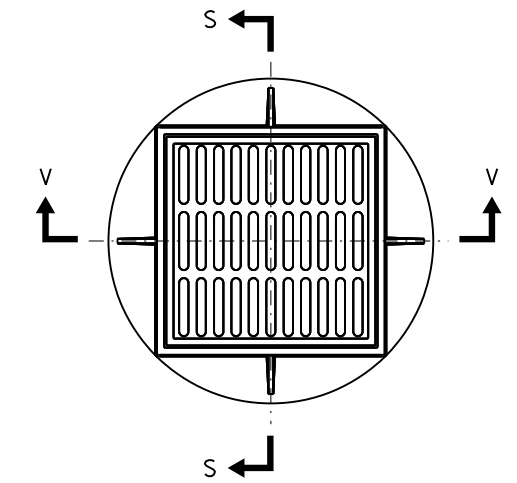
TYPE G-3 FRAME & GRATE



TYPE G-3, MODIFIED
FRAME & GRATE



TYPE G-2 FRAME & GRATE



TYPE G-2 MODIFIED
FRAME & GRATE

APPROVED: *Paul Kovacs* DATE: 6-1-2009
CHIEF ENGINEERING OFFICER

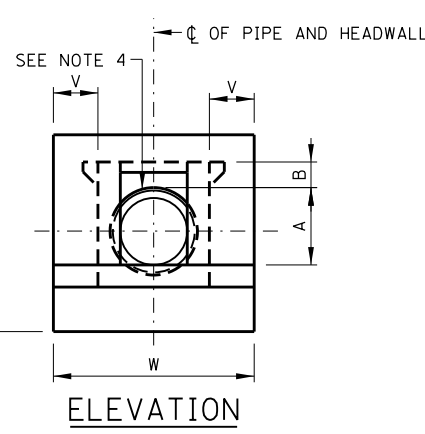
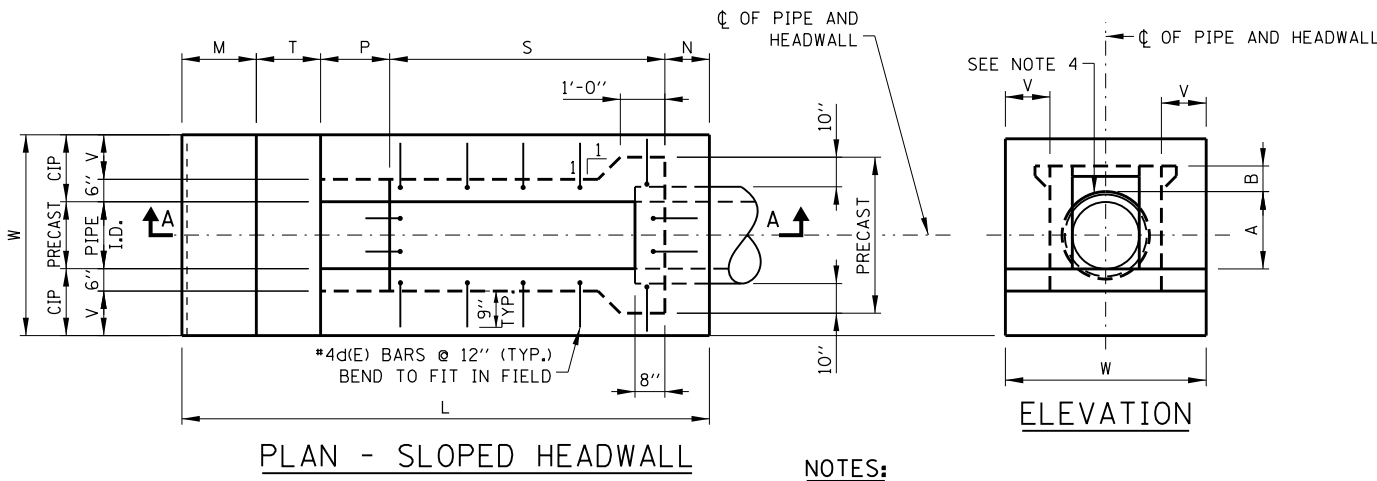
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.



CATCH BASINS TYPE G AND
TYPE G MODIFIED, FRAMES
AND GRATES

STANDARD B8-06

**DIMENSIONS AND QUANTITIES
FOR ONE SLOPED HEADWALL TYPE III**

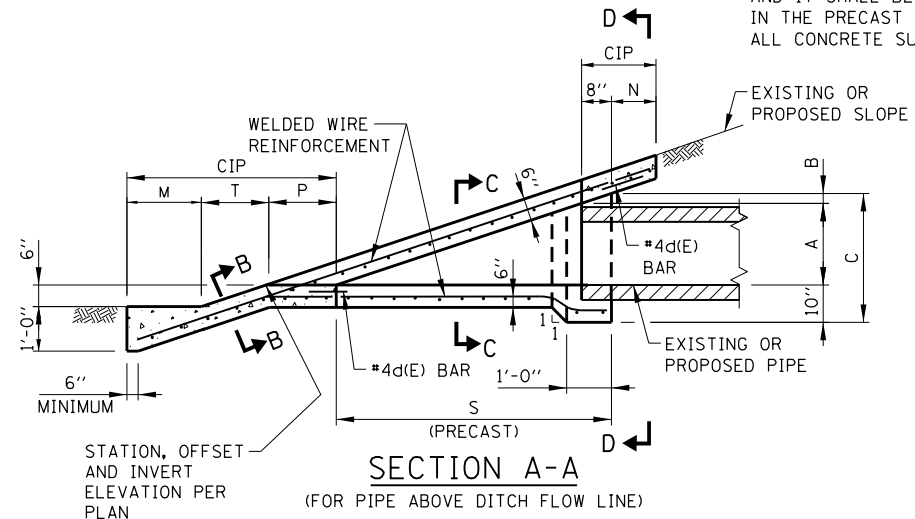


PLAN - SLOPED HEADWALL

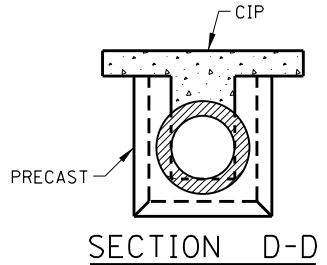
ELEVATION

NOTES:

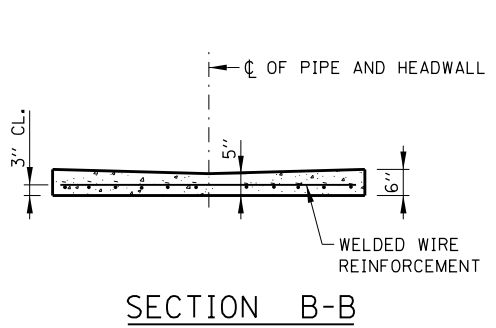
EACH #4d(E) BAR SHALL BE PLACED SUCH THAT IT WILL PROJECT 9" INTO THE CAST IN PLACE (CIP) CONCRETE AND IT SHALL BE 3" BELOW THE TOP SURFACE. HOOKS IN THE PRECAST SECTION SHALL BE TIPPED TO CLEAR ALL CONCRETE SURFACES A MIN. OF 2".



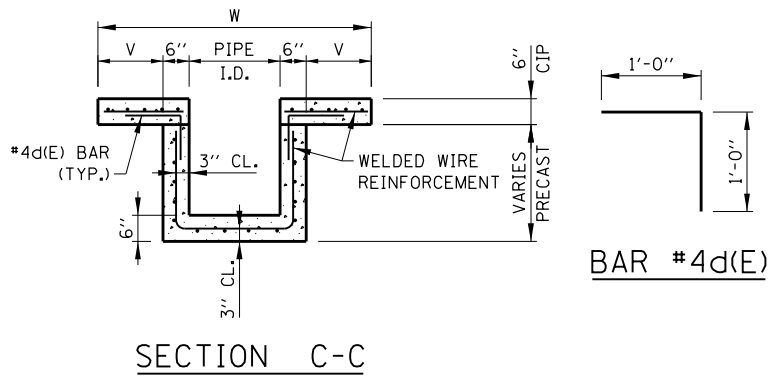
**SECTION A-A
(FOR PIPE ABOVE DITCH FLOW LINE)**



SECTION D-D



SECTION B-B



SECTION C-C

BAR #4d(E)

PIPE I.D.	DIMENSIONS											PRE CAST CONC. CU. YD.	CAST-IN-PLACE CU. YD.	WELDED WIRE REINFORCEMENT SQ. YD.	REINFORCEMENT BARS				
	A	B	C	N	M	T	P	S	L	V	W				MARK(E)	SIZE	NO.	LENGTH	LB.
6"	9"	2 3/4"	1'-9 3/4"	1'-0"	1'-8"	1'-6"	1'-6 3/4"	2'-11 1/4"	8'-8"	1'-0"	3'-6"	0.15	0.72	3.28	d6	#4	12	2'-0"	16
12"	1'-3 1/2"	2 3/4"	2'-4 1/4"	1'-0"	1'-8"	1'-6"	1'-6 3/4"	4'-6 3/4"	10'-3 1/2"	1'-0"	4'-0"	0.34	0.92	4.50	d12	#4	14	2'-0"	19
15"	1'-6 1/2"	2 3/4"	2'-7 1/4"	1'-0"	1'-8"	1'-6"	1'-6 3/4"	5'-3 3/4"	11'-1 1/2"	1'-0"	4'-3"	0.45	1.01	5.88	d15	#4	16	2'-0"	21
18"	1'-10"	2 3/4"	2'-10 3/4"	1'-0"	1'-8"	1'-6"	1'-6 3/4"	6'-2 1/4"	11'-11"	1'-0"	4'-6"	0.61	1.13	6.44	d18	#4	18	2'-0"	24
21"	2'-1"	2 3/4"	3'-1 3/4"	1'-0"	1'-9"	1'-6"	1'-6 3/4"	6'-11 1/4"	12'-9"	1'-3"	5'-3"	0.76	1.39	8.34	d21	#4	22	2'-0"	29
24"	2'-4 1/2"	2 3/4"	3'-5 1/4"	1'-0"	2'-0"	1'-6"	1'-6 3/4"	7'-9 3/4"	13'-10 1/2"	1'-6"	6'-0"	0.95	1.72	9.85	d24	#4	24	2'-0"	32
27"	2'-7 1/2"	2 3/4"	3'-8 1/4"	1'-1 1/2"	2'-3"	1'-6"	1'-6 3/4"	8'-6 3/4"	15'-0"	1'-9"	6'-9"	1.14	2.07	13.54	d27	#4	24	2'-0"	32
30"	2'-11"	2 3/4"	3'-11 3/4"	1'-3"	2'-6"	1'-6"	1'-6 3/4"	9'-5 1/4"	16'-3"	2'-0"	7'-6"	1.38	2.46	16.40	d30	#4	26	2'-0"	35

PIPE I.D.	DIMENSIONS											PRE CAST CONC. CU. YD.	CAST-IN-PLACE CU. YD.	WELDED WIRE REINFORCEMENT SQ. YD.	REINFORCEMENT BARS				
	A	B	C	N	M	T	P	S	L	V	W				MARK(E)	SIZE	NO.	LENGTH	LB.
6"	9"	2"	1'-9"	1'-0"	1'-8"	2'-0"	2'-1"	3'-8"	10'-5"	1'-0"	3'-6"	0.17	0.83	4.07	d6	#4	12	2'-0"	16
12"	1'-3 1/2"	2"	2'-3 1/2"	1'-0"	1'-8"	2'-0"	2'-1"	5'-10"	12'-7"	1'-0"	4'-0"	0.41	1.07	5.50	d12	#4	16	2'-0"	21
15"	1'-6 1/2"	2"	2'-6 1/2"	1'-0"	1'-8"	2'-0"	2'-1"	6'-10"	13'-7"	1'-0"	4'-3"	0.55	1.18	6.63	d15	#4	18	2'-0"	24
18"	1'-10"	2"	2'-10"	1'-0"	1'-8"	2'-0"	2'-1"	8'-0"	14'-9"	1'-0"	4'-6"	0.74	1.32	8.60	d18	#4	22	2'-0"	29
21"	2'-1"	2"	3'-1"	1'-0"	1'-9"	2'-0"	2'-1"	9'-0"	15'-10"	1'-3"	5'-3"	0.93	1.63	11.03	d21	#4	24	2'-0"	32
24"	2'-4 1/2"	2"	3'-4 1/2"	1'-0"	2'-0"	2'-0"	2'-1"	10'-2"	17'-3"	1'-6"	6'-0"	1.18	2.00	13.88	d24	#4	28	2'-0"	37
27"	2'-7 1/2"	2"	3'-7 1/2"	1'-1 1/2"	2'-3"	2'-0"	2'-1"	11'-2"	18'-7 1/2"	1'-9"	6'-9"	1.42	2.41	14.83	d27	#4	30	2'-0"	40
30"	2'-11"	2"	3'-11"	1'-3"	2'-6"	2'-0"	2'-1"	12'-4"	20'-2"	2'-0"	7'-6"	1.71	2.87	20.49	d30	#4	32	2'-0"	43

PIPE I.D.	DIMENSIONS											PRE CAST CONC. CU. YD.	CAST-IN-PLACE CU. YD.	WELDED WIRE REINFORCEMENT SQ. YD.	REINFORCEMENT BARS				
	A	B	C	N	M	T	P	S	L	V	W				MARK(E)	SIZE	NO.	LENGTH	LB.
6"	9"	1 1/2"	1'-8 1/2"	1'-0"	1'-8"	3'-0"	3'-0"	5'-3"	13'-11"	1'-0"	3'-6"	0.23	1.07	5.29	d6	#4	16	2'-0"	21
12"	1'-3 1/2"	1 1/2"	2'-3"	1'-0"	1'-8"	3'-0"	3'-0"	8'-6"	17'-2"	1'-0"	4'-0"	0.57	1.38	8.62	d12	#4	22	2'-0"	29
15"	1'-6 1/2"	1 1/2"	2'-6"	1'-0"	1'-8"	3'-0"	3'-0"	10'-0"	18'-8"	1'-0"	4'-3"	0.77	1.53	10.35	d15	#4	26	2'-0"	35
18"	1'-10"	1 1/2"	2'-9 1/2"	1'-0"	1'-8"	3'-0"	3'-0"	11'-9"	20'-5"	1'-0"	4'-6"	1.04	1.70	12.47	d18	#4	28	2'-0"	37
21"	2'-1"	1 1/2"	3'-0 1/2"	1'-0"	1'-9"	3'-0"	3'-0"	13'-3"	22'-0"	1'-3"	5'-3"	1.31	2.11	15.77	d21	#4	34	2'-0"	45
24"	2'-4 1/2"	1 1/2"	3'-4"	1'-0"	2'-0"	3'-0"	3'-0"	15'-0"	24'-0"	1'-6"	6'-0"	1.66	2.59	17.62	d24	#4	38	2'-0"	51
27"	2'-7 1/2"	1 1/2"	3'-7"	1'-1 1/2"	2'-3"	3'-0"	3'-0"	16'-6"	25'-10 1/2"	1'-9"	6'-9"	1.99	3.11	24.10	d27	#4	40	2'-0"	53
30"	2'-11"	1 1/2"	3'-10 1/2"	1'-3"	2'-6"	3'-0"	3'-0"	18'-3"	28'-0"	2'-0"	7'-6"	2.41	3.70	29.13	d30	#4	44	2'-0"	59

NOTES:

- THE CAST IN PLACE (CIP) SLOPED HEADWALL SHALL BE CONSTRUCTED FLUSH WITH EXISTING OR PROPOSED SLOPE.
- CLASS SI CONCRETE SHALL BE USED THROUGHOUT.
- WELDED WIRE REINFORCEMENT SHALL BE EPOXY COATED 6x6-W4xW4, 58 LBS. PER 100 SQ.FT.
- ALL REINFORCEMENT BARS SHOWN SHALL BE EPOXY COATED (E).
- BAR BENDING DETAILS ARE DIMENSIONED OUT TO OUT OF BARS.
- COVER FROM FACE OF CONCRETE TO FACE OF REINFORCEMENT BAR SHALL BE 3" FOR SURFACES FORMED AGAINST EARTH AND 2" FOR ALL OTHER SURFACES UNLESS OTHERWISE SHOWN.
- PRECAST UNIT USE IS OPTIONAL. THE ENTIRE STRUCTURE MAY BE CAST IN PLACE.
- AFTER THE PRECAST SLOPED HEADWALL HAS BEEN PLACED, THE SPACE BETWEEN THE HEADWALL AND PIPE SHALL BE COMPLETELY FILLED WITH AN APPROVED NON-SHRINK GROUT WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5000 PSI.
- THE SLOPED HEADWALL DETAILS SHOWN ON THIS DRAWING ARE FOR USE ONLY WITH PIPES HAVING DIAMETER OR SPAN OF 30" OR LESS.
- ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
- I.D. DENOTES INSIDE DIAMETER OF PIPE. O.D. DENOTES OUTSIDE DIAMETER OF PIPE.

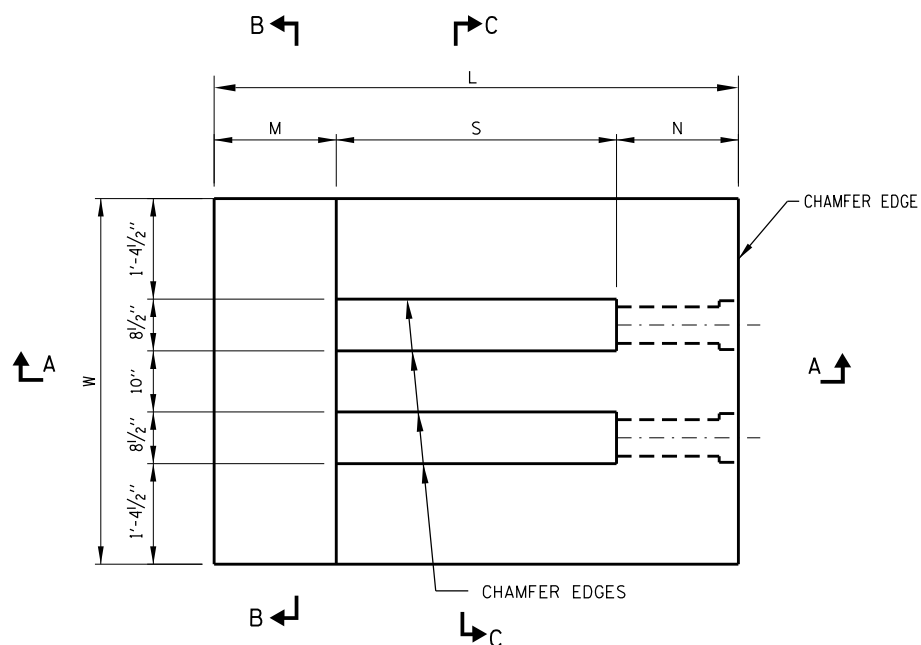


**SLOPED HEADWALLS
TYPE III DETAILS**

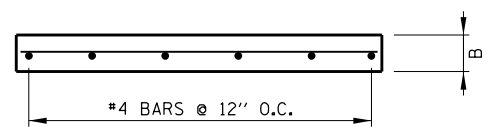
STANDARD B10-10

DATE	REVISIONS
3-31-2014	REVISED QUANTITIES
3-11-2015	REVISED TABLES AND SECTIONS
3-31-2016	CHANGED TERMINOLOGY TO WELDED WIRE REINFORCEMENT
3-31-2017	REVISED TABLE (L)
3-01-2019	ADDED DOUBLE SLOPED HEADWALL TYPE III

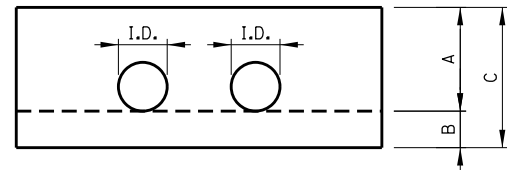
Paul Kovacs
APPROVED... DATE 2-7-2012...
CHIEF ENGINEERING OFFICER



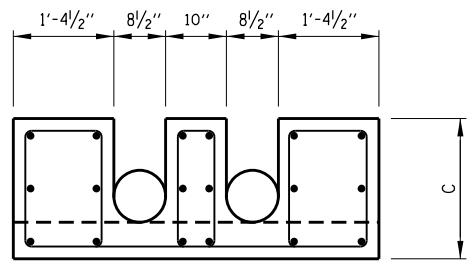
PLAN - DOUBLE SLOPED HEADWALL



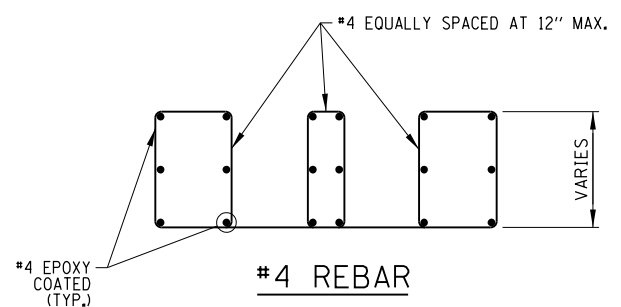
SECTION B-B



ELEVATION



SECTION C-C



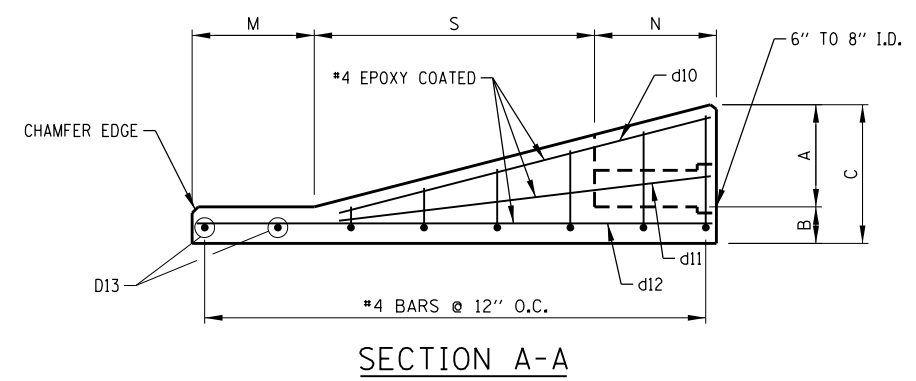
NOTES:

1. THE DOUBLE SLOPED HEADWALL SHALL BE CONSTRUCTED FLUSH WITH EXISTING OR PROPOSED SLOPE.
2. CLASS SI CONCRETE SHALL BE USED THROUGHOUT.
3. ALL REINFORCEMENT BARS SHOWN SHALL BE EPOXY COATED (E).
4. BAR BENDING DETAILS ARE DIMENSIONED OUT TO OUT OF BARS.
5. COVER FROM FACE OF CONCRETE TO FACE OF REINFORCEMENT BAR SHALL BE 3" FOR SURFACES FORMED AGAINST EARTH AND 2" FOR ALL OTHER SURFACES UNLESS OTHERWISE SHOWN.
6. PRECAST UNIT USE IS OPTIONAL. THE ENTIRE STRUCTURE MAY BE CAST IN PLACE.
7. AFTER THE PRECAST SLOPED HEADWALL HAS BEEN PLACED, THE SPACE BETWEEN THE HEADWALL AND PIPE SHALL BE COMPLETELY FILLED WITH AN APPROVED NON-SHRINK GROUT WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5000 PSI.
8. THE DOUBLE SLOPED HEADWALL DETAILS SHOWN ON THIS DRAWING ARE FOR USE ONLY WITH PIPES HAVING DIAMETER OR SPAN OF 8" OR LESS.
9. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
10. I.D. DENOTES INSIDE DIAMETER OF PIPE.

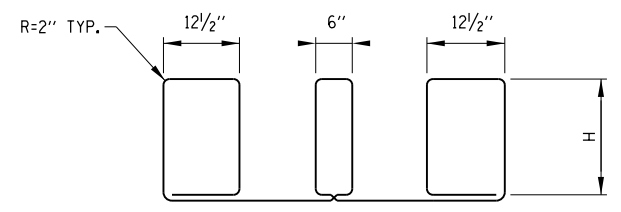
STIRRUP HEIGHT TABLE FOR DOUBLE SLOPED HEADWALL TYPE III

1 TO 3 SLOPE AND C=1'-11"		1 TO 4 SLOPE AND C=1'-11"		1 TO 6 SLOPE AND C=1'-11"	
	STIRRUP HEIGHT, H		STIRRUP HEIGHT, H		STIRRUP HEIGHT, H
d1 E	17'-6"	d1 E	17'-7"	d1 E	17'-8 1/4"
d2 E	14'-4 3/4"	d2 E	15'-3/4"	d2 E	15'-10 1/2"
d3 E	11'-3 3/4"	d3 E	12'-6 3/4"	d3 E	14'-1/4"
d4 E	8'-2 3/4"	d4 E	10'-1/2"	d4 E	12'-2 1/4"
d5 E	5'-1 1/2"	d5 E	7'-6"	d5 E	10'-4 1/4"
		d6 E	5'-0"	d6 E	8'-6"
				d7 E	6'-8 1/4"
				d8 E	4'-10"

1 TO 3 SLOPE AND C=2'-1"		1 TO 4 SLOPE AND C=2'-1"		1 TO 6 SLOPE AND C=2'-1"	
	STIRRUP HEIGHT, H		STIRRUP HEIGHT, H		STIRRUP HEIGHT, H
d1 E	19'-6"	d1 E	19'-7"	d1 E	19'-8 1/4"
d2 E	16'-4 3/4"	d2 E	17'-3/4"	d2 E	17'-10 1/2"
d3 E	13'-3 3/4"	d3 E	14'-6 3/4"	d3 E	16'-1/4"
d4 E	10'-2 3/4"	d4 E	12'-1/2"	d4 E	14'-2 1/4"
d5 E	7'-1 1/2"	d5 E	9'-6"	d5 E	12'-4 1/4"
d6 E	4'-1/2"	d6 E	7'-0"	d6 E	10'-6"
		d7 E	4'-5 3/4"	d7 E	8'-8 1/4"
				d8 E	6'-10"
				d9 E	5'-0"



SECTION A-A



d1 THROUGH d9 BAR BENT

APPROVED: *Paul Kovacs* DATE: 2-7-2012
CHIEF ENGINEERING OFFICER



	PIPE I.D.	DIMENSIONS								PRECAST CONCRETE CU YD	MARK	SIZE	NO	LENGTH	LB
		A	B	C	N	S	M	L	W						
1 TO 3 SLOPE	(2) - 6" PIPE	1'-5"	6"	1'-11"	1'-8"	3'-10"	1'-8"	7'-2"	5'-0"	1.29	d1 E	#4	1	17'-4 3/4"	12
											d2 E	#4	1	15'-10 1/4"	11
											d3 E	#4	1	14'-3 1/2"	10
											d4 E	#4	1	12'-9 1/4"	9
											d5 E	#4	1	11'-2 1/2"	7
											d10 E	#4	6	4'-8"	19
											d11 E	#4	6	3'-10 3/4"	16
											d12 E	#4	6	6'-10"	27
	d13 E	#4	2	4'-8"	6										
	(2) - 8" PIPE OR (1) - 6" PIPE & (1) - 8" PIPE	1'-5"	8"	2'-1"	1'-8"	3'-10"	1'-8"	7'-2"	5'-0"	1.51	d1 E	#4	1	18'-4 3/4"	12
											d2 E	#4	1	16'-10 1/4"	11
											d3 E	#4	1	15'-3 1/2"	10
											d4 E	#4	1	13'-9 1/4"	9
d5 E											#4	1	12'-2 1/2"	8	
d6 E	#4	1	10'-8"	7											
d10 E	#4	6	5'-4"	21											
d11 E	#4	6	4'-6 1/2"	18											
d12 E	#4	6	6'-10"	27											
d13 E	#4	2	4'-8"	6											

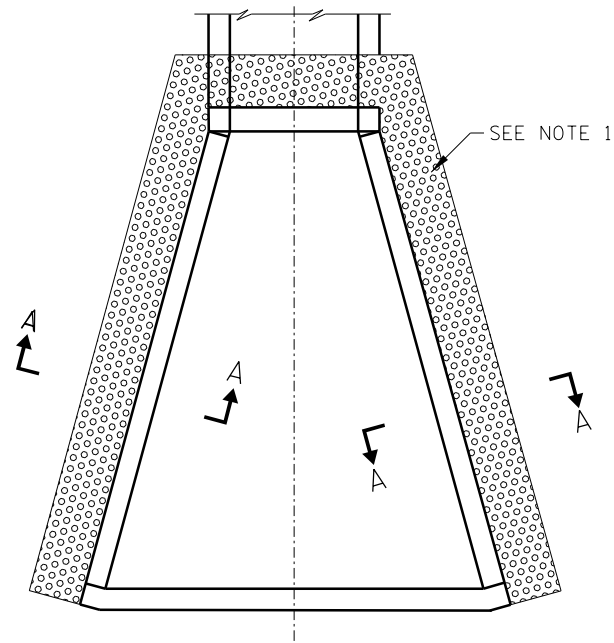
	PIPE I.D.	DIMENSIONS								PRECAST CONCRETE CU YD	MARK	SIZE	NO	LENGTH	LB
		A	B	C	N	S	M	L	W						
1 TO 6 SLOPE	(2) - 6" PIPE	1'-5"	6"	1'-11"	1'-8"	7'-7"	1'-8"	10'-11"	5'-0"	2.00	d1 E	#4	1	17'-6"	12
											d2 E	#4	1	16'-7"	11
											d3 E	#4	1	15'-8"	10
											d4 E	#4	1	14'-9"	10
											d5 E	#4	1	13'-10"	9
											d6 E	#4	1	12'-10 3/4"	9
											d7 E	#4	1	12'-0"	8
											d8 E	#4	1	11'-3/4"	7
											d10 E	#4	6	7'-9 3/4"	31
											d11 E	#4	6	6'-7 3/4"	27
											d12 E	#4	6	10'-7 1/4"	42
											d13 E	#4	2	4'-8"	6
											(2) - 8" PIPE OR (1) - 6" PIPE & (1) - 8" PIPE	1'-5"	8"	2'-1"	1'-8"
	d2 E	#4	1	17'-7"	12										
	d3 E	#4	1	16'-8"	11										
	d4 E	#4	1	15'-9"	11										
	d5 E	#4	1	14'-10"	10										
	d6 E	#4	1	13'-10 3/4"	9										
	d7 E	#4	1	13'-0"	9										
	d8 E	#4	1	12'-3/4"	8										
	d9 E	#4	1	11'-1 3/4"	7										
	d10 E	#4	6	8'-11"	36										
	d11 E	#4	6	7'-9"	31										
	d12 E	#4	6	10'-7 1/4"	42										
d13 E	#4	2	4'-8"	6											

	PIPE I.D.	DIMENSIONS								PRECAST CONCRETE CU YD	MARK	SIZE	NO	LENGTH	LB
		A	B	C	N	S	M	L	W						
1 TO 4 SLOPE	(2) - 6" PIPE	1'-5"	6"	1'-11"	1'-8"	5'-1"	1'-8"	8'-5"	5'-0"	1.53	d1 E	#4	1	17'-5 1/4"	12
											d2 E	#4	1	16'-2 1/4"	11
											d3 E	#4	1	14'-11"	10
											d4 E	#4	1	13'-8"	9
											d5 E	#4	1	12'-4 3/4"	8
											d6 E	#4	1	11'-1 3/4"	7
											d10 E	#4	6	5'-8 1/2"	23
											d11 E	#4	6	4'-9 3/4"	19
	d12 E	#4	6	8'-1 1/4"	32										
	d13 E	#4	2	4'-8"	6										
	(2) - 8" PIPE OR (1) - 6" PIPE & (1) - 8" PIPE	1'-5"	8"	2'-1"	1'-8"	5'-1"	1'-8"	8'-5"	5'-0"	1.79	d1 E	#4	1	18'-5 1/4"	12
											d2 E	#4	1	17'-2 1/4"	11
											d3 E	#4	1	15'-11"	11
d4 E											#4	1	14'-8"	10	
d5 E											#4	1	13'-4 3/4"	9	
d6 E	#4	1	12'-1 3/4"	8											
d7 E	#4	1	10'-10 3/4"	7											
d10 E	#4	6	6'-6 1/4"	26											
d11 E	#4	6	5'-7 1/4"	22											
d12 E	#4	6	8'-1 1/4"	32											
d13 E	#4	2	4'-8"	6											

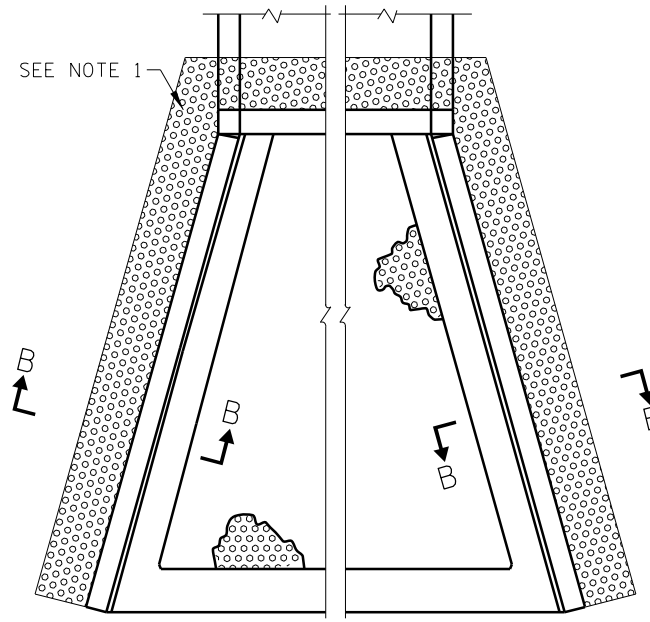
DIMENSIONS AND QUANTITIES
FOR DOUBLE SLOPED HEADWALL TYPE III

Paul Kovacs
APPROVED..... DATE 2-7-2012
CHIEF ENGINEERING OFFICER

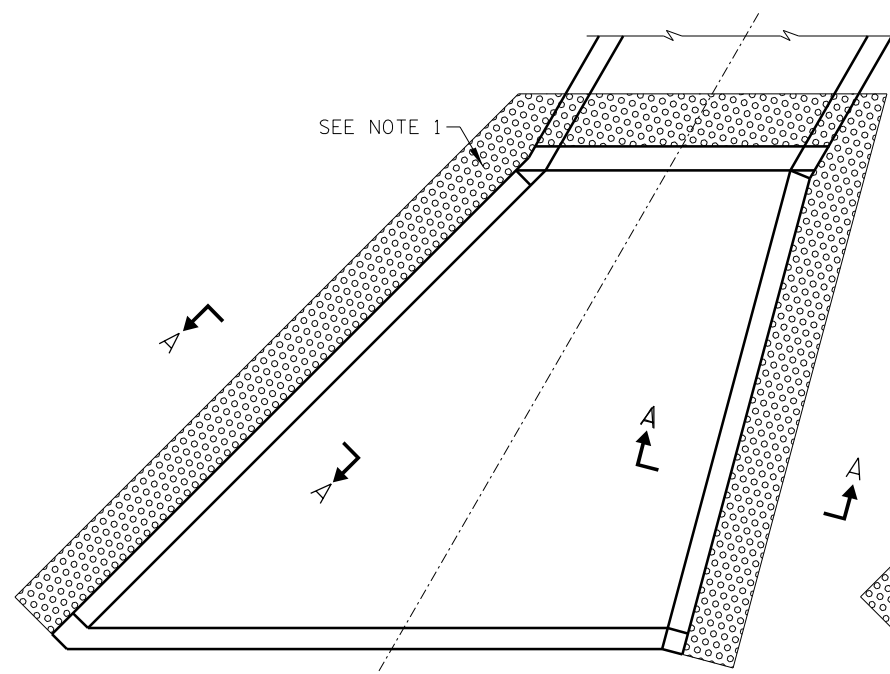




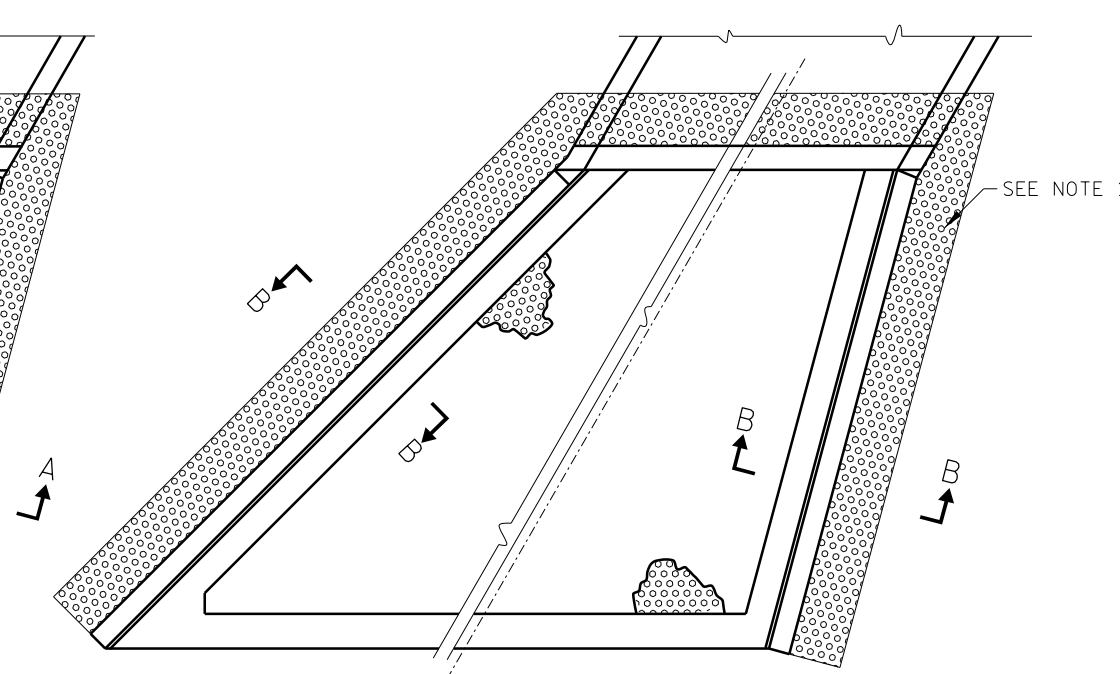
PLAN-0° SKEW, H ≤ 4'



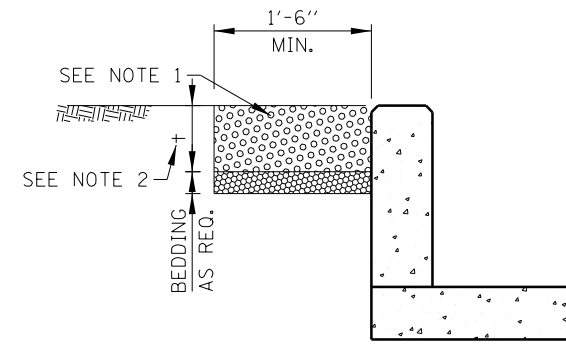
PLAN-0° SKEW, H ≤ 8'



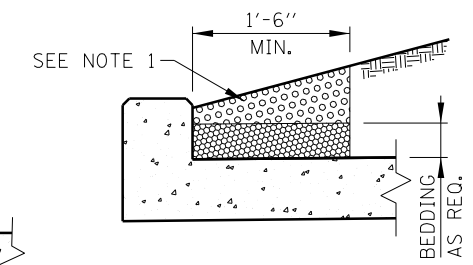
PLAN-SKEW, H ≤ 4'



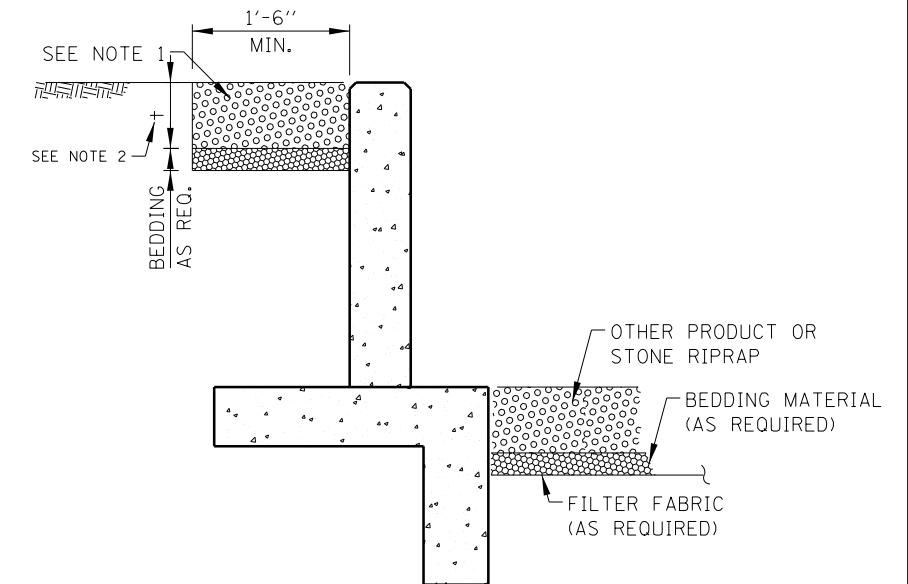
PLAN-SKEW, H ≤ 8'



SECTION A-A



SECTION AT HEADWALL



SECTION B-B

NOTES:

1. THE PREFERRED METHOD FOR ACHIEVING EROSION PROTECTION AT END SECTIONS SHOULD BE THROUGH THE USE OF PRODUCTS THAT PROMOTE REVEGETATION WITHIN THE AREA OF CONCERN.
2. THICKNESS "+" WILL BE DETERMINED BY THE MANUFACTURER'S RECOMMENDATION FOR THE PRODUCT USED.
3. EROSION PROTECTION PLACEMENT SHALL BE INSTALLED FLUSH WITH ADJACENT GRADE.
4. FOR USE WITH STANDARDS B10 TO B18.
5. STONE RIPRAP SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND DRAINAGE DESIGN MANUAL.

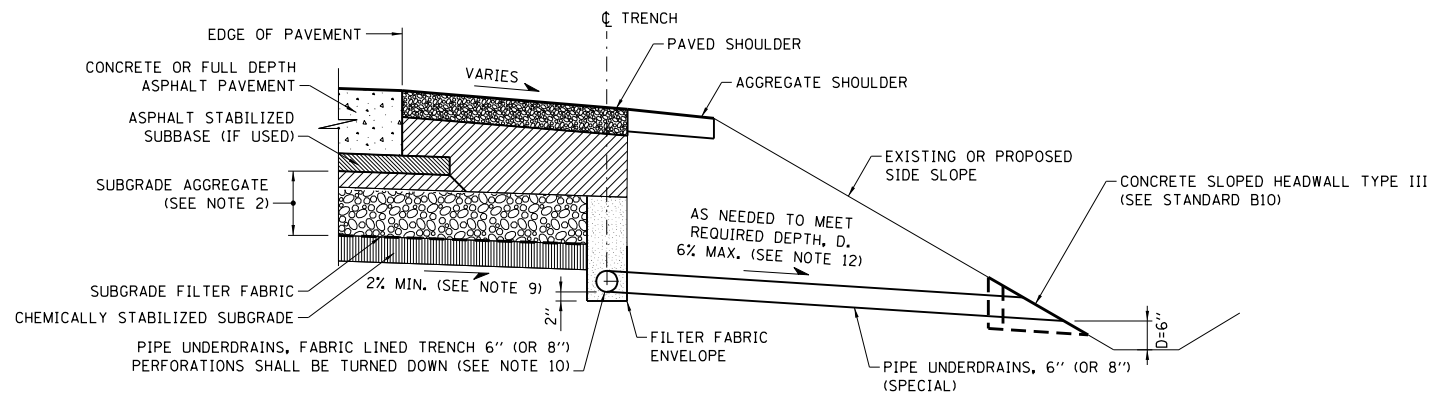
APPROVED *Paul Kovacs* CHIEF ENGINEER DATE 3-1-2010

DATE	REVISIONS
3-01-2010	REVISED EROSION PROTECTION AND NOTES
3-11-2015	REVISED NOTES

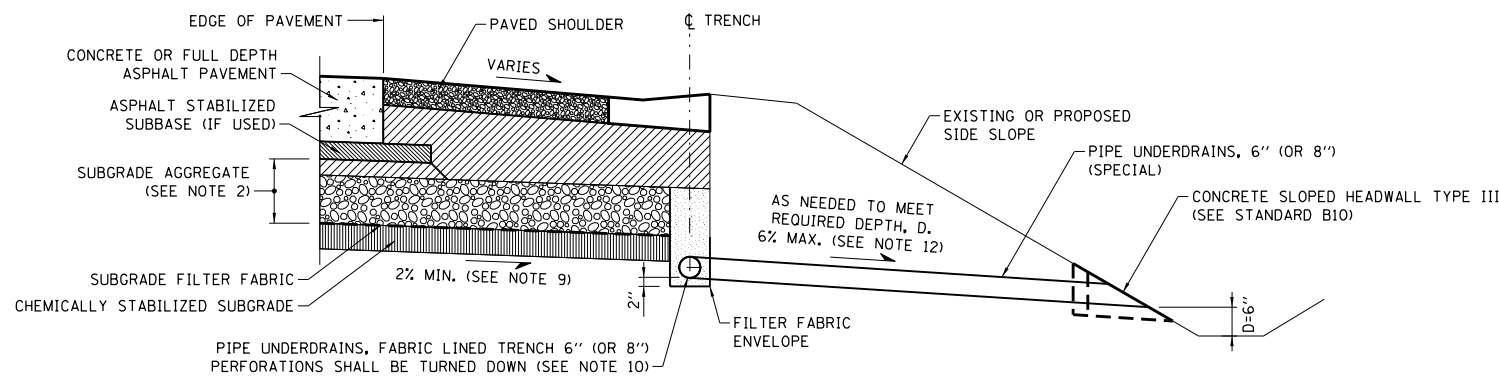


EROSION PROTECTION

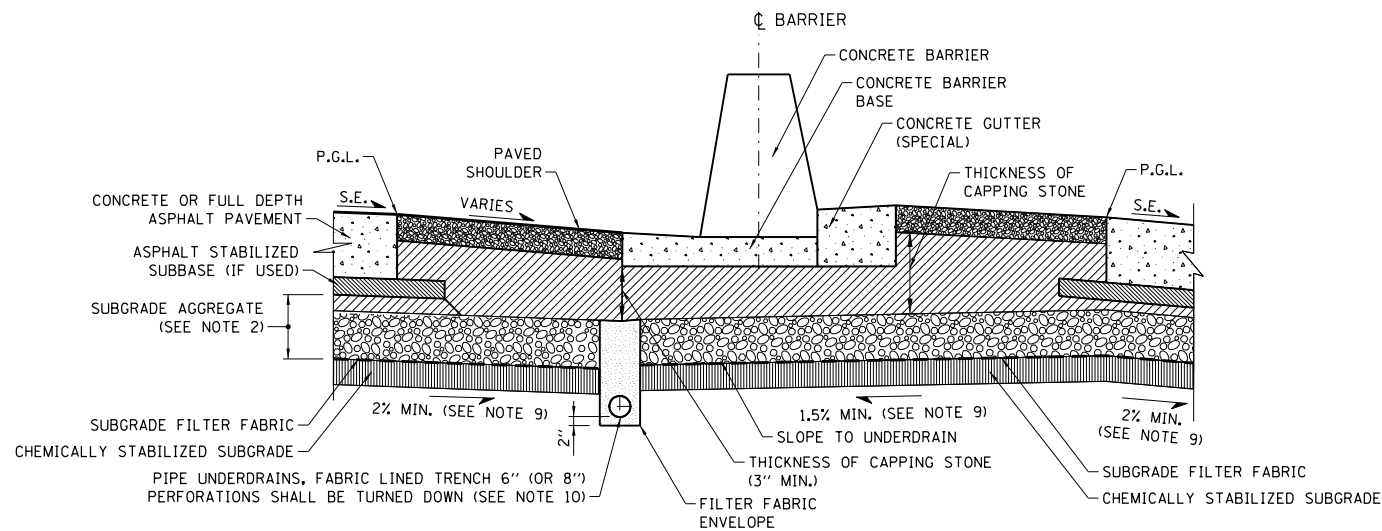
STANDARD B19-02



LOCATIONS WITHOUT GUTTER

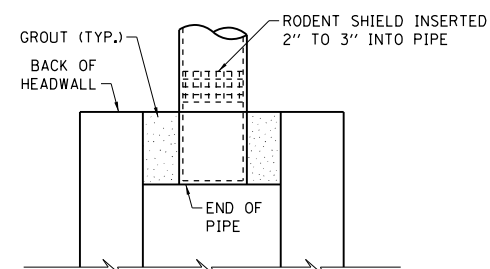


LOCATIONS WITH GUTTER

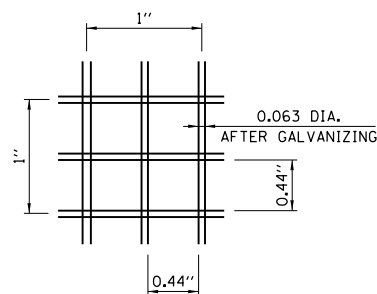


LOCATIONS WITH VARIABLE HEIGHT DOUBLE FACE BARRIER

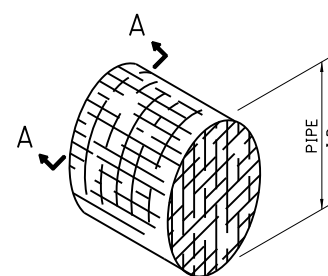
MAXIMUM ALLOWABLE DRAINAGE DISTANCE TO OUTLET OR SEPARATION DISTANCE BETWEEN OUTLETS	
ROADWAY PROFILE GRADE (%)	DISTANCE
≤ 1	250 FT.
BETWEEN 1 AND 2	375 FT.
≥ 2	500 FT. (NOTE 5)



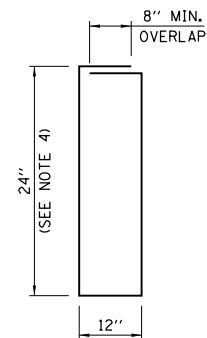
RODENT SHIELD PLACEMENT



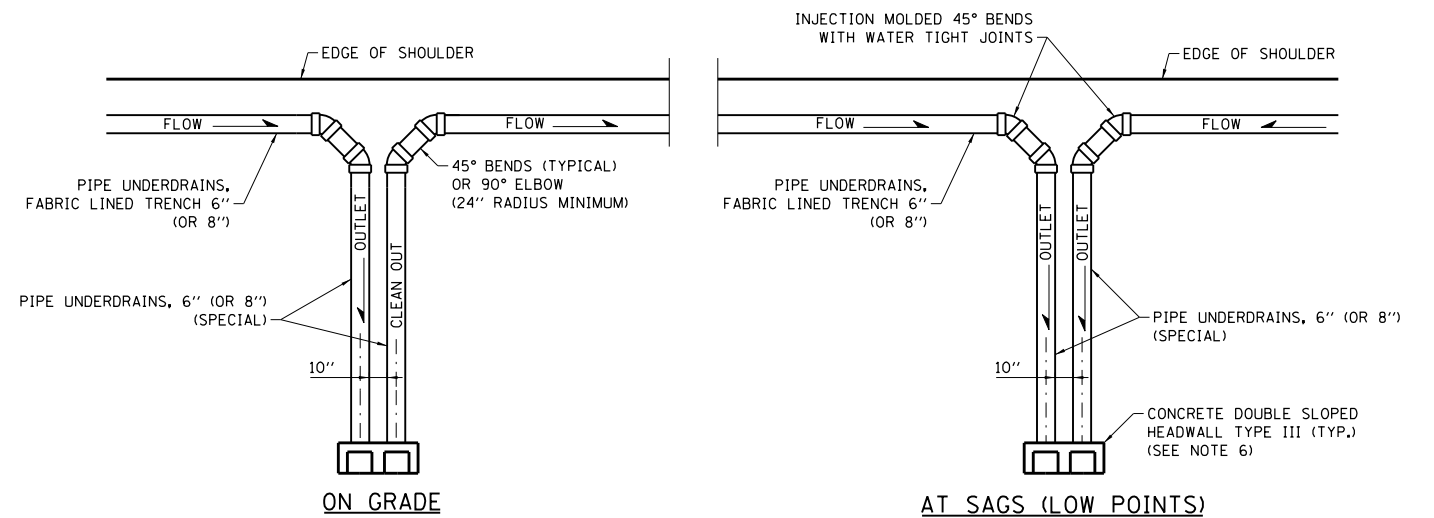
SECTION A-A



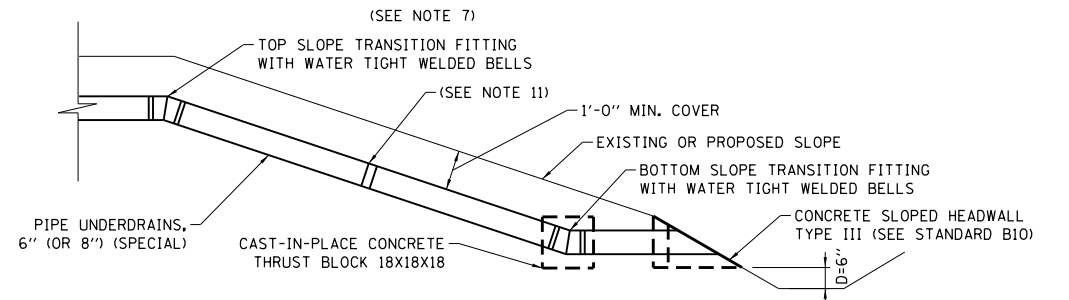
DETAIL OF RODENT SHIELD



FILTER FABRIC ENVELOPE



DETAIL OF PIPE UNDERDRAIN OUTLETS



DETAIL OF PIPE UNDERDRAIN OUTLET ON HIGH FILL SLOPE

NOTES FOR PIPE UNDERDRAIN

- FOR NEW CONSTRUCTION OR WIDENING PROJECTS, THE PIPE UNDERDRAIN INSTALLATION SHALL OCCUR AFTER SUBGRADE HAS BEEN PREPARED AND AFTER LIFT OF PGE BASE IS PLACED AND BEFORE 3" AND VARIES CA-6 CAPPING STONE IS PLACED. FOR PAVEMENT RUBBLIZATION PROJECTS, THE PIPE UNDERDRAIN SHALL BE INSTALLED PRIOR TO RUBBLIZATION.
- SUBGRADE AGGREGATE SHALL CONSIST OF A 3" AND VARIES CA-6 CAP ABOVE A PGE BASE, THICKNESS AS NOTED IN THE PLANS.
- ON SUPERELEVATED CURVES PLACE LONGITUDINAL UNDERDRAIN ON LOW SIDE ONLY.
- IN AREAS WHERE ROADWAY LONGITUDINAL GRADE IS LESS THAN 0.5%, DIMENSION WILL INCREASE AS NECESSARY TO MAINTAIN MINIMUM 0.5% SLOPE IN PIPE UNDERDRAIN.
- IF 500' MAXIMUM DISTANCE IS EXCEEDED, PIPE UNDERDRAIN SHALL BE INCREASED TO 8" DIAMETER AND TRENCH WIDTH INCREASED TO 16".
- AT OUTLET LOCATIONS, PIPE UNDERDRAINS SHALL SEPARATE SUFFICIENTLY TO PROVIDE SPACE FOR TWO CONCRETE SLOPED HEADWALLS, OR TWO PIPES CAN RUN PARALLEL INTO A DOUBLE SLOPED HEADWALL.
- IN AREAS WHERE A CLOSED DRAINAGE SYSTEM EXISTS, THE PIPE UNDERDRAIN, 6" (OR 8") (SPECIAL) SHALL DRAIN TO THE NEAREST CATCH BASIN. THE UPPER END OF A RUN ON GRADE SHALL ALSO BE CONNECTED TO A CATCH BASIN TO BE USED AS A CLEANOUT.
- THE OUTLET END OF THE SUBDRAIN SHALL BE PROTECTED BY A PERMANENT RODENT SHIELD. THE RODENT SHIELD SHALL HAVE THE CONFIGURATION SHOWN AND BE CONSTRUCTED FROM HOT DIP GALVANIZED STEEL INDUSTRIAL WIRE CLOTH 3x3 MESH, 0.063"x0.063" WIRE SIZE IN ACCORDANCE WITH AASHTO M232 (ASTM A153).
- BOTTOM OF SUBGRADE AGGREGATE SLOPE FROM ROADWAY PROFILE GRADE SHALL NOT BE LESS THAN 1.5% TOWARD THE PIPE UNDERDRAIN IN SUPERELEVATED SECTIONS.
- A CA 16 BACKFILLED TRENCH SHALL BE USED WITH THE INSTALLATION OF A PIPE UNDERDRAIN SYSTEM, EXCEPT THE PERCENT PASSING THE NO. 16 (1.18 mm) SIEVE SHALL BE 4 ± 4 PERCENT.
- ALL JOINTS IN SLOPE DRAIN SYSTEM SHALL BE WATERTIGHT WITH A WELDED INTERNAL CYLINDER ON THE SPIGOT END OF THE PIPE. FIELD JOINTS SHALL BE WRAPPED WITH A DOUBLE WIDE MARMAC COUPLER, OR EQUIVALENT.
- IF REQUIRED PIPE UNDERDRAIN SLOPE EXCEEDS 6%, PIPE UNDERDRAIN OUTLET ON HIGH FILL SLOPE DETAIL SHALL APPLY.

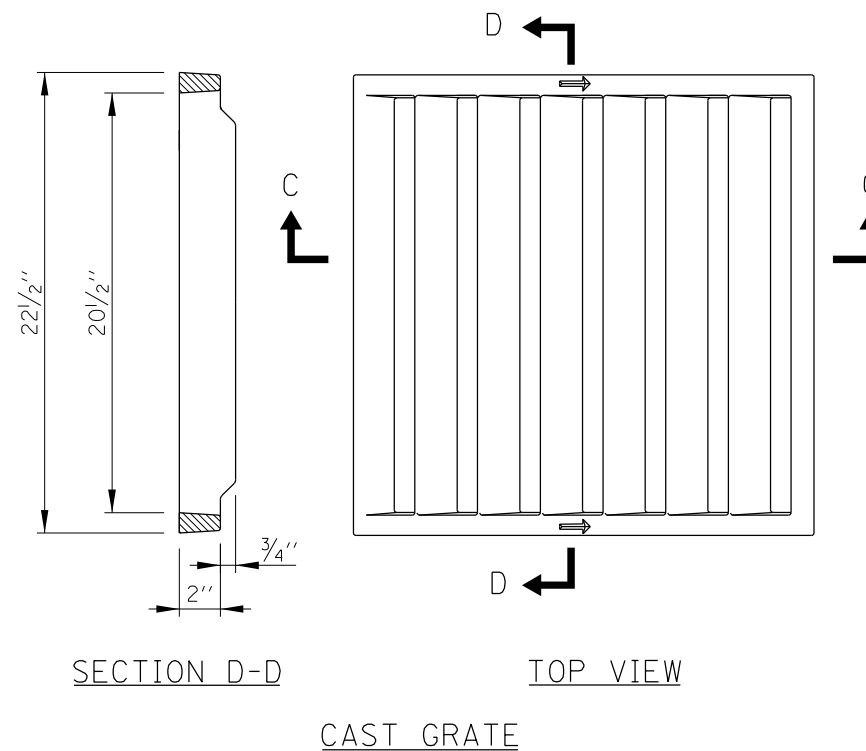
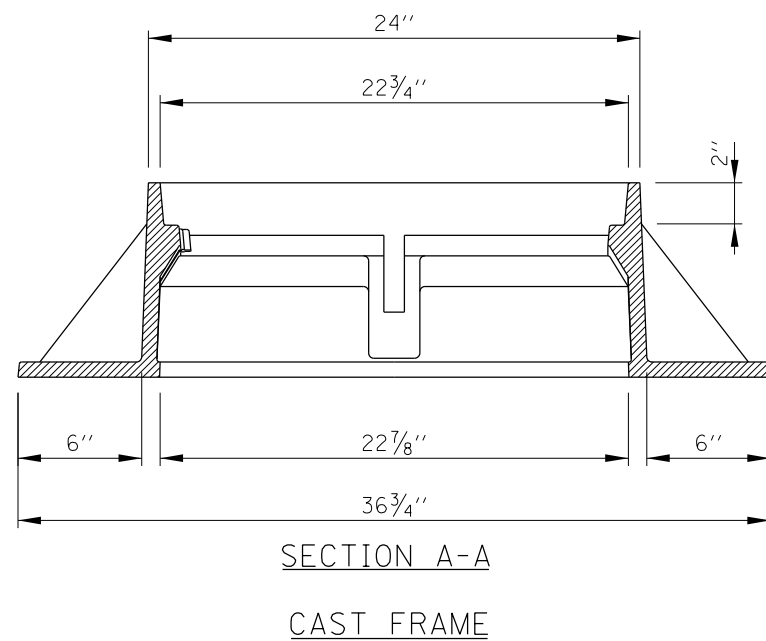
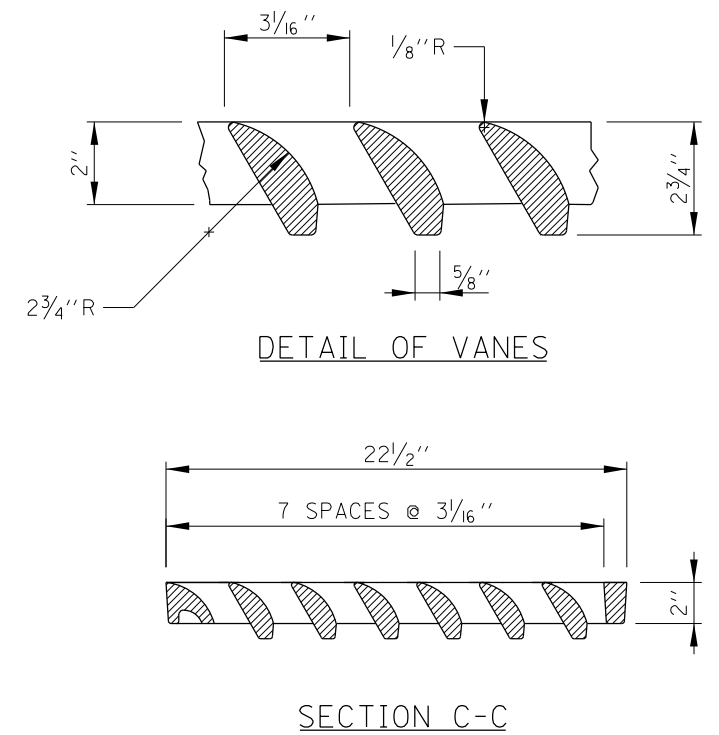
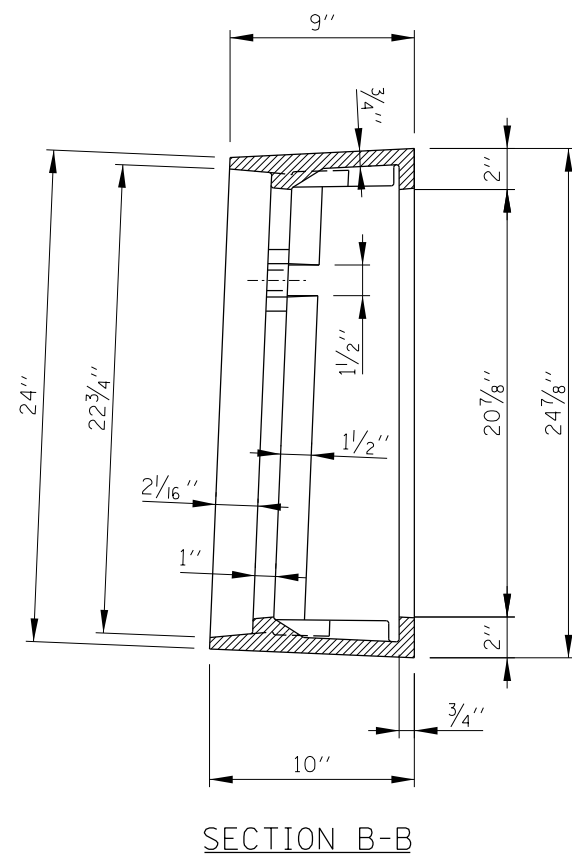
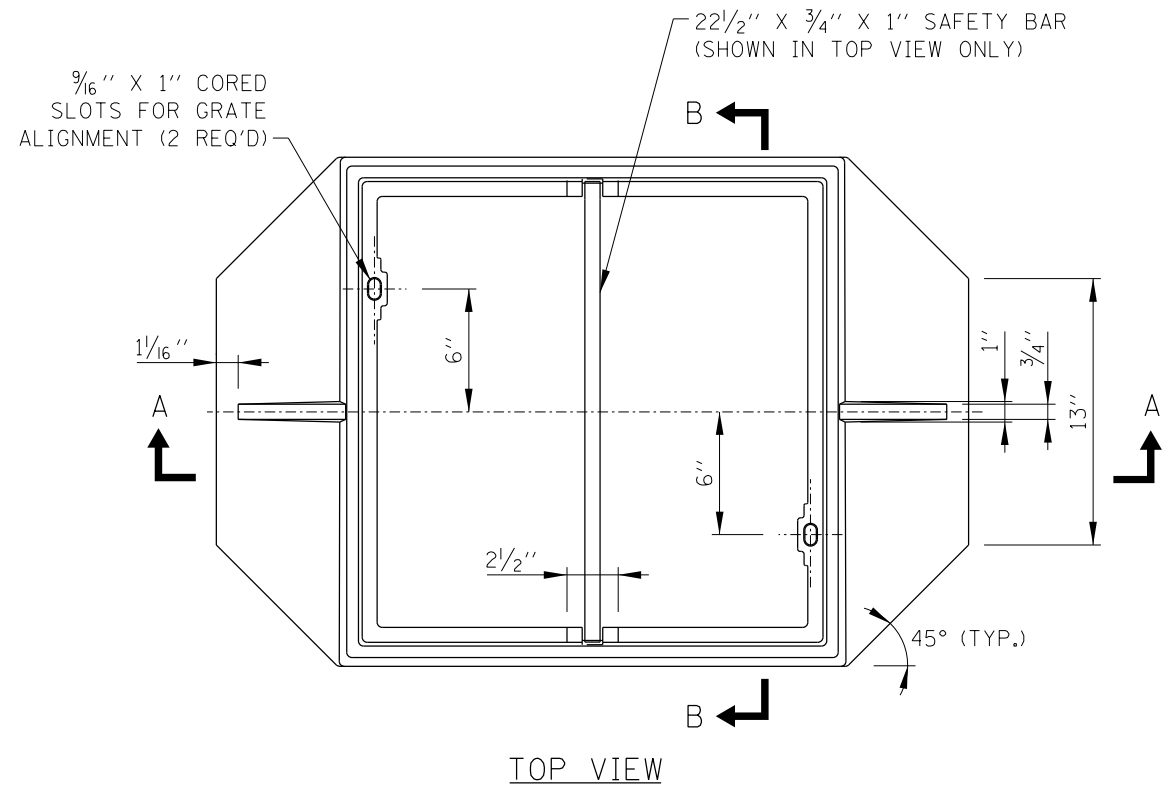
APPROVED: *Paul Kovacs*
CHIEF ENGINEERING OFFICER DATE 6-1-2009

DATE	REVISIONS
3-31-2017	REVISED SUBGRADE SCOPE IN LOCATIONS WITH VARIABLE HEIGHT DOUBLE FACE BARRIER
3-01-2018	ADDED MINIMUM THICKNESS OF CAPPING STONE
3-01-2019	REVISED PIPE UNDERDRAIN OUTLETS TO SHOW 45 DEGREE BENDS OR 90 DEGREE ELBOW. ADDED DETAIL FOR OUTLET AT HIGH FILL SLOPE.



PIPE UNDERDRAINS

STANDARD B24-07



NOTES:

1. ALL FRAMES AND GRATES SHALL CONFORM TO THE REQUIREMENTS OF ART. 1006.14 FOR GRAY IRON CASTINGS AND TO ART. 1006.15 FOR DUCTILE IRON CASTINGS.
2. FRAME AND GRATE TO BE NEENAH FOUNDRY COMPANY, NEENAH NO. R-3528-V, EAST JORDAN IRON WORKS 7535 OR APPROVED EQUAL.
3. GRATE SHALL NOT BE BOLTED TO FRAME.

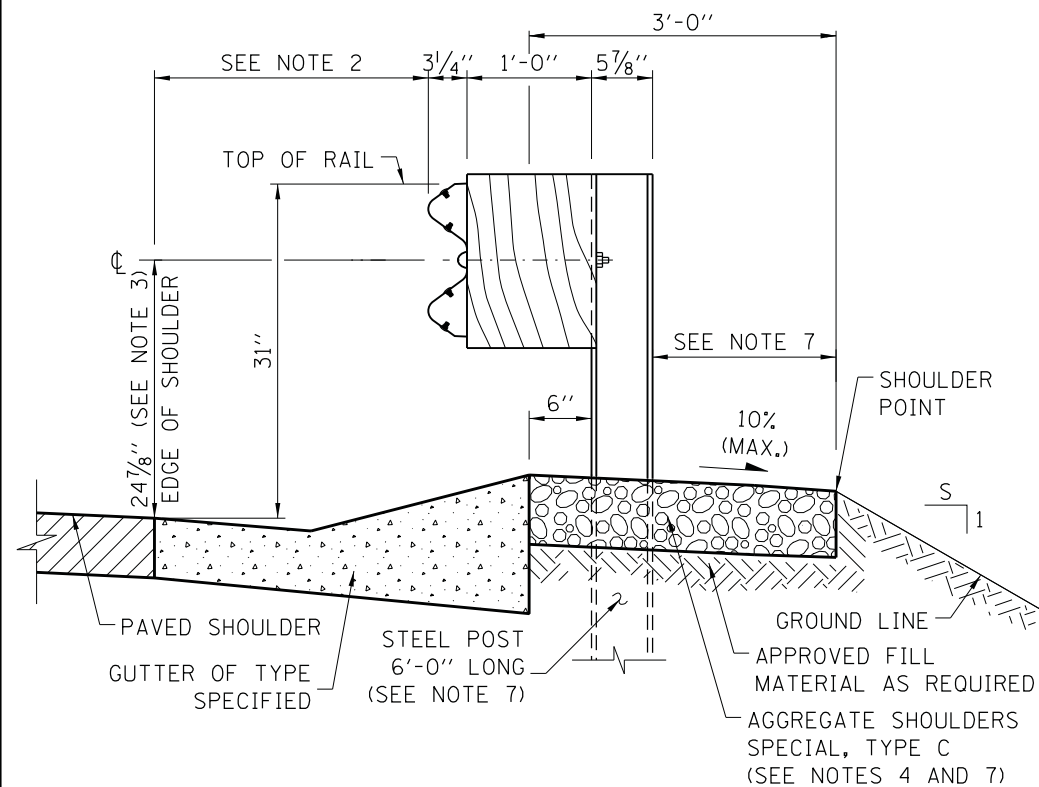
APPROVED *Paul Kovacs* CHIEF ENGINEER DATE 6-30-2008

DATE	REVISIONS
03-31-14	ADDED FRAME AND GRATE CASTINGS

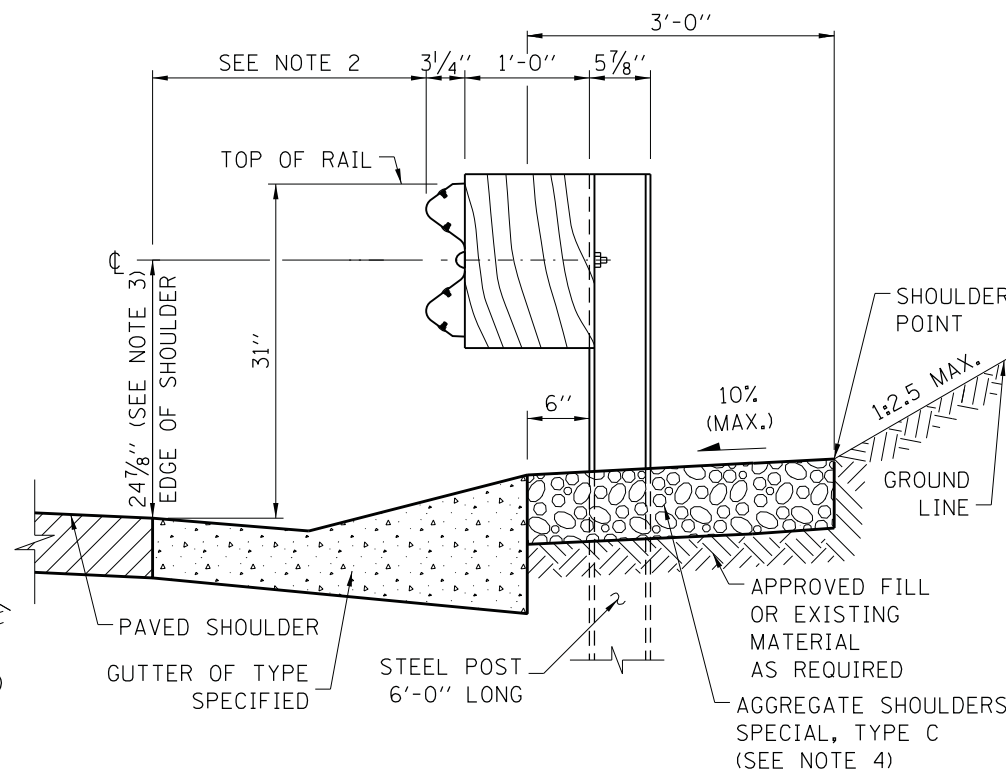


FRAME AND GRATE
TYPE 20A

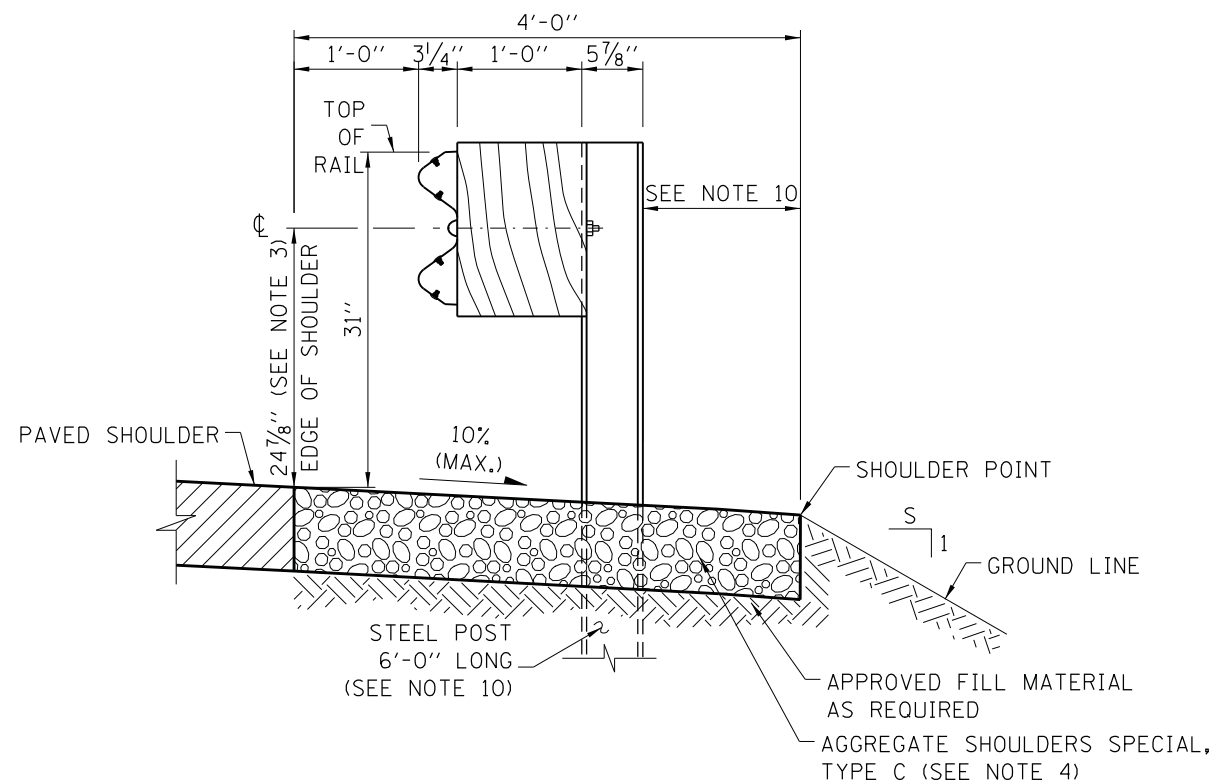
STANDARD B25-01



FILL SECTION WITH GUTTER



CUT SECTION WITH GUTTER



SECTION WITHOUT GUTTER

GUARDRAIL INSTALLATION DETAILS

NOTES:

- 1'-0" OFFSET FROM EDGE OF PAVED SHOULDER TO FACE OF RAIL IS TYPICAL FOR ALL INSTALLATIONS WITHOUT GUTTER EXCEPT AS OTHERWISE DETAILED IN THE PLAN DRAWINGS.
- WHERE GUTTERS SUCH AS TYPE G-2, G-3 ARE REQUIRED IN FRONT OF THE GUARDRAIL, THE POSTS SHALL BE LOCATED 6" BEHIND THE GUTTER, OR AS OTHERWISE DETAILED IN THE PLANS. THE OFFSET FROM THE EDGE OF SHOULDER TO THE FACE OF THE GUARDRAIL SHALL BE AS SHOWN ON STANDARD B28.
- THE 24 7/8" TYPICAL RAIL HEIGHT IS MEASURED FROM EXISTING SURFACE 1'-0" IN FRONT OF RAIL, OR FROM EDGE OF SHOULDER/EDGE OF GUTTER WHEN EDGE IS MORE THAN 1'-0" IN FRONT OF RAIL TO CENTER OF RAIL.
- WHERE GUTTER IS PROPOSED WITH GUARDRAIL, A 6" MINIMUM THICKNESS OF AGGREGATE SHOULDERS SPECIAL, TYPE C SHALL BE PLACED BEHIND GUTTER. FOR GUARDRAIL WITHOUT GUTTER, AGGREGATE SHOULDER, TYPE C, OF THE SAME THICKNESS AS PAVED SHOULDER SLOPING AWAY TO A 6" MIN. THICKNESS.
- GUARDRAIL POSTS SHALL NOT BE ATTACHED TO ANY STRUCTURE.
- PLASTIC BLOCK-OUTS SHALL NOT BE ALLOWED AS A SUBSTITUTE FOR WOOD BLOCK-OUTS ON NEW INSTALLATIONS.
- WHEN S IS LESS THAN OR EQUAL TO 3 AND 3'-0" AGGREGATE SHOULDER WIDTH CANNOT BE MET, THE POST LENGTH SHALL BE 9'-0" AND THE AGGREGATE SHOULDER WIDTH SHALL BE 1'-0" MIN. BEHIND THE POST TO THE SHOULDER POINT.
- ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENTS (V:H).
- UNDER NO CIRCUMSTANCES SHALL AN EXISTING GUARDRAIL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE EXTENDED, ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.
- WHEN S IS LESS THAN OR EQUAL TO 3, THE POST LENGTH SHALL BE 9'-0" AND 4'-0" AGGREGATE SHOULDER WIDTH MAINTAINED.
- THE GUARDRAIL SYSTEM HAS BEEN PERFORMANCE-TESTED FOR CRASHWORTHINESS UNDER PROCEDURES DEFINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350. NO MODIFICATION TO THIS STANDARD DRAWING SHALL BE PERMITTED.
- GUARDRAIL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENT. WHEN NECESSARY USE LEAVE-OUT DETAIL ON SHEET 3 OF 4 OF THIS SERIES.

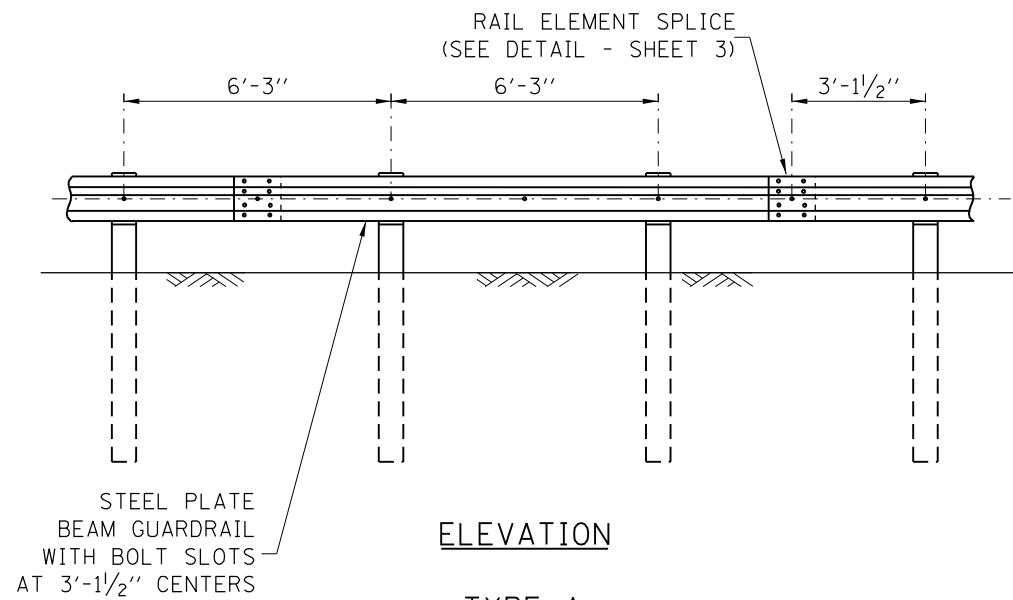


GALVANIZED STEEL PLATE BEAM GUARDRAIL

STANDARD C1-10

DATE	REVISIONS
11-01-12	MODIFIED AGGREGATE SHOULDERS
03-31-14	REMOVED SECONDARY HOLE FROM POST AND UPDATED NOTES.
03-31-16	ADDED SECTION, REV'D SHLDR
03-31-17	REVISED NOTES
03-01-18	CORRECTED NOTES, ADDED TABLES 2A AND 2B.

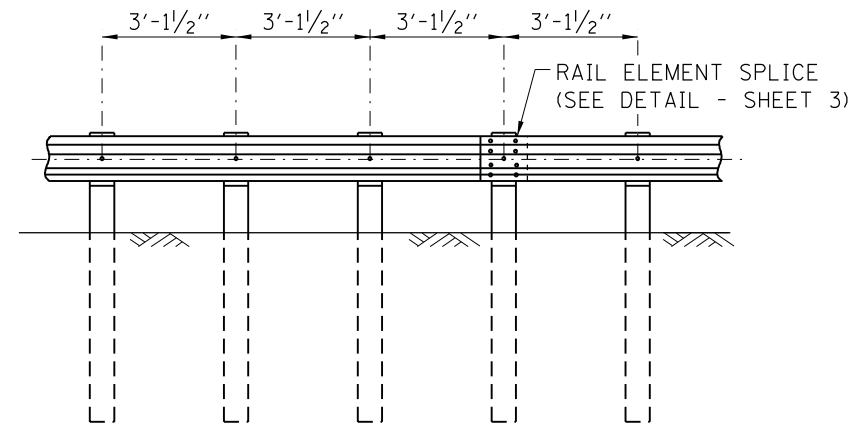
APPROVED: *Paul Kovacs* DATE 5-1-2009
CHIEF ENGINEERING OFFICER



ELEVATION

TYPE A

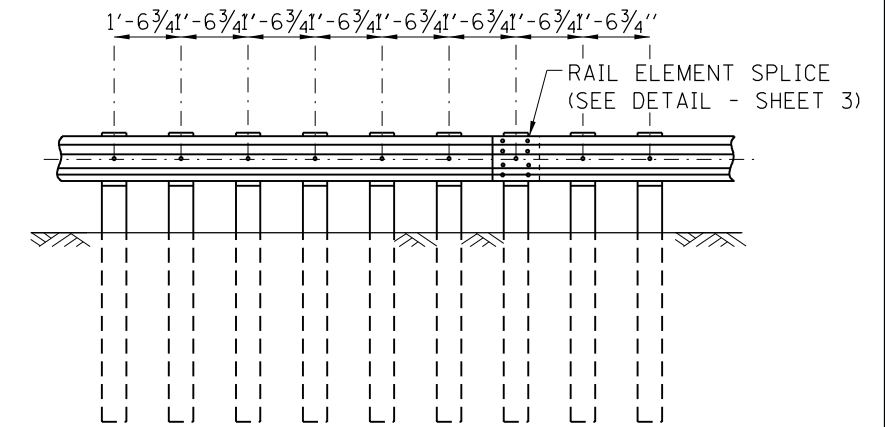
6'-3" TYPICAL POST SPACING



ELEVATION

TYPE B

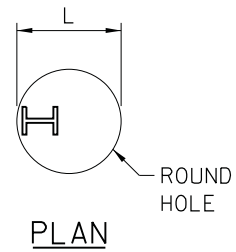
3'-1/2" 1/2 POST SPACING



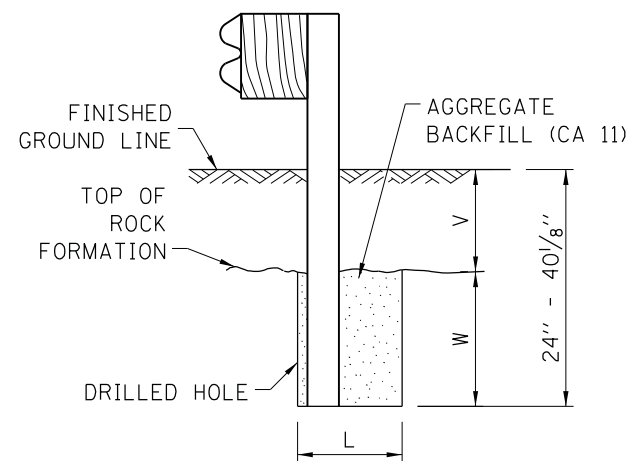
ELEVATION

TYPE C

1'-6 3/4" 1/4 POST SPACING



PLAN

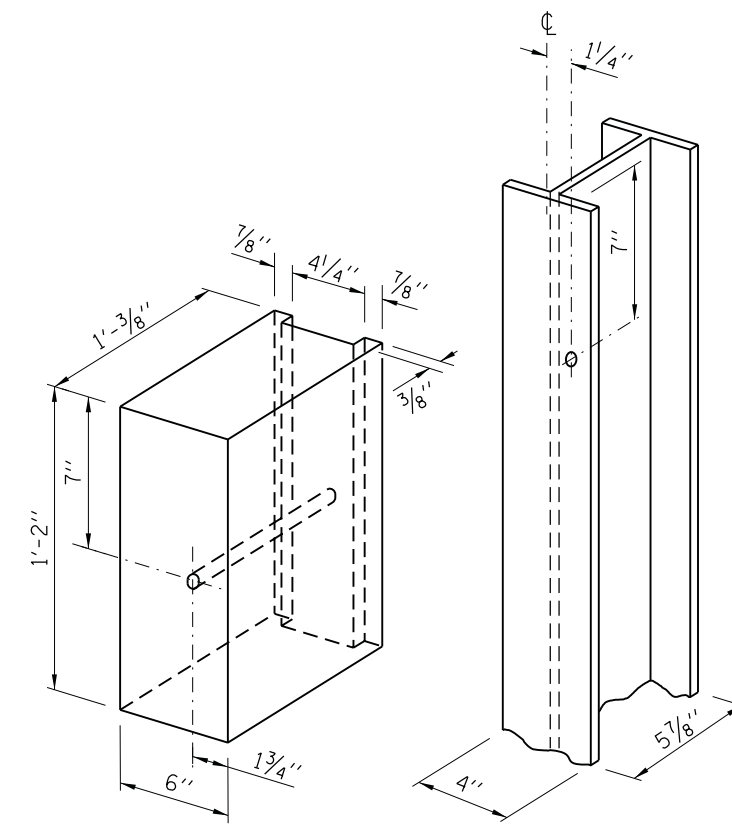


ELEVATION

FOOTING FOR POST WHEN ROCK FORMATION IS ENCOUNTERED

TABLE 1		
V	W	L
0 - 16 1/8"	24"	21"
> 16 1/8" - 28 1/8"	12"	8"
> 28 1/8" - 40 1/8"	12" - 0 (*)	8"

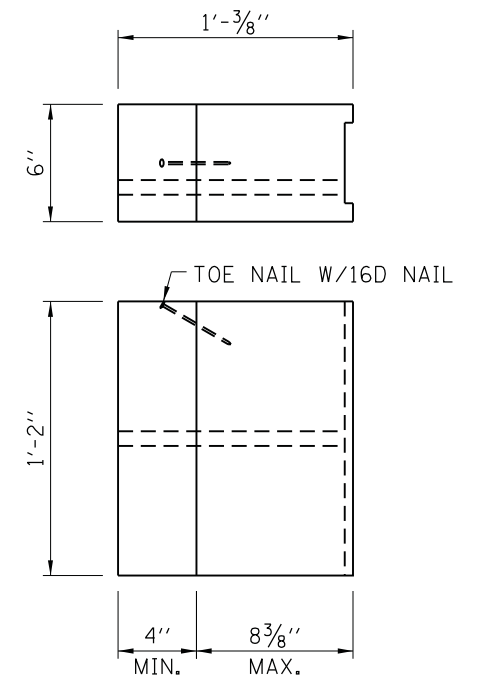
* V + W = 40 1/8"



NOTES:

ALL HOLES 3/4" DIA.

WOOD BLOCK-OUT AND STEEL POST DETAILS



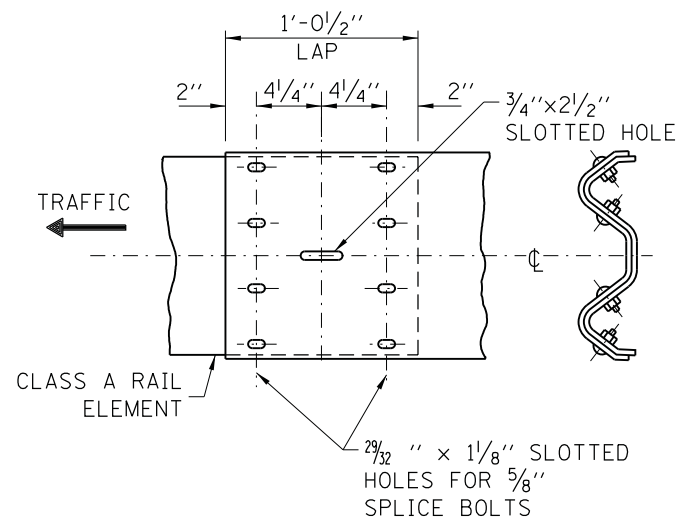
TWO-PIECE WOOD BLOCK-OUT OPTION



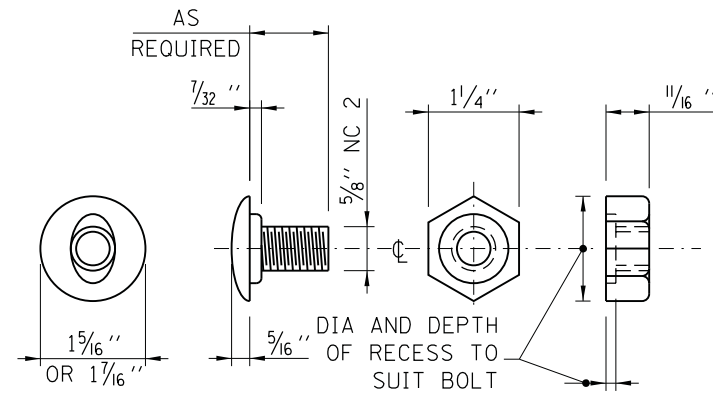
GALVANIZED STEEL PLATE BEAM GUARDRAIL

STANDARD C1-10

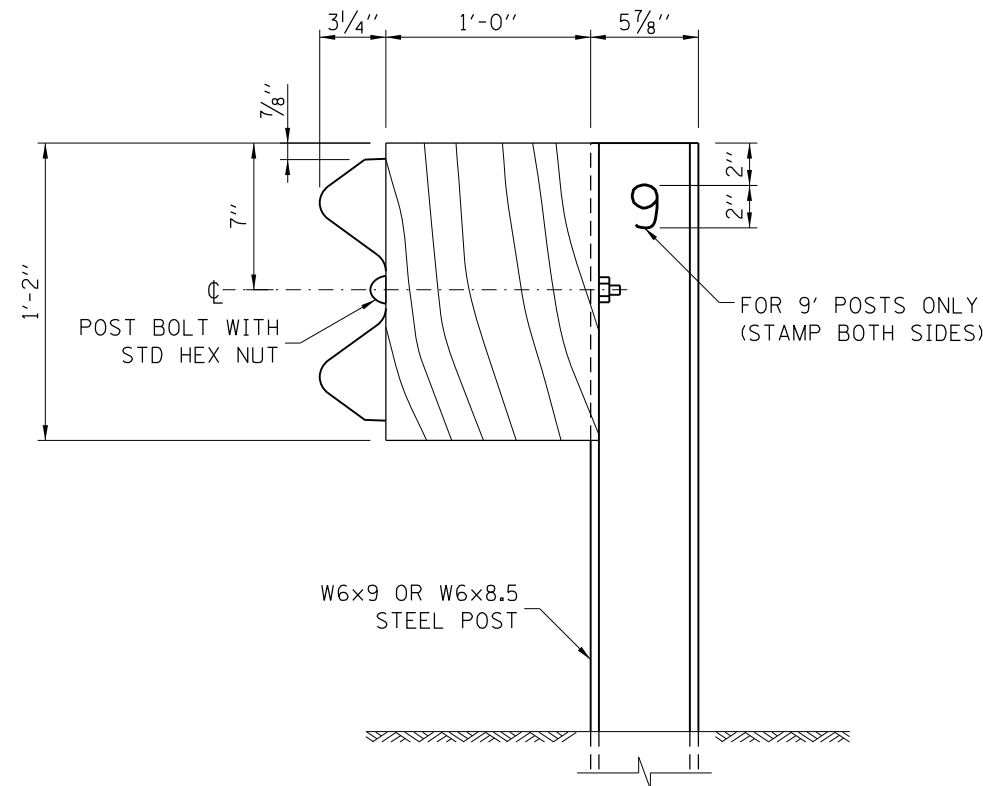
APPROVED: *Paul Kovacs* DATE 5-1-2009
CHIEF ENGINEERING OFFICER



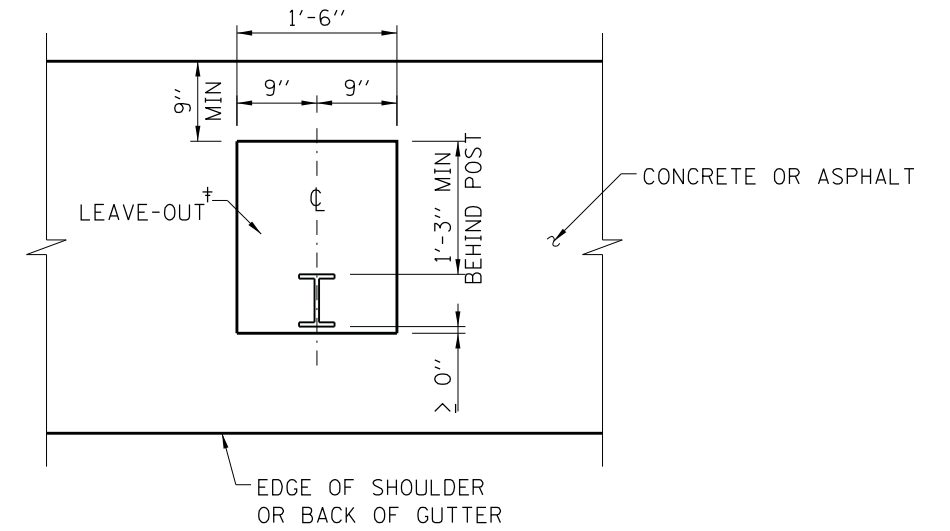
RAIL ELEMENT SPLICE



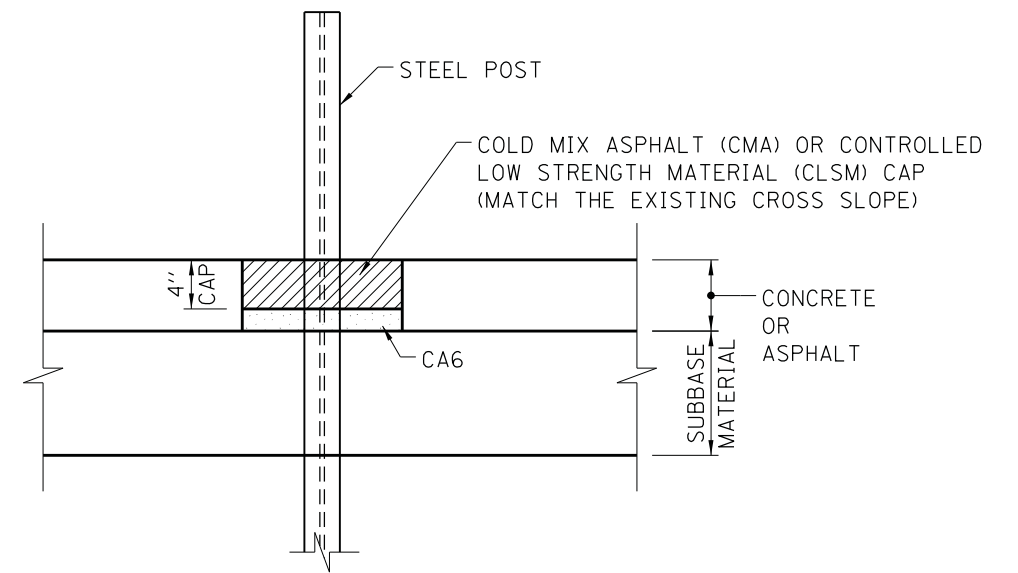
POST OR SPLICE BOLT & NUT



STEEL POST CONSTRUCTION



PLAN



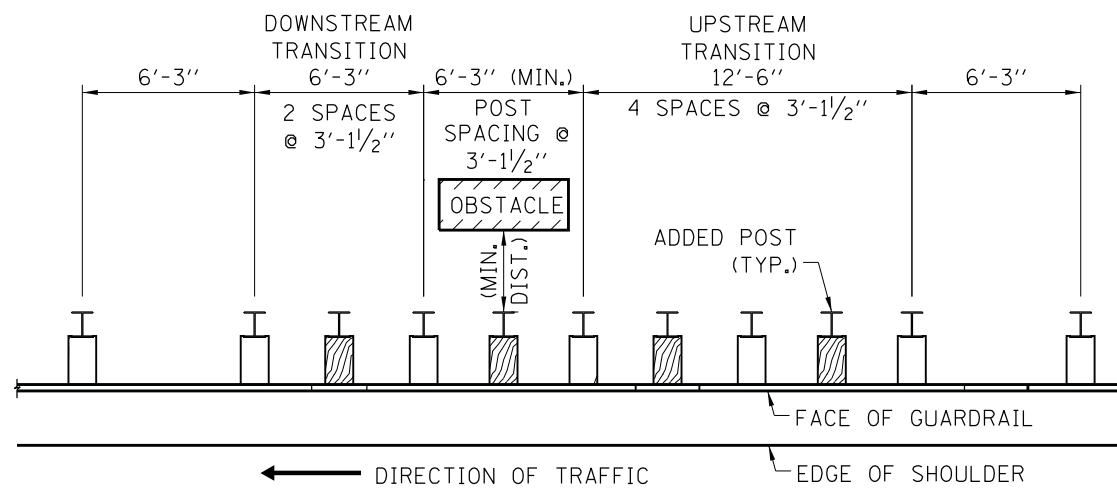
ELEVATION

LEAVE-OUTS

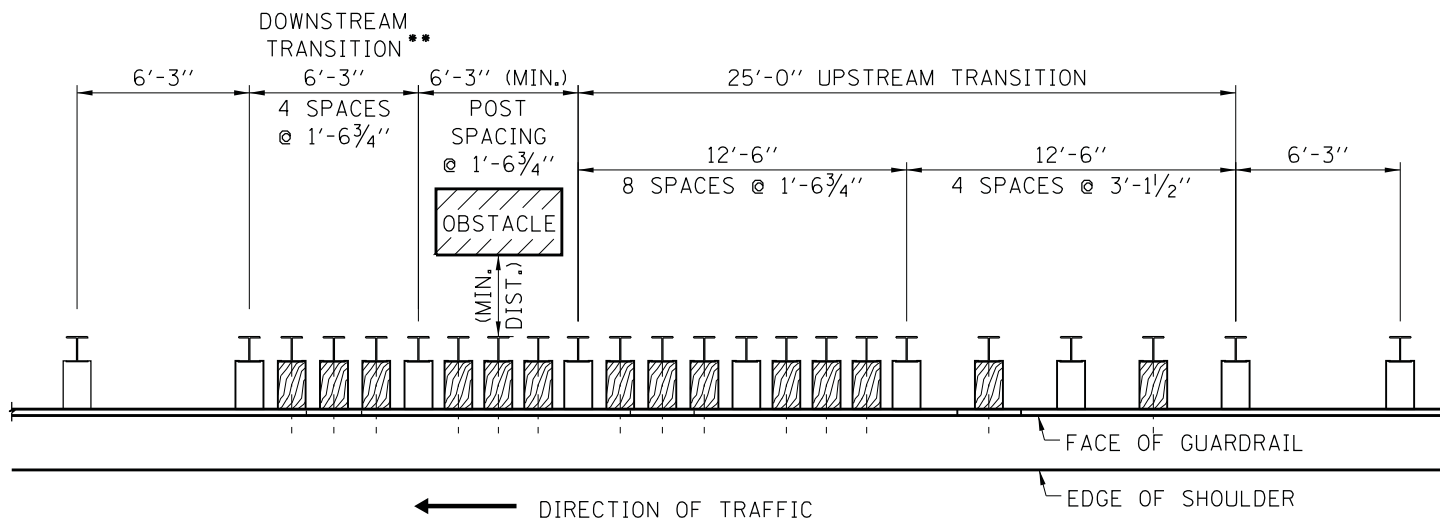
† THE AREA AROUND THE POST THAT IS EITHER OMITTED FROM THE NEW CONSTRUCTION OR REMOVED FROM THE EXISTING CONCRETE OR ASPHALT.

TABLE 2A BARRIER CLEARANCE DISTANCE (MGS) NEW CONSTRUCTION/RECONSTRUCTION		
GUARDRAIL SYSTEM	POST SPACING	MINIMUM DISTANCE
TYPE A	6'-3"	39"
TYPE B 1/2 POST SPACING	3'-1 1/2"	34"
TYPE C 1/4 POST SPACING	1'-6 3/4"	26"

TABLE 2B BARRIER CLEARANCE DISTANCE (MGS) REHABILITATION				
GUARDRAIL SYSTEM	POST SPACING	MINIMUM DISTANCE		
		EXISTING BREAKAWAY LIGHT POLES	ALL OTHER OBSTACLES	
			NCHRP 350	MASH
TYPE A	6'-3"	20"	28"	39"
TYPE B 1/2 POST SPACING	3'-1 1/2"	N/A	23"	34"
TYPE C 1/4 POST SPACING	1'-6 3/4"	N/A	14"	26"



TRANSITION TO 1/2-POST SPACING



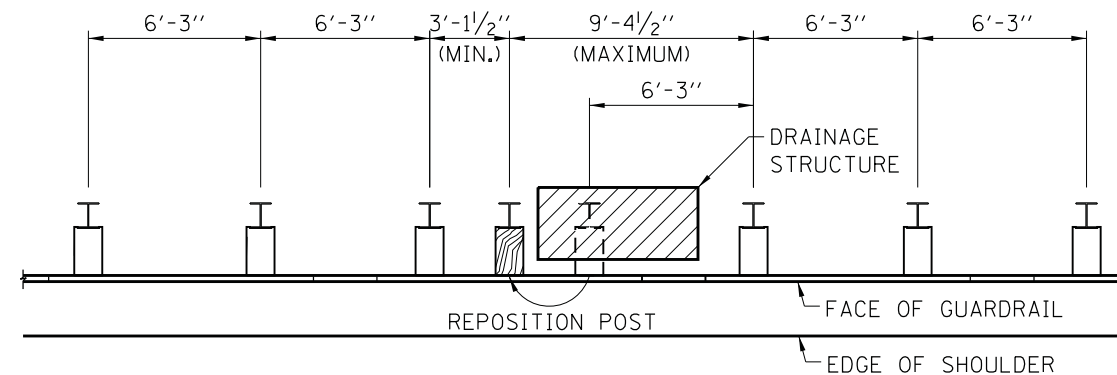
TRANSITION TO 1/4-POST SPACING

** WHEN LENGTH OF OBSTACLES IS 1'-3" OR LESS, THE DOWNSTREAM TRANSITION SHALL BE OMITTED.

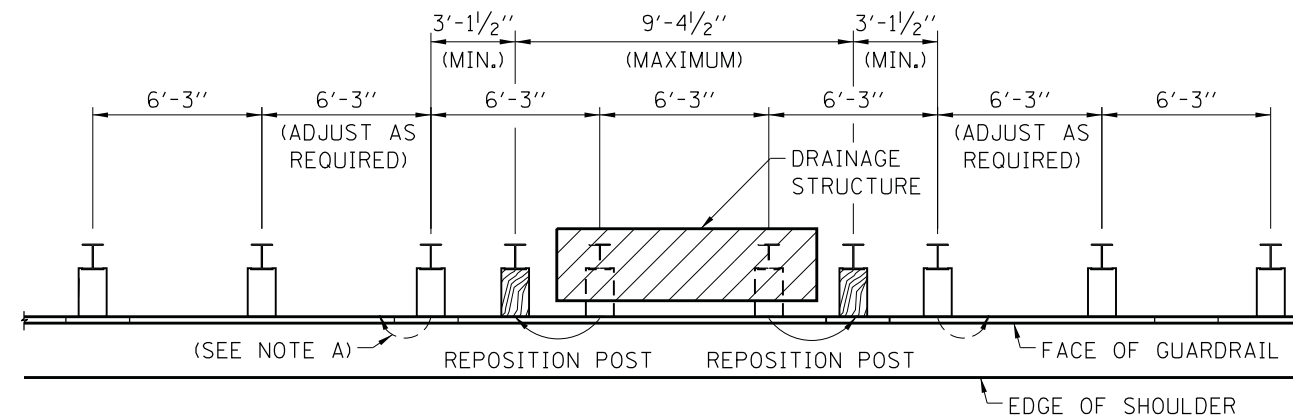
POST SPACING TRANSITIONS

NOTE: NO MODIFICATIONS OF ANY KIND TO THE TRANSITION POST SPACING ARE ALLOWED.

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CHIEF ENGINEERING OFFICER



TYPE A GUARDRAIL- DRAINAGE STRUCTURE CONFLICT
ONE POST



TYPE A GUARDRAIL - DRAINAGE STRUCTURE CONFLICT
TWO POSTS

DRAINAGE STRUCTURE CONFLICTS

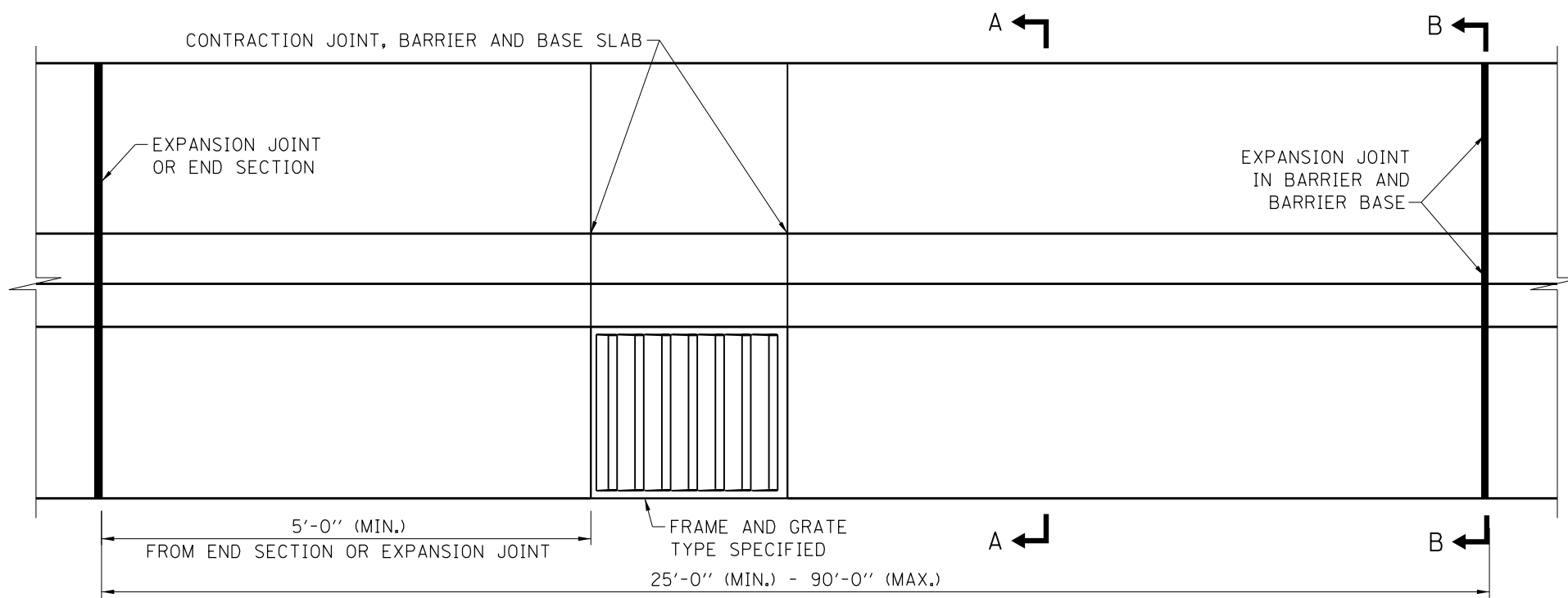
NOTES:

- A. GUARDRAIL POSTS SHALL NOT BE ELIMINATED; ALL POSTS MUST BE USED. POSTS ADJACENT TO REPOSITIONED POSTS MAY NEED TO BE MOVED TO KEEP 3'-1 1/2" MINIMUM SPACING.
- B. GUARDRAIL POSTS SHALL NOT BE SET BACK TO AVOID CONFLICTS WITH A DRAINAGE STRUCTURE.
- C. THIS DETAIL ALSO APPLIES TO OTHER UNDERGROUND CONFLICTS.

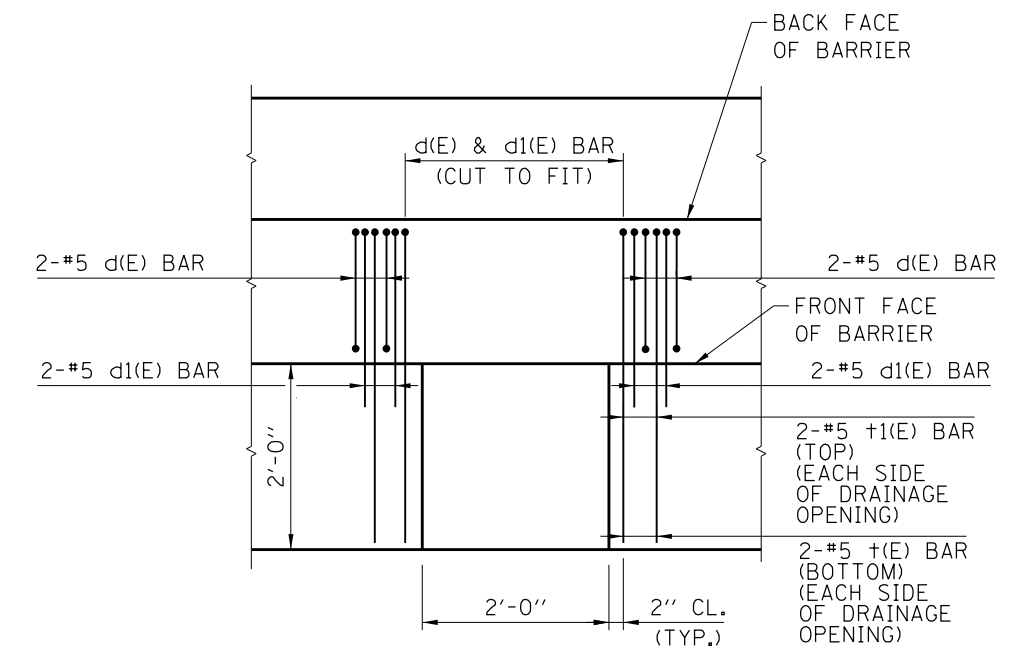
Illinois Tollway

GALVANIZED STEEL PLATE
BEAM GUARDRAIL

STANDARD C1-10



PLAN

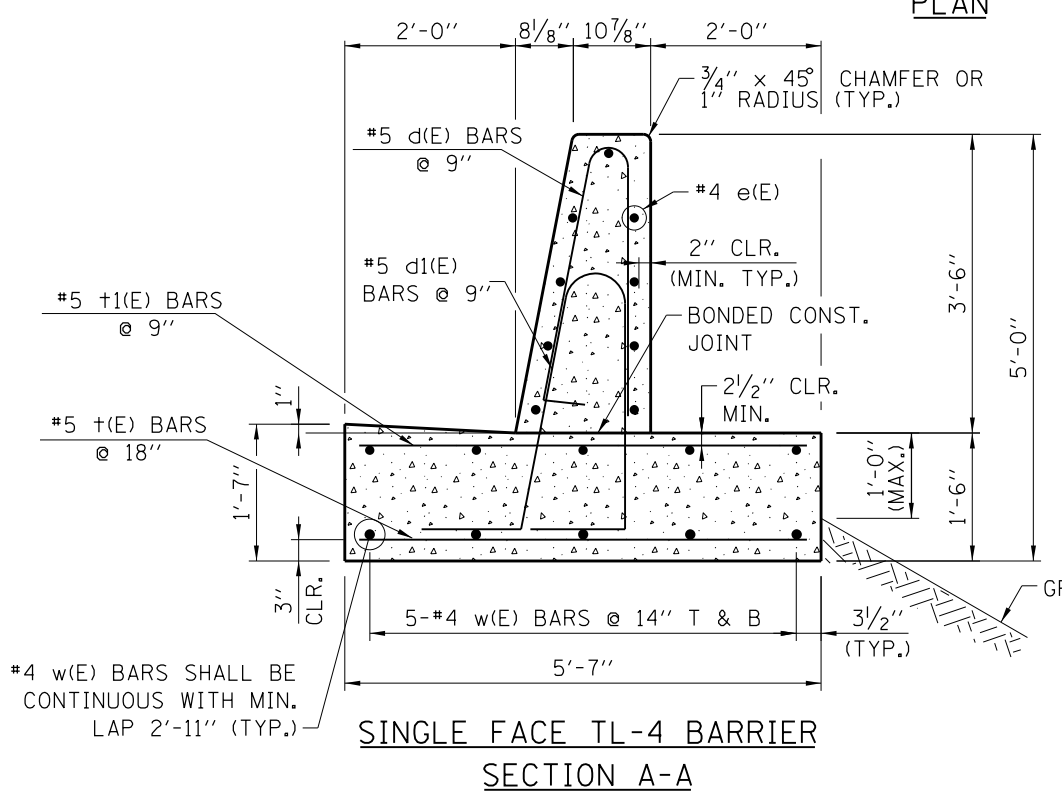


PLAN

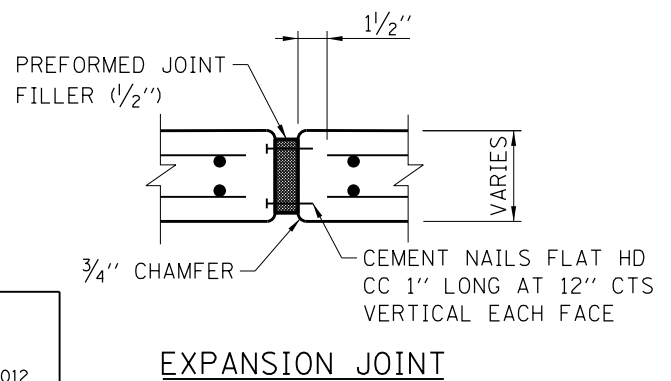
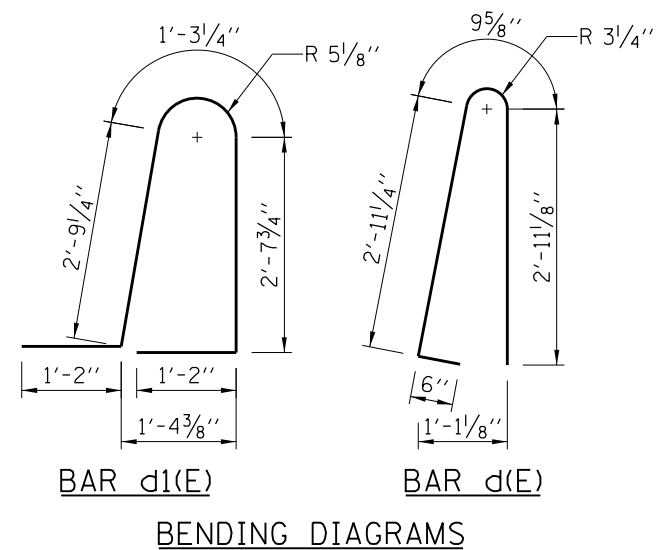
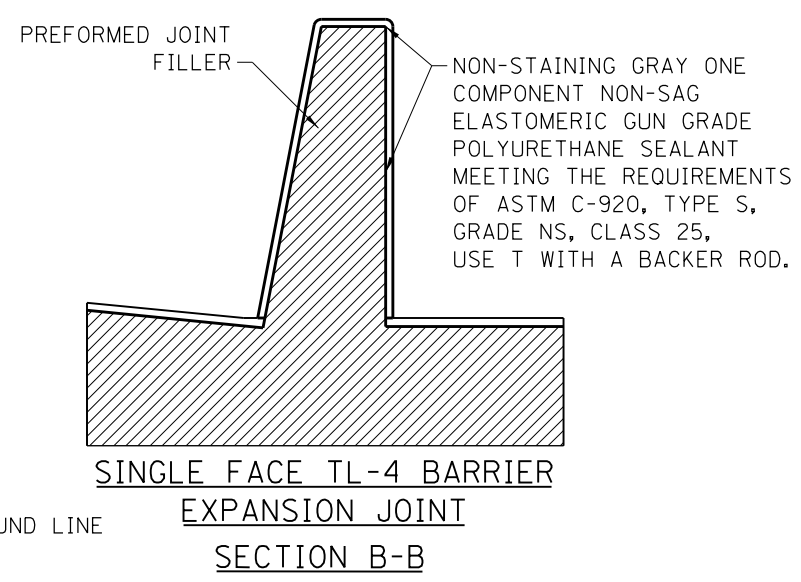
REINFORCEMENT AROUND DRAINAGE STRUCTURE

NOTES:

- THIS IS A REINFORCED CONCRETE TL-4 ROADSIDE BARRIER USED TO SHIELD ROADWAY APPURTENANCES. THE MINIMUM LENGTH OF INSTALLATION SHALL BE 25'-0". BASIS OF DESIGN: IL TOLLWAY STRUCTURE DESIGN MANUAL.
- VERTICAL TRANSITION TO A 44" HIGH BARRIER REQUIRES A MINIMUM 2'-0" TAPER. BARRIER HEIGHT TRANSITIONS SHALL BE INCLUDED IN THE COST OF THE CONCRETE BARRIER.
- TOP SHOULDER EDGE OF BARRIER BASE GUTTER SHALL MATCH THE TOP OF SHOULDER ELEVATION.
- 1" DEEP CONTRACTION JOINTS SHALL BE CONSTRUCTED IN BOTH THE REINFORCED CONCRETE BARRIER WALL AND BASE. CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'-0".
- THE FORMING OF CONTRACTION JOINTS SHALL BE DONE WITH AN APPROVED FINISHING TOOL OR BY SAWING SUBJECT TO THE SATISFACTORY CONTROL OF CRACKING.
- REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.
- REINFORCEMENT BARS BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315, LATEST EDITION. REINFORCEMENT BAR BENDING DIMENSIONS ARE OUT TO OUT.
- AT DRAINAGE STRUCTURES, CUT FOOTING BARS TO FIT. ADD AN ADDITIONAL PAIR OF d, d1, +, AND +1 BARS ON EACH SIDE OF THE DRAINAGE STRUCTURE.
- EXPANSION JOINTS SHALL BE CONSTRUCTED IN BARRIER WALL AT A MAXIMUM JOINT SPACING OF 90'-0" AND A MINIMUM JOINT SPACING OF 25'-0". SEE SECTION B-B FOR DETAILS.



SINGLE FACE TL-4 BARRIER SECTION A-A

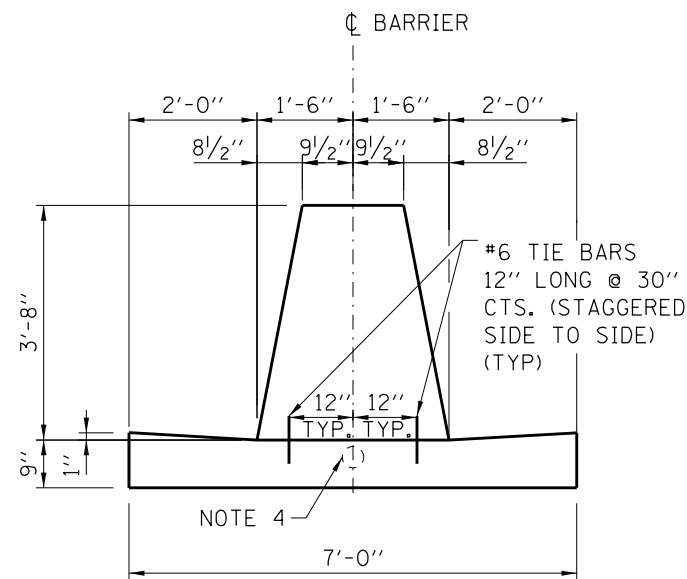


APPROVED: *Paul Kovacs* CHIEF ENGINEERING OFFICER DATE 2-7-2012

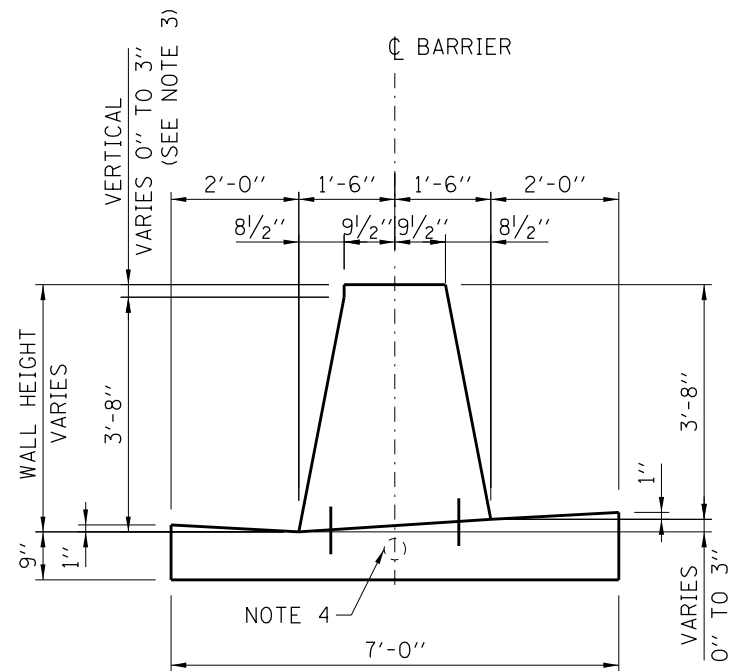
DATE	REVISIONS
10-01-13	REVISED REINFORCEMENT BARS AND GUTTER WIDTH
03-31-14	REDESIGNED FOR TL-4 LOADING
3-11-2015	REVISED BENDING DIAGRAM
3-31-2016	ADDED MAX. EXPOSED BASE.
	REVISED EXP. JT. NOTE
3-01-2019	REVISED TO CONSTANT SLOPE

CONCRETE BARRIER SINGLE FACE, REINFORCED 42 INCH

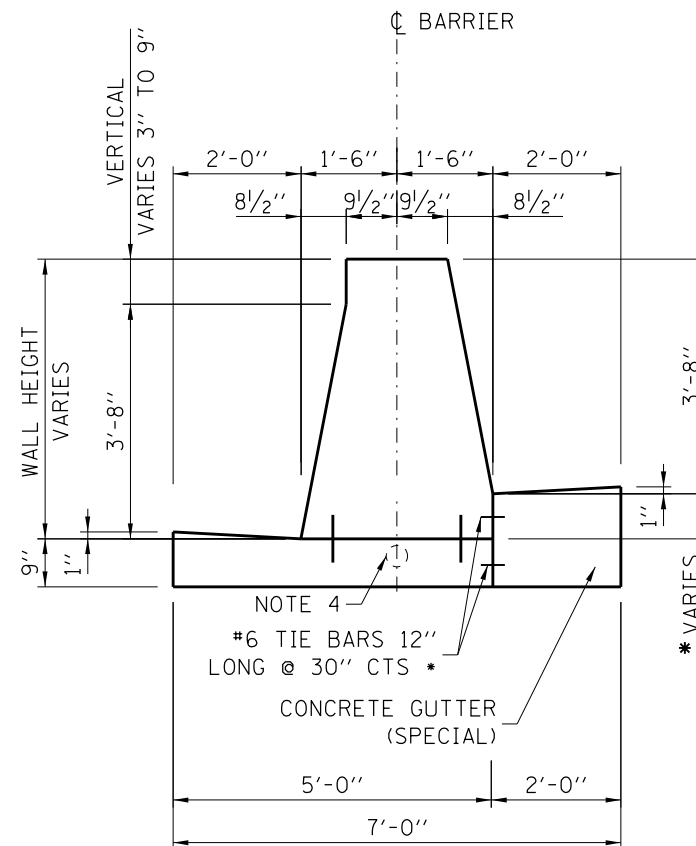
STANDARD C3-07



CONCRETE BARRIER, DOUBLE FACE, 44"
CONCRETE BARRIER BASE, 7'-0"



CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, VARIABLE HEIGHT, 7'-0"
 (BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 0" TO 3")



CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, 5'-0"
 (BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 3" TO 9")
 * WHEN 6" OR GREATER ADD TOP TIE BAR.

NOTES:

- 2" DEEP CONTRACTION JOINTS SHALL BE DONE BY SAWING AND SHALL BE CONSTRUCTED IN THE CONCRETE BARRIER WALL, CONCRETE BARRIER BASE, AND CONCRETE GUTTER (SPECIAL). CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'-0". THE MINIMUM DISTANCE BETWEEN CONTRACTION JOINTS IN THE MEDIAN BARRIER WALL SHALL BE 2'-0". WHEN A DRAINAGE STRUCTURE FALLS WITHIN 2'-0" FROM AN EXPANSION JOINT (OR) CONTRACTION JOINT, THE NEAREST CONTRACTION JOINT SHALL BE OMITTED.
- GUTTER PROFILE IN THE VICINITY OF SAG VERTICAL CURVES, ALONG FLAT GRADES AND AT THE MEETING OF PROPOSED AND EXISTING GUTTER, SHALL BE CAREFULLY CONTROLLED AND FIELD ADJUSTED IF NECESSARY TO ENSURE POSITIVE DRAINAGE AND AVOID PONDING.
- IN AREAS OF RELATIVELY FLAT LONGITUDINAL PROFILE GRADES, THE VERTICAL DIMENSION AT THE TOP OF THE BARRIER CAN VARY FROM 0" (NORMALLY) TO 3" TO CREATE AN ACCEPTABLE LONGITUDINAL GRADE IN THE GUTTER.
- REFERENCE PLAN SHEET FOR TYPE, SIZE AND NUMBER OF CONDUITS. PROVIDE 1/2" (MIN.) CLEARANCE TO THE TOP OF CONDUIT AND 2" (MIN.) CLEARANCE TO THE BOTTOM OF THE CONDUIT.
- TIE BARS SHALL BE INCLUDED IN THE COST OF THE VARIOUS BARRIER AND GUTTER ITEMS AND SHALL BE EPOXY COATED. TIE BARS BETWEEN THE BARRIER AND BASE SHALL BE ON 30" CENTERS AND ALTERNATE LEFT AND RIGHT OF THE BARRIER CENTERLINE.
- WHEN VARIABLE HEIGHT VERTICAL DIFFERENTIAL EXCEEDS 9" SEE STRUCTURAL PLANS FOR DETAILS.
- GUTTER SLOPE SHALL BE 4.17% SLOPED TOWARD THE MEDIAN UNLESS OTHERWISE NOTED. GUTTER SLOPE IS REVERSE PITCHED WHEN THE SHOULDER/FLEX LANE DRAINS AWAY FROM THE GUTTER. TRANSITION GUTTER SLOPE OVER 30'-0". GUTTER SLOPE TRANSITIONS ARE INCLUDED IN THE COST OF CONCRETE BASE AND/OR CONCRETE GUTTER (SPECIAL). SEE ROADWAY PLANS FOR LIMITS OF REVERSE PITCHED GUTTER AND TRANSITIONS.

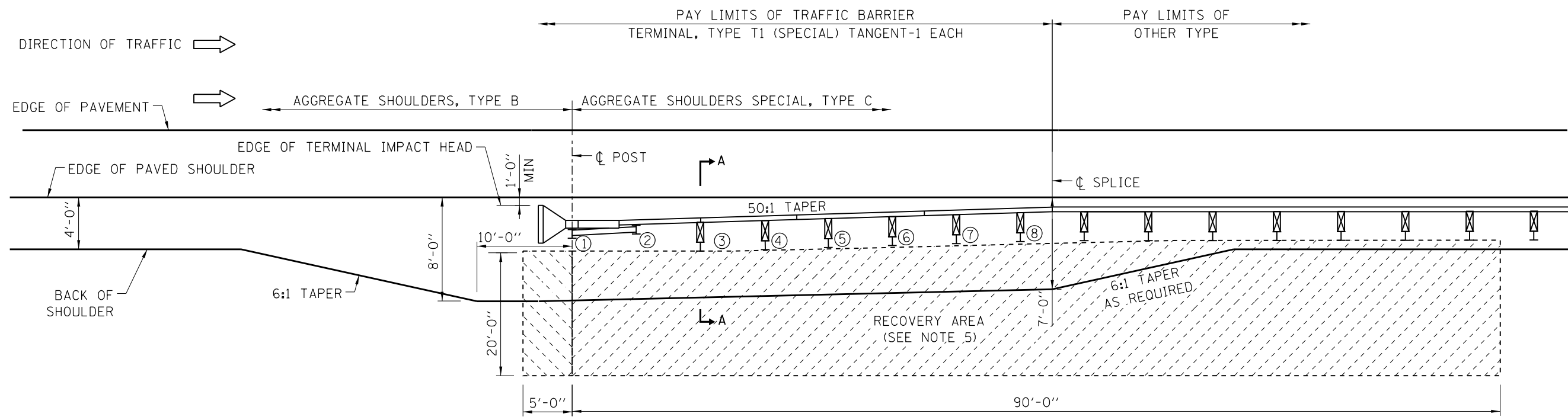
APPROVED: *Paul Kovacs* DATE 2-7-2012
 CHIEF ENGINEERING OFFICER

DATE	REVISIONS
11-01-2012	ADDED GUTTER TRANSITION TAPER DETAIL AND NEW JOINT DETAIL
3-31-2014	MODIFIED BARRIER BASE
3-11-2015	REVISED NOTES
3-31-2016	REVISED NOTES
3-01-2019	REVISED TO CONSTANT SLOPE ADDED TIE BARS

Illinois Tollway

CONCRETE BARRIER BASE, DOUBLE FACE, 44 INCH AND VARIABLE HEIGHT

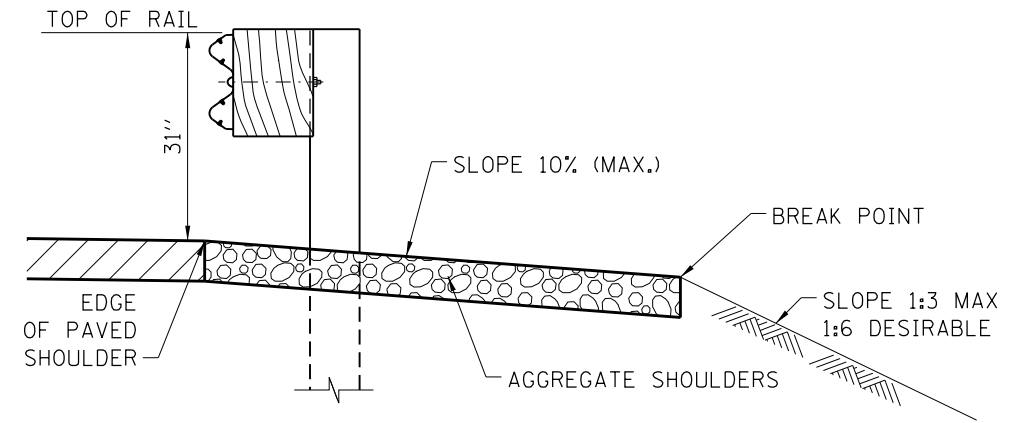
STANDARD C5-06



SHOULDER WIDENING TRANSITION-WITHOUT GUTTER FOR TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT

GENERAL NOTES:

1. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
2. REFERENCE ILLINOIS TOLLWAY STANDARD DRAWING B28 FOR GUTTER TRANSITION, AND MINIMUM DISTANCE FROM EDGE OF PAVED SHOULDER TO FACE OF RAIL.
3. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANY WAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.
4. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S DETAILS AND SPECIFICATIONS.
5. NO ABOVE-GROUND ROADSIDE OBSTACLE OF ANY TYPE-FIXED OR BREAKAWAY, EITHER TEMPORARY OR PERMANENT SHALL BE ALLOWED WITHIN THIS RECOVERY AREA.
6. ON TANGENT ROADWAY: TRAFFIC BARRIER TERMINAL SHALL BE INSTALLED AT A 50:1 TAPER MEASURED FROM EDGE OF TRAVELED WAY. ON CURVED ROADWAY: THE EDGE OF THE TERMINAL IMPACT HEAD SHALL BE OFFSET A DISTANCE FROM A POINT ON THE BACK OF THE CURVED EDGE OF PAVED SHOULDER AS SHOWN IN TABLE 1. NO CURVED W-BEAM SECTIONS ARE PERMITTED WITHIN THE TERMINAL PAY LIMITS. THE TERMINAL SHALL BE LAID OUT IN A STRAIGHT LINE.
7. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR HMA. WHEN NECESSARY USE LEAVE-OUT DETAIL SHOWN ON ILLINOIS TOLLWAY STANDARD DRAWING C1.
8. THE TERMINAL SYSTEM HAS BEEN PERFORMANCE-TESTED FOR CRASHWORTHINESS UNDER PROCEDURES DEFINED IN AASHTO MASH. NO MODIFICATION TO THIS STANDARD DRAWING SHALL BE PERMITTED.
9. WHEN GUTTER IS PRESENT, DRAINAGE STRUCTURES SHALL NOT BE INSTALLED WITHIN THE TERMINAL LIMITS, BUT SHALL BE INSTALLED UPSTREAM AND DOWNSTREAM OF THE TERMINAL AS REQUIRED.



SECTION A-A

Paul Kovacs
 APPROVED, CHIEF ENGINEERING OFFICER DATE 7-1-2009

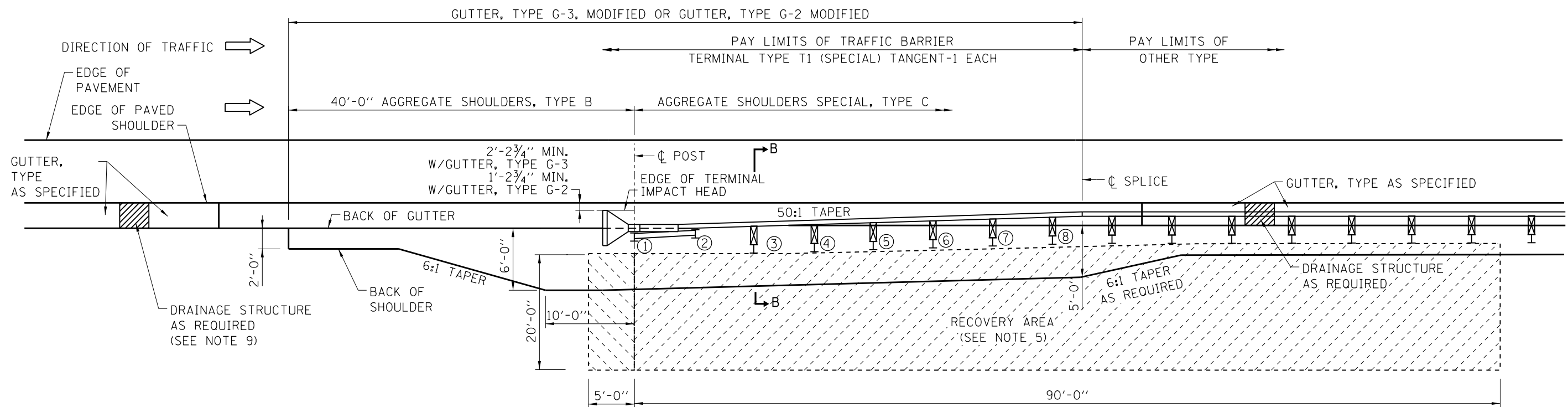
DATE	REVISIONS
03-31-14	REVISED RECOVERY AREA DIMENSION
3-11-2015	REVISED NOTES
3-31-2016	COMBINED G-3 & G-2
3-31-2017	REVISED NOTES
3-01-2019	REVISED NOTES FOR MASH

SHEET 1 OF 2

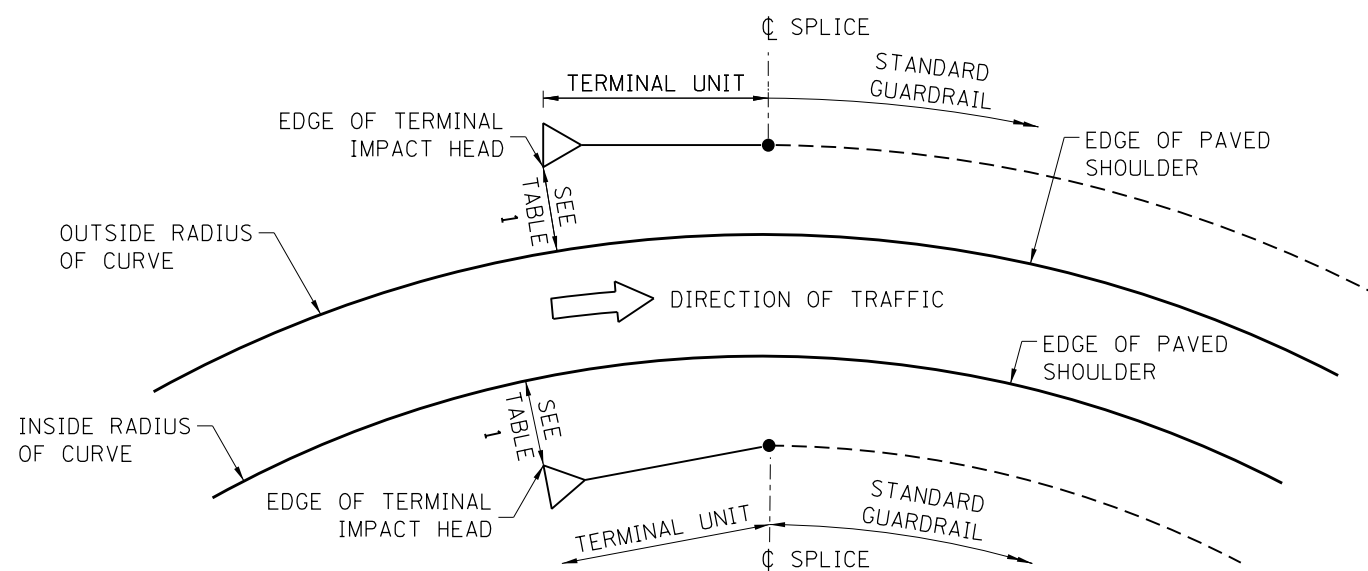


SHOULDER WIDENING FOR TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT

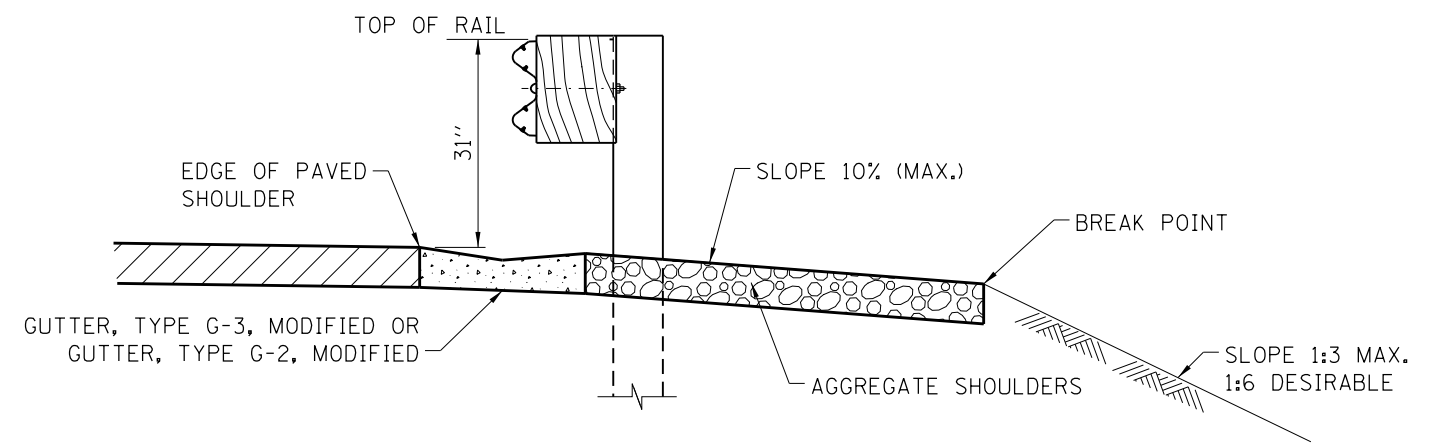
STANDARD C6-10



SHOULDER WIDENING TRANSITION-WITH GUTTER, TYPE G-3 OR TYPE G-2 FOR TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT



CURVED ROADWAY TRAFFIC BARRIER TERMINAL PLACEMENT



SECTION B-B

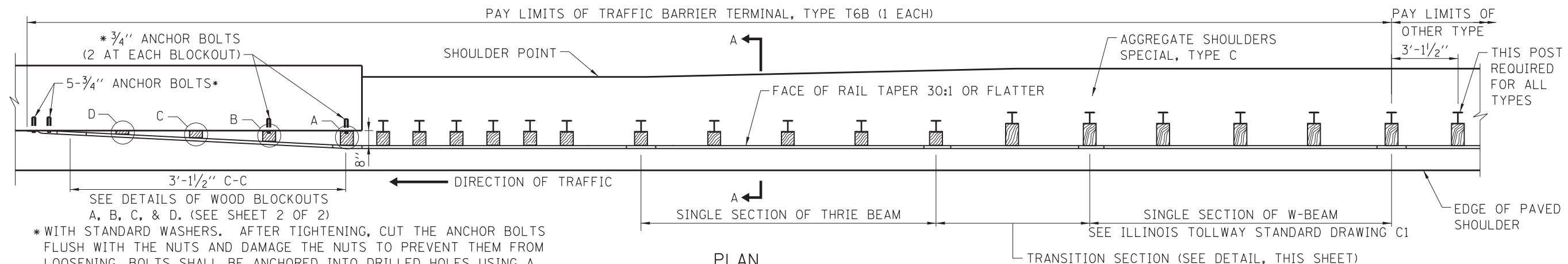
	INSIDE RADIUS OF CURVE	OUTSIDE RADIUS OF CURVE
NO GUTTER	1'-0"	1'-0" MIN. *
GUTTER, TYPE G-2	1'-2 3/4"	1'-2 3/4" MIN. *
GUTTER, TYPE G-3	2'-2 3/4"	2'-2 3/4" MIN. *

(*) OFFSET DISTANCE WILL VARY BASED ON RADIUS OF HORIZONTAL CURVE AND THE TERMINAL BEING INSTALLED IN A STRAIGHT LINE.

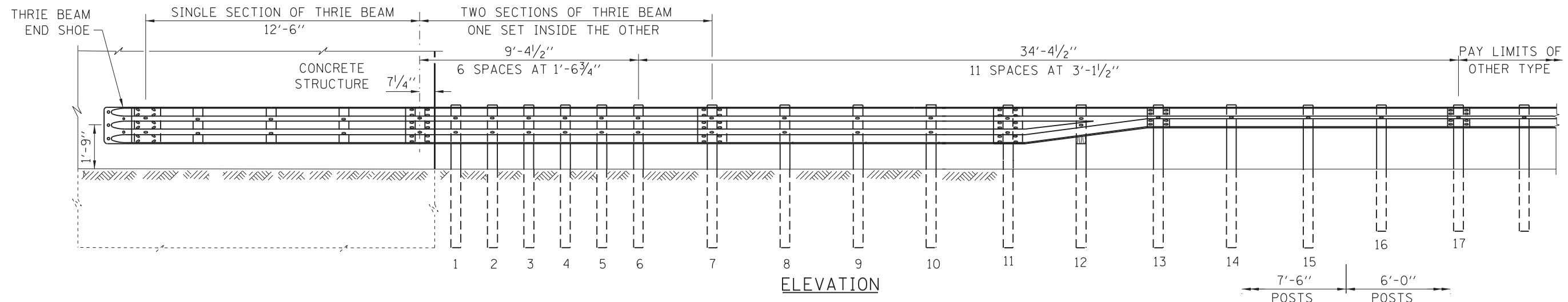
NOTES:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

APPROVED: *Paul Kovacs*
CHIEF ENGINEERING OFFICER DATE 7-1-2009



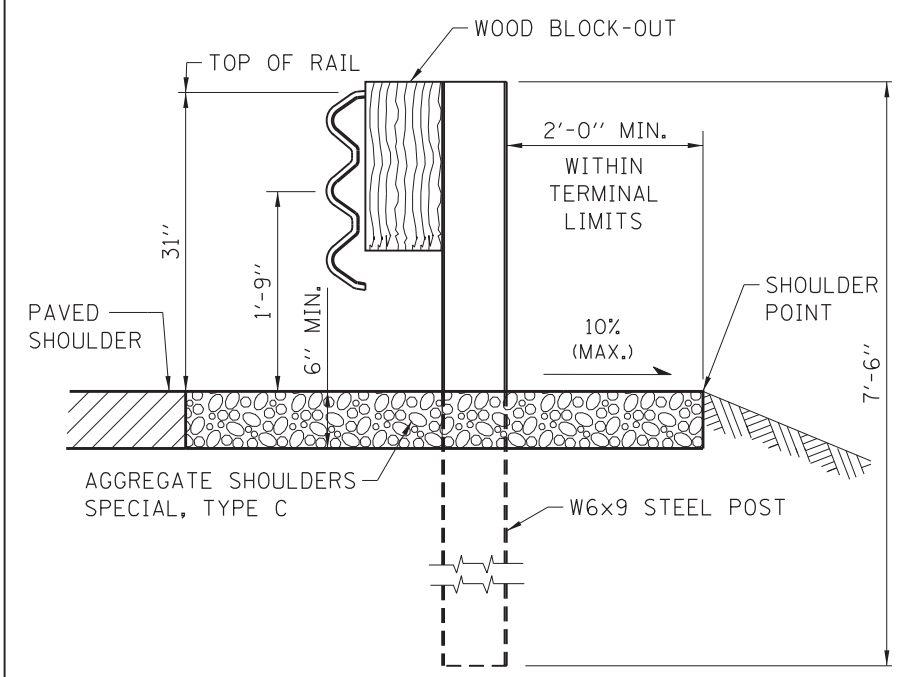


* WITH STANDARD WASHERS. AFTER TIGHTENING, CUT THE ANCHOR BOLTS FLUSH WITH THE NUTS AND DAMAGE THE NUTS TO PREVENT THEM FROM LOOSENING. BOLTS SHALL BE ANCHORED INTO DRILLED HOLES USING A CHEMICAL ADHESIVE RESIN SYSTEM. MINIMUM EMBEDMENT 10\".

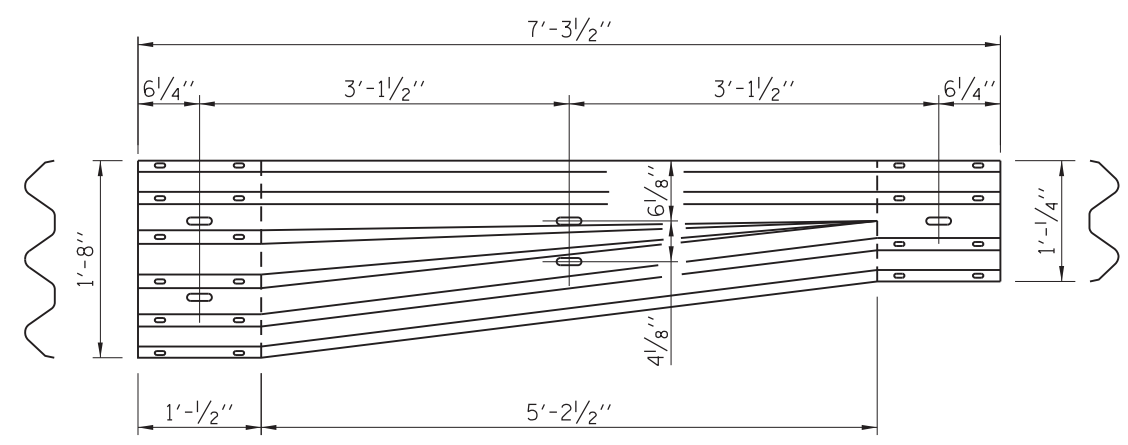


NOTES:

1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.
2. THRIE BEAM RAIL SHALL BE BOLTED TO BLOCK-OUT AT ALL POSTS.
3. THE TRAFFIC BARRIER TERMINAL, TYPE T6B IS TYPICALLY UTILIZED TO ATTACH GALVANIZED STEEL PLATE BEAM GUARDRAIL AT THE UPSTREAM END OF THE BRIDGE CONCRETE PARAPET, WHERE A ROADSIDE GUTTER IS NOT TO BE INSTALLED.
4. UNDER NO CIRCUMSTANCES SHALL EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.
5. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.
6. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENTS. WHEN NECESSARY USE LEAVE-OUT DETAIL PER ILLINOIS TOLLWAY STANDARD DRAWING C1, SHEET 3 OF 4.
7. TERMINAL BARRIER CLEARANCE DISTANCE SHALL CONFORM WITH TABLE 2 ON ILLINOIS TOLLWAY STANDARD DRAWING C1.
8. LEAVE-OUT DIMENSION BEHIND POSTS 1-6, SHALL BE A MINIMUM OF 4\".



SECTION A-A



TRANSITION SECTION
(10 GAUGE RAIL ELEMENT)

APPROVED *Paul Kovacs* CHIEF ENGINEER DATE 7-1-2009

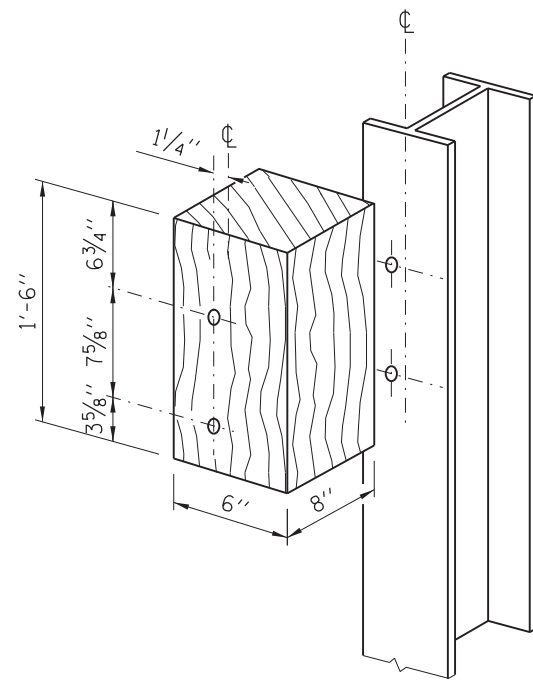
DATE	REVISIONS
2-07-2012	REVISED WOOD BLOCK-OUT DIMENSION ADHESIVE AND REVISED NOTES
11-01-2012	MODIFIED AGGREGATE SHOULDERS, REVISED NOTES
3-31-2014	REVISED WOOD BLOCKS AND NOTES
3-11-2015	REVISED NOTES
3-31-2016	REVISED SECTION A-A SHOULDER
3-31-2017	REVISED SHOULDER SLOPE LABEL

SHEET 1 OF 2

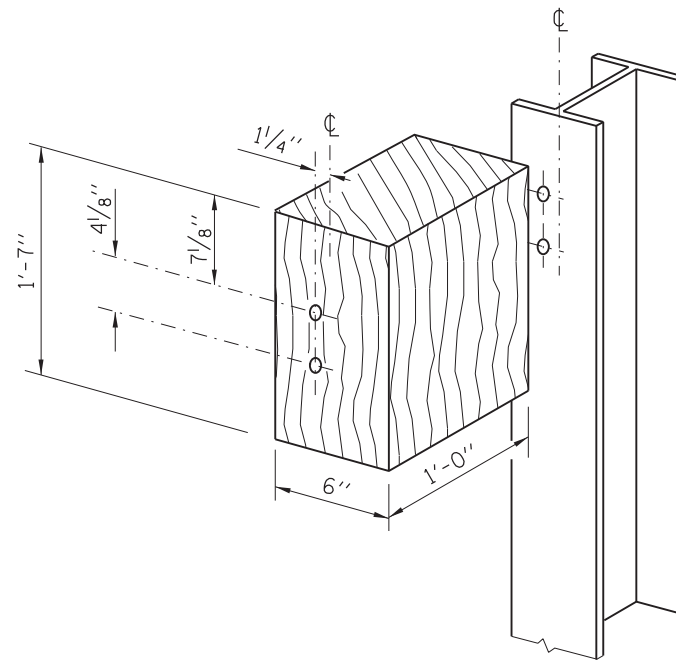


**TRAFFIC BARRIER
TERMINAL, TYPE T6B**

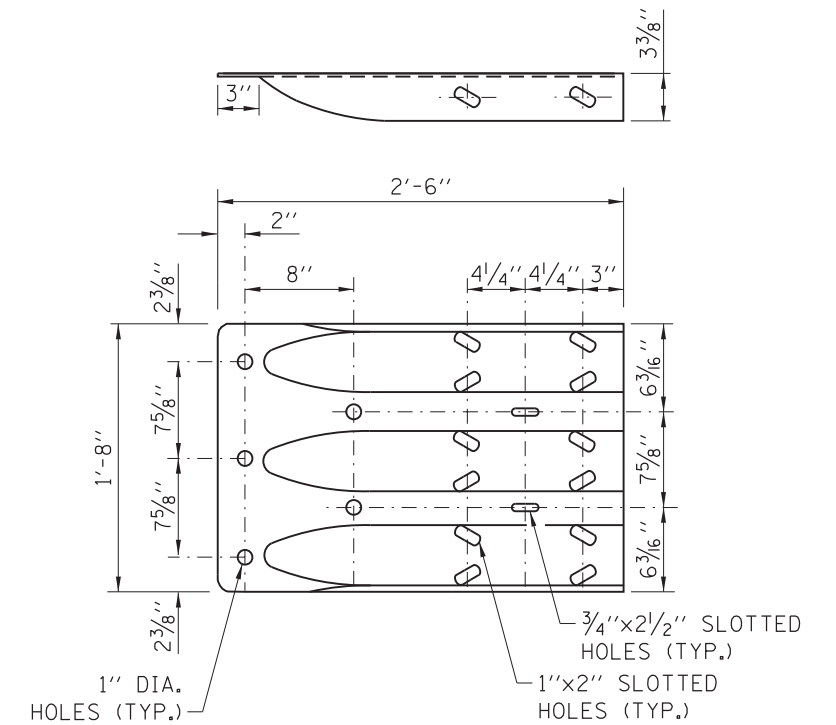
STANDARD C10-08



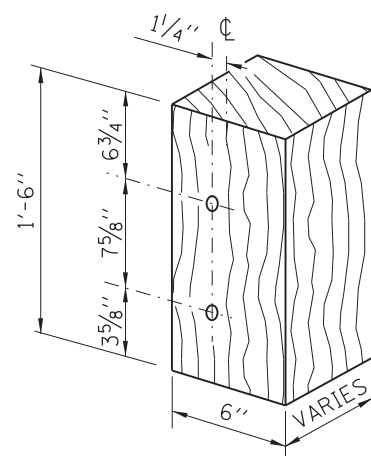
POSTS 1-11 WOOD BLOCK-OUT DETAIL



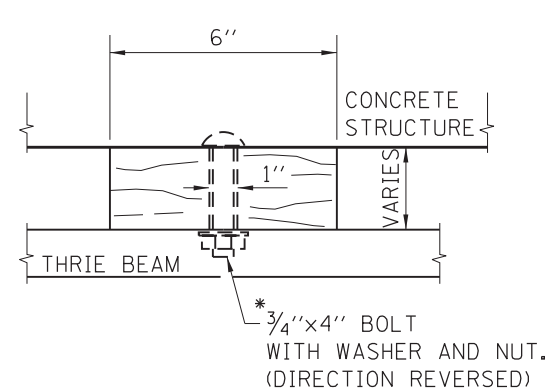
POST 12 WOOD BLOCK-OUT DETAIL
(SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR POST 13-17 BLOCKOUTS)



THRIE BEAM END SHOE DETAIL

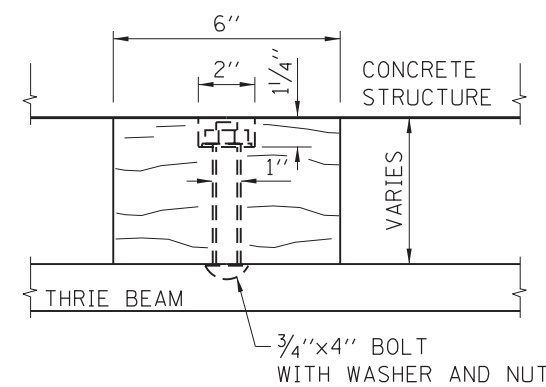


MODIFIED THICKNESS DETAIL
WOOD BLOCK-OUTS A, B, C, & D

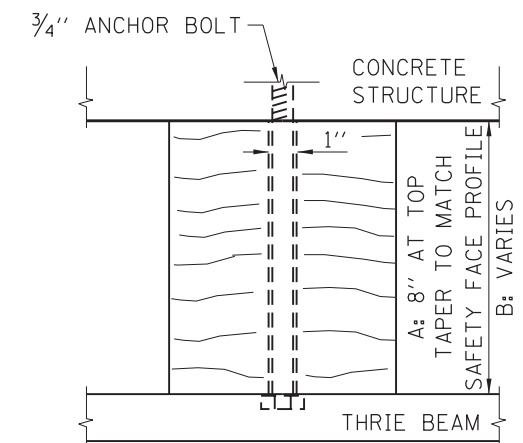


WOOD BLOCK-OUT D

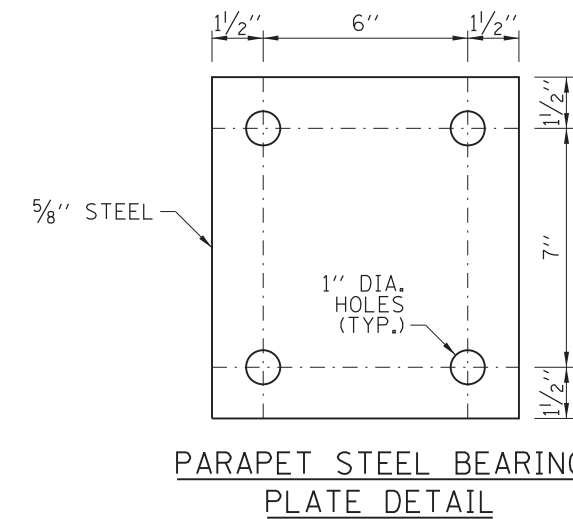
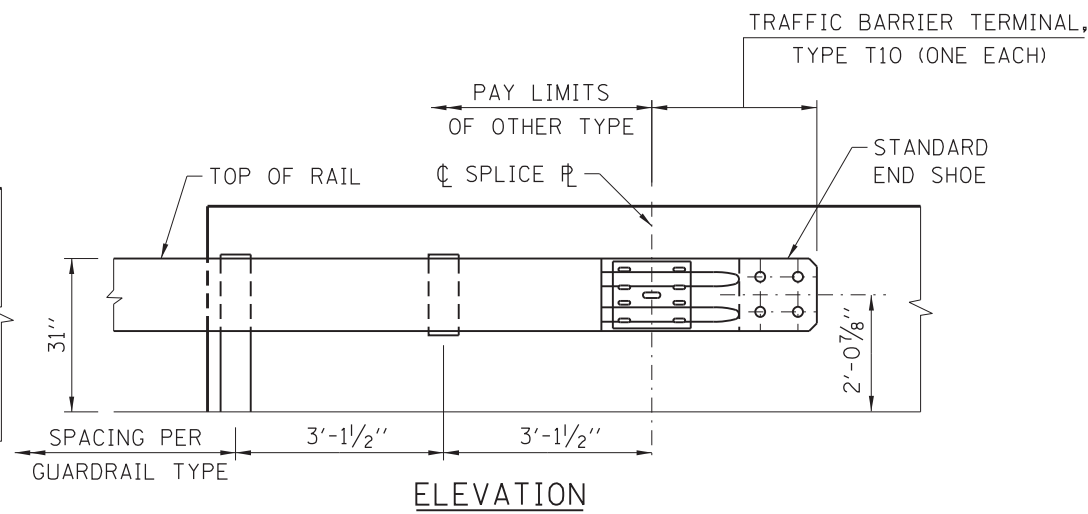
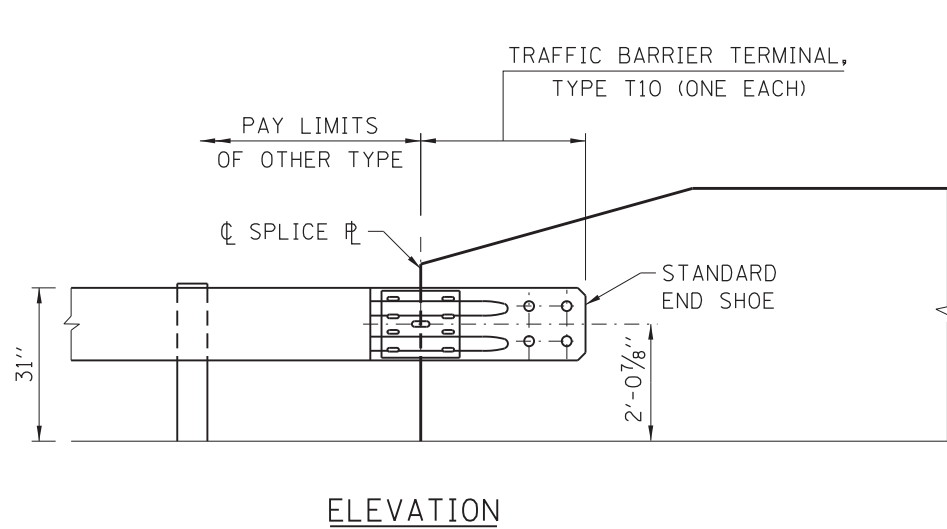
* AFTER TIGHTENING, CUT THE BOLTS FLUSH WITH THE NUTS AND DAMAGE THE NUTS TO PREVENT THEM FROM LOOSENING.



WOOD BLOCK-OUT C



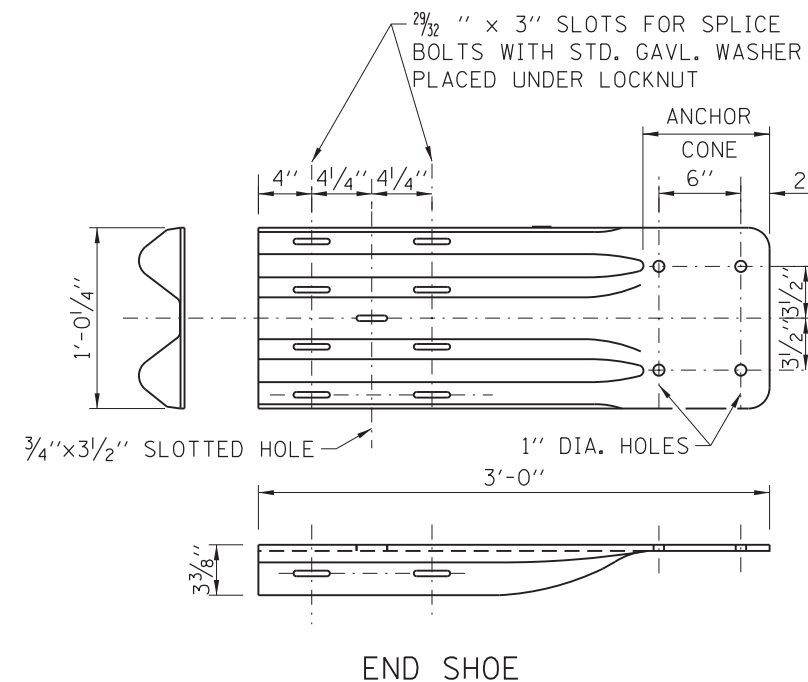
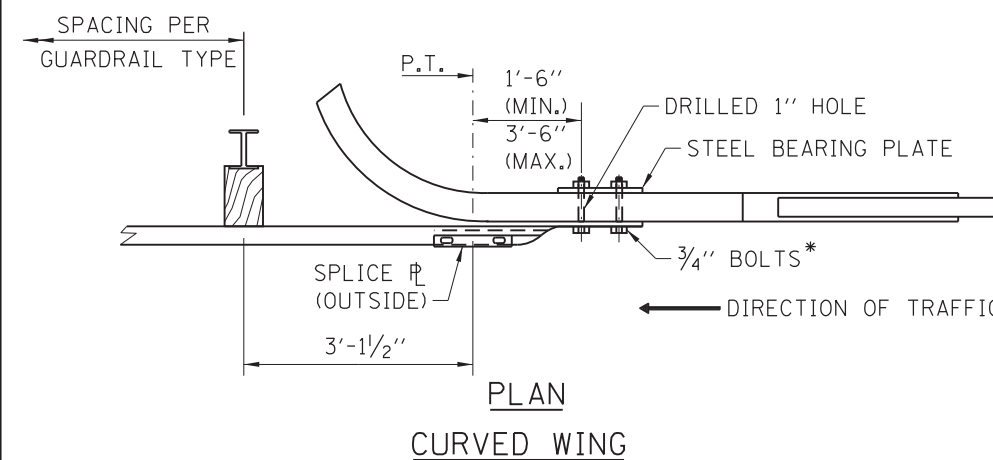
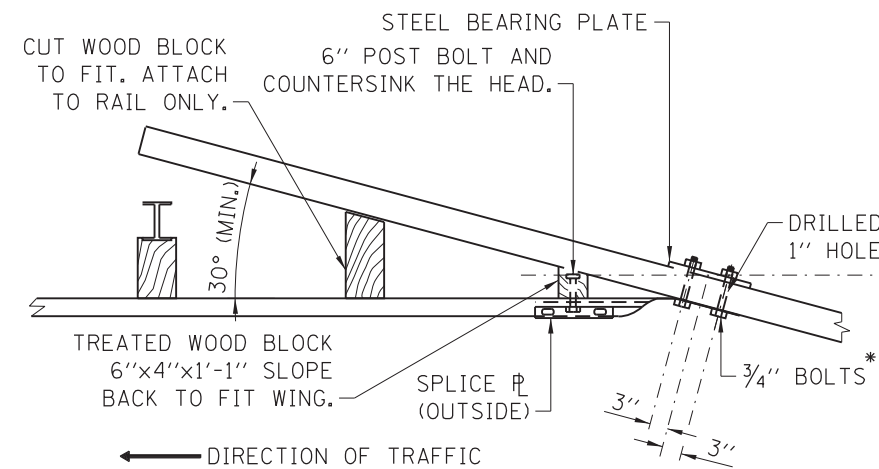
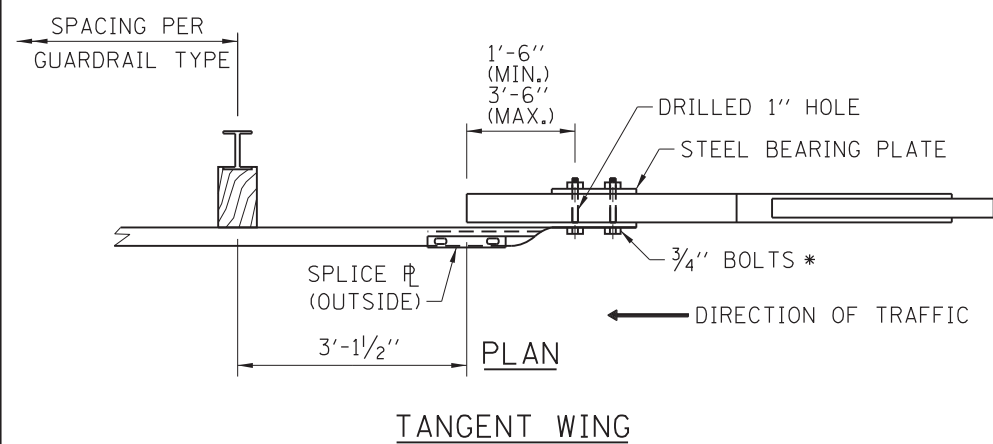
WOOD BLOCK-OUT A & B



(4 EACH INDIVIDUAL 5"x5"x5/8" STEEL PLATES WITH CENTERED HOLES MAY BE SUBSTITUTED FOR THE PLATE SHOWN)

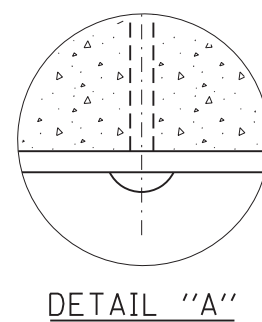
NOTES:

- SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.
- THE 24 7/8" TYPICAL RAIL HEIGHT IS MEASURED FROM EXISTING SURFACE 1'-0" IN FRONT OF RAIL, OR FROM EDGE OF SHOULDER/EDGE OF GUTTER WHEN EDGE IS MORE THAN 1'-0" IN FRONT OF RAIL TO CENTER OF RAIL.
- THE TRAFFIC BARRIER TERMINAL, TYPE T10 IS TYPICALLY UTILIZED TO CONNECT GALVANIZED STEEL PLATE BEAM GUARDRAIL TO THE DEPARTING END OF AN EXISTING BRIDGE CONCRETE WING WALL OR PARAPET.
- UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.
- TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.
- WHEN END SHOE IS ATTACHED TO A BRIDGE PARAPET WHICH HAS AN EXPANSION JOINT, THE BOLTS SHALL BE PROVIDED WITH A LOCKNUT OR DOUBLE NUT AND SHALL BE TIGHTENED ONLY TO A POINT THAT WILL ALLOW GUARDRAIL MOVEMENT.
- THE ANCHOR CONE SHALL BE SET FLUSH WITH THE SURFACE OF THE CONCRETE.
- EXTERNALLY THREADED STUDS PROTRUDING FROM THE SURFACE OF THE CONCRETE SHALL NOT BE PERMITTED.
- WHEN WING WALL THICKNESS IS GREATER THAN 18" OR NOT ACCESSIBLE TO THE BACK SIDE, 4-3/4" BOLTS SHALL BE ANCHORED INTO DRILLED HOLES, USING A CHEMICAL ADHESIVE. MINIMUM EMBEDMENT SHALL BE 10". ANCHOR BOLTS WITH STANDARD WASHER SHALL BE USED. AFTER TIGHTENING, CUT THE ANCHOR BOLTS FLUSH WITH THE NUTS, AND DAMAGE THE NUTS TO PREVENT THEM FROM LOOSENING.



GENERAL NOTE:

* HEAD OF BOLT TO BE ON TRAFFIC SIDE. SEE DETAIL "A"

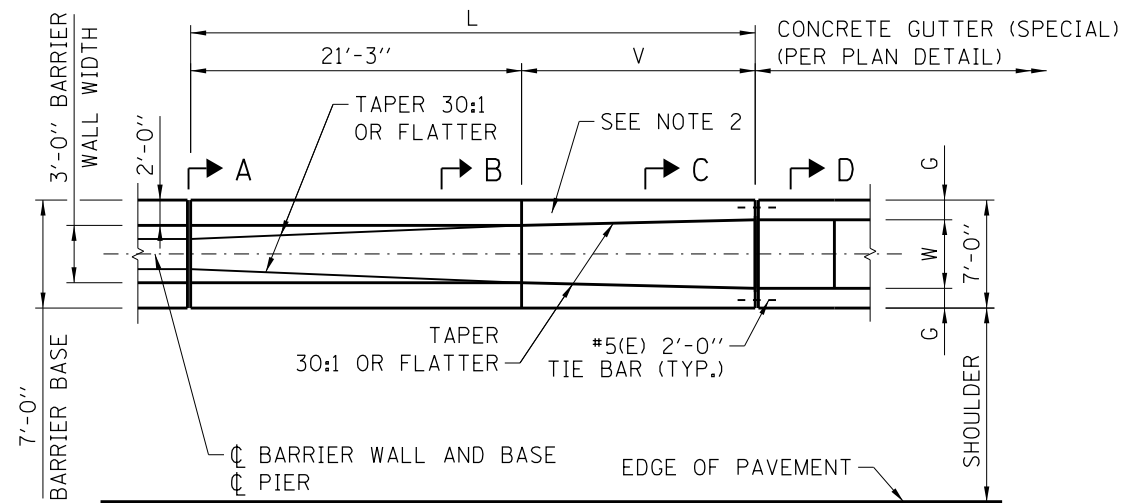


APPROVED *Paul Kovacs* CHIEF ENGINEER DATE 7-1-2009

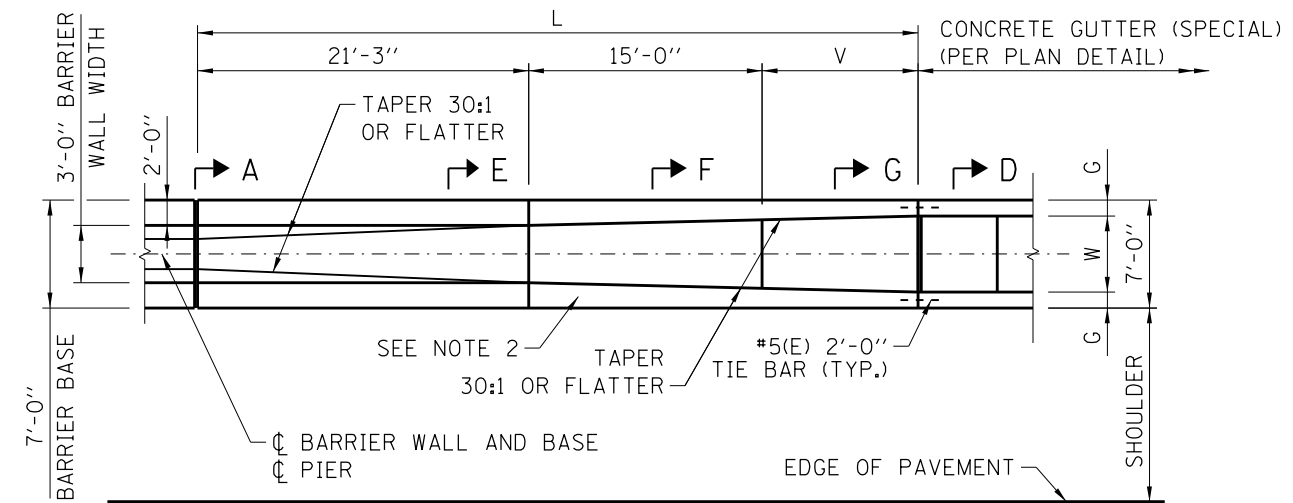
DATE	REVISIONS
3-01-2010	REVISED NOTES, ADDED END SHOE AND PARAPET BEARING PLATE DETAIL.
1-01-2011	REVISED END SHOE HEIGHT ATTACHMENT
2-07-2012	REVISED BOLT NOTE, ADDED DETAIL "A" AND REVISED NOTES.
3-31-2014	REVISED NOTES.
3-11-2015	REVISED NOTES.
3-31-2016	REVISED FLARED WING ANGLE.
3-31-2017	REV'D ELEV PARAPET & FL WING ANGLE

TRAFFIC BARRIER TERMINAL, TYPE T10

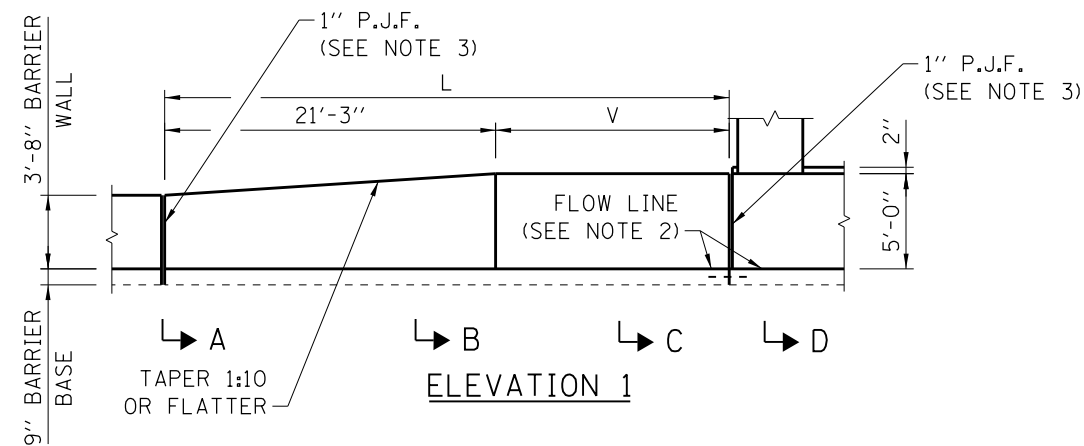
STANDARD C11-07



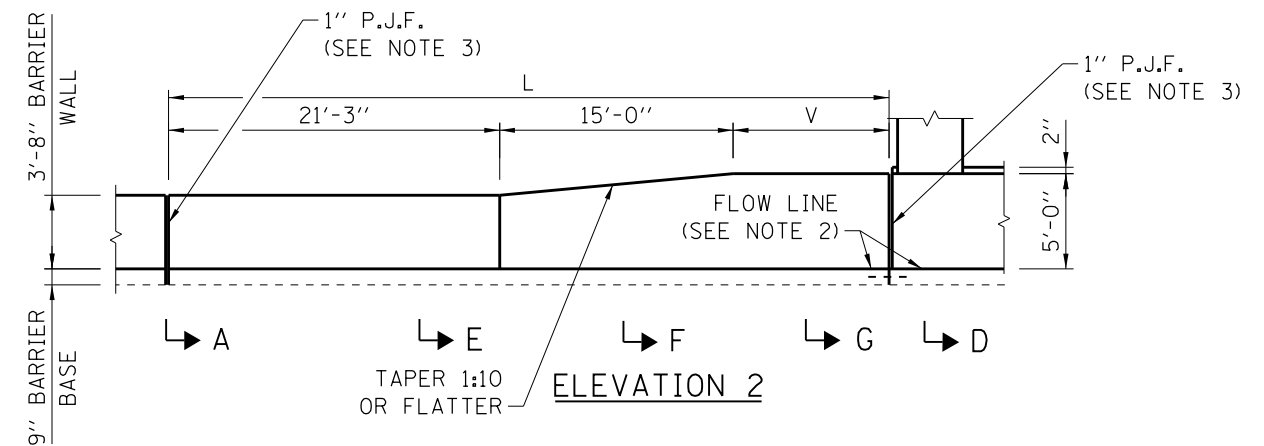
PLAN 1



PLAN 2



ELEVATION 1



ELEVATION 2

CONCRETE MEDIAN BARRIER TRANSITION, TYPE V-DF
AT BRIDGE PIERS (FOR W ≤ 4'-0'')

CONCRETE MEDIAN BARRIER TRANSITION, TYPE V-DF
AT BRIDGE PIERS (FOR W > 4'-0'')

NOTES:

- 2" DEEP CONTRACTION JOINTS SHALL BE DONE BY SAWING AND SHALL BE CONSTRUCTED IN THE CONCRETE BARRIER WALL, CONCRETE BARRIER BASE, AND CONCRETE GUTTER (SPECIAL). CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'-0". THE MINIMUM DISTANCE BETWEEN CONTRACTION JOINTS IN THE MEDIAN BARRIER WALL SHALL BE 2'-0". WHEN A DRAINAGE STRUCTURE FALLS WITHIN 2'-0" FROM AN EXPANSION JOINT (OR) CONTRACTION JOINT, THE NEAREST CONTRACTION JOINT SHALL BE OMITTED.
- GUTTER PROFILE IN THE VICINITY OF SAG VERTICAL CURVES, ALONG FLAT GRADES AND AT THE MEETING OF PROPOSED AND EXISTING GUTTER, SHALL BE CAREFULLY CONTROLLED AND FIELD ADJUSTED IF NECESSARY TO ENSURE POSITIVE DRAINAGE AND AVOID PONDING.
- NON-STAINING GRAY ONE COMPONENT NON-SAG ELASTOMERIC GUN GRADE POLYURETHANE SEALANT MEETING THE REQUIREMENTS OF ASTM C-920, TYPE S, GRADE NS, CLASS 25, USE T WITH A BACKER ROD.
- TIE BARS SHALL BE INCLUDED IN THE COST OF THE VARIOUS BARRIER AND GUTTER ITEMS AND SHALL BE EPOXY COATED. TIE BARS BETWEEN THE BARRIER AND BASE SHALL BE ON 30" CENTERS AND ALTERNATE LEFT AND RIGHT OF THE BARRIER CENTERLINE.

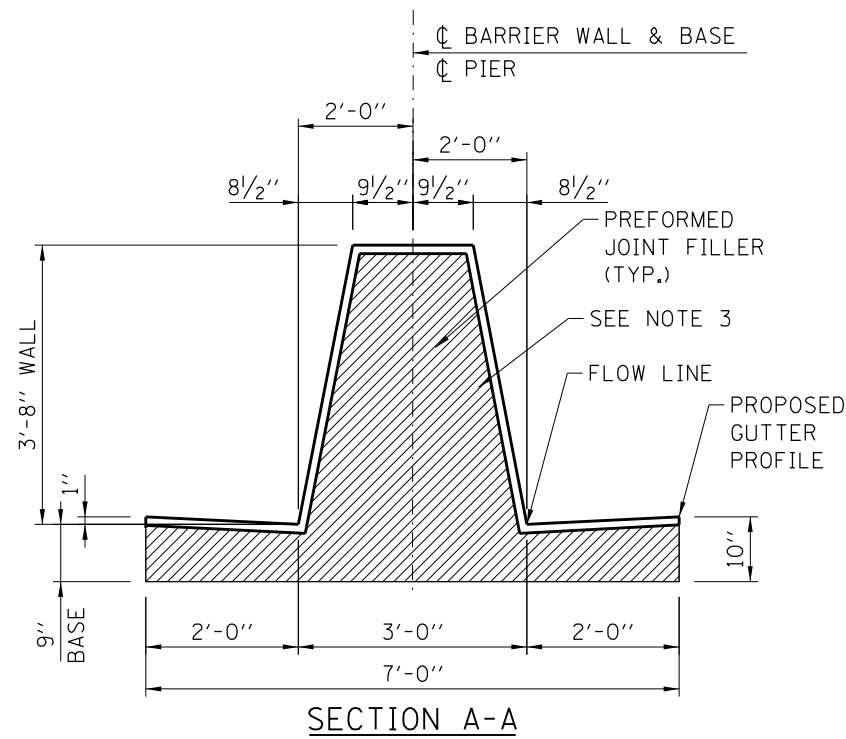
		TABLE OF VARIABLES			
		W	L	V	G
PLAN 1	3'-0"	31'-3"	10'-0"	2'-0"	
	3'-6"	31'-3"	10'-0"	1'-9"	
	4'-0"	36'-3"	15'-0"	1'-6"	
PLAN 2	4'-6"	46'-3"	10'-0"	1'-3"	
	5'-0"	51'-3"	15'-0"	1'-0"	
	5'-6"	58'-9"	22'-6"	9"	
	6'-0"	66'-3"	30'-0"	6"	

APPROVED: *Paul Kovacs*
CHIEF ENGINEERING OFFICER DATE 2-7-2012

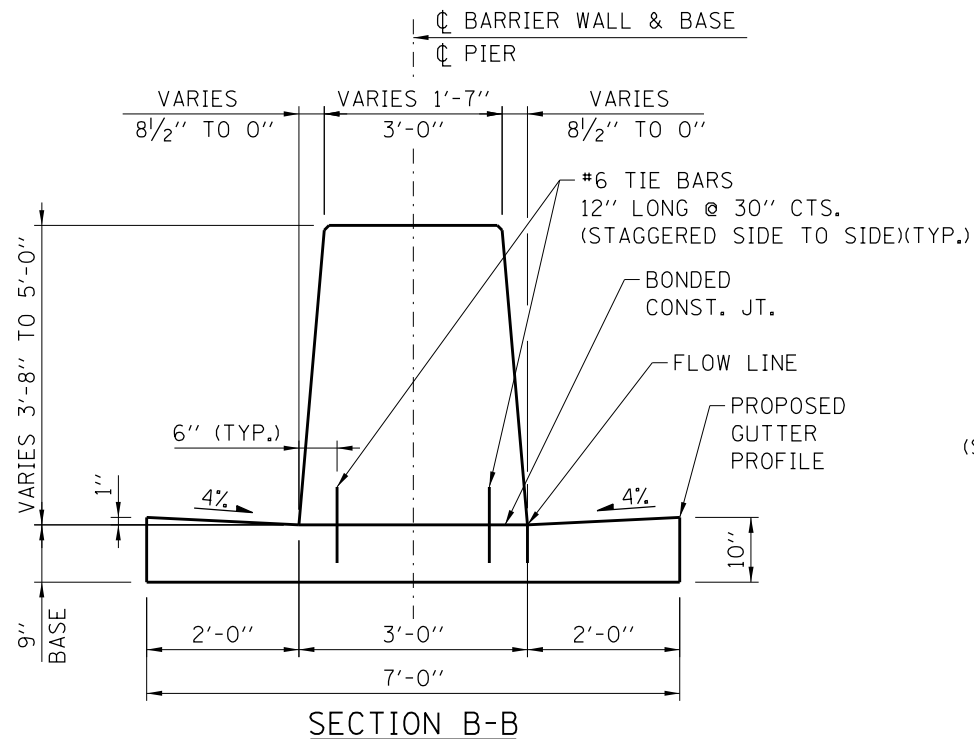


DATE	REVISIONS
11-01-2012	MODIFIED MEDIAN BARRIER TRANSITION.
3-31-2014	MODIFIED BARRIER BASE.
3-11-2015	MODIFIED MEDIAN BARRIER TRANSITION.
3-31-2016	MODIFIED NOTES
3-01-2019	REVISED TO CONSTANT SLOPE AT 44"

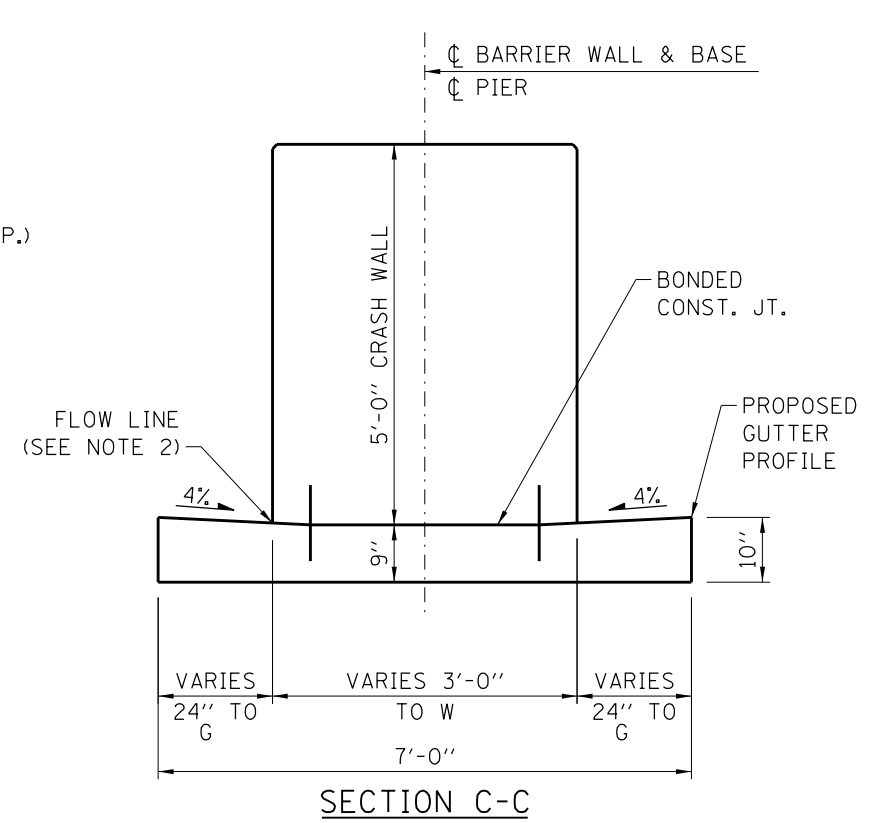
CONCRETE MEDIAN BARRIER
TRANSITION, TYPE V-DF
AT BRIDGE PIERS
STANDARD C13-05



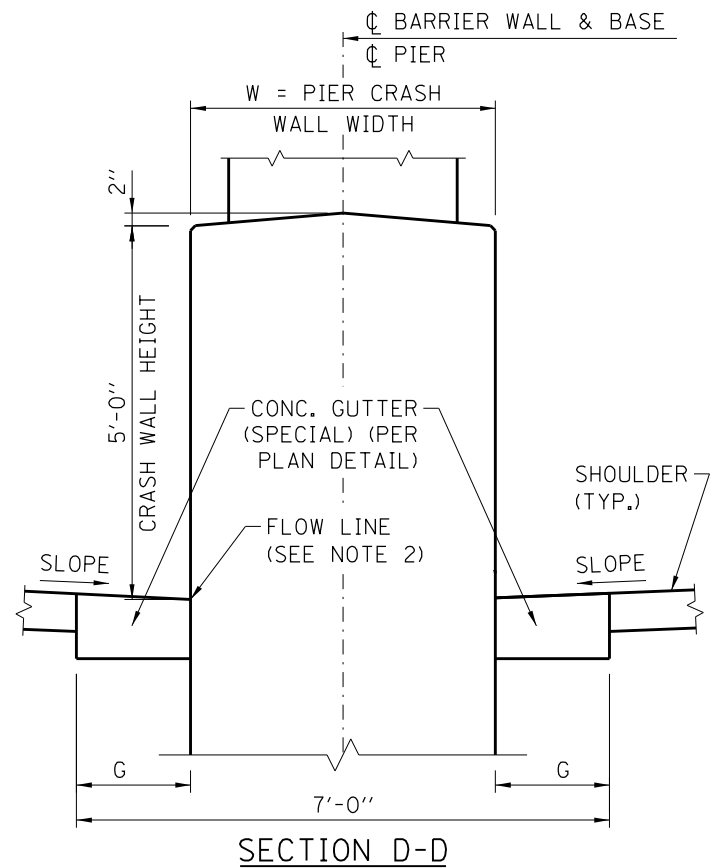
SECTION A-A



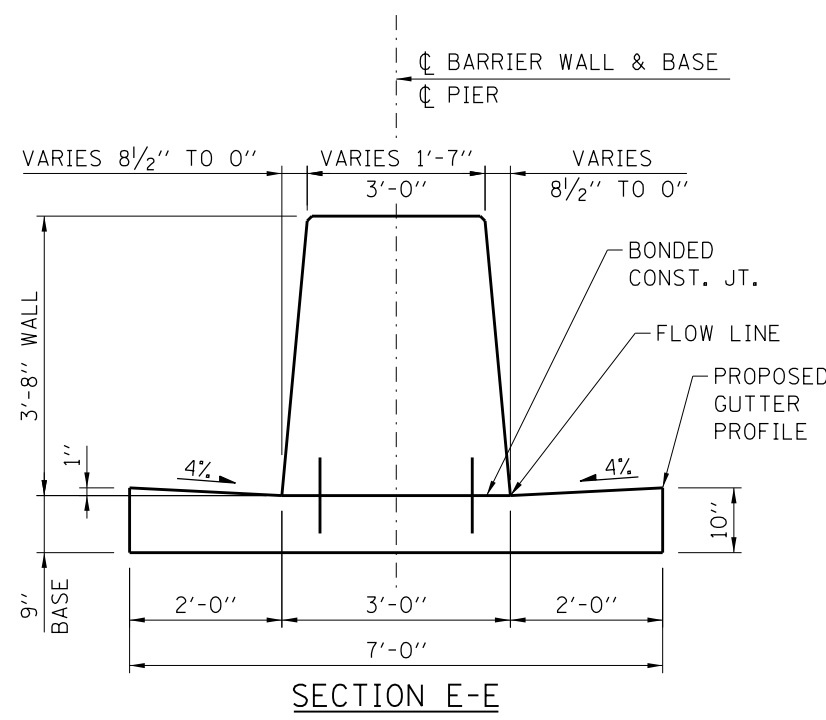
SECTION B-B



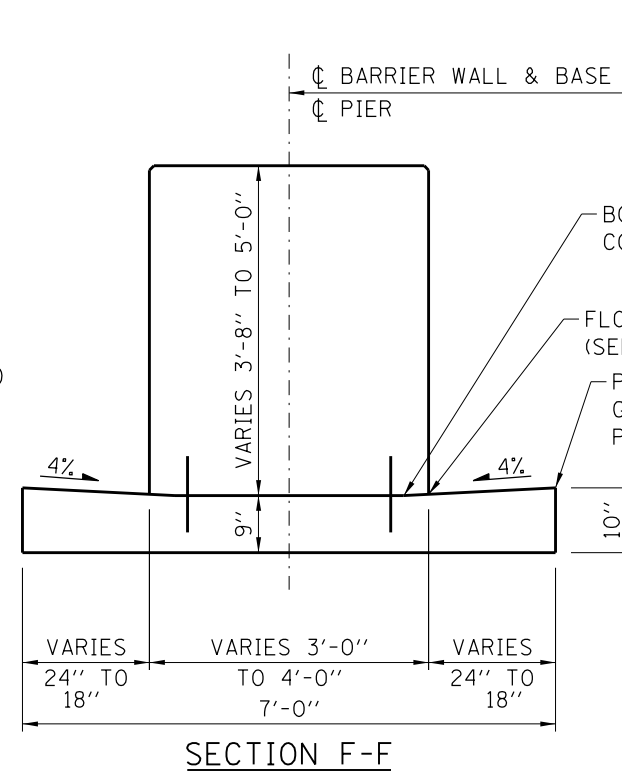
SECTION C-C



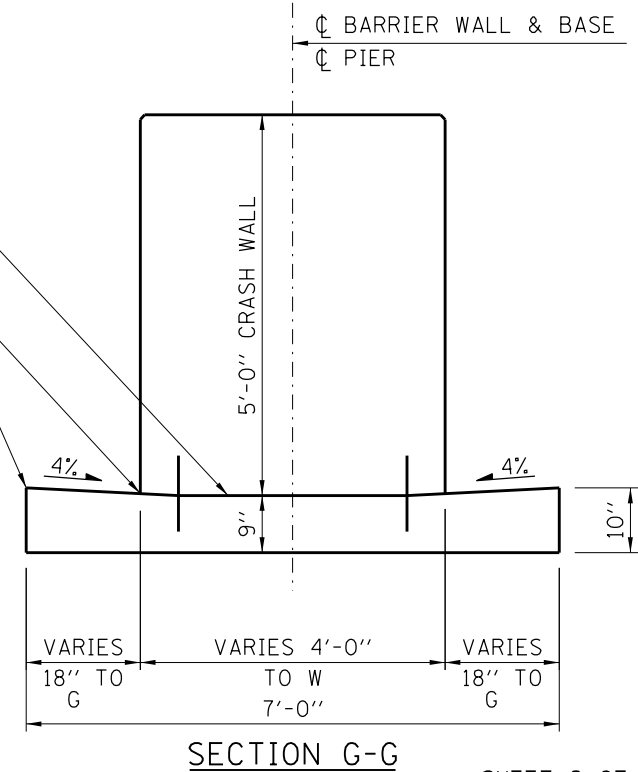
SECTION D-D



SECTION E-E




SECTION F-F



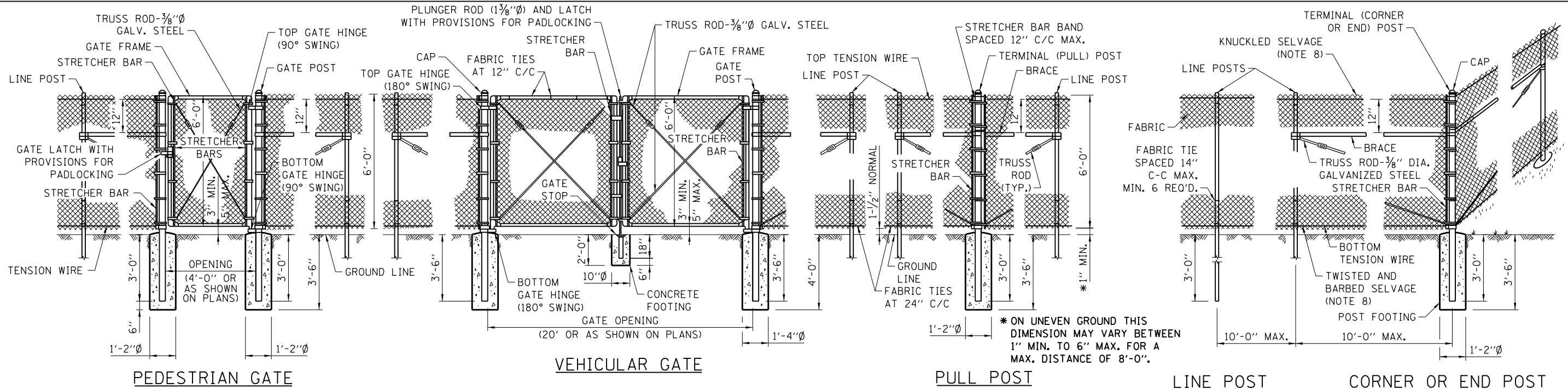
SECTION G-G

NOTES:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

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CHIEF ENGINEERING OFFICER DATE 2-7-2012



CONCRETE MEDIAN BARRIER
TRANSITION, TYPE V-DF
AT BRIDGE PIERS
STANDARD C13-05



PEDESTRIAN GATE

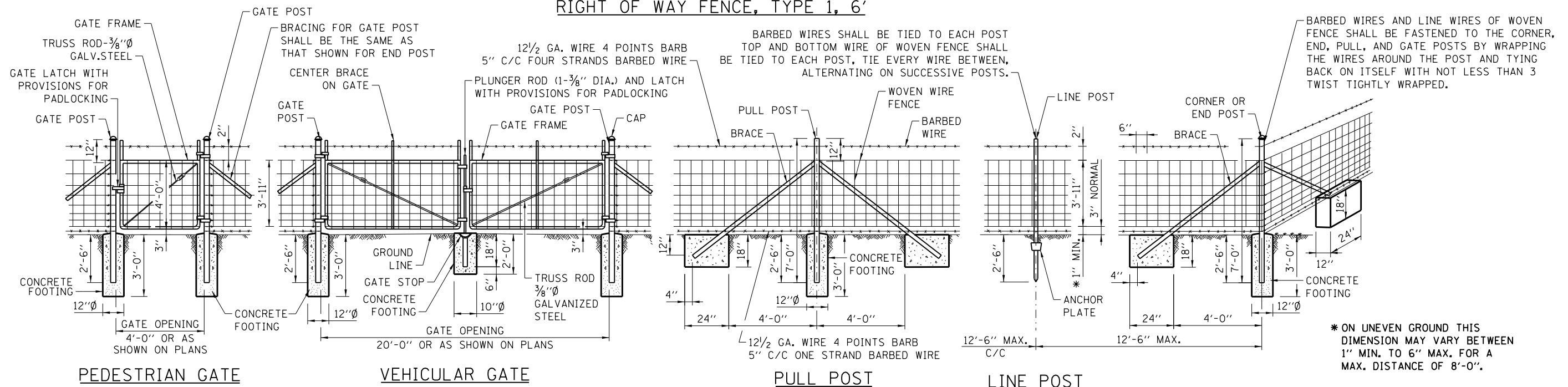
VEHICULAR GATE

PULL POST

LINE POST

CORNER OR END POST

RIGHT OF WAY FENCE, TYPE 1, 6'



PEDESTRIAN GATE

VEHICULAR GATE

PULL POST

LINE POST

CORNER OR END POST

RIGHT OF WAY FENCE, TYPE 2, 4'

GENERAL NOTES

- ON STRAIGHT RUNS OF FENCE, PULL POSTS SHALL BE USED AT 500' CENTERS FOR TYPE 1 AND 330' CENTERS FOR TYPE 2.
- WHERE R.O.W. FENCE FOLLOWS R.O.W. LINE IT SHALL BE INSTALLED PARALLEL TO AND 6" INSIDE THE R.O.W. LINE ON ILLINOIS TOLLWAY PROPERTY.
- LINE POSTS AND BRACES SHALL BE ON ILLINOIS TOLLWAY SIDE OF FENCE FABRIC.
- WHEN THE TENSION OF THE FENCE TENDS TO PULL THE POSTS FROM THE GROUND, THE LINE POSTS SHALL BE ANCHORED WITH ANCHORAGE SPECIFIED FOR CORNER POSTS.
- WHEN THE FENCE LINE HAS A CHANGE IN DIRECTION OF 10° OR MORE, A CORNER POST SHALL BE PLACED AT THE POINT OF CHANGE. WHERE THE ANGLE OF CHANGE IS LESS THAN 10° A PULL POST SHALL BE USED.
- WHERE GRADE LINE HAS A CHANGE IN SLOPE OF 10° OR MORE, A CORNER POST WITH BRACING AS REQUIRED SHALL BE PLACED. WHERE ANGLE IS LESS THAN 10° LINE POST MAY BE USED.
- WHERE RIGHT-OF-WAY FENCE, TYPE 1 IS USED, THE FABRIC SHALL BE KNUCKLED SELVAGE ON TOP AND TWISTED AND BARBED SELVAGE ON BOTTOM.
- PLACEMENT OF BRACED END POSTS OR CORNER POSTS WITHIN THE CLEAR ZONE SHALL BE AVOIDED.

* ON UNEVEN GROUND THIS DIMENSION MAY VARY BETWEEN 1" MIN. TO 6" MAX. FOR A MAX. DISTANCE OF 8'-0".

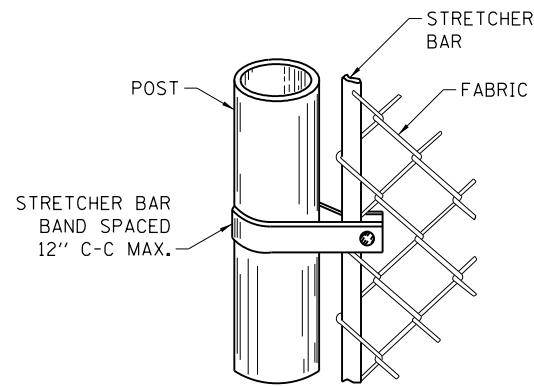
APPROVED *Paul Kovacs* CHIEF ENGINEER DATE 7-1-2009



DATE	REVISIONS
7-01-2009	R.O.W. FENCE TYPES 1 AND 2 FENCE DETAILS
11-01-2012	REVISED NOTES
3-31-2014	REVISED ROLLED FORM SECTIONS
3-11-2015	REVISED NOTES
3-31-2017	REVISED NOTES

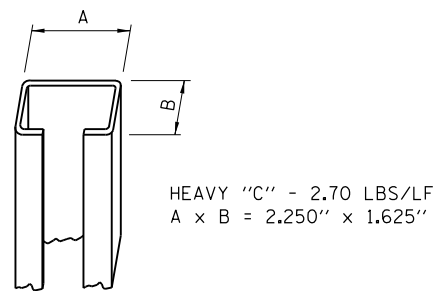
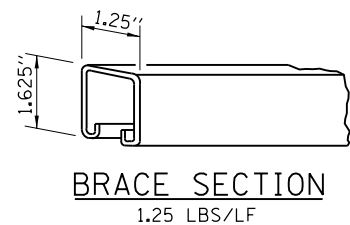
RIGHT OF WAY FENCE

STANDARD D1-05

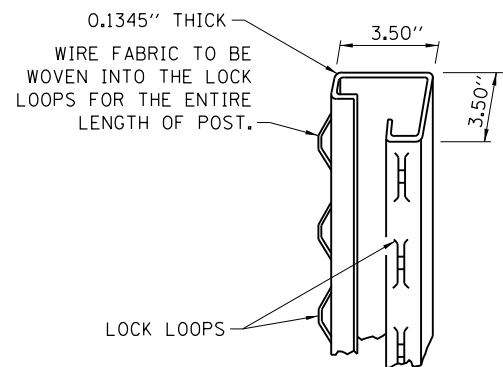


STRETCHER BARS SHALL BE GALVANIZED FLAT STEEL BAR NOT LESS THAN $\frac{1}{4}$ " x $\frac{3}{4}$ " AND THE STRETCHER BAR BANDS SHALL BE GALVANIZED FLAT STEEL BAR NOT LESS THAN $\frac{1}{8}$ " x 1" WITH A $\frac{3}{8}$ " GALVANIZED CARRIAGE BOLT.

METHOD OF FASTENING STRETCHER BAR TO POST

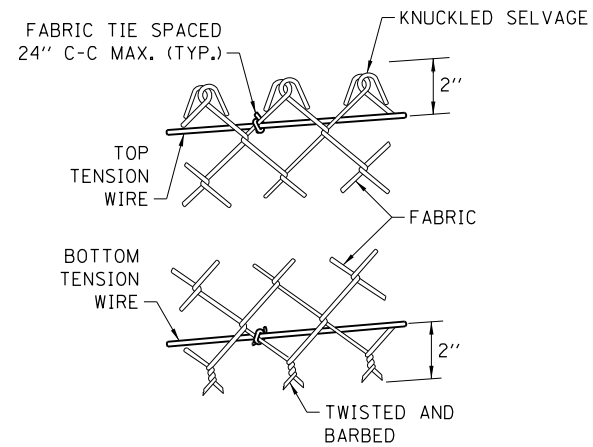


LINE POST 'C' SECTION

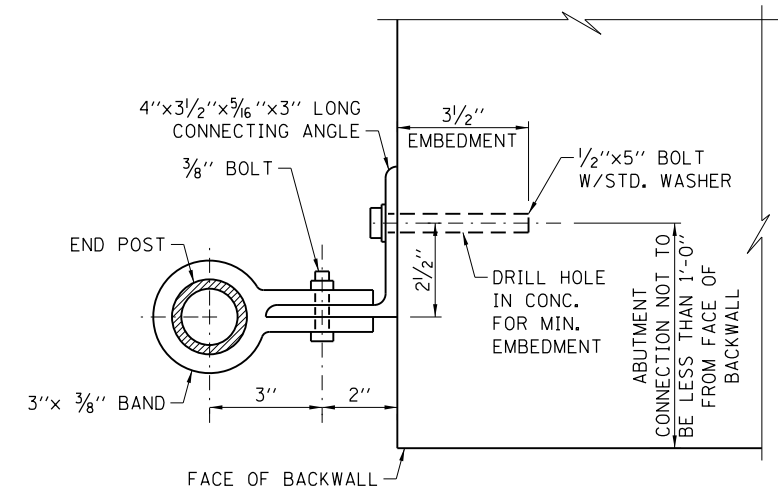


TERMINAL POST SECTION
5.10 LBS/LF

DETAILS OF ROLL FORMED SECTIONS



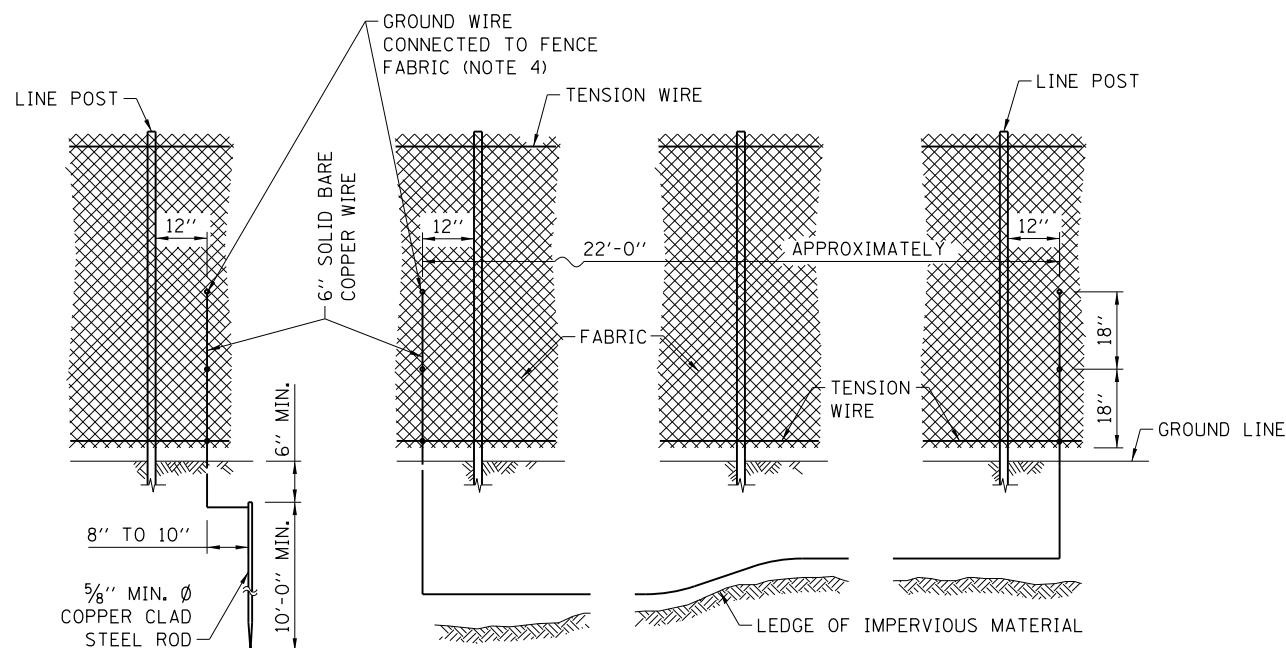
METHOD OF TYING FABRIC TO TENSION WIRES



ABUTMENT CONNECTION DETAIL

NOTES FOR ABUTMENT CONNECTION:

1. WHEN ROLL FORMED SECTION IS USED IN LIEU OF PIPE AS END POST, THE POST SHALL BE BOLTED DIRECTLY TO THE ABUTMENT WALL WITH $2\frac{1}{2}$ " x 5" BOLTS WITH STANDARD WASHERS MEETING THE APPROVAL OF THE ENGINEER.

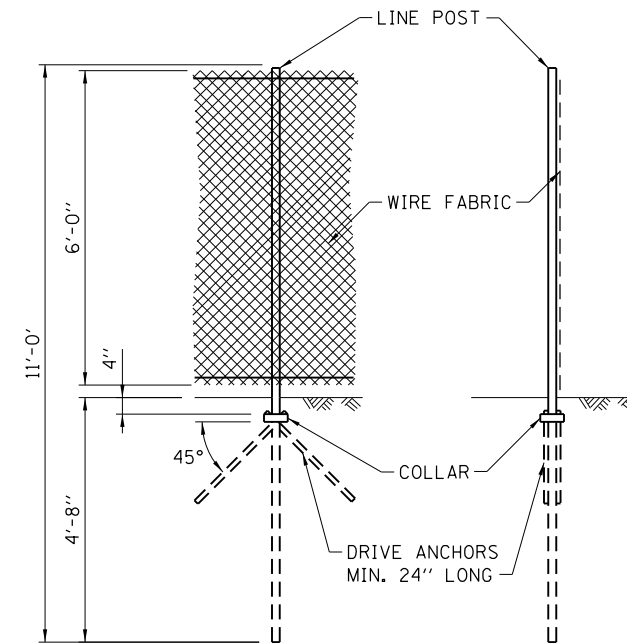


STANDARD GROUND

COUNTERPOISE GROUND (ALTERNATE)

NOTES FOR STANDARD AND COUNTERPOISE GROUND:

1. THE INTERVALS FOR GROUNDING CONTINUOUS FENCING SHALL NOT EXCEED 500 FEET IN URBAN AREAS AND 1000 FEET IN RURAL AREAS. FENCE ADJACENT TO A GATE SHALL BE GROUNDED A MAXIMUM DISTANCE 100 FEET EACH SIDE OF THE GATE.
2. FENCE CROSSING UNDER A POWER LINE SHALL BE GROUNDED, ONCE DIRECTLY UNDER THE CROSSING AND ONE ON EACH SIDE AT 25 TO 50 FEET AWAY. FENCE LOCATED DIRECTLY UNDER A TELEPHONE WIRE OR CABLE CROSSING SHALL HAVE A SINGLE GROUND.
3. COUNTERPOISE GROUNDS SHALL BE USED AT LOCATIONS WHERE GROUND RODS CAN NOT BE DRIVEN DUE TO IMPERVIOUS EARTH MATERIALS.
4. THE GROUND WIRES SHALL BE CONNECTED TO FENCE FABRIC AND GROUND ROD BY STAINLESS STEEL BOLTS AND WASHERS. THE LOWER CONNECTION OF THE GROUND WIRE SHALL BE MADE TO THE BOTTOM TENSION WIRE.



ALTERNATE DRIVEN LINE POST ANCHORAGE WITH OR WITHOUT DRIVE ANCHORS

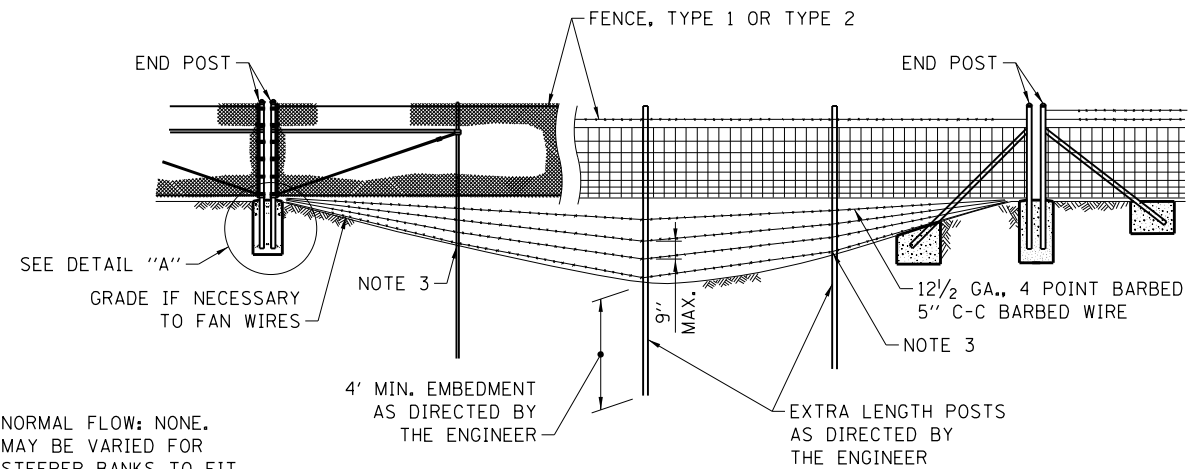
NOTE FOR FENCE POST:

ALTERNATE DRIVEN LINE POST ANCHORAGE IS OPTIONAL. DRIVEN LINE POST ANCHORAGE WITHOUT DRIVE ANCHORS MAY BE USED IN AVERAGE TO GOOD SOIL CONDITIONS. WHEN SOIL IS WEAKER ($Q_u < 1.25$ TONS/ SQ. FT.) AND STABILITY OF THE POST IS QUESTIONABLE, DRIVE ANCHORS SHALL BE USED. TYPES, SHAPES, DIMENSIONS AND COATING REQUIREMENTS OF DRIVE ANCHORS (ANCHOR BLADES AND COLLARS) FOR DIFFERENT TYPE OF POSTS SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

ELECTRICAL GROUNDING DETAILS

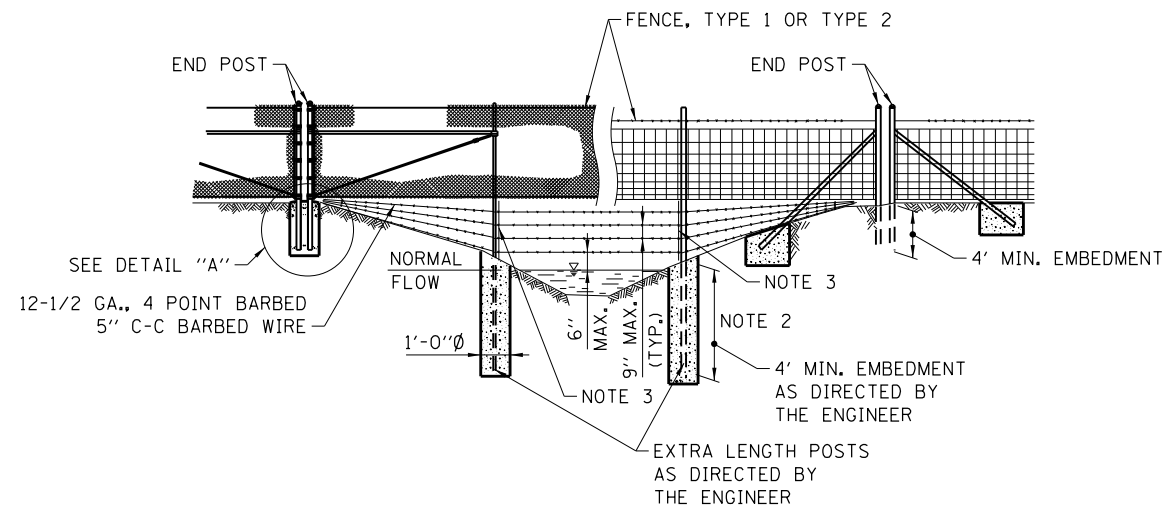
APPROVED *Paul Kovacs* CHIEF ENGINEER DATE 7-1-2009





NORMAL FLOW: NONE.
MAY BE VARIED FOR
STEEPER BANKS TO FIT
VARIOUS CHANNEL SECTIONS.

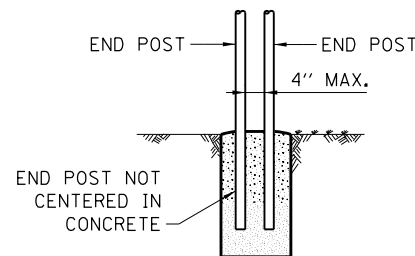
STREAM CROSSING, TYPE 1



STREAM CROSSING, TYPE 2

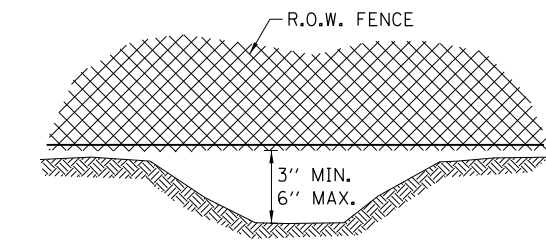
NOTES FOR STREAM CROSSING TYPE 1 AND TYPE 2:

1. THESE INSTALLATION CONDITIONS ARE TYPICAL AND ARE NOT TO BE CONSTRUED AS REPRESENTATIVE OF ALL CONDITIONS WHICH WILL BE ENCOUNTERED. CONSTRUCTION WILL BE VARIED AS REQUIRED OR DIRECTED TO MEET FIELD CONDITIONS.
2. FOR STREAM CROSSING OF THE TYPE REQUIRED THE BOTTOM BARBED WIRE SHALL BE ANCHORED TO CONCRETE FOOTING OR TO HOLES DRILLED IN POSTS, AND INTERMEDIATE WIRES SHALL BE TIED TO THE BOTTOM WIRE AND TO POSTS IN AN EVENLY SPACED FASHION TO PREVENT SLIPPAGE.
3. CONCRETE AND FITTINGS FOR ALL TYPES OF FENCE SHALL BE AS DETAILED FOR SIMILAR CONDITIONS PER STANDARD DRAWING.

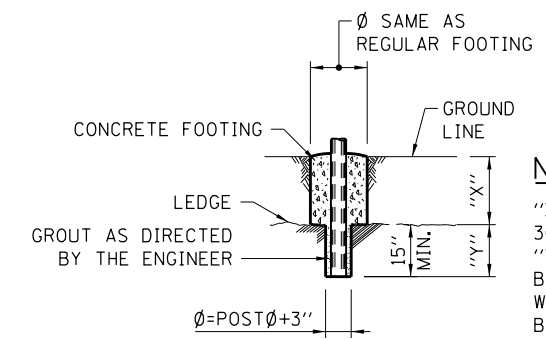


THE FENCE FABRIC SHALL BE REPLACED BY BARBED WIRE STRANDS AT 12\"/>

DETAIL A

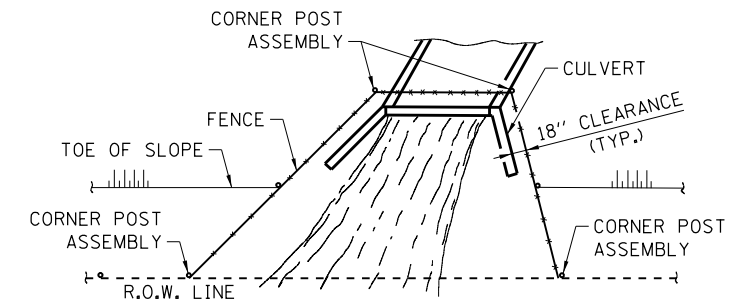


FENCE INSTALLATION OVER DITCH

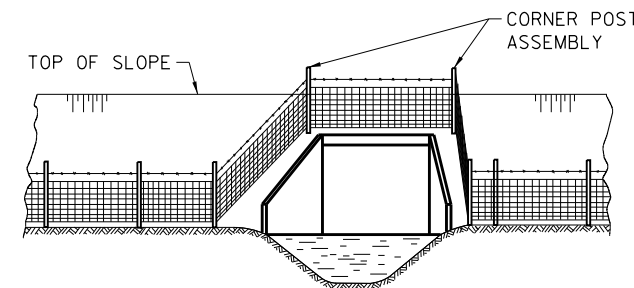


NOTE:
"X" + "Y" SHALL NOT EXCEED 30" WHEN "X" IS 0" TO 15" "Y" = 15", AND THE POST SHALL BE SHORTENED AS REQUIRED. WHEN "X" EXCEEDS 15" "Y" SHALL BE DECREASED ACCORDINGLY.

FOOTING FOR POST WHEN ROCK LEDGE IS ENCOUNTERED



PLAN AT HEADWALL



ELEVATION

NOTES FOR INSTALLATION AROUND HEADWALL:

1. THIS TYPE OF INSTALLATION IS TO BE USED ONLY WHEN SPECIFICALLY CALLED FOR IN THE CONTRACT PLANS.
2. WHEN THE WIDTH OF THE CULVERT MAKES NECESSARY TO ANCHOR A POST TO THE TOP OF THE CULVERT, A CAST IRON SHOE OR OTHER DEVICE APPROVED BY THE ENGINEER SHALL BE USED.

INSTALLATION AROUND HEADWALL



SURVEY AND ROADWAY ITEMS

EXISTING	PROPOSED	
		CONSTRUCTION JOINT W/DOWEL BARS
		BENCHMARK
		CANTILEVER SIGN STRUCTURE
		BUTTERFLY SIGN STRUCTURE
		DOUBLE COLUMN GROUND MOUNTED SIGN
		SINGLE COLUMN GROUND MOUNTED SIGN
		SPAN TYPE SIGN STRUCTURE
		TRIPLE COLUMN GROUND MOUNTED SIGN
		RUMBLE STRIP

EROSION & SEDIMENT CONTROL, LANDSCAPING ITEMS

EXISTING	PROPOSED		EXISTING	PROPOSED	
		CLEARING & GRADING LIMITS (LIMITS OF CONSTRUCTION)			EROSION CONTROL BLANKET
		DIVERSION DIKE			OVER SEEDING CLASS B1
		DRAINAGE DIVIDE			OVER SEEDING CLASS B2
		DRAINAGE PATH			SEEDING CLASS A1
		SEDIMENT BASIN AGGREGATE BERM			SEEDING CLASS A2
		CULVERT INLET PROTECTION-STONE			SEEDING CLASS A3
		CULVERT INLET PROTECTION-FENCE			SEEDING CLASS A4
		DEWATERING BASIN			SEEDING CLASS A5
		FILTER FABRIC INLET PROTECTION, BASKET TYPE			SEEDING CLASS A6
		FILTER FABRIC INLET PROTECTION, COVER TYPE			SEEDING CLASS D1
		FLOTATION BOOM			SODDING (SALT TOLERANT)
		INITIAL CONSTRUCTION ITEM			TEMPORARY GROUND COVER
		RECTANGULAR INLET PROTECTION			TURF REINFORCEMENT MAT
		TEMPORARY ROCK CHECK DAM			
		TEMPORARY DITCH CHECK			
		SEDIMENT BASIN			
		SILT FENCE			
		SUPER SILT FENCE			
		STABILIZED CONSTRUCTION ENTRANCE			
		STONE OUTLET STRUCTURE			
		SEDIMENT TRAP			
		STREAM DIVERSION			
		TEMPORARY PIPE SLOPE DRAIN			
		TEMPORARY RIPRAP			
		TEMPORARY SWALE			
		TREES AND STUMP			
		TREE PROTECTION			
		TEMPORARY STREAM CROSSING			

DRAINAGE AND UTILITY ITEMS; ROADWAY LIGHTING AND SIGNS

EXISTING	PROPOSED	
		BOX CULVERT WITH HEADWALL
		CABLE IN DUCT W/O GROUND
		LOW POINT
		OVERHEAD ELECTRICAL
		OVERHEAD TELEPHONE
		PIPE CULVERT
		LAKE OR POND
		QUARRY
		STREAM
		SWAMP
		CABLE OR CONDUIT TAG
		ELECTRICAL MANHOLE
		LIGHT-DUTY BOX
		ROADWAY LUMINAIRE
		STEEL TOWER
		TELEPHONE MANHOLE
		UNDERPASS LUMINAIRE
		WATER POINT
		WATERMAIN VALVE VAULT
		WATER WELL
		WOOD POLE

APPROVED *Paul Kovacs* CHIEF ENGINEER DATE 7-1-2009

DATE	REVISIONS
7-01-2009	REVISED SYMBOL & PATTERNS
11-01-2012	ADDED NEW SYMBOLS
3-11-2015	ADDED NEW SYMBOL
3-31-2016	UPDATED DITCH CHECK SYMBOL





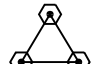
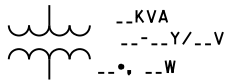

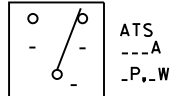
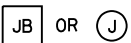
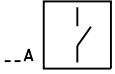

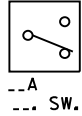
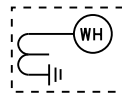









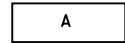





SHEET 1 OF 3



SYMBOLS AND PATTERNS

STANDARD D2-04

ELECTRICAL AND MECHANICAL ITEMS

		<u>EXISTING</u>	<u>PROPOSED</u>	
	HOME RUN TO PANEL AS NOTED			
	INDICATES CIRCUIT TURNING DOWN			
	INDICATES CIRCUIT TURNING UP			
	GROUND ROD			
	GROUNDING TRIAD			
	TRANSFORMER			
	MOTOR			
	AUTOMATIC TRANSFER SWITCH (ATS)			
	JUNCTION BOX			
	DISCONNECT SWITCH			
	CIRCUIT BREAKER			
	MANUAL TRANSFER SWITCH			
	SELF CONTAINED UTILITY METERING			
	STANDBY GENERATOR	_____ A _____	_____ A _____	COMPRESSED AIR (A)
	PANEL CIRCUIT BREAKER	_____ AR _____	_____ AR _____	ACID RESISTANT WASTE OR DRAIN
	MECHANICALLY HELD LIGHTING COIL	_____ ARV _____	_____ ARV _____	ACID RESISTANT VENT
	CONTROL RELAY COIL	_____ DS _____	_____ DS _____	STORM SEWER (DOWNSPOUT)
	SINGLE-POLE SWITCH	_____ G _____	_____ G _____	GAS LINE
	DUPLEX RECEPTACLE	_____ HG _____	_____ HG _____	HOT GAS BYPASS LINE (HG)
	4P, 4W, WEATHERPROOF RECEPTACLE WITH SPRING DOOR, BACK BOX, & ANGLE ADAPTER	_____ HHWR _____	_____ HHWR _____	HEATING HOT WATER RETURN (HHWR)
	4P, 4W, WEATHERPROOF RECEPTACLE WITH SPRING DOOR & BACK BOX	_____ HHWS _____	_____ HHWS _____	HEATING HOT WATER SUPPLY (HHWS)
	DUPLEX RECEPTACLE WITH GROUND FAULT PROTECTION	_____ IA _____	_____ IA _____	DRY COMPRESSED AIR (IA-INSTRUMENT AIR)
	CONTROL BUILDING LIGHTING 1' X 4' INDUSTRIAL FLUORESCENT FIXTURE, PORCELAIN REFLECTOR, ELECTRONIC BALLAST.	_____ P _____	_____ P _____	PROCESS WATER ("P" WATER) LINE
	COMPACT WALL-MOUNTED LOW WATTAGE HPS FIXTURE WITH WIRE GUARD & SINGLE FACTORY INSTALLED FUSE	_____ PW _____	_____ PW _____	PROTECTED WATER OR PLANT WATER (PW)
	EMERGENCY LIGHT UNIT WITH 2-6 VOLT, 12 WATT SEALED BEAM HALOGEN LAMPS WITH WALL MOUNTING BRACKET	_____ RD _____	_____ RD _____	REFRIGERANT DISCHARGE LINE (RD)
	LANE LIGHTING - HEAVY DUTY ALUMINUM HOUSING WITH ENCLOSED REFLECTOR & TEMPERED GLASS LENS W/AUTO REGULATOR BALLAST. ASYMMETRIC PATTERN	_____ RS _____	_____ RS _____	REFRIGERANT SUCTION LINE (RS)
	WIRE	_____ V _____	_____ V _____	VENT LINE (V)
	CONDUIT			



SYMBOLS AND PATTERNS

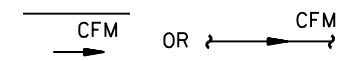
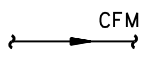
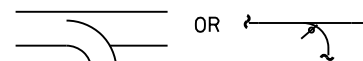


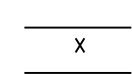
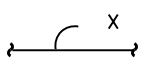




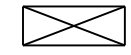


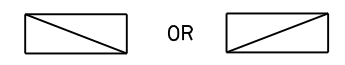
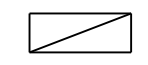


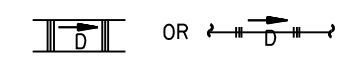
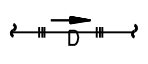


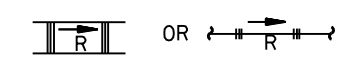
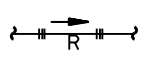


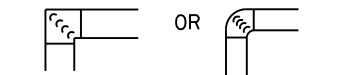
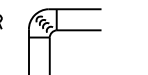


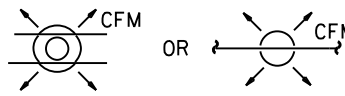
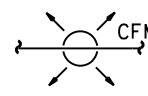


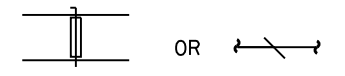
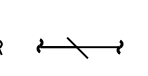


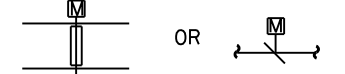
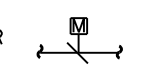





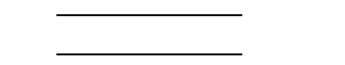


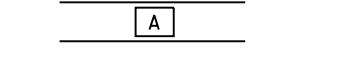


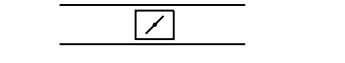


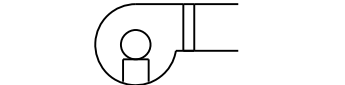



















STANDARD D2-04

NOTE:

ALL SYMBOLS AND PATTERNS ON THIS DRAWING ARE PROPOSED UNLESS OTHERWISE NOTED.

Paul Kovacs
 APPROVED CHIEF ENGINEER DATE 7-1-2009

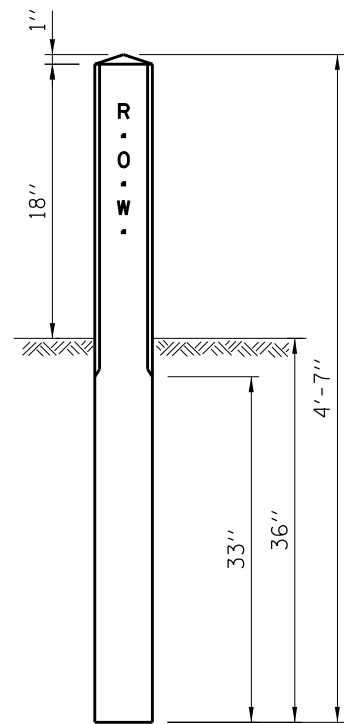
ELECTRICAL AND MECHANICAL ITEMS

	OR		QUANTITY AND DIRECTION OF THE AIR FLOW		OR		SPLITTER DAMPER		GLOBE VALVE
	OR		DUCT SIZE (FIRST FIGURE SIZE OF SHOWN, SECOND FIGURE SIZE OF SIDE NOT SHOWN.)				PLUG VALVE WITH MEMORY STOP (BALANCING)		BUTTERFLY VALVE
							PLUG VALVE		CHECK VALVE
			SUPPLY DUCT SECTION				SOLENOID VALVE		ANGLE GATE VALVE
	OR		RETURN OR EXHAUST DUCT SECTION				TEMPERATURE CONTROL VALVE		CONCENTRIC REDUCER
	OR		DUCT DROPS IN THE DIRECTION OF FLOW				THREE-WAY TEMPERATURE CONTROL VALVE DIAPHRAGM		ECCENTRIC REDUCER
	OR		DUCT RISES IN THE DIRECTION OF FLOW				THREE-WAY TEMPERATURE CONTROL VALVE TOP VIEW		ORIFICE FLANGE
	OR		TURNING VANES				PRESSURE REDUCING VALVE (NOS. = INITIAL AND FINAL PRESSURE - PSIG)		CROSSOVER
	OR		8" THROAT DIAMETER CEILING DIFFUSER; AIR FLOW -- 100 CFM		PRV		AIR PRESSURE REDUCING STATION (NO. CORRESPONDS WITH AIR PRESSURE REDUCER SCHEDULE)		PIPE GUIDE
	OR		BALANCING OR VOLUME DAMPER				SAFETY VALVE (NOS. = PRESSURE SETTING - PSIG)		EXPANSION JOINT (SLIP TYPE)
	OR		MOTOR OPERATED DAMPER				FLOAT OPERATED VALVE		EXPANSION JOINT (BELLOWS TYPE)
			FLEXIBLE DUCT		OC		QUICK COUPLING (OC)		AIR ELIMINATOR (AIR VENT)
			FIRE DAMPER		UH		HORIZONTAL UNIT HEATER (NO. CORRESPONDS WITH UNIT HEATER SCHEDULE)		PIPE CAP
			SOUND ATTENUATOR		UH		VERTICAL UNIT HEATER (NO. CORRESPONDS WITH UNIT HEATER SCHEDULE)		STRAIGHT CROSS
			ZONE DAMPER		UH		CABINET TYPE UNIT HEATER (NO. CORRESPONDS WITH UNIT HEATER SCHEDULE)		90° ELBOW
			FLEXIBLE CONNECTION AT FAN OR EQUIPMENT		T		THERMOSTAT OR ROOM TEMPERATURE SENSOR		90° ELBOW TURNED DOWN
			EXTRACTOR				GATE VALVE		90° ELBOW TURNED UP
							FLOW SWITCH		SIDE OUTLET ELBOW TURNED DOWN
					GPM		VENTURI FLOW METER AND FLOW TO BE INDICATED		SIDE OUTLET ELBOW TURNED UP
							CONNECTION BETWEEN NEW AND EXISTING		LATERAL
									TEE
									TEE OUTLET UP
									TEE OUTLET DOWN
									UNION
									STRAINER
									PIPE ANCHOR
									THERMOMETER (NOS. = RANGE IN DEGREES FAHRENHEIT)
									PRESSURE, VACUUM OR COMPOUND GAUGE

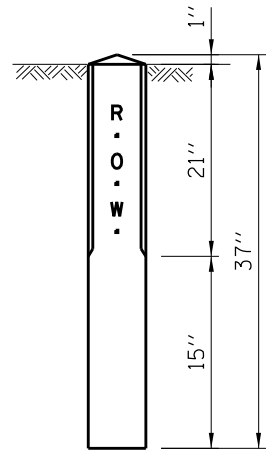
NOTE:

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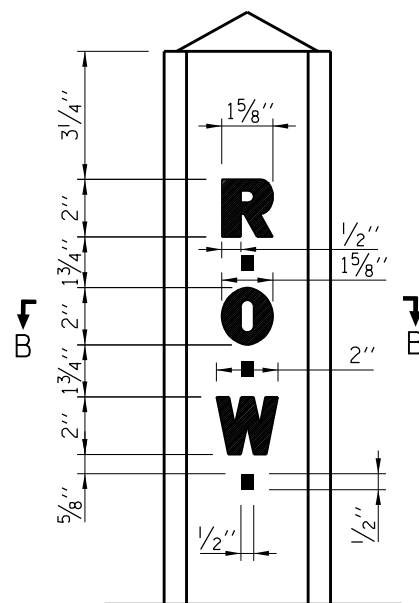




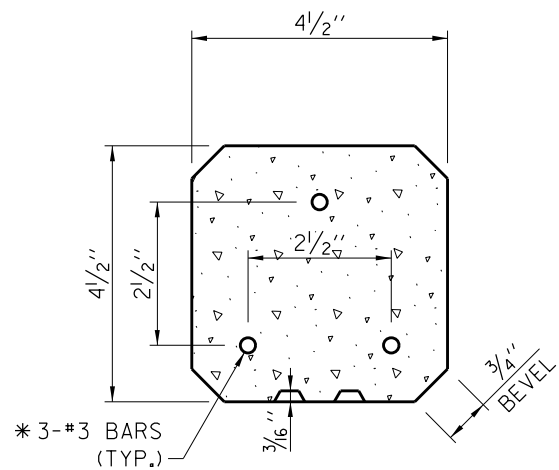
RIGHT OF WAY MARKER



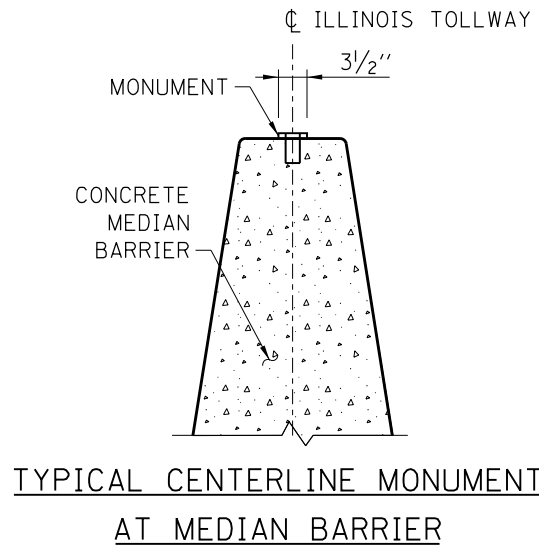
RIGHT OF WAY MARKER (SPECIAL)



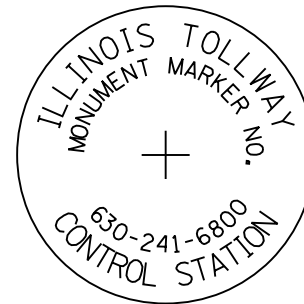
LETTERING DETAIL



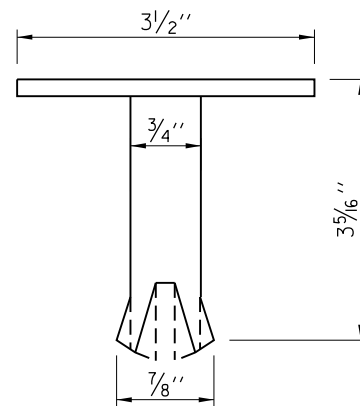
* METHOD A- 4'-2" LONG BARS
* METHOD B- 2'-6" LONG BARS
SECTION B-B



TYPICAL CENTERLINE MONUMENT AT MEDIAN BARRIER

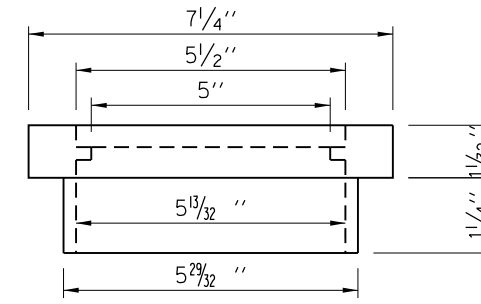


TOP VIEW

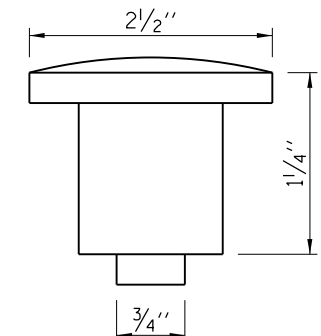
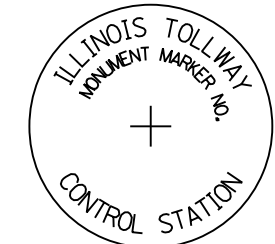


BRONZE DOMED CAP

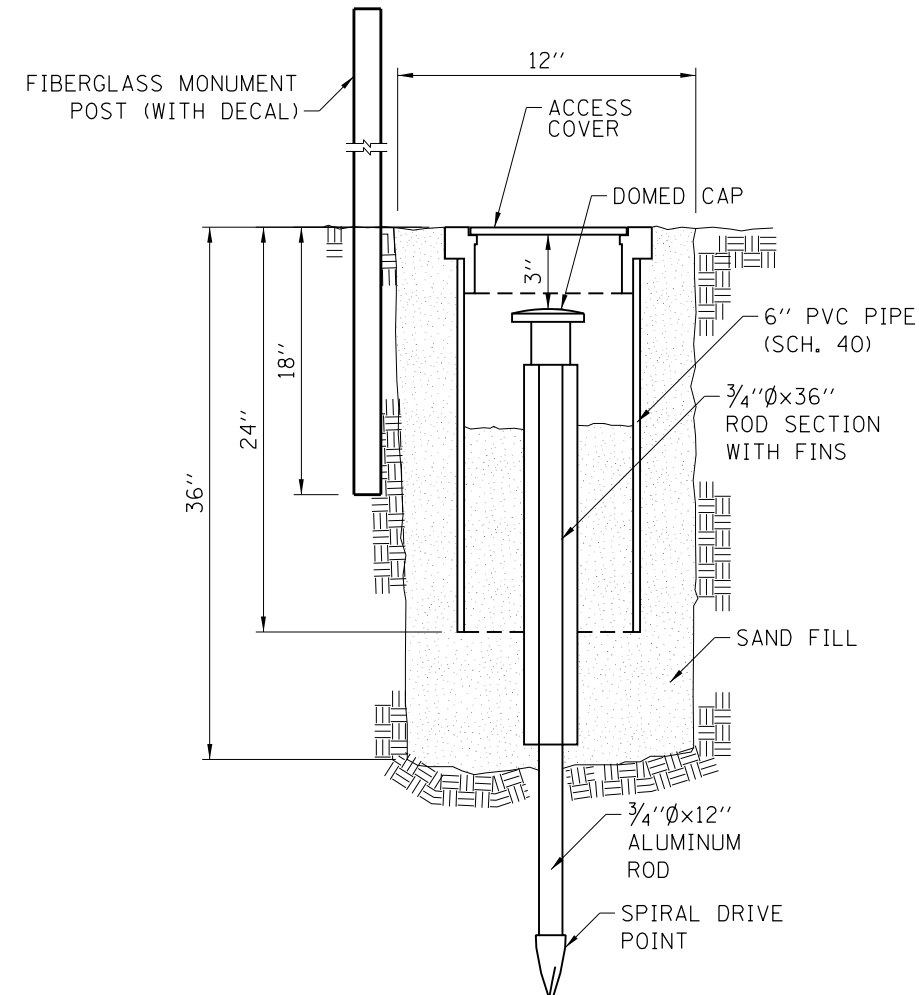
PERMANENT SURVEY MONUMENT



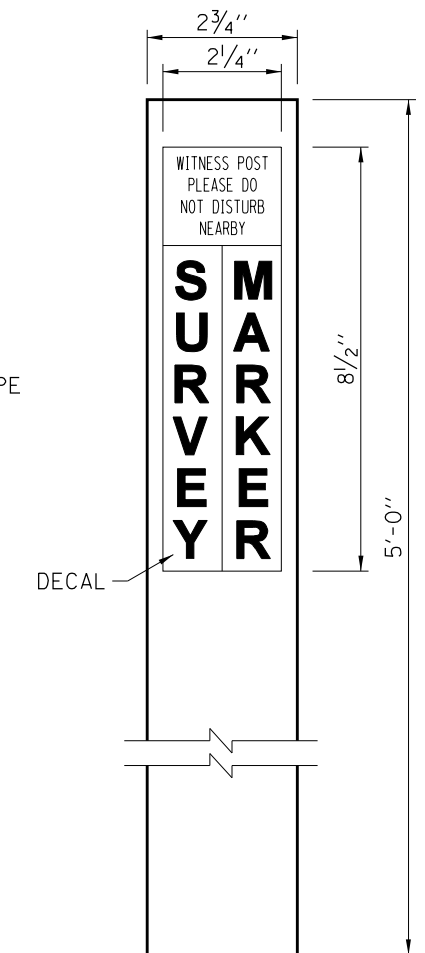
ACCESS COVER (RECESSED HINGE)



ALUMINUM DOMED CAP



PERMANENT SURVEY MONUMENT (SPECIAL)



MONUMENT POST



DATE	REVISIONS
7-01-2010	NEW MONUMENT AND BARRIER MARKERS
3-01-2019	CHANGED TO CONSTANT-SLOPE MEDIAN BARRIER

PERMANENT SURVEY MONUMENTS AND RIGHT-OF-WAY MARKERS
STANDARD D3-02

APPROVED: *Paul Kovacs*
CHIEF ENGINEERING OFFICER DATE: 1-1-2007

PERMANENT DELINEATION SPACING				
REFLECTORS	MAINLINE		RAMP	
	TANGENT	CURVE	TANGENT	CURVE
* GUARDRAIL	100'	100'	100'	100' (R >= 1,050') 50' (R < 1,050')
* BARRIER WALL (DOUBLE FACE)	100'	100'	100'	100' (R >= 1,050') 50' (R < 1,050')
* BARRIER WALL (SINGLE FACE)	100'	100'	100'	100' (R >= 1,050') 50' (R < 1,050')
SHOULDER NARROWING	3 @ 15'	3 @ 15'	3 @ 15'	3 @ 15'
BRIDGE APPROACHES	3 @ 15'	3 @ 15'	3 @ 15'	3 @ 15'
* BRIDGE PARAPET	50'	50'	50'	50'
* NOISE ABATEMENT WALL (CRASH WORTHY)	100'	100'	100'	100' (R >= 1,050') 50' (R < 1,050')
ROADWAY DELINEATORS	MAINLINE		RAMP	
	TANGENT	CURVE	TANGENT	CURVE
POST MOUNTED DELINEATOR	200'	200'	200'	TABLE A
POST MOUNTED DELINEATOR (RAMP TAPERS AND TANGENTS)	100'	100'	NA	NA
TEMPORARY DELINEATION SPACING				
	TANGENT	REVERSE CURVE	SHIFT	TAPER
TEMPORARY CONCRETE BARRIER	50'	25'	25'	25'
* WHEN ADJACENT SHOULDER IS USED AS A TRAVELED LANE, USE SPACING REQUIREMENTS AS SHOWN FOR TEMPORARY DELINEATION.				

TABLE A	
REFLECTOR SPACING ON RAMP-CURVES	
RADIUS OF CURVE (FT.)	SPACING ALONG CURVE (FT.)
LESS THAN 1050	50
1050-1299	100
1300-1999	125
2000-2999	150
3000-3999	175
MORE THAN 3999	200

GENERAL NOTES:

EMERGENCY TURNAROUNDS DELINEATION-THE FOLLOWING DELINEATION SHOULD BE INSTALLED ON THE LEFT SIDE OF THE PAVEMENT APPROACHING EMERGENCY TURNAROUNDS.

- A. ONE-HALF OF A MILE IN ADVANCE OF THE EMERGENCY TURNAROUNDS ONE WHITE REFLECTOR UNIT OVER THREE AMBER REFLECTOR UNITS.
- B. ONE-FOURTH OF A MILE IN ADVANCE OF THE EMERGENCY TURNAROUNDS ONE WHITE REFLECTOR UNIT OVER TWO AMBER REFLECTOR UNITS.
- C. AT A POINT NEAR THE INTERSECTION OF THE EDGE OF THE LEFT SHOULDER AND NEAR EDGE OF THE EMERGENCY TURNAROUNDS ONE WHITE REFLECTOR UNIT OVER ONE AMBER REFLECTOR UNIT.

NOTES FOR ROADWAY DELINEATORS, POST MOUNTED INSTALLATION:

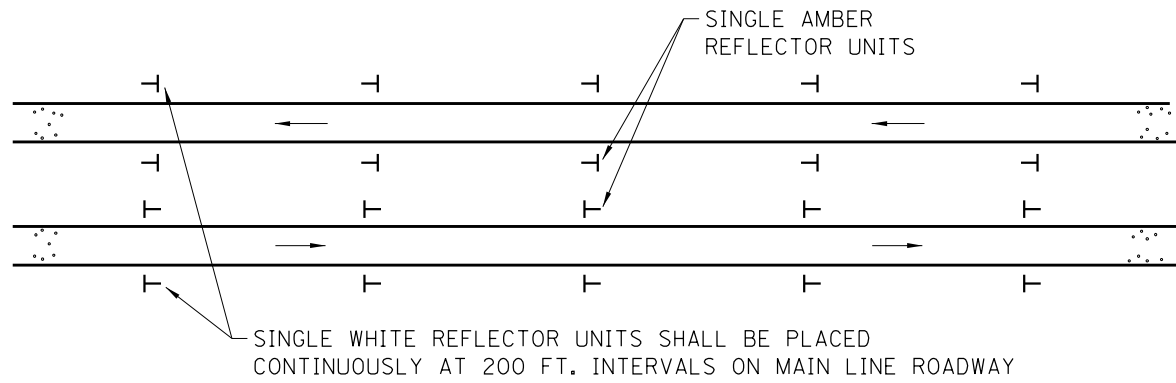
1. A. MAINLINE-SINGLE WHITE REFLECTOR UNITS SHALL BE PLACED CONTINUOUSLY ON THE RIGHT AND SINGLE AMBER REFLECTOR UNITS SHALL BE PLACED ON THE LEFT ON MAIN LINE SECTIONS WITHOUT BARRIER WALL.
- B. RAMPS-SINGLE REFLECTOR UNITS SHALL BE PLACED ON THE OUTSIDE OF ALL CURVED SECTIONS OF RAMPS, SINGLE WHITE SHALL BE PLACED ON THE RIGHT SIDE AND AMBER ON THE LEFT SIDE. THE DELINEATORS SHALL BE OVERLAPPED FOR A SHORT DISTANCE TO CLEARLY INDICATE WHERE DELINEATION ON ONE SIDE OF THE RAMP ENDS AND DELINEATION ON THE OTHER SIDE APPEARS.
- C. DOUBLE WHITE REFLECTOR UNITS SHALL BE PLACED ON THE RIGHT AT ALL ACCELERATION AND DECELERATION LANES.
2. REFLECTORS SHALL BE MOUNTED ON SUPPORTS SUCH THAT THE TOP OF REFLECTORS IS FOUR FEET ABOVE THE ROADWAY EDGE AND TWO FEET OUTSIDE THE OUTER EDGE OF THE PAVED SHOULDER OR TWO FEET MINIMUM AND SIX FEET MAXIMUM OUTSIDE THE BACKS OF CURBS OR GUTTERS.
3. IN ALL CASES, THE COLOR OF THE REFLECTORS SHALL BE THE SAME AS THE ADJACENT EDGE LINE EXCEPT AS SPECIFIED IN GENERAL NOTES.
4. POST MOUNTED REFLECTORS SHALL BE PLACED CONTINUOUSLY AS NOTED ABOVE IN CONJUNCTION WITH GUARDRAIL INSTALLED.
5. THE PLACEMENT OF ROADWAY DELINEATOR "CIRCULAR REFLECTORS" SHALL BE USED FOR ALL MINOR PROJECTS WHICH HAVE A LENGTH OF LESS THAN 5 MILES. THE PLACEMENT OF ROADWAY DELINEATOR "RECTANGULAR REFLECTORS" SHALL BE USED FOR ALL MAJOR PROJECTS WHICH HAVE A LENGTH GREATER THAN 5 MILES. ALL ROADWAY DELINEATORS WITHIN A ROADWAY SEGMENT SHALL BE OF THE SAME TYPE.

NOTES FOR GUARDRAIL AND BARRIER WALL REFLECTOR:

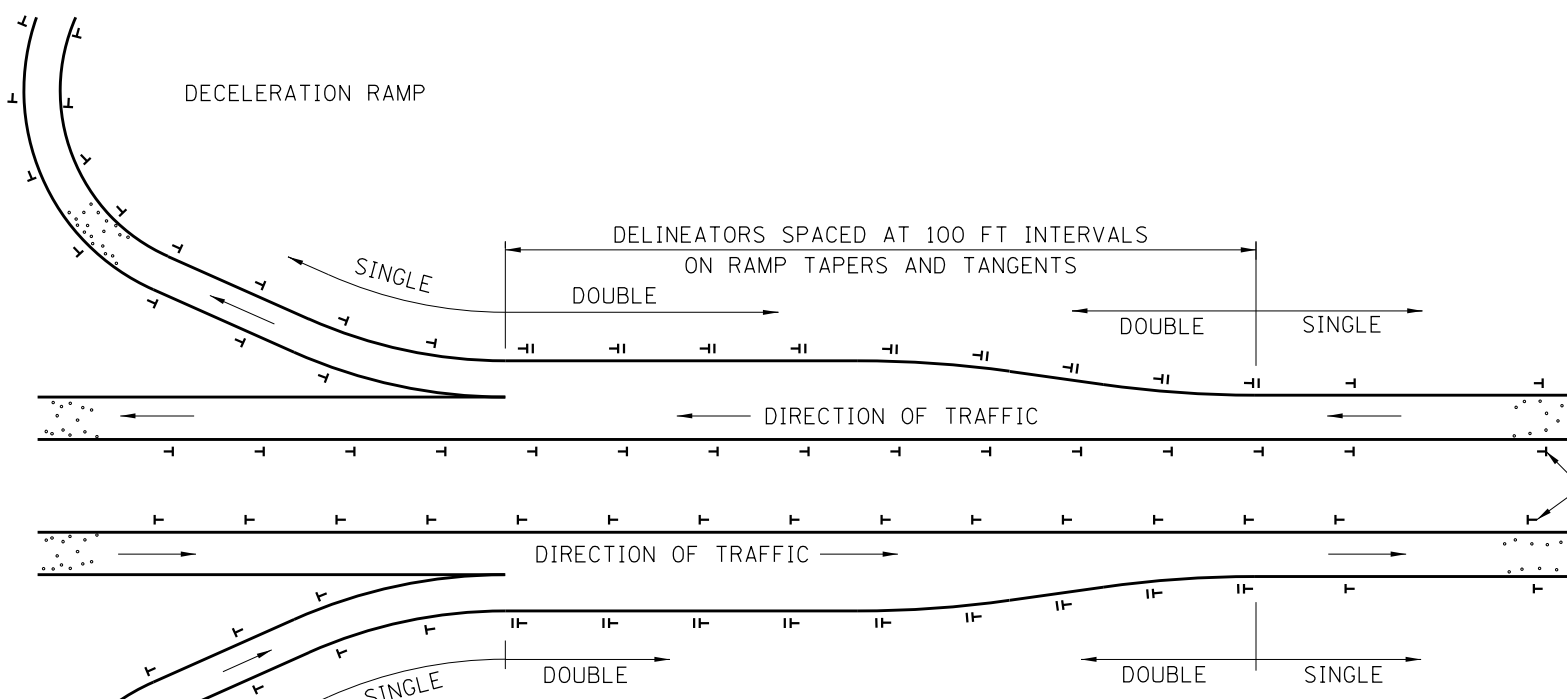
1. REFLECTORS TYPE B AND TYPE C SHALL HAVE REFLECTIVE SURFACE ON ONE SIDE ONLY.



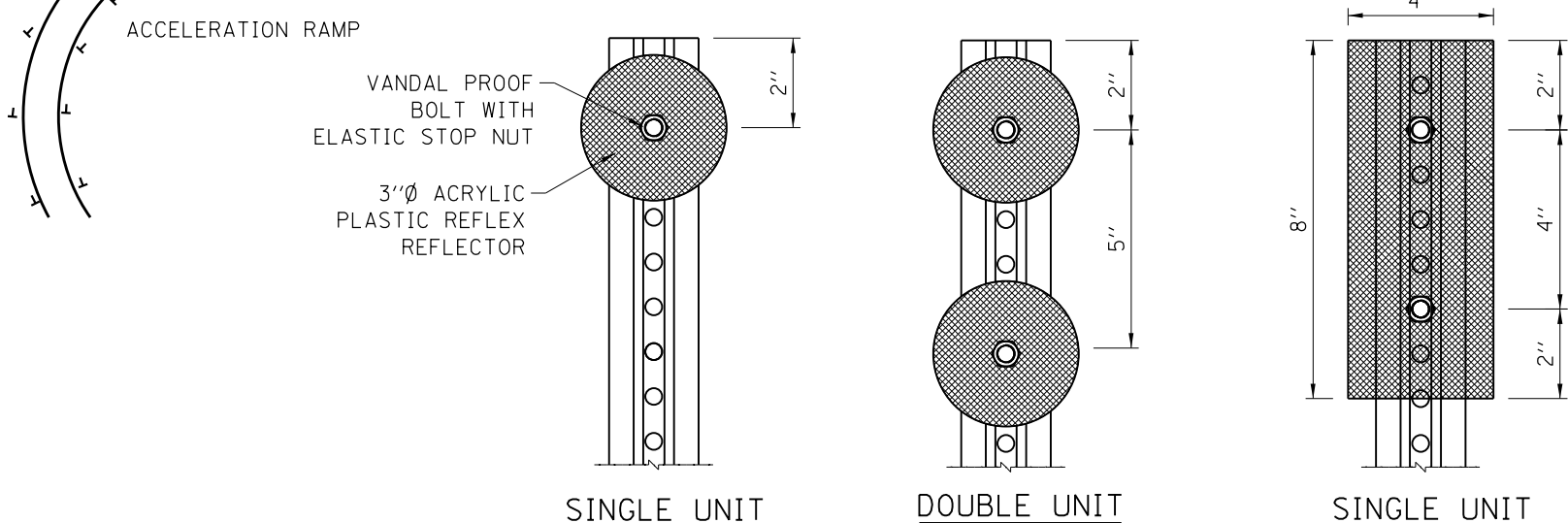
DATE	REVISIONS
02-07-12	REVISED REFLECTOR MARKER TYPE C DIMENSION
11-01-12	REVISED NOTES, TABLE AND DELINEATION SPACING
3-11-2015	REVISED NOTES
3-31-2016	REVISED DELINEATOR ATTACHMENT TO POST
3-31-2017	REVISED PERM. DELINEATION SPACING TABLE
3-01-2019	CHANGED BARRIER TO CONSTANT-SLOPE SHAPE



TANGENT PLACEMENT



INTERCHANGE RAMP PLACEMENT

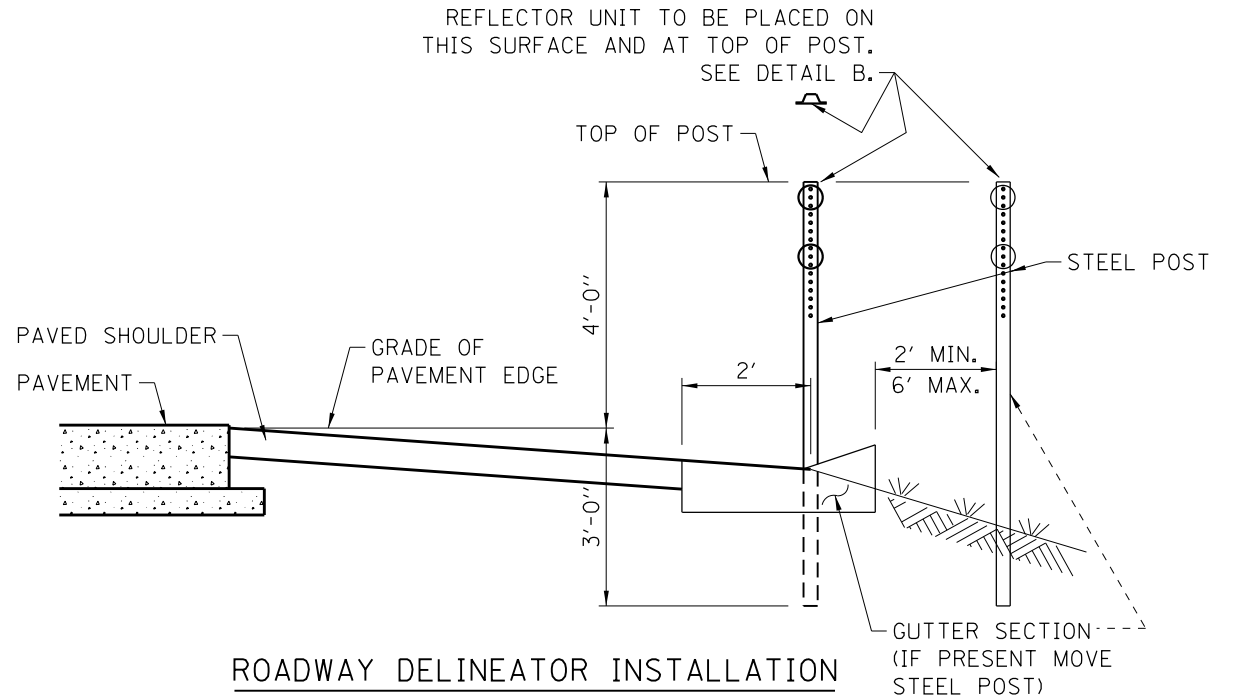


SINGLE UNIT DOUBLE UNIT

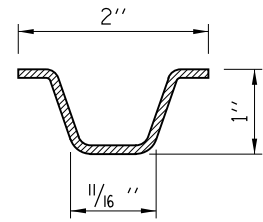
CIRCULAR REFLECTORS

SINGLE UNIT DOUBLE UNIT

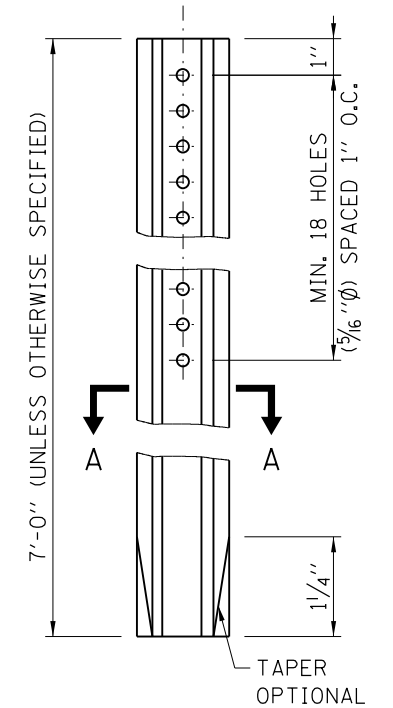
RECTANGULAR REFLECTORS



ROADWAY DELINEATOR INSTALLATION



SECTION A-A
STEEL- 1.12 LBS/FT.




STEEL POST

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

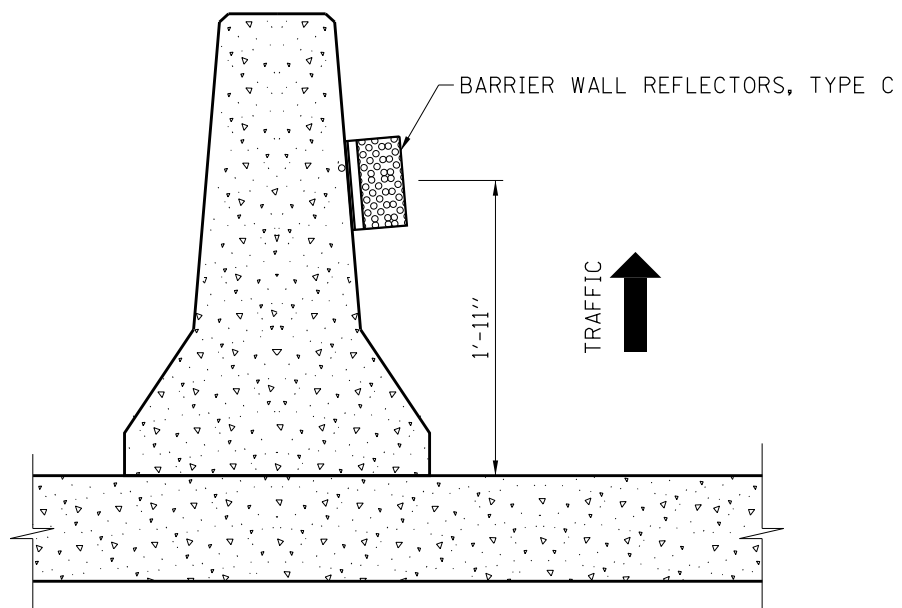
APPROVED: *Paul Kovacs*
CHIEF ENGINEERING OFFICER DATE: 7-1-2009

SHEET 2 OF 3



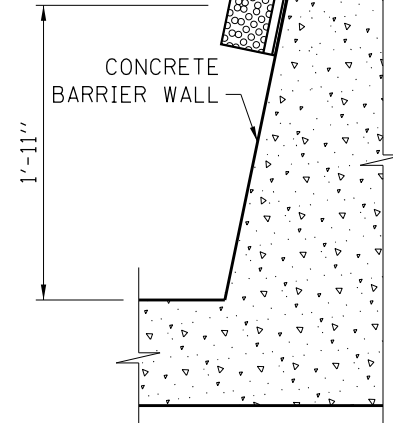
**ROADWAY DELINEATORS
AND REFLECTORS**

STANDARD D4-07

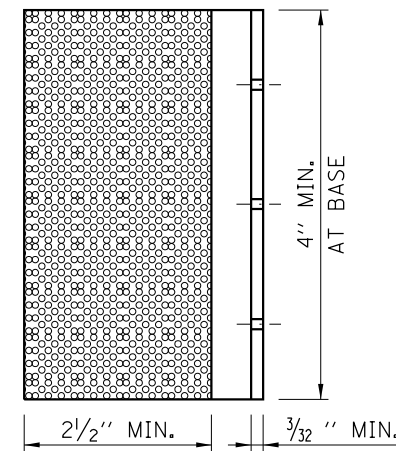


CROSS-SECTION
TEMPORARY CONCRETE BARRIER

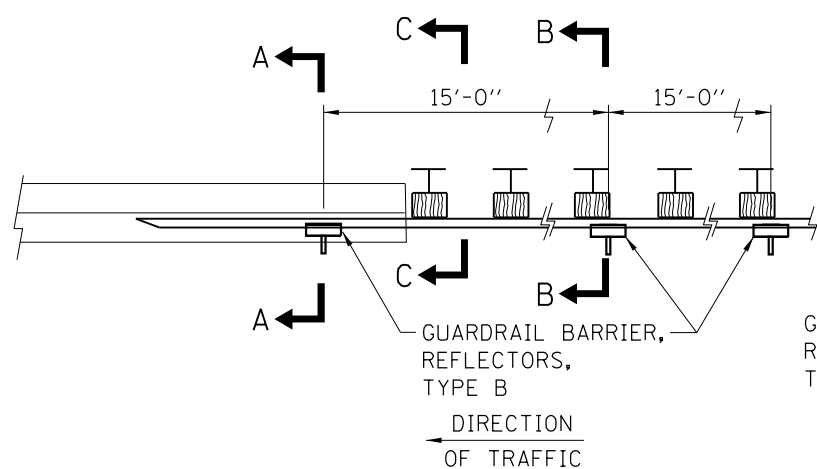
BARRIER WALL REFLECTORS,
TYPE C



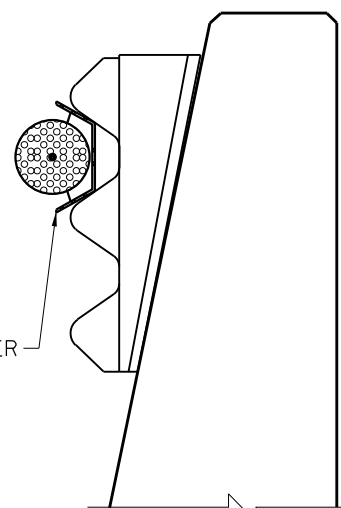
BARRIER OR PARAPET
REFLECTOR INSTALLATION



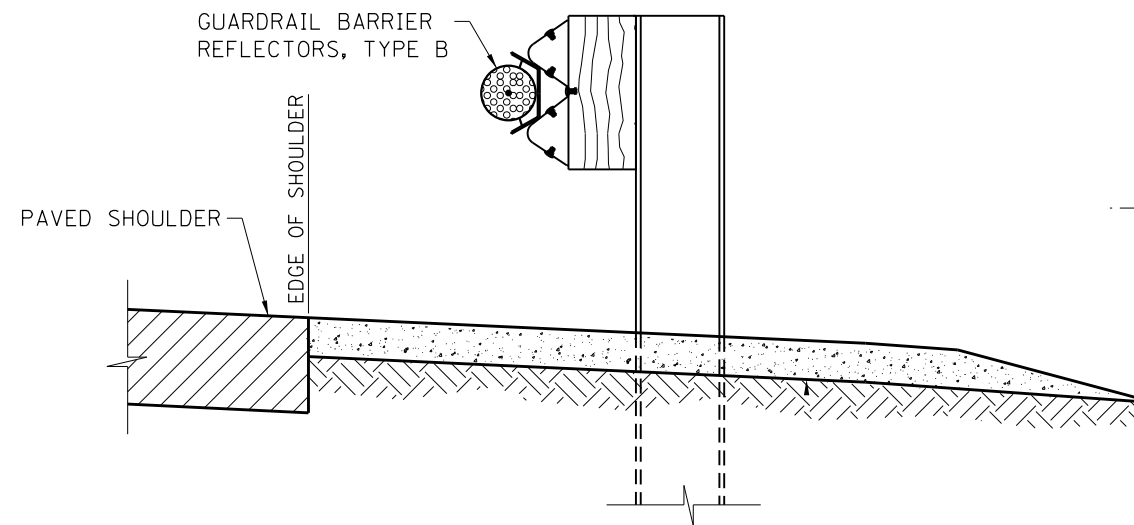
REFLECTOR, TYPE C



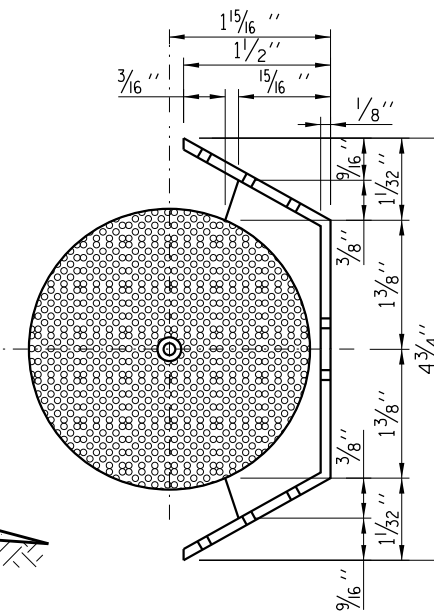
PLAN



SECTION A-A



SECTION B-B



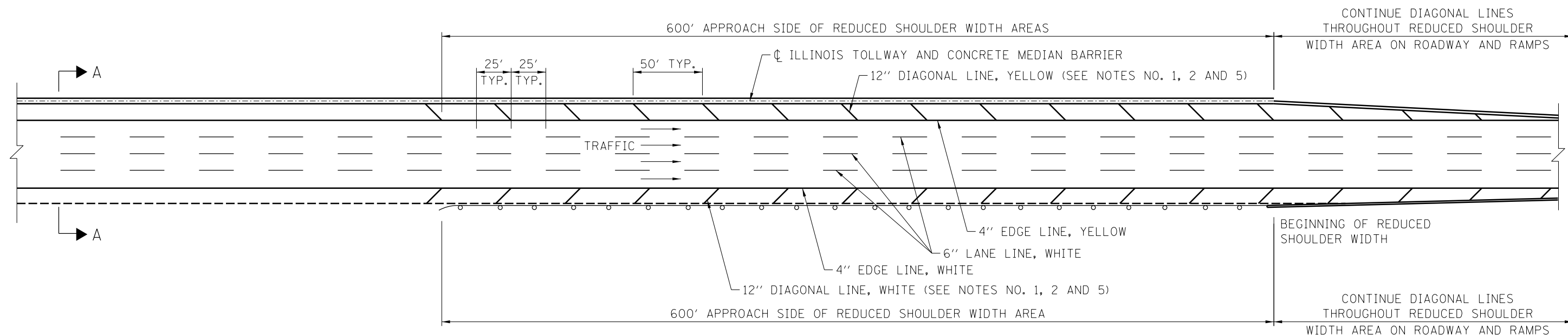
REFLECTOR, TYPE B

REFLECTOR INSTALLATION ON GUARDRAIL
AT BRIDGE APPROACHES

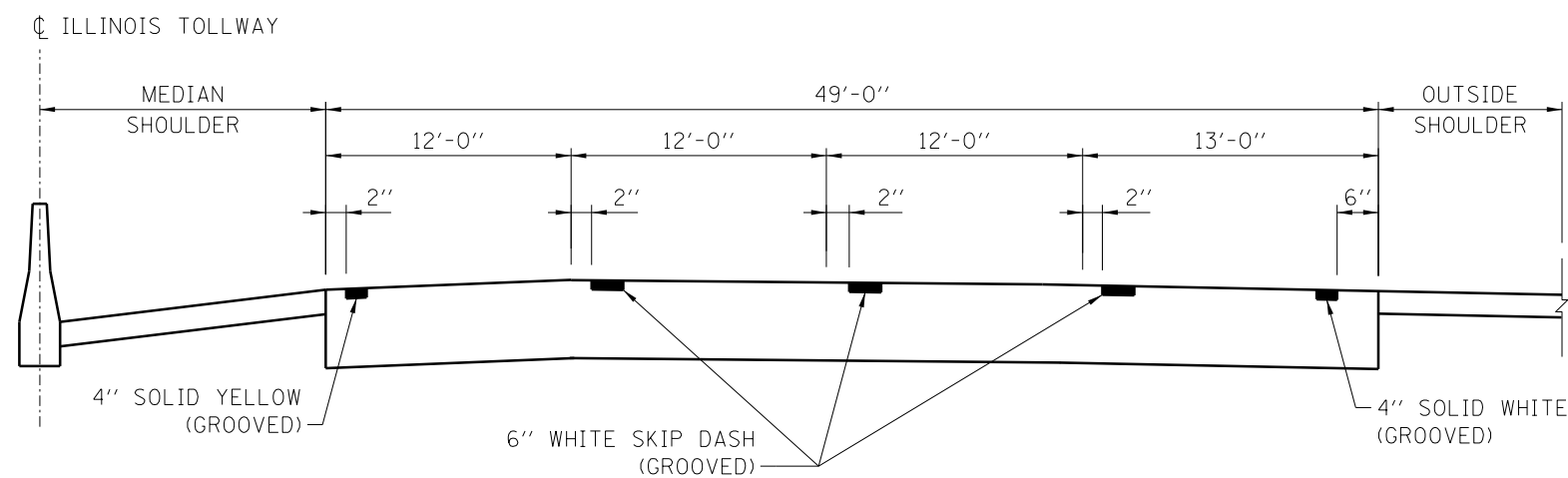
ALSO SEE SHEET 1 IN THIS SERIES
FOR ADDITIONAL INFORMATION

NOTE:

SEE SHEET 1 OF THIS SERIES FOR NOTES.



PLAN



SECTION A-A

ROADWAY AND SHOULDER STRIPING - NEW CONSTRUCTION

GENERAL NOTES:

1. DIAGONAL SHOULDER STRIPING REQUIRED WHERE THE SHOULDER WIDTH IS LESS THAN STANDARD.
2. ROADWAY MARKING MATERIALS TO BE USED ON FINISHED CONCRETE SURFACE AND ASPHALT SURFACE SHALL BE AS SHOWN ON THE PLANS.
3. WHERE THE GUARDRAIL ENCROACHES ON THE SHOULDER THE DIAGONAL MARKINGS SHALL EXTEND AS CLOSE TO THE FACE OF THE RAIL AS POSSIBLE.
4. ALL PERMANENT LANE LINES AND EDGE LINES SHALL BE GROOVED, ON ROADWAY SURFACES, UNLESS OTHERWISE NOTED.
5. DIAGONAL STRIPING SHALL BE SURFACE APPLIED.
6. GORE STRIPING (CHEVRON) SHALL BE SURFACE APPLIED.
7. ALL LANE LINES AND EDGE LINES SHALL BE SURFACE APPLIED ON BRIDGES.
8. PAVEMENT MARKINGS SHALL NOT BE GROOVED AT THE CASH SIDE OF MAINLINE TOLL PLAZAS OR THE OPEN ROAD TOLLING (ORT), 100' CONTINUOUSLY REINFORCED CONCRETE (CRC) PAVEMENT SECTION OF MAINLINE UNDER MONOTUBES.

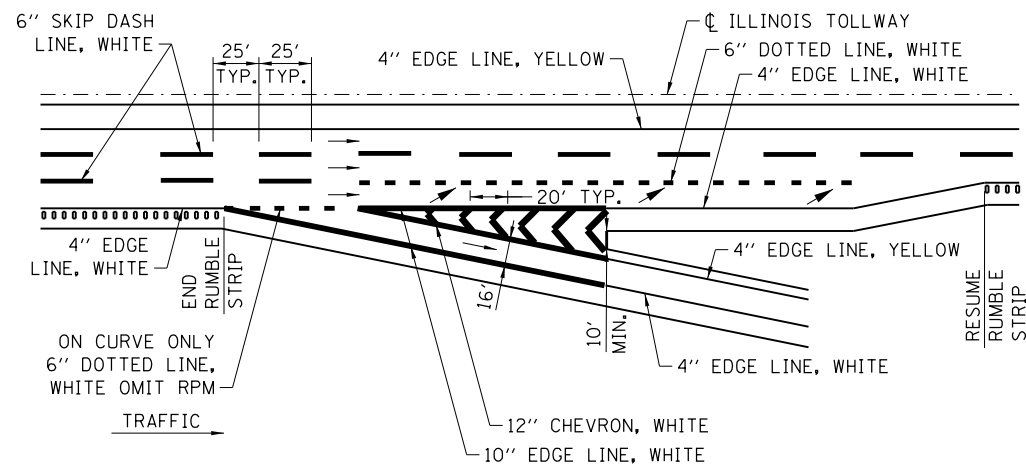
APPROVED: *Paul Kovacs* CHIEF ENGINEER DATE 7-1-2009

DATE	REVISIONS
7-01-09	ADDED LINE GROOVING NOTES
2-07-12	REVISED NOTES
11-01-12	REVISED EDGELINE OFFSET, REVISED NOTES
3-31-14	REVISED NOTES
3-31-16	REVISED NOTES

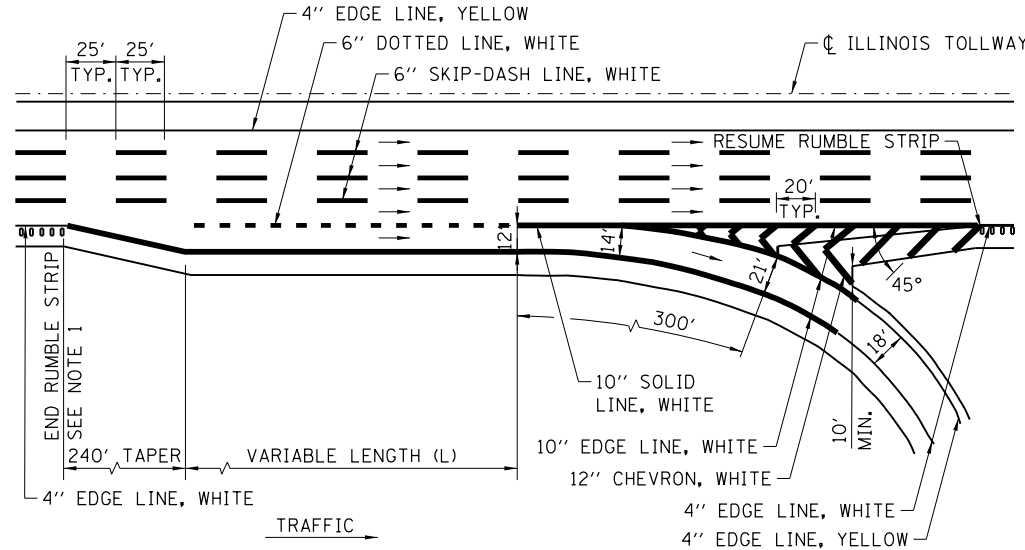


PERMANENT PAVEMENT MARKINGS

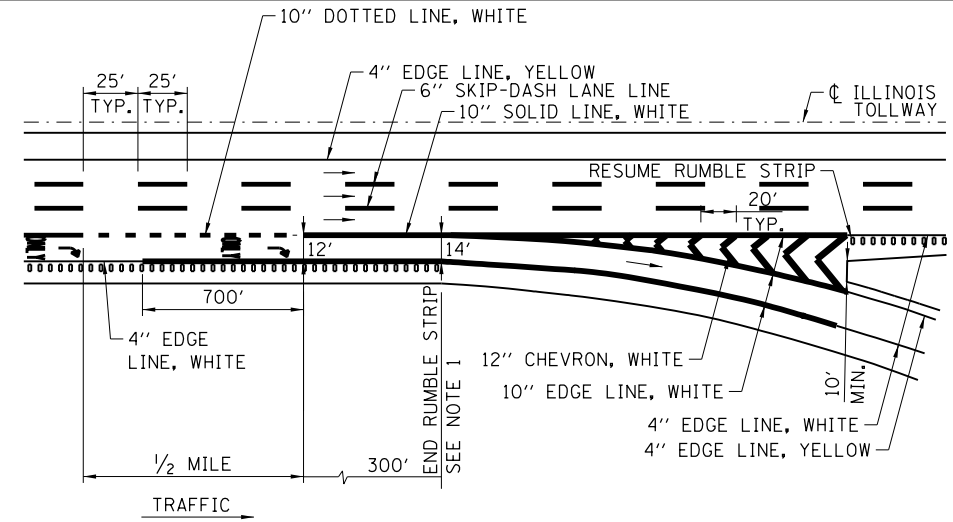
STANDARD D5-06



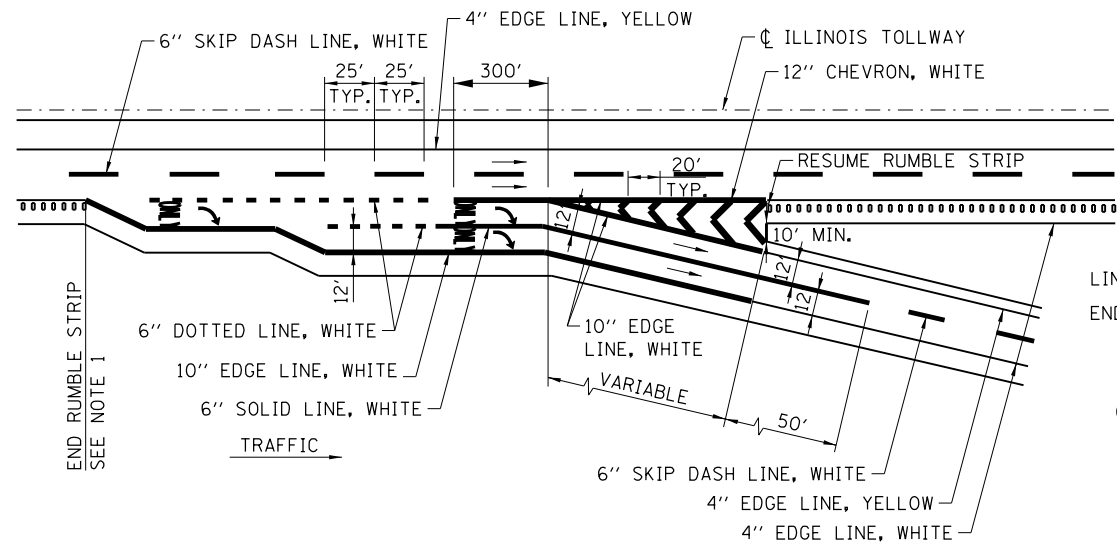
**EXIT - SINGLE LANE RAMP
LANE THREE TERMINATION**



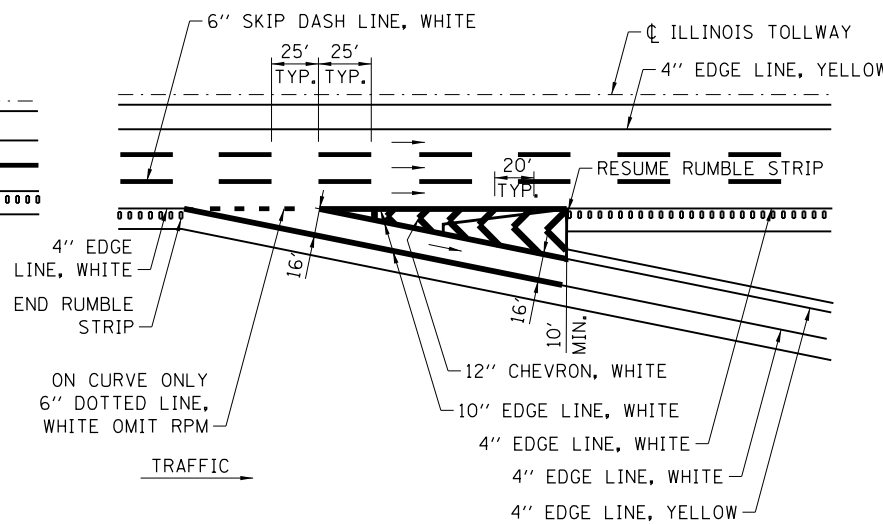
EXIT - SINGLE LANE LOOP RAMP - PARALLEL TYPE



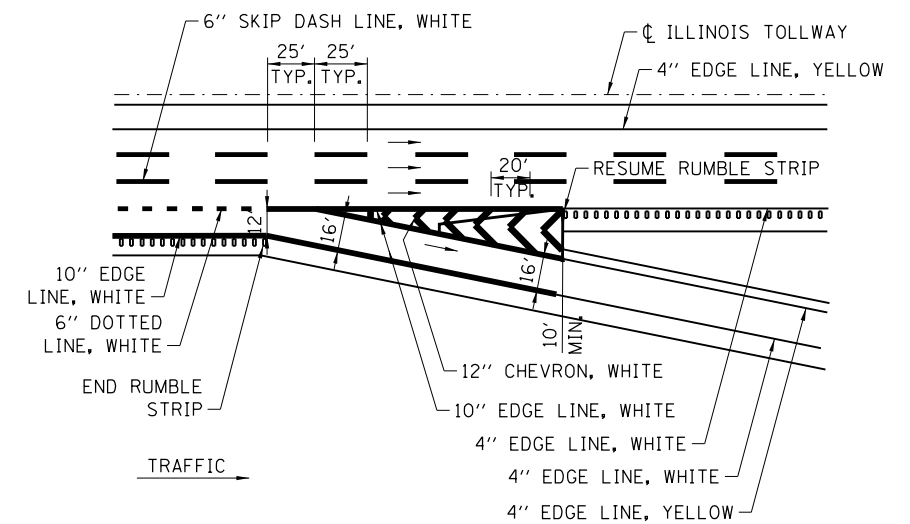
EXIT - SINGLE LANE RAMP - LANE DROP



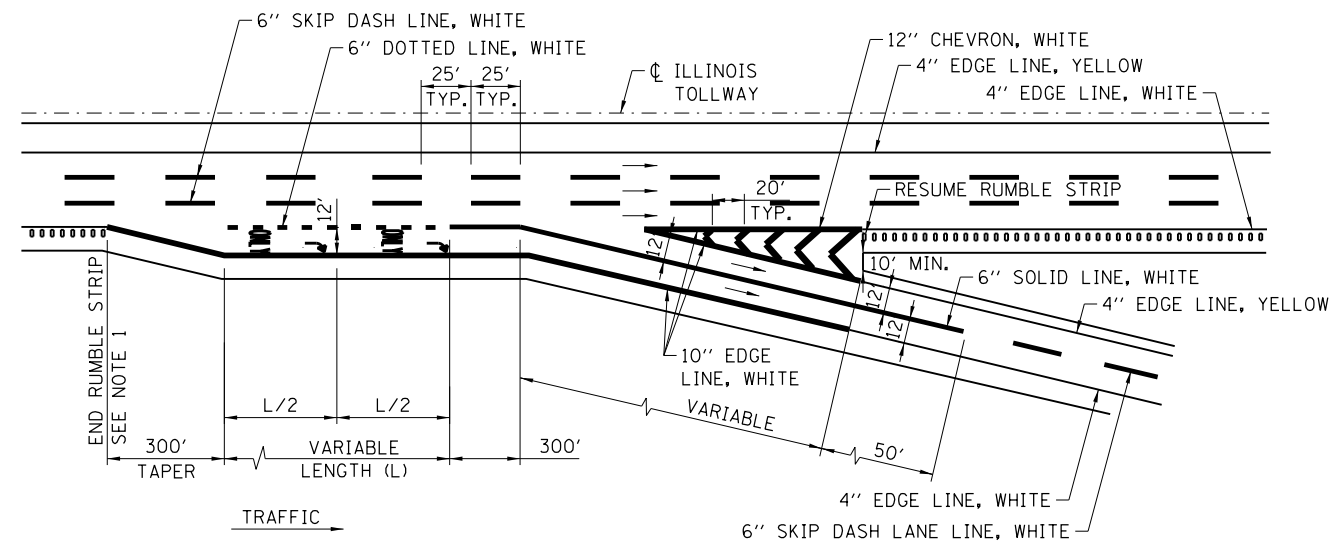
EXIT - TWO LANE PARALLEL RAMP



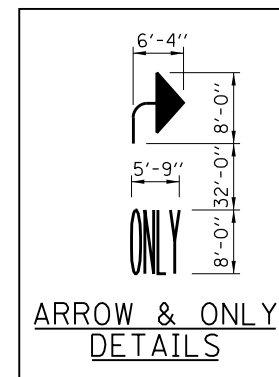
EXIT - SINGLE LANE RAMP - TAPER TYPE



EXIT - SINGLE LANE RAMP WITH AUX LANE - TAPER TYPE



EXIT - TWO LANE RAMP



NOTE:
PAVEMENT MARKING LETTERS AND SYMBOLS-ONLY AND ARROW ARE TO BE TYPICALLY PLACED AT 1/2 MILE EXIT ONLY GUIDE SIGN, AT GORE EXIT GUIDE SIGN AND APPROXIMATELY HALFWAY BETWEEN THE TWO.

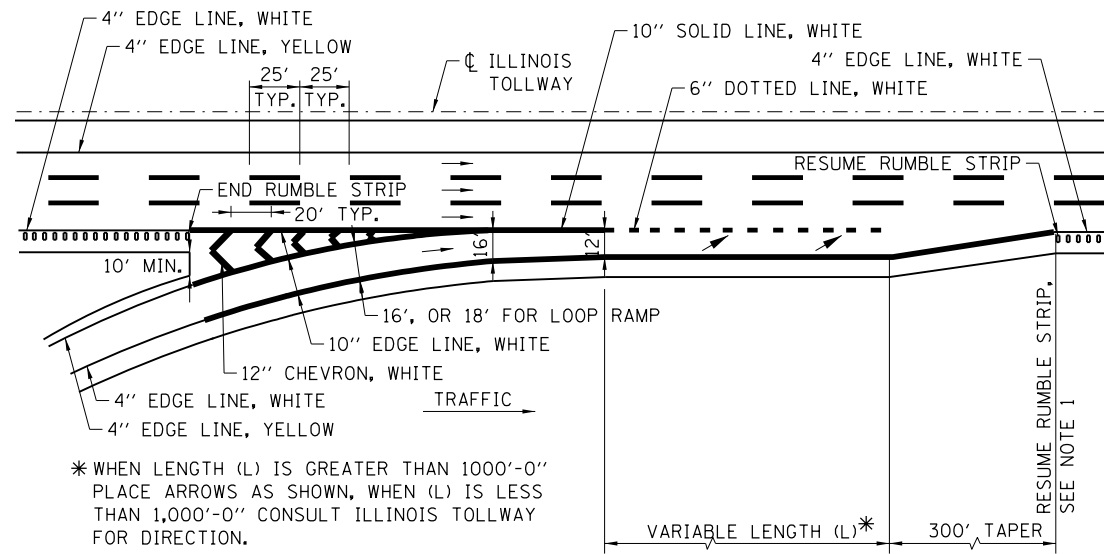
GENERAL NOTES:

1. RUMBLE STRIPS SHALL BE INSTALLED BETWEEN THE THEORETICAL GORE AND TAPER WHEN LENGTHS (L) OF AUXILIARY LANES, ACCELERATION LANES OR DECELERATION LANES, ARE GREATER THAN 1000'.
2. ROADWAY MARKING MATERIALS TO BE USED ON FINISHED CONCRETE SURFACE AND ASPHALT SURFACE SHALL BE AS SHOWN ON THE PLANS.
3. ALL LANE LINES AND EDGE LINES SHALL BE GROOVED.
4. GORE STRIPING (CHEVRON) SHALL BE SURFACE APPLIED.
5. LETTERS AND SYMBOL MARKING SHALL BE SURFACE APPLIED.
6. DOTTED LINES SHALL CONSIST OF 3' LINE AND 9' GAPS.

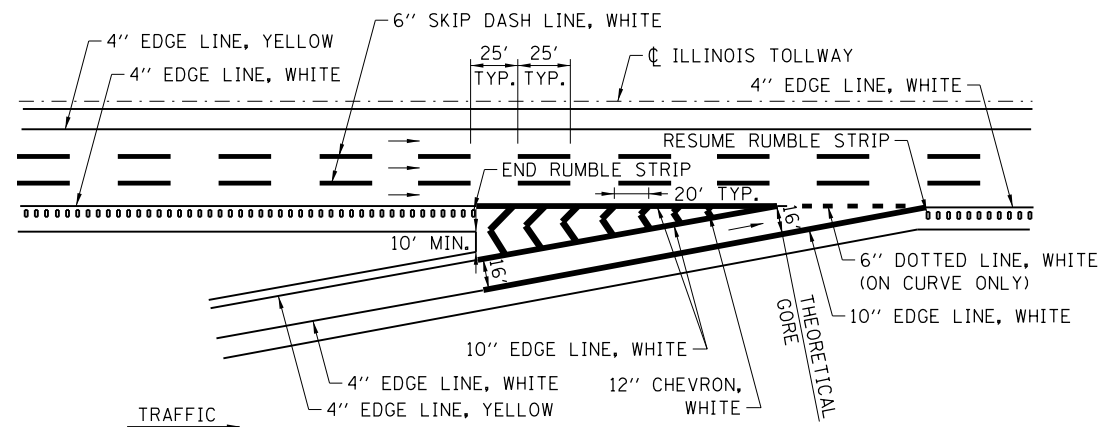


DATE	REVISIONS
03-31-14	ADDED LANE REDUCTION MARKINGS
3-11-2015	REVISED DETAILS, ADDED LANE-REDUCTION ARROWS AND SHEET 3
3-31-2016	REVISED NOTES, ADDED IPO PAVEMENT MARKING DETAIL.
3-31-2017	REVISED NOTES
3-01-2019	UPDATE DIMENSION FOR 1-LANE ENTRANCE & ADD 1-LANE EXIT TERMINAL WITH AUX LANE

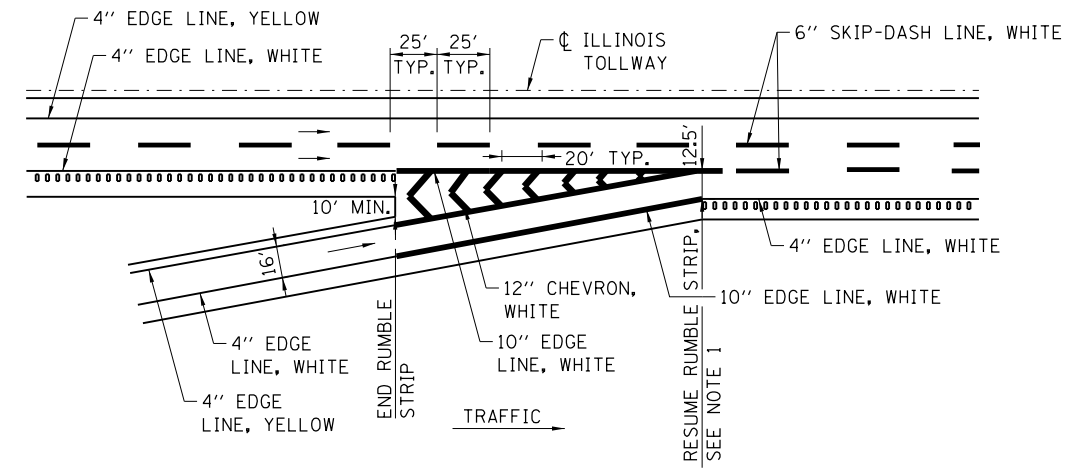
Paul Kovacs
APPROVED..... CHIEF ENGINEER..... DATE 7-1-2009.....



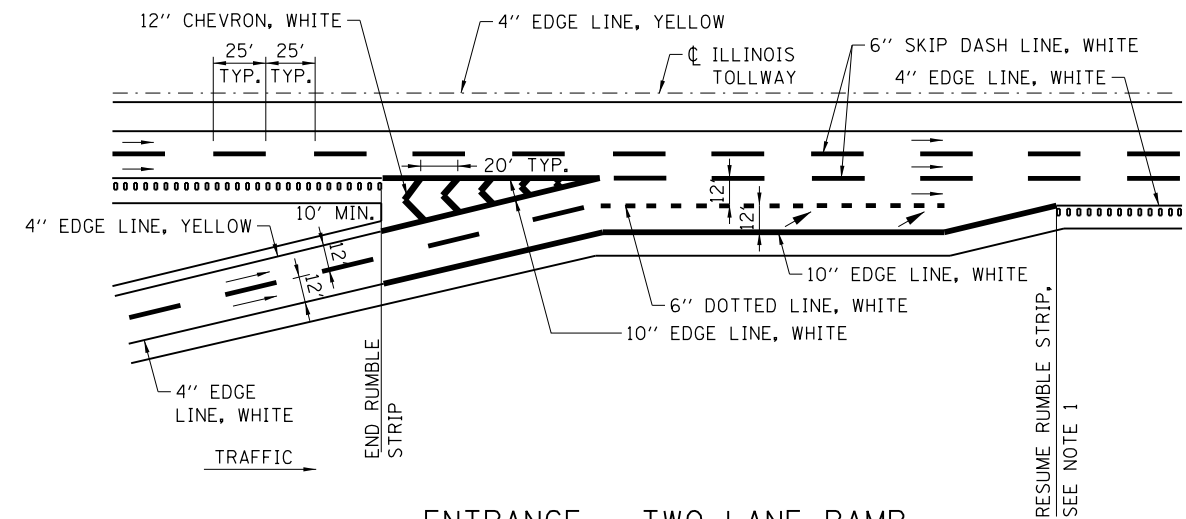
ENTRANCE - SINGLE LANE RAMP - PARALLEL TYPE



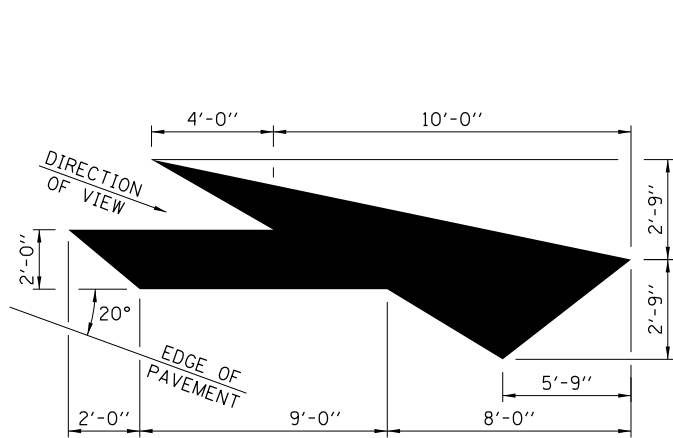
ENTRANCE - SINGLE LANE RAMP - TAPER TYPE



ENTRANCE - SINGLE LANE RAMP WITH ADDED MAINLINE LANE

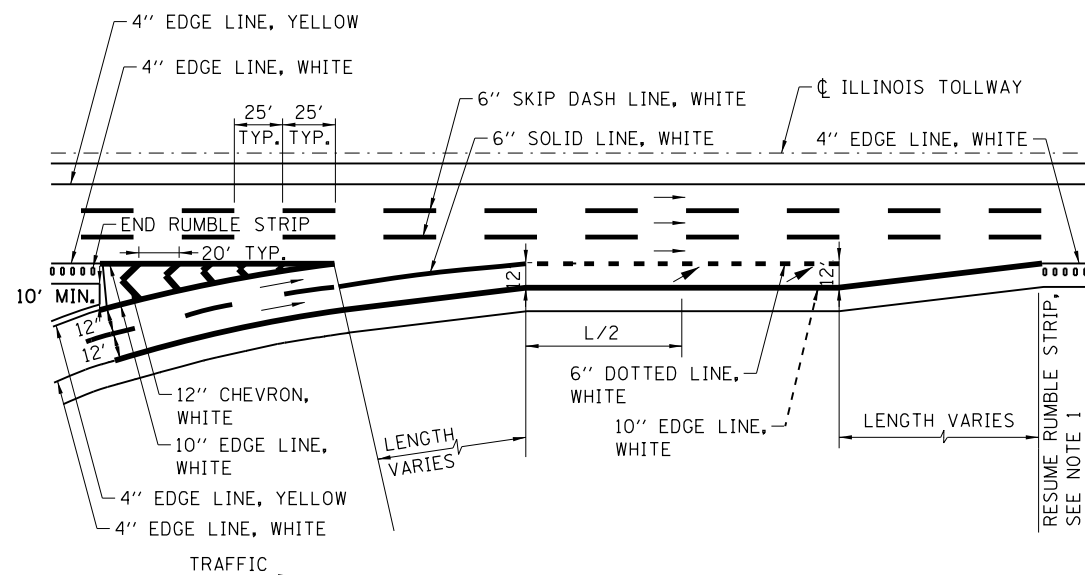


ENTRANCE - TWO LANE RAMP WITH ADDED MAINLINE LANE

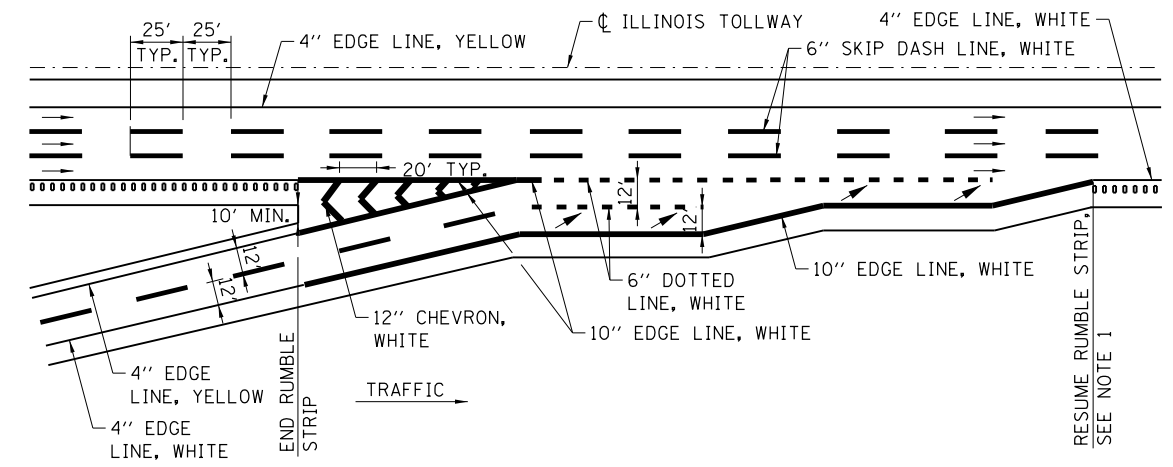


LANE-REDUCTION ARROW

RIGHT LANE-REDUCTION ARROW SHOWN.
USE MIRROR IMAGE FOR LEFT LANE.

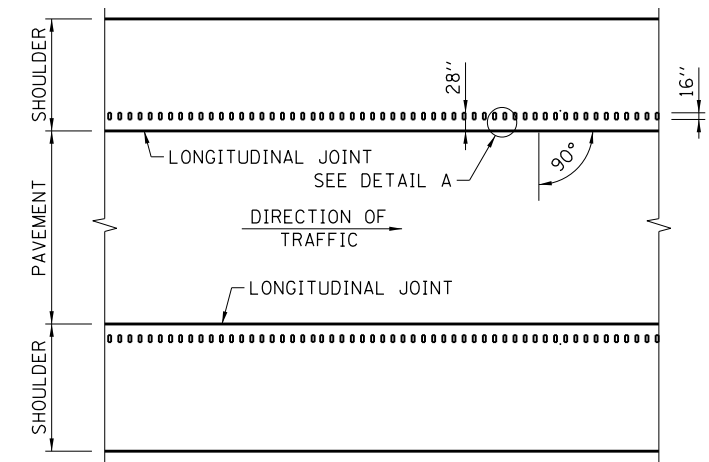
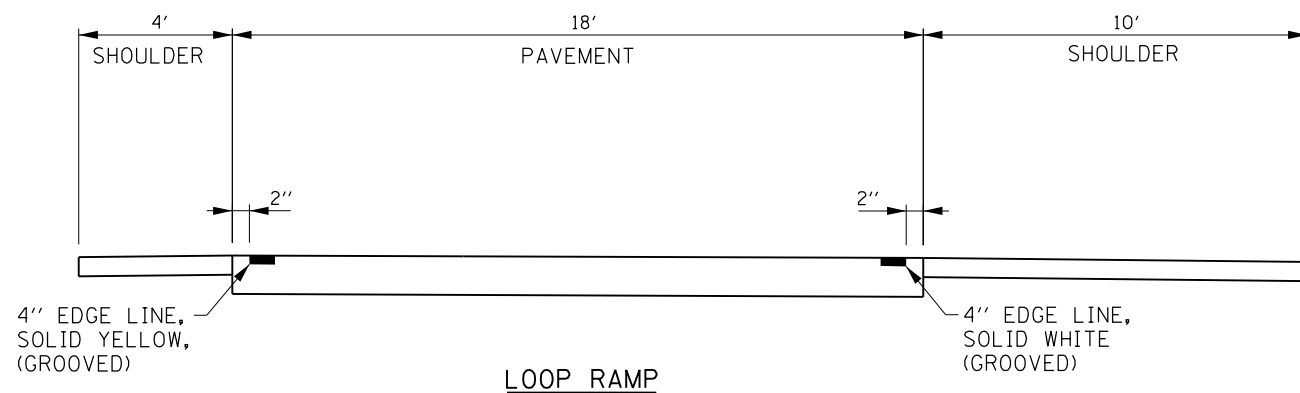
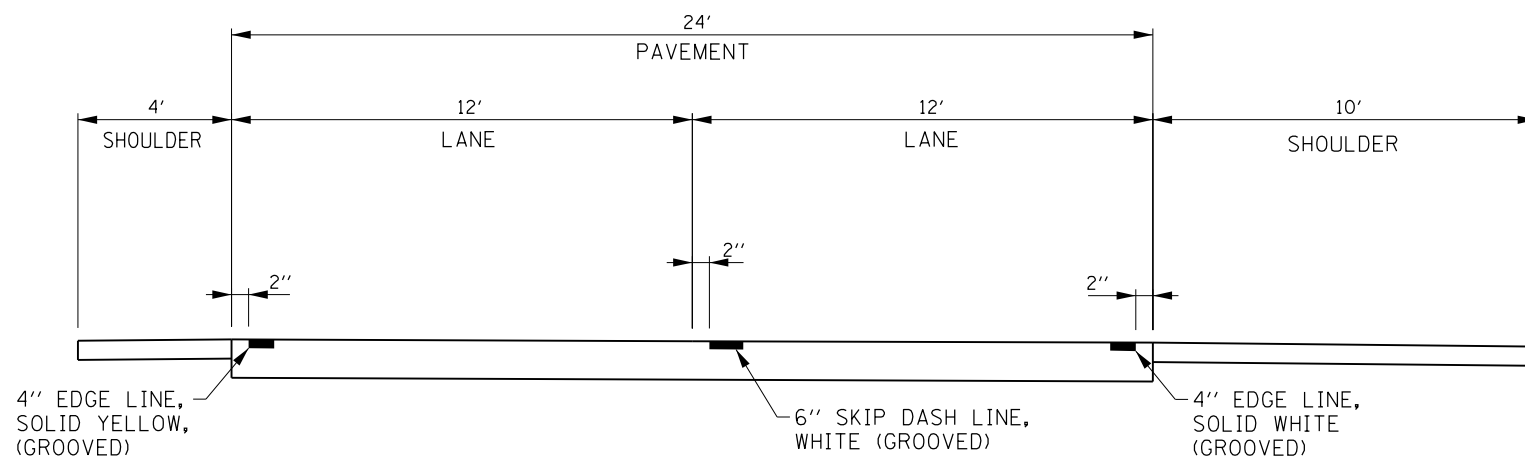
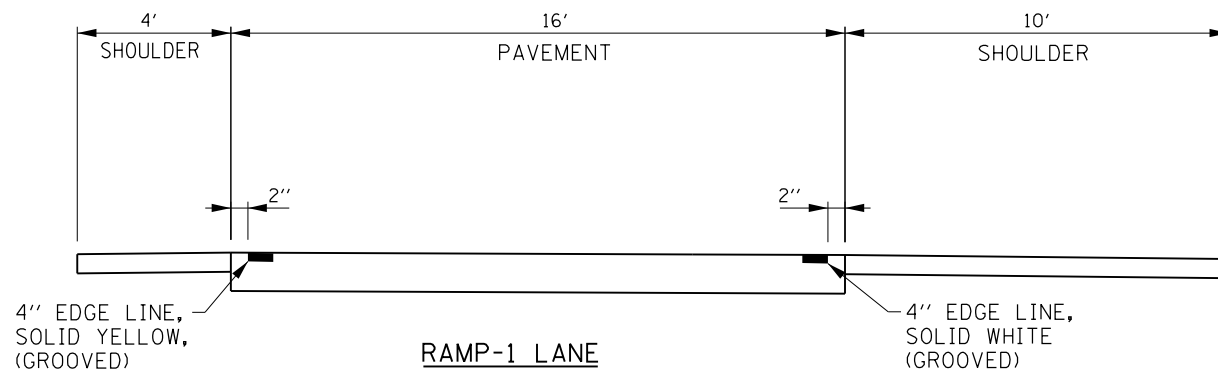


ENTRANCE - TWO LANE RAMP

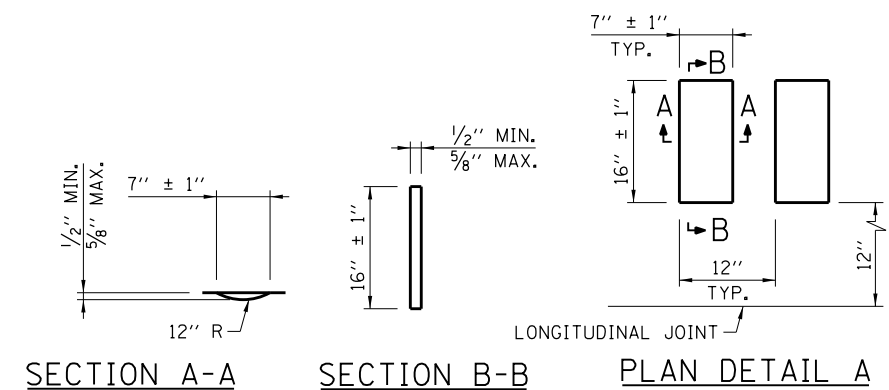


ENTRANCE - TWO LANE PARALLEL RAMP

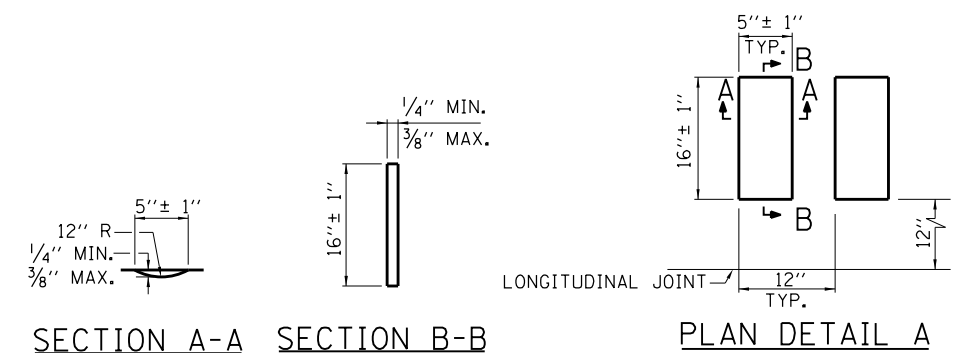




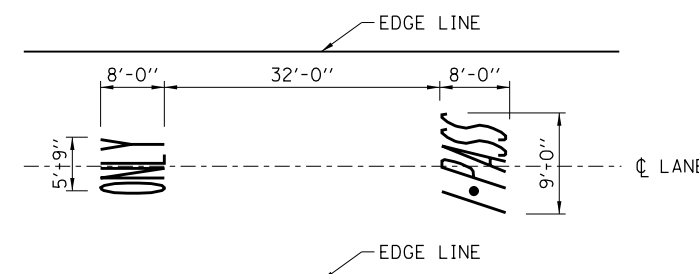
TYPICAL PLAN VIEW MAINLINE



ASPHALT SHOULDER RUMBLE STRIP DETAILS



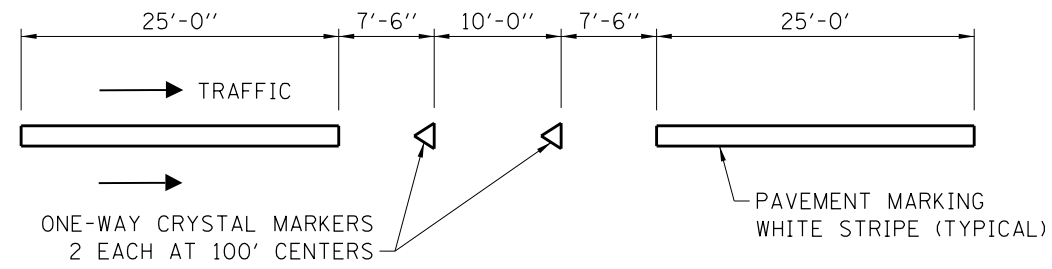
CONCRETE SHOULDER RUMBLE STRIP DETAILS



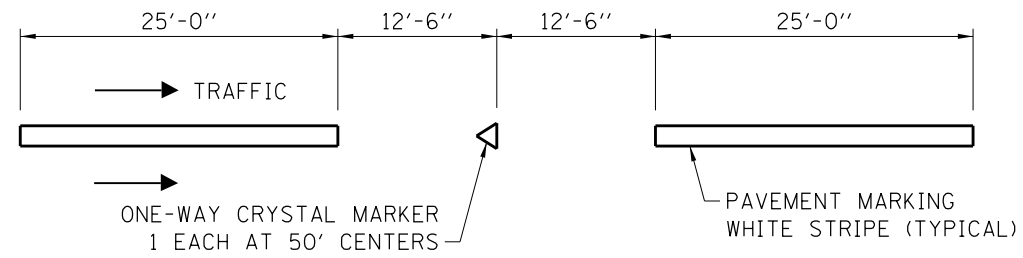
IPO LANE PAVEMENT MARKING

SEE SHEET 1 IN THIS SERIES FOR GENERAL NOTES.

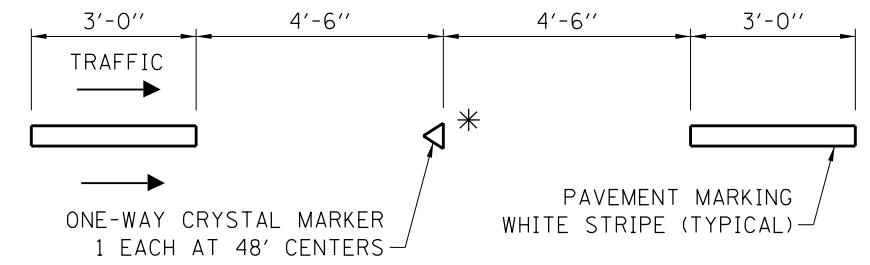




DETAIL A

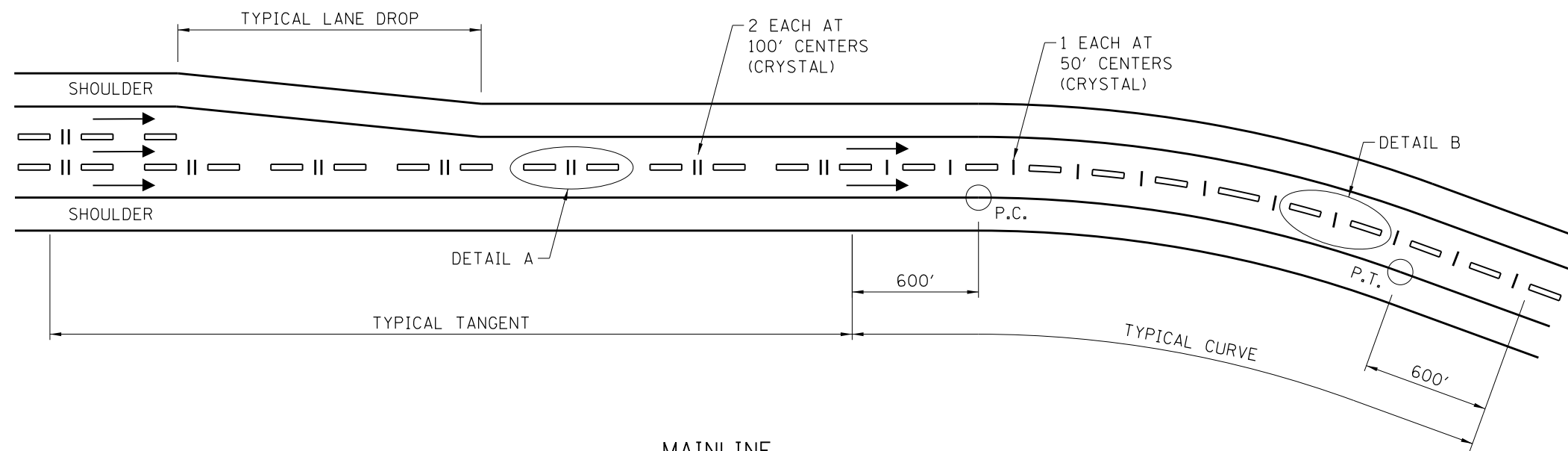


DETAIL B



* MARKER TO BE INSTALLED WHEN LENGTHS OF AUXILIARY LANES ARE GREATER THAN 1000'.

DETAIL C



MAINLINE

RAISED PAVEMENT LANE MARKER DETAILS

NOTES:

1. USE OF RAISED PAVEMENT LANE MARKERS SHALL BE IN ACCORDANCE WITH THE IL TOLLWAY, ROADWAY SIGNING AND PAVEMENT MARKING GUIDELINES.
2. FOR COLLECTOR-DISTRIBUTOR (C-D) ROADWAYS, PLACE ONE-WAY CRYSTAL MARKER, 2 EACH AT 100' CENTERS. USE DETAIL A.
3. FOR MULTI LANE DIRECTIONAL RAMPS, PLACE ONE-WAY CRYSTAL MARKER, 1 EACH AT 50' CENTERS. USE DETAIL B.
4. FOR AUXILIARY LANES, PLACE ONE-WAY CRYSTAL MARKER, 1 EACH AT 48' CENTERS. USE DETAIL C.

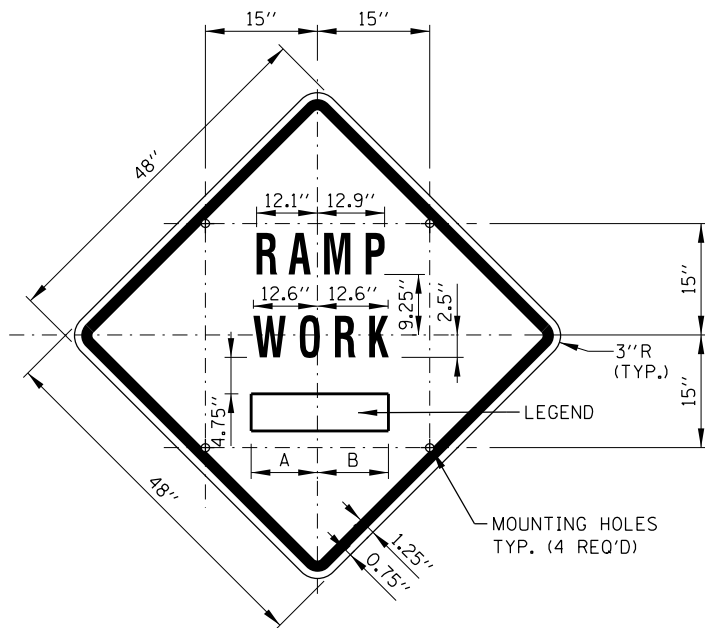
APPROVED: *Paul Kovacs* CHIEF ENGINEERING OFFICER DATE: 7-1-2009

DATE	REVISIONS
11-01-2012	REVISED DETAIL C.
3-31-2016	REVISED NOTES 1.
3-01-2019	ADDED NEW NOTE 1



RAISED PAVEMENT LANE MARKER

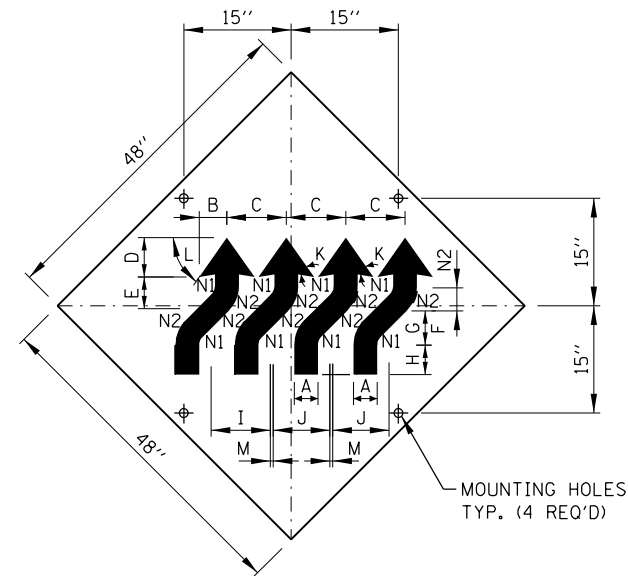
STANDARD D8-03



SIGN TS-2 (O)

COLOR: BACKGROUND - FLUORESCENT ORANGE (O)
 BORDER AND SYMBOL - BLACK
 SIZE: 48"x48"
 LETTERING: 7" FEDERAL SERIES D
 MOUNTING HOLES: 7/16" DIA., 4 HOLES SPACED AS SHOWN

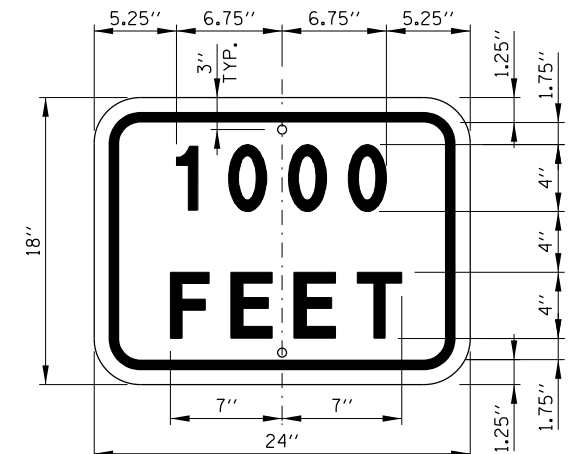
SIGN NO.	LEGEND	A	B
TS-2A	AHEAD	15.50"	15.50"
TS-2B	500 FT	14.25"	15.13"
TS-2C	1000 FT	14.88" L2	15.75" L2
TS-2D	1500 FT	14.88" L2	15.75" L2
TS-2E	1/2 MILE	15.75" L3	15.75" L3
TS-2F	1 MILE	13.06"	13.06"



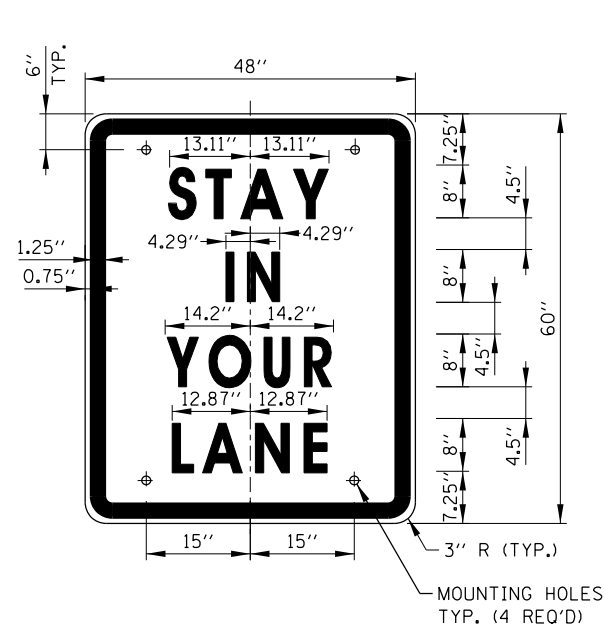
SIGN W1-4dR (O)

COLOR: BACKGROUND-FLUORESCENT ORANGE (O)
 TYPE A REFLECTIVE SHEETING PER STANDARD SPECIFICATIONS (*A)
 BORDER AND LETTERS-BLACK
 SIZE: 48"x48"
 MOUNTING HOLES: 7/16" DIA., 4 HOLES SPACED AS SHOWN.

A	4 1/2"
B	5 3/4"
C	12 1/2"
D	7 3/4"
E	6 1/2"
F	4 1/2"
G	6 1/2"
H	6"
I	12 3/4"
J	12"
K	45°
L	55°
M	3/4"
N1	2"
N2	6 1/2"

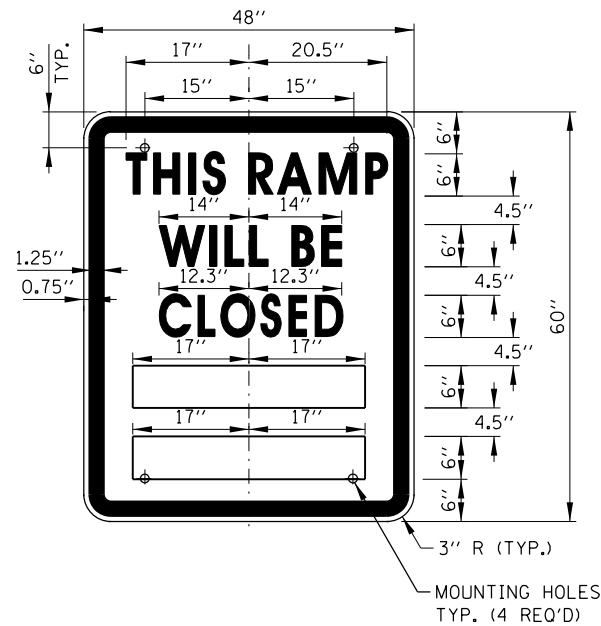


COLOR: BACKGROUND - FLUORESCENT ORANGE (O)
 BORDER AND LETTERS - BLACK
 SIZE: 24"x18"
 LETTERING: 4" FEDERAL SERIES D
 MOUNTING HOLES: 7/16" DIA., 2 HOLES SPACED AS SHOWN



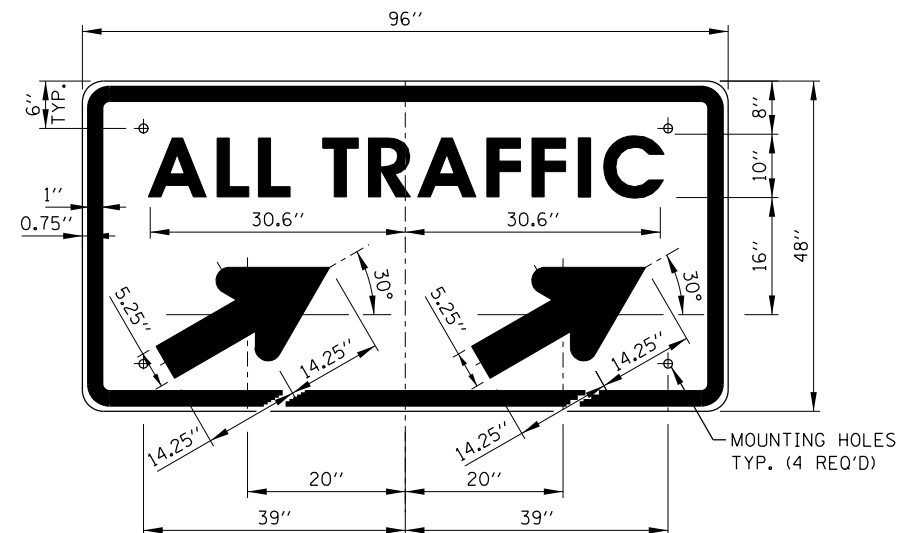
SIGN TS-3

COLOR: BACKGROUND - WHITE (REFLECTORIZED) (*A)
 BORDER AND LETTERS - BLACK
 SIZE: 48"x60"
 LETTERING: LEGEND - 8" FEDERAL SERIES D
 MOUNTING HOLES: 7/16" DIA., 4 HOLES, SPACED AS SHOWN



SIGN TS-4

COLOR: BACKGROUND - WHITE (REFLECTORIZED)(*A)
 BORDER AND LETTERS - BLACK
 SIZE: 48"x60"
 LETTERING: LEGEND - 6" FEDERAL SERIES C
 MOUNTING HOLES: 7/16" DIA., 4 HOLES, SPACED AS SHOWN



SIGN TS-5a & TS-5b

COLOR: BACKGROUND - WHITE (REFLECTORIZED)(*A)
 BORDER AND LETTERS - BLACK
 ARROW - BLACK
 SIZE: 96"x48"
 LETTERING: 10" FEDERAL SERIES D
 MOUNTING HOLES: 7/16" DIA., 4 HOLES, SPACED AS SHOWN
 NOTE: SIGN TS-5a IS SHOWN, SUBSTITUTE LEGEND "▲" FOR "▲" FOR SIGN TS-5b

NOTES:

- ALL LETTERING IS DESIGNATED BY SIZE AND SERIES IN ACCORDANCE WITH THE LATEST EDITION OF "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AS PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION. LETTERING SPACING SHALL BE IN ACCORDANCE WITH THIS GUIDE EXCEPT WHERE NOTED.
- SYMBOLS AND ARROWS SHALL CONFORM TO THE DETAILS SHOWN IN THE LATEST EDITION OF "STANDARD HIGHWAY SIGNS" AS PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION.
- SEE THE CONTRACT REQUIREMENTS FOR ADDITIONAL NOTES AND SPECIFICATIONS.
 (O) FLUORESCENT ORANGE REFLECTIVE SHEETING PER THE STANDARD SPECIFICATIONS.
 (*A) - REFLECTIVE SHEETING PER THE STANDARD SPECIFICATIONS.
- DIMENSIONS INDICATED THUS L ARE BASED ON A REDUCTION IN STANDARD LETTERING SPACING AS SHOWN BELOW:
 L1 SPACING REDUCED BY 25%
 L2 SPACING REDUCED BY 40%
 L3 SPACING REDUCED BY 50%

RAMP CLOSURE ADVANCE INFORMATION SIGN

THE VARIABLE MESSAGE WITH DATES FOR THE BOTTOM TWO LINES SHALL BE DETERMINED BY THE ENGINEER AND GIVEN TO THE CONTRACTOR BEFORE THE REQUIRED FIELD ERECTION DATE.

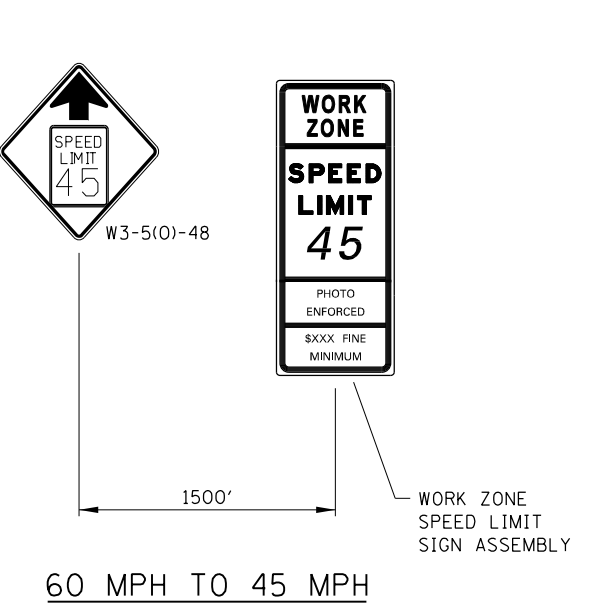
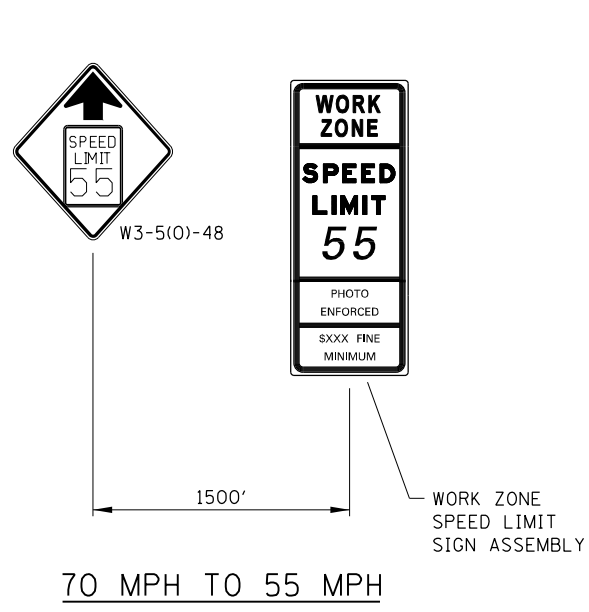
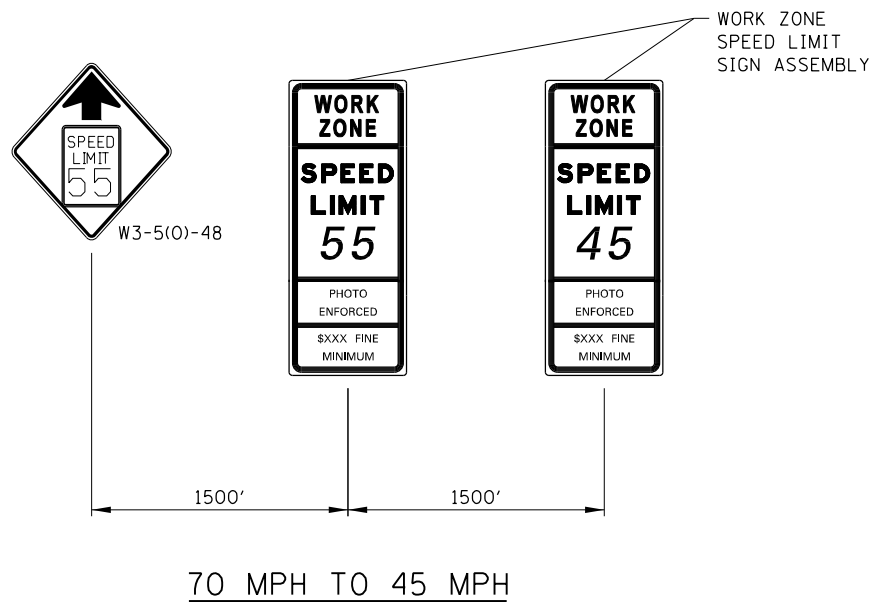
APPROVED: *Paul Kovacs* DATE 5-1-2009
 CHIEF ENGINEERING OFFICER

DATE	REVISIONS
11-01-12	DELETED SIGN TS-1
03-31-14	REVISED FINE SIGN NUMBER AND ADDED LED SPEED LIMIT DISPLAY
3-11-2015	REVISED NOTES
3-31-2017	REVISED END WZSL SIGN COLOR
3-01-2019	REMOVED STANDARD IDOT SIGNS, REVISED WZSL ASSEMBLY, ADDED WZSL TRANSITION

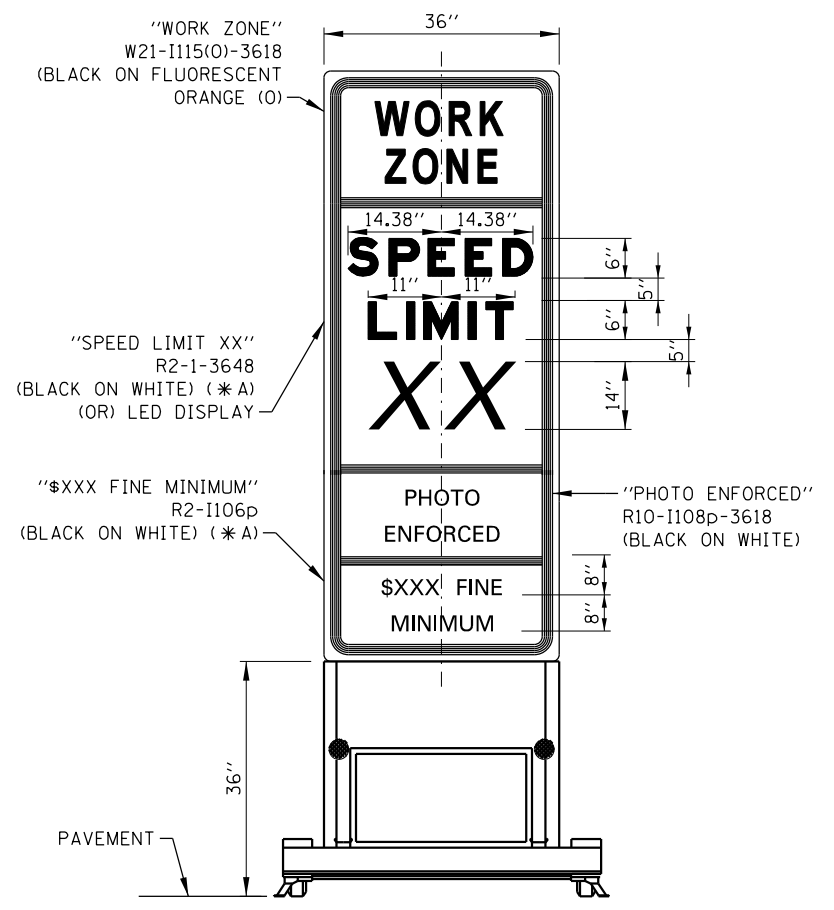


CONSTRUCTION SIGNS

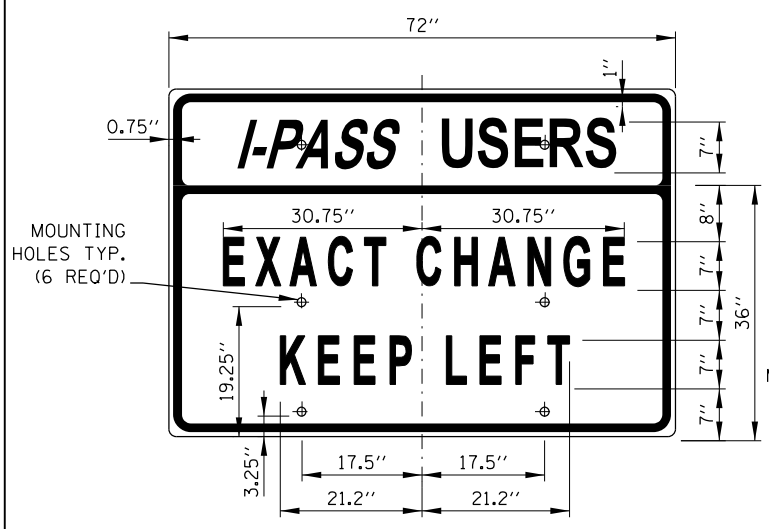
STANDARD E1-07



WORK ZONE SPEED LIMIT TRANSITION SIGNAGE

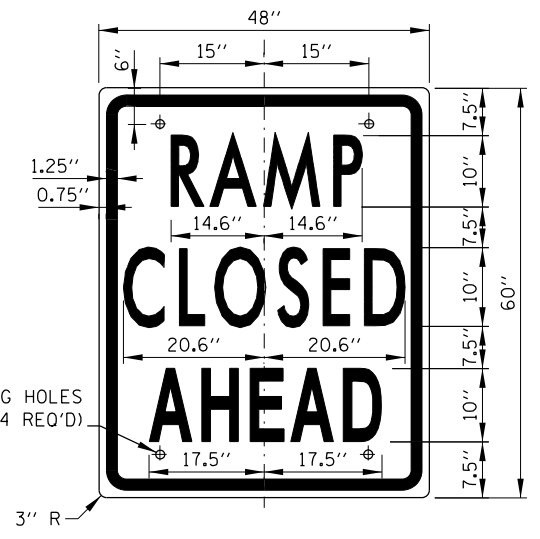


WORK ZONE SPEED LIMIT SIGN ASSEMBLY



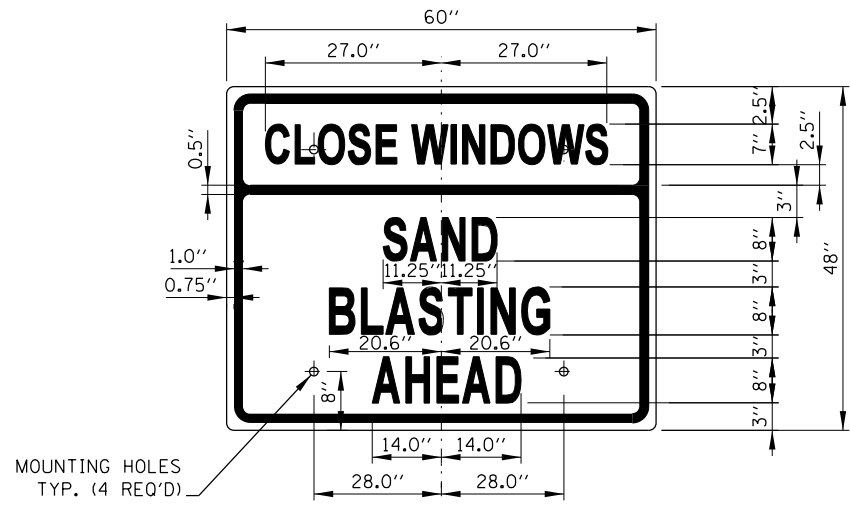
SIGN TS-7

COLOR: BACKGROUND - WHITE (REFLECTORIZED) (* A)
 BORDER AND LETTERS - BLACK
 SIZE: 72"x36"
 LETTERING: 7" FEDERAL SERIES C
 MOUNTING HOLES: 7/16" DIA., 4 HOLES SPACED AS SHOWN



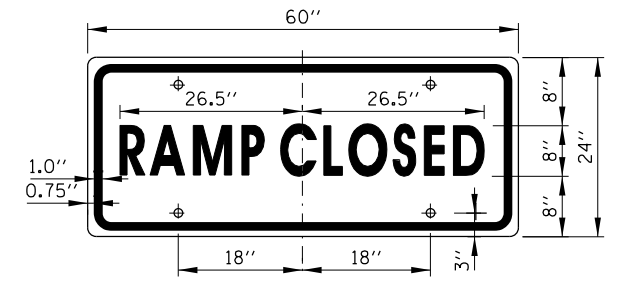
SIGN TS-9

COLOR: BACKGROUND - WHITE (REFLECTORIZED) (* A)
 BORDER AND LETTERS - BLACK
 SIZE: 48"x60"
 LETTERING: 10" FEDERAL SERIES C
 MOUNTING HOLES: 7/16" DIA., 4 HOLES SPACED AS SHOWN



SIGN TS-10 (0)

COLOR: BACKGROUND - FLUORESCENT ORANGE (0)
 BORDER AND LETTERS - BLACK
 SIZE: 60"x48"
 LETTERING: 8" FEDERAL SERIES C, 7" FEDERAL SERIES B
 MOUNTING HOLES: 7/16" DIA., 4 HOLES SPACED AS SHOWN



SIGN TS-6

COLOR: BACKGROUND - WHITE (REFLECTORIZED) (* A)
 BORDER AND LETTERS - BLACK
 SIZE: 60"x24"
 LETTERING: 8" FEDERAL SERIES C
 MOUNTING HOLES: 7/16" DIA., 4 HOLES SPACED AS SHOWN

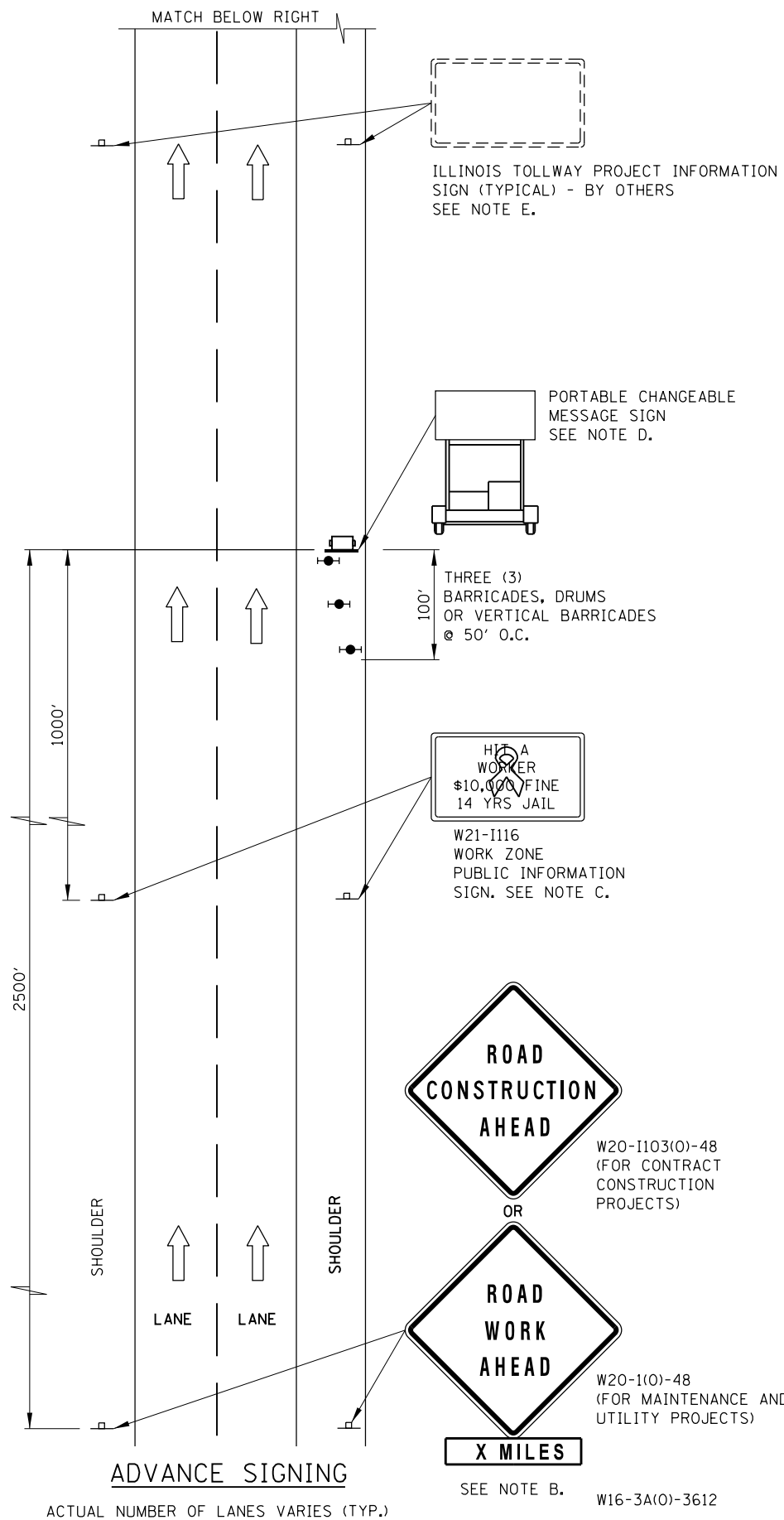


CONSTRUCTION SIGNS

STANDARD E1-07

APPROVED: *Paul Kovacs* DATE: 5-1-2009
 CHIEF ENGINEERING OFFICER

NOTE:
 SEE SHEET 1 OF THIS SERIES FOR NOTES.



ADVANCE SIGNING NOTES:

- THE ADVANCE SIGNING SHOWN ON THIS STANDARD SHALL APPLY ANY TIME THE CONTRACTOR CLOSES ONE OR MORE LANES, OR IS REQUIRED TO SHIFT THE LANE ALIGNMENT. THE "ROAD WORK AHEAD" OR "ROAD CONSTRUCTION AHEAD" SIGNS, WORK ZONE PUBLIC INFORMATION SIGNS AND PORTABLE CHANGEABLE MESSAGE ARE STATIONARY.
- THE ROAD CONSTRUCTION AHEAD SIGN (W20-1A, WITH W16-3a SUPPLEMENTAL PLATE) OR ROAD WORK AHEAD SIGN (W20-1, WITH W16-3A SUPPLEMENTAL PLATE) SHALL BE LOCATED UP TO 5 MILES IN ADVANCE OF THE PROJECT LIMITS, WITH THE LOCATION BEING DETERMINED BY THE ENGINEER.
- THE WORK ZONE PUBLIC INFORMATION SIGN IS 60" WIDE BY 48" HIGH. THE CONTRACTOR SHALL OBTAIN THE CAMERA-READY ARTWORK REQUIRED FOR THE SIGN MESSAGE BY CONTACTING IDOT'S CENTRAL BUREAU OF OPERATIONS.
- THE PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE USED TO DISPLAY THE STATUS OF LANE WITHIN THE CONTRACT LIMITS. THE PRIMARY MESSAGES SHALL BE: "RIGHT LANE(S) CLOSED" / "X MILES AHEAD", "LEFT LANE(S) CLOSED" / "X MILES AHEAD", "LANE(S) SHIFT" / "X MILES AHEAD", "ALL LANES OPEN". THE PORTABLE CHANGEABLE MESSAGE SIGN MAY BE MOVED TO THE MEDIAN SHOULDER WHEN THE LANE CLOSURES ARE ON THE LEFT, PROVIDED THE EXISTING SHOULDER WIDTH IS ADEQUATE.
- THE ILLINOIS TOLLWAY WILL FURNISH AND INSTALL STATIC PROJECT INFORMATION SIGNS IN ADVANCE, THROUGH AND AT THE END OF THE WORK ZONE. THESE SIGNS WILL BE INSTALLED ALONG THE OUTSIDE SHOULDER WITH THE ADVANCE SIGNS LOCATED BEYOND THE PORTABLE CHANGEABLE MESSAGE SIGN. THE ENGINEER AND CONTRACTOR SHALL COORDINATE WITH THE ILLINOIS TOLLWAY REGARDING THE LOCATION OF THESE SIGNS AND NOTIFY THE ILLINOIS TOLLWAY OF ANY DAMAGE TO THE SIGNS OR SUPPORTS.

LEGEND

- ARROW BOARD
- WORK AREA
- SIGN
- DIRECTION INDICATOR BARRICADE WITH SEQUENTIAL FLASHING WARNING LIGHT
- TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT
- FLAGGER WITH TRAFFIC CONTROL SIGN
- WORKER
- LANE CLOSED
- CHECK BARRICADE
- TRUCK MOUNTED ATTENUATOR



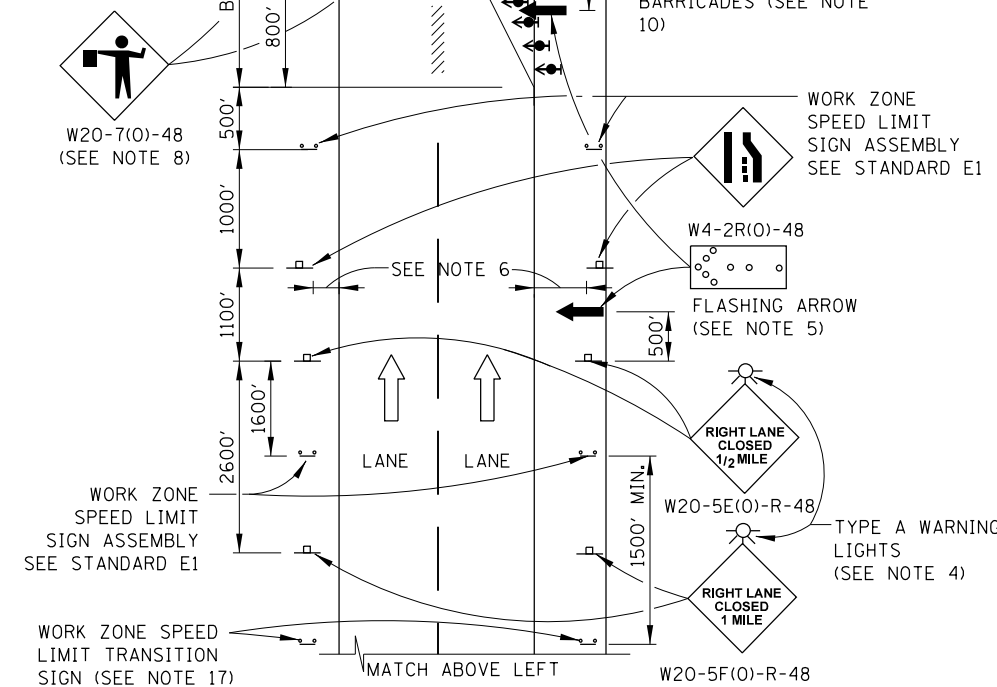
DATE	REVISIONS
3-31-2016	ADDED LANE CLOSURE WITH BARRIER AND ADDED SEQUENTIAL FLASHING WARNING LIGHT.
3-31-2017	ADDED TAPER RATE TABLE
3-01-2019	RE-ARRANGED DETAILS, REVISED NOTE 17, ADDED NOTES 18 & 19, ADDED TMA

APPROVED *Paul Kovacs* DATE 5-1-2009
CHIEF ENGINEERING OFFICER

LANE CLOSURE NOTES:

- IF CLOSURES ARE EXPECTED TO PRODUCE TRAFFIC BACKUPS EXTENDING BEYOND THE FIRST WARNING SIGN SHOWN ON THE DETAILS, ADDITIONAL UPSTREAM SIGNS SHALL BE PLACED SO THAT THE TRAFFIC CONTROL ZONE ENCOMPASSES THE ANTICIPATED BACKUP ZONE.
- LONGITUDINAL DIMENSIONS MAY BE ADJUSTED SLIGHTLY TO FIT FIELD CONDITIONS.
- THESE DETAILS ALSO APPLY TO OPPOSITE HAND LANE CLOSURES BY CHANGING SIGN LEGENDS AND ARROW DIRECTIONS TO INDICATE THE APPROPRIATE CLOSURE.
- FOR NIGHT TIME CLOSURES, ONE TYPE A WARNING LIGHT SHALL BE INSTALLED ABOVE EACH OF THE 1 MILE AND 1/2 MILE ADVANCE WARNING SIGNS. FOR DAYLIGHT-ONLY CLOSURES, THE LIGHTS MAY BE OMITTED.
- FOR ANY LANE CLOSURE, FLASHING ARROW BOARDS SHALL BE REQUIRED AND IN OPERATION AT ALL TIMES. THE FLASHING ARROW BOARD IN ADVANCE OF THE TAPER SHALL BE PROTECTED WITH THREE TYPE II BARRICADES AT 50' O.C.
- CONSTRUCTION SIGNS SHALL GENERALLY BE POST-MOUNTED OR ATTACHED TO PORTABLE SUPPORTS AND SHALL BE INSTALLED 8' TO 12' FROM ADJACENT TRAVEL LANE WHEREVER POSSIBLE. IN NO CASE SHALL SIGNS BE LOCATED TO PROVIDE LESS THAN 2' CLEARANCE BETWEEN EDGE OF SIGN AND ADJACENT TRAVEL LANE.
- PAVEMENT MARKING TAPE AND REMOVAL OR OBLITERATION OF EXISTING MARKINGS SHALL BE REQUIRED WHEN THE CLOSURE TIME EXCEEDS FOUR DAYS. THIS WORK SHALL BE MEASURED AND PAID FOR SEPARATELY.
- WHEN A FLAGGER IS NOT ON STATION, THE FLAGGER SIGN SHALL BE PROMPTLY REMOVED, COVERED OR TURNED TO FACE AWAY FROM TRAFFIC. FLAGGER SIGNS SHALL BE MOVED AS NECESSARY TO MAINTAIN THE REQUIRED SPACING BETWEEN THE SIGNS AND THE WORKERS IN EACH SEPARATE WORK ACTIVITY, PER THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.
- WORK ZONE SPEED LIMIT SIGN ASSEMBLIES, SHALL BE PLACED ADJACENT TO THE OPEN TRAFFIC LANE(S). WORK ZONE SPEED SIGNS SHALL BE MOVED AS NECESSARY TO MAINTAIN THE REQUIRED SPACING BETWEEN SIGNS AND THE WORKERS IN EACH SEPARATE WORK ACTIVITY PER THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.
- DIRECTION INDICATOR BARRICADES SHALL BE USED IN LANE TAPERS.
- FOR CLOSURES OTHER THAN SHORT TERM (SUNRISE TO ONE HOUR BEFORE SUNSET), THE MINIMUM HEIGHT OF THE SIGN FROM SHOULDER ELEVATION SHALL BE 7'-0".
- CONES MAY BE USED IN LIEU OF BARRICADES IN THE BUFFER AND WORK AREAS, WHEN THE CLOSURE IS FOR MAINTENANCE OPERATIONS.
- BARRICADES ARE TO BE LOCATED AT JOINT LINE WHEN WORK AREA EXTENDS UP TO JOINT UNLESS OTHERWISE SHOWN ON THE PLANS.
- SEE MAINTENANCE OF TRAFFIC DRAWINGS FOR ADDITIONAL SIGNING IN THIS AREA.
- CHECK BARRICADES SHALL BE PLACED IN EACH CLOSED LANE AND SHOULDER AT 1000 FOOT CENTERS.
- A 1'-0" MINIMUM/2'-0" DESIRABLE SHY DISTANCE SHALL BE PROVIDED, MEASURED BETWEEN EDGE OF PAVEMENT LANE MARKING TO THE EDGE OF THE TRAFFIC CONTROL DEVICE.
- SEE STANDARD E1 FOR ADDITIONAL SIGNAGE REQUIRED WHEN WORK ZONE SPEED LIMIT IS REDUCED BY MORE THAN 10 MPH. THE SPEED LIMIT SHALL BE TRANSITIONED TO THE SPECIFIED WORK ZONE SPEED LIMIT 2600 FEET BEFORE THE FIRST W4-2 SIGN.
- WHEN NO POSITIVE PROTECTION IS PROVIDED AND WORKERS OR EQUIPMENT ENCROACH WITHIN 2'-0" OR LESS FROM THE EDGE OF TRAVELED WAY, THE LANE OPEN TO TRAFFIC SHALL BE TEMPORARILY CLOSED OR SHIFTED DURING WORK ACTIVITIES.
- IN WORK ZONES WITH NO POSITIVE PROTECTION, A TRUCK MOUNTED ATTENUATOR (TMA) SHALL BE PROVIDED 100' TO 200' IN ADVANCE OF EACH WORK AREA. WHERE MULTIPLE CREWS ARE PRESENT, A TMA SHALL BE PROVIDED AT EACH WORK AREA.

ONE-LANE CLOSURE WITH BARRICADE

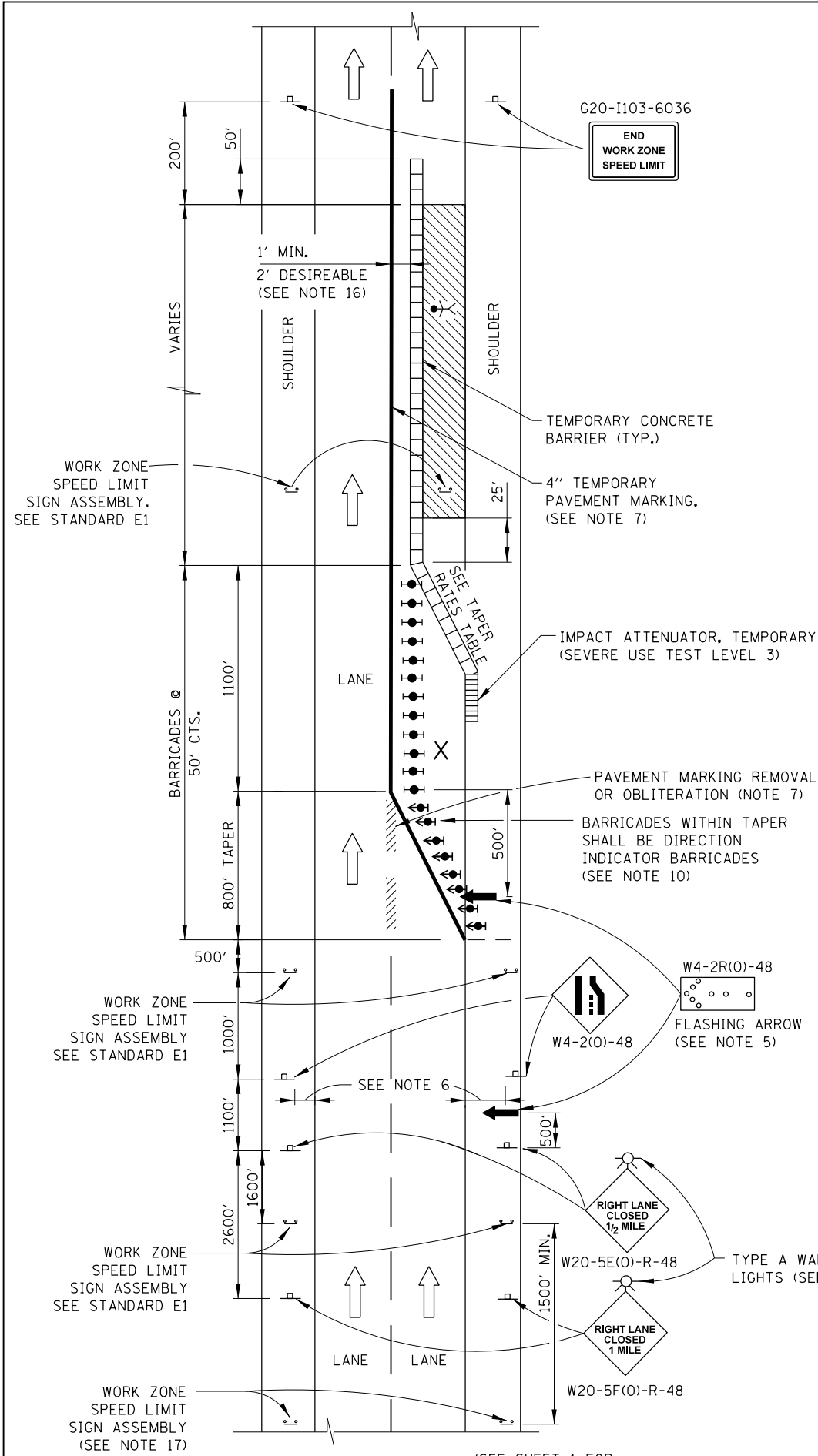


TAPER RATES

WORK ZONE SPEED (mph)	SHY LINE (ft.)	BARRIER INSIDE SHY LINE	BARRIER AT OR BEYOND SHY LINE
65	8.5	28:1	19:1
60	8	26:1	18:1
55	7	24:1	16:1
50	6.5	21:1	14:1
45	6	18:1	12:1
40	5	16:1	10:1
35	4.5	15:1	9:1
30	4	13:1	8:1

LEGEND

- ARROW BOARD
- WORKER
- SIGN
- DIRECTION INDICATOR BARRICADE WITH SEQUENTIAL FLASHING WARNING LIGHT
- TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT
- FLAGGER WITH TRAFFIC CONTROL SIGN
- LANE CLOSED
- CHECK BARRICADE
- TRUCK MOUNTED ATTENUATOR



ONE-LANE CLOSURE WITH BARRIER

APPROVED: *Paul Kovacs* DATE: 5-1-2009
 CHIEF ENGINEERING OFFICER

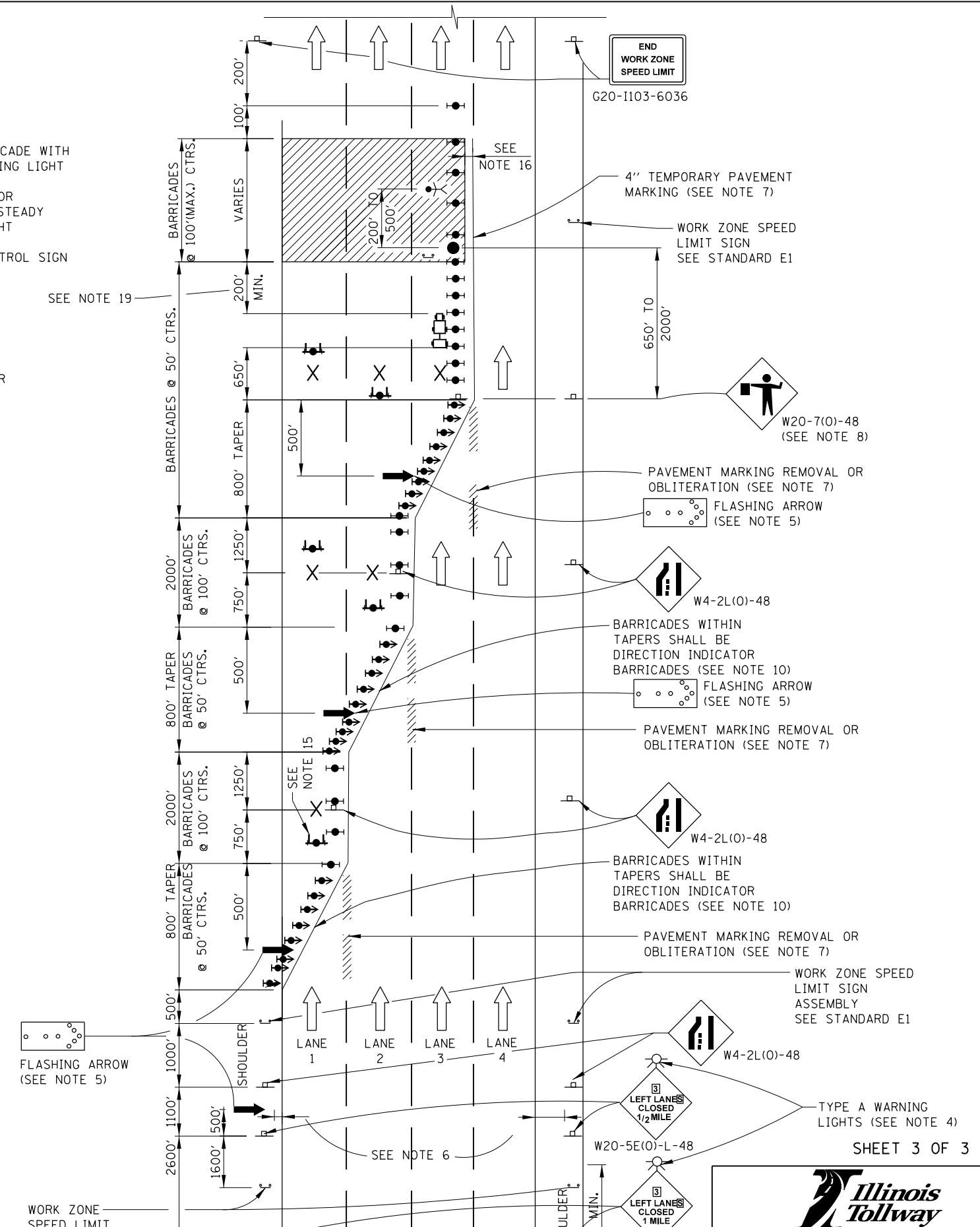
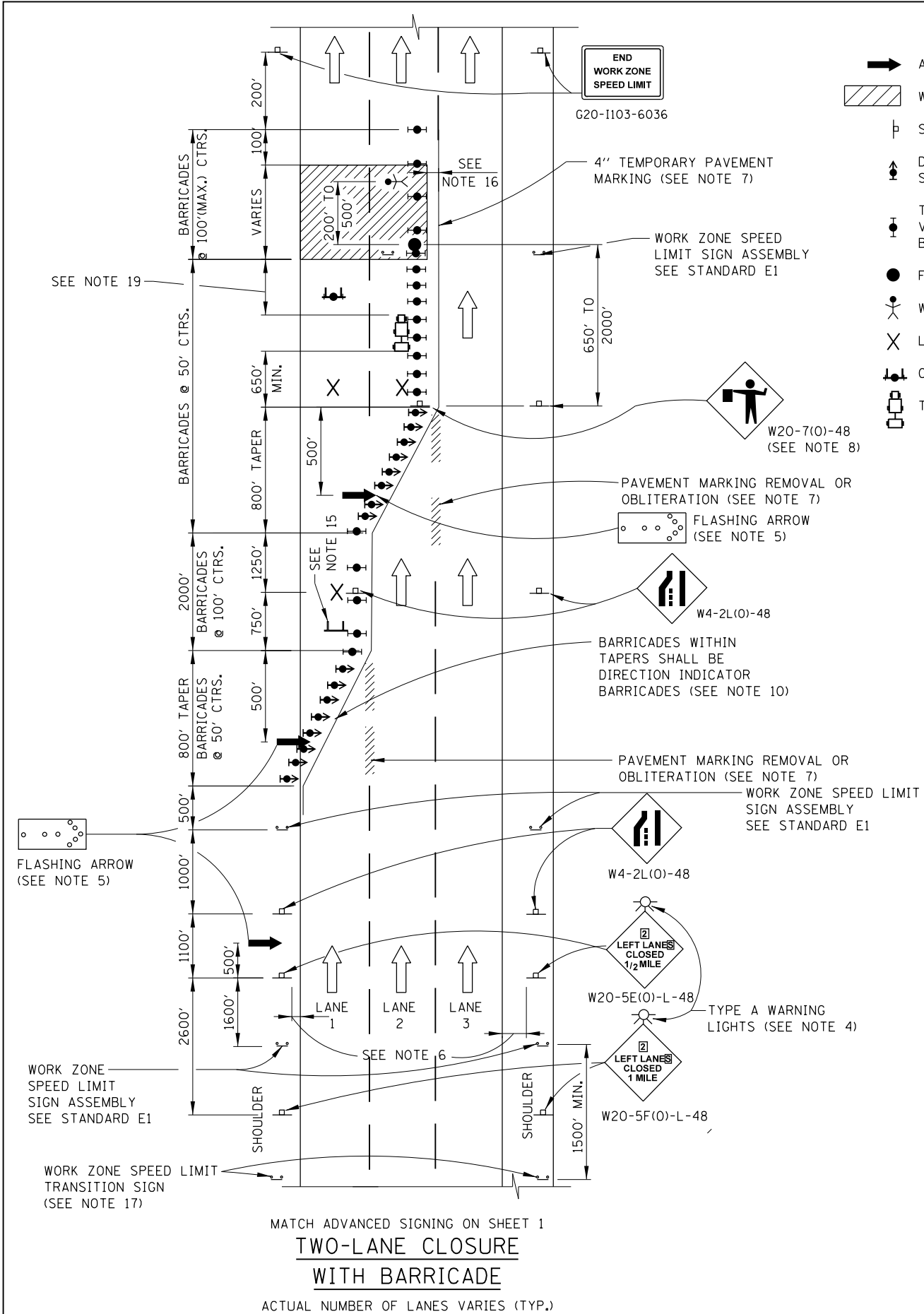
SHEET 2 OF 3

LANE CLOSURE DETAILS

STANDARD E2-08

LEGEND

- ARROW BOARD
- WORK AREA
- SIGN
- DIRECTION INDICATOR BARRICADE WITH SEQUENTIAL FLASHING WARNING LIGHT
- TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT
- FLAGGER WITH TRAFFIC CONTROL SIGN
- WORKER
- LANE CLOSED
- CHECK BARRICADE
- TRUCK MOUNTED ATTENUATOR



Paul Kovacs
 APPROVED... DATE 5-1-2009...
 CHIEF ENGINEERING OFFICER

SEE SHEET 1 IN THIS SERIES FOR NOTES

SHEET 3 OF 3

LANE CLOSURE DETAILS

STANDARD E2-08

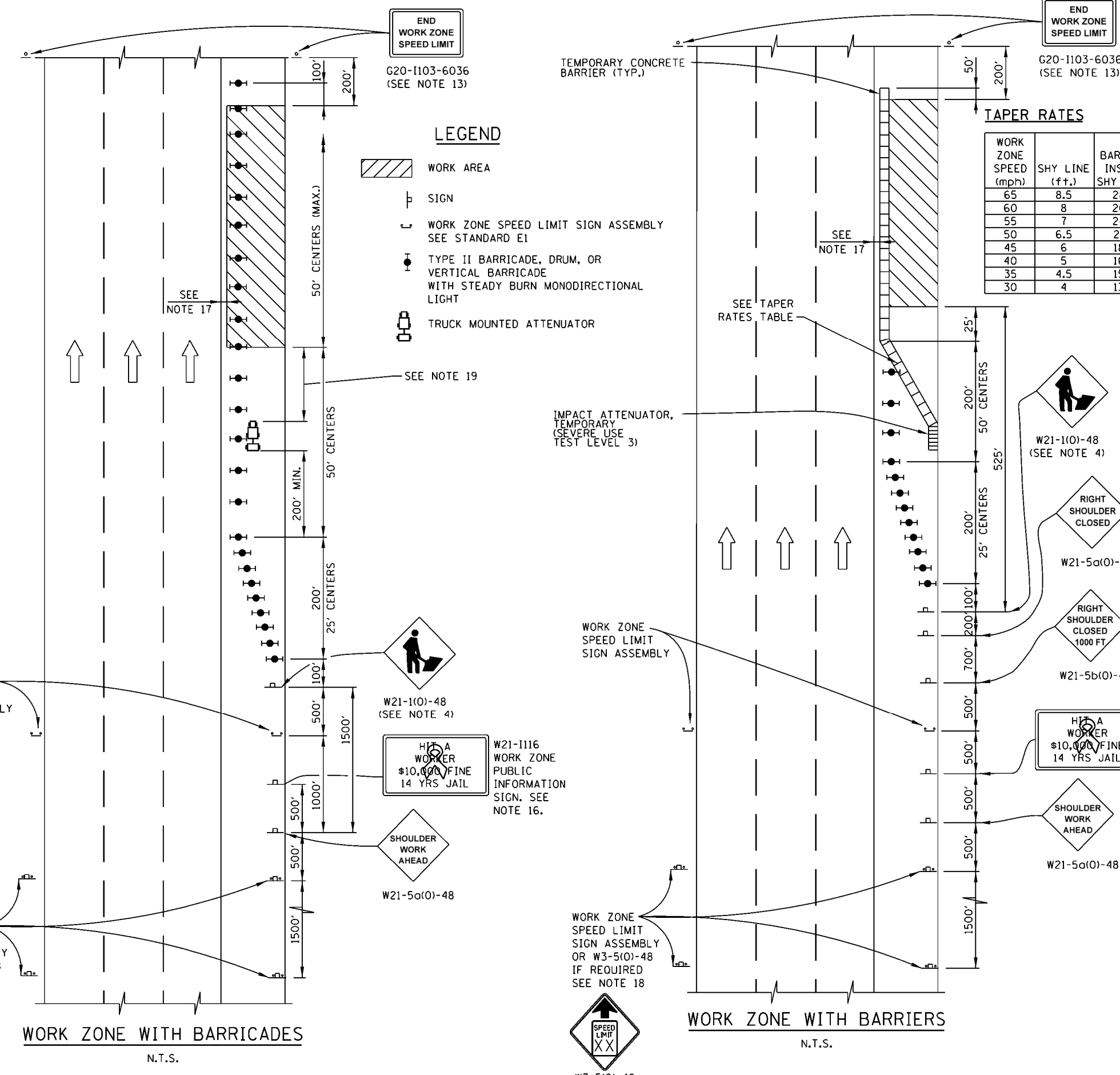
GENERAL NOTES:

1. THE SHOULDER SHALL BE CLOSED WHEN A WORK ACTIVITY REQUIRING 15 OR MORE MINUTES IS PERFORMED AT A DISTANCE WHICH IS LESS THAN 15 FEET BUT NO CLOSER THAN 2 FEET FROM THE EDGE OF PAVEMENT.
2. THE ADJACENT EXTERIOR LANE SHALL BE CLOSED WHEN WORK IS PERFORMED WITHIN 2 FEET FROM THE EDGE OF PAVEMENT.
3. THE CHANNELIZING DEVICES WHICH SEPARATE THE WORK SPACE FROM THE ADJACENT TRAVEL LANE SHALL BE SPACED AT 25' FOR (200 FEET) AND AT A MAXIMUM OF 50' FOR ALL ADDITIONAL DEVICES.
4. WHEN THE WORKSITE IS UNATTENDED, SUBSTITUTE - "SHOULDER WORK AHEAD" SIGN.
5. WORKER SIGNS OR SHOULDER WORK SIGNS AND CHANNELIZATION DEVICES ARE PLACED ONLY ON THE SIDE OF THE ROADWAY ON WHICH THE ACTIVITY IS PERFORMED.
6. FOR SHOULDER CLOSURE EXTENDING OVERNIGHT, BARRICADE TYPE II WITH STEADY BURNING LIGHT, TYPE C SHALL BE USED.
7. FOR SHORT TERM CLOSURE (SUNRISE TO ONE HOUR BEFORE SUNSET) NOT EXTENDING INTO DARKNESS, CONES MAY BE USED.
8. ONE WORK ZONE SPEED LIMIT SIGN ASSEMBLY SHALL BE PLACED AT A DISTANCE OF 500' TO 2,500' MAXIMUM IN ADVANCE OF WORKERS THROUGHOUT THE SHOULDER CLOSURE. MOVING OPERATIONS MAY REQUIRE CONTINUOUS ADJUSTMENT OF THE SIGN ASSEMBLY LOCATION TO MAINTAIN THE ABOVE INTERVAL.
9. AN ADDITIONAL SIGN ASSEMBLY SHALL BE PLACED 500' BEYOND THE LAST ENTRANCE RAMP FOR EACH INTERCHANGE THAT FALLS WITHIN THE 2,500'.
10. THE SIGN ASSEMBLY SHALL BE PLACED NO CLOSER THAN 500' TO ANY OTHER SIGN.
11. THE WORK ZONE SPEED LIMIT SIGNS AND SIGN ASSEMBLY SHALL BE PROMPTLY REMOVED OR COVERED WHEN SHOULDER CLOSURE IS REMOVED.
12. ALL CONFLICTING SPEED LIMIT SIGNS SHALL BE COVERED OR REMOVED.
13. "END WORK ZONE SPEED LIMIT" SIGNS SHALL BE IN PLACE ONLY WHEN THE EXISTING POSTED SPEED > 55MPH.
14. FOR SHOULDER REPAIRS OR REPLACEMENT THE CHANNELIZING DEVICES SHALL BE PLACED AT THE EDGE OF PAVEMENT WHENEVER THE WORK ACTIVITIES RESULT IN A DROPOFF AT THE EDGE OF PAVEMENT.
15. ANY UNATTENDED OBSTACLE OR EXCAVATION LEFT ON THE SHOULDER OVERNIGHT SHALL BE IN COMPLIANCE WITH THE ROADWAY TRAFFIC CONTROL AND COMMUNICATIONS MANUAL.
16. THE WORK ZONE PUBLIC INFORMATION SIGN IS 60" WIDE BY 48" HIGH. THE CONTRACTOR SHALL OBTAIN THE CAMERA-READY ARTWORK REQUIRED FOR THE SIGN MESSAGE BY CONTACTING IDOT'S CENTRAL BUREAU OF OPERATIONS.
17. A 1'-0" MINIMUM/2'-0" DESIRABLE SHY DISTANCE SHALL BE PROVIDED, MEASURED BETWEEN EDGE OF PAVEMENT LANE MARKING TO THE EDGE OF THE TRAFFIC CONTROL DEVICE.
18. SEE STANDARD E1 FOR ADDITIONAL SIGNAGE REQUIRED WHEN WORK ZONE SPEED LIMIT IS REDUCED BY MORE THAN 10 MPH.
19. IN WORK ZONES WITH NO POSITIVE PROTECTION, A TRUCK MOUNTED ATTENUATOR (TMA) SHALL BE PROVIDED 100' TO 200' IN ADVANCE OF EACH WORK AREA. WHERE MULTIPLE CREWS ARE PRESENT, A TMA SHALL BE PROVIDED AT EACH WORK AREA.

TAPER RATES

WORK ZONE SPEED (mph)	SHY LINE (ft.)	BARRIER INSIDE SHY LINE	BARRIER AT OR BEYOND SHY LINE
65	8.5	28:1	19:1
60	8	26:1	18:1
55	7	24:1	16:1
50	6.5	21:1	14:1
45	6	18:1	12:1
40	5	16:1	10:1
35	4.5	15:1	9:1
30	4	13:1	8:1

- LEGEND**
- WORK AREA
 - SIGN
 - WORK ZONE SPEED LIMIT SIGN ASSEMBLY SEE STANDARD E1
 - TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT
 - TRUCK MOUNTED ATTENUATOR



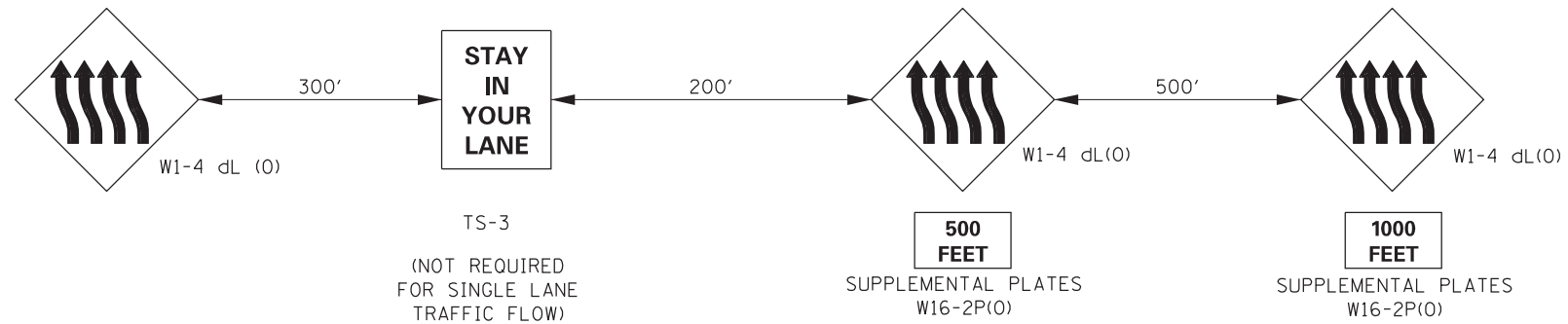
APPROVED: *Paul Kovacs* DATE 5-1-2009
 CHIEF ENGINEERING OFFICER

DATE	REVISIONS
1-01-11	CHANGED SYMBOL DESIGNATION
3-31-14	REVISED NOTES REVISED WORKER SIGN NUMBERS PER "MUTCD" AND REVISED NOTES.
3-11-2015	REVISED NOTES
3-31-2016	ADD WORK ZONE WITH BARRIERS.
3-31-2017	ADDED TAPER RATE TABLE.
3-01-2019	DELETED W21-1a, ADJUSTED SIGN SPACING, ADDED TMA, REVISED NOTES

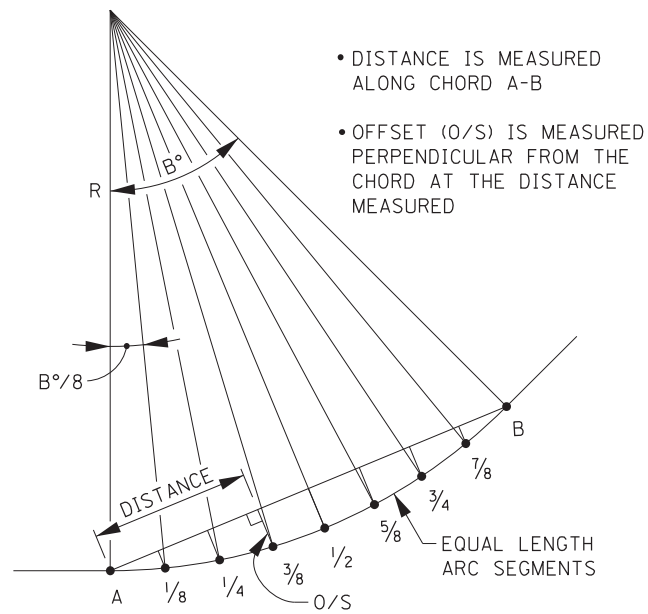
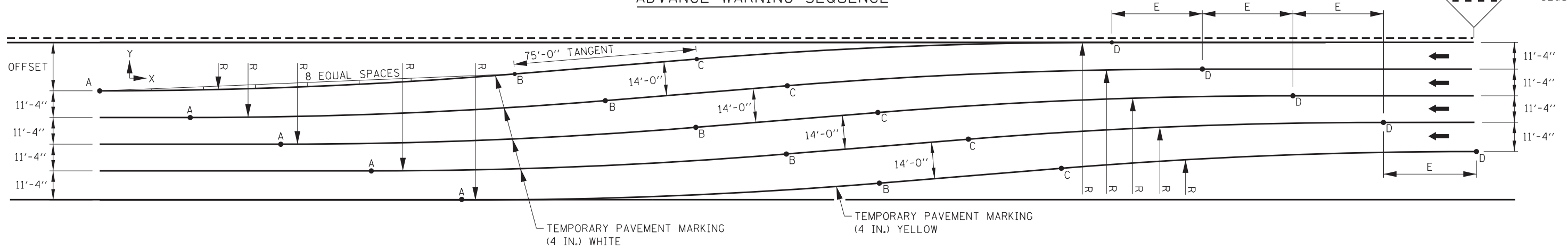
Illinois Tollway

SHOULDER CLOSURE DETAILS

STANDARD E3-07



ADVANCE WARNING SEQUENCE



- DISTANCE IS MEASURED ALONG CHORD A-B
- OFFSET (O/S) IS MEASURED PERPENDICULAR FROM THE CHORD AT THE DISTANCE MEASURED

CHORD OFFSET SKETCH

GENERAL NOTES:

1. REVERSE CURVE INFORMATION CAN BE USED FOR SINGLE LANE OR MULTILANE TRAFFIC FLOWS, SHIFTING RIGHT TO LEFT (AS SHOWN) OR LEFT TO RIGHT BY CHANGING TO THE APPROPRIATE ADVANCE WARNING SEQUENCE.
2. THE REVERSE CURVE SHALL NOT BE USED OUTSIDE THE ACTIVITY AREA. LANE SHIFTS IN ADVANCE OF OR ON THE APPROACH TO THE ACTIVITY AREA SHALL BE IMPLEMENTED WITH A SHIFT RATE OF 65:1.
3. LANE SHIFTS FOR DEPARTURES OUT OF THE ACTIVITY AREA SHALL BE IMPLEMENTED WITH A SHIFT RATE OF 65:1.

DATE	REVISIONS
2-07-12	REVISED NOTES
11-01-12	REVISED NOTES.
3-31-14	REVISED CURVE DATA PER MPH AND REVISED NOTES.
3-11-2015	REVISED NOTES AND ADDED RADIUS DIMENSIONS TO TABLES.
3-31-2016	REVISED TABLE DATA ON SHEET 2.
3-31-2017	REVISED TABLE DATA ON SHEET 2.



TYPE I (45 MPH) (RADIUS: 2100')

TYPE II (50-55 MPH) (RADIUS: 3100')

OFFSET	POINT LAY-OUT											
	E		B		A		B		C		D	
	X	Y	X	Y	X	Y	X	Y	X	Y		
10	50.23	3.06	0	0	112.2	3.0	187.1	7.0	299.2	10.0		
12	44.94	3.43	0	0	125.6	3.8	200.4	8.2	326.0	12.0		
14	40.96	3.77	0	0	138.0	4.5	212.8	9.5	350.8	14.0		
16	37.86	4.08	0	0	149.5	5.3	224.3	10.7	373.9	16.0		
18	35.34	4.38	0	0	160.4	6.1	235.2	11.9	395.6	18.0		
20	33.26	4.66	0	0	170.7	7.0	245.5	13.0	416.2	20.0		
22	31.50	4.93	0	0	180.5	7.8	255.3	14.2	435.8	22.0		
24	30.00	5.19	0	0	189.9	8.6	264.6	15.4	454.6	24.0		
26	28.68	5.44	0	0	199.0	9.4	273.6	16.6	472.6	26.0		
28	27.53	5.67	0	0	207.7	10.3	282.3	17.7	489.9	28.0		
30	26.51	5.90	0	0	216.0	11.1	290.6	18.9	506.7	30.0		
32	25.59	6.13	0	0	224.2	12.0	298.7	20.0	522.9	32.0		
34	24.76	6.34	0	0	232.0	12.9	306.6	21.1	538.6	34.0		
36	24.02	6.55	0	0	239.7	13.7	314.2	22.3	553.8	36.0		
38	23.33	6.76	0	0	247.1	14.6	321.6	23.4	568.7	38.0		
40	22.71	6.96	0	0	254.3	15.5	328.8	24.5	583.1	40.0		
42	22.13	7.15	0	0	261.4	16.3	335.8	25.7	597.2	42.0		
44	21.60	7.34	0	0	268.3	17.2	342.7	26.8	611.0	44.0		
46	21.11	7.53	0	0	275.0	18.1	349.4	27.9	624.4	46.0		
48	20.65	7.71	0	0	281.6	19.0	356.0	29.0	637.6	48.0		
50	20.22	7.89	0	0	288.1	19.9	362.4	30.1	650.5	50.0		
52	19.82	8.06	0	0	294.4	20.7	368.7	31.3	663.1	52.0		
54	19.44	8.23	0	0	300.6	21.6	374.9	32.4	675.5	54.0		
56	19.09	8.40	0	0	306.7	22.5	380.9	33.5	687.7	56.0		
58	18.76	8.56	0	0	312.7	23.4	386.9	34.6	699.6	58.0		
60	18.44	8.73	0	0	318.6	24.3	392.7	35.7	711.4	60.0		

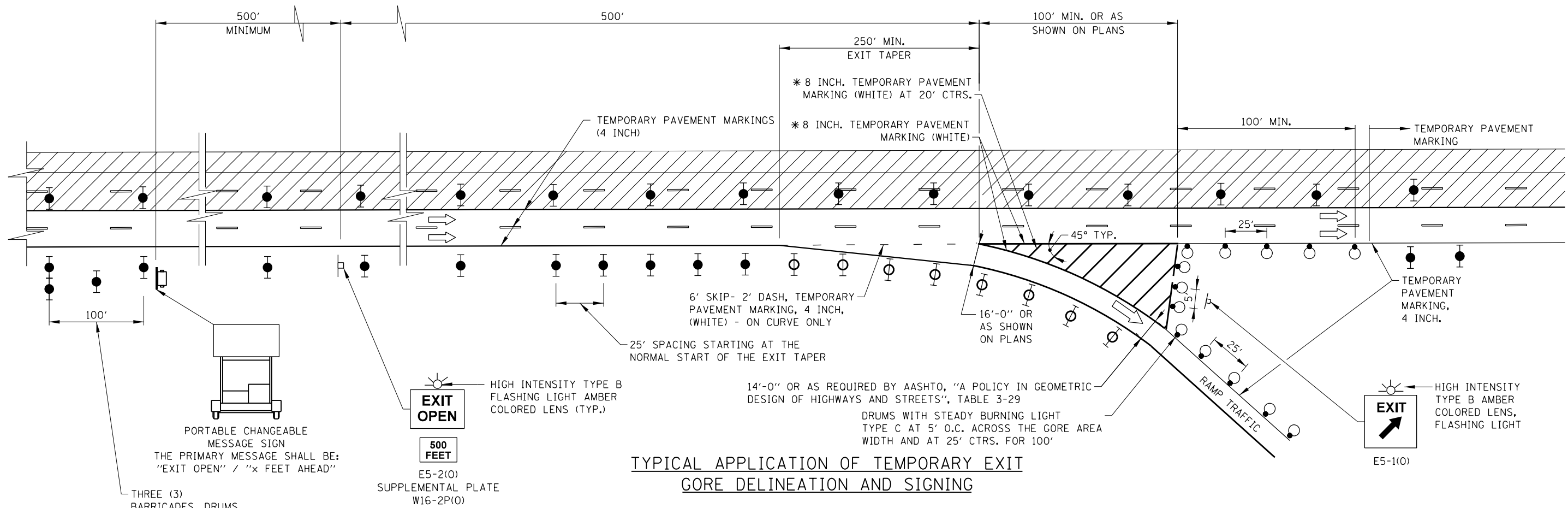
CHORD OFFSET DATA							
1/8 & 7/8		1/4 & 3/4		3/8 & 5/8		1/2	
O/S	DIST	O/S	DIST	O/S	DIST	O/S	DIST
0.3	14.0	0.6	28.0	0.7	42.1	0.7	56.1
0.4	15.7	0.7	31.4	0.9	47.1	0.9	62.8
0.5	17.3	0.9	34.5	1.1	51.8	1.1	69.0
0.6	18.7	1.0	37.4	1.2	56.1	1.3	74.8
0.7	20.1	1.2	40.1	1.4	60.2	1.5	80.3
0.8	21.4	1.3	42.7	1.6	64.1	1.7	85.4
0.9	22.6	1.5	45.2	1.8	67.8	1.9	90.4
0.9	23.8	1.6	47.5	2.0	71.3	2.2	95.1
1.0	24.9	1.8	49.8	2.2	74.7	2.4	99.6
1.1	26.0	1.9	52.0	2.4	78.0	2.6	104.0
1.2	27.0	2.1	54.1	2.6	81.1	2.8	108.2
1.3	28.0	2.3	56.1	2.8	84.2	3.0	112.2
1.4	29.0	2.4	58.1	3.0	87.1	3.2	116.2
1.5	30.0	2.6	60.0	3.2	90.0	3.4	120.0
1.6	30.9	2.7	61.9	3.4	92.8	3.7	123.8
1.7	31.8	2.9	63.7	3.6	95.5	3.9	127.4
1.8	32.7	3.1	65.4	3.8	98.2	4.1	131.0
1.9	33.6	3.2	67.2	4.0	100.8	4.3	134.4
2.0	34.4	3.4	68.9	4.2	103.3	4.5	137.8
2.1	35.2	3.6	70.5	4.5	105.8	4.7	141.1
2.2	36.1	3.7	72.2	4.7	108.3	5.0	144.4
2.3	36.9	3.9	73.7	4.9	110.7	5.2	147.6
2.4	37.6	4.1	75.3	5.1	113.0	5.4	150.7
2.5	38.4	4.2	76.8	5.3	115.3	5.6	153.8
2.6	39.2	4.4	78.3	5.5	117.6	5.9	156.8
2.7	39.9	4.6	79.8	5.7	119.8	6.1	159.8

OFFSET	POINT LAY-OUT											
	E		B		A		B		C		D	
	X	Y	X	Y	X	Y	X	Y	X	Y		
10	58.28	2.63	0	0	142.5	3.3	217.4	6.7	359.9	10.0		
12	52.30	2.94	0	0	158.9	4.1	233.8	7.9	392.8	12.0		
14	47.80	3.22	0	0	174.1	4.9	249.0	9.1	423.1	14.0		
16	44.25	3.48	0	0	188.3	5.7	263.1	10.3	451.4	16.0		
18	41.38	3.73	0	0	201.6	6.6	276.4	11.4	478.0	18.0		
20	38.99	3.96	0	0	214.2	7.4	289.0	12.6	503.2	20.0		
22	36.96	4.18	0	0	226.2	8.3	301.0	13.7	527.2	22.0		
24	35.22	4.40	0	0	237.7	9.1	312.5	14.9	550.1	24.0		
26	33.70	4.60	0	0	248.7	10.0	323.5	16.0	572.1	26.0		
28	32.36	4.80	0	0	259.3	10.9	334.0	17.1	593.3	28.0		
30	31.16	4.99	0	0	269.5	11.7	344.2	18.3	613.8	30.0		
32	30.10	5.17	0	0	279.4	12.6	354.1	19.4	633.6	32.0		
34	29.13	5.35	0	0	289.0	13.5	363.7	20.5	652.7	34.0		
36	28.25	5.52	0	0	298.4	14.4	373.0	21.6	671.4	36.0		
38	27.45	5.69	0	0	307.4	15.3	382.1	22.7	689.5	38.0		
40	26.72	5.86	0	0	316.3	16.2	390.9	23.8	707.1	40.0		
42	26.04	6.02	0	0	324.9	17.1	399.5	24.9	724.3	42.0		
44	25.41	6.17	0	0	333.3	18.0	407.9	26.0	741.1	44.0		
46	24.83	6.32	0	0	341.5	18.9	416.1	27.1	757.6	46.0		
48	24.29	6.47	0	0	349.6	19.8	424.1	28.2	773.6	48.0		
50	23.78	6.62	0	0	357.4	20.7	431.9	29.3	789.4	50.0		
52	23.31	6.76	0	0	365.2	21.6	439.6	30.4	804.8	52.0		
54	22.86	6.91	0	0	372.7	22.5	447.2	31.5	819.9	54.0		
56	22.44	7.04	0	0	380.2	23.4	454.6	32.6	834.8	56.0		
58	22.05	7.18	0	0	387.5	24.3	461.9	33.7	849.4	58.0		
60	21.67	7.31	0	0	394.7	25.2	469.1	34.8	863.7	60.0		

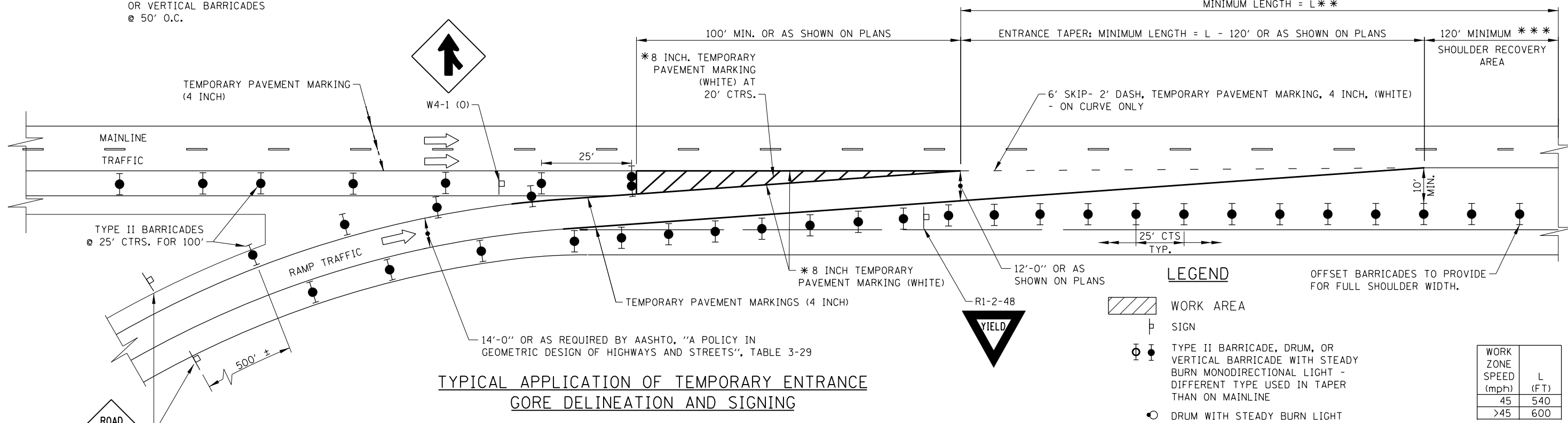
CHORD OFFSET DATA							
1/8 & 7/8		1/4 & 3/4		3/8 & 5/8		1/2	
O/S	DIST	O/S	DIST	O/S	DIST	O/S	DIST
0.4	17.8	0.6	35.6	0.8	53.4	0.8	71.3
0.4	19.9	0.8	39.7	1.0	59.6	1.0	79.5
0.5	21.8	0.9	43.5	1.1	65.3	1.2	87.1
0.6	23.5	1.1	47.1	1.3	70.6	1.4	94.2
0.7	25.2	1.2	50.4	1.5	75.6	1.6	100.8
0.8	26.8	1.4	53.6	1.7	80.4	1.9	107.2
0.9	28.3	1.5	56.6	1.9	84.9	2.1	113.2
1.0	29.7	1.7	59.5	2.1	89.2	2.3	118.9
1.1	31.1	1.9	62.2	2.3	93.3	2.5	124.4
1.2	32.4	2.0	64.9	2.5	97.3	2.7	129.8
1.3	33.7	2.2	67.4	2.8	101.2	2.9	134.9
1.4	34.9	2.4	69.9	3.0	104.9	3.2	139.9
1.5	36.2	2.5	72.3	3.2	108.5	3.4	144.7
1.6	37.3	2.7	74.7	3.4	112.0	3.6	149.4
1.7	38.5	2.9	76.9	3.6	115.4	3.8	153.9
1.8	39.6	3.0	79.1	3.8	118.7	4.0	158.3
1.9	40.6	3.2	81.3	4.0	122.0	4.3	162.7
2.0	41.7	3.4	83.4	4.2	125.1	4.5	166.9
2.1	42.7	3.5	85.5	4.4	128.2	4.7	171.0
2.2	43.7	3.7	87.5	4.6	131.3	4.9	175.1
2.3	44.7	3.9	89.5	4.8	134.2	5.2	179.0
2.4	45.7	4.0	91.4	5.1	137.2	5.4	182.9
2.5	46.6	4.2	93.3	5.3	140.0	5.6	186.7
2.6	47.6	4.4	95.2	5.5	142.8	5.9	190.5
2.7	48.5	4.6	97.0	5.7	145.6	6.1	194.1
2.8	49.4	4.7	98.8	5.9	148.3	6.3	197.7

TYPE III (60-65 MPH) (RADIUS: 4400')

OFFSET	POINT LAY-OUT											
	E		B		A		B		C		D	
	X	Y	X	Y	X	Y	X	Y	X	Y		
10	67.06	2.29	0	0	175.6	3.5	250.5	6.5	426.1	10.0		
12	60.34	2.54	0	0	195.3	4.3	270.2	7.7	465.5	12.0		
14	55.24	2.78	0	0	213.5	5.2	288.4	8.8	501.8	14.0		
16	51.22	3.00	0	0	230.4	6.0	305.3	10.0	535.7	16.0		
18	47.95	3.21	0	0	246.3	6.9	321.2	11.1	567.5	18.0		
20	45.22	3.41	0	0	261.4	7.8	336.3	12.2	597.7	20.0		
22	42.90	3.59	0	0	275.8	8.6	350.6	13.4	626.4	22.0		
24	40.91	3.77	0	0	289.5	9.5	364.3	14.5	653.8	24.0		
26	39.16	3.94	0	0	302.6	10.4	377.5	15.6	680.1	26.0		
28	37.62	4.11	0	0	315.3	11.3	390.1	16.7	705.4	28.0		
30	36.24	4.27	0	0	327.5	12.2	402.3	17.8	729.9	30.0		
32	35.01	4.42	0	0	339.4	13.1	414.2	18.9	753.5	32.0		
34	33.90	4.57	0	0	350.8	14.0	425.6	20.0	776.4	34.0		
36	32.88	4.72	0	0	362.0	14.9	436.7	21.1	798.7	36.0		
38	31.95	4.86	0	0	372.8	15.8	447.5	22.2	820.4	38.0		
40	31.10	5.00	0	0	383.4	16.7	4					



TYPICAL APPLICATION OF TEMPORARY EXIT GORE DELINEATION AND SIGNING



TYPICAL APPLICATION OF TEMPORARY ENTRANCE GORE DELINEATION AND SIGNING

LEGEND

- WORK AREA
- SIGN
- TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT - DIFFERENT TYPE USED IN TAPER THAN ON MAINLINE
- DRUM WITH STEADY BURN LIGHT

WORK ZONE SPEED (mph)	L (FT)
45	540
>45	600

- NOTES:**
- WHEN TEMPORARY PAVEMENT MARKING IS NOT REQUIRED, TEMPORARY GORES MAY BE DELINEATED BY DRUMS WITH STEADY BURN LIGHTS AT 25' C-C ACCORDING TO THE CONFIGURATIONS SHOWN.
 - THE TAPER LENGTHS ARE MINIMUMS. EXISTING ACCELERATION, DECELERATION, AND TAPER LENGTHS SHOULD BE PRESERVED TO THE EXTENT POSSIBLE.

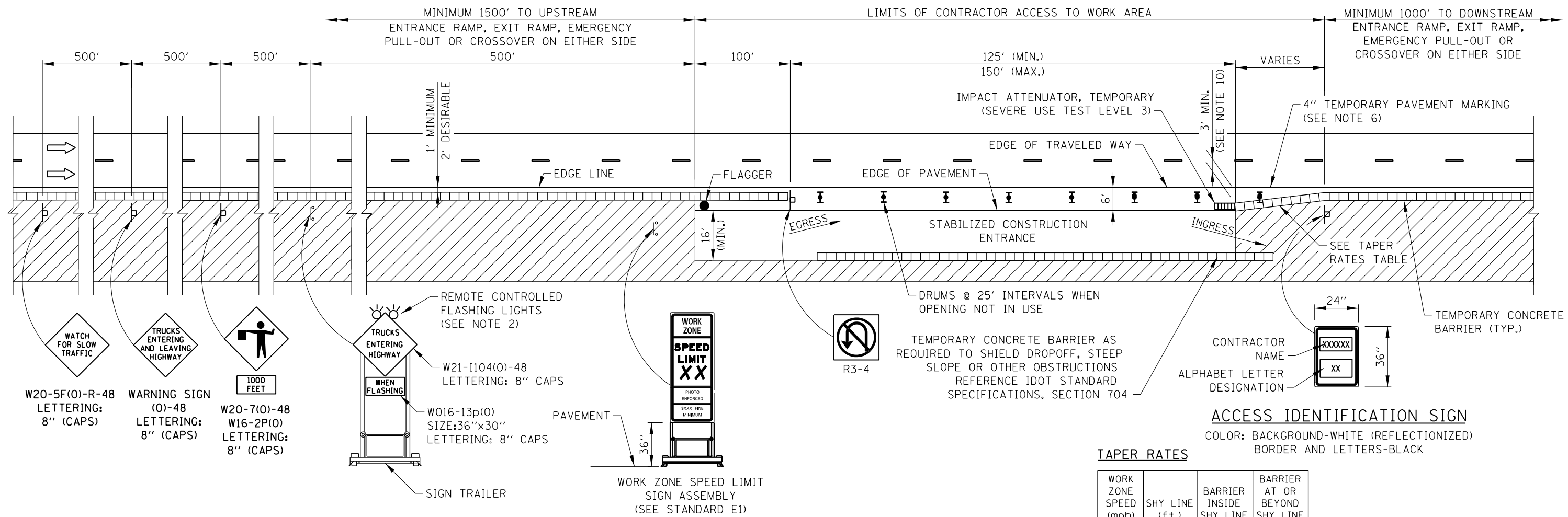
- * 8 INCH TEMPORARY PAVEMENT MARKING IS TO BE MADE OF 2-TEMPORARY PAVEMENT MARKING 4 INCH, WHITE OF THE TYPE SPECIFIED.
- ** REFER TO TABLE - TAPER LENGTHS ARE BASED ON 12'-0" RAMP WIDTH AT START OF ENTRANCE TAPER
- *** WHERE VIABLE WITH STAGED CONSTRUCTION

DATE	REVISIONS
2-07-2012	REVISED MERGE SIGN.
3-31-2014	ADDED 45 MPH SPEED TO ENTRANCE TAPER.
3-11-2015	REVISED EXIT/ENTRANCE DETAIL LAYOUTS REMOVED DETAILS NOT NEEDED.
3-31-2016	REVISED ENTRANCE GORE DETAIL.
3-31-2017	REVISED EXIT GORE DRUM LAYOUT
3-01-2018	REVISED DIMENSIONS FOR ENTRANCE TAPER.
3-01-2019	REVISED EXIT BARRICADES, ADDED EXIT OPEN 1000 FT SIGN

TEMPORARY GORE DETAILS

STANDARD E5-08

APPROVED: *Paul Kovacs* DATE 5-1-2009
CHIEF ENGINEERING OFFICER



ACCESS IDENTIFICATION SIGN
 COLOR: BACKGROUND-WHITE (REFLECTIONIZED)
 BORDER AND LETTERS-BLACK

TAPER RATES

WORK ZONE SPEED (mph)	SHY LINE (ft.)	BARRIER INSIDE SHY LINE	BARRIER AT OR BEYOND SHY LINE
65	8.5	28:1	19:1
60	8	26:1	18:1
55	7	24:1	16:1
50	6.5	21:1	14:1
45	6	18:1	12:1
40	5	16:1	10:1
35	4.5	15:1	9:1
30	4	13:1	8:1

LEGEND

- FLAGGER
- SPOTTER
- ▮ CONSTRUCTION SIGN ON SUPPORT PER ILLINOIS TOLLWAY STANDARD UNLESS NOTED
- ➡ DIRECTION OF TRAFFIC FLOW
- ▨ WORK AREA
- ⊥ DRUM WITH STEADY BURNING MONODIRECTIONAL LIGHT
- 🚚 TRUCK MOUNTED ATTENUATOR (TMA) (ROLL WITH MOVING OPERATION)

CONTRACTOR ACCESS TO WORK AREA WITH BARRIER WALL

NOTES:

- SIGNS DESIGNATED FOR THIS ACCESS TO WORK AREA SHALL BE COVERED OR TURNED AWAY FROM THE TRAFFIC WHEN THE FLAGGER IS NOT ON STATION AND THE ACCESS OPENINGS ARE NOT IN USE.
- THE FLASHING WARNING LIGHT SHALL MEET THE REQUIREMENTS OF ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS AND BE OPERATED BY THE FLAGGER REMOTELY. THE LIGHTS SHALL BE FLASHING ONLY WHEN A VEHICLE IS ENTERING THE ILLINOIS TOLLWAY.
- WHEN THREE LANES OR MORE ARE OPENED TO TRAFFIC, ADVANCE WARNING SIGNS AND ASSEMBLIES SHALL BE PROVIDED ON BOTH SIDES OF TRAVELED WAY.
- WHEN CONTRACTOR ACCESS TO WORK AREA IS ON OPPOSITE SIDE FROM SHOWN, ALL INSTALLATIONS ARE MIRROR IMAGE.
- FOR NIGHTTIME OPERATIONS, TEMPORARY LIGHTING OF CONSTRUCTION ACCESS TO WORK AREA SHALL BE PROVIDED.
- TEMPORARY PAVEMENT MARKINGS SHALL BE REPLACED AS OFTEN AS NECESSARY TO DELINEATE OPENINGS.
- IF POSSIBLE, LANE CLOSURES SHALL BE UTILIZED TO ELIMINATE THE MERGING OF CONSTRUCTION TRAFFIC INTO THROUGH TRAFFIC LANES.
- A 1'-0" MINIMUM/2'-0" DESIRABLE SHY DISTANCE SHALL BE PROVIDED, MEASURED BETWEEN EDGE OF PAVEMENT LANE MARKING TO THE EDGE OF THE TRAFFIC CONTROL DEVICES.
- "TRUCKS ENTERING HIGHWAY" SIGN MAY BE SUPPORTED BY OPTIONAL POST OR STAND MOUNTED DEVICES WHEN POSITIONED BEHIND TEMPORARY CONCRETE BARRIER.
- A TEMPORARY EXCEPTION TO THE 3' MINIMUM CLEARANCE BETWEEN EDGE OF TRAVELED WAY AND EDGE OF ATTENUATOR MAY BE REQUESTED FOR PCC PAVING OPERATIONS WHEN THIS CONFIGURATION DOES NOT PROVIDE 4' OF CLEARANCE BETWEEN BACK OF ATTENUATOR AND THE PROPOSED EDGE OF THE LANE BEING CONSTRUCTED IN THE CURRENT STAGE. THE DURATION OF REDUCED CLEARANCE SHALL BE LIMITED TO 24 HOURS.
- CONTRACTOR ACCESS LOCATIONS SHALL BE SPACED NO CLOSER THAN 2,600 FEET BETWEEN AREAS, EXCEPT FOR BRIDGE WORK WHERE 1 ACCESS LOCATION MAY BE PROVIDED ON EACH SIDE OF THE STRUCTURE. AT THESE LOCATIONS, ONLY 1 ACCESS LOCATION AT A TIME WILL BE ALLOWED TO BE OPEN FOR USE.
- EXITING THE WORK ZONE AT ANY PLACE OTHER THAN AT WORK ZONE EXIT OPENING WILL BE PROHIBITED.
- ALL VEHICLES SHALL USE THEIR TURN SIGNALS TO WARN MOTORISTS WHEN ENTERING AND EXITING THE WORK ZONE OPENINGS.
- FLAGGERS SHALL NOT STOP TRAFFIC OR DIRECT TRAFFIC INTO AN ADJACENT LANE.
- IN WORK ZONES WITH NO POSITIVE PROTECTION, A TMA SHALL BE LOCATED IN THE WORK ZONE AND SHALL FOLLOW THE MOVING OPERATION. IF MORE THAN ONE WORK ZONE IS IN OPERATION, ADDITIONAL TMA AND SPOTTERS WILL BE REQUIRED.

APPROVED: *Paul Kovacs* DATE: 2-7-2012
 CHIEF ENGINEERING OFFICER

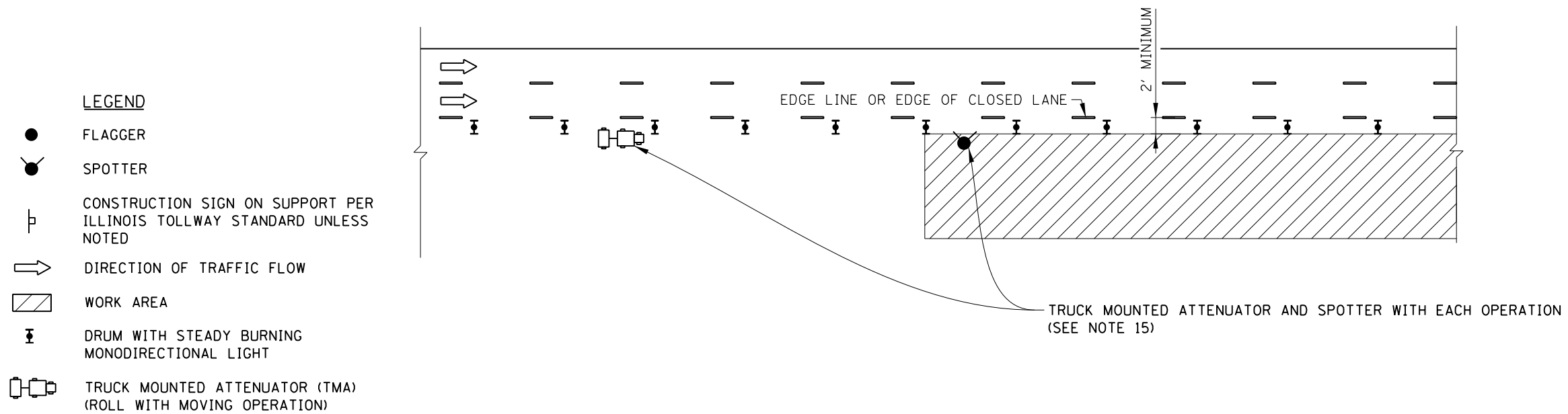
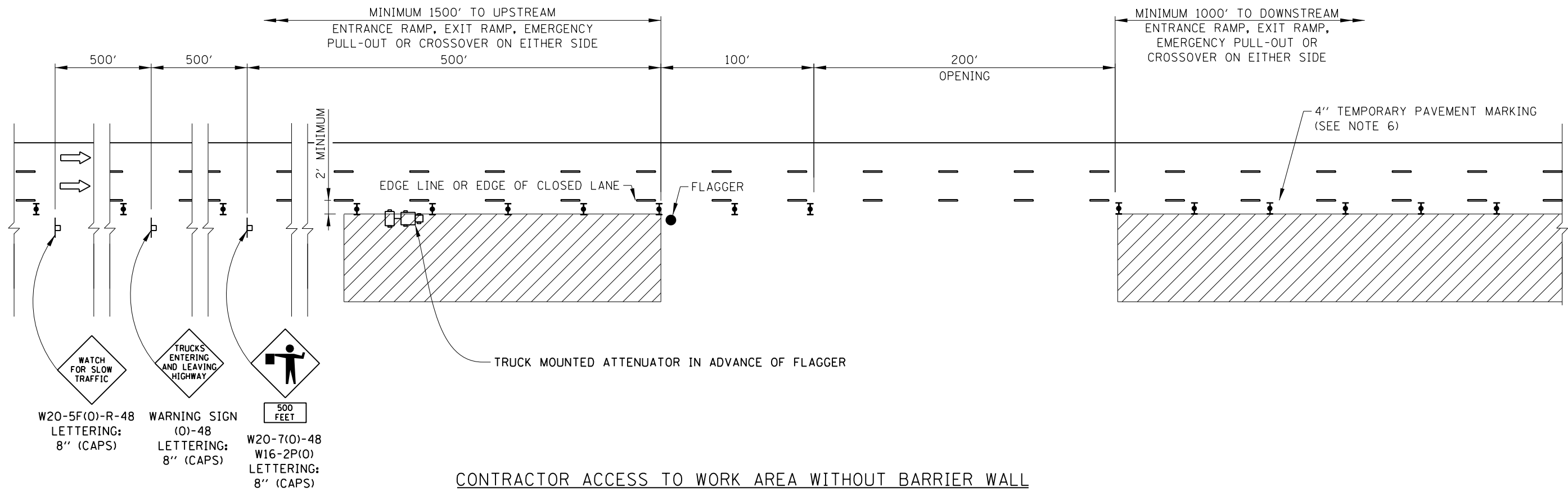
DATE	REVISIONS
3-01-2013	REVISED NOTES.
3-31-2014	REVISED NOTE FOR TEMPORARY CONCRETE BARRIER.
3-31-2017	ADDED TAPER RATES TABLE
3-01-2018	ADDED NOTES 10 & 11
3-01-2019	ADDED SHEET FOR DETAILS WITHOUT BARRIER WALL

SHEET 1 OF 2



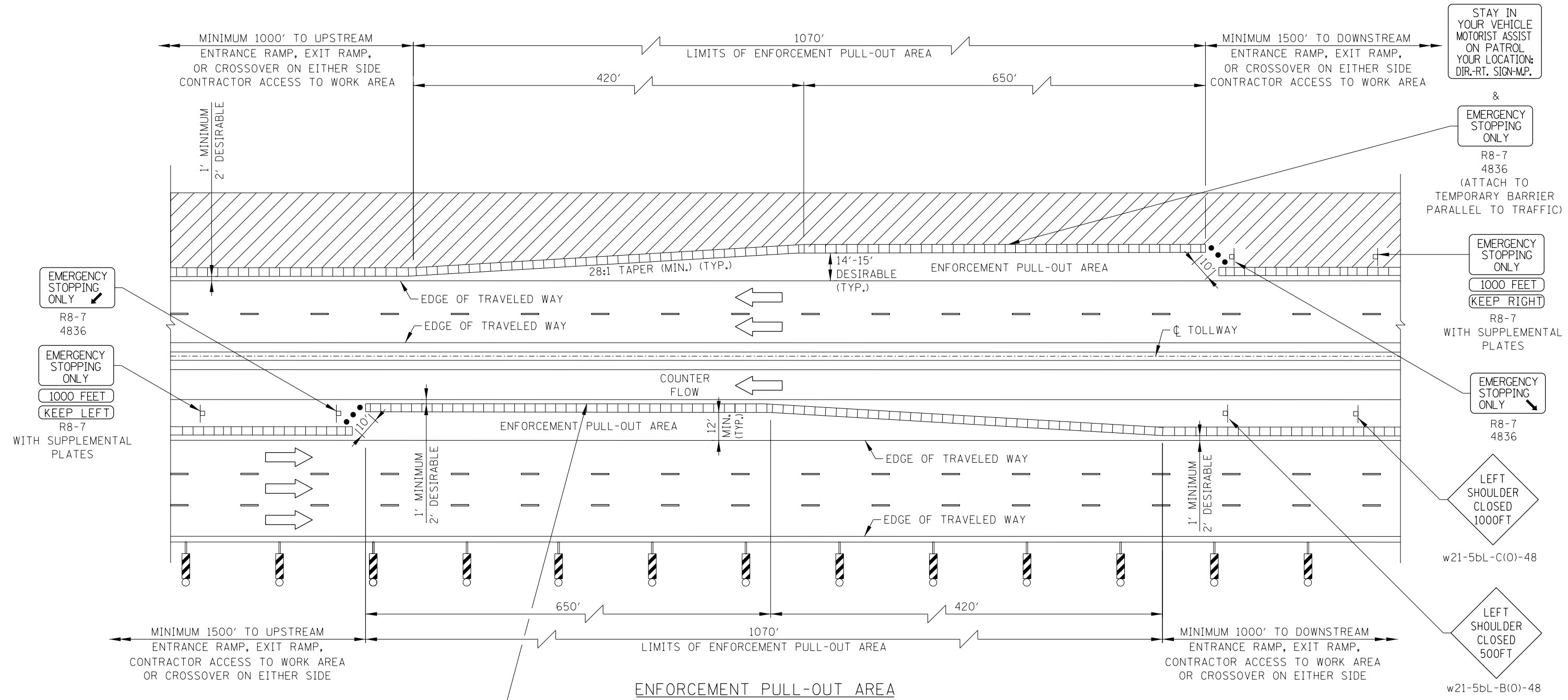
CONTRACTOR ACCESS TO WORK AREA

STANDARD E6-05



SPOTTER AND TMA AT WORK AREA

"EMERGENCY MOTORIST ASSIST" SIGN (O)
48"x48", SEE NOTE 2 (ATTACH TO
TEMPORARY BARRIER PARALLEL TO TRAFFIC)



"EMERGENCY MOTORIST ASSIST" SIGN (O)
48"x48", SEE NOTE 2 (ATTACH TO
TEMPORARY BARRIER PARALLEL TO TRAFFIC)

STAY IN YOUR VEHICLE
MOTORIST ASSIST
ON PATROL
YOUR LOCATION:
DIR.-RT. SIGN-M.P.

EMERGENCY STOPPING ONLY
&
R8-7
4836
(ATTACH TO
TEMPORARY BARRIER
PARALLEL TO TRAFFIC)

- LEGEND**
- TEMPORARY CONCRETE BARRIER WITH BARRIER DELINEATORS ON TRAFFIC SIDE
 - VERTICAL PANELS WITH STEADY BURNING LIGHTS @ 100 FT CENTERS ALONG ROADWAY (TANGENT) AND 50 FT CENTERS ALONG TAPERS.
 - WORK AREA
 - FLEXIBLE DELINEATOR POSTS
 - DIRECTION OF TRAFFIC FLOW
 - CONSTRUCTION SIGN ON SUPPORT PER TOLLWAY STANDARD UNLESS NOTED.

SEE SHEET 1 IN THIS SERIES FOR NOTES.

PULL-OUT AREA

STANDARD E7-04

Paul Kovacs
APPROVED... CHIEF ENGINEER... DATE 2-7-2012

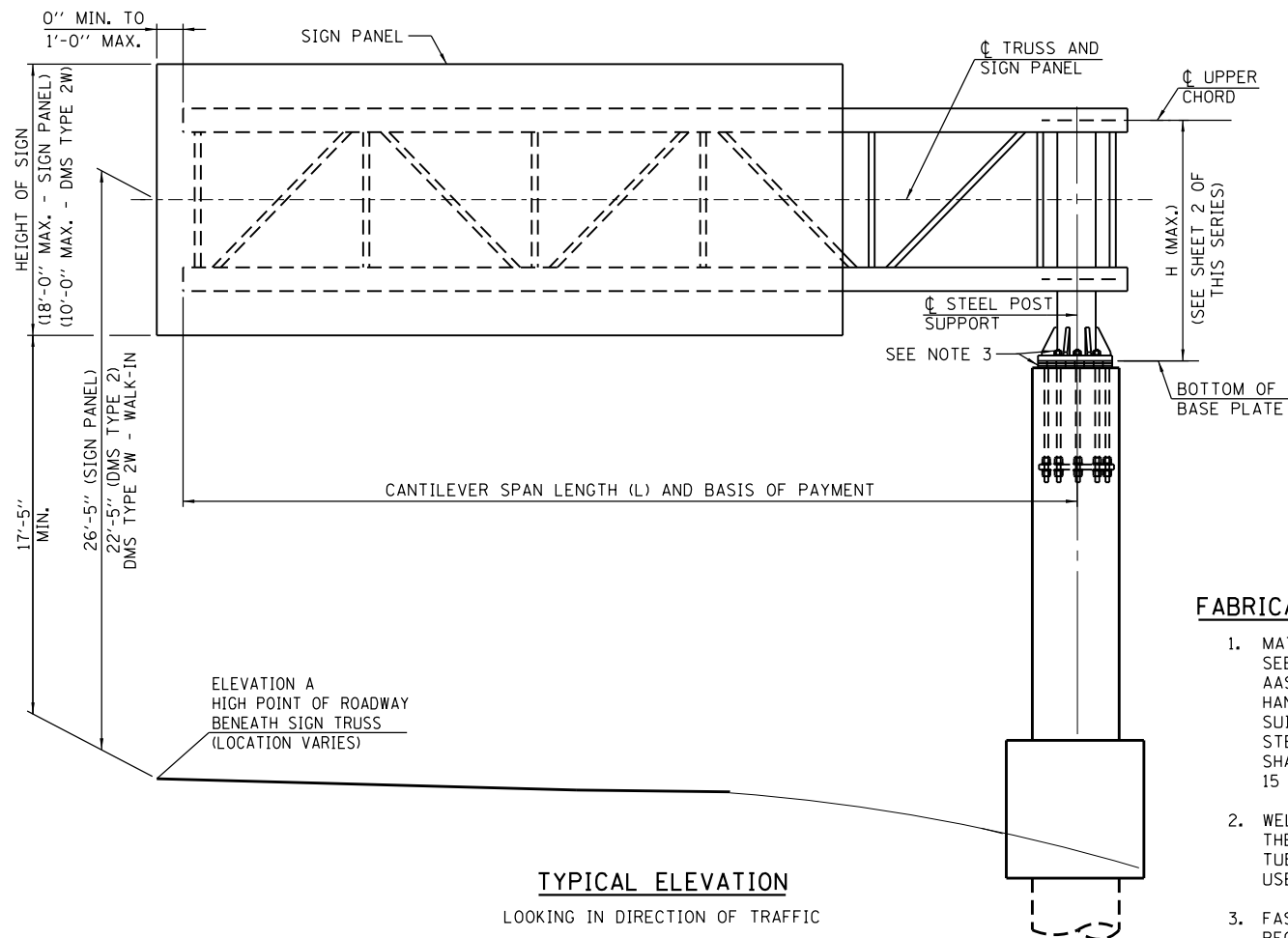
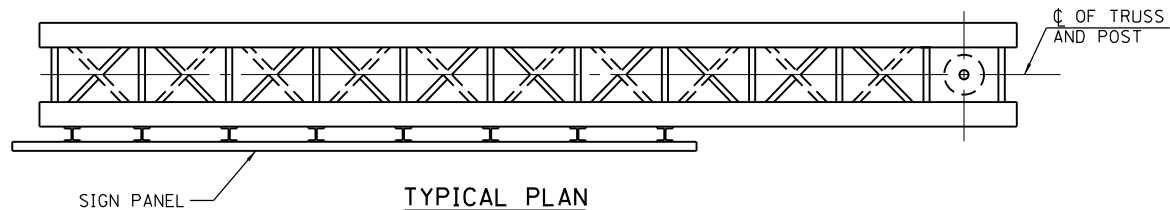
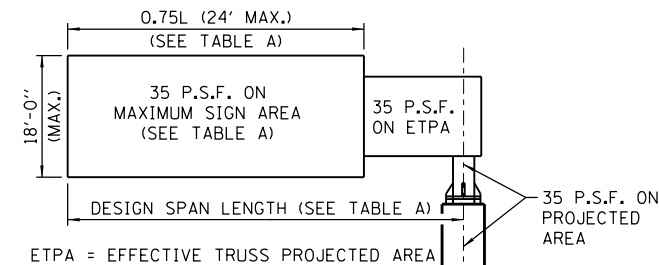


TABLE A: MAXIMUM LIMITS FOR SIGNS

TRUSS TYPE	DESIGN SPAN LENGTH (FT.)	MAXIMUM SIGN AREA (SQ. FT.)	MAXIMUM SIGN LENGTH (FT.)
20-D	20	270	15
25-D	25	338	18.75
30-D	30	405	22.5
35-D	35	432	24
40-D	40	432	24
45-D	45	432	24
50-D	50	432	24



DESIGN WIND LOADING DIAGRAM

FABRICATION NOTES:

- MATERIALS: FOR MATERIAL SPECIFICATIONS FOR CANTILEVER SIGN STRUCTURES, SEE TABLE B. ALL STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270 GR. 50. STAINLESS STEEL FOR SHIMS, SLEEVES AND HANDHOLE COVERS SHALL BE ASTM A240, TYPE 302 OR 304 OR ANOTHER ALLOY SUITABLE FOR EXTERIOR EXPOSURE AND ACCEPTABLE TO THE ENGINEER. THE STEEL PIPE AND STIFFENING RIBS AT THE BASE PLATE FOR THE STEEL POST SHALL HAVE A MINIMUM LONGITUDINAL CHARPY V-NOTCH (CVN) ENERGY OF 15 LB.-FT. AT 40° F (ZONE 2) BEFORE GALVANIZING.
- WELDING: ALL MATERIALS, WELDING PROCEDURES AND INSPECTION USED FOR THE CANTILEVER OVERHEAD SIGN STRUCTURE SHALL CONFORM TO AWS D1.1-10 FOR TUBULAR, CYCLICALLY LOADED STRUCTURES. ADDITIONALLY, ALL WELDED MATERIALS USED SHALL BE PREQUALIFIED FOR USE WITH WPS AS PER AWS D1.1-10, TABLE 3.1.
- FASTENERS FOR STEEL TRUSSES: HIGH STRENGTH BOLTS SHALL SATISFY THE REQUIREMENTS OF AASHTO M164 (ASTM A325), OR APPROVED ALTERNATE, AND SHALL HAVE MATCHING LOCKNUTS. THREADED STUDS FOR SPLICES (IF MEMBERS INTERFERE) SHALL SATISFY THE REQUIREMENTS OF ASTM A449. ASTM A193 GRADE B7, OR APPROVED ALTERNATE, AND SHALL HAVE MATCHING LOCKNUTS. BOLTS AND LOCKNUTS NOT REQUIRED TO BE HIGH STRENGTH SHALL SATISFY THE REQUIREMENTS OF ASTM A307. ALL BOLTS AND LOCKNUTS SHALL BE HOT DIP GALVANIZED PER AASHTO M232, EXCEPT STAINLESS STEEL FASTENERS, NUTS AND WASHERS. THE LOCKNUTS SHALL HAVE NYLON OR STEEL INSERTS. A STAINLESS STEEL FLAT WASHER CONFORMING TO ASTM A240 TYPE 302 OR 304, IS REQUIRED UNDER BOTH HEAD AND NUT OR UNDER BOTH NUTS WHERE THREADED STUDS ARE USED. HIGH STRENGTH BOLT INSTALLATION SHALL CONFORM TO ARTICLE 505.04(F)(2)d OF THE IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. ROTATIONAL CAPACITY ("ROCAP") TESTING OF BOLTS WILL NOT BE REQUIRED.
- U-BOLTS: U-BOLTS SHALL BE PRODUCED FROM ASTM A276 TYPE 304, 304L, 316 OR 316L, CONDITION A, COLD FINISHED STAINLESS STEEL, OR AN EQUIVALENT MATERIAL ACCEPTABLE TO THE ENGINEER. ALL NUTS FOR U-BOLTS SHALL BE LOCKNUTS EQUIVALENT TO ASTM A307 WITH NYLON OR STEEL INSERTS AND HOT DIP GALVANIZED PER AASHTO M232. A STAINLESS STEEL FLAT WASHER CONFORMING TO ASTM A240, TYPE 302 OR 304, IS REQUIRED UNDER EACH U-BOLT LOCKNUT.
- GALVANIZING: ALL PLATES, SHAPES AND PIPE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111. PAINTING IS NOT PERMITTED. ALL FASTENERS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111 OR M232 AS APPROPRIATE FOR THE PRODUCT (EXCEPT STAINLESS STEEL FASTENERS).

GENERAL NOTES:

- WORK THIS SHEET WITH OVERHEAD SIGN STRUCTURE CANTILEVER TYPE SUMMARY AND TOTAL BILL OF MATERIAL SHEET.
- AFTER ADJUSTMENTS TO LEVEL TRUSS AND ENSURE ADEQUATE VERTICAL CLEARANCE, ALL TOP AND LEVELING NUTS SHALL BE TIGHTENED AGAINST THE BASE PLATE WITH A MINIMUM TORQUE OF 200 LB.-FT. STAINLESS STEEL MESH SHALL THEN BE PLACED AROUND THE PERIMETER OF THE BASE PLATE. SECURE TO BASE PLATE WITH STAINLESS STEEL BANDING.
- SIGN SUPPORT STRUCTURES MAY BE SUBJECT TO DAMAGING VIBRATIONS AND OSCILLATIONS WHEN SIGN PANELS ARE NOT IN PLACE DURING ERECTION OR MAINTENANCE OF THE STRUCTURE. TO AVOID THESE, ATTACH TEMPORARY BLANK SIGN PANELS OR OTHER BRACING TO THE STRUCTURE UNTIL PERMANENT SIGNS ARE INSTALLED.
- TRUSSES SHALL BE SHIPPED INDIVIDUALLY WITH ADEQUATE PROVISION TO PREVENT DETRIMENTAL MOTION DURING TRANSPORT. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE CONFIGURATION AND PROTECTION OF THE TRUSSES.
- ALL WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE SHOWN. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH CURRENT AWS D1.1 STRUCTURE WELDING CODE AND THE STANDARD SPECIFICATIONS.
- ALL STEEL PLATES, SHAPES AND PIPE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111.
- PROVIDE RUBBED SURFACE FINISH FOLLOWED BY CONCRETE SEALER APPLICATION ON ENTIRE SURFACE OF CONCRETE COLUMN AND NORMAL SURFACE FINISH ON GRADE BEAM, EXCEPT BOTTOM SURFACE.
- REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- DMS TYPE 2W - WALK-IN IS PERMITTED TO BE INSTALLED ON CANTILEVER TRUSS. DO NOT INSTALL SIGN PANEL IN CONJUNCTION WITH DMS TYPE 2W - WALK-IN. SEE SHEET 9 OF THIS SERIES FOR PERMISSIBLE SIGN SIZE AND WEIGHT.

CONSTRUCTION SPECIFICATIONS:

- ALL MATERIALS, EXCEPT AS SHOWN, FABRICATION, ERECTION AND CONSTRUCTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH SECTION 733 OF THE LATEST ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.

LOADING:

- ALL CANTILEVER TRUSSES ARE DESIGNED FOR AN 18'-0" DEEP SIGN PANEL OVER 75% OF THE ARM LENGTH, WITH A MAXIMUM PANEL WIDTH OF 24'-0".
- ALL CANTILEVER TRUSSES ARE DESIGNED FOR 35 PSF WIND PRESSURE ON TRUSS MEMBERS AND SIGN PANEL.
- THE AASHTO GROUP II AND III ALLOWABLE STRESS SHALL BE 133% (ALLOWABLE STRESS DESIGN).

DESIGN SPECIFICATIONS:

THESE STRUCTURES ARE DESIGNED TO SATISFY THE 2013 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, SIXTH EDITION.

CONCRETE COLUMN, GRADE BEAM AND DRILLED SHAFT ARE DESIGNED IN ACCORDANCE WITH THE 2012 EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (INCLUDING THE 2013 INTERIM REVISIONS).

DESIGN UNIT STRESSES FOR REINFORCED CONCRETE:

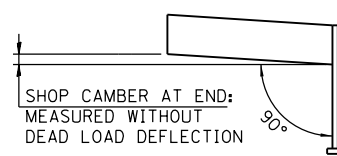
CLASS SI CONCRETE ----- f'c = 3,500 P.S.I.
 CLASS DS CONCRETE ----- f'c = 4,000 P.S.I.
 REINFORCING STEEL ----- fy = 60,000 P.S.I.

TABLE B: MATERIAL SPECIFICATIONS FOR STRUCTURAL STEEL AND FASTENERS

ELEMENT OF STRUCTURE	SPECIFICATION	MINIMUM YIELD STRENGTH (K.S.I.)	MINIMUM ULTIMATE STRENGTH (K.S.I.)
STRUCTURAL STEEL TUBE	ASTM A500 GRADE B	46	58
STRUCTURAL STEEL POST AND PIPE	API 5L GRADE B OR X42 OR X52	35	52
	ASTM A106 GRADE B	35	60
	ASTM A53, TYPE E OR S, GRADE B	35	60
STEEL BAR AND STEEL PLATES	ASTM A572 GRADE 50	50	65
STAINLESS STEEL BOLTS	ASTM A193, CLASS 1, GRADE B8	30	75
STRUCTURAL STEEL BOLTS	ASTM 325 TYPE 1	--	105
STAINLESS STEEL LOCKNUTS	ASTM A194 GRADE 8F ASTM A194 GRADE 2H	--	--
NUTS	ASTM A563 GRADE DH	--	--
STEEL WASHERS	ASTM F436	--	--
STAINLESS STEEL WASHERS	ASTM A240, TYPE 302	--	--
STEEL ANCHOR BOLTS	AASHTO M314 OR ASTM F1554	55	75

SHOP CAMBER TABLE

CANTILEVER LENGTH (L)	SHOP CAMBER AT END
20'	1 1/2"
25'	1 1/2"
30'	2"
35'	2 1/2"
40'	2 1/2"
45'	3"
50'	3 1/2"



CAMBER DIAGRAM (FOR FABRICATION ONLY)

APPROVED: *Paul Kovacs* DATE 3-31-2014
 CHIEF ENGINEERING OFFICER



DATE	REVISIONS
12-12-2013	REVISED TABLES AND NOTES
2-07-2014	REVISED STEEL POST TO CONCRETE
3-31-2014	ADDED DMS TYPE II
7-01-2014	ADDED DIMENSIONS AND REVISED NOTES
3-11-2015	ADDED DIMENSIONS AND REVISED NOTES
3-31-2016	REVISED FOUNDATION NOTE
3-31-2017	ADDED WALKWAY GRATING DETAILS
3-01-2018	ADDED VERTICAL CLEARANCE
3-01-2019	UPDATED BARRIER SHAPE

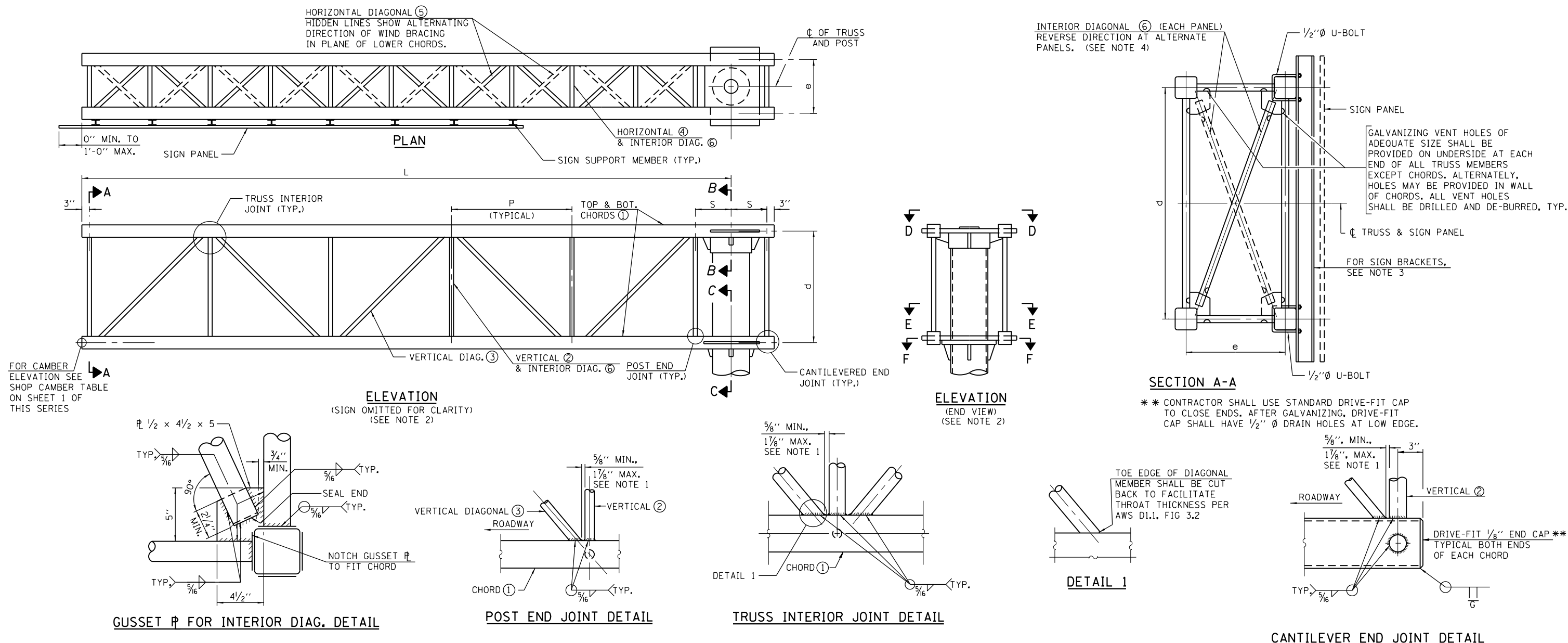


TABLE C: TRUSS AND POST DETAILS FOR 18'-0" (MAX.) SIGN HEIGHT

DESIGN SPAN LENGTH (L)	TRUSS TYPE	TRUSS SIZE		ACTUAL SPAN LENGTH	MAXIMUM SIGN LENGTH	STEEL SUPPORT POST (COLUMN)				TRUSS MEMBERS AND DETAILS													
		e	d			DIAMETER	WEIGHT	* WALL THICKNESS	H (MAX.)	TOP & BOTTOM CHORD (1)	VERTICAL (2)		VERTICAL DIAG. (3)		HORIZONTAL (4)		HORIZONTAL DIAG. (5)		INTERIOR DIAG. (6)		PANELS		
											PIPE	WALL	PIPE	WALL	PIPE	WALL	PIPE	WALL	PIPE	WALL	NO.	P	S
20'	20-D	2'-6"	5'-6"	20'-1"	15'-0"	18"	138.30 (#/FT)	1"	12'-0"	HSS 5x5x1/4	2 1/2" Ø X.S	0.276"	3" Ø X.X.S	0.600"	1 1/2" Ø X.S	0.200"	2 1/2" Ø X.S	0.276"	1 1/2" Ø X.S	0.200"	4	4'-7"	1'-6"
25'	25-D	3'-6"	5'-6"	24'-11"	18'-9"	18"	181.73 (#/FT)	1"	12'-0"	HSS 5x5x1/4	2 1/2" Ø X.S	0.276"	3" Ø X.X.S	0.600"	2" Ø X.S	0.218"	2 1/2" Ø X.S	0.276"	2" Ø X.S	0.218"	5	4'-7"	1'-9"
30'	30-D	3'-6"	7'-0"	30'-2"	22'-6"	18"	181.73 (#/FT)	1"	12'-0"	HSS 6x6x1/4	3" Ø X.S	0.300"	4" Ø X.X.S	0.674"	2" Ø X.S	0.218"	2 1/2" Ø X.S	0.276"	2" Ø X.S	0.218"	5	5'-7"	2'-0"
35'	35-D	4'-0"	7'-0"	35'-0"	24'-0"	24"	186.41 (#/FT)	1"	12'-0"	HSS 6x6x1/4	3" Ø X.S	0.300"	4" Ø X.X.S	0.674"	2" Ø X.S	0.218"	2 1/2" Ø X.S	0.276"	2" Ø X.S	0.218"	5	6'-6"	2'-3"
40'	40-D	4'-0"	7'-0"	40'-0"	24'-0"	24"	186.41 (#/FT)	1"	12'-0"	HSS 6x6x1/4	3" Ø X.S	0.300"	4" Ø X.X.S	0.674"	2" Ø X.S	0.218"	2 1/2" Ø X.S	0.276"	2" Ø X.S	0.218"	6	6'-3"	2'-3"
45'	45-D	4'-6"	7'-0"	45'-0 1/2"	24'-0"	24"	245.87 (#/FT)	1"	12'-0"	HSS 6x6x1/4	3" Ø X.S	0.300"	4" Ø X.X.S	0.674"	2" Ø X.S	0.218"	2 1/2" Ø X.S	0.276"	2" Ø X.S	0.218"	7	6'-0 1/2"	2'-6"
50'	50-D	4'-6"	7'-0"	50'-1"	24'-0"	24"	245.87 (#/FT)	1"	12'-0"	HSS 6x6x1/4	3" Ø X.S	0.300"	4" Ø X.X.S	0.674"	2" Ø X.S	0.218"	2 1/2" Ø X.S	0.276"	2" Ø X.S	0.218"	8	5'-11"	2'-6"

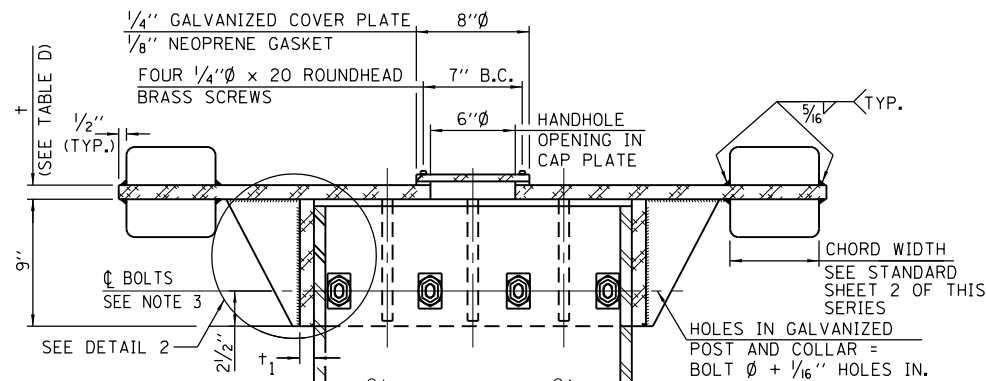
* NOMINAL WALL THICKNESS SHOWN. THICKER WALL IS PERMITTED UPON ENGINEER'S APPROVAL.

NOTES:

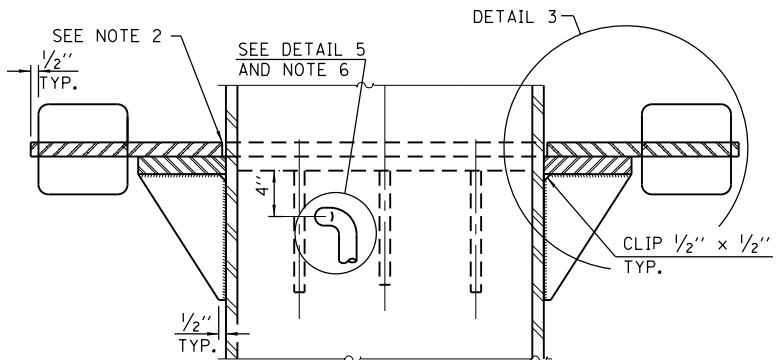
- TRUSS MEMBERS SHALL BE SPACED A MINIMUM OF 3 TIMES THE WALL THICKNESS OF THE LARGEST CONNECTING MEMBERS TO ENSURE PROPER WELD SPACING.
- FOR SECTIONS B-B, C-C, D-D, E-E AND F-F SEE SHEET 3 OF THIS SERIES.
- FOR SIGN SUPPORT DETAILS, SEE ILLINOIS TOLLWAY STANDARD DRAWING F8, FOR DMS TYPE 2W - WALK-IN SIGN SUPPORT DETAILS, SEE SHEET 9 OF THIS SERIES.
- DIRECTION OF INTERIOR DIAGONALS SHOWN IN SECTION A-A CORRECTLY DEPICTS TRUSSES HAVING AN ODD NUMBER OF PANELS. TRUSSES WITH AN EVEN NUMBER OF PANELS WILL HAVE DIAGONALS IN A REVERSED DIRECTION THAN AS SHOWN.
- FOR ANY DESIGN SPAN LENGTH THAT FALLS BETWEEN TWO CONSECUTIVE SPANS, PROVIDED IN COLUMN 1 OF TABLE C, THE LARGER DESIGN SPAN LENGTH SHALL BE USED (I.E. FOR A 32' SPAN LENGTH FALLING BETWEEN 30' AND 35' DESIGN SPAN LENGTHS IN TABLE C, THE 35' DESIGN SPAN LENGTH TRUSS AND POST DETAILS SHALL BE USED).

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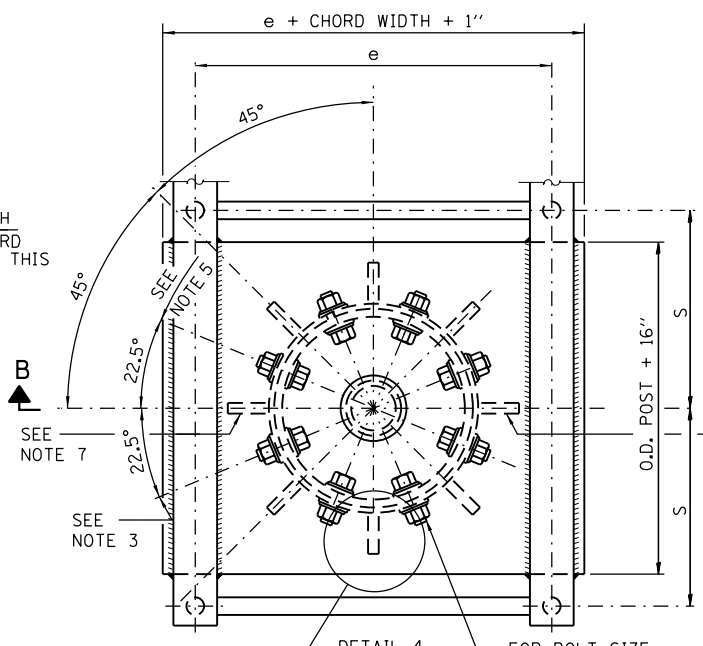




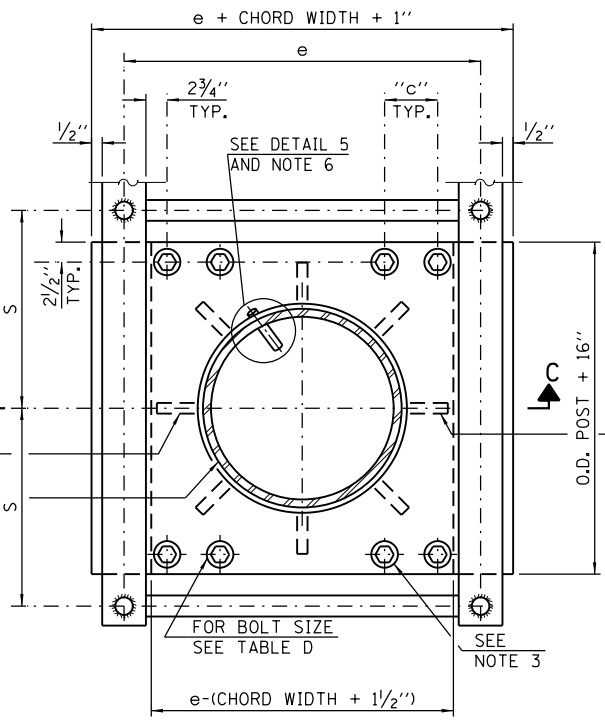
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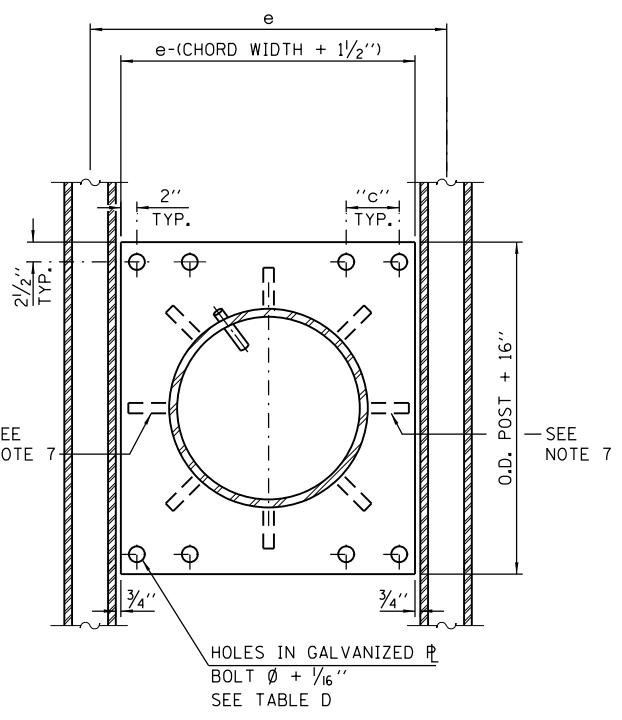
SECTION C-C



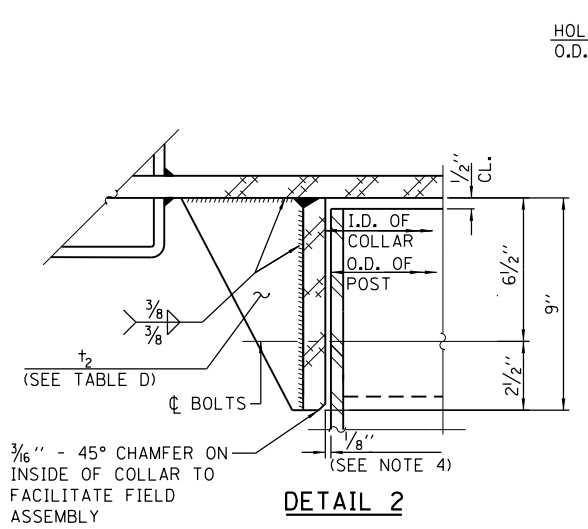
**VIEW D-D
(CAP PLATE)**



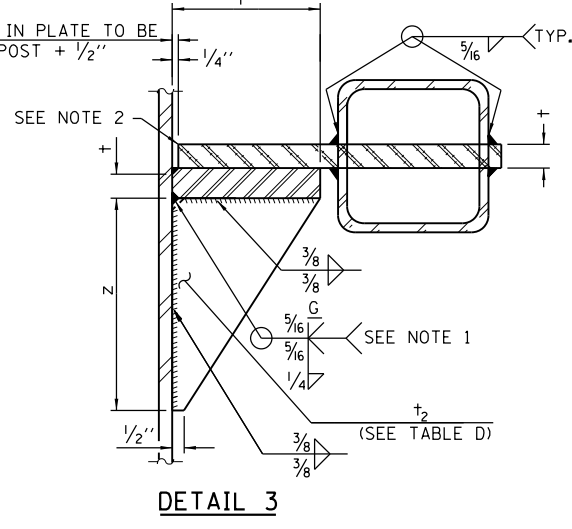
**SECTION E-E
(JUNCTURE PLATE)**



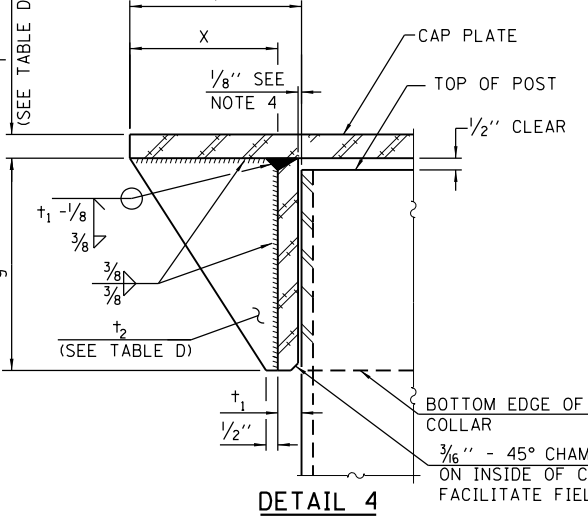
**SECTION F-F
(SETTING PLATE)**



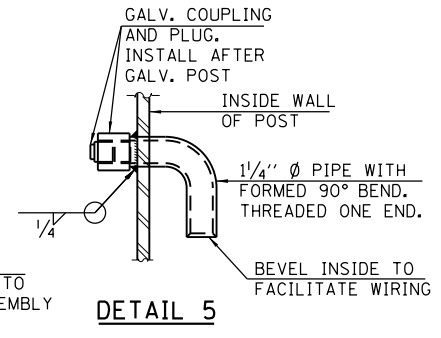
DETAIL 2



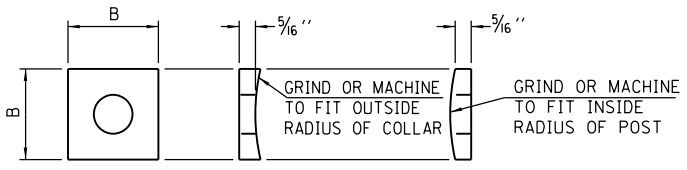
DETAIL 3



DETAIL 4



DETAIL 5



CONTOURED WASHERS
(ASTM A240, TYPE 304)

BOLT SIZE	CONTOURED WASHERS	
	HOLE DIA.	B
1 1/8" Ø	1 1/4" Ø	2 1/4"
1 1/4" Ø	1 3/8" Ø	2 1/4"
1 1/2" Ø	1 5/8" Ø	2 1/4"

NOTES:

- GRIND TOP IF REQUIRED TO FULLY SEAT PLATE. REPAIR DAMAGED GALVANIZING BEFORE ASSEMBLY.
- AFTER TIGHTENING LOWER CONNECTION BOLTS, FILL GAP WITH NON-HARDENING SILICONE CAULK SUITABLE FOR EXTERIOR EXPOSURE AND ACCEPTABLE TO THE ENGINEER.
- CONNECTION BOLTS IN COLLAR AND BOLTS AT LOWER CHORD CONNECTION SHALL BE HIGH STRENGTH WITH MATCHING LOCKNUTS. LOWER CONNECTION BOLTS SHALL HAVE 2 FLAT WASHERS EACH.
- AFTER GALVANIZING, COLLAR I.D. SHALL EQUAL O.D. OF GALVANIZED POST PLUS 1/8" (±1/16") MAXIMUM GAP BETWEEN POST AND COLLAR AT ANY LOCATION SHALL BE 1/8" BEFORE TIGHTENING BOLTS.
- OPTIONAL FULL PENETRATION WELD IN COLLAR. (TWO LOCATIONS MAXIMUM (180° APART) X-RAY OR UT 100%) ALL BOLTS SHOWN ARE HIGH STRENGTH.
- ORIENT PIPE TOWARD SIGN PANEL SIDE. HOLE IN POST = O.D. PIPE + 1/8".
- OMIT INDICATED STIFFENER IN TRUSS TYPE 20-D.

TABLE D: BOLT SCHEDULE

SPAN LENGTH	POST OUTSIDE DIAMETER	JUNCTURE & COLLAR CONNECTION BOLT DIAMETER	LOWER JUNCTURE BOLT SPACING DIMENSION "c"	PLATE THICKNESS		STIFFENER THICKNESS (t ₂)	NO. OF STIFFENERS	STIFFENERS		
				(t)	(t ₁)			x	y	z
< = 20'	18"	1 1/8"	3 1/8"	1"	3/4"	1/2"	6	5"	6"	8"
21'-30'	18"	1 1/2"	3 3/4"	1 1/8"	7/8"	3/4"	8	5"	6"	8"
31'-40'	24"	1 1/2"	4 1/2"	1 1/4"	1"	3/4"	8	7"	8"	10 1/2"
41'-50'	24"	1 1/2"	4 1/2"	1 1/4"	1"	3/4"	8	7"	8"	10 1/2"

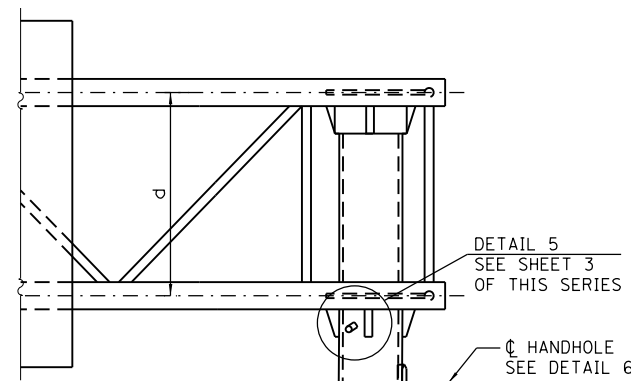
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B.C. = BOLT CIRCLE

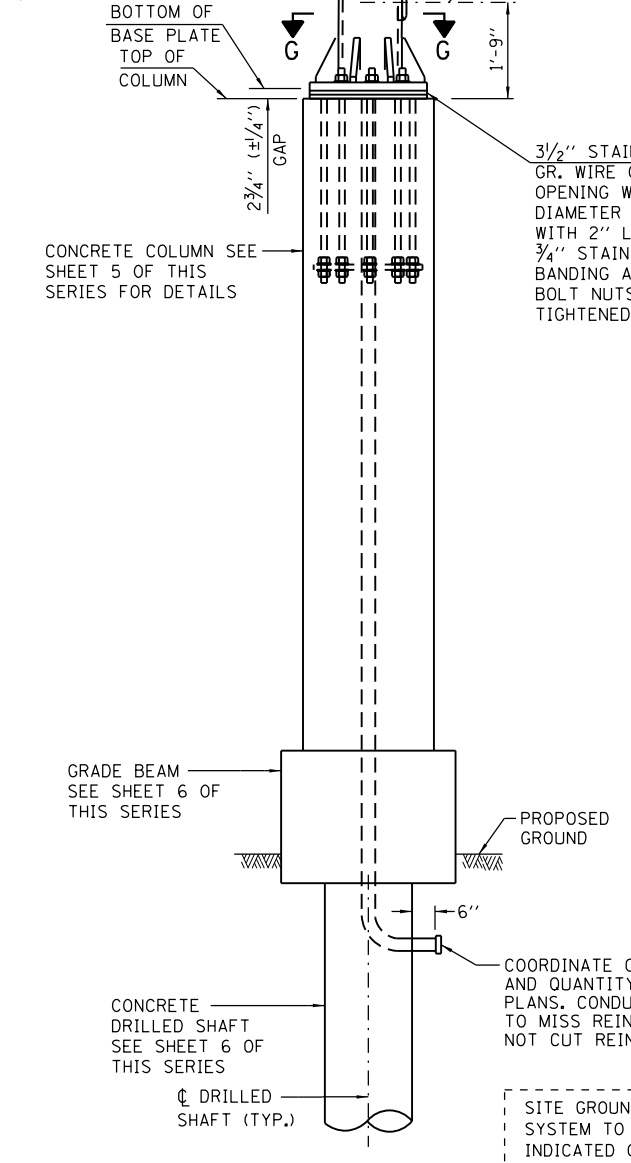
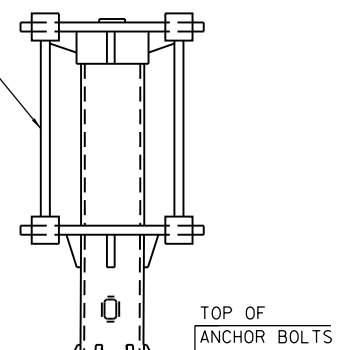


OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE
STRUCTURE DETAILS

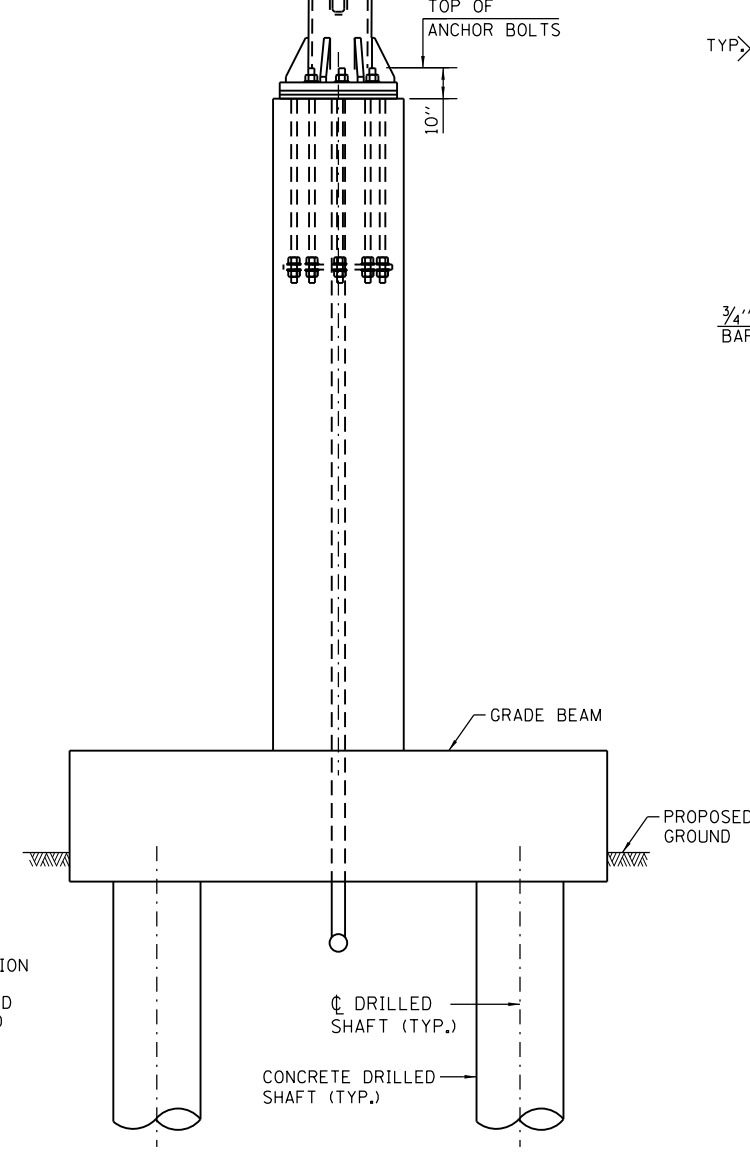
STANDARD F4-10



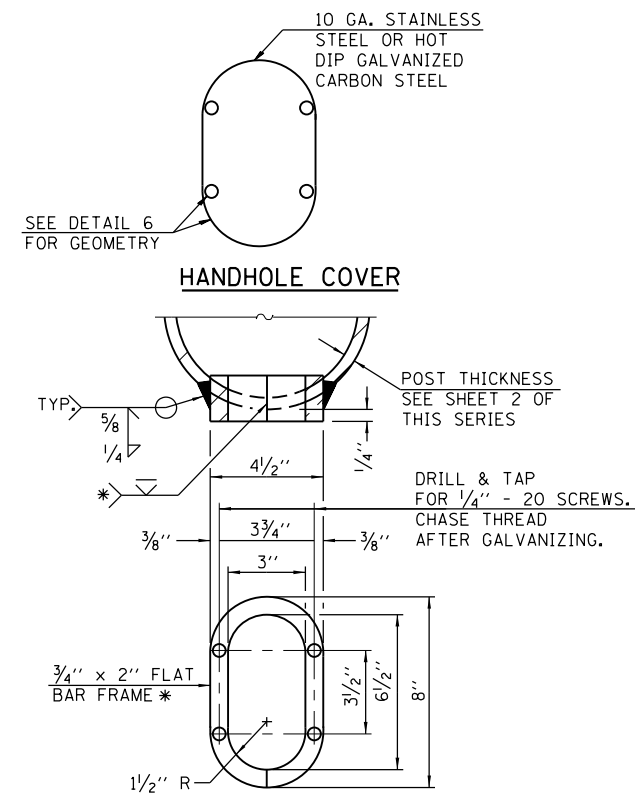
ALL METALLIC MEMBERS ATTACHED TO THE CANTILEVER STEEL POST STRUCTURE SHALL BE BONDED TOGETHER BY MEANS OF A COPPER BONDING JUMPER TO CREATE A CONTINUOUS LOW IMPEDANCE PATH TO THE SITE GROUNDING ELECTRODE SYSTEM.



FRONT ELEVATION



SIDE ELEVATION



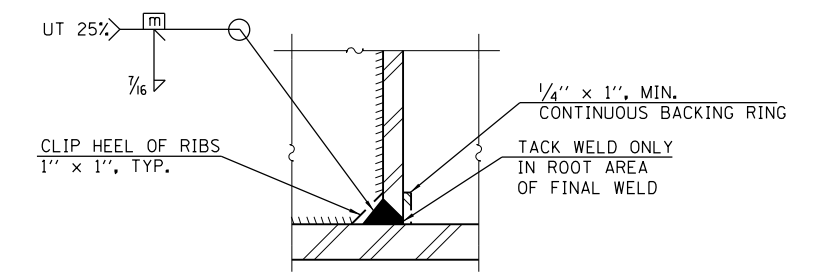
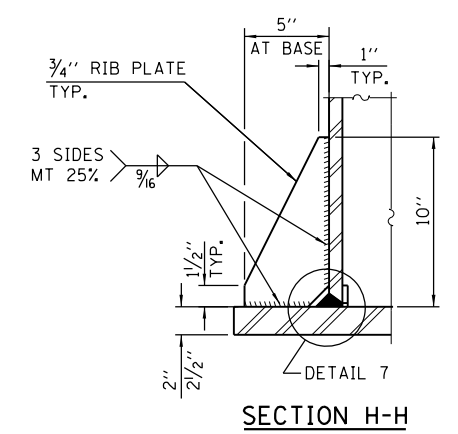
PROVIDE 8" x 4 1/2" COVER. OUTSIDE CORNERS = 2 1/4" RADIUS. PROVIDE 4-5/16" Ø HOLES IN COVER FOR 1/4" - 20 ROUND HEAD HOT DIP GALVANIZED OR STAINLESS STEEL MACHINE SCREWS. (SEE COVER DETAILS.)

DETAIL 6

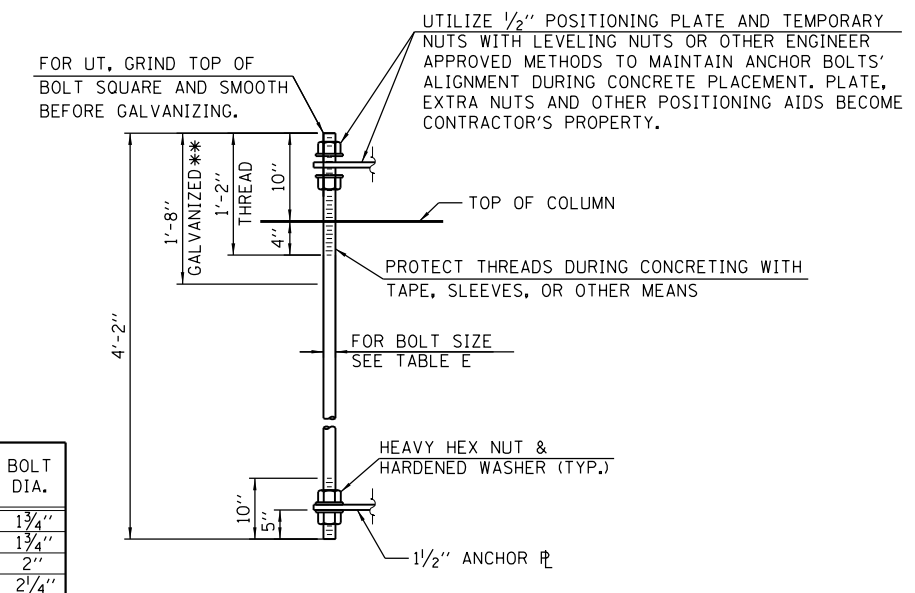
- * BENT BARS MAY BE BUTT WELDED TOP AND BOTTOM OR BOTTOM ONLY. IN LIEU OF FABRICATED HANDHOLE FRAME AS SHOWN, MAY CUT FROM 2" PLATE (ROLLING DIRECTION VERTICAL). ALL CUT FACES TO BE GROUND TO ANSI ROUGHNESS OF 500 µIN OR LESS.
- * * 18" IS MINIMUM TO BE GALVANIZED. ENTIRE BOLT MAY BE GALVANIZED AT CONTRACTOR'S OPTION.

TABLE E: BASE PLATE DETAIL

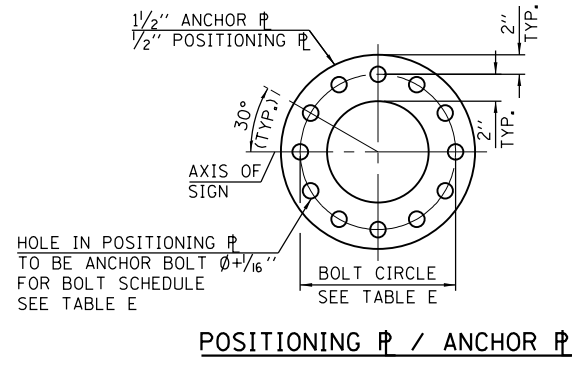
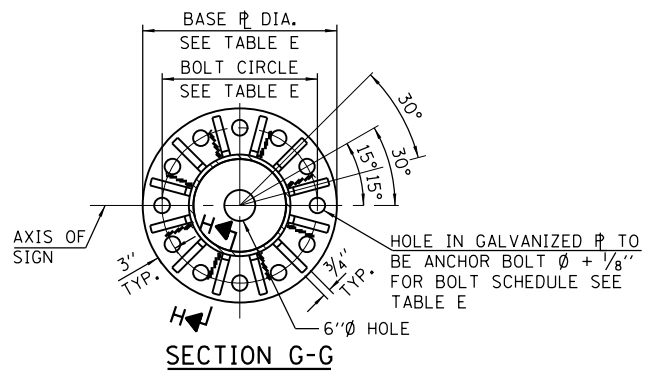
SPAN LENGTH (L)	POST OUTSIDE DIAMETER	BASE PLATE		BOLT CIRCLE	BOLT DIA.
		DIAMETER	THICKNESS		
<= 20'	18"	30"	2"	24"	1 3/4"
21'-30'	18"	30"	2"	24"	1 3/4"
31'-40'	24"	36"	2 1/2"	30"	2"
41'-50'	24"	36"	2 1/2"	30"	2 1/4"



DETAIL 7 (TYPICAL RIB)



ANCHOR BOLT DETAIL



NOTE:

ANCHOR BOLTS SHALL CONFORM TO AASHTO M314 OR ASTM F1554 AND MEET CHARPY V-NOTCH (CVN) ENERGY OF 15 LB.-FT. AT 10° F. BEFORE GALVANIZING. GALVANIZE THE UPPER 18" (MINIMUM **) AND ASSOCIATED M291, GRADE A, C OR DH HEAVY HEX NUTS AND HARDENED WASHERS PER AASHTO M293. NO WELDING SHALL BE PERMITTED ON BOLTS. PROVIDE AN UNFINISHED NUT AT BOTTOM, A HEXAGON LOCKNUT AND WASHER ABOVE BASE PLATE AND A LEVELING NUT AND WASHER BELOW BASE PLATE. NUTS SHALL EACH BE TIGHTENED WITH 200 LB.-FT. MINIMUM TORQUE AGAINST BASE PLATE. BEFORE OR AFTER THREADING, BUT BEFORE GALVANIZING, EACH ANCHOR BOLT SHALL BE ULTRASONICALLY TESTED (UT) BY A LEVEL II OR III INSPECTOR, QUALIFIED IN ACCORDANCE WITH ANSI GUIDELINES, USING A STRAIGHT BEAM, 1/2" Ø 3.5 MHZ. TRANSDUCER, TO ENSURE NO REJECTABLE FLAWS EXIST IN THE UPPER 18" (TENSION CRITERIA).

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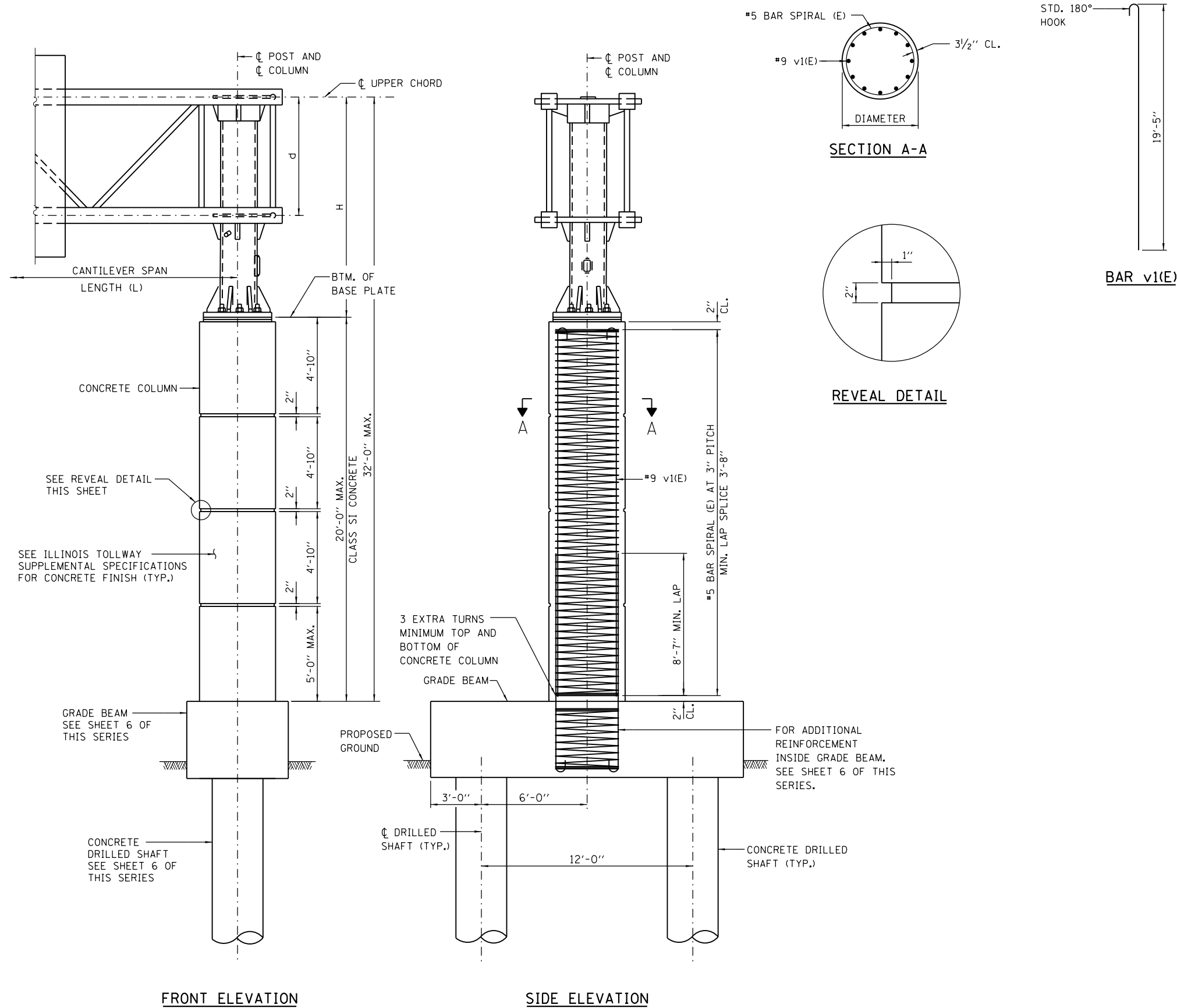


TABLE F: CONCRETE COLUMN DESIGN TABLE

SPAN LENGTH (L)	STEEL POST DIAMETER	CONCRETE COLUMN			
		DIAMETER	VERTICAL BAR v1(E)	CLASS SI CONC. CU. YD.*	REINF. BARS POUND *
< = 20'	18"	3'-6"	16-#9	7.1	1,910
21'-30'	18"	3'-6"	16-#9	7.1	1,910
31'-40'	24"	4'-0"	20-#9	9.2	2,330
41'-50'	24"	4'-0"	20-#9	9.2	2,330

* CONCRETE VOLUME AND REBAR WEIGHT ARE DETERMINED FOR 20'-0" CONCRETE COLUMN HEIGHT. ADJUST CONCRETE VOLUME AND REBAR WEIGHT ACCORDINGLY IF CONCRETE COLUMN HEIGHT IS LESS THAN 20'-0".

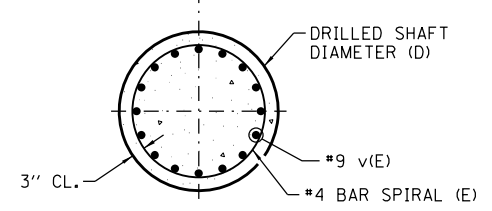
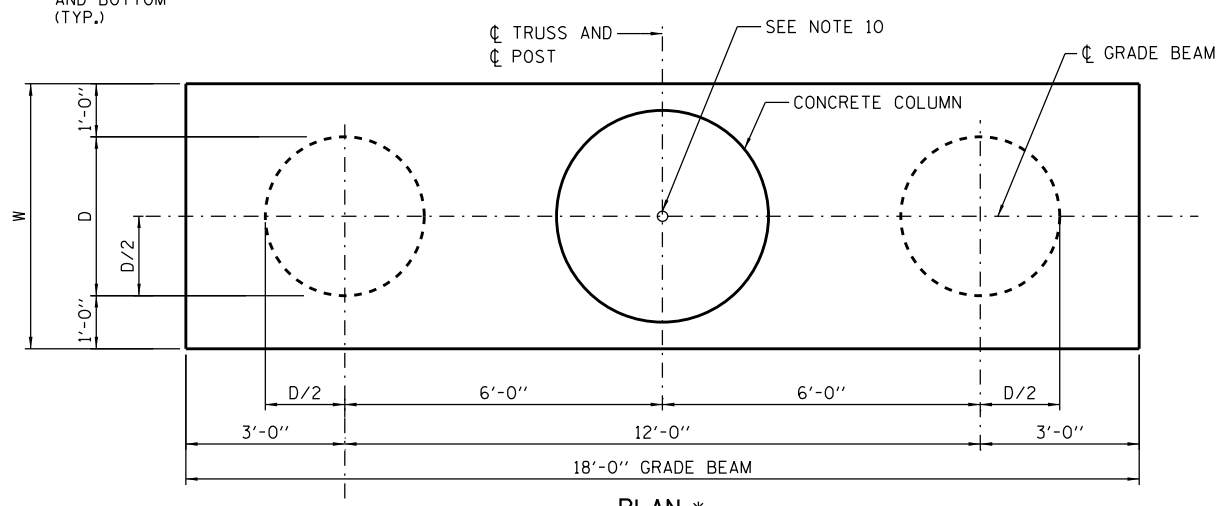
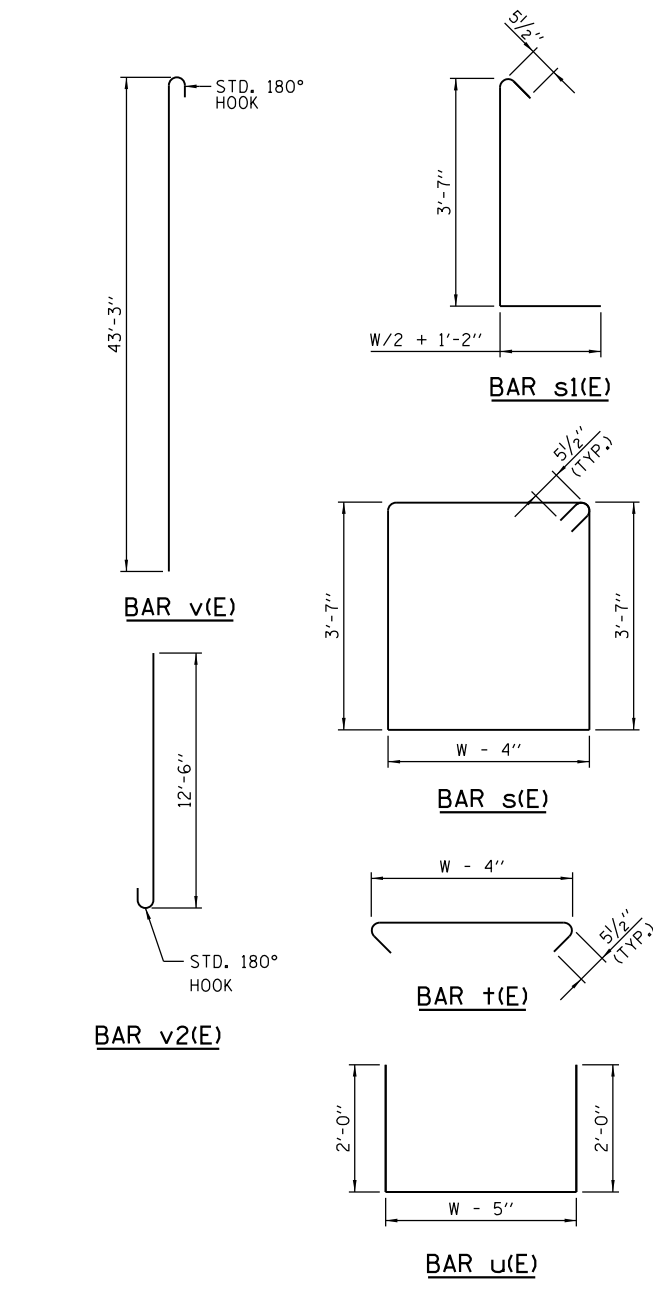
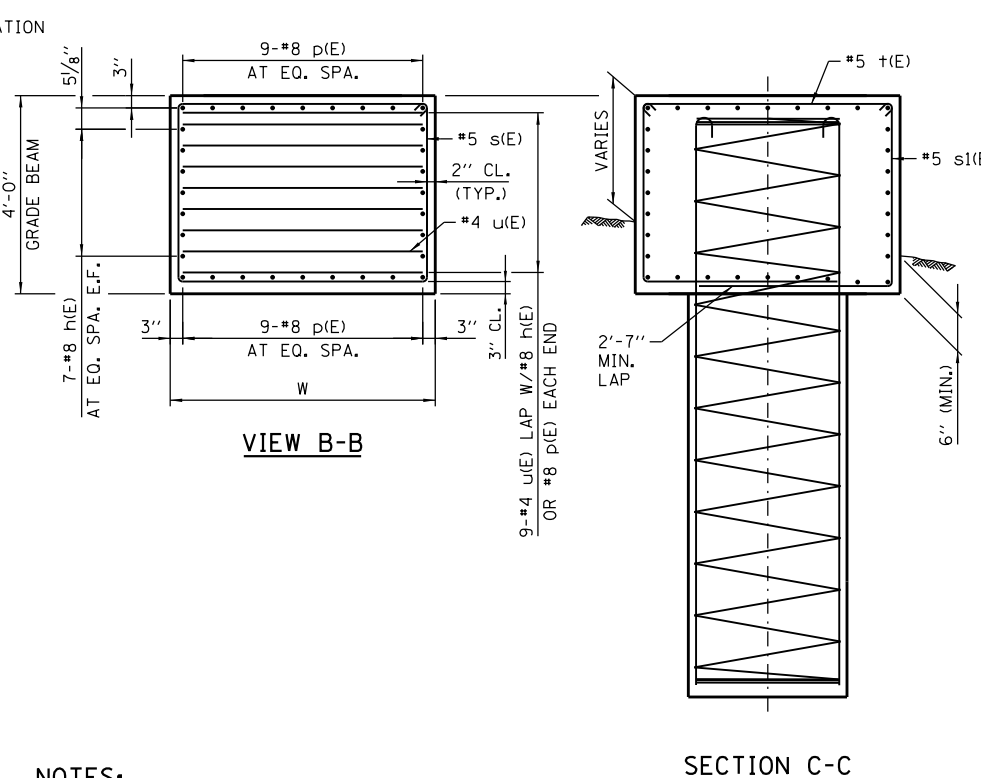
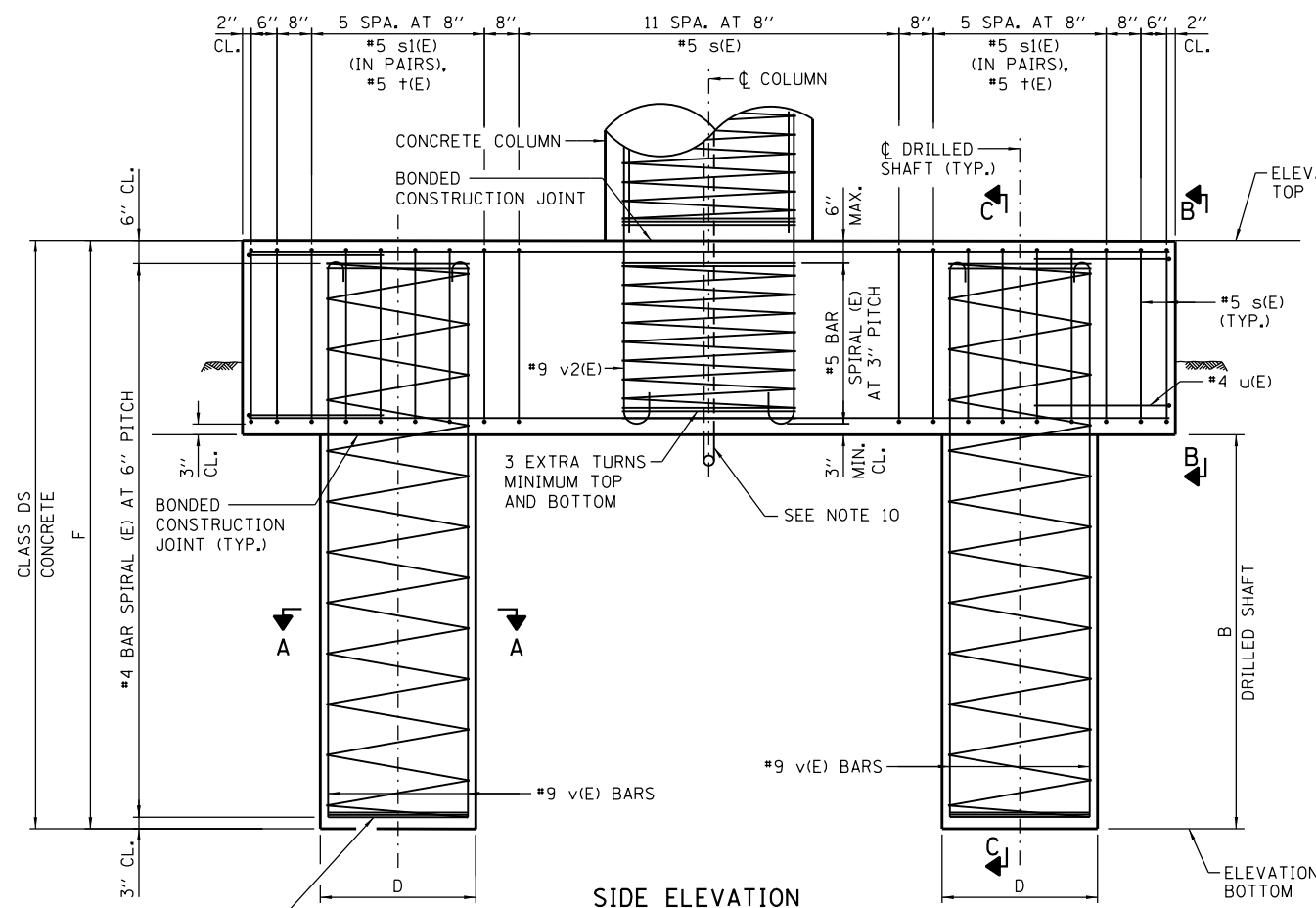


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BAR LIST - EACH FOUNDATION

(2 SHAFT AND 1 GRADE BEAM)

BAR	NUMBER	SIZE	LENGTH		SHAPE
			D = 3'-0"	D = 4'-0"	
h(E)	14	#8	17'-8"	17'-8"	
p(E)	18	#8	17'-8"	17'-8"	
s(E)	16	#5	17'-5"	19'-5"	⊏
s1(E)	24	#5	7'-8 1/2"	8'-2 1/2"	⊏
t(E)	12	#5	5'-7"	6'-7"	⊏
u(E)	18	#4	8'-7"	9'-7"	⊏
v(E)	SEE TABLE G	#9	44'-6"	44'-6"	⊏
v2(E)	SEE TABLE G	#9	13'-9"	13'-9"	⊏
*4 BAR SPIRAL (E) - SEE SIDE ELEVATION					
*5 BAR SPIRAL (E) - SEE SIDE ELEVATION					



NOTE:
 * REINFORCEMENT IN GRADE BEAM NOT SHOWN FOR CLARITY.
 ** FOR GRADE BEAM ONLY.

BAR SPIRAL LAP SPLICE	
BAR	MIN. LAP
#4	2'-11"
#5	3'-8"

NOTES:

- THE FOUNDATION DETAILS SHOWN ARE BASED ON THE PRESENCE OF MOSTLY COHESIVE SOIL CONDITIONS (SILTY OR SANDY CLAY), WITH AN AVERAGE UNCONFINED COMPRESSIVE STRENGTH (QU) > 1.25 TON/SQ. FT. WHICH SHALL BE DETERMINED BY PREVIOUS SOIL INVESTIGATIONS AT THE JOBSITE. WHEN OTHER CONDITIONS ARE INDICATED, THE BORING DATA SHALL BE INCLUDED IN THE PLANS AND THE FOUNDATION DIMENSIONS SHOWN SHALL BE THE RESULT OF SITE SPECIFIC DESIGNS. IF CONDITIONS ENCOUNTERED IN THE FIELD ARE DIFFERENT THAN THOSE INDICATED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO DETERMINE IF THE FOUNDATION DIMENSIONS NEED TO BE MODIFIED.
- ALL MATERIAL, FABRICATION, AND CONSTRUCTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH SECTION 734 OF THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.
- CONCRETE SHALL BE PLACED MONOLITHICALLY, WITHOUT CONSTRUCTION JOINTS UNLESS NOTED OTHERWISE.
- BACKFILL SHALL BE PLACED PER SECTION 502 OF THE STANDARD SPECIFICATION AND PRIOR TO ERECTION OF CONCRETE COLUMN.
- PROVIDE RUBBED SURFACE FINISH FOLLOWED BY CONCRETE SEALER APPLICATION ON ENTIRE SURFACE OF CONCRETE COLUMN AND NORMAL SURFACE FINISH ON GRADE BEAM, EXCEPT BOTTOM SURFACE. COST IS INCLUDED IN THE COST OF "FOUNDATION FOR OVERHEAD SIGN STRUCTURE, CANTILEVER TYPE".
- ALL REBAR DESIGNATED (E) SHALL BE EPOXY COATED. REBAR SHALL BE POSITIONED SO THAT THERE WILL BE NO INTERFERENCE BETWEEN VERTICAL REINFORCEMENT AND STIRRUPS.
- NO SONOTUBES OR DECOMPOSABLE FORMS SHALL BE USED 6" BELOW THE FINISHED GROUND LINE. PERMANENT METAL FORMS OR OTHER SHIELDING SHALL NOT BE LEFT IN PLACE BELOW THE ELEVATION WITHOUT THE ENGINEER'S WRITTEN PERMISSION. EXCAVATIONS SHALL BE DEWATERED BEFORE CONCRETE PLACEMENT IF DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST.
- FOR SIZE AND NUMBER OF PVC COATED STEEL CONDUITS, SEE ELECTRICAL CONSTRUCTION DRAWINGS.
- TYPICAL SIGN STRUCTURE FOUNDATION IS SHOWN ON THIS SHEET. SEE SHEET 7 OF THIS SERIES FOR FOUNDATION LOCATED IN ROADWAY MEDIAN.
- COORDINATE CONDUIT SIZE, LOCATION AND QUANTITY WITH ELECTRICAL PLANS. CONDUITS SHALL BE PLACED TO MISS REINFORCEMENT BARS. DO NOT CUT REINFORCEMENT BARS.

TABLE G: DESIGN TABLE FOR DRILLED SHAFTS IN COHESIVE SOILS

SPAN LENGTH (L)	W	D	B	F	VERTICAL BAR			CLASS DS CONC. CU. YD.**	CLASS DS CONC. CU. YD.	REINF. BARS POUND
					v(E) SHAFT 1	v(E) SHAFT 2	v2(E)			
< = 20'	5'-0"	3'-0"	40'	44'	12-#9	12-#9	16-#9	13.4	21	7,700
21'-30'	5'-0"	3'-0"	40'	44'	12-#9	12-#9	16-#9	13.4	21	7,700
31'-40'	6'-0"	4'-0"	40'	44'	20-#9	20-#9	20-#9	16	37.3	10,800
41'-50'	6'-0"	4'-0"	40'	44'	20-#9	20-#9	20-#9	16	37.3	10,800



OVERHEAD SIGN STRUCTURE
 CANTILEVER TYPE
 STRUCTURE DETAILS

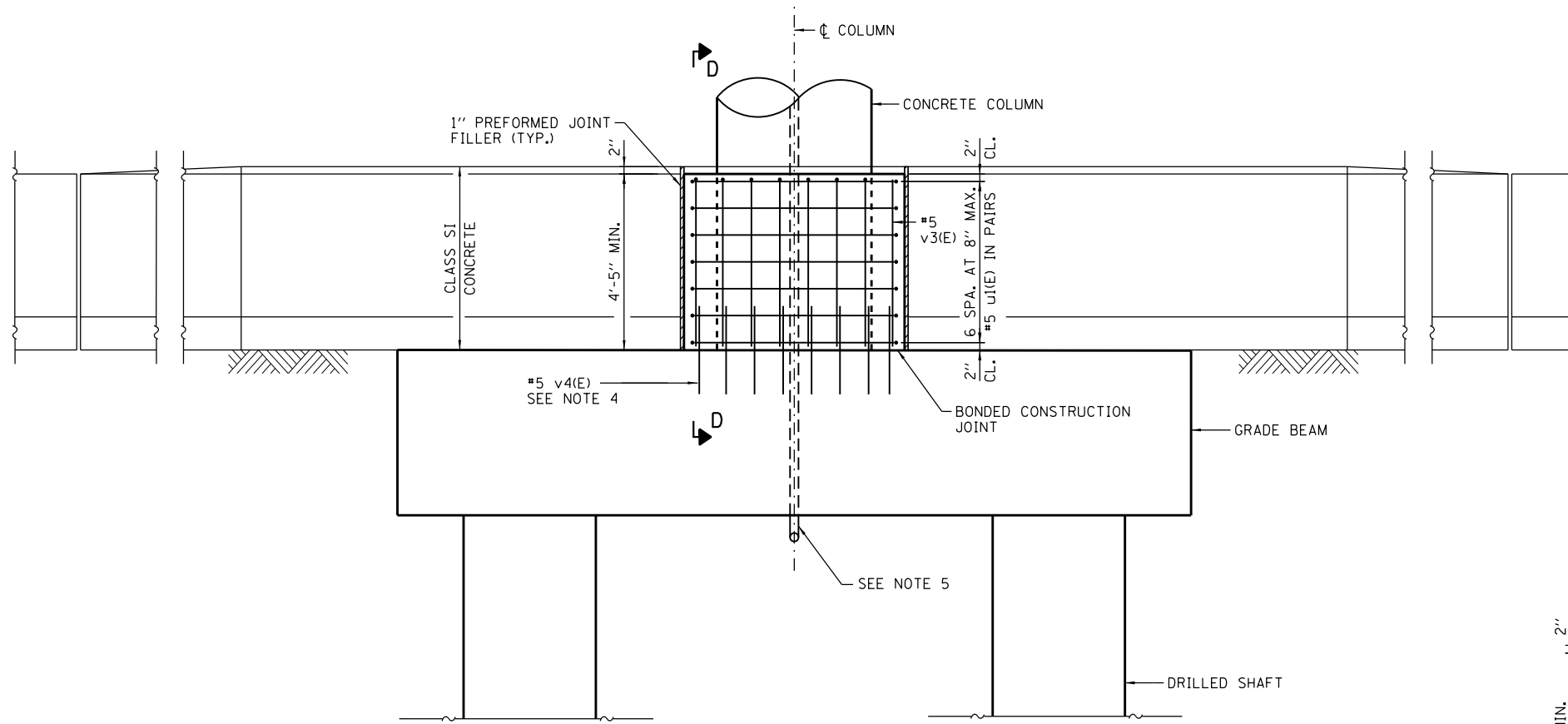
STANDARD F4-10

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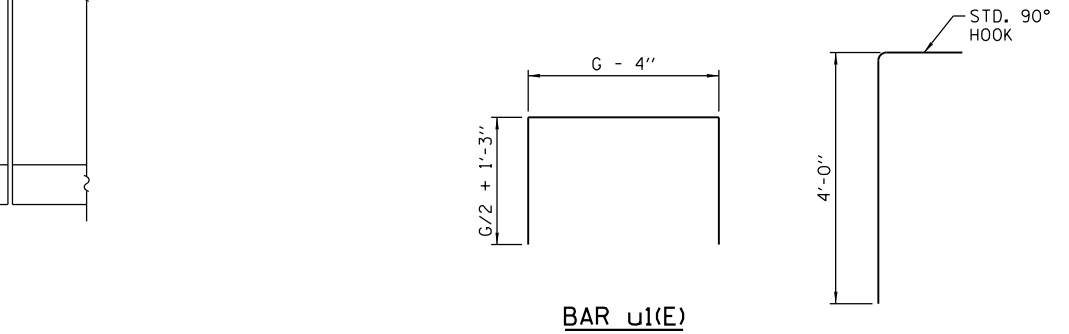
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BAR LIST - CRASHWALL

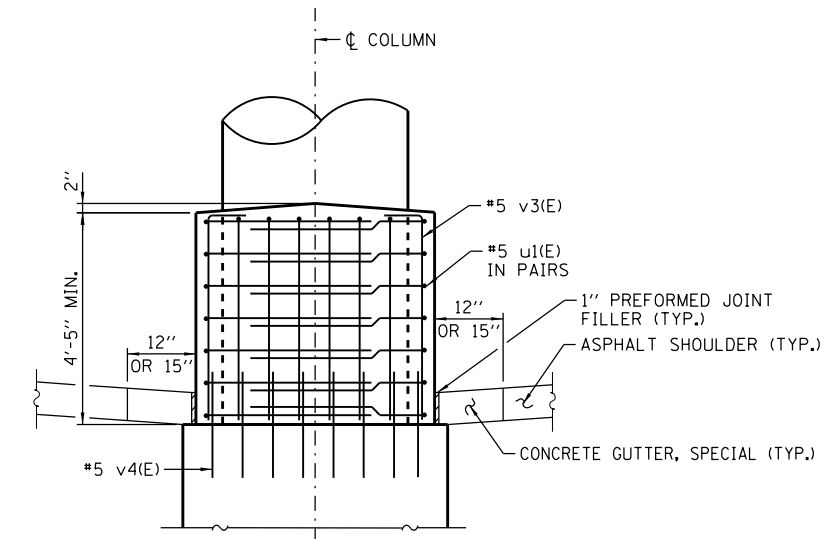
BAR	SIZE	G = 4'-6"		G = 5'-0"		SHAPE
		NUMBER	LENGTH	NUMBER	LENGTH	
u1(E)	#5	14	11'-2"	14	12'-2"	
v3(E)	#5	24	4'-10"	28	4'-10"	
v4(E)	#5	24	2'-0"	28	2'-0"	



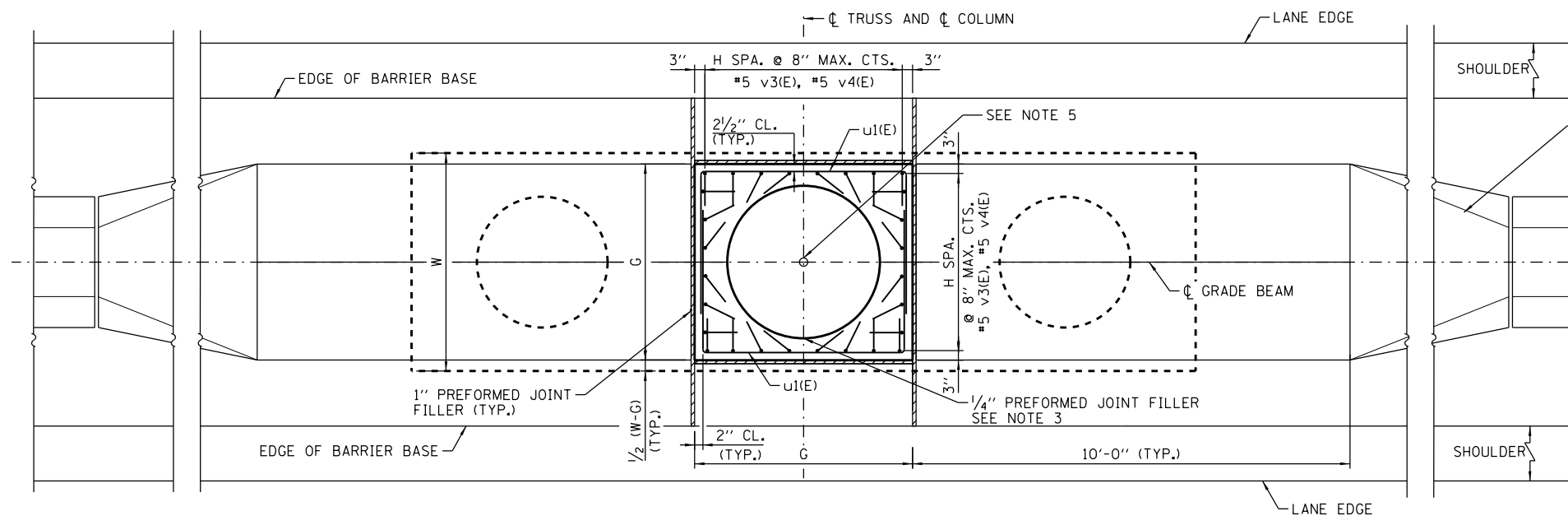
SIDE ELEVATION



BAR v3(E)



SECTION D-D



PLAN

NOTES:

- SEE SHEET 6 OF THIS SERIES FOR ADDITIONAL NOTES.
- GRADE BEAM AND DRILLED SHAFT DIMENSIONS, DETAILS, QUANTITIES AND BAR LIST ARE SHOWN ON SHEET 6 OF THIS SERIES.
- SEAL EXPOSED SURFACE OF 1/4" PREFORMED JOINT FILLER WITH BACKER ROD AND SILICONE SEALER (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).
- #5 DRILLED ANCHOR BARS WILL BE EPOXY GROUTED AASHTO M31, GRADE 60 REBAR. PROVIDE 12" MINIMUM EMBEDMENT. INSTALL ANCHORS ACCORDING TO STANDARD SPECIFICATIONS SECTION 584. LOCATE GRADE BEAM REBAR PRIOR TO DRILLING. DO NOT DAMAGE GRADE BEAM REBAR DURING INSTALLATION.
- COORDINATE CONDUIT SIZE, LOCATION AND QUANTITY WITH ELECTRICAL PLANS. CONDUITS SHALL BE PLACED TO MISS REINFORCEMENT BARS. DO NOT CUT REINFORCEMENT BARS.
- PROTECTIVE COAT SHALL BE APPLIED TO TRAFFIC AND TOP FACES OF CRASHWALL.

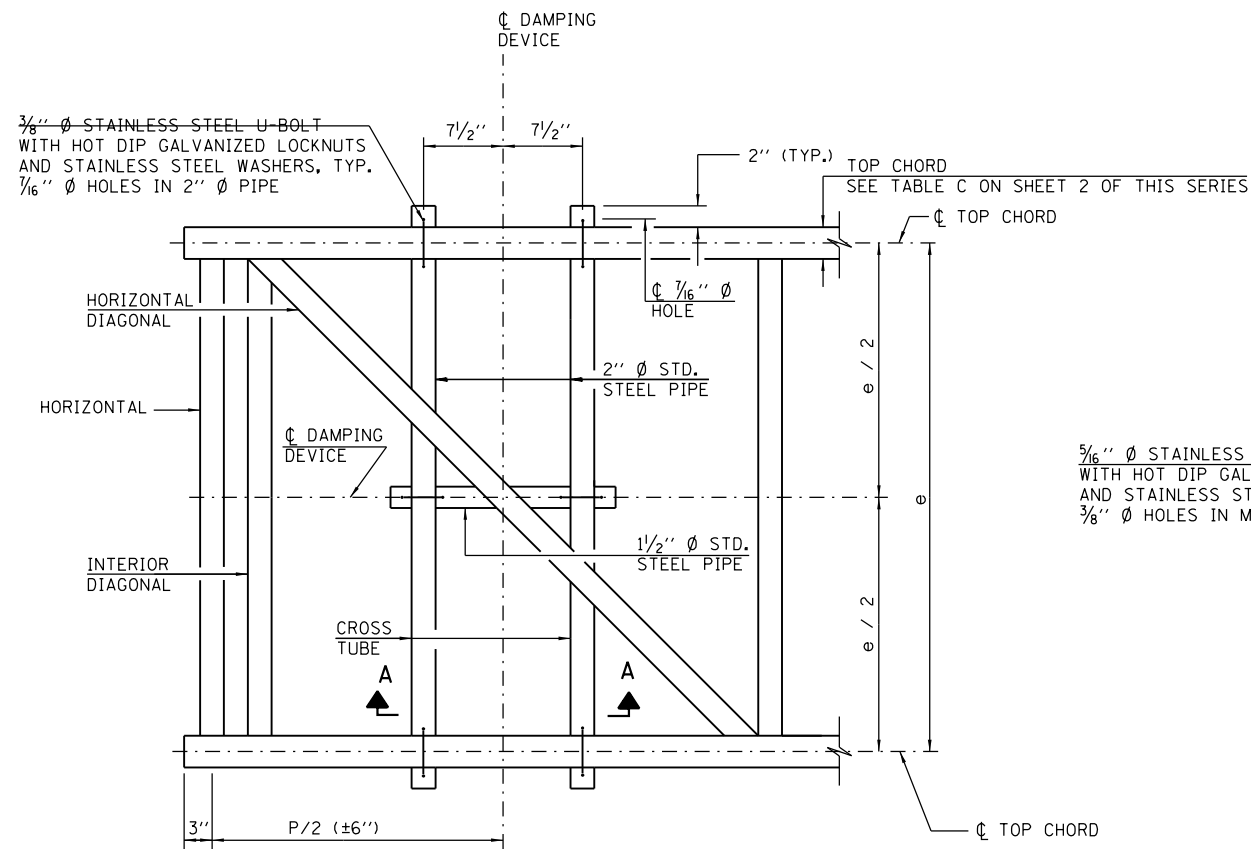
TABLE H: DESIGN TABLE FOR CRASHWALL

SPAN LENGTH (L)	W	G	H	CLASS SI CONCRETE CU. YD.	REINF. BARS POUND	PROTECTIVE COAT SQ. YD.
< = 20'	5'-0"	4'-6"	6	1.7	340	6.0
21'-30'	5'-0"	4'-6"	6	1.7	340	6.0
31'-40'	6'-0"	5'-0"	7	2.0	380	7.0
41'-50'	6'-0"	5'-0"	7	2.0	380	7.0

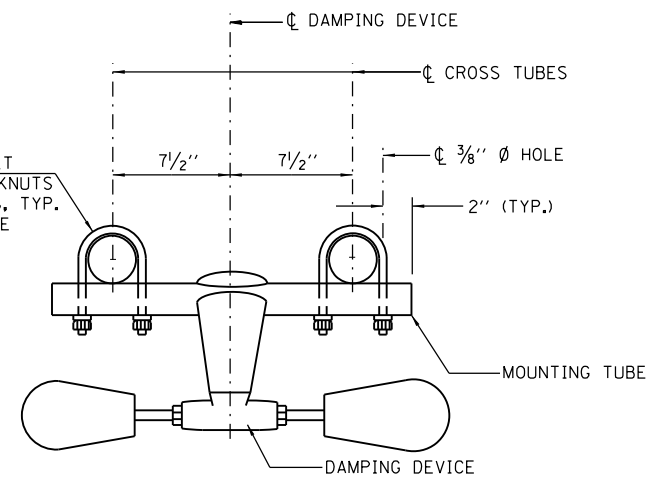


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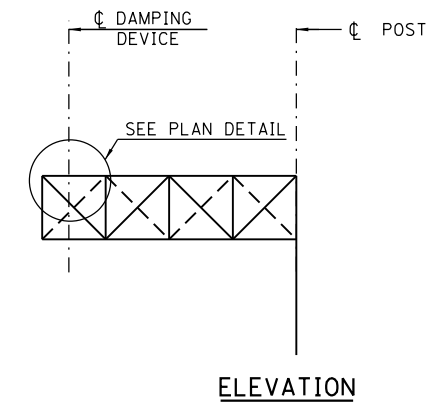
APPROVED..... DATE 3-31-2014.
CHIEF ENGINEERING OFFICER



PLAN DETAIL

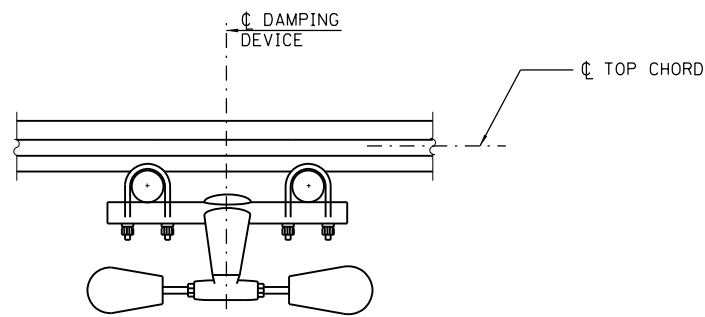


TRUSS DAMPING DEVICE CONNECTION DETAIL

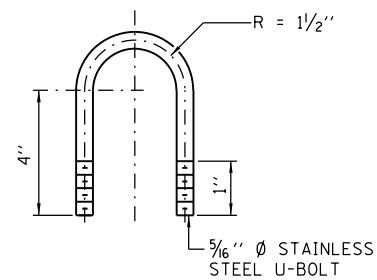


ELEVATION

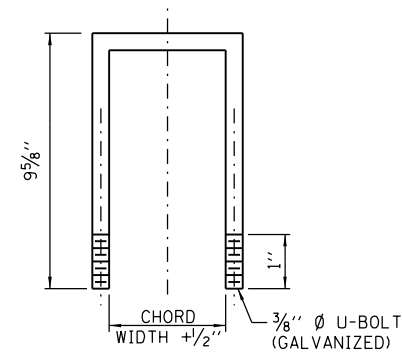
NOTE:
 DAMPER: ONE DAMPER PER TRUSS. (31 LBS. STOCKBRIDGE-TYPE
 29" MINIMUM BETWEEN ENDS OF WEIGHTS.)



SECTION A-A



DAMPING DEVICE MOUNTING TUBE U-BOLT DETAIL (TYPICAL)



TOP CHORD TO CROSS TUBE U-BOLT DETAIL (TYPICAL)

APPROVED.....
 DATE 3-31-2014
 CHIEF ENGINEERING OFFICER

Paul Kovacs



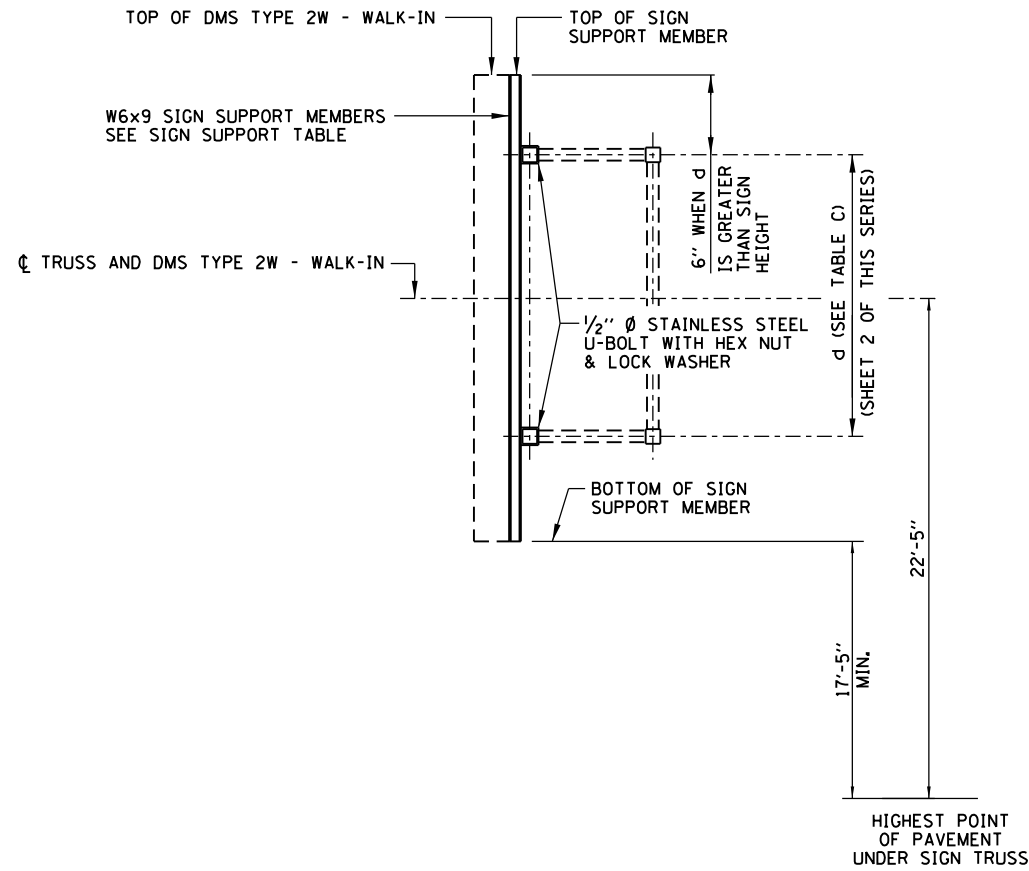
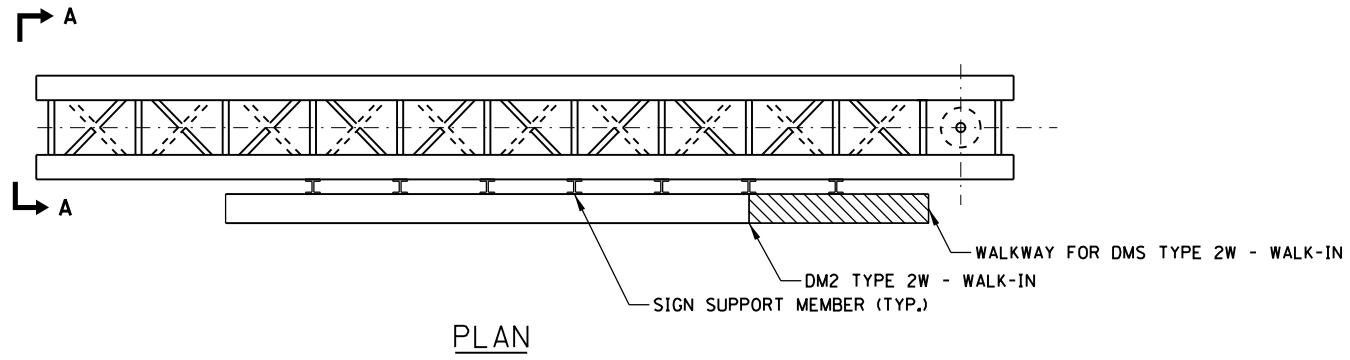
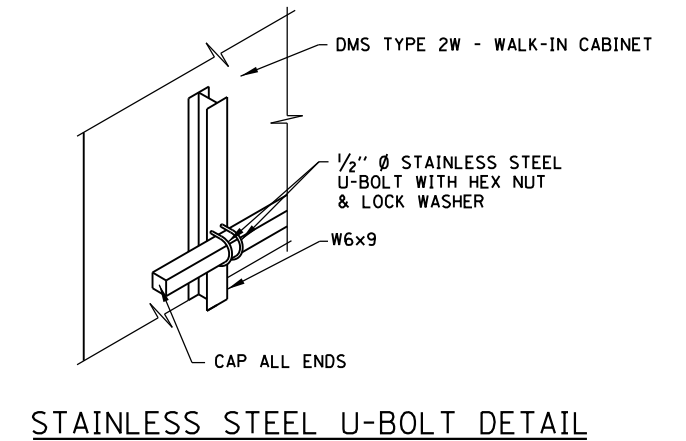


TABLE I: SIGN SUPPORT TABLE

SIGN WIDTH		NUMBER OF SIGN SUPPORTS REQUIRED
GREATER THAN	LESS THAN OR EQUAL TO	
8'-0"	14'-0"	2
14'-0"	20'-0"	3
20'-0"	26'-0"	4
26'-0"	32'-0"	5
		6

TABLE J: DMS TYPE 2W - WALK-IN TABLE

MAXIMUM TRUSS LENGTH	SIGN WIDTH			MAXIMUM WEIGHT
	HEIGHT	WIDTH	DEPTH	
40 FEET	8'-0"	26'-6"	3'-4 1/2"	4200 LBS.

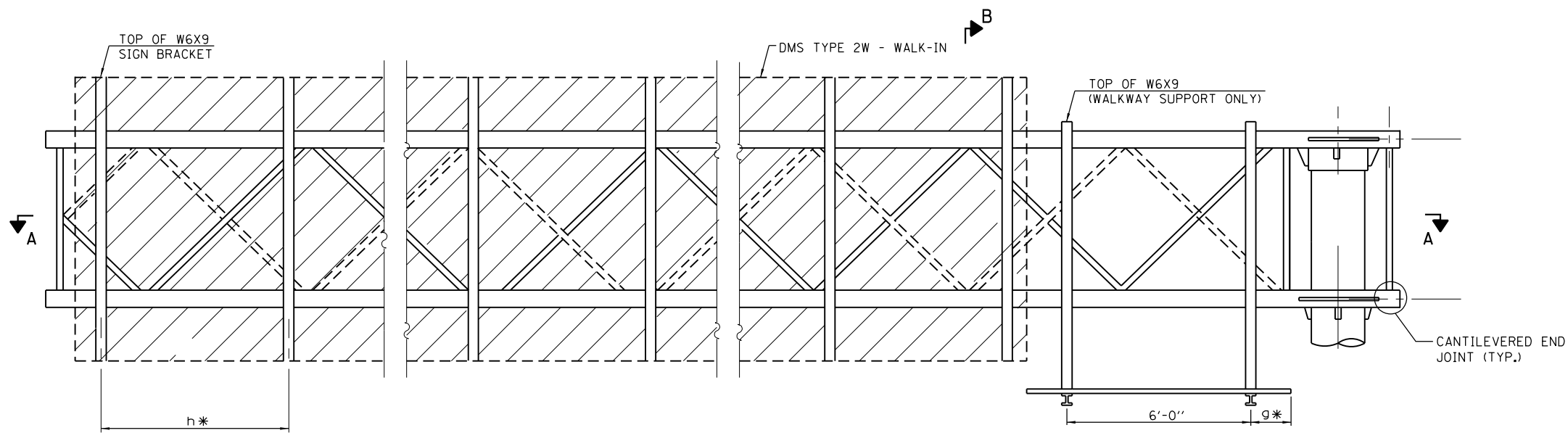


NOTES:

1. DMS TYPE 2W - WALK-IN SHALL BE ATTACHED TO TRUSS AS CLOSE TO PANEL JOINTS AS POSSIBLE.
2. VERIFY SIGN SUPPORT MEMBER LENGTH PRIOR TO FABRICATION.
3. DMS TYPE 2W - WALK-IN MANUFACTURER SHALL DESIGN, PROVIDE AND INSTALL HORIZONTAL MOUNTING MEMBERS. VERTICAL SPACING OF HORIZONTAL MEMBERS SHALL BE DESIGNED BY DMS TYPE 2W - WALK-IN MANUFACTURER. VERIFY VERTICAL SPACING WITH HOLES FOR STAINLESS STEEL U-BOLT.

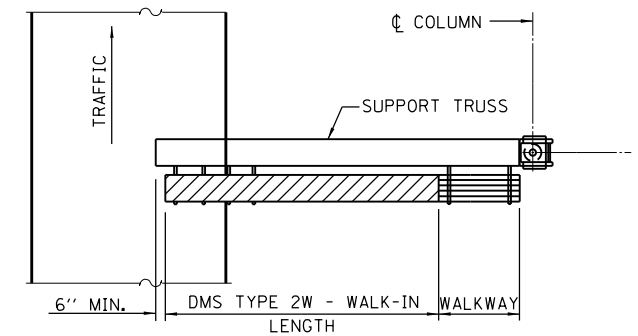
APPROVED.....
Paul Kovacs
 CHIEF ENGINEERING OFFICER
 DATE 3-31-2014





* BRACKET AND GRATING DIMENSIONS ARE NOMINAL AND WILL VARY BASED ON ACTUAL DMS TYPE 2W - WALK-IN DIMENSIONS PLUS MANUFACTURER'S MOUNTING DEVICES.

TYPICAL FRONT ELEVATION
WITH HANDRAIL OMITTED FOR CLARITY.
FOR SECTION B-B, SEE SHEET 11 OF THIS SERIES.



PLAN WALKWAY AND HANDRAIL SKETCH
(ROAD PLAN BENEATH TRUSS VARIES)
WALKWAY MAY BE LOCATED AT RIGHT OR LEFT END OF TRUSS.

NOTES:

SPACE WALKWAY BRACKETS AND SIGN BRACKETS W6X9 FOR EFFICIENCY AND WITHIN LIMITS SHOWN:

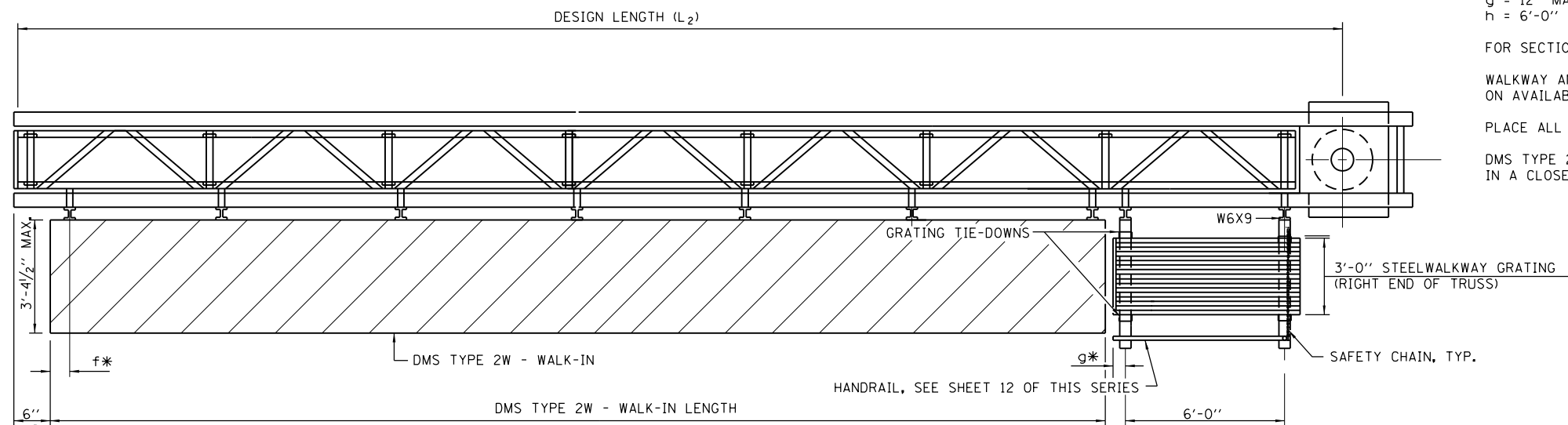
f = 12" MAXIMUM, 4" MINIMUM (END OF SIGN TO ϕ OF NEAREST BRACKET)
g = 12" MAXIMUM, 4" MINIMUM (END OF WALKWAY GRATING TO ϕ OF NEAREST SUPPORT BRACKET)
h = 6'-0" MAXIMUM (ϕ TO ϕ SIGN AND/OR WALKWAY SUPPORT BRACKETS, W6X9)

FOR SECTION B-B, SEE SHEET 11 OF THIS SERIES.

WALKWAY AND TRUSS GRATING WIDTH DIMENSIONS ARE NOMINAL AND MAY VARY $\pm 1/2$ " BASED ON AVAILABLE STANDARD WIDTH.

PLACE ALL SIGN AND WALKWAY BRACKETS AS CLOSE TO PANEL POINTS AS PRACTICAL.

DMS TYPE 2W - WALK-IN SHALL HAVE THE DOOR AT THE END, OPPOSITE THE WALKWAY SECURED IN A CLOSED POSITION.



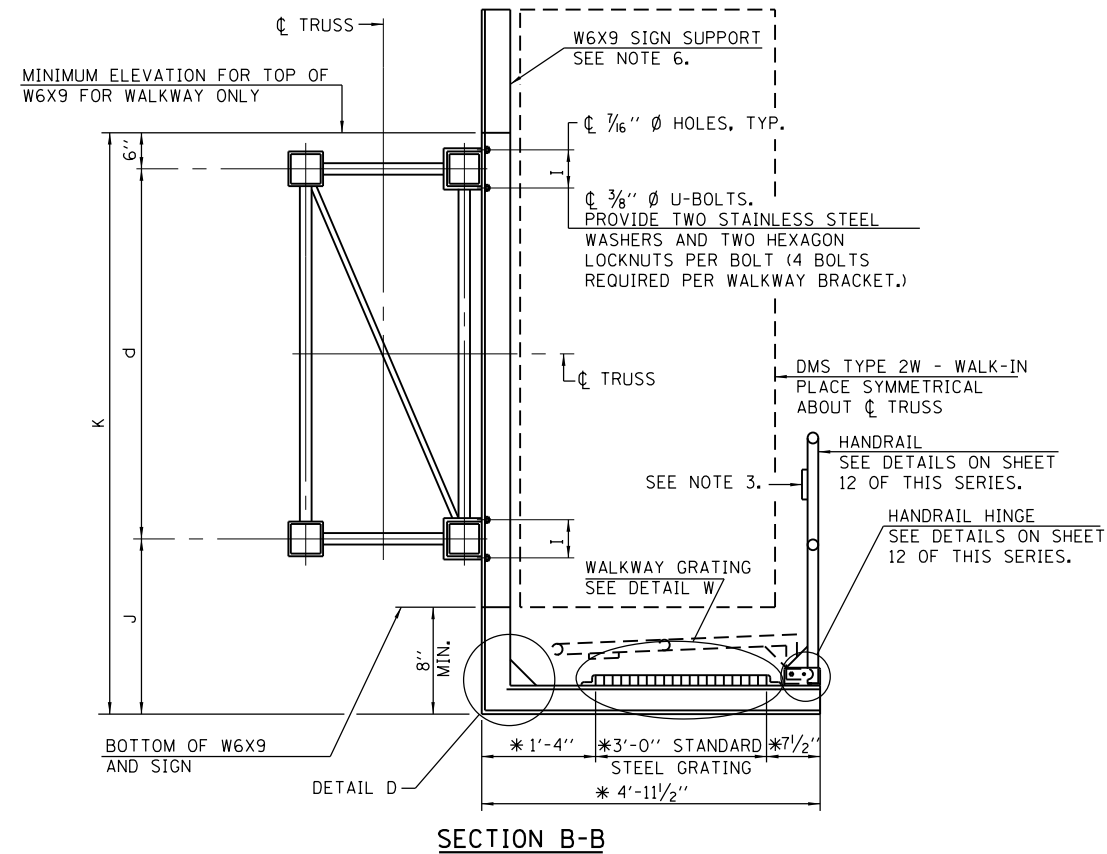
SECTION A-A

PLACE ALL SIGN AND WALKWAY BRACKETS AS CLOSE TO PANEL POINTS AS PRACTICAL.

BRACKET TABLE

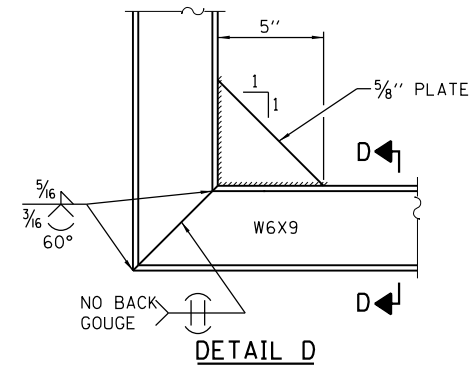
W6X9		
SIGN WIDTH		NUMBER OF BRACKETS REQUIRED
GREATER THAN	LESS THAN OR EQUAL TO	
	8'-0"	2
8'-0"	14'-0"	3
14'-0"	20'-0"	4
20'-0"	26'-0"	5
26'-0"	32'-0"	6



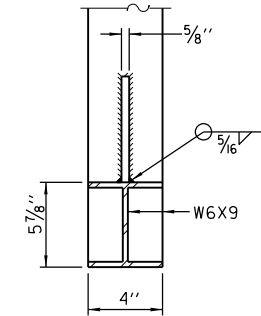


SECTION B-B

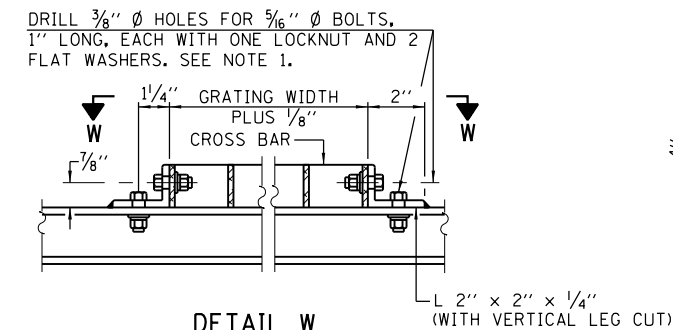
*BRACKET AND GRATING DIMENSIONS ARE NOMINAL AND WILL VARY BASED ON ACTUAL DMS TYPE 2W - WALK-IN DIMENSIONS PLUS MANUFACTURERS MOUNTING DEVICE.



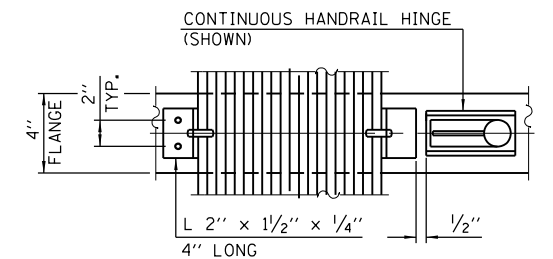
DETAIL D



SECTION D-D



DETAIL W
(WALKWAY GRATING)



(CONTINUOUS WALKWAY GRATING)

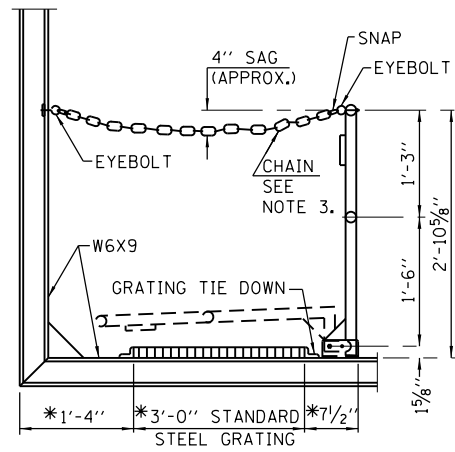
SECTION W-W

NOTES:

1. DRILLING HOLES IN GRATING MAY BE DONE IN SHOP OR FIELD, BASED ON CONTRACTOR'S PREFERENCE AND SUBJECT TO ACCURATE ALIGNMENT.
2. IF HANDRAIL JOINT PRESENT, WELD ANGLE TO W6X9 AND 1/4" EXTENSION BARS. SEE SHEET 12 OF THIS SERIES.
3. # 1/8" x 1/2" x 2" WELDED TO HANDRAIL POSTS TO PROTECT LOCATIONS THAT CONTACT GRATING.
4. DMS TYPE 2W - WALK-IN MANUFACTURER SHALL DESIGN AND SUPPLY HARDWARE FOR CONNECTION TO W6X9. BOLTS SHALL BE STAINLESS STEEL OR HOT DIP GALVANIZED HIGH STRENGTH PER IDOT SPECIFICATIONS.

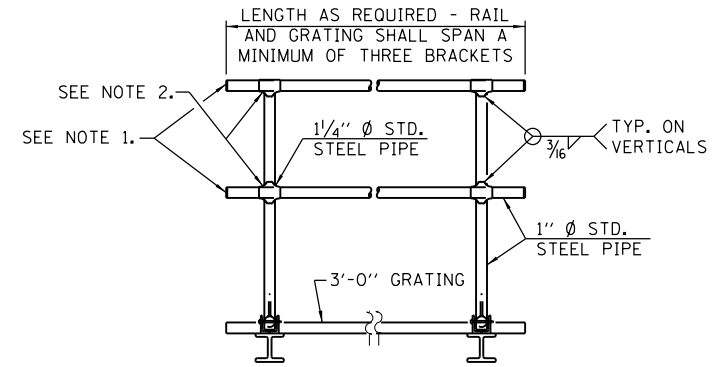


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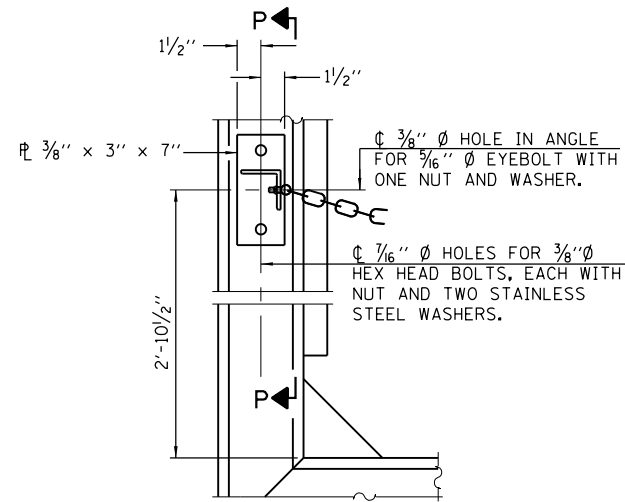
SIDE ELEVATION
(SHOWING SAFETY CHAIN W/O SIGN)

* BRACKET AND GRATING DIMENSIONS ARE NOMINAL AND WILL VARY BASED ON ACTUAL DMS TYPE 2W - WALK-IN DIMENSIONS PLUS MANUFACTURERS MOUNTING DEVICE.



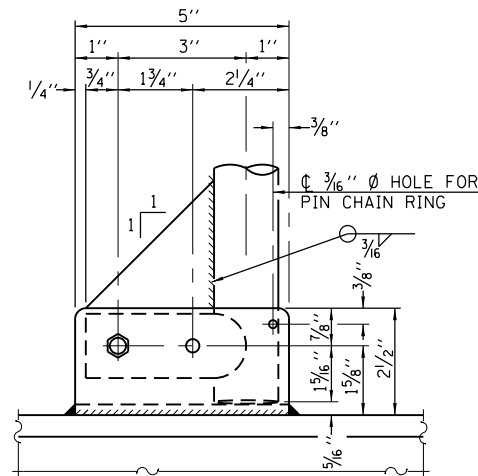
FRONT ELEVATION

HANDRAIL DETAILS

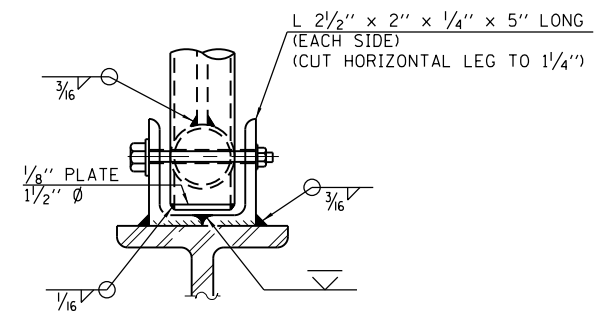


ALTERNATE SAFETY CHAIN ATTACHMENT

ITEMS NOT SHOWN SAME AS "SIDE ELEVATION" OF "HANDRAIL DETAILS"

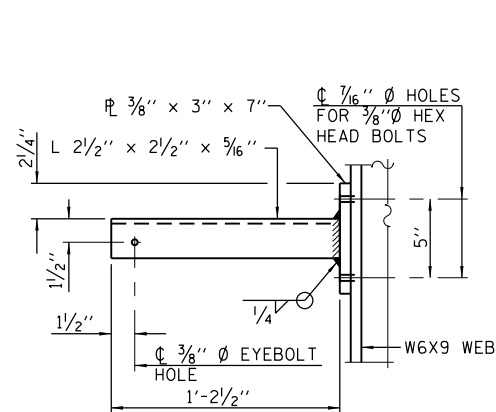


SIDE ELEVATION

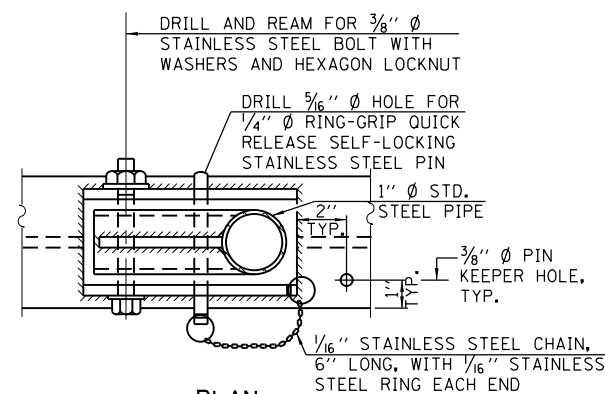


FRONT ELEVATION

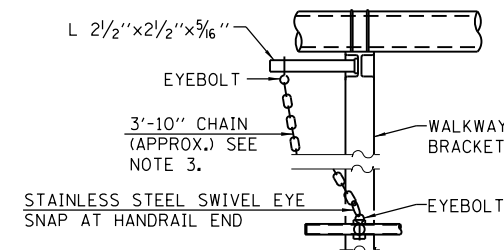
DETAILS NOT SHOWN SAME AS "ELEVATION" AT RIGHT.



SECTION P-P

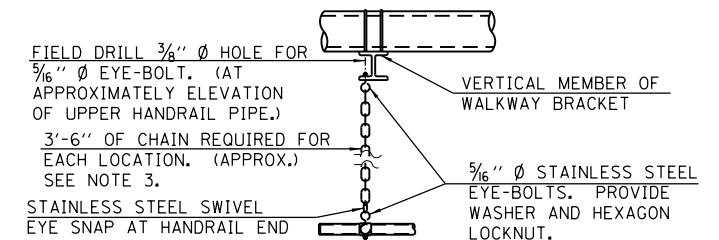


PLAN
DETAIL E HANDRAIL HINGE



ALTERNATE SAFETY CHAIN ATTACHMENT

DETAILS NOT SHOWN SIMILAR TO "SAFETY CHAIN" DETAILS (WALKWAY OMITTED FOR CLARITY)



SAFETY CHAIN

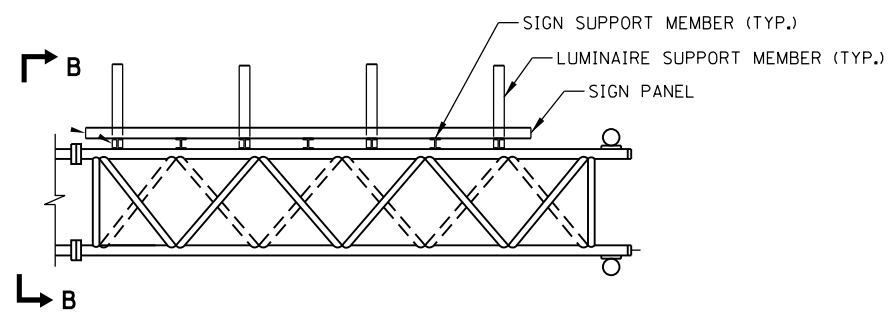
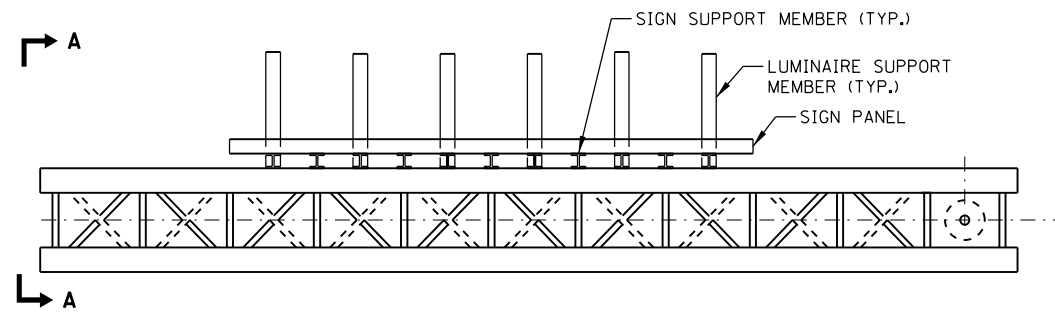
ONE REQUIRED FOR EACH END OF WALKWAY.

NOTES:

1. INSTALL STANDARD FORCE-FIT END CAPS OR WELD 1/8" END PLATES WITH 1/8" C.F.W. AND GRIND SMOOTH. (ALL RAIL ENDS)
2. HORIZONTAL HANDRAIL MEMBER SHALL BE CONTINUOUS THRU 1 1/4" Ø PIPE. PROVIDE 3/16" Ø HOLE IN 1 1/4" Ø PIPE FOR 3/8" Ø BOLT. FIELD DRILL 1/16" Ø HOLE IN HORIZONTAL RAIL MEMBER. PROVIDE LOCKNUT AND TWO STAINLESS STEEL WASHERS FOR BOLT. (USE 3/16" EYEBOLTS IN 1/16" Ø HOLES ON TOP RAIL AT ENDS ONLY.)
3. 3/16" TYPE 304L STAINLESS STEEL CHAIN, APPROXIMATELY 12 LINKS PER FOOT.



Paul Kovacs



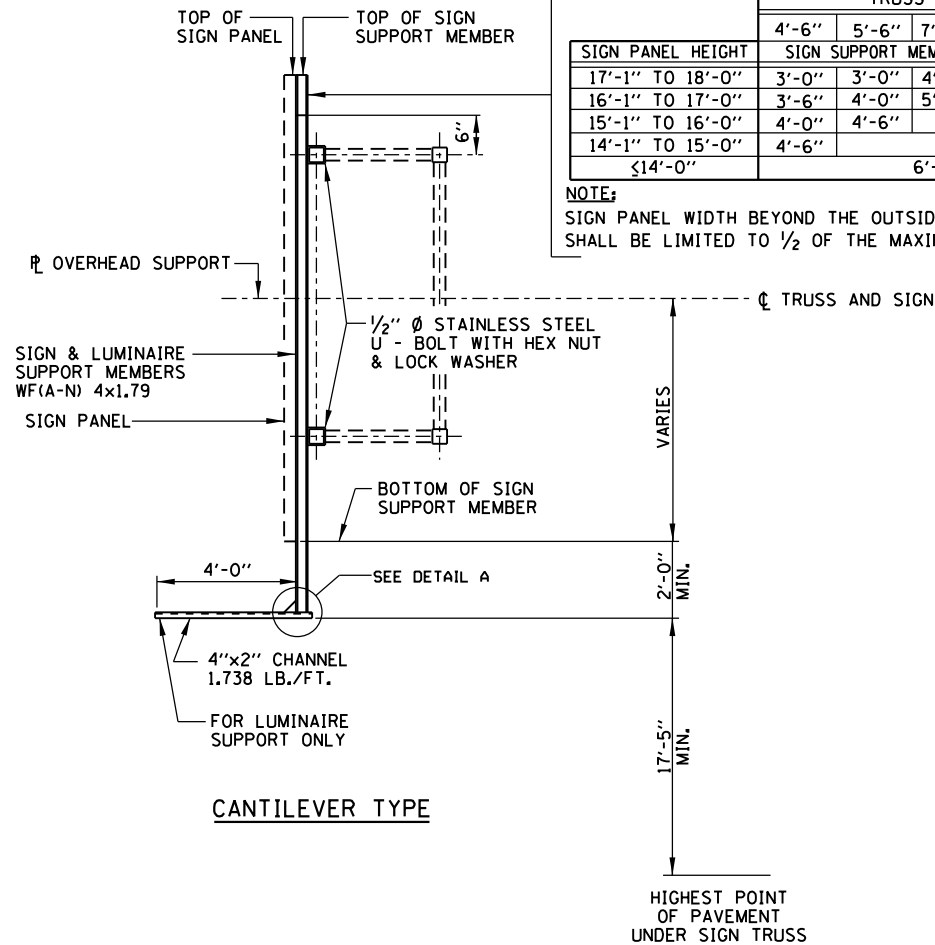
PLAN

PLAN

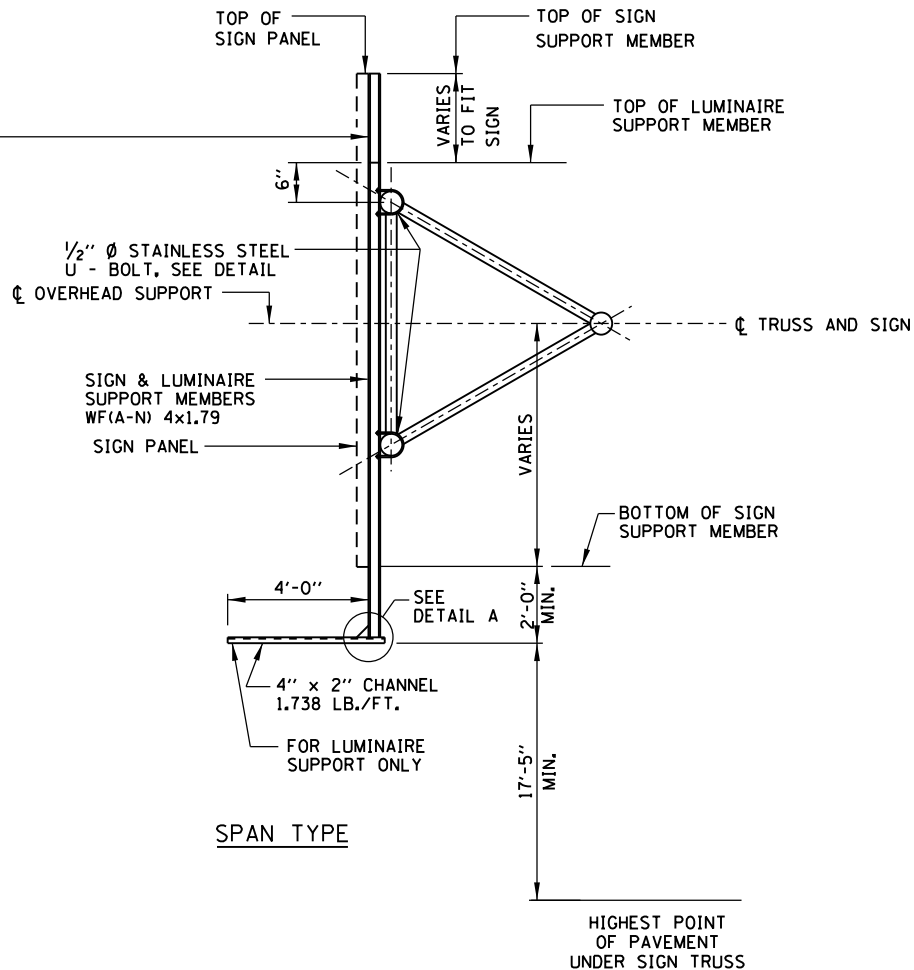
SIGN SUPPORT MEMBERS-WF(A-N) 4x1.79

SIGN PANEL HEIGHT	TRUSS DEPTH				
	4'-6"	5'-6"	7'-0"	8'-2"	8'-10"
17'-1" TO 18'-0"	3'-0"	3'-0"	4'-6"	5'-6"	6'-0"
16'-1" TO 17'-0"	3'-6"	4'-0"	5'-0"	6'-0"	
15'-1" TO 16'-0"	4'-0"	4'-6"		6'-0"	
14'-1" TO 15'-0"	4'-6"		6'-0"		
≤14'-0"			6'-0"		

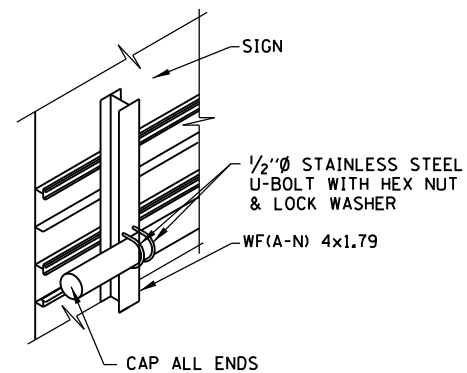
NOTE:
SIGN PANEL WIDTH BEYOND THE OUTSIDE VERTICAL MEMBER SHALL BE LIMITED TO 1/2 OF THE MAXIMUM SPACING



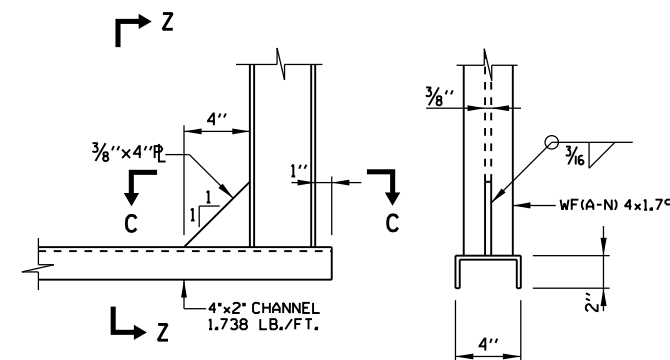
SECTION A-A



SECTION B-B

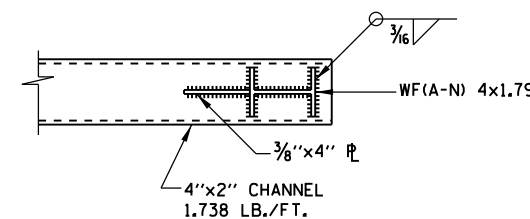


STAINLESS STEEL U-BOLT DETAIL



DETAIL A

SECTION Z-Z



SECTION C-C

NOTES:
ALL MATERIAL IS ALUMINUM (UNLESS OTHERWISE NOTED).

NOTES:

- SIGN PANEL SHALL BE ATTACHED TO TRUSS AS CLOSE TO PANEL JOINTS AS POSSIBLE.
- LUMINAIRE SUPPORT MEMBERS TO BE INSTALLED ONLY WHEN SIGN STRUCTURE IS TO BE ILLUMINATED.

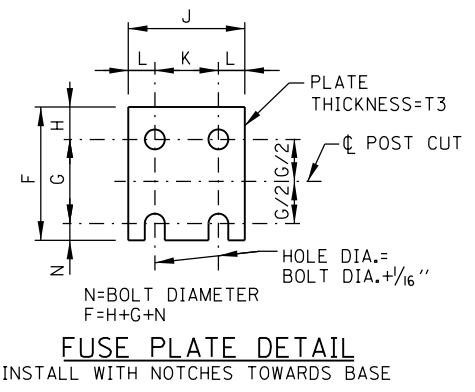
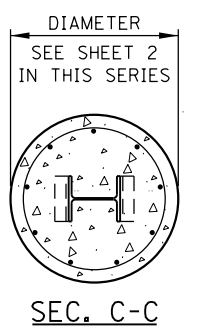
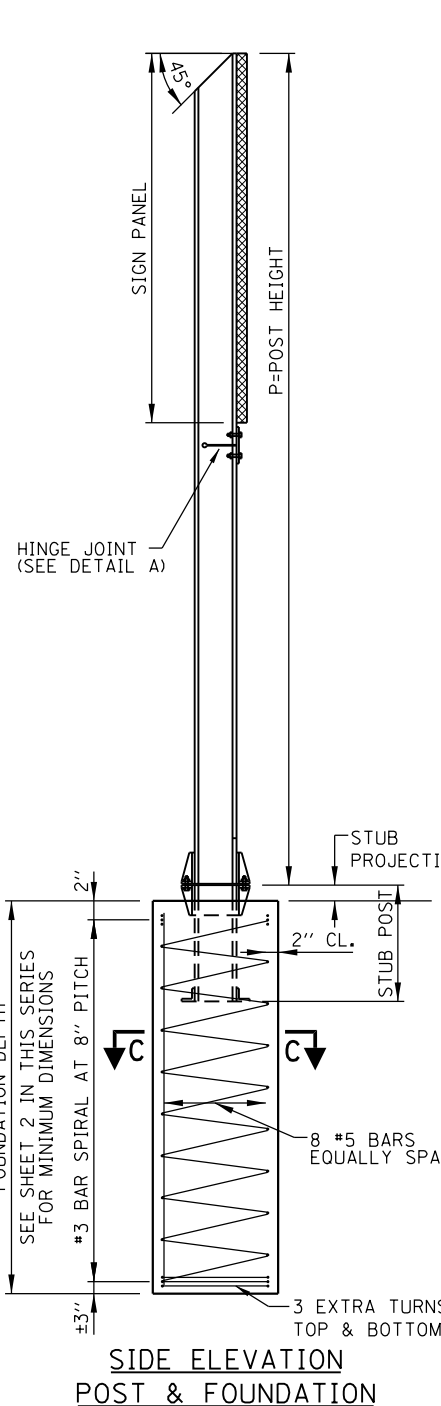
APPROVED, *Paul Kovacs* DATE 2-7-2012..
CHIEF ENGINEERING OFFICER

DATE	REVISIONS
1-1-2009	ADDED PLAN VIEWS FOR SIGN STRUCTURES
2-7-2012	REVISED OVERHEAD SIGN STRUCTURE CANTILEVER DIAGONALS
2-1-2013	REMOVED VERTICAL CLEARANCE.
3-31-2014	REVISED SIGN SUPPORT MEMBERS
3-11-2015	REVISED VERTICAL CL. AND SIGN SUPPORT
3-01-2018	ADDED VERTICAL CLEARANCE
3-01-2019	REVISED NOTE 2



OVERHEAD SIGN STRUCTURE
SIGN AND LUMINAIRE
SUPPORTS

STANDARD F8-07

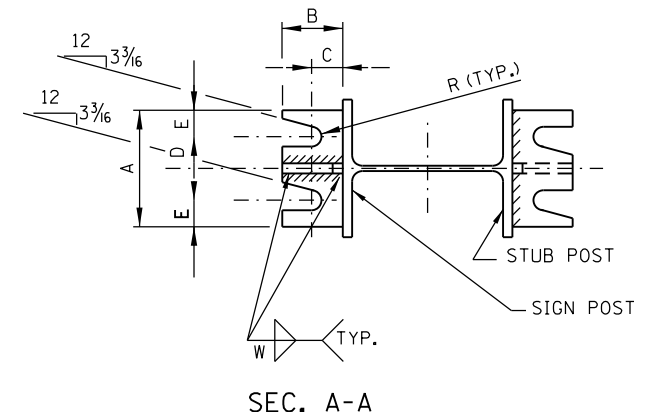
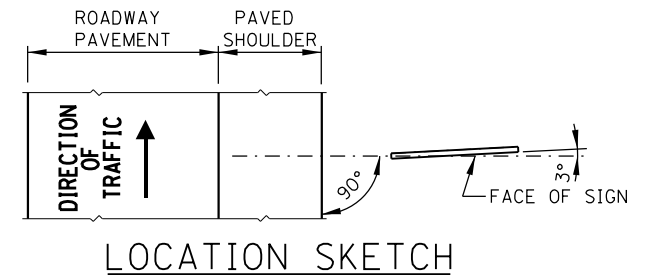
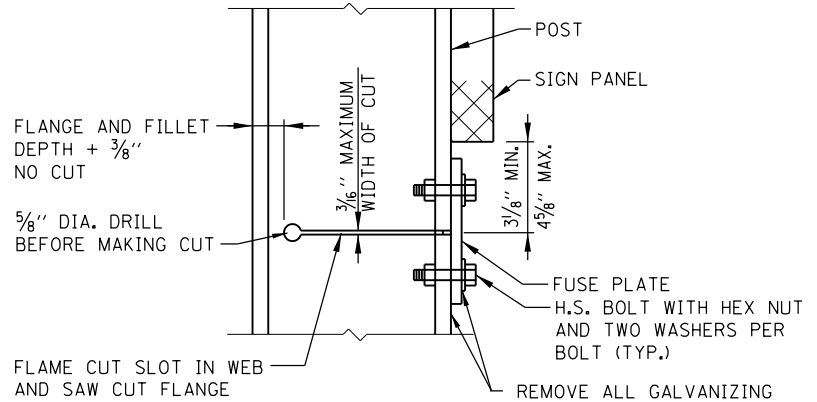


**G & H DIM.
TABLE**

BOLT DIA.	G	H
1/2"	2"	1 1/8"
5/8"	2 1/4"	1 1/4"
3/4"	2 1/2"	1 3/8"
7/8"	2 3/4"	1 1/2"
1"	3"	1 5/8"
1 1/8"	3 1/4"	1 3/4"
1 1/4"	3 1/2"	1 7/8"

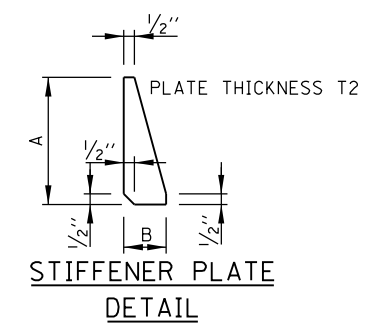
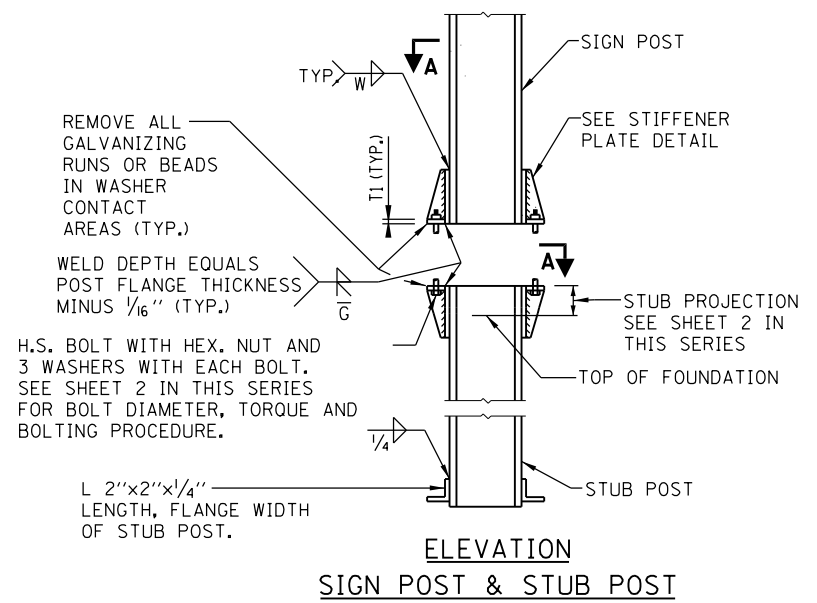
FABRICATORS NOTES

THE SLOT AND THE 5/8" DIA. HOLE IN THE WEB AND THE FUSE PLATE BOLT HOLES IN THE FLANGE SHALL BE MADE BEFORE GALVANIZING. POST FLANGE SHALL BE SAW CUT AFTER GALVANIZING AND BARE METAL SURFACES SHALL BE COATED WITH AN APPROVED ZINC SOLDER OR ZINC-RICH PAINT. THESE SURFACES SHALL NOT BE COATED UNTIL THE FUSE PLATE IS INSTALLED AND BOLTS FULLY TIGHTENED.

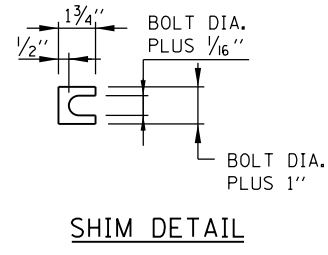


GENERAL NOTES

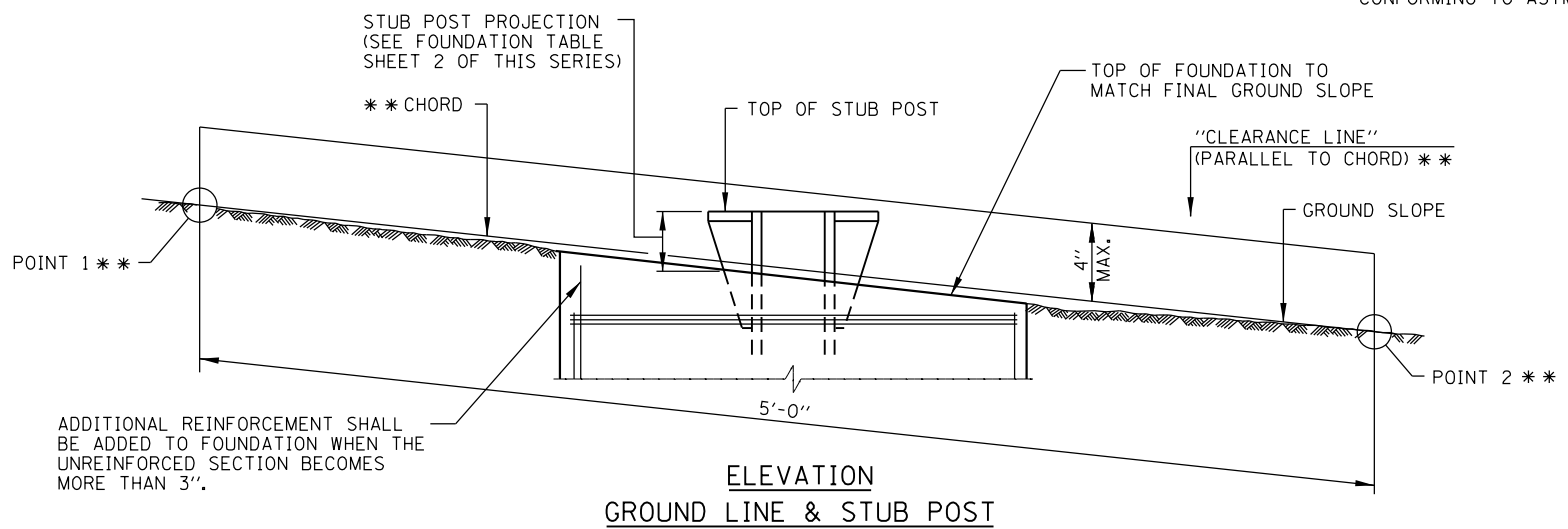
- DESIGN:** THE LATEST EDITION OF THE "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRE AND TRAFFIC SIGNALS".
- CONSTRUCTION:** STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS.
- LOADING:** FOR 80 MPH WIND VELOCITY PLUS 30% GUST FACTOR NORMAL TO SIGN.
- DESIGN STRESSES:**
STRUCTURAL STEEL - PER AASHTO 20,000 P.S.I.
REINFORCING STEEL - 24,000 P.S.I.
CLASS SI CONCRETE - 1,400 P.S.I.
- FOUNDATION:**
MINIMUM UNCONFINED COMPRESSIVE STRENGTH, Q_u FOR ALL LAYERS FOR COHESIVE SOILS (CLAYS) SHALL BE 1.25 TON/SQ.FT.
- WELDING:** ALL WELDING TO BE CONTINUOUS UNLESS OTHERWISE SHOWN. ALL WELDING TO BE DONE IN ACCORDANCE WITH CURRENT AWS SPECIFICATIONS, AND STANDARD SPECIFICATIONS.
- MATERIALS:** ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 AND LRFD SPECIFICATIONS.
- ALL HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO STANDARD SPECIFICATIONS.
- HIGH STRENGTH STEEL BOLTS, NUTS AND HARDENED WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232.
- HIGH STRENGTH BOLTS IN BASE PLATES SHALL BE TIGHTENED TO THE TORQUE SHOWN ON SHEET 2 IN THIS SERIES.
- AFTER FABRICATION, THE POST, FUSE PLATE, BASE PLATE AND UPPER 6" OF STUB POST SHALL BE HOT-DIP GALVANIZED ACCORDING TO ASTM M111, EXCEPT AS NOTED UNDER FABRICATOR NOTES.



SEE SHEET 2 IN THIS SERIES FOR DIMENSIONS



FURNISH 2-.012" THICK AND 2-.032" THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK CONFORMING TO ASTM B36.



ADDITIONAL REINFORCEMENT SHALL BE ADDED TO FOUNDATION WHEN THE UNREINFORCED SECTION BECOMES MORE THAN 3".

** FOR ALL "POINT 1" AND "POINT 2" LOCATIONS, "CLEARANCE LINE" MUST BE AT OR ABOVE TOP OF STUB POST.

APPROVED... DATE 1-1-2010...
Paul Kovacs
CHIEF ENGINEER

DATE	REVISIONS
2-7-2012	ADDED STUB POST CLEARANCE DIMENSIONS, REVISED SIGN INSTALLATION CLEARANCE DIMENSIONS
11-1-2012	REVISED NOTES, MODIFIED SLOPE REQUIREMENTS FOR BREAKAWAY SUPPORTS
3-01-2019	CLARIFIED DESIGN STRESS FOR SOIL PRESSURE



BREAKAWAY SIGN SUPPORT DETAILS

STANDARD F9-05

POST	FOUNDATION TABLE											BASE CONNECTION DATA TABLE												
	FOUNDATION			REINFORCEMENT					STUB POST			BOLT SIZE AND TORQUE	A	B	C	D	E	T1	T2	W	R			
	DIA.	MIN. DEPTH	CY.* CONC.	VERTICAL BARS NO.	VERTICAL BARS SIZE	VERTICAL BARS LGTH.	BAR SPIRALS SIZE	BAR SPIRALS O.D.	BAR SPIRALS LGTH.	LBS.**	STUB LGTH.											STUB PROJECTION	LBS.***	
W6x9	2'-0"	6'-0"	.70	8	#5	5'-9"	#3	20 1/2"	79'	78	2'-3"	3"	44	5/8" Ø x 3 1/4" LG. TORQUE = 450" #	6"	2 1/4"	1 1/4"	3 1/2"	1 1/4"	3/4"	1/2"	1/4"	11/32"	
W6x15	2'-0"	6'-0"	.70	8	#5	5'-9"	#3	20 1/2"	79'	78	2'-6"	3"	71											
W8x18	2'-0"	6'-0"	.70	8	#5	5'-9"	#3	20 1/2"	79'	78	2'-6"	3"	85	3/4" Ø x 3 3/4" LG. TORQUE = 750" #	6"	2 1/2"	1 3/8"	3 1/4"	1 3/8"	1"	1/2"	5/16"	11/32"	
W10x22	2'-6"	6'-6"	1.18	8	#5	6'-3"	#3	26 1/2"	105'	92	3'-0"	2 1/2"	110											
W10x26	2'-6"	7'-0"	1.27	8	#5	6'-9"	#3	26 1/2"	112'	98	3'-0"	2 1/2"	137											
W12x26	2'-6"	7'-9"	1.41	8	#5	7'-6"	#3	26 1/2"	119'	107	3'-0"	2 1/2"	140	7/8" Ø x 4" LG. TORQUE = 950" #	7"	2 3/4"	1 1/2"	4"	1 1/2"	1"	3/4"	3/8"	15/32"	
W14x30	3'-0"	7'-3"	1.90	8	#5	7'-0"	#3	32 1/2"	145'	113	3'-0"	2 1/2"	150											
W14x38	3'-0"	8'-0"	2.09	8	#5	7'-9"	#3	32 1/2"	153'	122	3'-6"	2 1/2"	208	1" Ø x 4 1/2" LG. TORQUE = 1100" #	7 1/2"	3"	1 3/4"	4"	1 3/4"	1 1/4"	3/4"	3/8"	11/32"	
W16x45	3'-0"	8'-6"	2.23	8	#5	8'-3"	#3	32 1/2"	162'	130	3'-6"	2 1/2"	233											

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

1. ASSEMBLE POST TO STUB WITH H.S. BOLTS AND ONE OF THE THREE FLAT WASHERS ON EACH BOLT BETWEEN PLATES AS SHOWN.
2. SHIMS MAY BE USED BETWEEN PLATES TO LEVEL POST.
3. TIGHTEN BOLTS IN BASE PLATE IN A SYSTEMATIC ORDER TO THE REQUIRED TORQUE.
4. LOOSEN EACH BOLT AND RETIGHTEN TO THE REQUIRED TORQUE IN SAME ORDER AS INITIAL TIGHTENING.
5. BURR OR CENTER PUNCH THREADS AT JUNCTURE OF BOLT AND NUT TO PREVENT NUT FROM LOOSENING.

- * QUANTITY OF CLASS SI CONCRETE CONSISTS OF ALL CONCRETE NECESSARY FOR ONE FOUNDATION. (CUBIC YARDS)
- ** THIS INCLUDES REINFORCEMENT BARS AND SPIRAL HOOPING REQUIRED FOR ONE FOUNDATION.
- *** INCLUDES WEIGHT OF STUB POST WITH ANGLES, GUSSETS, BASE PLATES, BOLTS, NUTS, WASHERS, PLUS BASE PLATES AND GUSSETS ON MAIN POST, PLUS FUSE PLATE (IF ANY) WITH BOLTS, NUTS AND WASHERS. (ONE POST)

EQUIVALENT TORQUE VALUES

- 450" # = 37.5' #
- 750" # = 62.5' #
- 950" # = 79.2' #
- 1100" # = 91.7' #

POST	FUSE PLATE DATA TABLE				FUSE PLATE BOLT SIZE TABLE											
	J	K	L	T3	SIGN DEPTH											
					4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	
W6x9	4"	2 1/4"	7/8"	1/4"	1/2" Ø x 1 1/2"	1/2" Ø x 1 1/2"	1/2" Ø x 1 1/2"	5/8" Ø x 1 3/4"	5/8" Ø x 1 3/4"	5/8" Ø x 1 3/4"	---	---	---	---	---	
W6x15	6"	3 1/2"	1 1/4"	3/8"	1/2" Ø x 1 3/4"	1/2" Ø x 1 3/4"	5/8" Ø x 2"	5/8" Ø x 2"	3/4" Ø x 2"	3/4" Ø x 2"	3/4" Ø x 2"	3/4" Ø x 2"	7/8" Ø x 2"	7/8" Ø x 2"	---	
W8x18	5 1/4"	2 3/4"	1 1/4"	3/8"	1/2" Ø x 1 3/4"	1/2" Ø x 1 3/4"	1/2" Ø x 1 3/4"	5/8" Ø x 2"	5/8" Ø x 2"	3/4" Ø x 2"	3/4" Ø x 2"	3/4" Ø x 2"	7/8" Ø x 2 1/4"	7/8" Ø x 2 1/4"	7/8" Ø x 2 1/4"	7/8" Ø x 2 1/4"
W10x22	5 3/4"	2 3/4"	1 1/2"	1/2"	1/2" Ø x 2"	1/2" Ø x 2"	1/2" Ø x 2"	5/8" Ø x 2"	5/8" Ø x 2"	3/4" Ø x 2 1/4"	3/4" Ø x 2 1/4"	3/4" Ø x 2 1/4"	7/8" Ø x 2 1/4"	7/8" Ø x 2 1/4"	7/8" Ø x 2 1/2"	1" Ø x 2 1/2"
W10x26	5 3/4"	2 3/4"	1 1/2"	5/8"	1/2" Ø x 2"	1/2" Ø x 2"	1/2" Ø x 2"	5/8" Ø x 2 1/4"	5/8" Ø x 2 1/4"	3/4" Ø x 2 1/2"	3/4" Ø x 2 1/2"	3/4" Ø x 2 1/2"	7/8" Ø x 2 1/2"	7/8" Ø x 2 1/2"	1" Ø x 2 3/4"	1" Ø x 2 3/4"
W12x26	6 1/2"	3 1/2"	1 1/2"	5/8"	---	---	---	---	---	5/8" Ø x 2 1/4"	---	---	7/8" Ø x 2 1/2"	7/8" Ø x 2 1/2"	1" Ø x 2 1/2"	1" Ø x 2 1/2"
W14x30	6 3/4"	3 1/2"	1 5/8"	1/2"	1/2" Ø x 2"	1/2" Ø x 2"	1/2" Ø x 2"	1/2" Ø x 2"	1/2" Ø x 2"	5/8" Ø x 2"	5/8" Ø x 2 1/4"	3/4" Ø x 2 1/4"	7/8" Ø x 2 1/4"	7/8" Ø x 2 1/4"	1" Ø x 2 1/2"	1" Ø x 2 1/2"
W14x38	6 3/4"	3 1/2"	1 5/8"	1/2"	---	1/2" Ø x 2"	1/2" Ø x 2"	1/2" Ø x 2"	1/2" Ø x 2"	5/8" Ø x 2 1/4"	5/8" Ø x 2 1/4"	3/4" Ø x 2 1/2"	7/8" Ø x 2 1/2"	7/8" Ø x 2 1/2"	1" Ø x 2 1/2"	1" Ø x 2 1/2"
W16x45	7"	3 1/2"	1 3/4"	1/2"	---	---	---	1/2" Ø x 2"	1/2" Ø x 2"	5/8" Ø x 2 1/4"	5/8" Ø x 2 1/4"	3/4" Ø x 2 1/2"	7/8" Ø x 2 1/2"	7/8" Ø x 2 1/2"	1" Ø x 2 1/2"	1" Ø x 2 1/2"

POST	FUSE PLATE DATA TABLE				FUSE PLATE BOLT SIZE TABLE											
	J	K	L	T3	SIGN DEPTH											
					15'	16'	17'	18'	19'	20'	21'	22'	23'	24'	---	
W6x9	4"	2 1/4"	7/8"	1/4"	---	---	---	---	---	---	---	---	---	---	---	---
W6x15	6"	3 1/2"	1 1/4"	3/8"	---	---	---	---	---	---	---	---	---	---	---	---
W8x18	5 1/4"	2 3/4"	1 1/4"	3/8"	7/8" Ø x 2 1/4"	7/8" Ø x 2 1/4"	---	---	---	---	---	---	---	---	---	---
W10x22	5 3/4"	2 3/4"	1 1/2"	1/2"	1" Ø x 2 3/4"	1" Ø x 2 3/4"	1" Ø x 2 3/4"	1" Ø x 2 3/4"	1" Ø x 2 3/4"	1" Ø x 2 3/4"	---	---	---	---	---	---
W10x26	5 3/4"	2 3/4"	1 1/2"	5/8"	1" Ø x 2 3/4"	1 1/8" Ø x 3"	1 1/8" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	---
W12x26	6 1/2"	3 1/2"	1 1/2"	5/8"	1" Ø x 2 3/4"	1" Ø x 2 3/4"	1 1/8" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	---
W14x30	6 3/4"	3 1/2"	1 5/8"	1/2"	1" Ø x 2 3/4"	1" Ø x 2 3/4"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	---
W14x38	6 3/4"	3 1/2"	1 5/8"	1/2"	1" Ø x 2 1/2"	1" Ø x 2 3/4"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	---
W16x45	7"	3 1/2"	1 3/4"	1/2"	7/8" Ø x 2 1/2"	1" Ø x 2 3/4"	1" Ø x 2 3/4"	1 1/8" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	1 1/4" Ø x 3"	---

PROCEDURE FOR FUSE PLATE BOLT TIGHTENING:

ALL FRICTION FUSE BOLTS SHALL BE TIGHTENED IN THE SHOP AS APPROVED BY THE ENGINEER ACCORDING TO ONE OF THE FOLLOWING METHODS:

1. TURN-OF-NUT TIGHTENING,
2. TIGHTENING BY USE OF A DIRECT TENSION INDICATOR.

THE ABOVE METHODS OF INSTALLATION AND TIGHTENING SHALL CONFORM TO THE LATEST ISSUE OF THE SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A-325 OR A-490 BOLTS, FOR SLIP-CRITICAL CONNECTIONS AS ISSUED BY THE RESEARCH COUNCIL ON RIVETED AND BOLTED STRUCTURAL JOINTS OF THE ENGINEERING FOUNDATION.

TIGHTENING SHALL BE TO SUCH A DEGREE AS TO OBTAIN THE FOLLOWING MINIMUM RESIDUAL TENSION IN EACH BOLT.

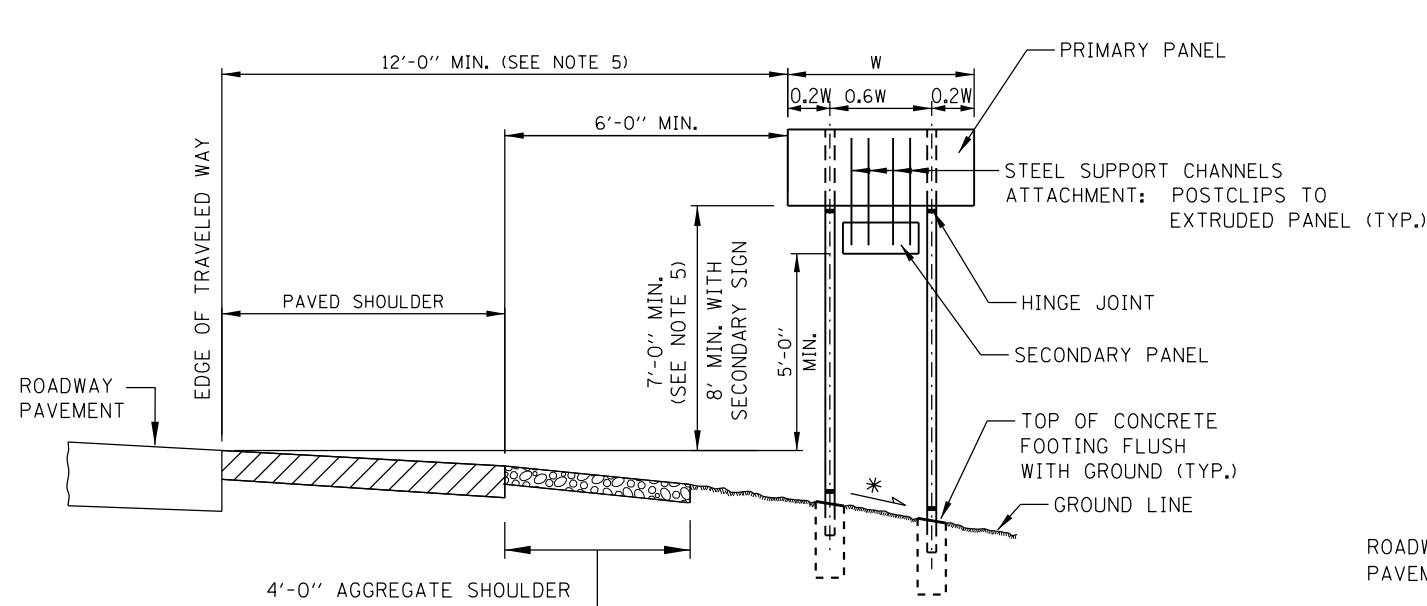
BOLT DIA.	MIN. RESIDUAL BOLT TENSION	BOLT DIA.	MIN. RESIDUAL BOLT TENSION	BOLT DIA.	MIN. RESIDUAL BOLT TENSION
1/2"	12,050	7/8"	39,250	1 1/4"	71,700
5/8"	19,200	1"	51,500		
3/4"	28,400	1 1/8"	56,450		



BREAKAWAY SIGN SUPPORT DETAILS

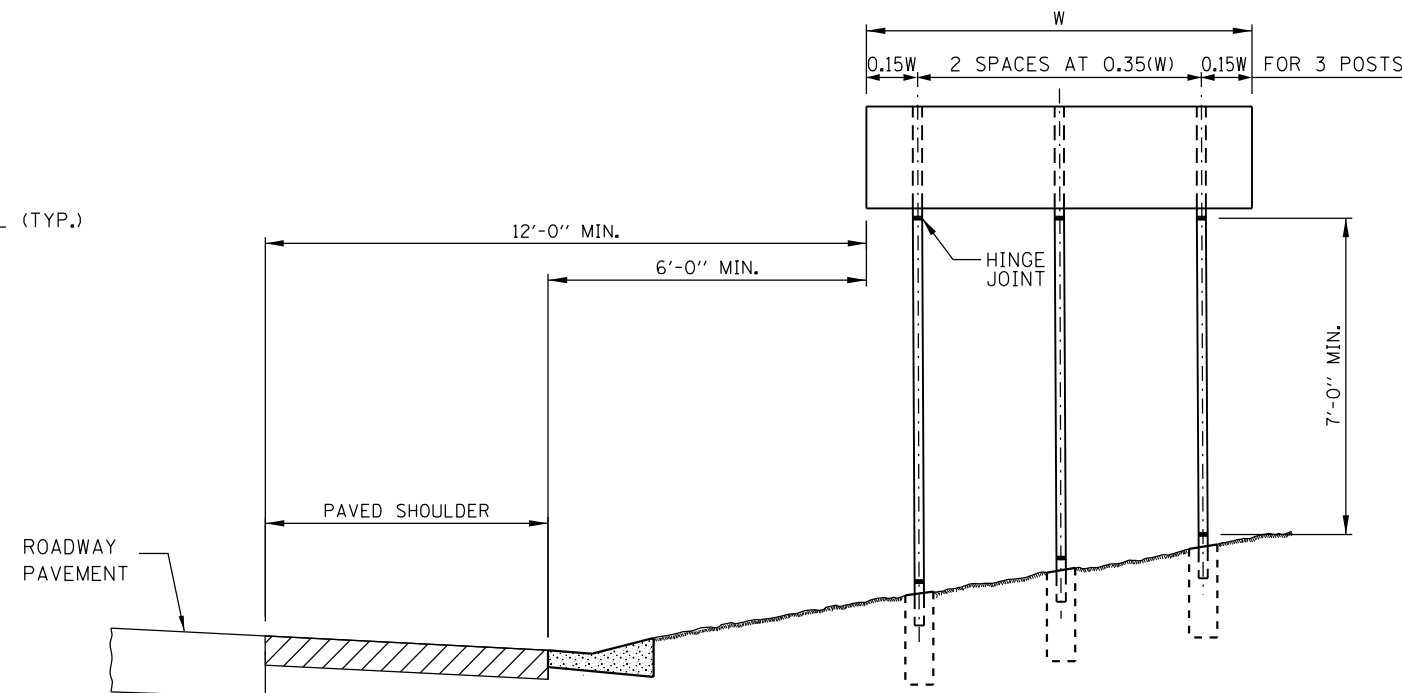
STANDARD F9-05

APPROVED: *Paul Kovacs* DATE 1-1-2010...
 CHIEF ENGINEER

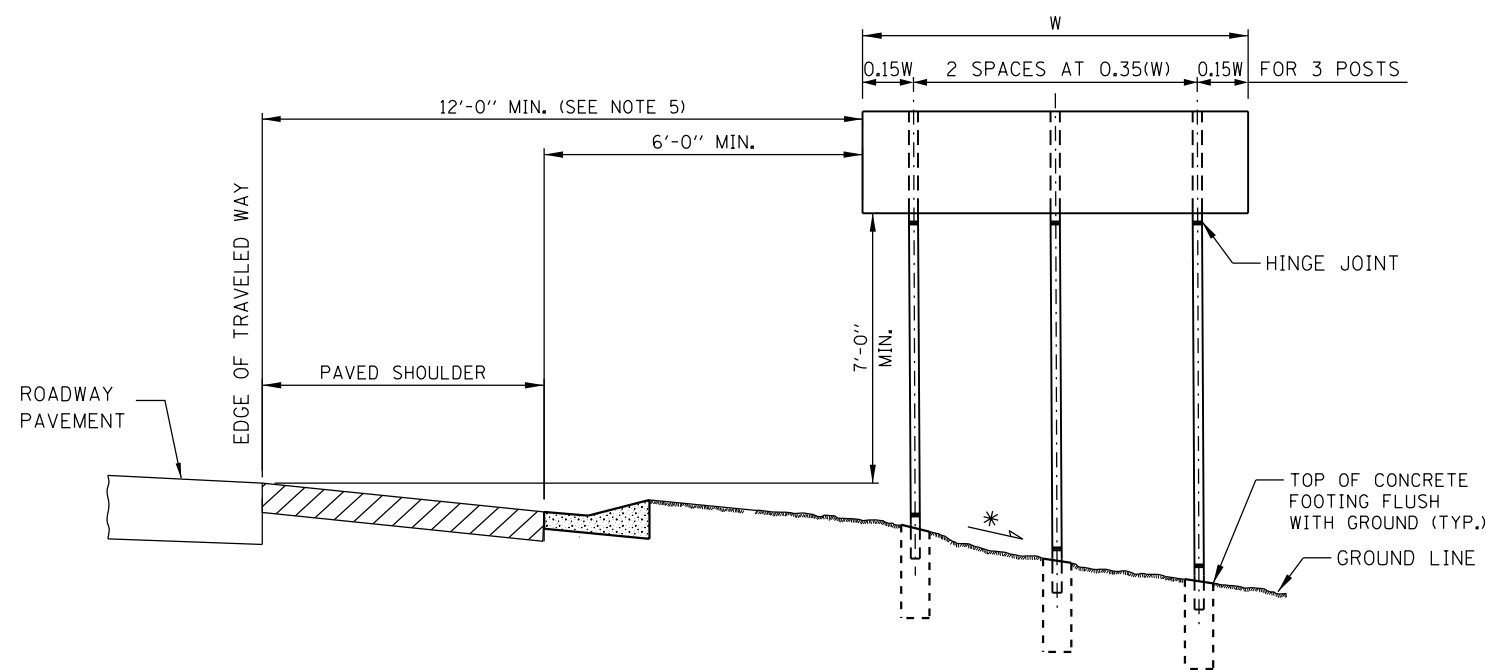


CONDITION 1 - SIGN INSTALLATION

(*) FORESLOPE 1:6 (V:H) OR FLATTER



CONDITION 3 - SIGN INSTALLATION



CONDITION 2 - SIGN INSTALLATION

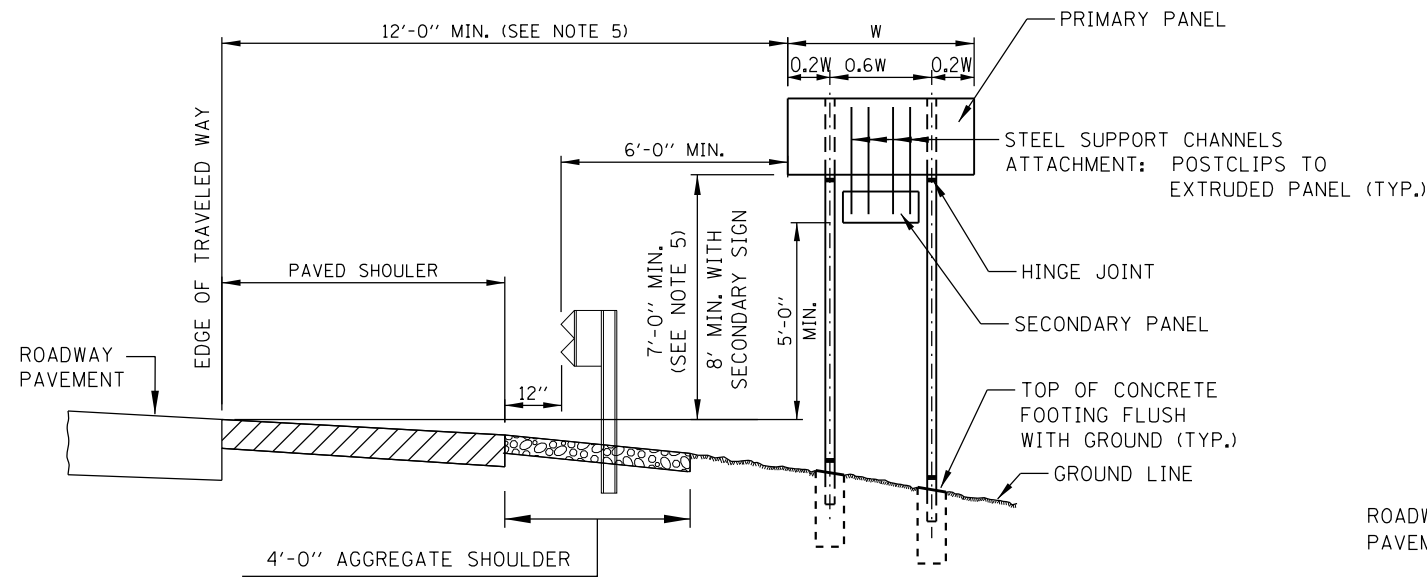
(*) FORESLOPE 1:6 (V:H) OR FLATTER

NOTES:

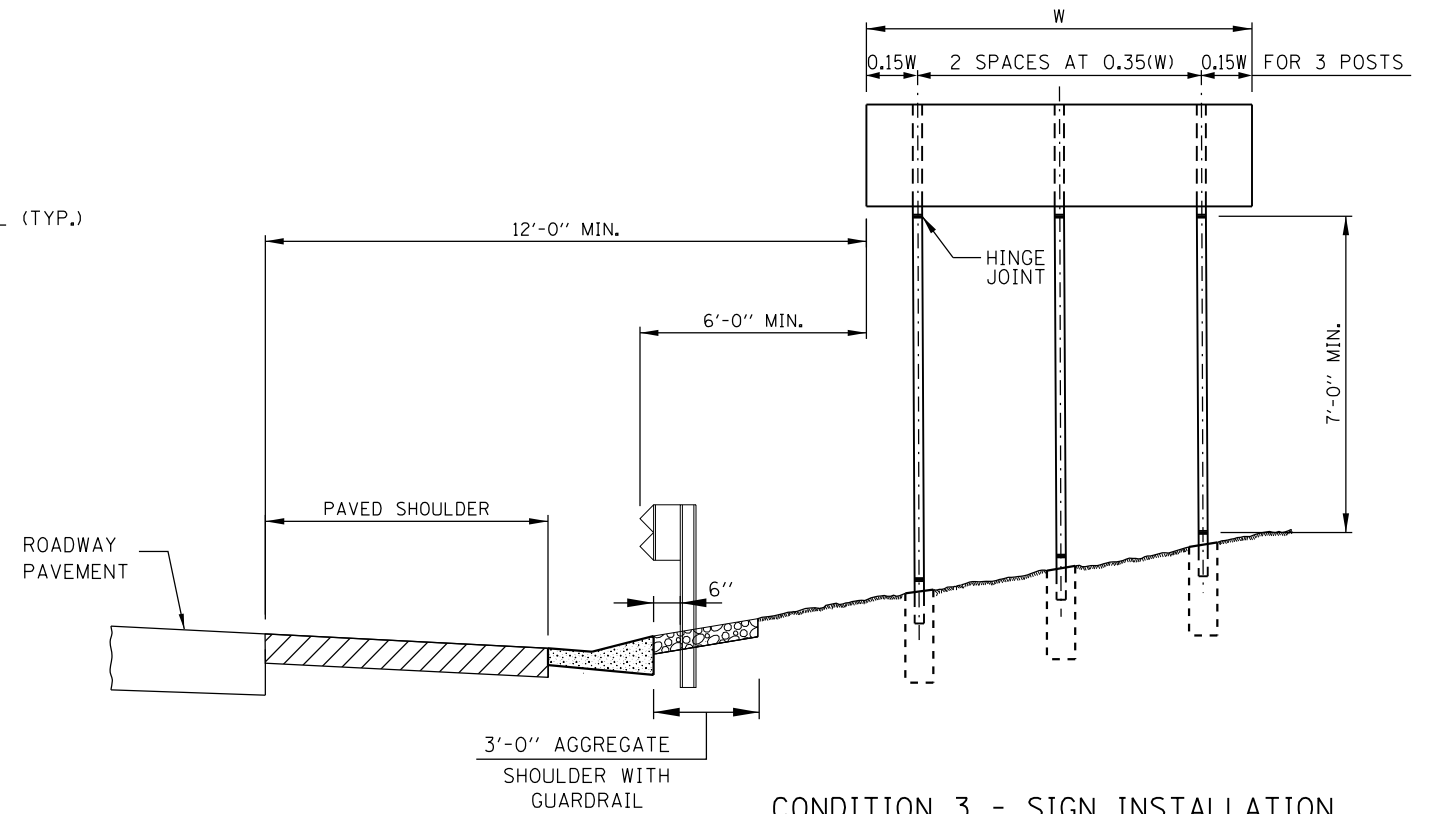
1. SEE SIGN INSTALLATION SCHEDULE IN CONTRACT PLANS FOR DIMENSIONS.
2. THE DIMENSIONS OF ALL POSTS FOR GROUND MOUNTED SIGNS ARE BASED ON DESIGN CROSS SECTIONS. THE CONTRACTOR SHALL VERIFY REQUIRED POST LENGTHS IN THE FIELD, PRIOR TO SUBMITTING SHOP DRAWINGS AND POST FABRICATION TO MAINTAIN THE CLEARANCES SHOWN.
3. SIGN FOUNDATION ELEVATIONS TO BE BASED ON FINISHED SLOPES.
4. ANY ADDITIONAL SIGN TO BE ADDED LATER MUST BE SUPPORTED BY THE EXISTING SIGN PANEL AND NOT THE SIGN POST. MINIMUM CLEARANCES SHALL BE MAINTAINED.
5. SIGNS THAT ARE PLACED WELL OUTSIDE THE CLEAR ZONE MAY BE INSTALLED WITH A MINIMUM HEIGHT OF 5 FEET, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE HORIZONTAL ELEVATION OF THE NEAR EDGE OF TRAVELED ROADWAY.
6. MINIMUM HEIGHT OF LOWEST POST SHALL BE 7'-0" MEASURED BETWEEN STUB PROJECTION AND HINGE JOINT.
7. FOR TWO POSTS SPACED LESS THAN 7 FEET APART, EACH POST SHALL HAVE A MASS LESS THAN 18 lb/ft.
8. WHEN THE TOTAL COMBINED WEIGHT OF THE TWO POSTS LOCATED WITHIN 7 FEET OF EACH OTHER EXCEEDS 600 lbs., THE SIGN SHALL BE PLACED WELL OUTSIDE THE CLEAR ZONE OR BE SHIELDED FROM VEHICULAR IMPACT.

UNSHIELDED SLOPE

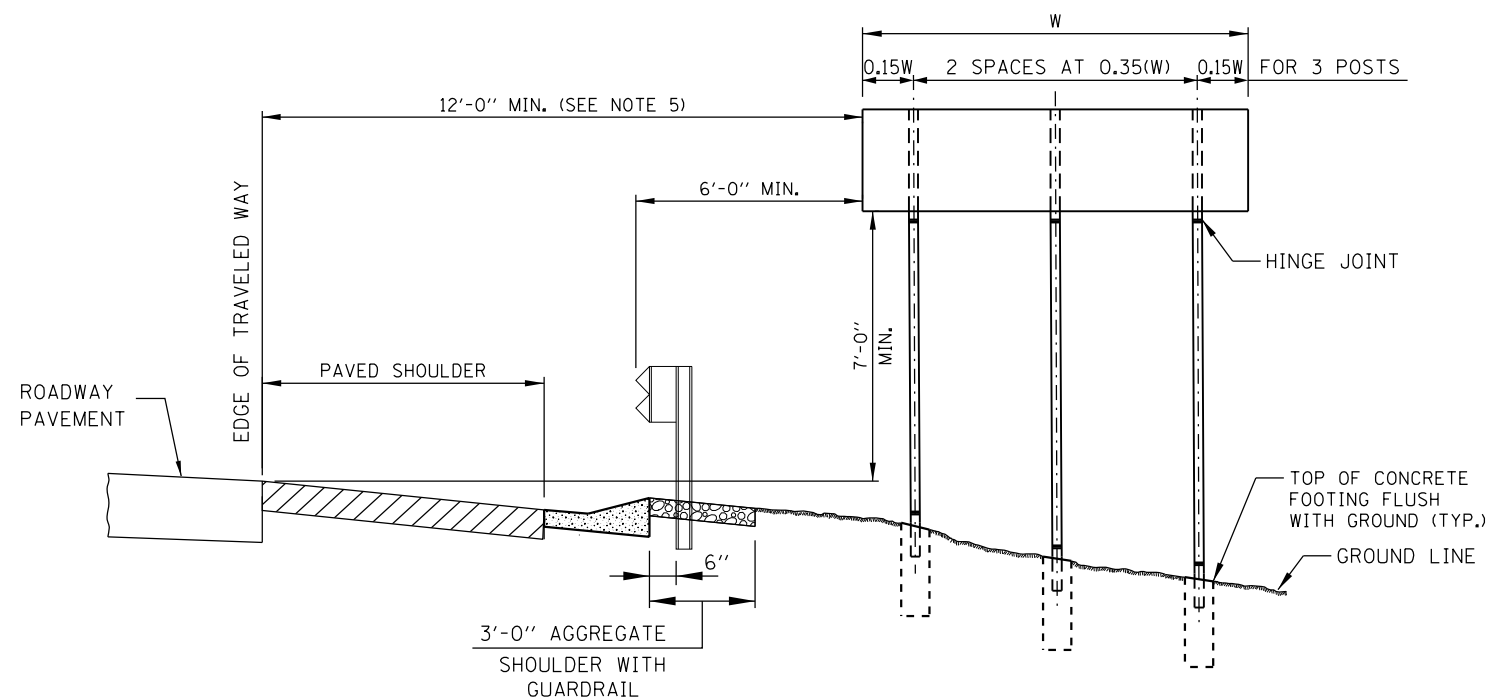




CONDITION 1 - SIGN INSTALLATION



CONDITION 3 - SIGN INSTALLATION



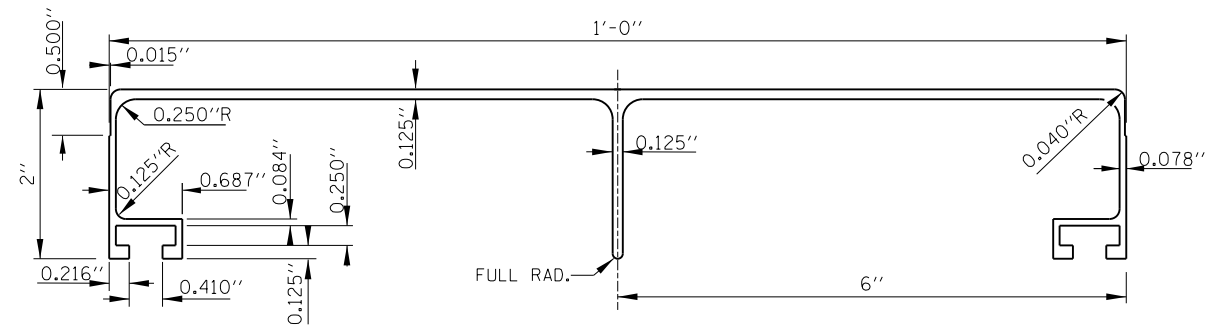
CONDITION 2 - SIGN INSTALLATION

SHIELDED SLOPE

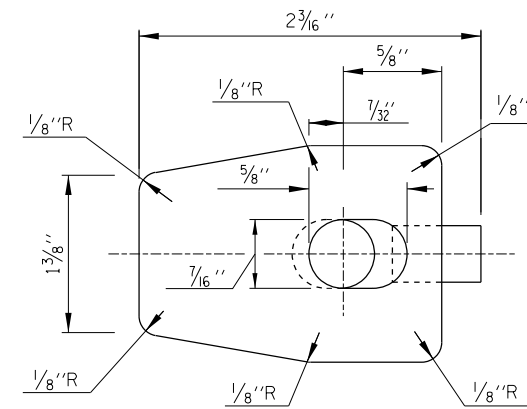
NOTES:

1. SEE SIGN INSTALLATION SCHEDULE IN CONTRACT PLANS FOR DIMENSIONS.
2. THE DIMENSIONS OF ALL POSTS FOR GROUND MOUNTED SIGNS ARE BASED ON DESIGN CROSS SECTIONS. THE CONTRACTOR SHALL VERIFY REQUIRED POST LENGTHS IN THE FIELD, PRIOR TO SUBMITTING SHOP DRAWINGS AND POST FABRICATION TO MAINTAIN THE CLEARANCES SHOWN.
3. SIGN FOUNDATION ELEVATIONS TO BE BASED ON FINISHED SLOPES.
4. ANY ADDITIONAL SIGN TO BE ADDED LATER MUST BE SUPPORTED BY THE EXISTING SIGN PANEL AND NOT THE SIGN POST. MINIMUM CLEARANCES SHALL BE MAINTAINED.
5. SIGNS THAT ARE PLACED WELL OUTSIDE THE CLEAR ZONE MAY BE INSTALLED WITH A MINIMUM HEIGHT OF 5 FEET, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE HORIZONTAL ELEVATION OF THE NEAR EDGE OF TRAVELED ROADWAY.
6. MINIMUM HEIGHT OF LOWEST POST SHALL BE 7'-0" MEASURED BETWEEN STUB PROJECTION AND HINGE JOINT.
7. FOR TWO POSTS SPACED LESS THAN 7 FEET APART, EACH POST SHALL HAVE A MASS LESS THAN 18 lb/ft.
8. WHEN THE TOTAL COMBINED WEIGHT OF THE TWO POSTS LOCATED WITHIN 7 FEET OF EACH OTHER EXCEEDS 600 lbs., THE SIGN SHALL BE PLACED WELL OUTSIDE THE CLEAR ZONE OR BE SHIELDED FROM VEHICULAR IMPACT.

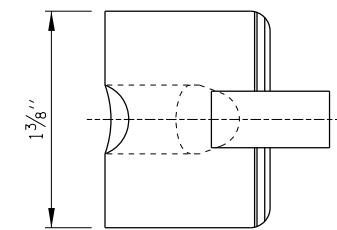




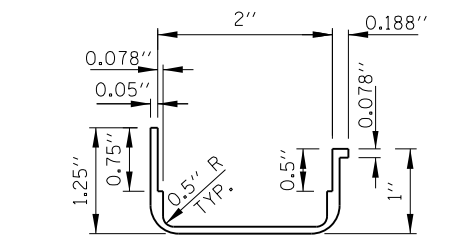
12" PANEL
TYPE B SIGN PANEL EXTRUSIONS



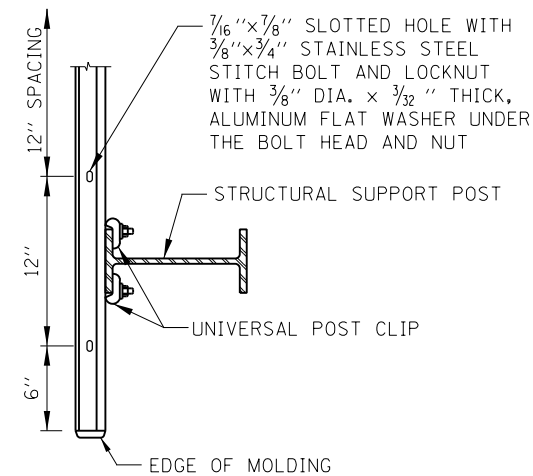
PLAN VIEW



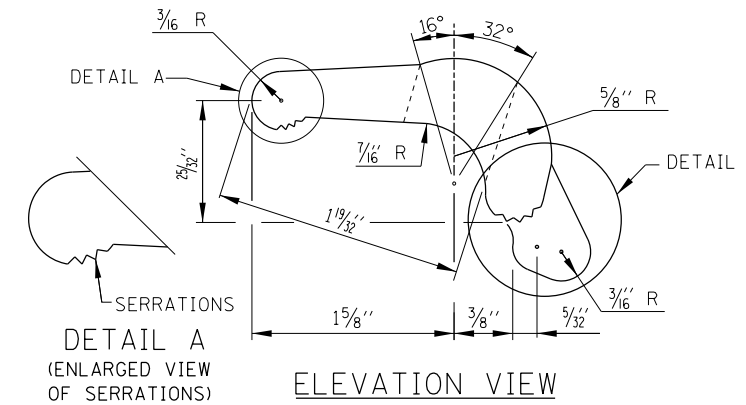
END VIEW



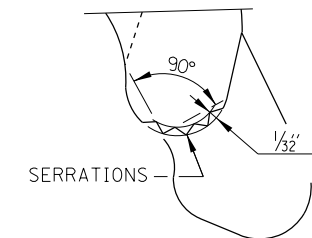
EDGE MOLDING SECTION
FOR SIGN PANEL



SECTION C-C

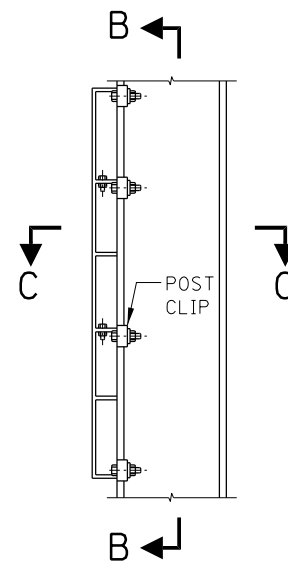


ELEVATION VIEW

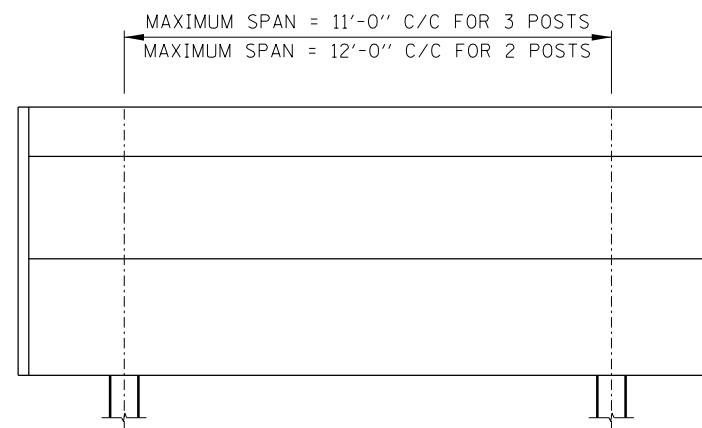


DETAIL B
(ENLARGED DETAIL
OF SERRATIONS)

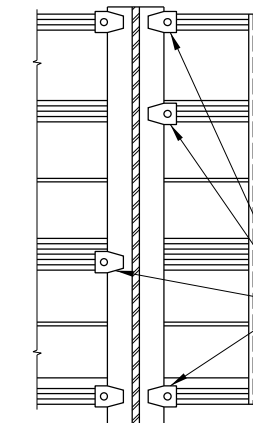
ALUMINUM CLIP DETAIL



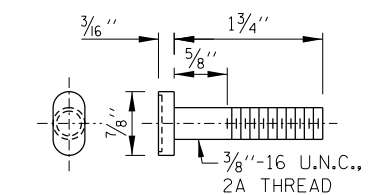
SECTION A-A



FACE OF SIGN PANEL



SECTION B-B



POST CLIP BOLT
STAINLESS STEEL

PROVIDE TWO (2) POST CLIPS AT TOP AND BOTTOM. ALTERNATE INTERIOR POST CLIPS ON SIGNS UNDER 24 FEET LONG AND OVER HEAD MOUNTED SIGNS. DO NOT ALTERNATE INTERIOR CLIPS ON OTHER SIGNS. A 3/8" DIA. x 3/32" THICK, ALUMINUM FLAT WASHER SHALL BE USED UNDER EACH NUT TO PREVENT GOUGING OF THE CLIP.

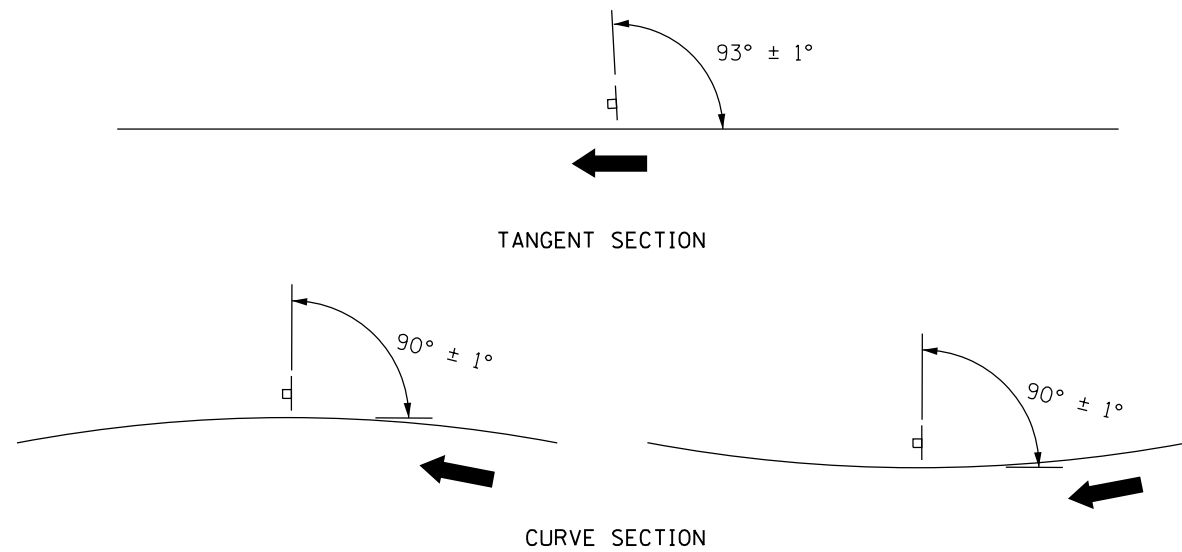


DATE	REVISIONS
1-1-2009	MODIFIED TYPE B SIGN PANEL DIM.
	MODIFIED POST CLIP DETAIL
2-7-2012	REMOVED DETAIL FOR MOUNTING 2 PANEL SIGN
3-11-2015	ADDED WASHERS TO CONNECTION DETAILS

MISCELLANEOUS DETAILS
AND ALUMINUM SIGN PANELS

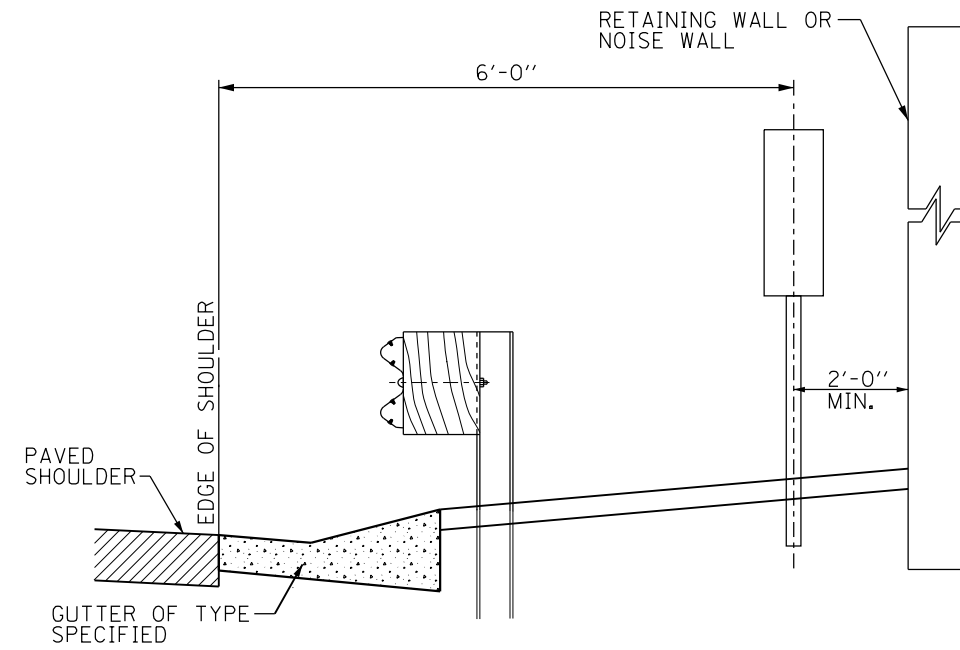
STANDARD F10-03

APPROVED...
Paul Kovacs
CHIEF ENGINEER
DATE 2-7-2012...



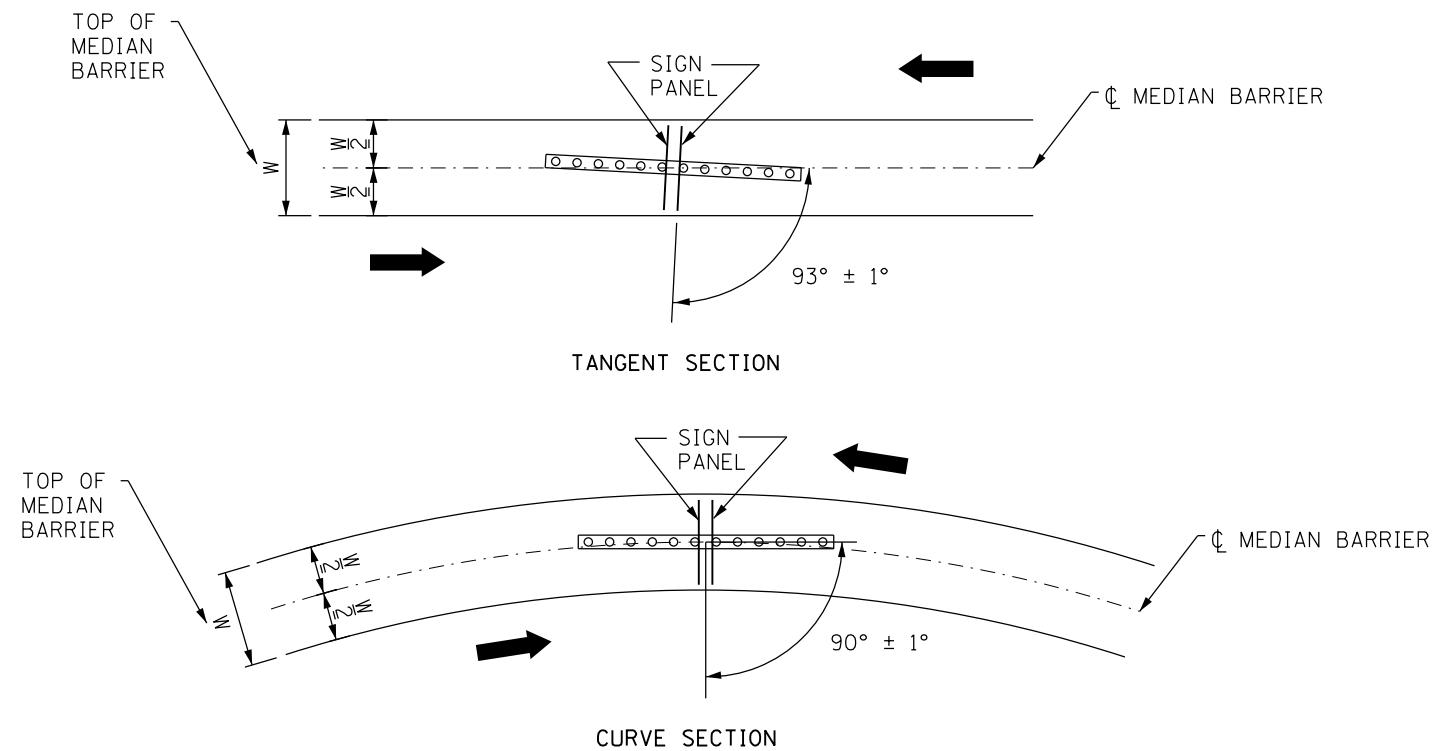
GROUND MOUNT SIGN POSITIONING

NOT TO SCALE



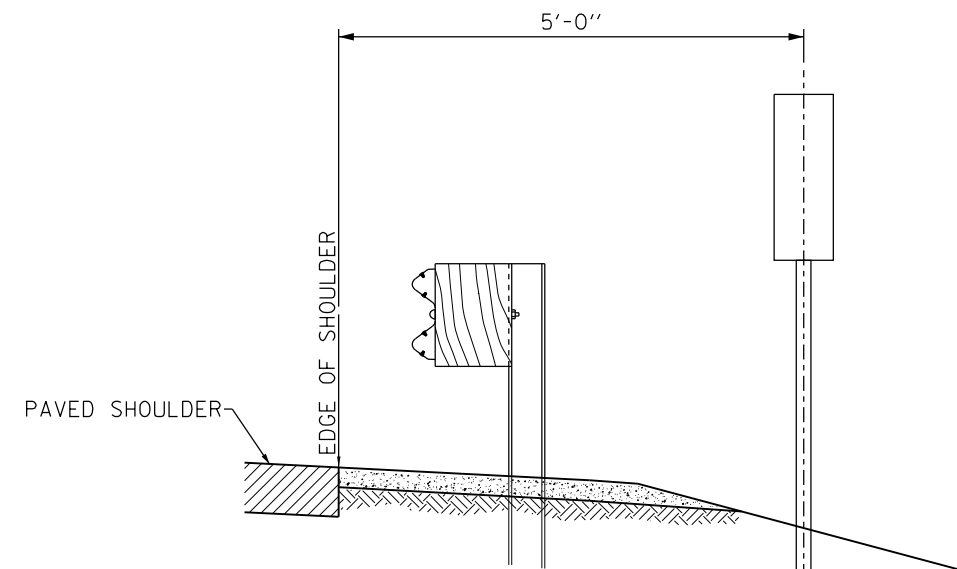
SECTION WITH GUTTER

NOT TO SCALE



MEDIAN BARRIER SIGN POSITIONING

NOT TO SCALE



SECTION WITHOUT GUTTER

NOT TO SCALE

← DIRECTION OF TRAFFIC

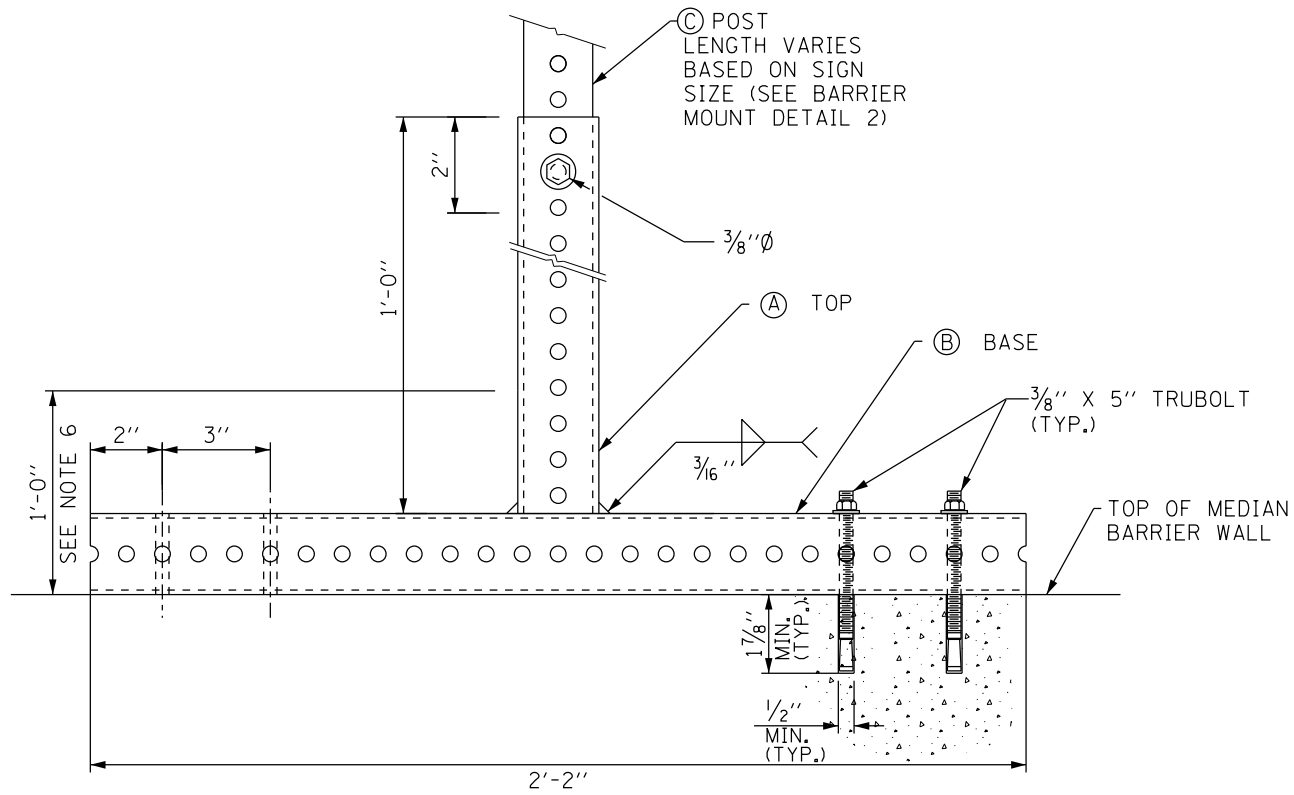


MILEPOST MARKER

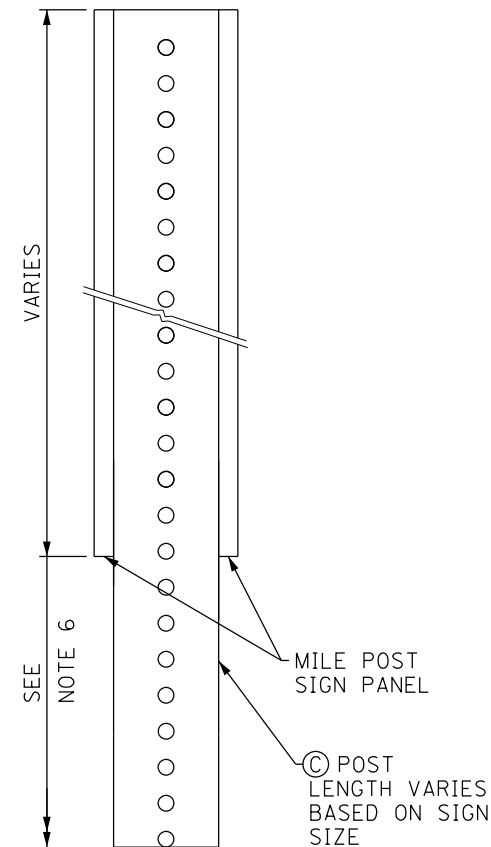
STANDARD F11-05

APPROVED: *Paul Kovacs* CHIEF ENGINEER DATE 4-6-2009

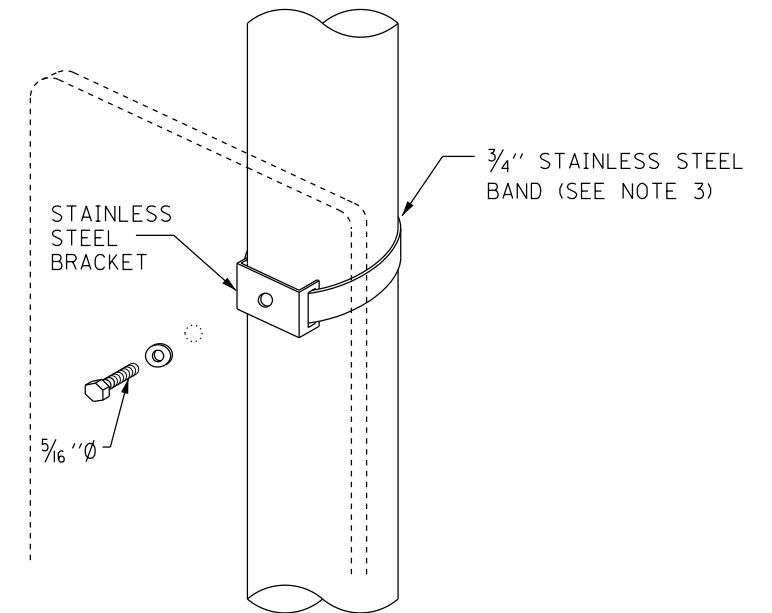
DATE	REVISIONS
5-8-2009	POSITIONING DETAILS
8-1-2009	REVISED BARRIER WALL MOUNT
3-1-2013	REMOVED MILE POST SIGNS
3-31-2016	REVISED BOLT NOTE
3-01-2019	REMOVED "LIGHT POLE/SIGN STRUCTURE MOUNT DETAIL"



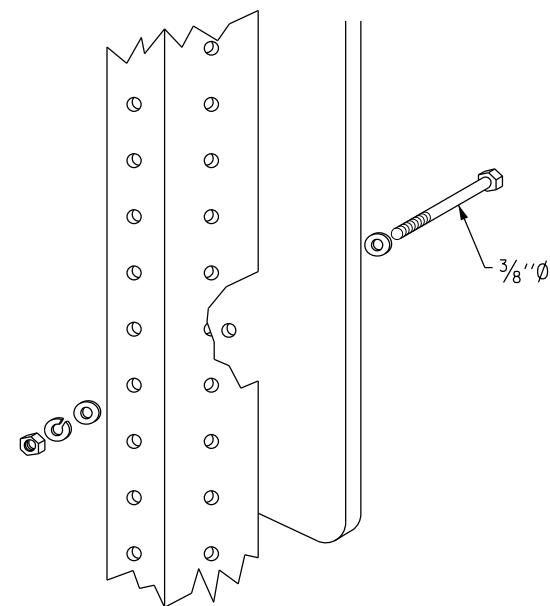
BARRIER MOUNT DETAIL
NOT TO SCALE



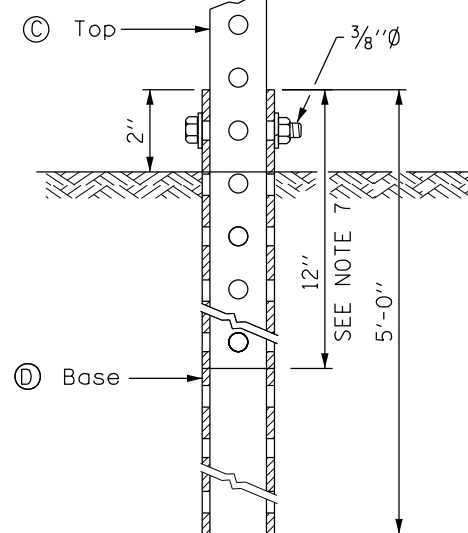
BARRIER MOUNT DETAIL 2
NOT TO SCALE



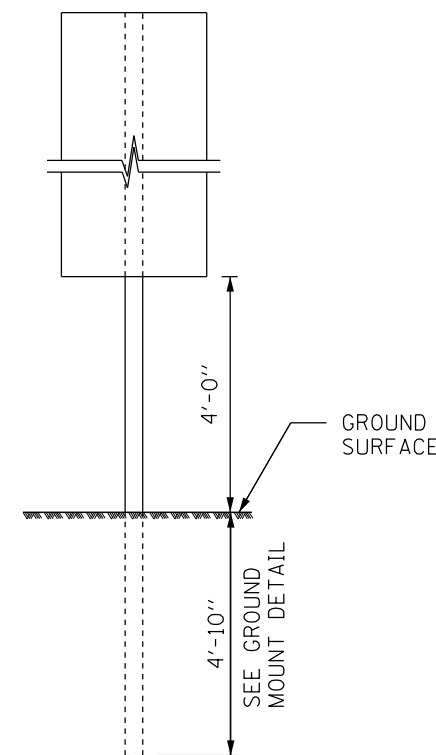
LIGHT POLE/SIGN STRUCTURE MOUNT DETAIL
NOT TO SCALE



TELESCOPING STEEL POSTS
NOT TO SCALE



GROUND MOUNT DETAIL
NOT TO SCALE



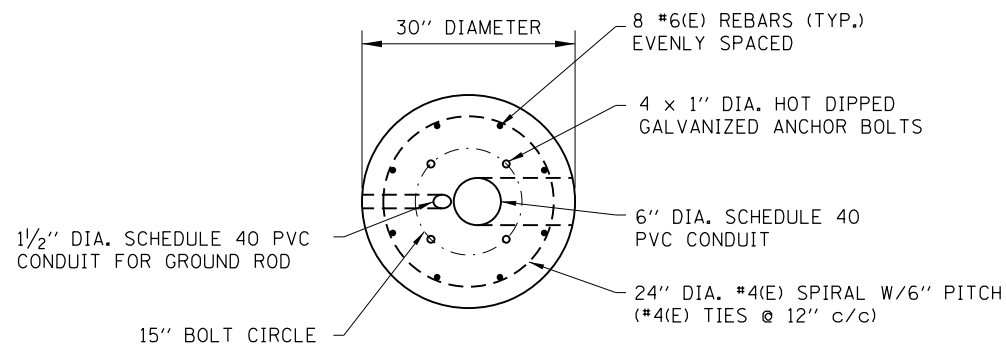
ONE POST INSTALLATION
NOT TO SCALE

GENERAL NOTES:

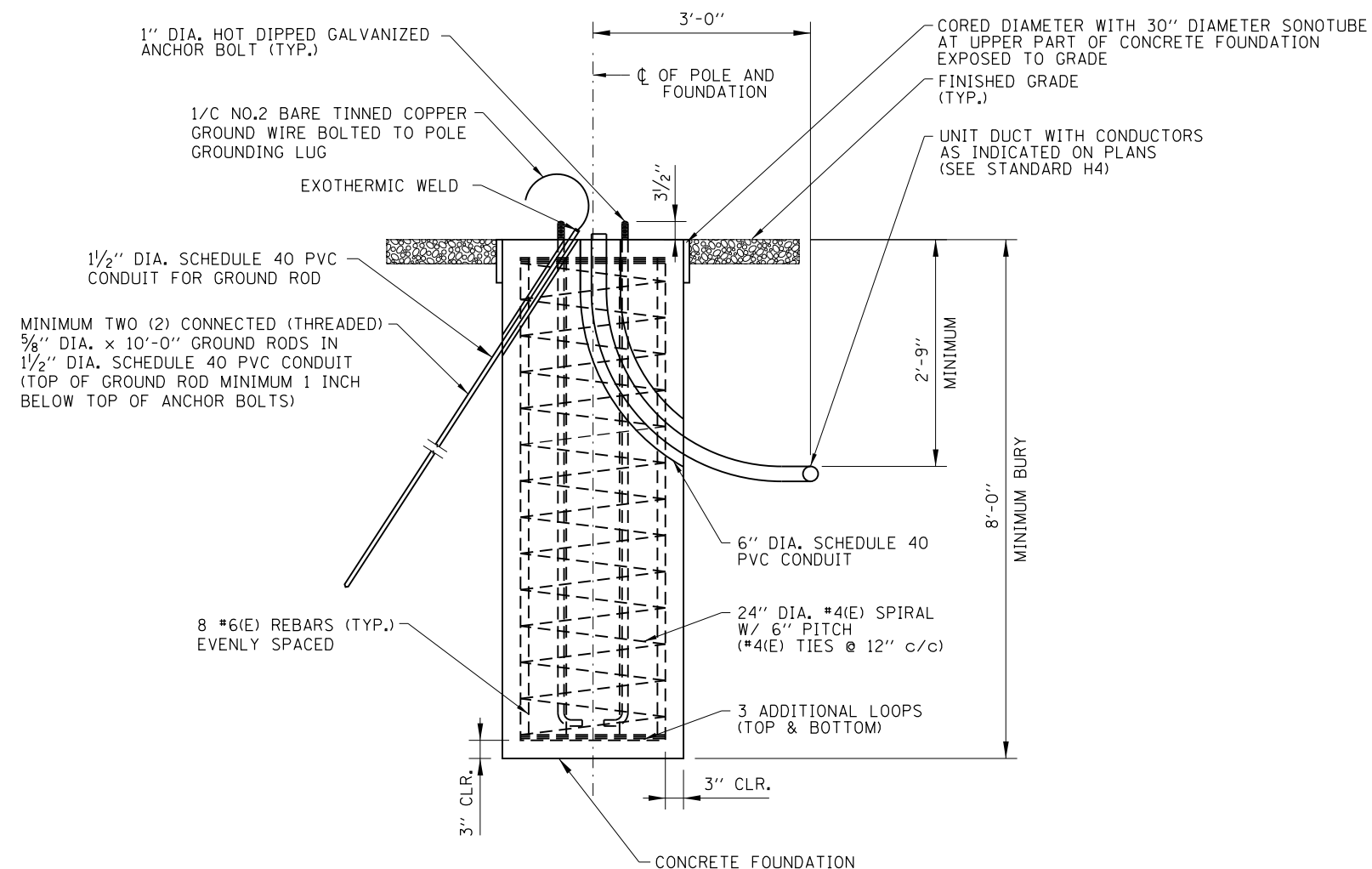
1. ALL ANCHOR BOLTS FOR MEDIAN BARRIER MOUNT DETAIL SHALL BE 3/8" DIA. RED HEAD "TRUBOLT" OR APPROVED EQUAL.
2. ALL DIMENSIONS ARE IN INCHES UNLESS SHOWN OTHERWISE.
3. FOLLOWING ARE THE STEPS FOR FASTENING THE MILEPOST MARKER SIGN PANEL. ALL MOUNTING DETAILS SHOWN ON THIS SHEET APPLY:
 - a. CENTER ALL FASTENERS ON THE SIGN PANEL.
 - b. START AND FINISH THE FASTENER SPACING USING A MINIMUM OF 3" TO A MAXIMUM OF 6" FROM THE TOP AND BOTTOM EDGE OF THE SIGN PANEL.
 - c. THE DISTANCE BETWEEN SUCCESSIVE FASTENERS SHALL NOT EXCEED 2'-0".
4. CENTER THE 5/16" DIA. BOLT IN THE MIDDLE OF THE SIGN.
5. USE THE SAME ATTACHMENT FOR BACK TO BACK MILEPOST MARKER SIGN.
6. DISTANCE FROM THE GROUND TO THE BOTTOM OF THE MILEPOST MARKER SIGN SHALL HAVE A MINIMUM OF 4'-0" REGARDLESS OF BARRIER TYPE.
7. THE TOP SECTION SHALL BE TELESKOPEDED INTO THE BASE SECTION 12 INCHES AND FASTENED TOGETHER.
8. FOR ATTACHMENT TO BRIDGE PARAPET USE BARRIER WALL MOUNT DETAIL. ONLY ONE PANEL REQUIRED WHEN ATTACHED TO PARAPET ALONG OUTSIDE SHOULDER.

(A)	2 1/4" x 2 1/4" x 1'-0" (12 GA.)
(B)	2 1/4" x 2 1/4" x 2'-2" (12 GA.)
(C)	2" x 2" x VARIES (12 GA.)
(D)	2 1/2" x 2 1/2" x 5'-0" (12 GA.)

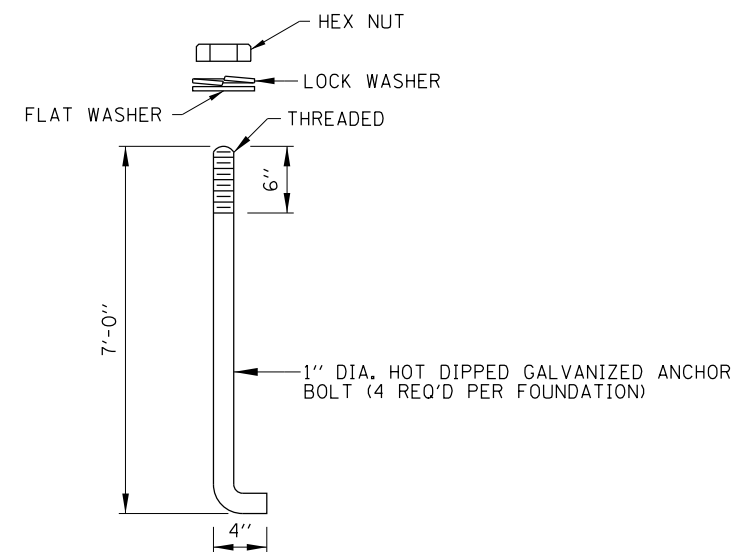




PLAN



ELEVATION



ANCHOR BOLT DETAIL

NOTES:

1. AT LOCATIONS NOT SHIELDED BY GUARDRAIL, THE LIGHT POLE FOUNDATION SHALL BE FLUSH WITH SURROUNDING GRADED ON ALL SIDES. THE SURROUNDING AREA SHALL BE A LEVEL GRADED AREA CONSTRUCTED OF AGGREGATE SHOULDERS WITH FILTER FABRIC, TYPE B, 4".
2. PROVIDE SEEDING, POTASIMUM FERTILIZER NUTRIENT, AND EROSION CONTROL BLANKET AS REQUIRED.
3. THE TOP OF FOUNDATION SHALL BE AT THE SAME ELEVATION AS THE ADJACENT TOP OF GUTTER OR WHEN ADJACENT TO AGGREGATE SHOULDER, AT THE SAME ELEVATION AS THE OUTSIDE EDGE OF THE AGGREGATE SHOULDER SLOPED A MAXIMUM 6% AWAY FROM THE PAVED SHOULDER.
4. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
5. ALL GROUND MOUNTED LIGHT POLES SHALL BE PROVIDED WITH AN ACCEPTED FHWA BREAKAWAY BASE OR DEVICE PER THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS SECTION 1070.
6. FOR DETAILS OF FUSE HOLDER, POLE BASE WIRING AND CONDUCTOR SPLICE SEE STANDARD H2.
7. ALL REINFORCEMENT BARS SHALL BE EPOXY COATED.
8. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
9. FOR ALL MEDIAN BARRIER FOUNDATIONS, THE ANCHOR BOLTS SHALL BE CENTERED AROUND THE MEDIAN BARRIER WALL CENTERLINE.

LIGHT STANDARD FOUNDATION DETAILS - CONCRETE
(GROUND MOUNTED UNITS)

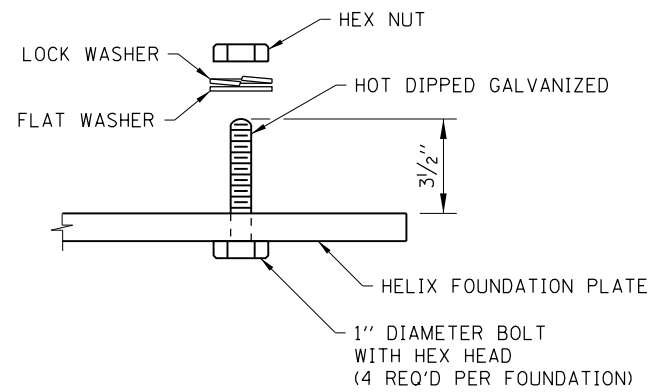
APPROVED: *Paul Kovacs* CHIEF ENGINEERING OFFICER DATE: 2-7-2012

DATE	REVISIONS
11-01-2012	ADDED CONTROLLER NUMBER
3-31-2014	REVISED HELIX FOUNDATION, NEW DETAIL "A", AND GRADED AREA
3-11-2015	MOVED MEDIAN BARRIER MOUNTED FOUNDATION DETAILS.
3-31-2016	ADDED HELIX FOUNDATION DEPTH INFORMATION.
3-31-2017	REVISED MEDIAN FOUNDATION ANCHOR BOLTS.
3-01-2018	INCREASED POLE SETBACK.
3-01-2019	REVISED CONCRETE BARRIER DETAILS. REDUCED SETTING PLATE SIZE.

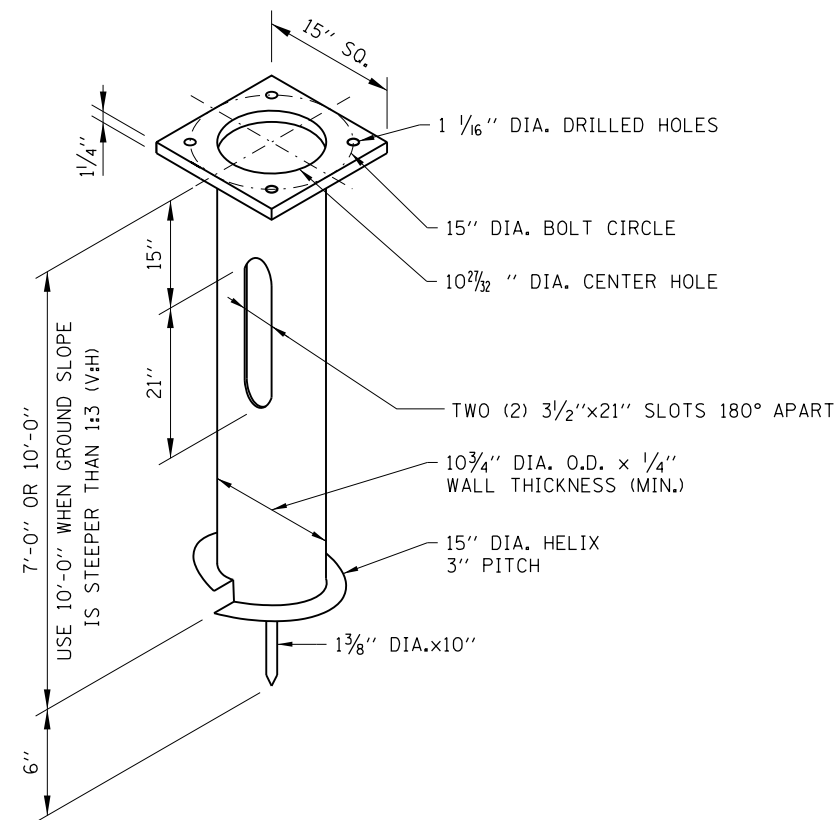


LIGHT STANDARD FOUNDATION

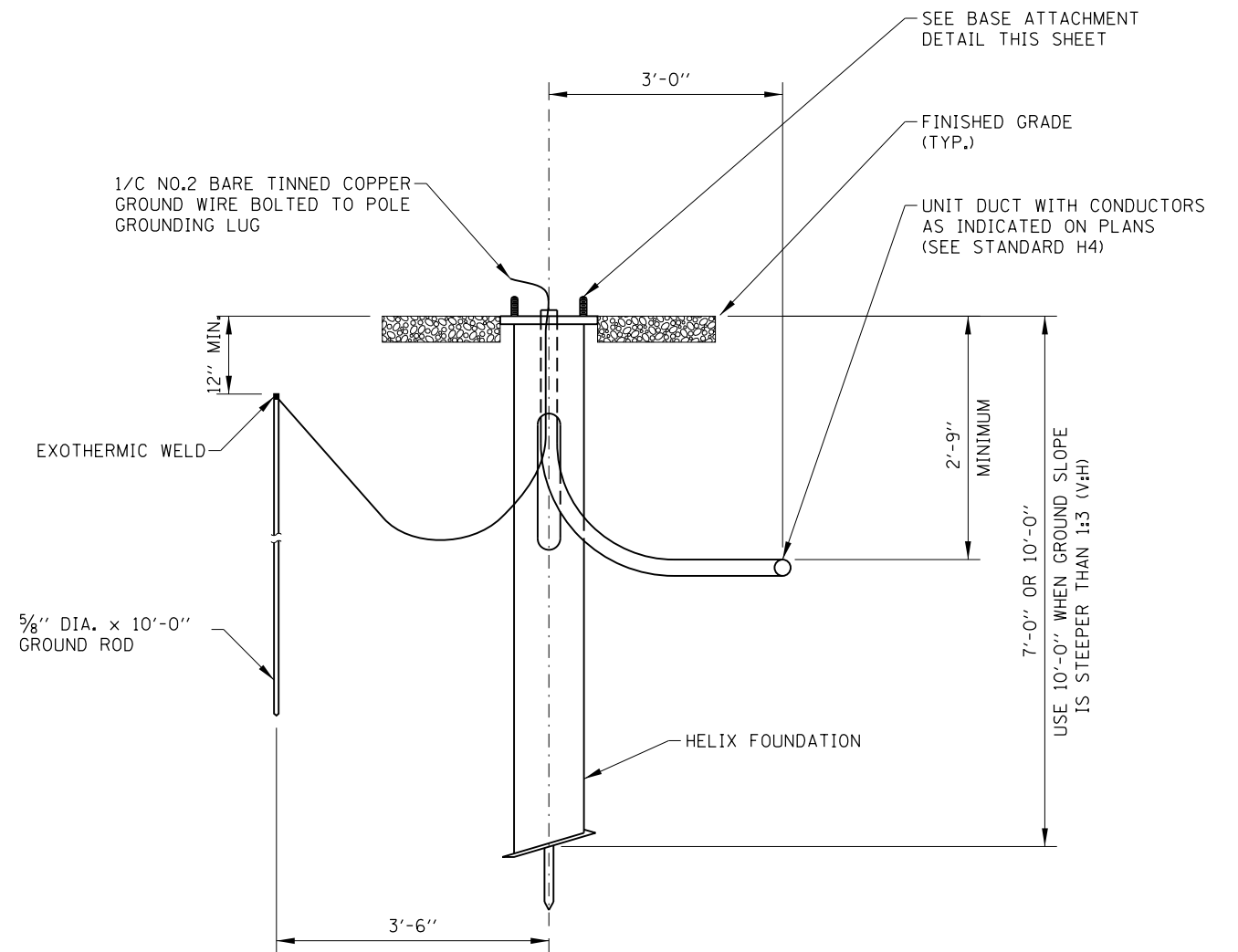
STANDARD H1-08



BASE ATTACHMENT DETAIL



ISOMETRIC



ELEVATION



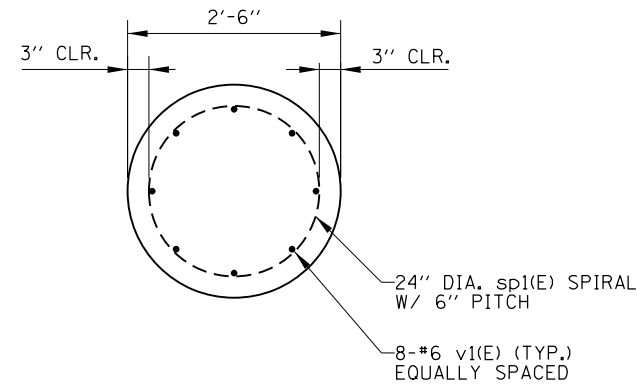
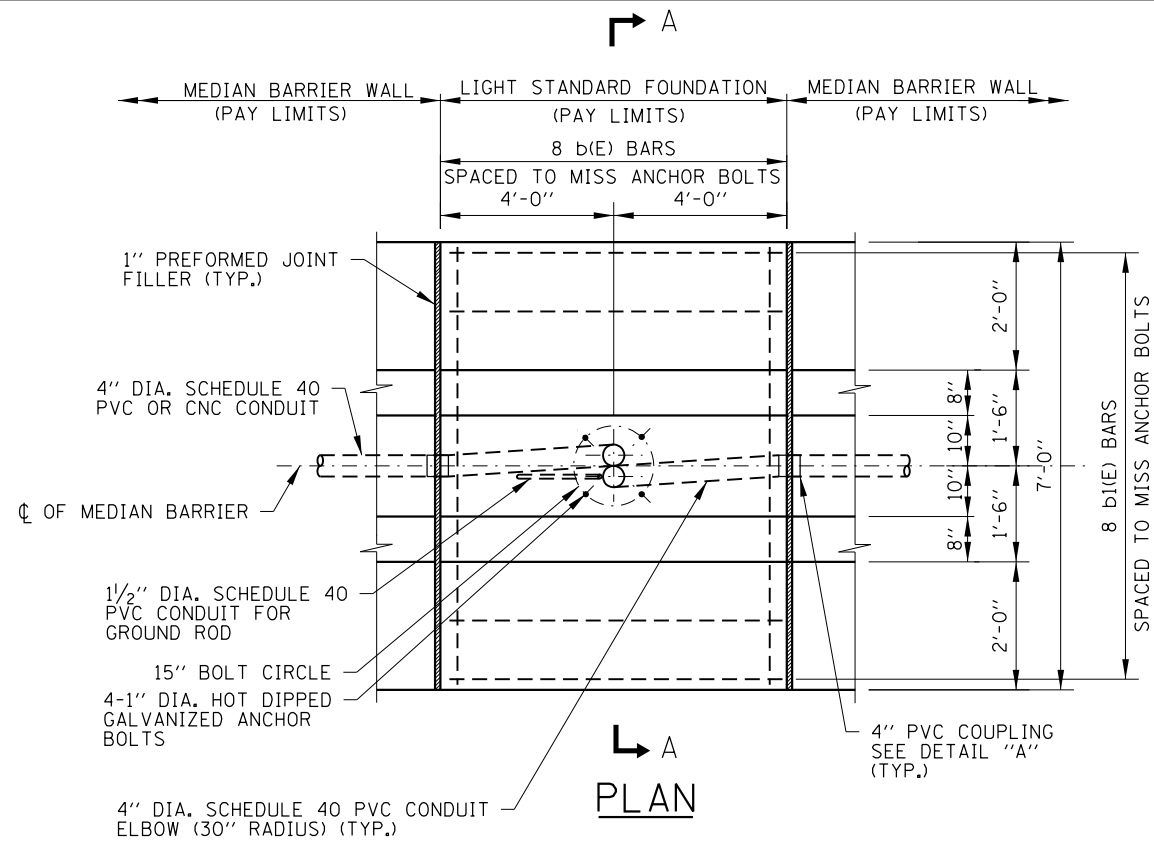
LIGHT STANDARD FOUNDATION

STANDARD H1-08

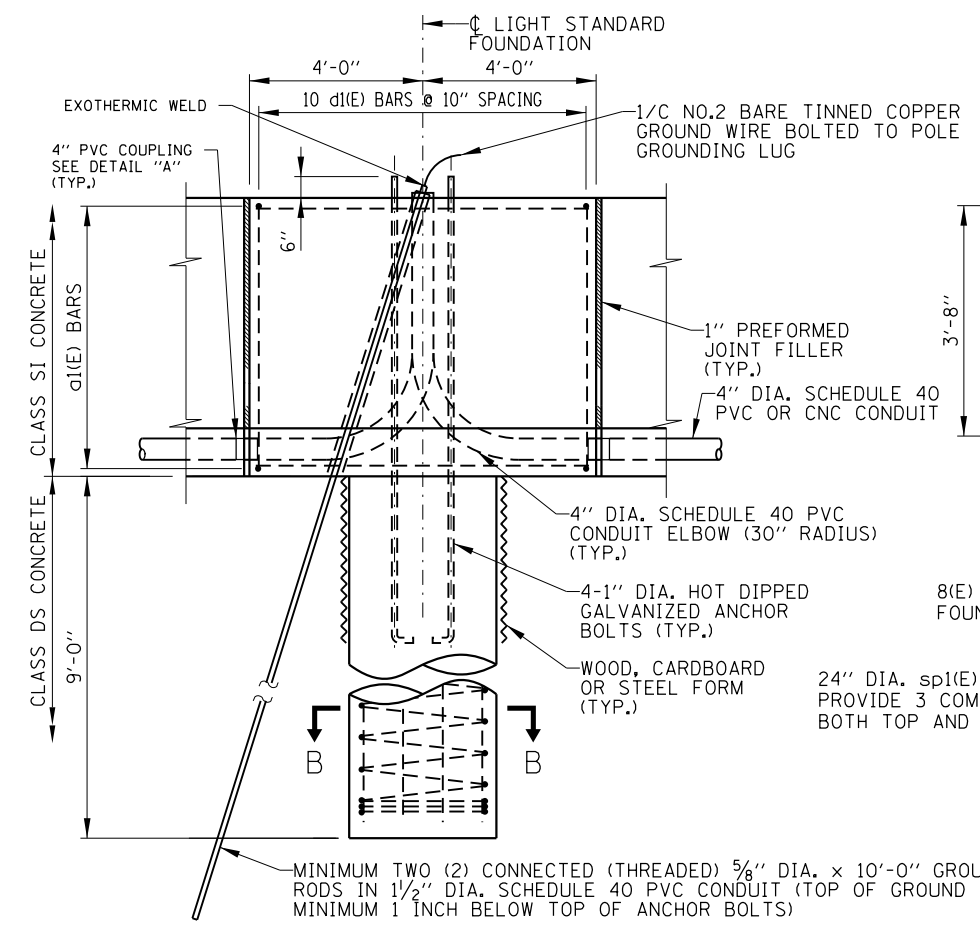
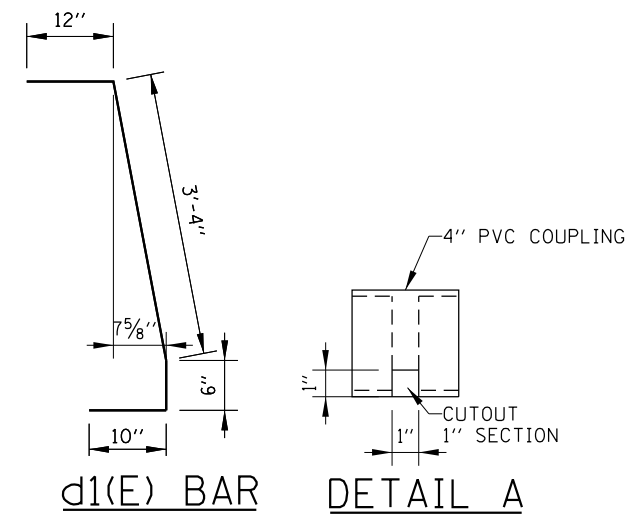
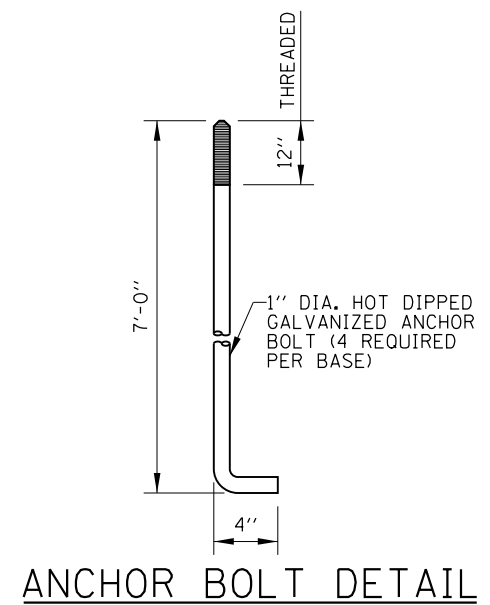
**LIGHT STANDARD FOUNDATION DETAILS - HELIX
(GROUND MOUNTED UNITS)**

NOTES:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

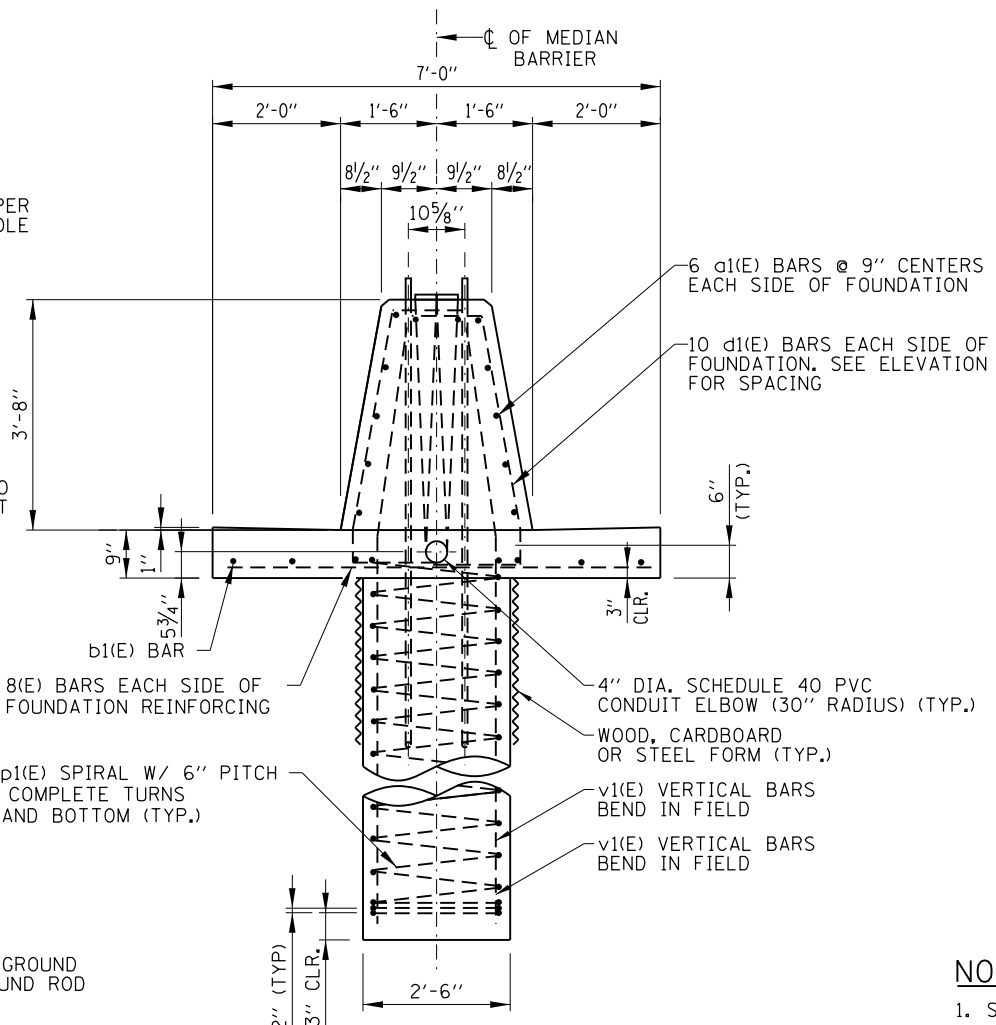
Paul Kovacs
APPROVED, CHIEF ENGINEERING OFFICER
DATE 2-7-2012



SECTION B-B



ELEVATION



SECTION A-A

REINFORCEMENT BARS SCHEDULE					
BAR	NO.	SIZE	LENGTH	WT. LB.	SHAPE
d1(E)	12	#4	7'-6"	60	—
b(E)	8	#4	6'-6"	35	—
b1(E)	8	#4	7'-8"	41	—
d1(E)	20	#4	5'-8"	78	┌
sp1(E)	1	#4	*		—
v1(E)	8	#6	11'-9"	142	—

* SEE SECTION A-A

- NOTES:**
- SEE SHEET 1 OF THIS SERIES FOR NOTES.
 - FOR SLIP FORM, SEE SHEET 6 OF THIS SERIES.

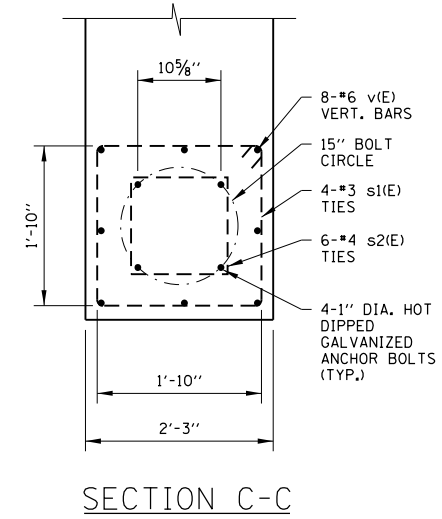
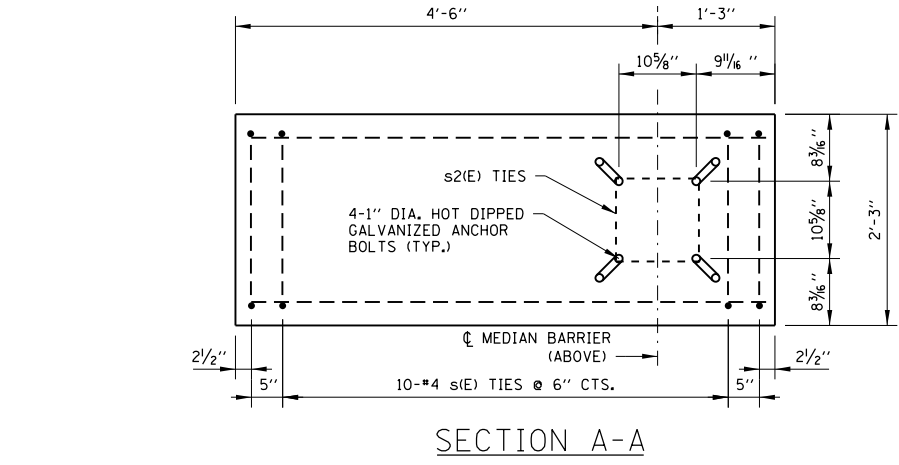
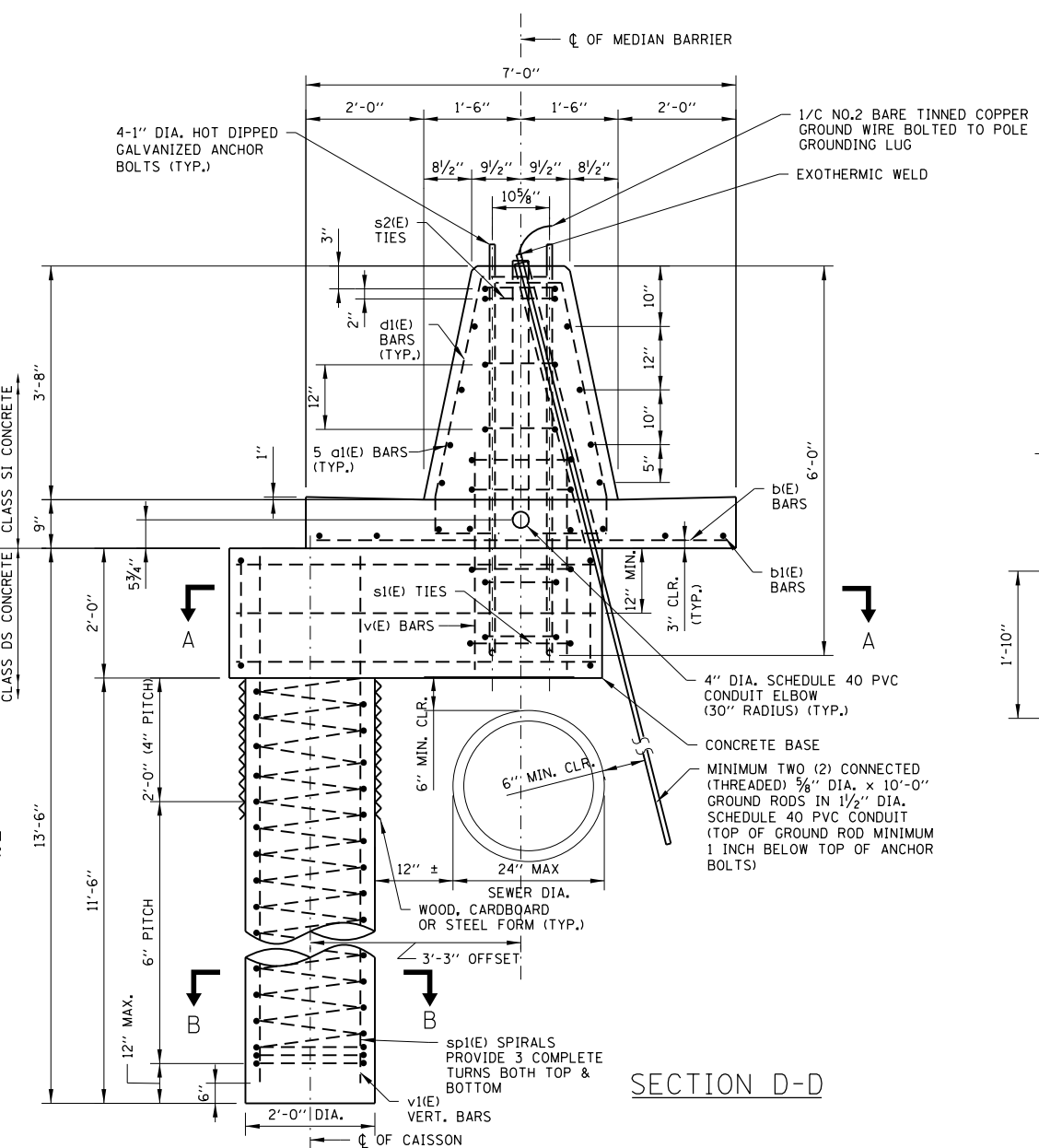
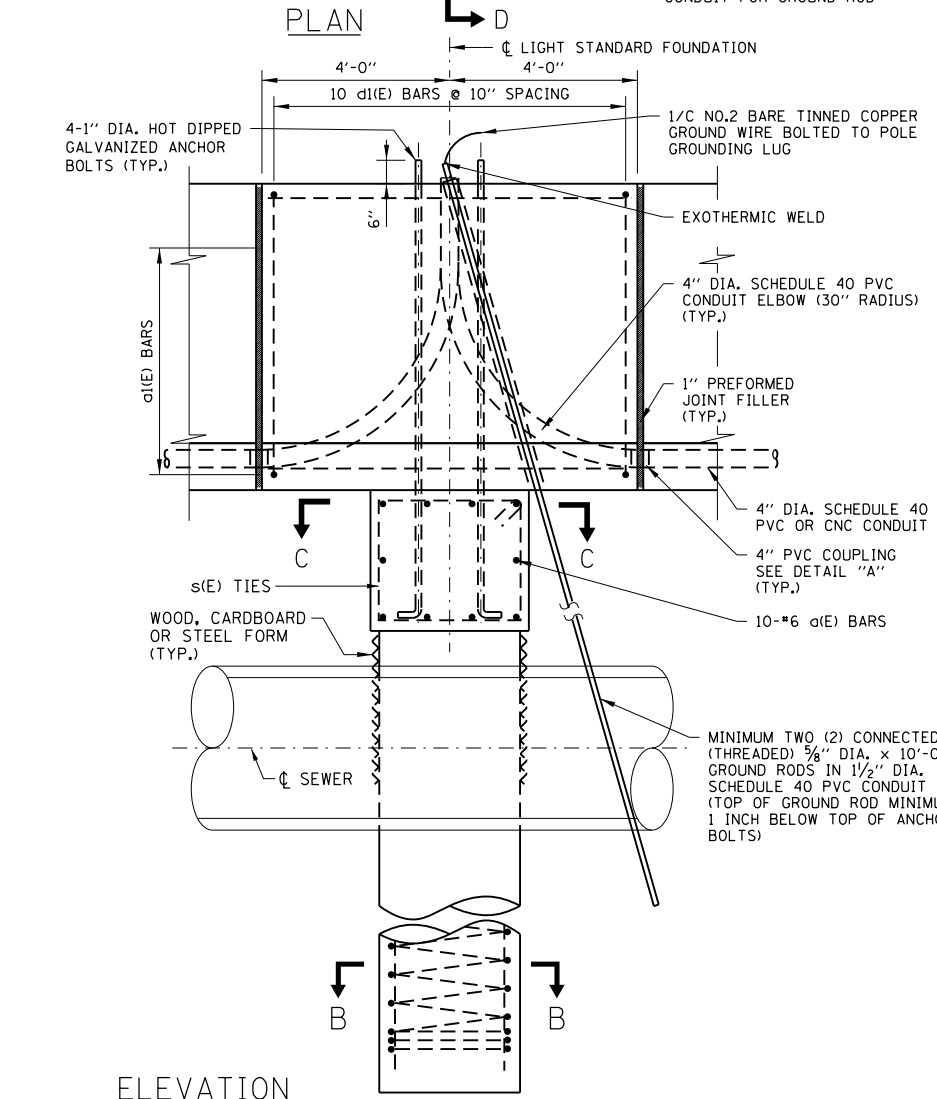
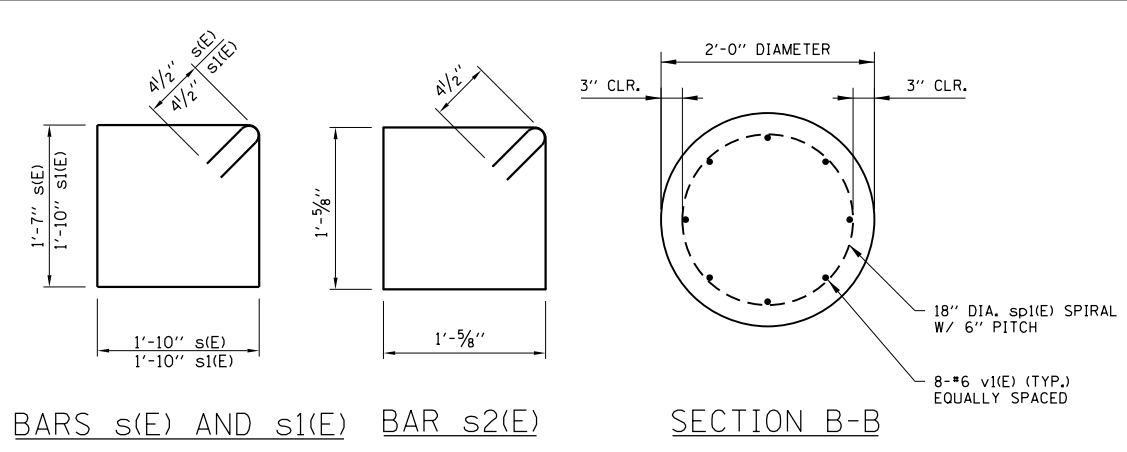
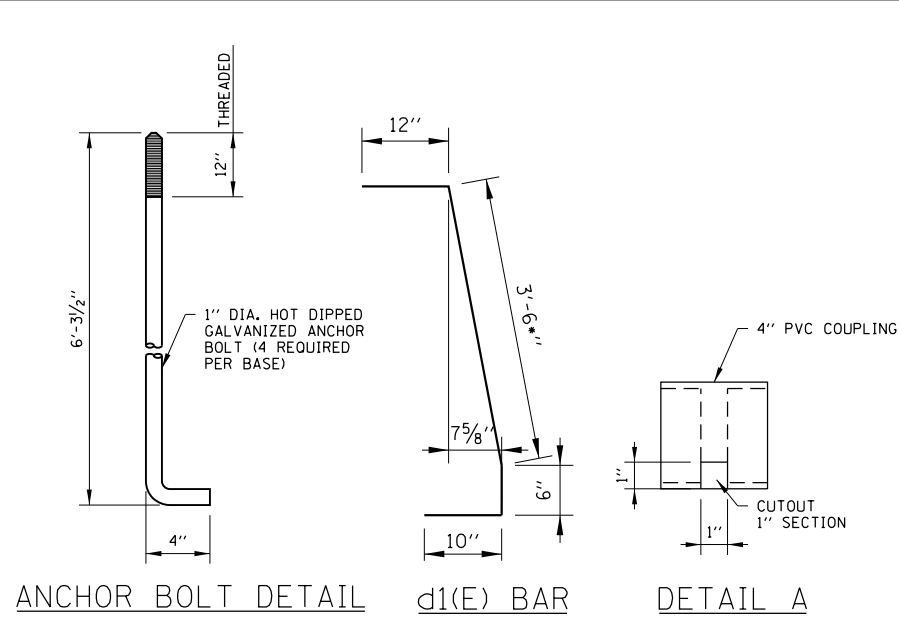
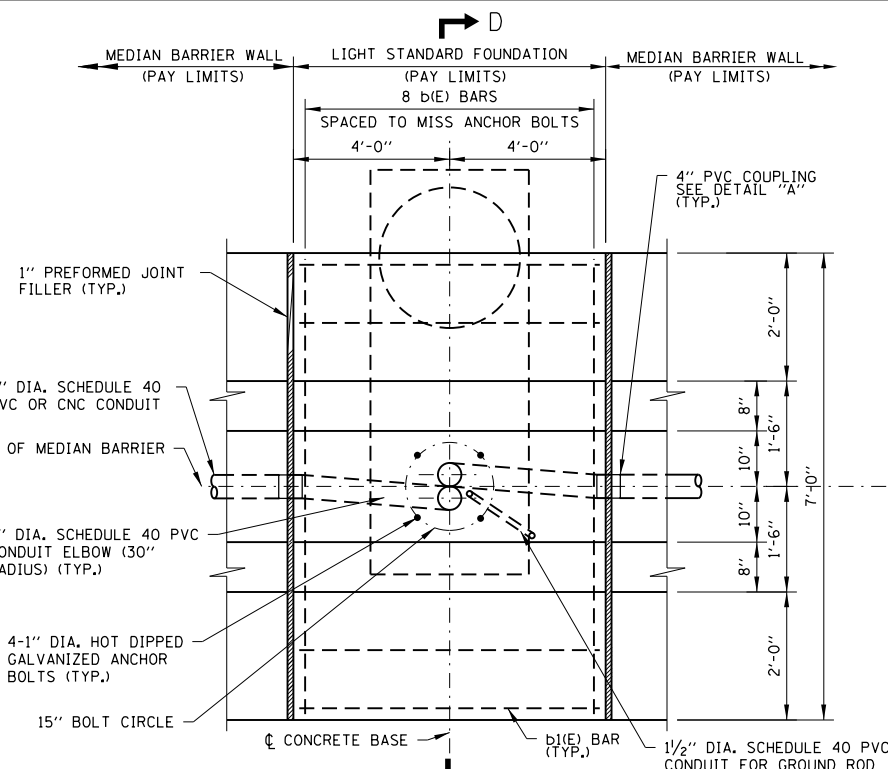


LIGHT STANDARD FOUNDATION

STANDARD H1-08

APPROVED: *Paul Kovacs*
CHIEF ENGINEERING OFFICER DATE: 2-7-2012

LIGHT STANDARD FOUNDATION DETAILS - MEDIAN BARRIER
(TYPE 1 CENTERED CAISSON, 42" BARRIER)



REINFORCEMENT BARS SCHEDULE					
BAR	NO.	SIZE	LENGTH	WT. LB.	SHAPE
α(E)	10	#6	5'-6"	83	
α1(E)	10	#4	7'-6"	50	
b(E)	8	#4	6'-6"	35	
b1(E)	8	#4	7'-8"	78	
d1(E)	20	#4	5'-8"	78	
s(E)	12	#4	7'-7"	61	
s1(E)	4	#4	8'-1"	22	
s2(E)	6	#4	5'-0"	20	
sp1(E)	1	#4	*		
v(E)	8	#6	3'-2"	38	
v1(E)	8	#6	12'-6"	150	

* SEE D-D



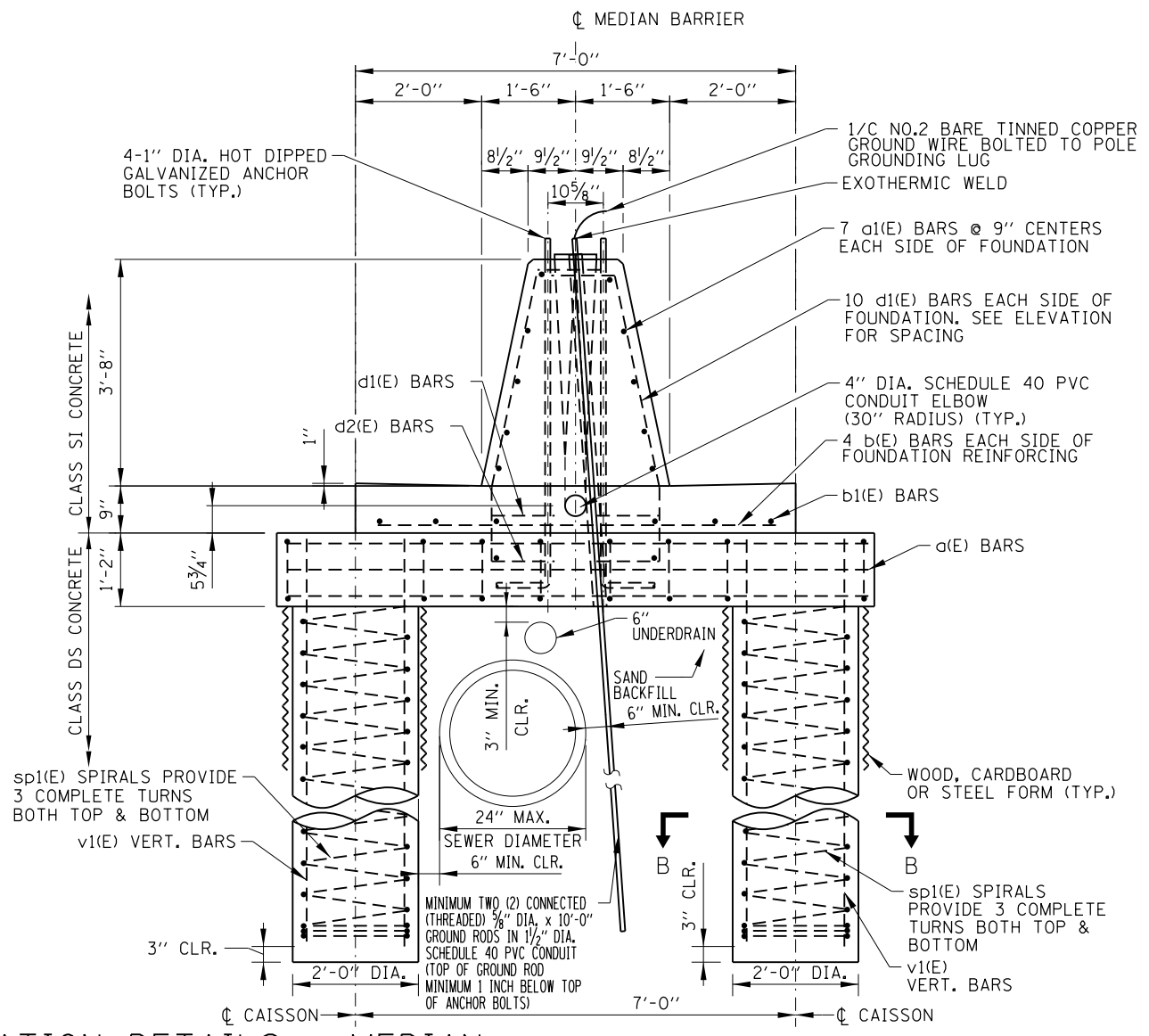
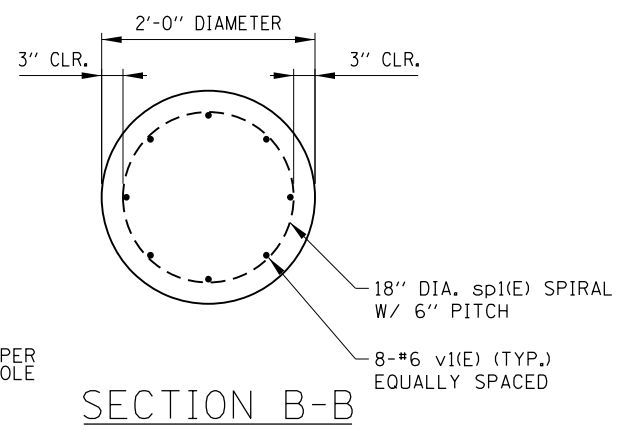
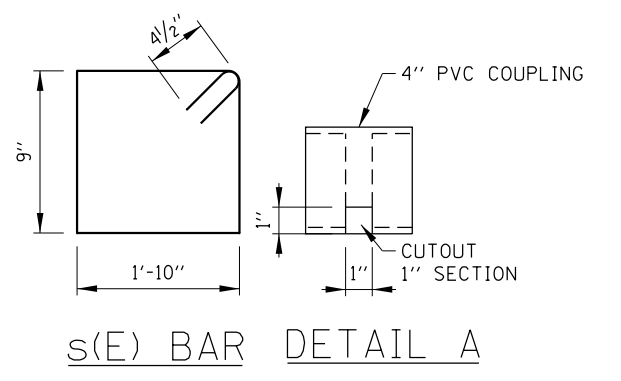
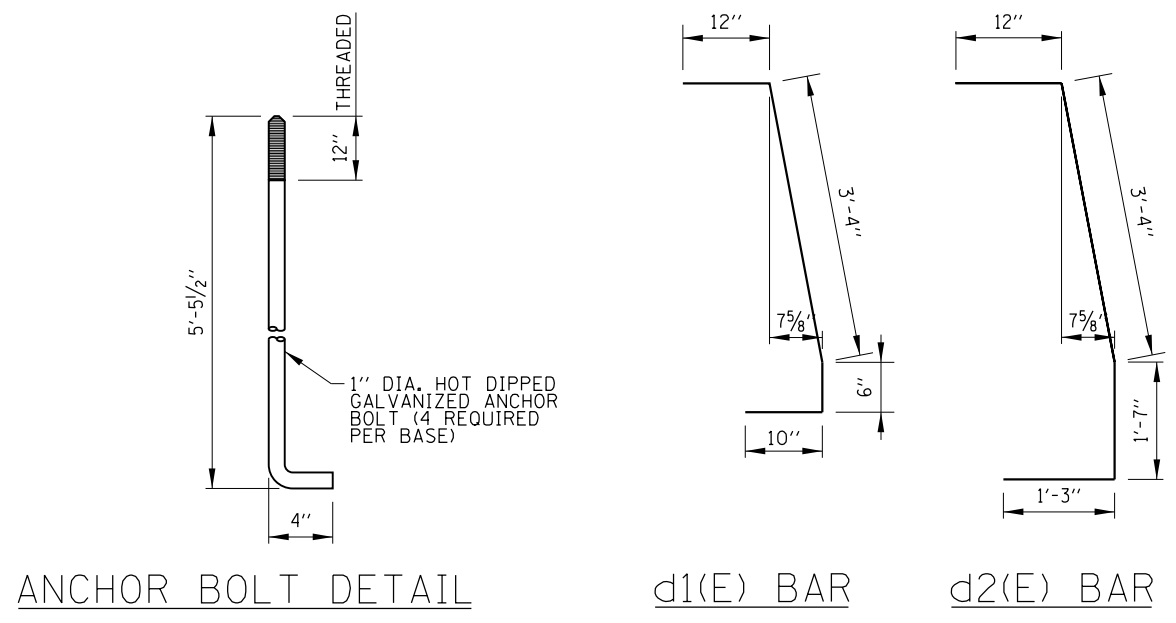
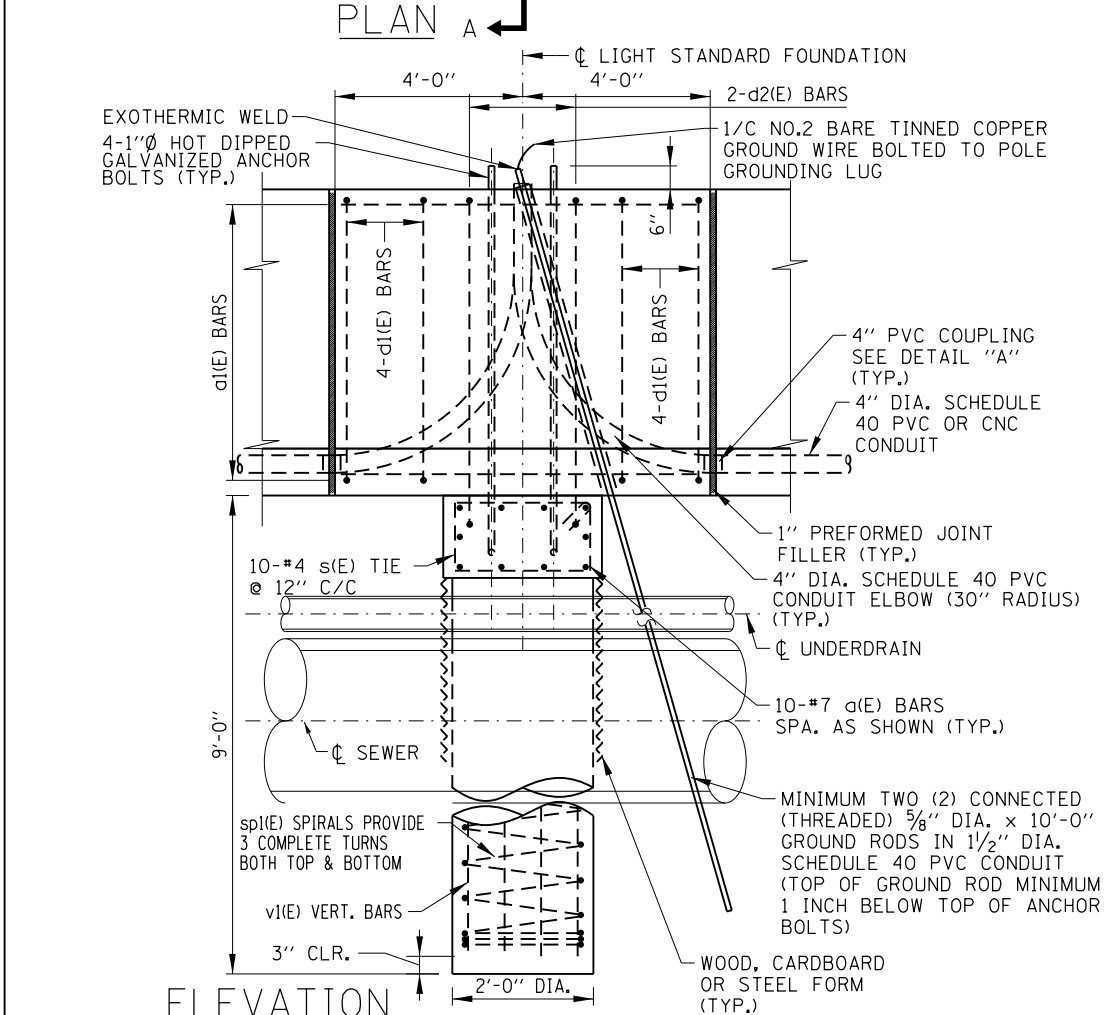
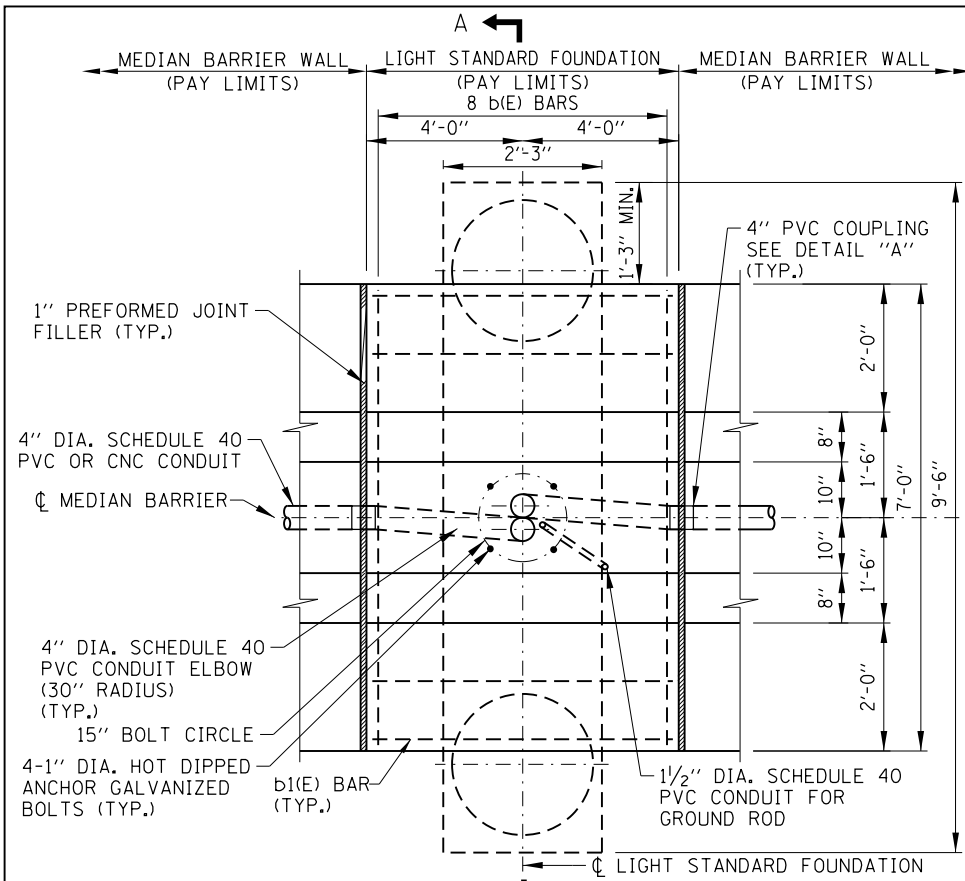
LIGHT STANDARD FOUNDATION

STANDARD H1-08

APPROVED: *Paul Kovacs*
CHIEF ENGINEERING OFFICER DATE 2-7-2012

LIGHT STANDARD FOUNDATION DETAILS - MEDIAN BARRIER
(TYPE 2 OFFSET CAISSON, 42" BARRIER)

- NOTES:
- SEE SHEET 1 OF THIS SERIES FOR NOTES.
 - FOR SLIP FORM, SEE SHEET 6 OF THIS SERIES



REINFORCEMENT BARS SCHEDULE					
BAR	NO.	SIZE	LENGTH	WT. LB.	SHAPE
a(E)	10	#7	9'-0"	184	
a1(E)	14	#4	7'-6"	70	
b(E)	8	#4	6'-6"	35	
b1(E)	4	#4	7'-8"	21	
d1(E)	16	#4	5'-8"	62	
d2(E)	4	#4	7'-2"	20	
s(E)	10	#4	5'-11"	40	
sp1(E)	2	#4	*		
v1(E)	16	#6	9'-9"	235	

* SEE ELEVATION

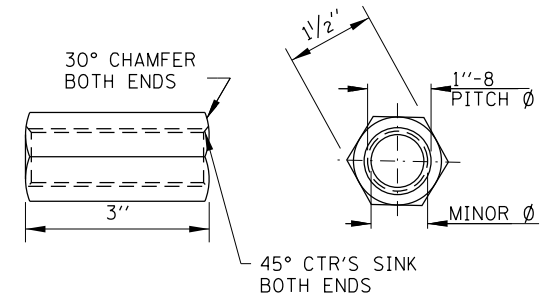
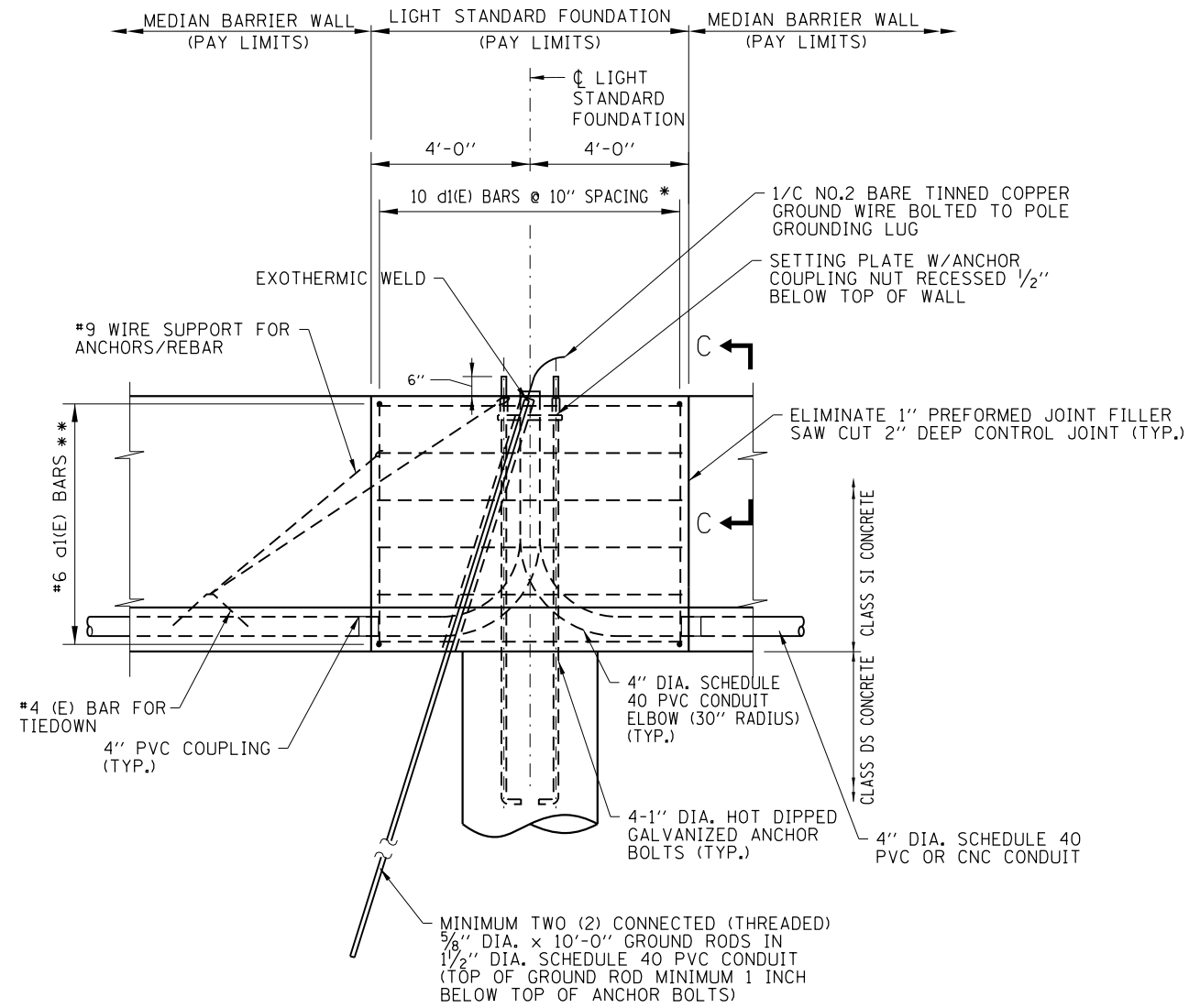
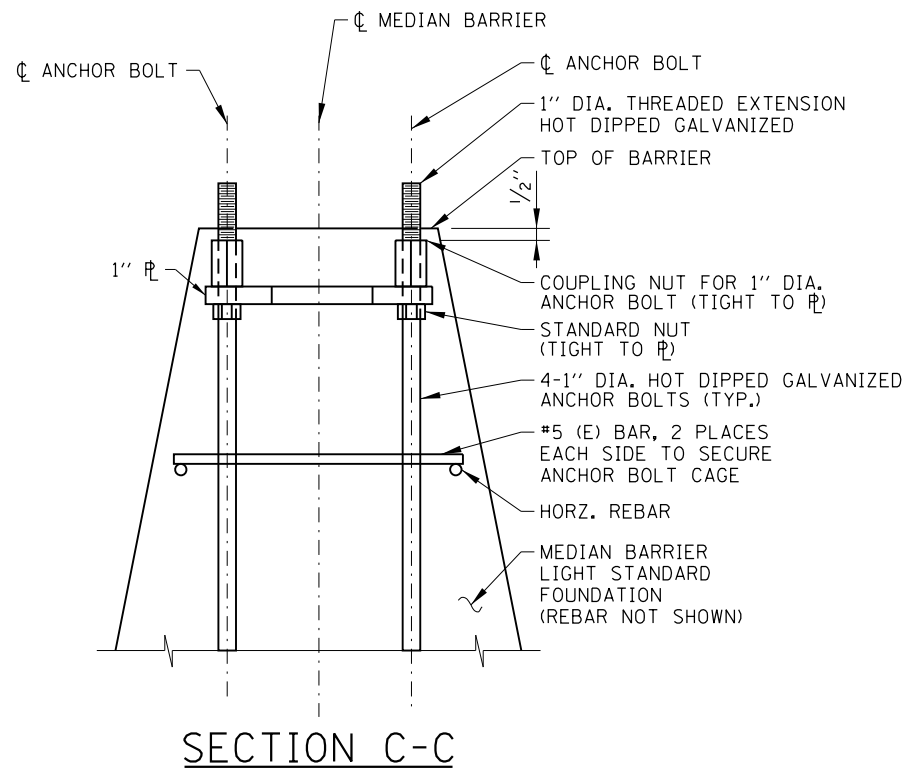
- NOTES:**
- SEE SHEET 1 OF THIS SERIES FOR NOTES.
 - FOR SLIP FORM, SEE SHEET 6 OF THIS SERIES.

APPROVED: *Paul Kovacs*
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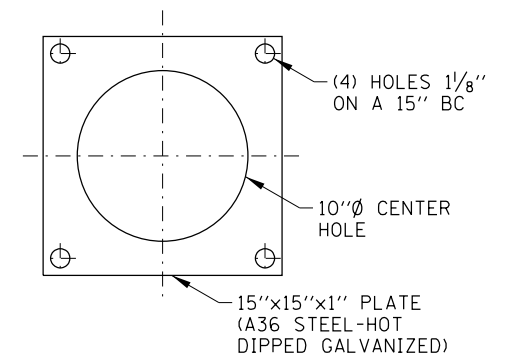
LIGHT STANDARD FOUNDATION DETAILS - MEDIAN BARRIER (TYPE 3 STRADDLED CAISSON, 42" BARRIER)

SHEET 5 OF 9

LIGHT STANDARD FOUNDATION
 STANDARD H1-08



COUPLING NUT



SETTING PLATE

* #6 d1(E) BAR REPLACES #4 d1(E) BAR
 ** #6 d1(E) BAR REPLACES #4 d1(E) BAR

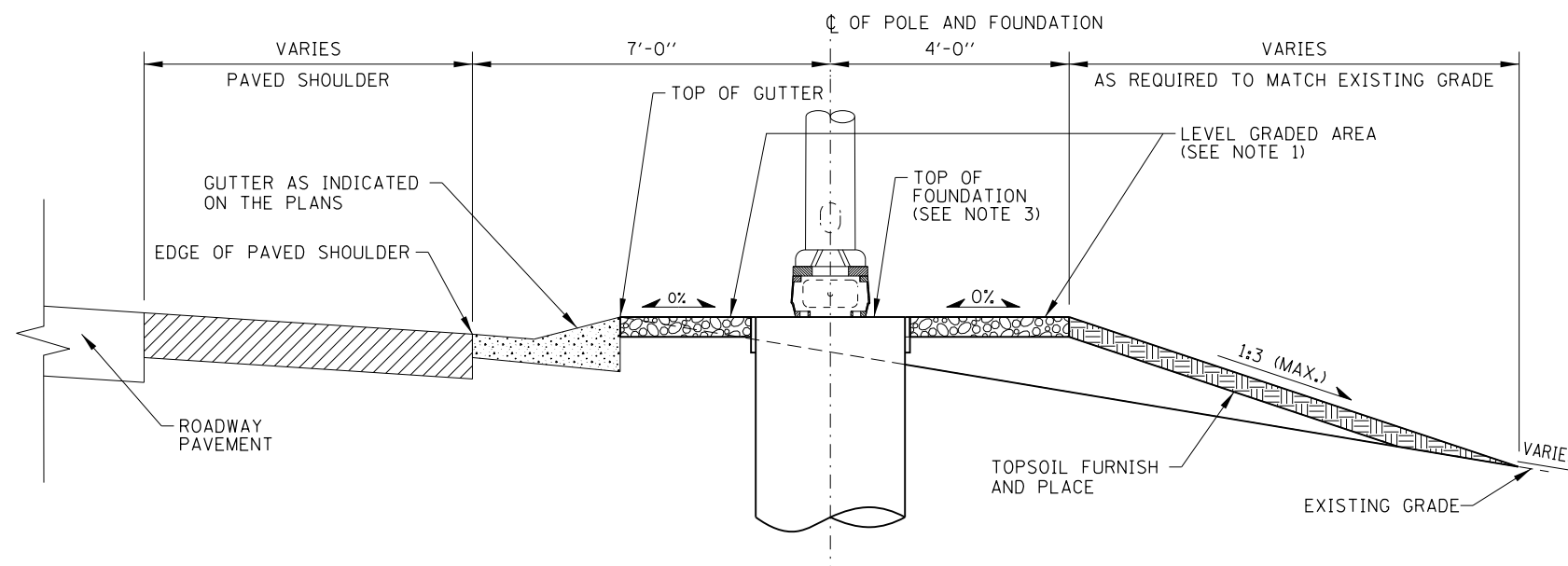
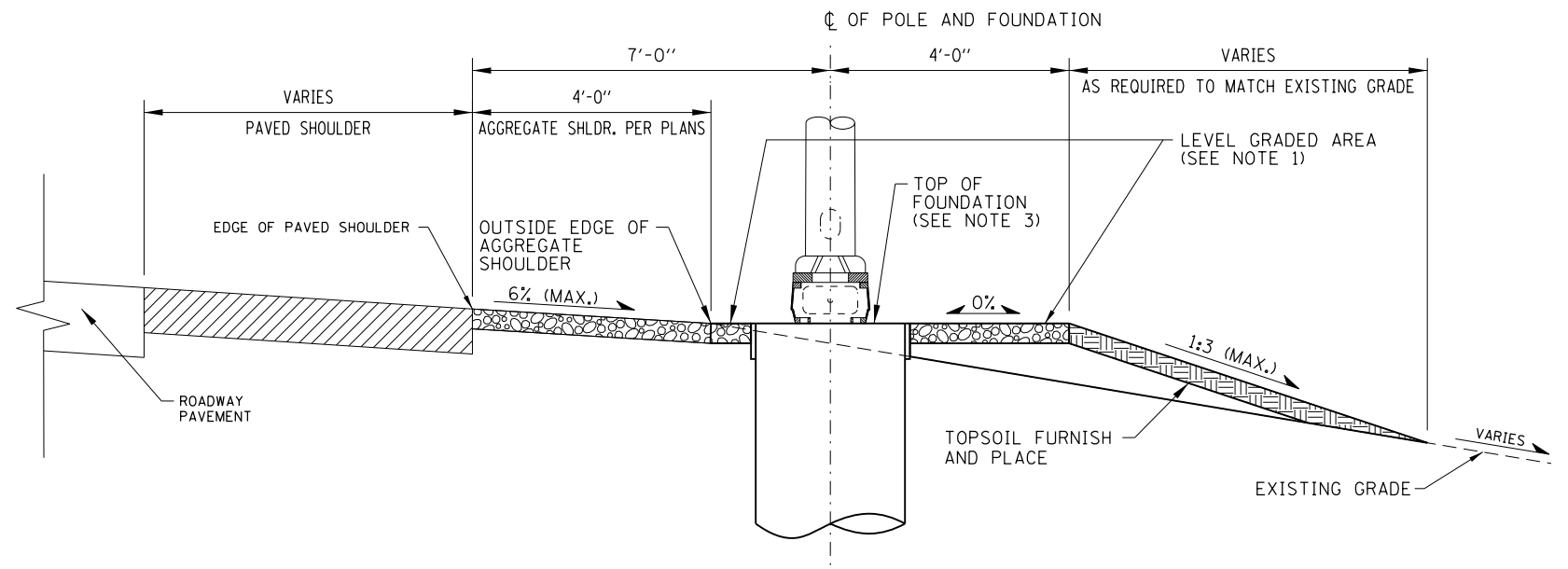
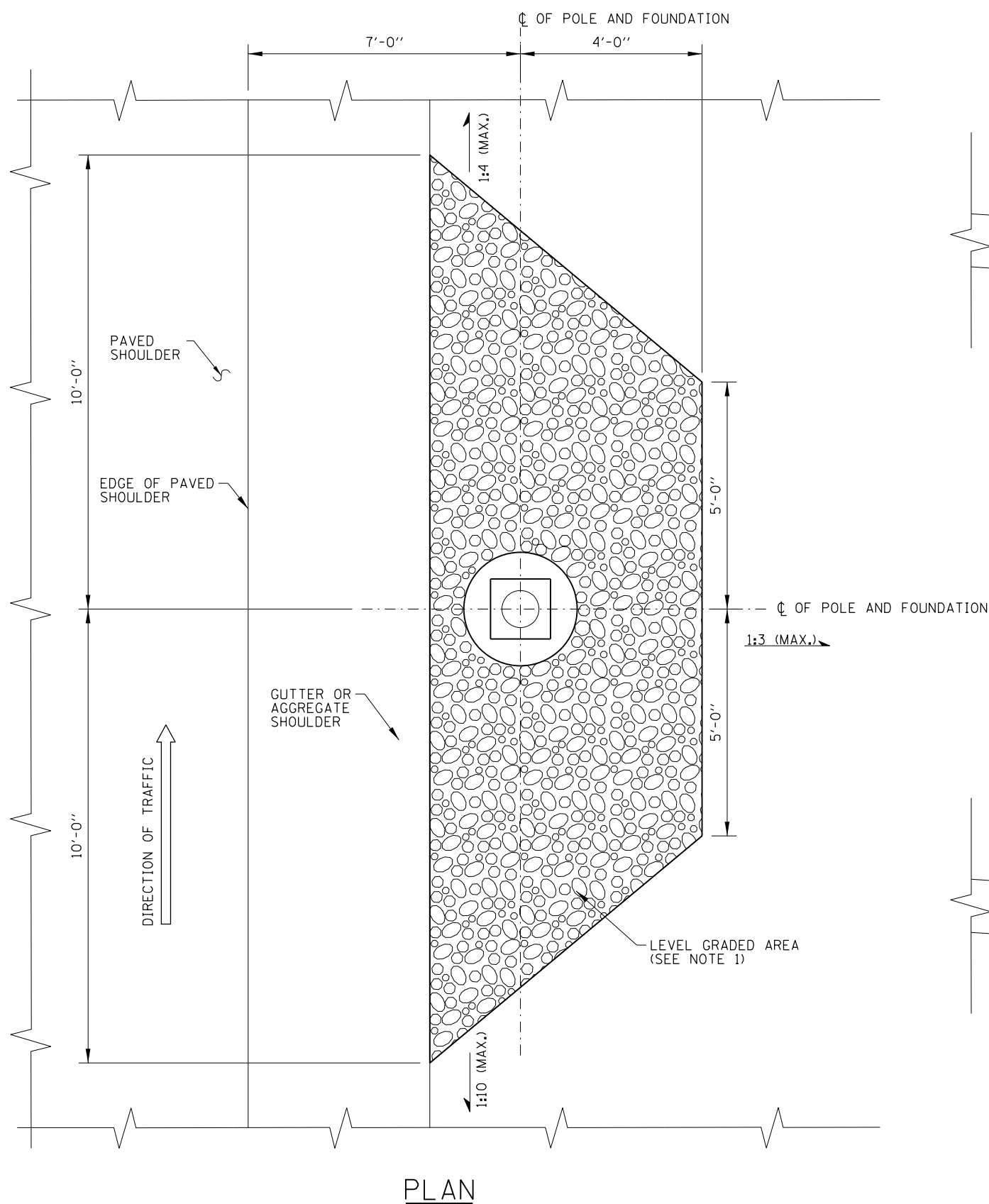
**LIGHT STANDARD FOUNDATION DETAILS - MEDIAN BARRIER
 (MODIFICATIONS FOR SLIPFORM POUR, 42" BARRIER)**

APPROVED: *Paul Kovacs*
 CHIEF ENGINEERING OFFICER DATE: 2-7-2012

NOTES:

- SEE SHEET 1 OF THIS SERIES FOR NOTES.
- PLUG TOP OF COUPLER WITH PLASTIC PLUG OR COVER WHILE PLACING CONCRETE.





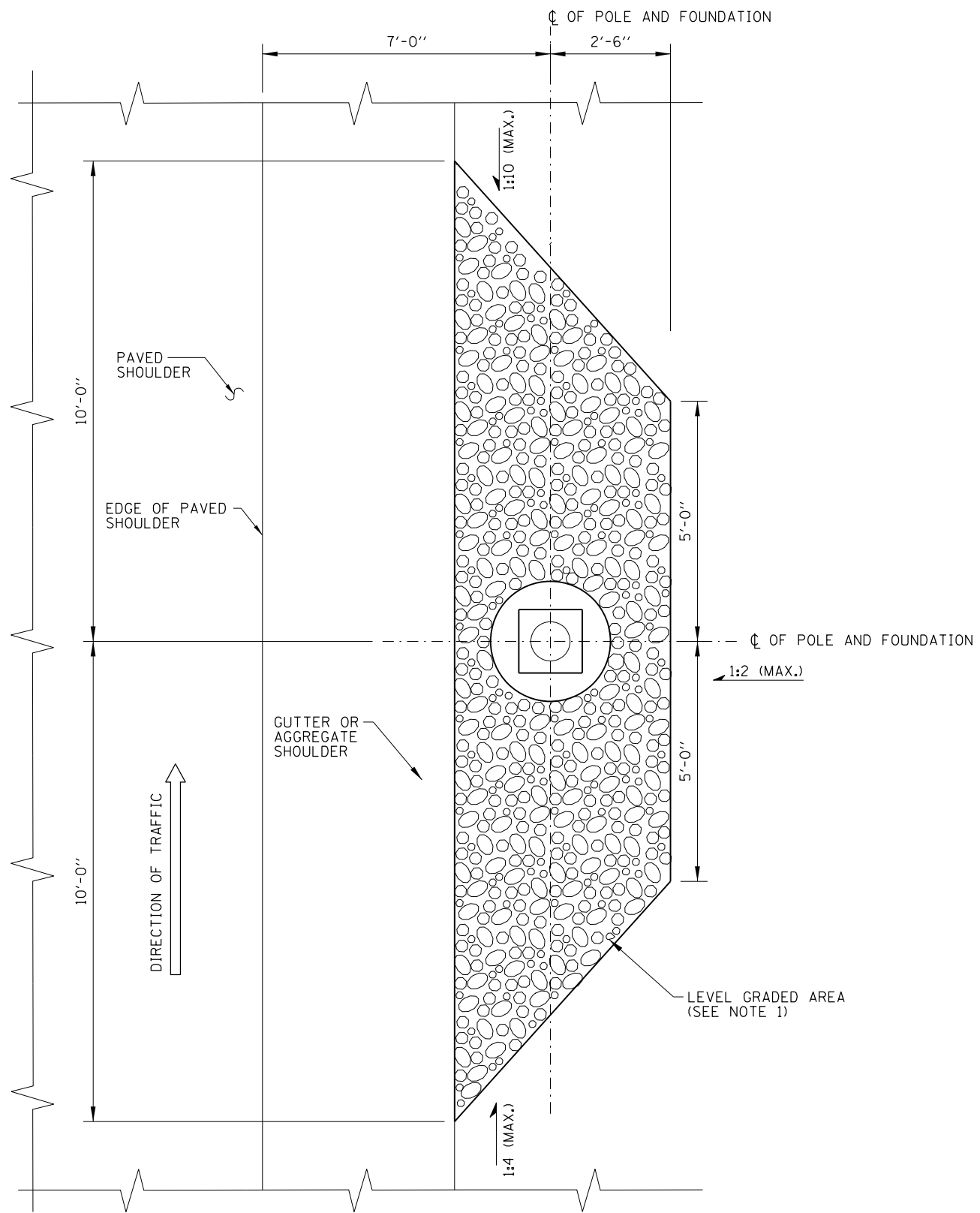
**LIGHT STANDARD FOUNDATION DETAILS - GRADING W/ FORESLOPE
(GROUND MOUNTED UNITS)**

Paul Kovacs
APPROVED, CHIEF ENGINEERING OFFICER DATE 2-7-2012

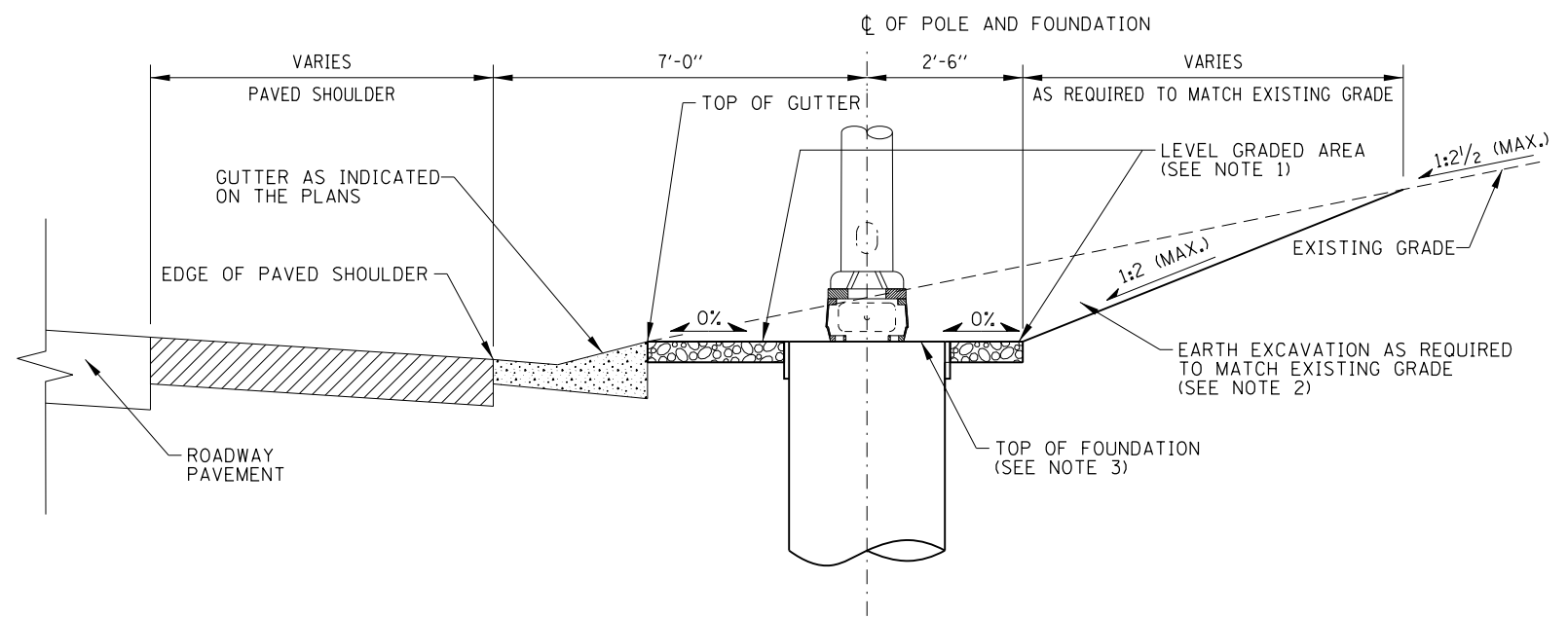
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

SHEET 7 OF 9

LIGHT STANDARD FOUNDATION
STANDARD H1-08



PLAN



LIGHT STANDARD FOUNDATION
ADJACENT TO GUTTER

LIGHT STANDARD FOUNDATION DETAILS - GRADING W/ BACKSLOPE
(GROUND MOUNTED UNITS)

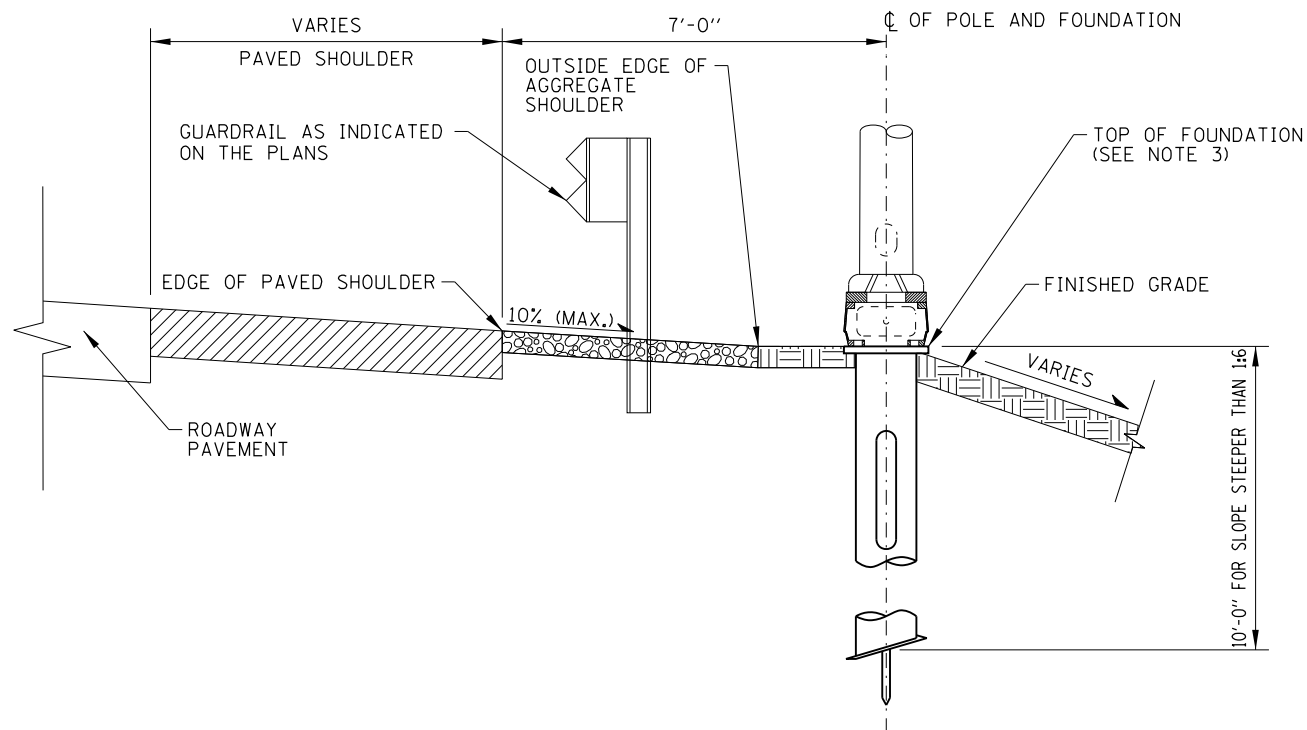
APPROVED: *Paul Kovacs*
CHIEF ENGINEERING OFFICER DATE: 2-7-2012

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

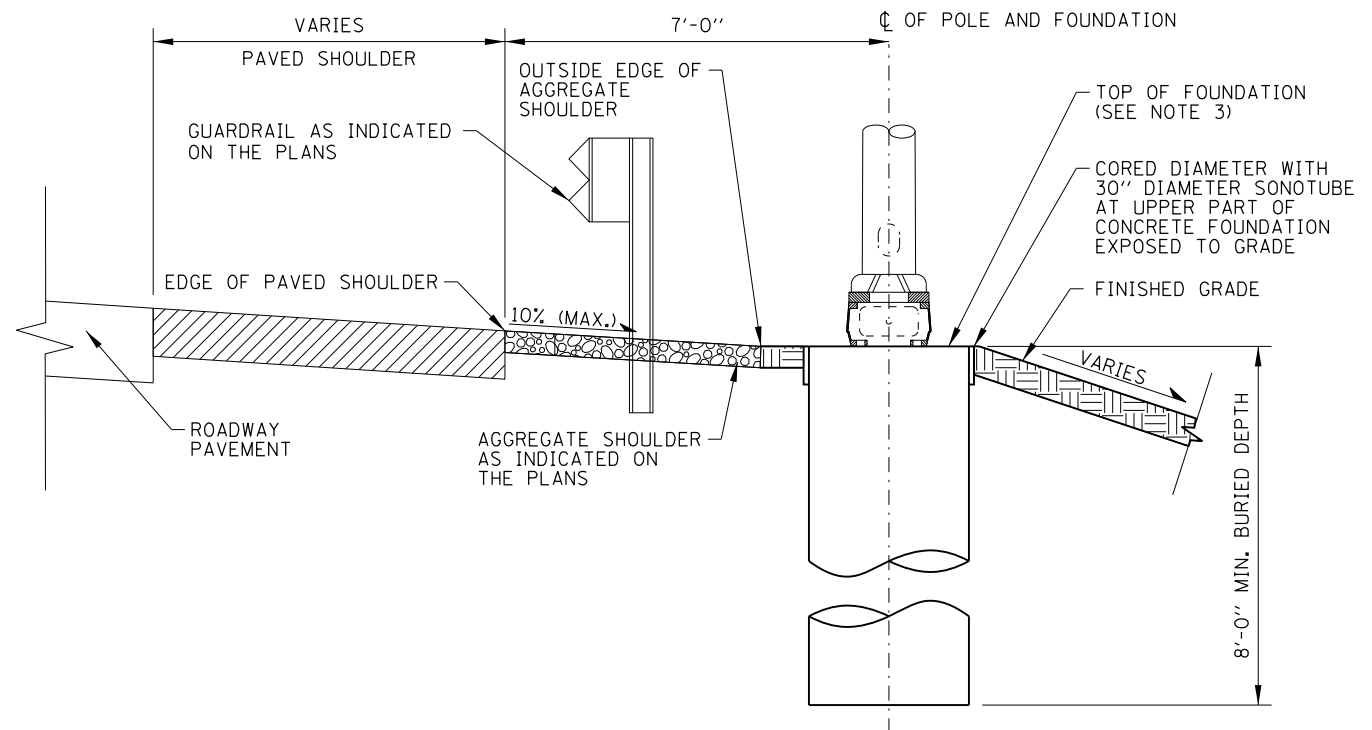


LIGHT STANDARD
FOUNDATION

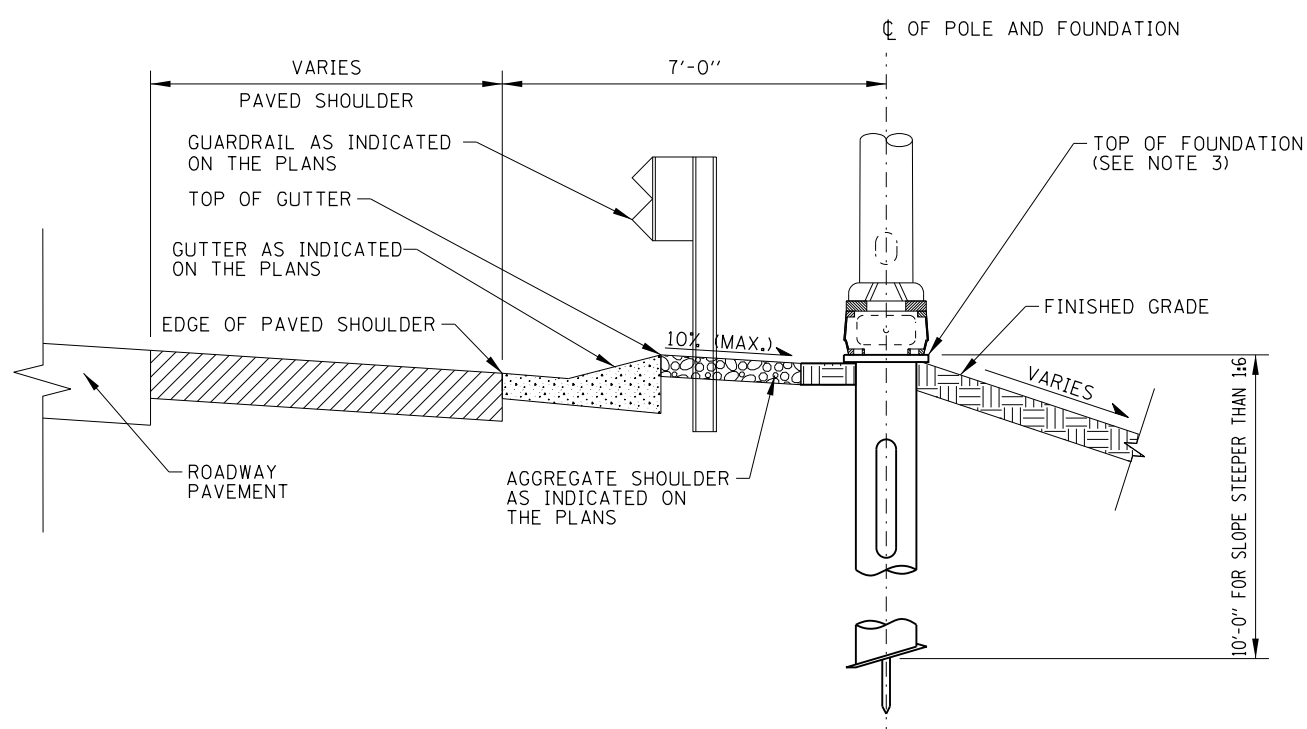
STANDARD H1-08



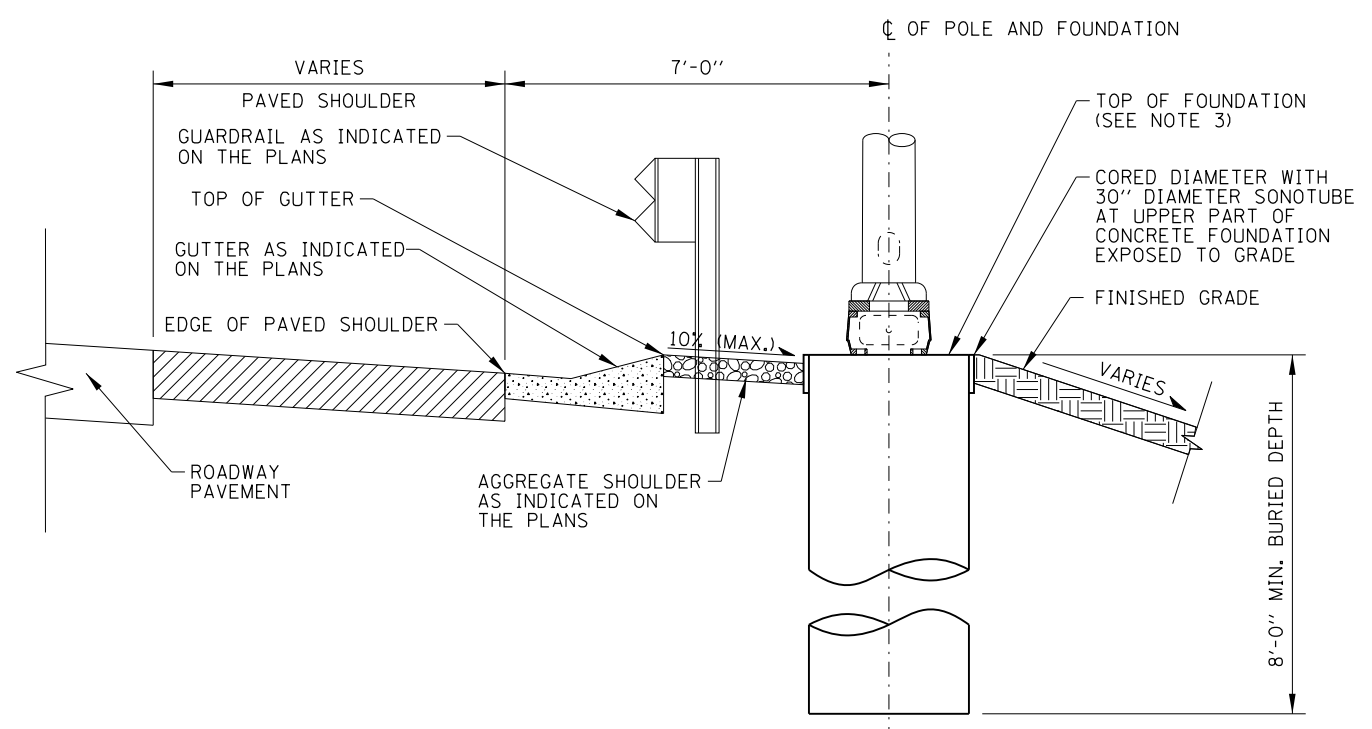
LIGHT STANDARD FOUNDATION - HELIX
ADJACENT TO AGGREGATE SHOULDER



LIGHT STANDARD FOUNDATION - CONCRETE
ADJACENT TO AGGREGATE SHOULDER



LIGHT STANDARD FOUNDATION - HELIX
ADJACENT TO GUTTER



LIGHT STANDARD FOUNDATION - CONCRETE
ADJACENT TO GUTTER

LIGHT STANDARD FOUNDATION DETAILS - ADJACENT TO GUARDRAIL
(GROUND MOUNTED UNITS)

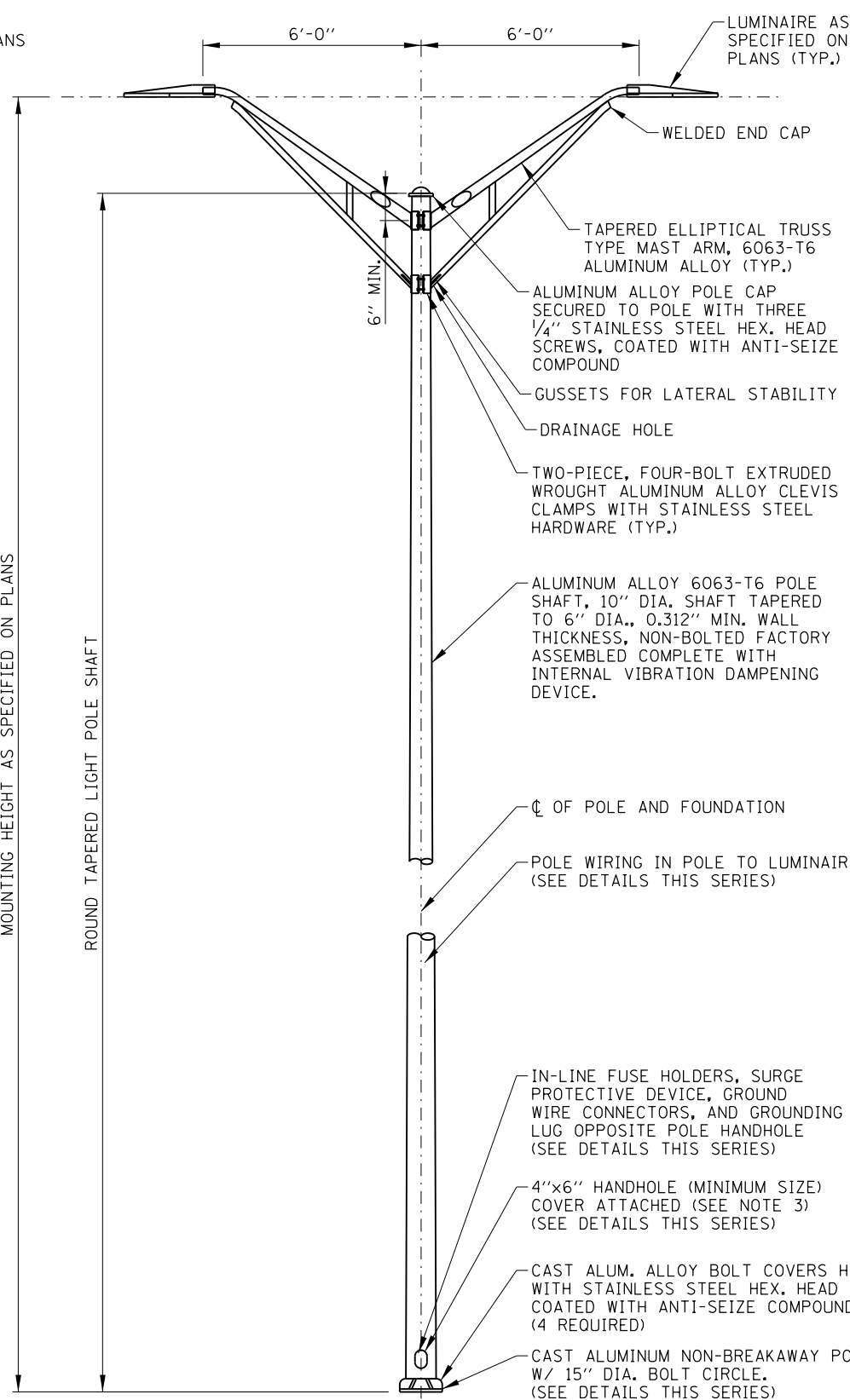
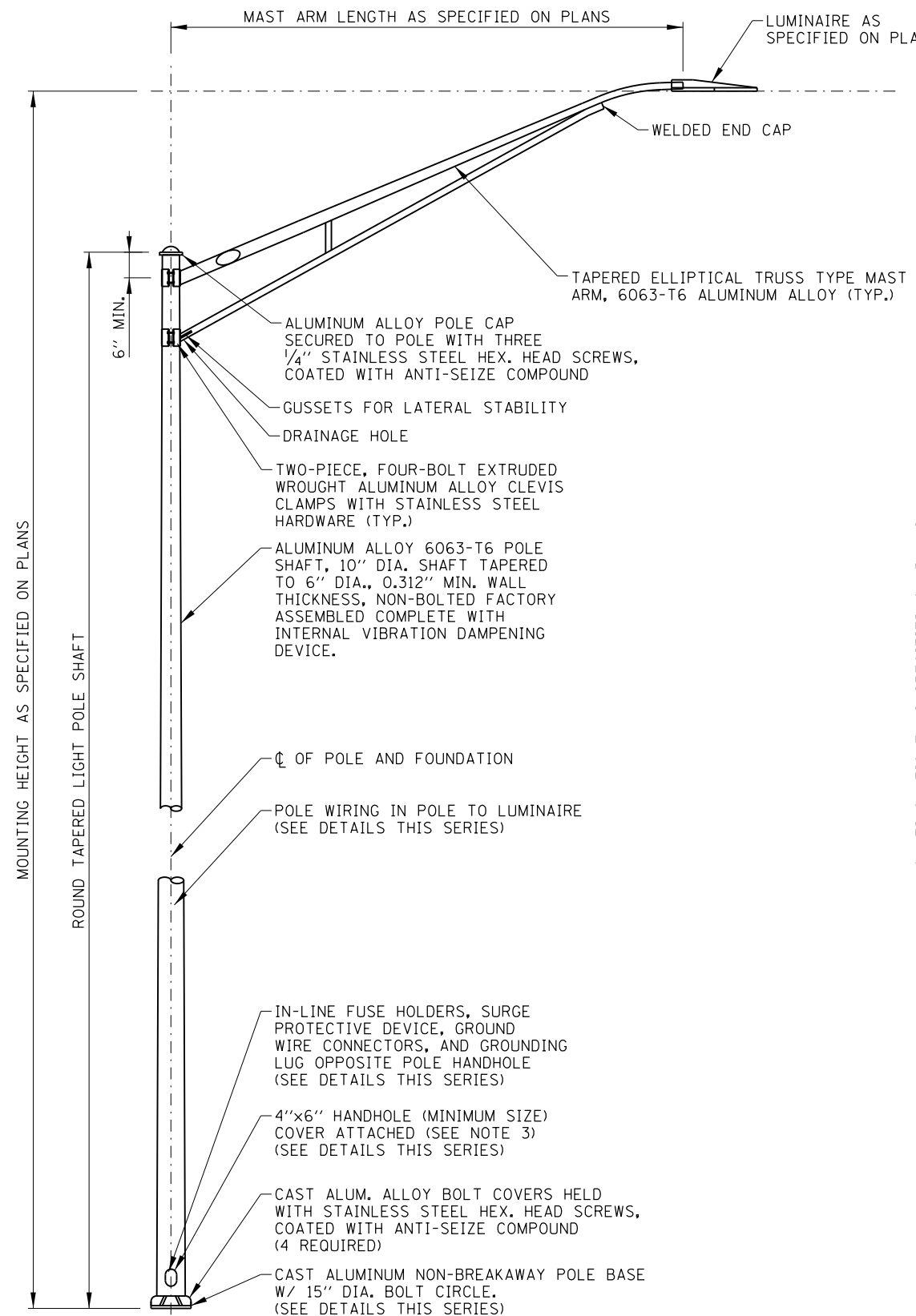
APPROVED: *Paul Kovacs*
CHIEF ENGINEERING OFFICER DATE: 2-7-2012

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

SHEET 9 OF 9

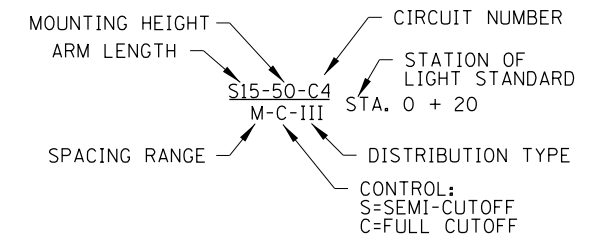
LIGHT STANDARD
FOUNDATION

STANDARD H1-08

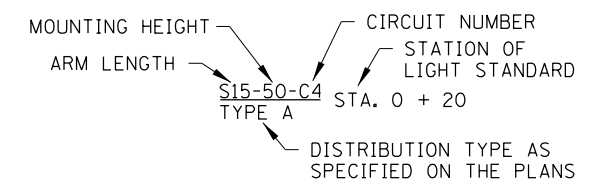


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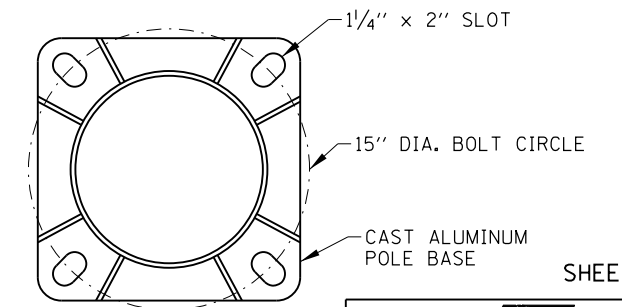
1. ALL LIGHT STANDARDS, BOTH NEW AND EXISTING, ARE SHOWN ON PLANS WITH THE SAMPLE DESCRIPTIONS SHOWN ON THIS SHEET.
2. FOR FOUNDATION DETAILS SEE STANDARD H1. FOR STRUCTURAL PARAPET FOUNDATION DETAILS, SEE STRUCTURAL PLANS.
3. HANDHOLE COVERS SHALL BE FASTENED USING TWO STAINLESS STEEL SCREWS WITH CAPTIVE STAINLESS STEEL NUTS OR INSERTS, PER ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATION SECTION 1069.
4. PROVIDE A 24" LONG POLYETHYLENE TUBE TO PROTECT CABLES WHERE THEY PASS THROUGH THE GROMMETTED OPENING AT THE POLE/MAST ARM JUNCTION.
5. ALL GROUND MOUNTED LIGHT POLES SHALL BE PROVIDED WITH AN ACCEPTED FHWA BREAKAWAY BASE OR DEVICE PER THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS SECTION 1070.
6. EACH BRIDGE MOUNTED LIGHT STANDARD SHALL BE PROVIDED WITH SHOCK ABSORBING VIBRATION PADS, NUTS, WASHERS, LEVELING PLATE AND WIRE MESH FOR ITS ERECTION ON THE FOUNDATION AS SHOWN ON THE PLANS.
7. LIGHT STANDARD WIRING DETAIL FOR INSTALLATION WITH CONCRETE FOUNDATION SHOWN. DETAIL FOR INSTALLATION WITH HELIX FOUNDATION IS SIMILAR.
8. LIGHT STANDARD WIRING DETAILS SHOWN FOR TWIN MAST ARM (2 LUMINAIRES PER POLE) INSTALLATIONS. SINGLE MAST ARM (1 LUMINAIRE PER POLE) INSTALLATIONS SHALL OMIT TWO (2) IN-LINE FUSE HOLDERS, ONE SURGE PROTECTION DEVICE AND ASSOCIATED WIRING.
9. CONDUCTORS EXTENDED INTO LIGHT POLE BASE SHALL BE OF SUFFICIENT LENGTH TO WITHDRAW SPLICES AND/OR INSULATED JOINTS A MINIMUM 18" OUT OF THE POLE HANDHOLE.
10. ALL CONDUCTORS ORIGINATING IN POLE SHALL BE A 1/C NO. 10 AWG UNLESS OTHERWISE NOTED.
11. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
12. WASHERS BETWEEN HEX NUTS AND POLE BASES SHALL BE 2.5" OUTER DIAMETER. WASHERS ON PARAPET OR MEDIAN MOUNTED LIGHT POLES SHALL BE MINIMUM 1/4" THICK. BENT OR DEFORMED WASHERS OR DAMAGED POLE BASES WILL NOT BE ACCEPTED. MULTIPLE STACKED WASHERS SHALL NOT BE SUBSTITUTED FOR APPROPRIATELY SIZED WASHERS.
13. ANCHOR BOLTS SHALL EXTEND OVER THE TOP OF HEX NUTS AND SHALL HAVE SUFFICIENT THREAD EXPOSED FOR LOCK NUT TABS TO MAKE CONTACT.



LIGHT STANDARD DESCRIPTION - HPS LUMINAIRES



LIGHT STANDARD DESCRIPTION - LED LUMINAIRES



POLE BASE



LIGHT STANDARD DETAILS

STANDARD H2-07

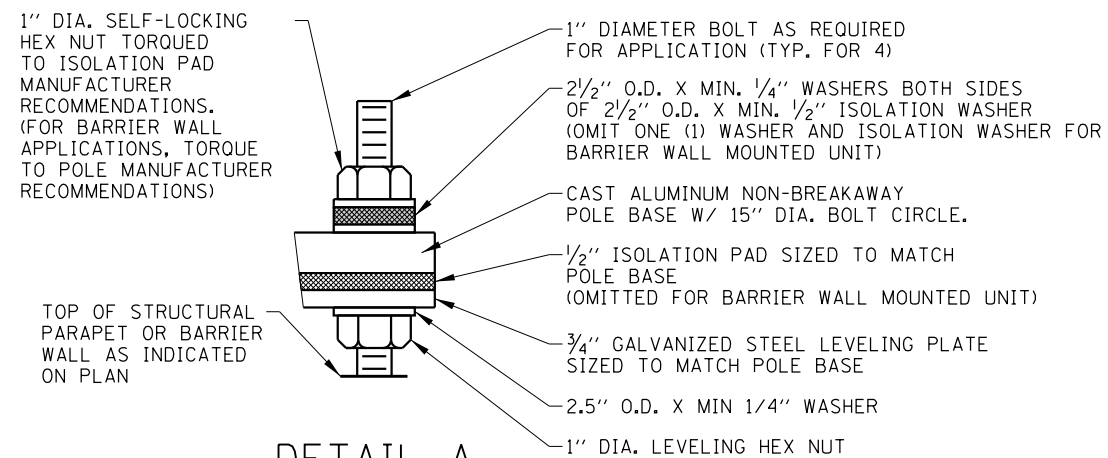
DATE	REVISIONS
3-31-2014	REVISED WIRING DIAGRAM.
3-11-2015	REVISED LIGHT STANDARD POLE WIRING DETAILS.
3-31-2016	REVISED BARRIER WALL UNIT MOUNTING DETAILS.
3-31-2017	REVISED LIGHT POLE AND MAST ARM DETAILS.
	REVISED WIRING DETAILS: GROUNDING & SPLICES.
3-01-2018	REVISED LIGHT POLE AND MAST ARM DETAILS.
3-01-2019	REVISED LIGHT POLE AND MAST ARM DETAILS.

LIGHT STANDARD - SINGLE MAST ARM

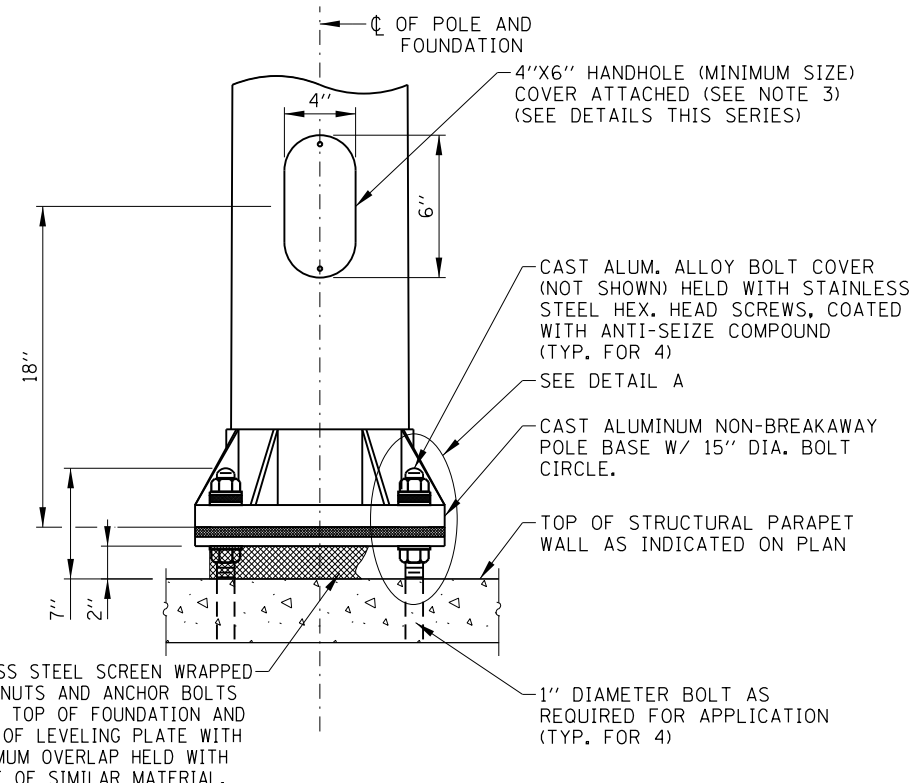
LIGHT STANDARD - TWIN MAST ARM

LIGHT STANDARD DETAILS

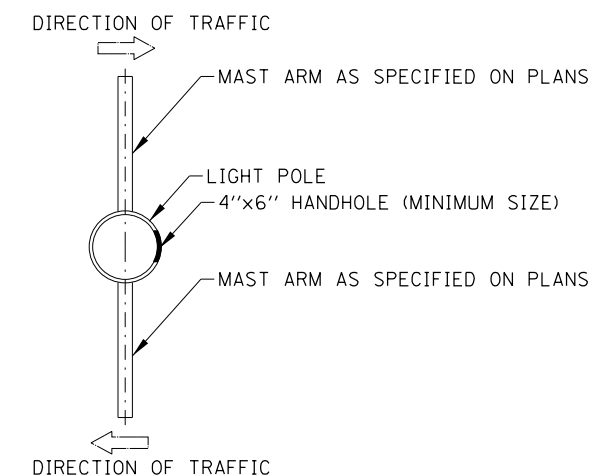
APPROVED: *Paul Kovacs*
 CHIEF ENGINEERING OFFICER
 DATE: 2-7-2012



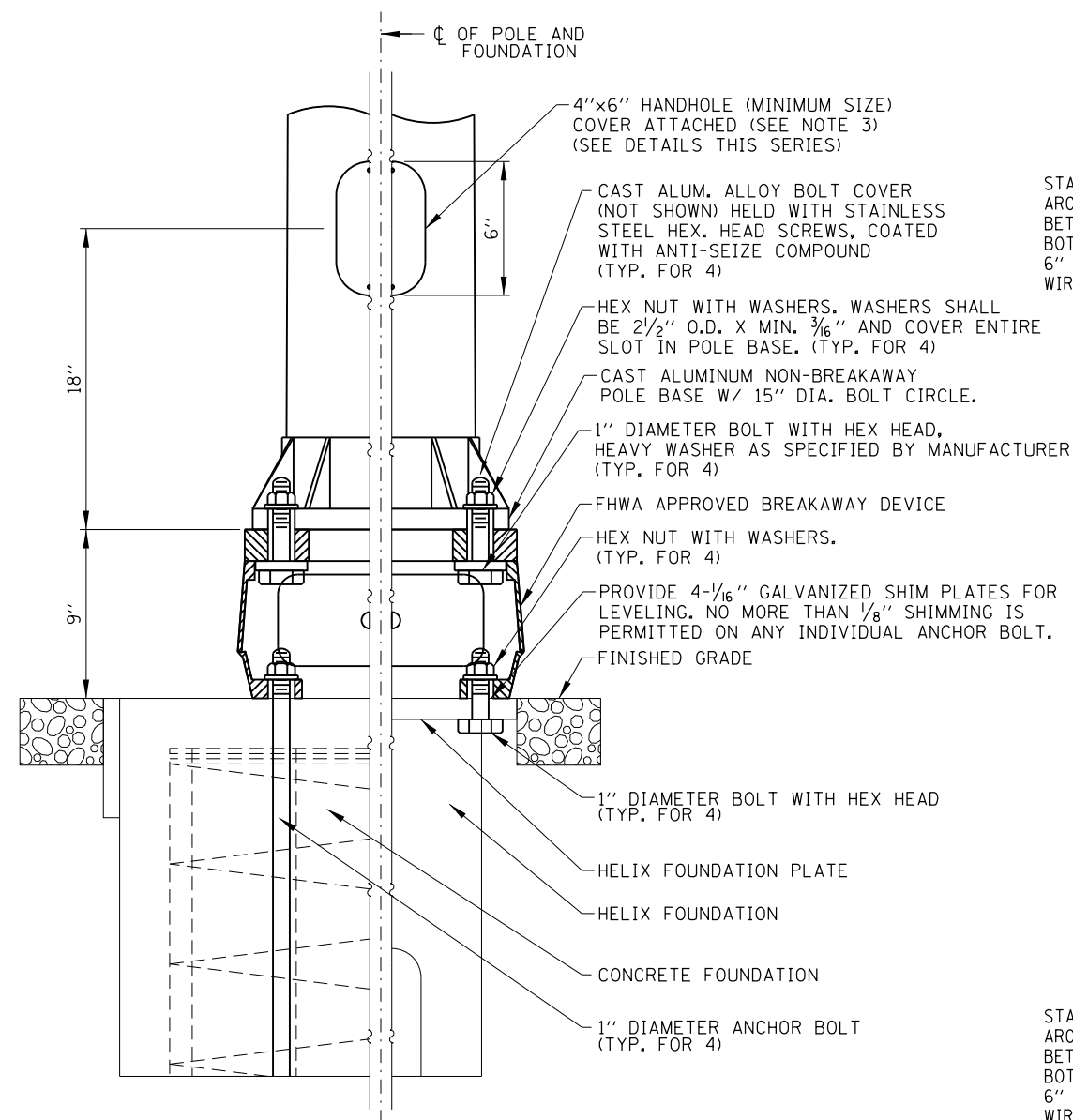
DETAIL A



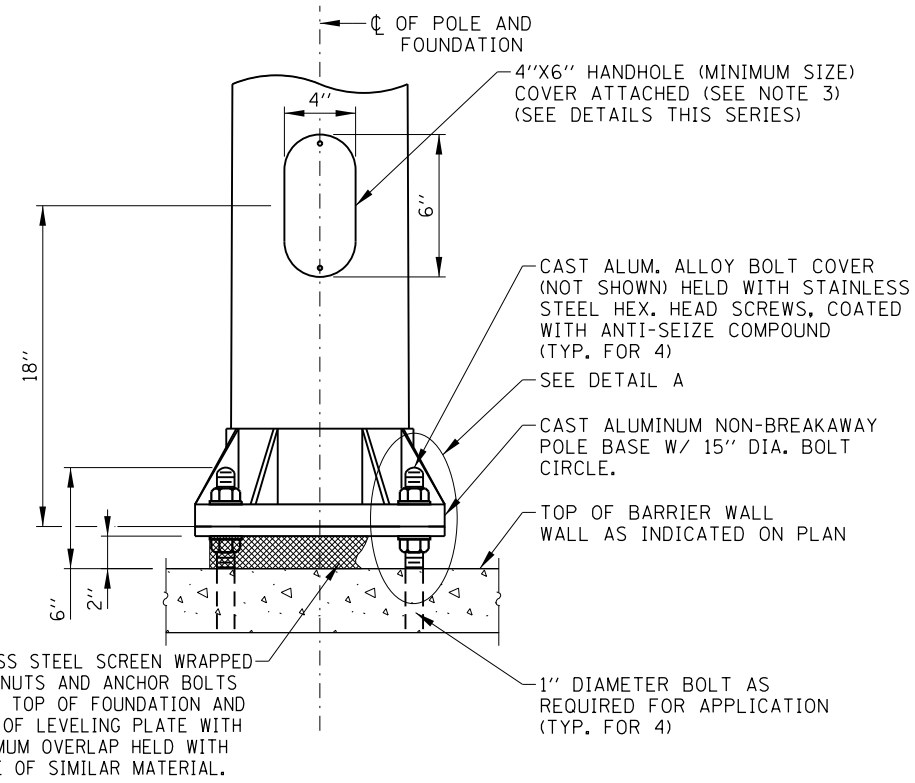
LIGHT STANDARD MOUNTING DETAIL (BRIDGE MOUNTED UNITS)



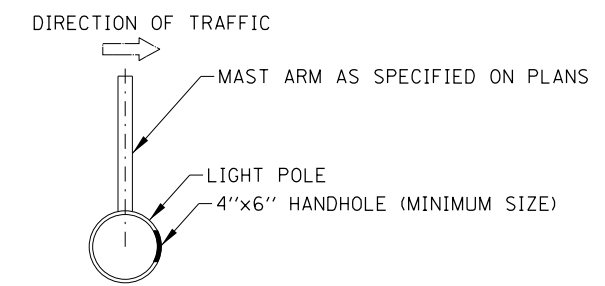
MEDIAN BARRIER WALL MOUNTED UNITS



LIGHT STANDARD MOUNTING DETAIL (GROUND MOUNTED UNITS)



LIGHT STANDARD MOUNTING DETAIL (BARRIER WALL MOUNTED UNITS)



SHOULDER GROUND AND STRUCTURAL PARAPET WALL MOUNTED UNITS

LIGHT STANDARD HANDHOLE ORIENTATION DETAIL

APPROVED: *Paul Kovacs* CHIEF ENGINEERING OFFICER DATE: 2-7-2012

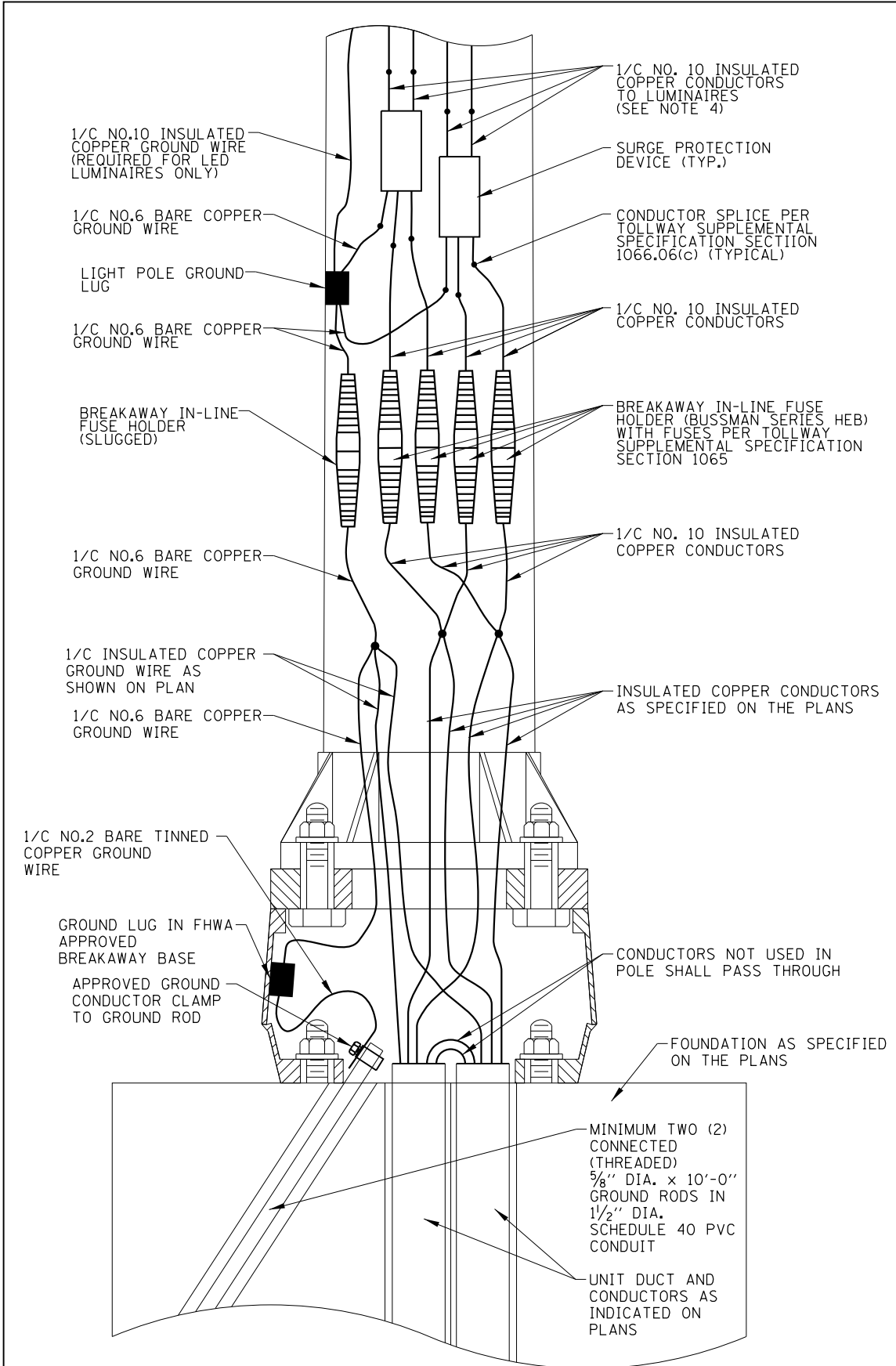
LIGHT STANDARD MOUNTING DETAILS

NOTE: SEE SHEET 1 OF THIS SERIES FOR NOTES.

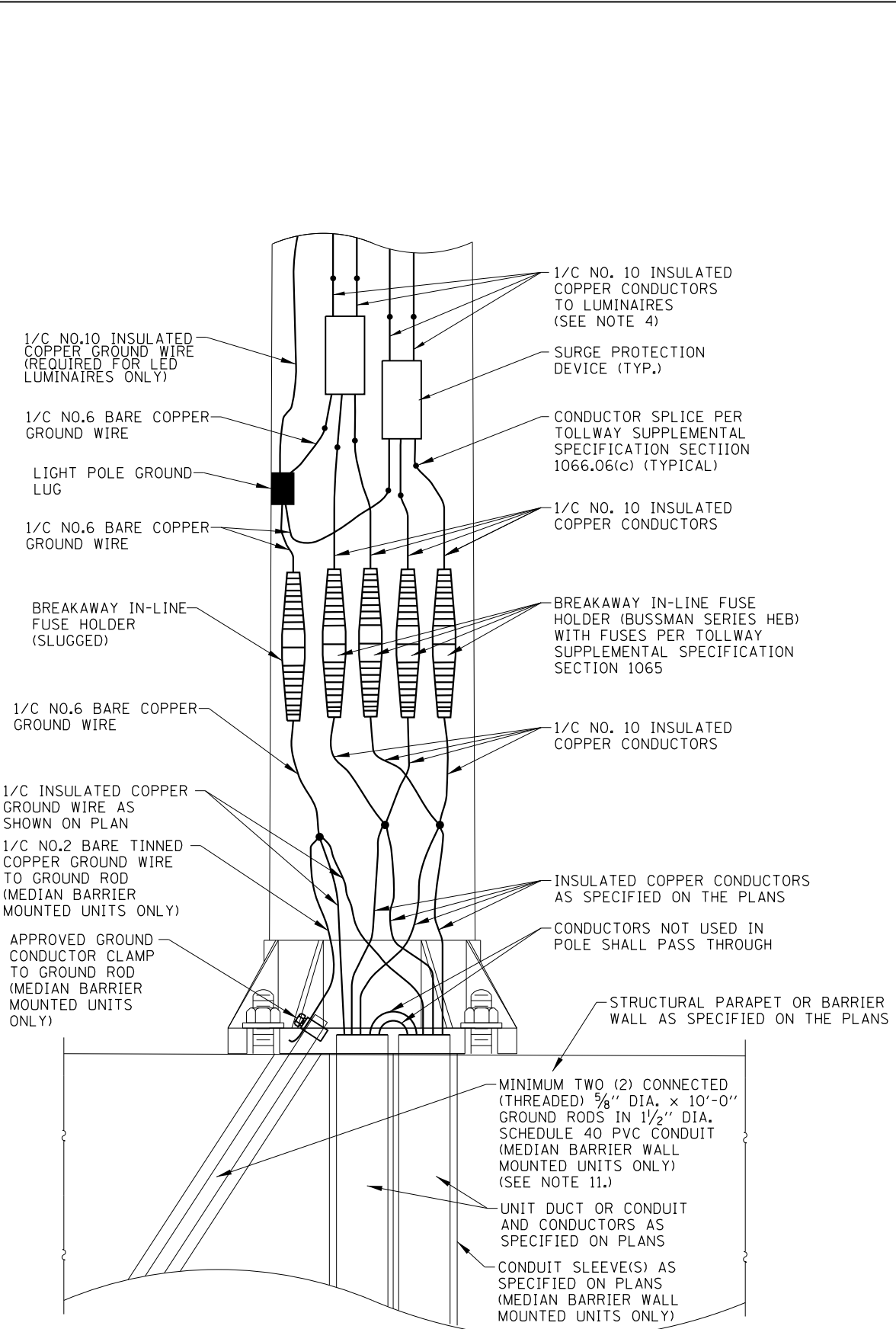
SHEET 2 OF 3

LIGHT STANDARD DETAILS

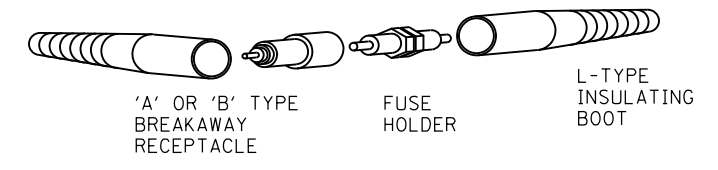
STANDARD H2-07



LIGHT STANDARD WIRING DETAIL
(GROUND MOUNTED UNITS)
 (SEE NOTES 7 & 8)



LIGHT STANDARD WIRING DETAIL
(STRUCTURAL AND BARRIER WALL MOUNTED UNITS)



IN-LINE FUSE HOLDER WITH BREAKAWAY FEATURE DETAIL

Paul Kovacs
 APPROVED, CHIEF ENGINEERING OFFICER
 DATE: 2-7-2012

LIGHT STANDARD WIRING DETAILS

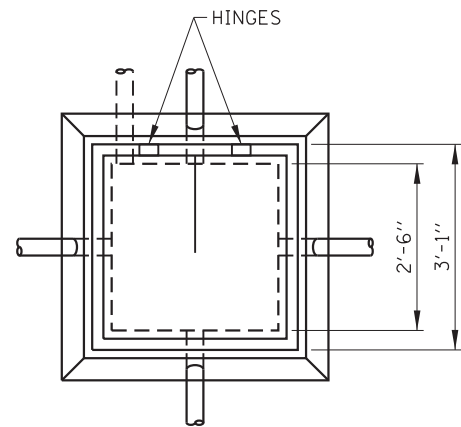
NOTE:
 SEE SHEET 1 OF THIS SERIES FOR NOTES.

SHEET 3 OF 3

LIGHT STANDARD DETAILS

STANDARD H2-07

DIRECTION OF TRAFFIC



PLAN



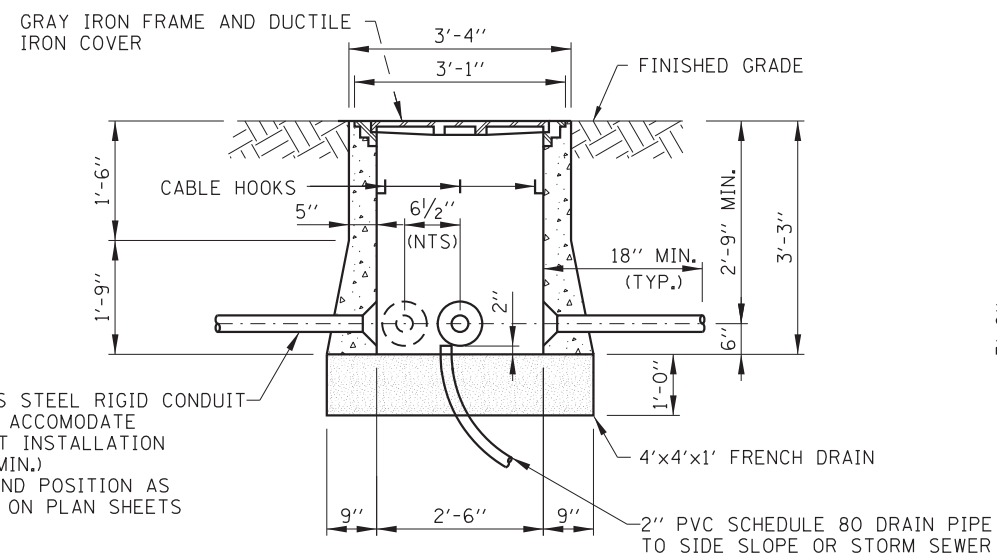
EAST JORDAN
EJ 8216



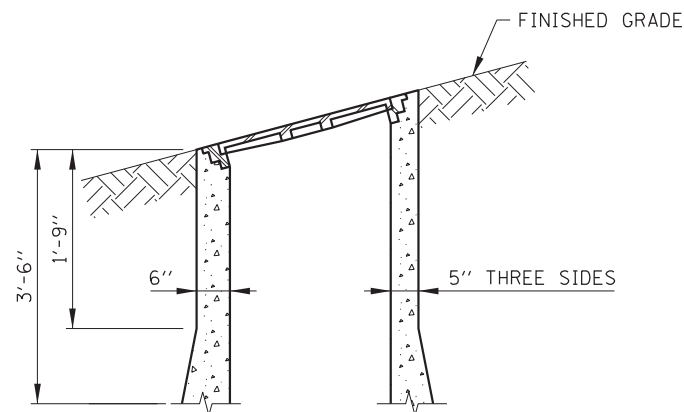
NEENAH
R-6662-PS

NOTES:

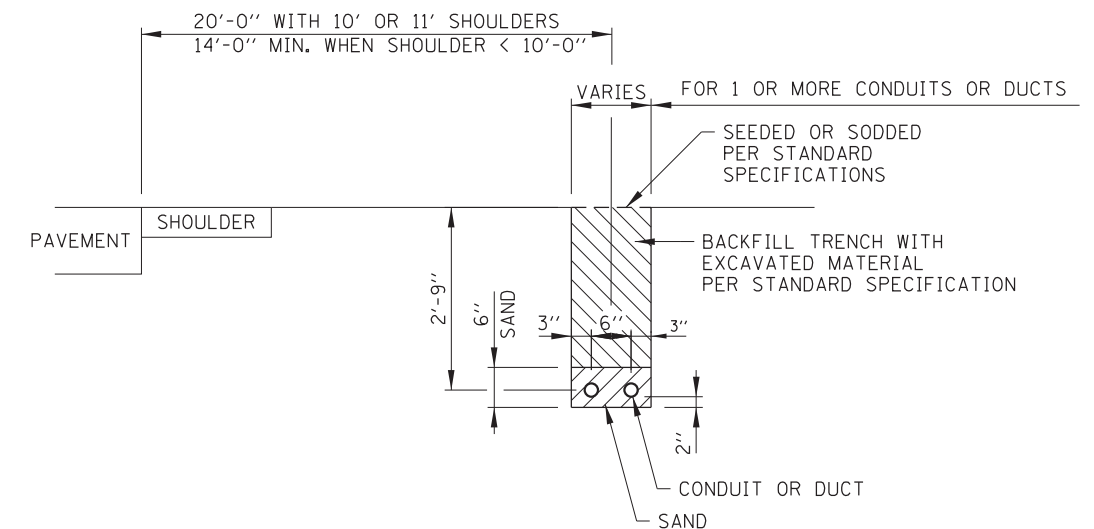
1. HEAVY-DUTY HANDHOLE LOCATED IN UNPAVED AREAS AND NOT SHIELDED BY GUARDRAIL SHALL BE CONSTRUCTED WITH THE TOP FLUSH WITH THE ADJACENT SLOPE.
2. HEAVY-DUTY HANDHOLE SHALL BE CONSTRUCTED IN NON-PAVED AREAS. THE FRAME AND HINGED COVER SHALL BE EITHER NEENAH FOUNDRY R-6662-PS WITH TYPE G LIFTING HANDLE OR EAST JORDAN IRON WORKS EJ 8216 WITH MPIC OR APPROVED EQUAL. THE HINGED COVER SHALL BE PROVIDED WITH A LIFT ASSIST MECHANISM. THERE SHALL BE TWO SETS OF HINGES AND THE DESIGN SHALL ALLOW FOR THE COVER TO OPEN > 90 DEGREES. THE COVER SHALL BE PROVIDED WITH A HOLD OPEN SAFETY ARM THAT CATCHES TO PREVENT ACCIDENTAL CLOSURE. THE COVER SHALL ALSO BE ABLE TO BE MADE FULLY REMOVABLE. THE FRAME COVER SHALL BE INSTALLED WITH THE HINGES TO THE SIDE FACING APPROACHING TRAFFIC.
3. AGGREGATE FOR FRENCH DRAIN SHALL BE PER ARTICLE 1003.04 OF THE STANDARD SPECIFICATIONS.
4. 10 FEET OF EXTRA CABLE SHALL BE COILED IN EACH HANDHOLE.
5. ALL METALLIC COMPONENTS OF THE HANDHOLE SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS SECTION 814, THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
6. THE HANDHOLE COVER SHALL BE LETTERED "ELECTRIC". LETTERING SHALL BE 2" FLAT FACE GOTHIC AND BE FLUSH WITH THE SLIP RESISTANT SURFACE.



ELEVATION



SLOPE INSTALLATION



TRENCHING FOR CONDUIT IN NON-PAVED AREAS

HEAVY-DUTY HANDHOLE DETAILS

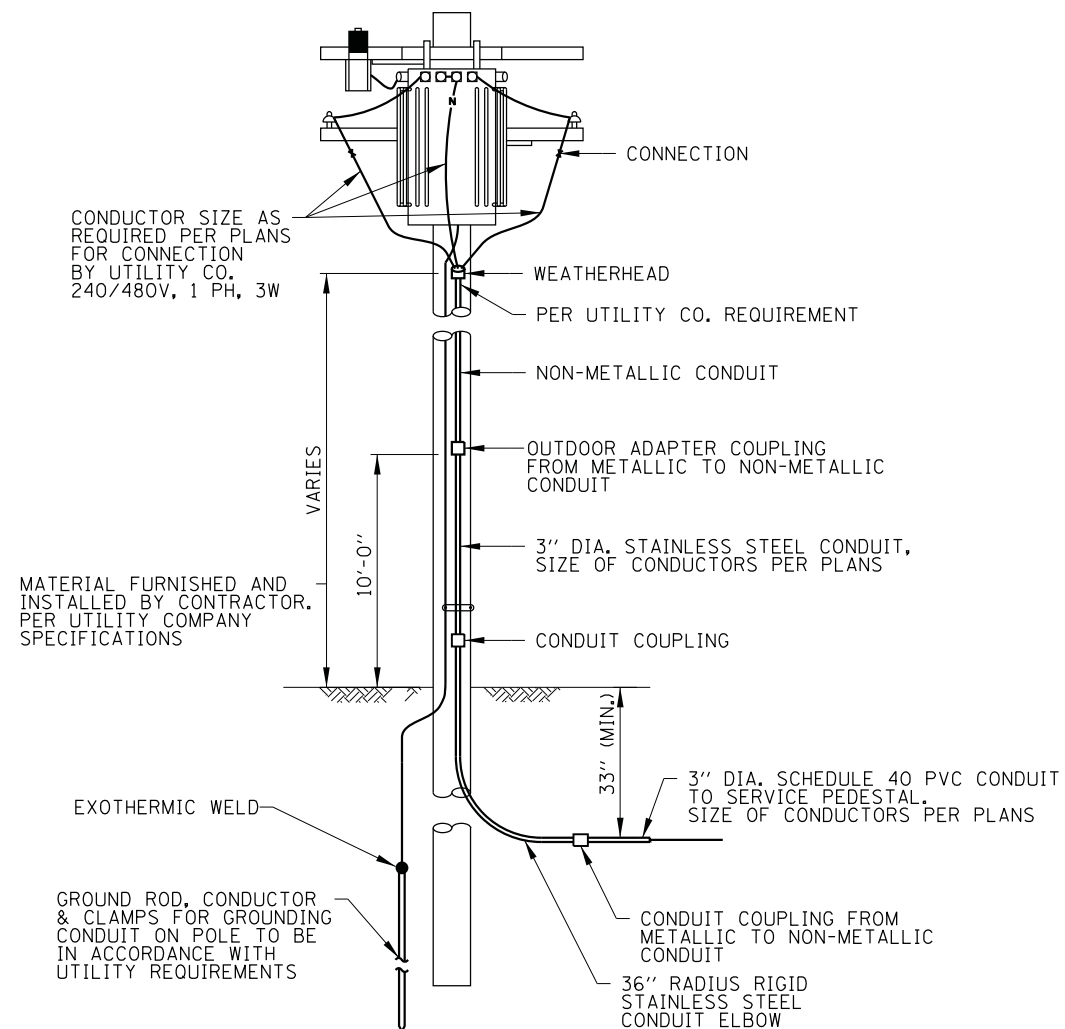
APPROVED *Paul Kovacs* CHIEF ENGINEER DATE 2-7-2012

DATE	REVISIONS
2-07-2012	MODIFY TRENCH DETAIL, NEW HANDHOLE DETAILS AND REVISED NOTES.
3-11-2015	DELETED NON HEAVY-DUTY HANDHOLE.
3-31-2016	NEW HINGED COVER AND REVISED NOTES.
3-31-2017	REVISED NOTES. REMOVED GROUND ROD FROM DETAIL.

Illinois Tollway

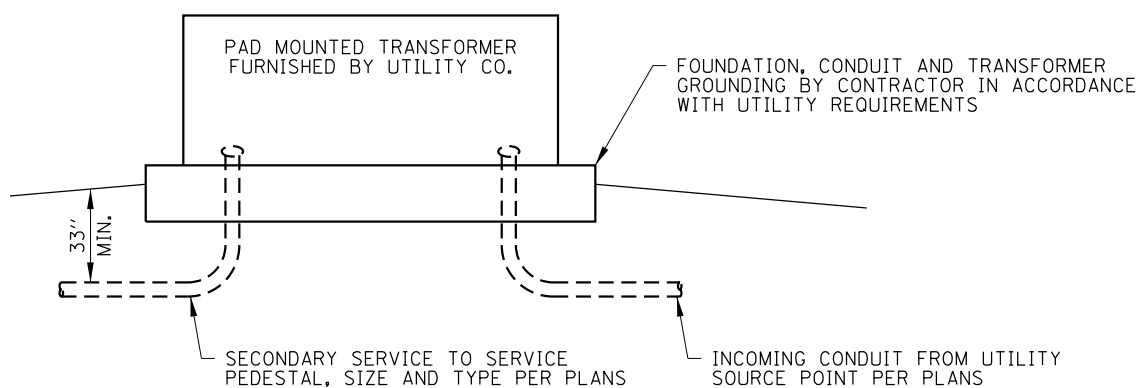
HEAVY-DUTY HANDHOLE AND BURIED WIRING DETAILS

STANDARD H4-04



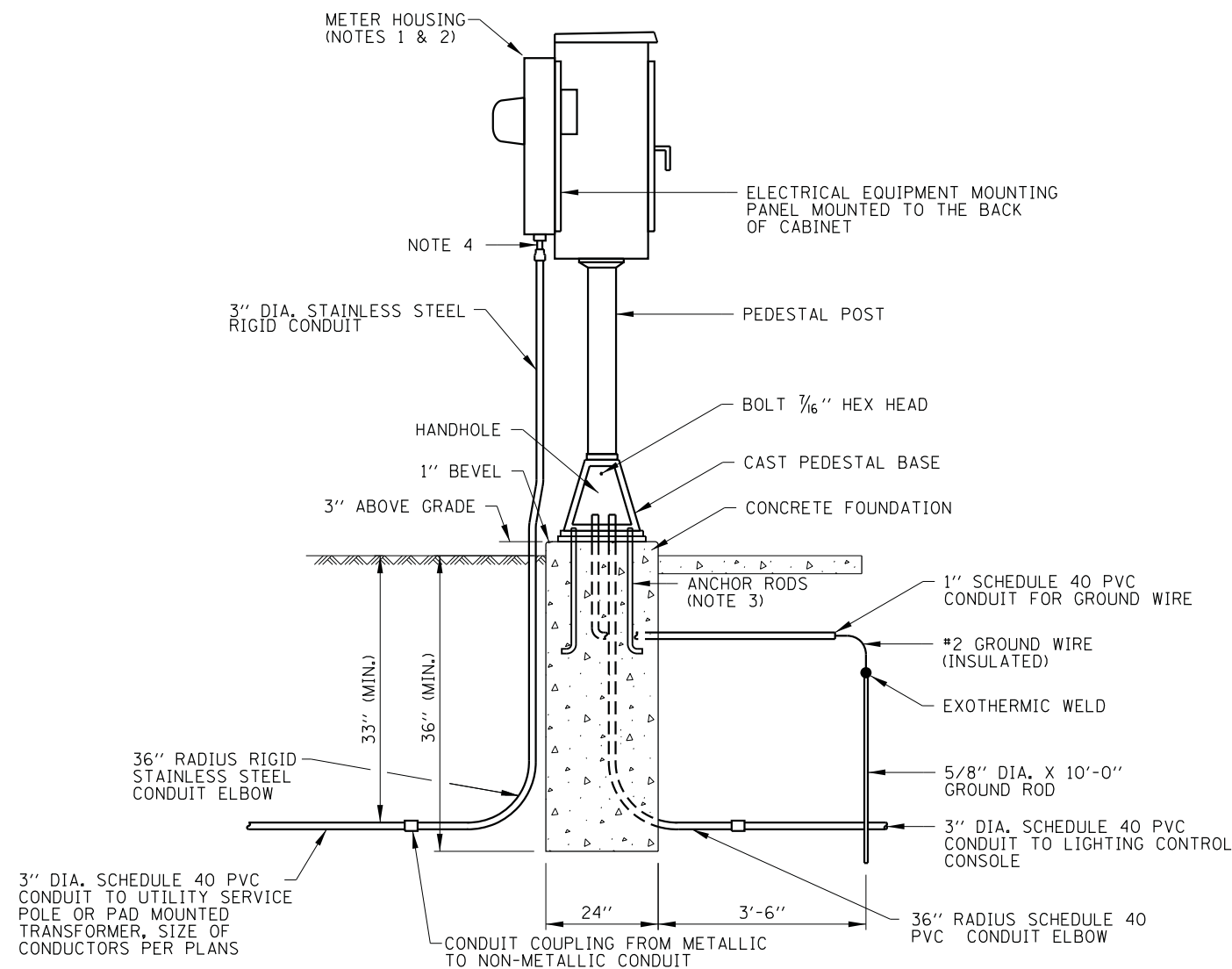
UTILITY SERVICE POLE

SUBJECT TO UTILITY COMPANY APPROVAL



UTILITY PAD MOUNTED TRANSFORMER

SUBJECT TO UTILITY COMPANY APPROVAL



SERVICE PEDESTAL WITH METER DETAIL

NOTES:

- METER HOUSING SHALL BE MOUNTED TO BACK WALL OF CONTROL CABINET. PROVIDE A GATE IN R.O.W. FENCE TO ALLOW UTILITY ACCESS TO READ THE METER.
- CABLES FROM METER HOUSING SHALL PASS THROUGH BACK WALL OF CONTROL CABINET.
- CONTRACTOR MUST COORDINATE WITH PEDESTAL BASE SUPPLIER AND FURNISH THE NECESSARY ANCHOR RODS.
- PROVIDE A 2 1/2" CONDUIT HUB, 2 1/2" NIPPLE AND 2 1/2" TO 3" CONDUIT REDUCER FITTING.
- ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.

SHEET 1 OF 2



DATE	REVISIONS
3-11-2015	REVISED CONDUITS TO STAINLESS STEEL.
3-31-2016	REVISED CONDUIT DEPTH.
3-31-2017	ADDED EQUIPMENT LAYOUTS
3-01-2018	TYPOGRAPHICAL CORRECTIONS.

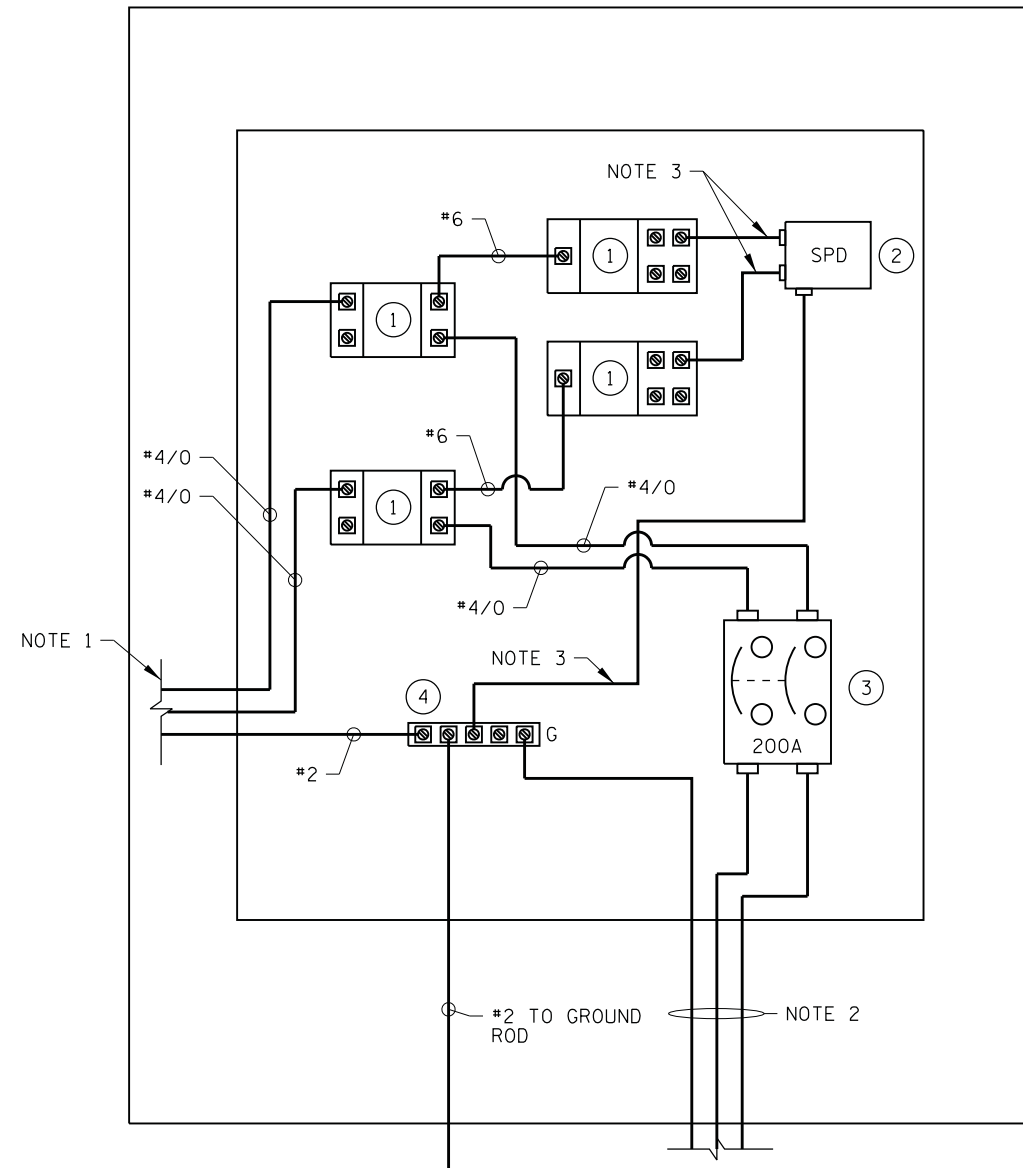
SERVICE POLE AND
PEDESTAL DETAILS

STANDARD H5-05

APPROVED *Paul Kovacs* CHIEF ENGINEERING OFFICER DATE 2-7-2012

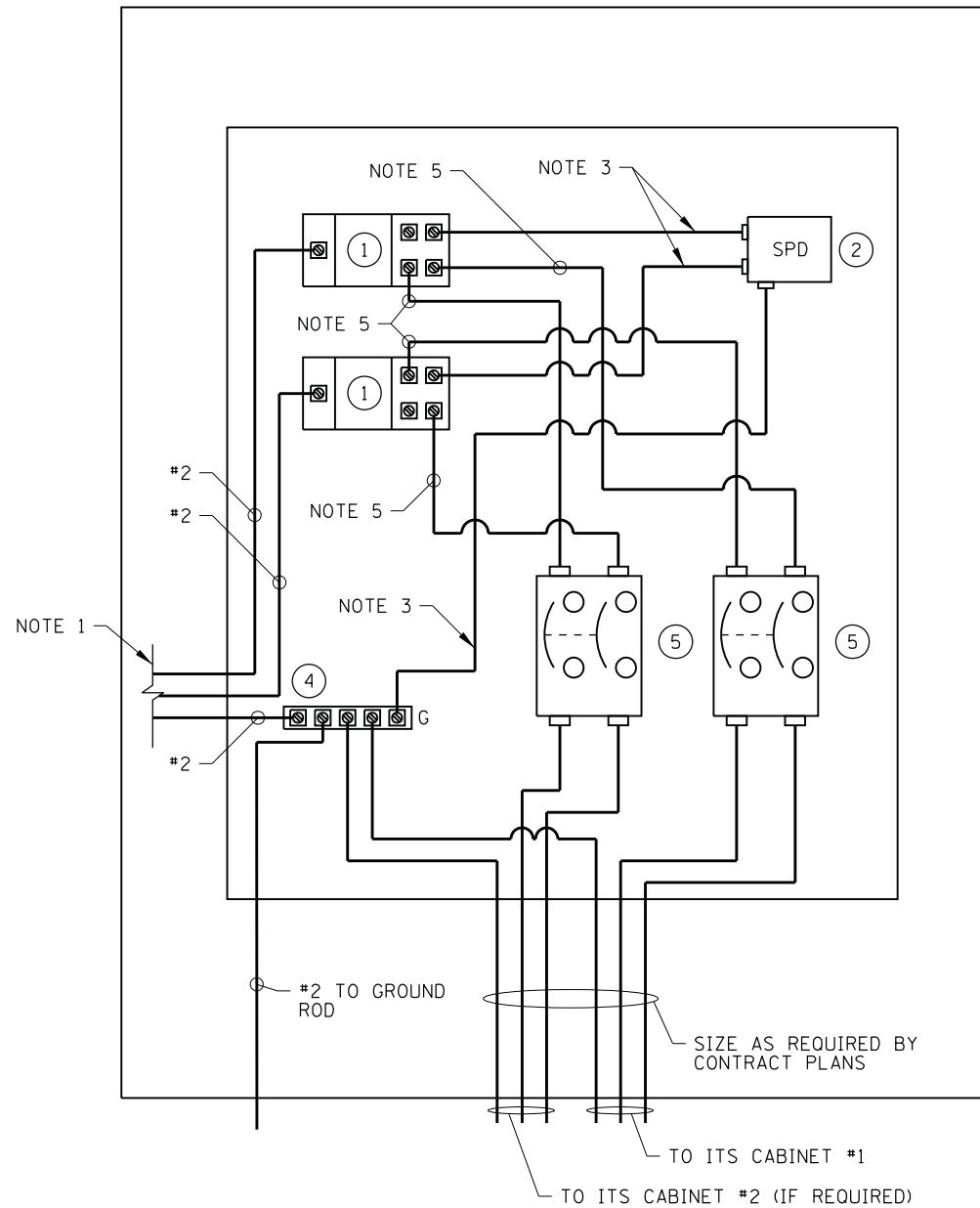
ITEM DESCRIPTION

- ① POWER DISTRIBUTION/TERMINAL BLOCK, WITH INGRESS PROTECTION RATING IP20.
- ② SURGE PROTECTION DEVICE
- ③ CIRCUIT BREAKER, 200 AMPERE, 2-POLE, 600 VOLT RATED
- ④ GROUNDING AND/OR NEUTRAL BUS
- ⑤ CIRCUIT BREAKER, 30 AMPERE (OR AS REQUIRED BY CONTRACT PLANS), 2-POLE, 600 VOLT RATED



SERVICE PEDESTAL INTERIOR ELECTRIC EQUIPMENT LAYOUT & WIRING DIAGRAM

ROADWAY LIGHTING



SERVICE PEDESTAL INTERIOR ELECTRIC EQUIPMENT LAYOUT & WIRING DIAGRAM

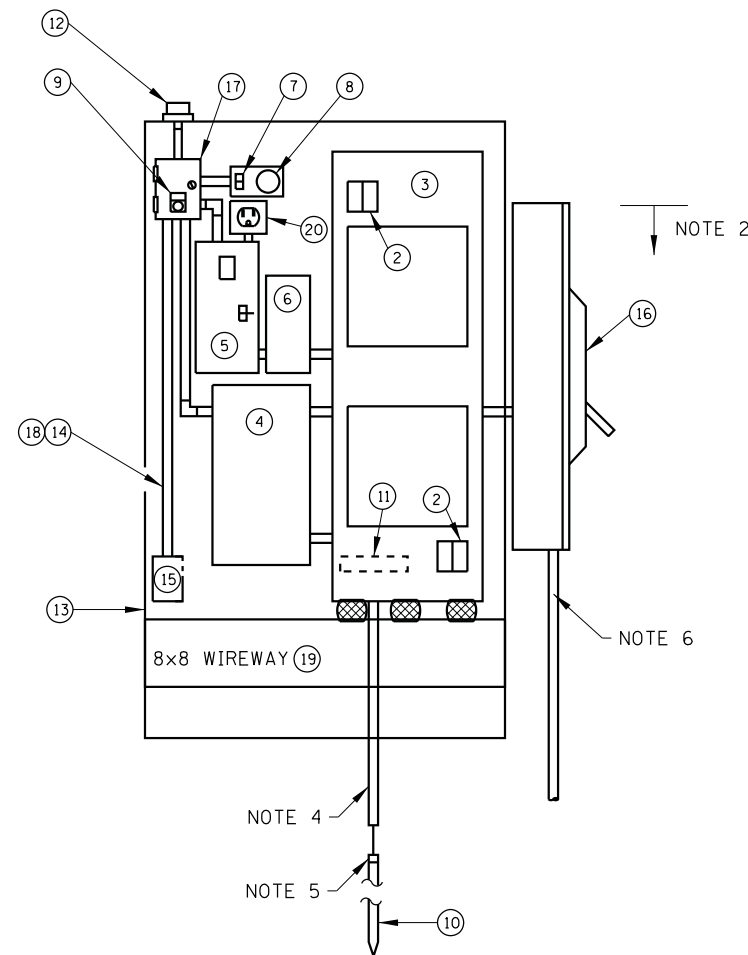
ROADWAY ITS

NOTES:

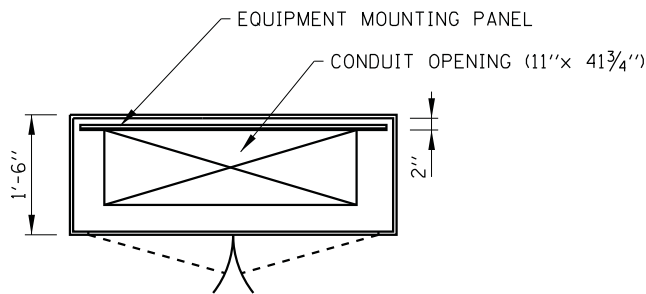
- 1. ELECTRIC SERVICE CONDUCTORS FROM METER HOUSING.
- 2. ELECTRIC SERVICE CONDUCTORS TO LIGHTING CONTROL CONSOLE. SIZE AS INDICATED ON THE PLANS.
- 3. SURGE PROTECTION DEVICE CONDUCTORS SIZE SHALL BE ACCORDING TO MANUFACTURER'S RECOMMENDATION.
- 4. ELECTRIC CONDUCTORS SHOWN WITH MINIMUM SIZES. LARGER SIZES SHALL BE USED AS REQUIRED OR AS SHOWN ON THE PLANS.
- 5. CABLES SHALL BE MINIMUM #4 AWG OR AS REQUIRED FOR CIRCUIT BREAKER.



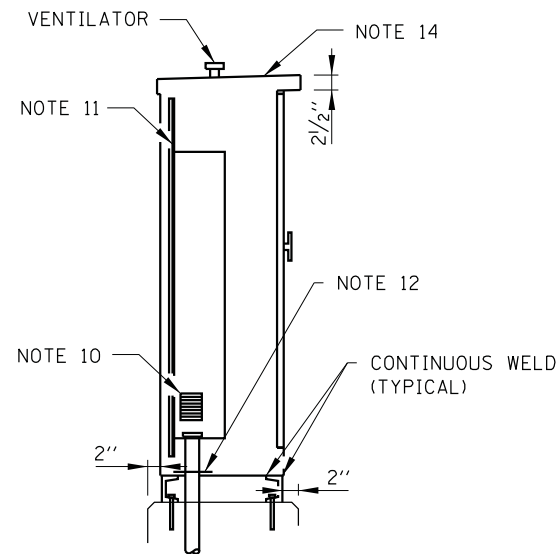
Paul Kovacs
 APPROVED CHIEF ENGINEERING OFFICER DATE 2-7-2012



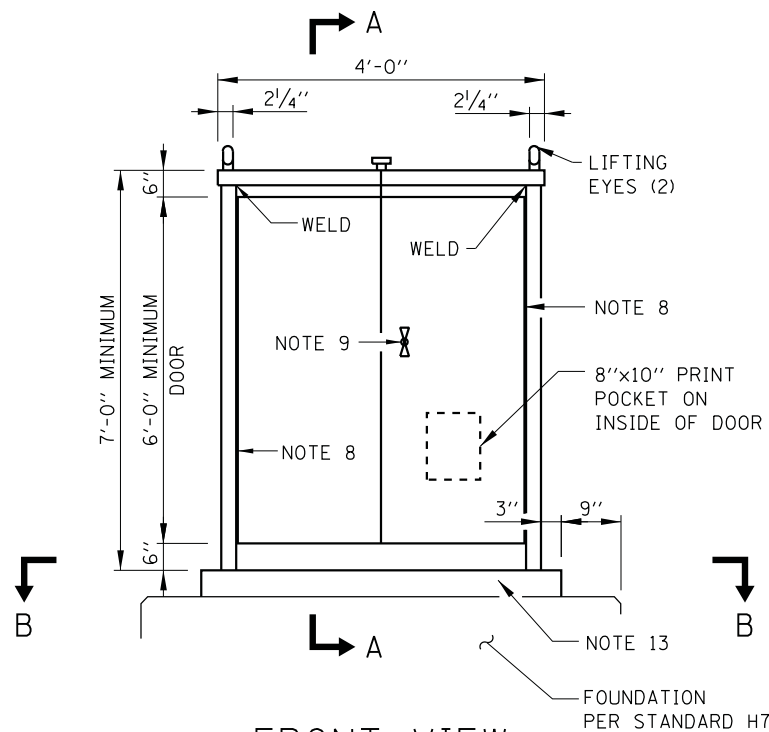
INTERIOR EQUIPMENT LAYOUT



SECTION B-B



SECTION A-A



FRONT VIEW

CONTROL CONSOLE DETAILS
(EXTERIOR INSTALLATION)

NOTES:

1. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
2. 5'-0" MAXIMUM HEIGHT ABOVE GRADE.
3. NOT USED.
4. 3/4" PVC CONDUIT IN CONCRETE, SEE FOUNDATION DETAILS (STANDARD H7).
5. EXOTHERMIC WELD NO. 2 BARE TINNED COPPER GROUND CABLE TO GROUND ROD.
6. TO SERVICE PEDESTAL AS INDICATED ON PLANS.
7. NOT USED.
8. CONTINUOUS STAINLESS STEEL PIANO HINGES.
9. 3-POINT LATCH VAULT TYPE HANDLE WITH MASTER KEYED CHICAGO CYLINDER LOCK CATALOG NO. 60
10. SCREENED LOUVERS ON SIDES OF CABINET.
11. 10 GAUGE GALVANIZED STEEL EQUIPMENT MOUNTING PANEL (PAINTED WHITE).
12. REMOVABLE #10 GAUGE 13"x43 3/4" STAINLESS STEEL PLATE. DRILL PLATE AS REQUIRED FOR CONDUIT ENTRY.
13. 4" x 2 1/2" STAINLESS STEEL CHANNEL (2 REQUIRED-FRONT AND BACK). EXTEND CHANNEL 3" BEYOND ENCLOSURE (CONTINUOUSLY WELD CHANNEL TO ENCLOSURE).
14. TOP SLOPED 1/2" TO REAR FOR DRAINAGE.
15. FOR WIRING DIAGRAM SEE SHEET 2 OF THIS SERIES.
16. ALL EQUIPMENT WITHIN LIGHTING CONTROLLER SHALL BE SEPERATED A MINIMUM OF THREE (3) INCHES FROM EACHOTHER.
17. MAIN PANELBOARD (ITEM 3) SHALL BE POSITIONED SUCH THAT BOTH DOORS (DOOR-IN-DOOR) OF THE PANELBOARD MAY BE FULLY OPENED WITHIN EXTERIOR ENCLOSURE (ITEM 13) WITHOUT REMOVAL

ITEM DESCRIPTION:

- ① NOT USED.
- ② SECONDARY SURGE ARRESTERS, 2 POLE, 650 VOLT.
- ③ MAIN PANELBOARD IN A NEMA 1 ENCLOSURE, 480/240 VOLT, 1 PHASE, 3 WIRE, 2 SECTION, 200 AMP, 2 POLE MAIN CIRCUIT BREAKER 65,000 AMPERES SYMMETRICAL INTERRUPTING CAPACITY WITH CIRCUIT BREAKERS PER SCHEDULE ON PLANS. DOOR HINGES ON RIGHT SIDE.
- ④ LIGHTING CONTACTOR, ELECTRICALLY HELD, 480 VOLT, 200 AMP, 2 POLE, 120 VOLT CONTROL, WITH 250 VOLT, 15 AMP CONTROL LINE FUSE, IN A NEMA 1 ENCLOSURE.
- ⑤ SECONDARY BREAKER, 15 AMPERE TRIP, 120 VOLT, SINGLE POLE, 65,000 AMPERES SYMMETRICAL INTERRUPTING CAPACITY IN A NEMA 1 SURFACE MOUNTED ENCLOSURE.
- ⑥ STEP DOWN TRANSFORMER, 1500 VA, 480 VOLT PRIMARY, 120 VOLT SECONDARY, SINGLE PHASE, 60 HERTZ, DRY TYPE, NEMA 3R ENCLOSURE.
- ⑦ SINGLE POLE, 15 AMPERE SWITCH, IN A NEMA 1 ENCLOSURE (WITH ITEM 8), RATED AT 120-277 VAC.
- ⑧ LAMP HOLDER 660W, 600V, MOUNTED ON A NEMA 1 ENCLOSURE (WITH ITEM 7), W/LED LAMP.
- ⑨ HAND-OFF-AUTO SELECTOR SWITCH WITH LEGEND PLATE. MOUNTED IN THE COVER OF ITEM 17.
- ⑩ 5/8" DIA. x 10'-0" LONG GROUND ROD DRIVEN EXTERNAL TO THE FOUNDATION WITHIN GROUND WELL.
- ⑪ GROUND BUS MOUNTED IN PANELBOARD ENCLOSURE.
- ⑫ PHOTO ELECTRIC CONTROL SWITCH, WITH RECEPTACLE.
- ⑬ NEMA TYPE 3R STAINLESS STEEL ENCLOSURE WITH DRIP SHIELD AND STAINLESS STEEL HARDWARE. ENCLOSURE SHALL CONFORM TO J.I.C. STANDARDS WITH CELLULAR NEOPRENE GASKETED DOORS, ALL SEAMS CONTINUOUSLY WELDED, 10 GAUGE STAINLESS STEEL BODY, REMOVABLE STEEL (PAINTED WHITE) PANEL INSIDE THE BACK AND A FACTORY INSTALLED DRIP SHIELD. THE ENCLOSURE SHALL HAVE CONTINUOUS HINGED DOORS MEETING IN THE CENTER, OVERLAPPED AND GASKETED, WITH NO CENTERPOST. AN OIL TIGHT KEY LOCKING HANDLE WITH 3 POINT LATCH SHALL BE PROVIDED (FURNISH 6 KEYS). EACH END OF THE ENCLOSURE SHALL HAVE A SCREENED, GASKETED VENTILATING LOUVER AND THE TOP OF THE ENCLOSURE SHALL HAVE A VENTILATOR. INTERNAL CONDUIT SHALL HAVE LOCKNUTS, INSULATING BUSHING AND CONDULET FITTINGS AS REQUIRED. INTERNAL WIRING SHALL BE XLP INSULATED NEC TYPE RHH/RHW-2. PROVIDE A WIRING DIAGRAM IN A PRINT POCKET ON THE INSIDE OF THE CABINET DOOR.
- ⑭ INTERNAL CONTROL WIRING SHALL BE #12 AWG, STRANDED, XLP INSULATED NEC TYPE RHH/RHW-2 RATED 600 VOLT, WITH SUITABLE COLOR CODING TO BE APPROVED BY THE ENGINEER BEFORE CONSTRUCTION.
- ⑮ 200 WATT, 120 VOLT CABINET HEATER WITH INTEGRAL THERMOSTAT.
- ⑯ SERVICE SAFETY SWITCH, 200 AMP, 600 VOLT, NON-FUSED, NEMA 4X STAINLESS STEEL ENCLOSURE.
- ⑰ NEMA TYPE 1, 8"x6"x4" JUNCTION BOX & COVER WITHOUT KNOCKOUTS. ITEM 9 IS MOUNTED IN THE COVER.
- ⑱ INTERNAL CONDUIT AND FITTINGS SHALL BE 3/4" MINIMUM.
- ⑳ GCFI OUTLET.



EXTERIOR
CONTROL CONSOLE
DETAILS

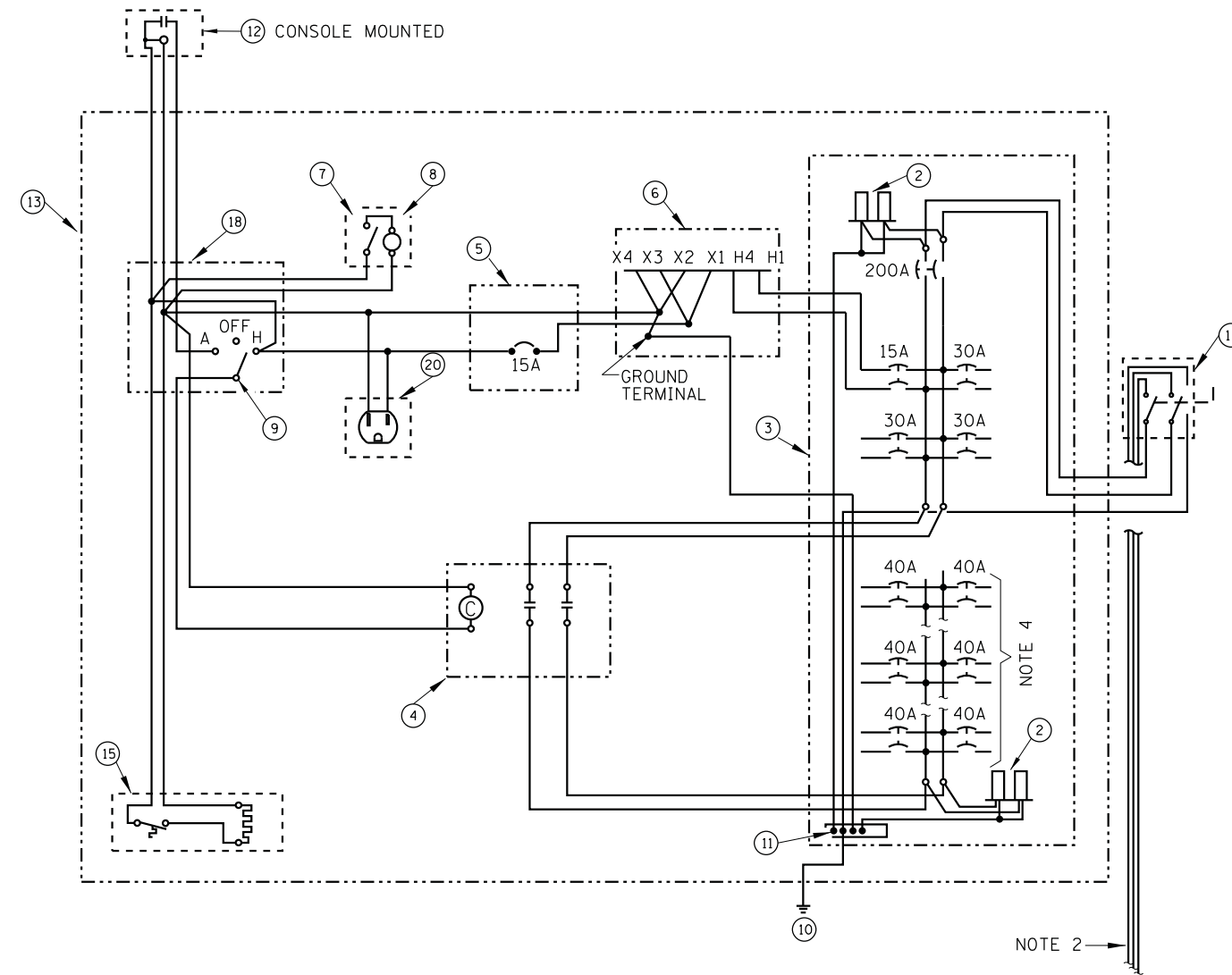
STANDARD H6-06

DATE	REVISIONS
3-31-2014	REVISED NOTES AND ITEM DESCRIPTIONS.
3-11-2015	REVISED CONDUITS TO STAINLESS STEEL.
3-31-2016	REVISED NOTE 2.
3-31-2017	REMOVED METER HOUSING.
3-01-2018	REMOVED CONTACTOR RELAY, ADDED GCFI OUTLET.

APPROVED *Paul Kovacs* CHIEF ENGINEERING OFFICER DATE 2-7-2012

NOTES:

1. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
2. TO SERVICE PEDESTAL, 480/240V, 1 PHASE, 3 WIRE, GROUNDED. SEE STANDARD H5.
3. ITEM NUMBERS REFER TO EQUIPMENT LIST ON SHEET 1 OF THIS SERIES.
4. PROVIDE CIRCUIT BREAKERS PER SCHEDULE ON THE CONTRACT PLANS (MINIMUM OF 12).
5. FOR INTERIOR EQUIPMENT LAYOUT SEE SHEET 1 OF THIS SERIES.



CONTROL CONSOLE WIRING DIAGRAM

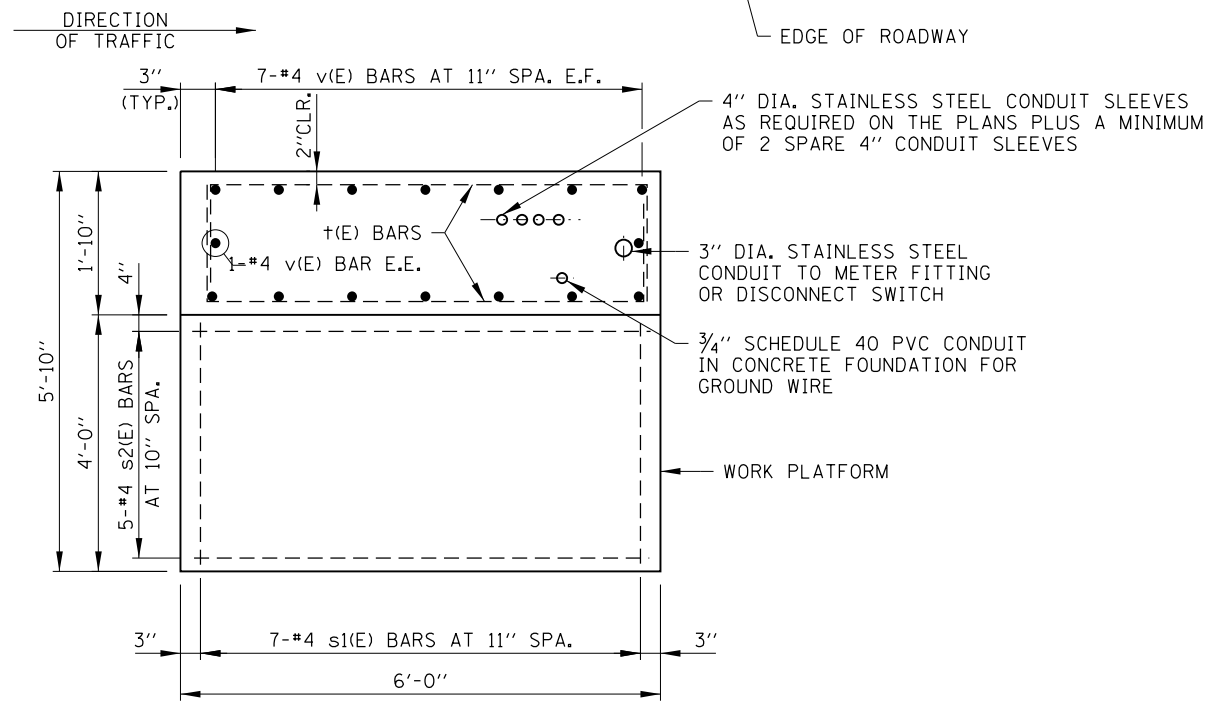
CONTROL CONSOLE DETAILS
(EXTERIOR INSTALLATION)



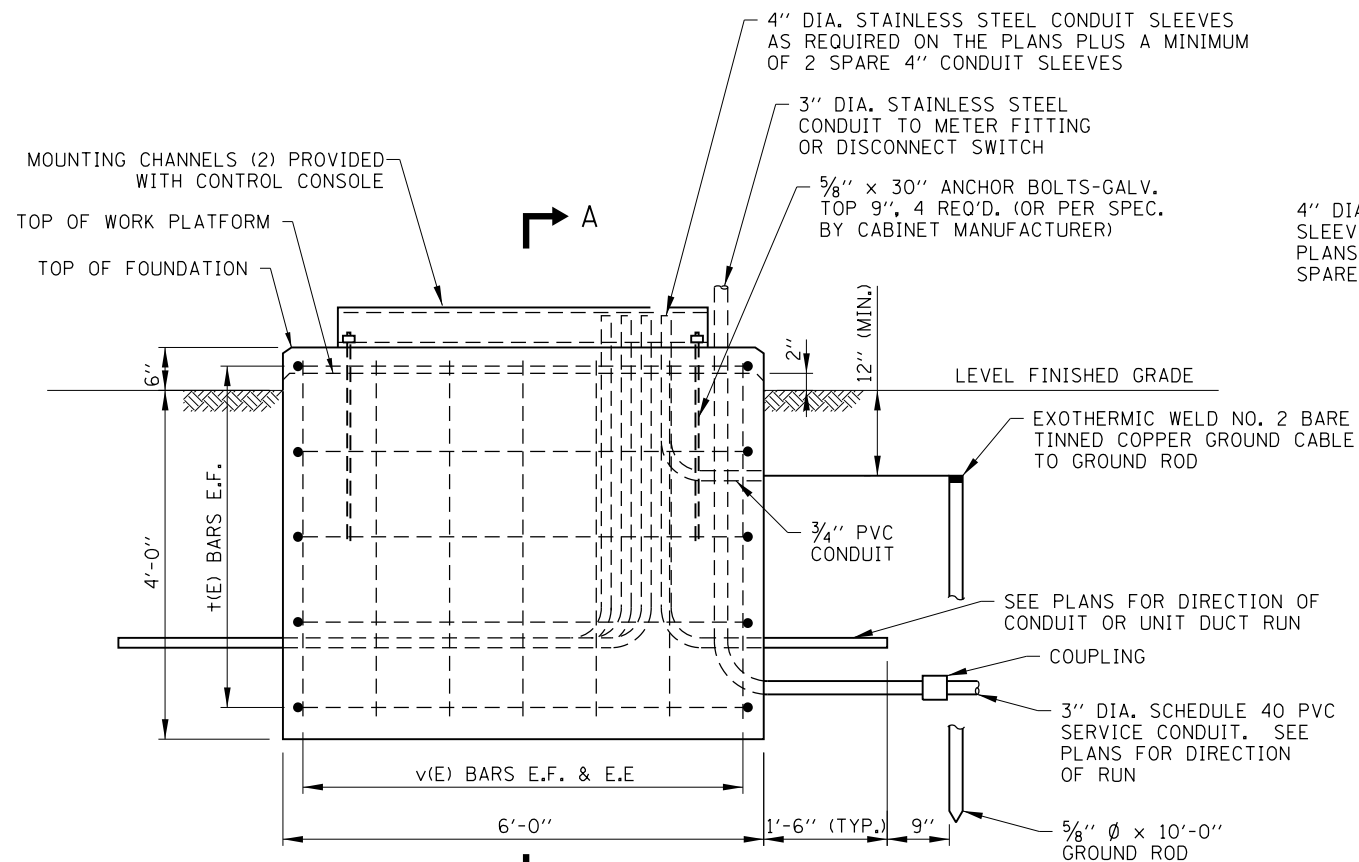
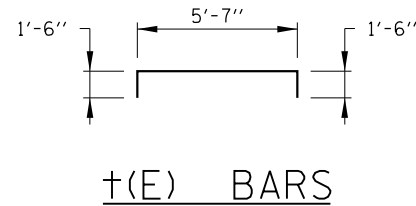
EXTERIOR
CONTROL CONSOLE
DETAILS

STANDARD H6-06

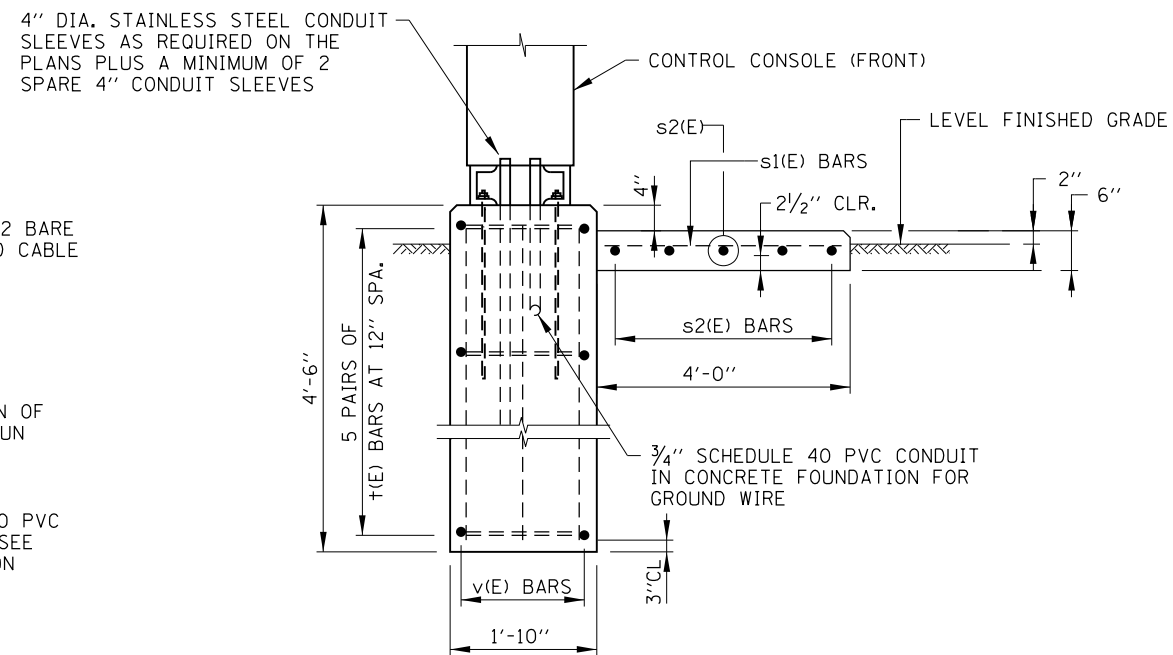
Paul Kovacs
APPROVED CHIEF ENGINEERING OFFICER DATE 2-7-2012



PLAN



ELEVATION



SECTION A-A

NOTES:

1. EXPOSED CONCRETE EDGES SHALL HAVE 3/4"x45° CHAMFERS EXCEPT WHERE SHOWN OTHERWISE. CHAMFERS ON VERTICAL EDGES SHALL BE CONTINUED A MINIMUM OF ONE FOOT BELOW FINISHED GROUND LEVEL.
2. ALL REINFORCEMENT BARS SHALL BE EPOXY COATED (E) AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 (ASTM A615), GRADE 60 DEFORMED BARS.
3. REINFORCEMENT BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315, LATEST EDITION.
4. REINFORCEMENT BAR BENDING DIMENSIONS ARE OUT TO OUT.
5. COVER FROM THE FACE OF CONCRETE TO FACE OF REINFORCEMENT BARS SHALL BE 3" FOR ALL SURFACES UNLESS OTHERWISE SHOWN.
6. FOR CLARITY, CONTROL CONSOLE AND RAILINGS ARE NOT SHOWN IN PLAN VIEW.
7. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.

REINFORCEMENT BARS SCHEDULE					
BARS	NO.	SIZE	LENGTH	WT. LB.	SHAPE
v(E)	16	#4	4'-0"	43	—
†(E)	10	#4	8'-7"	57	⌈
s1(E)	7	#4	3'-8"	17	—
s2(E)	5	#4	5'-8"	19	—

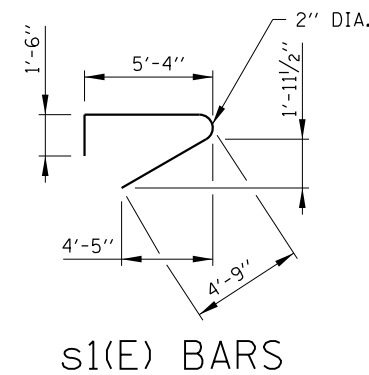
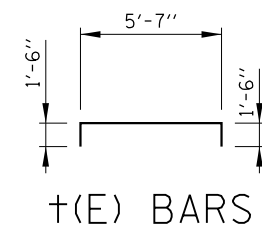
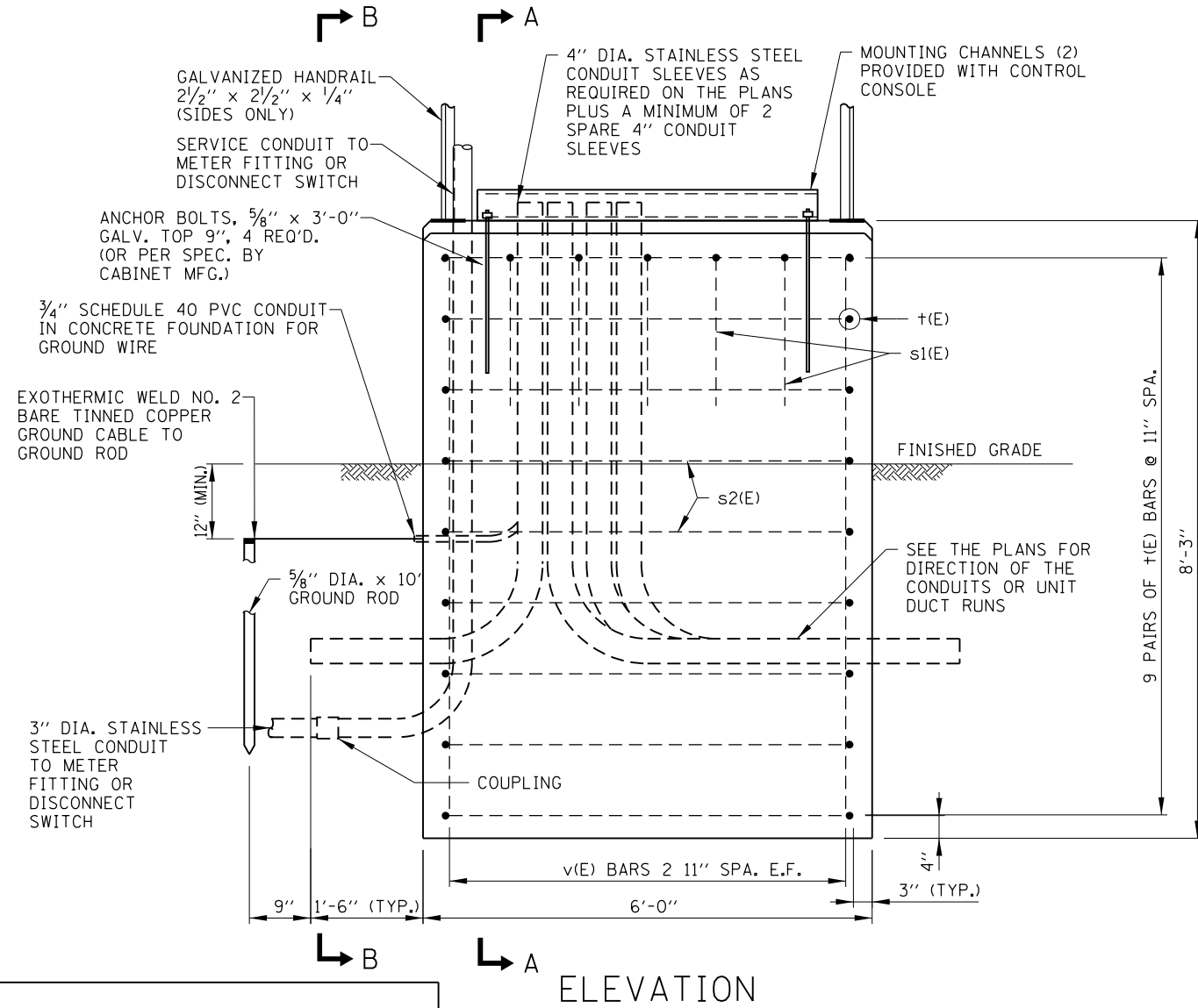
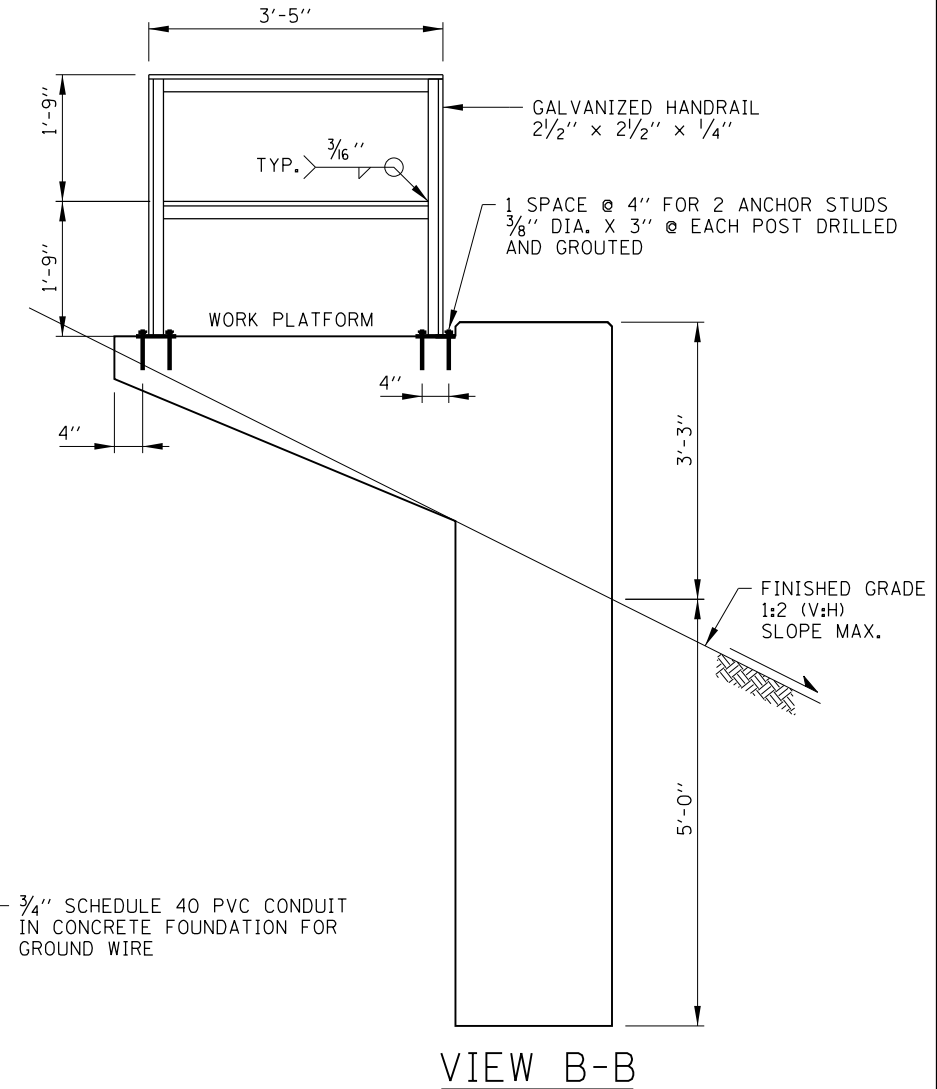
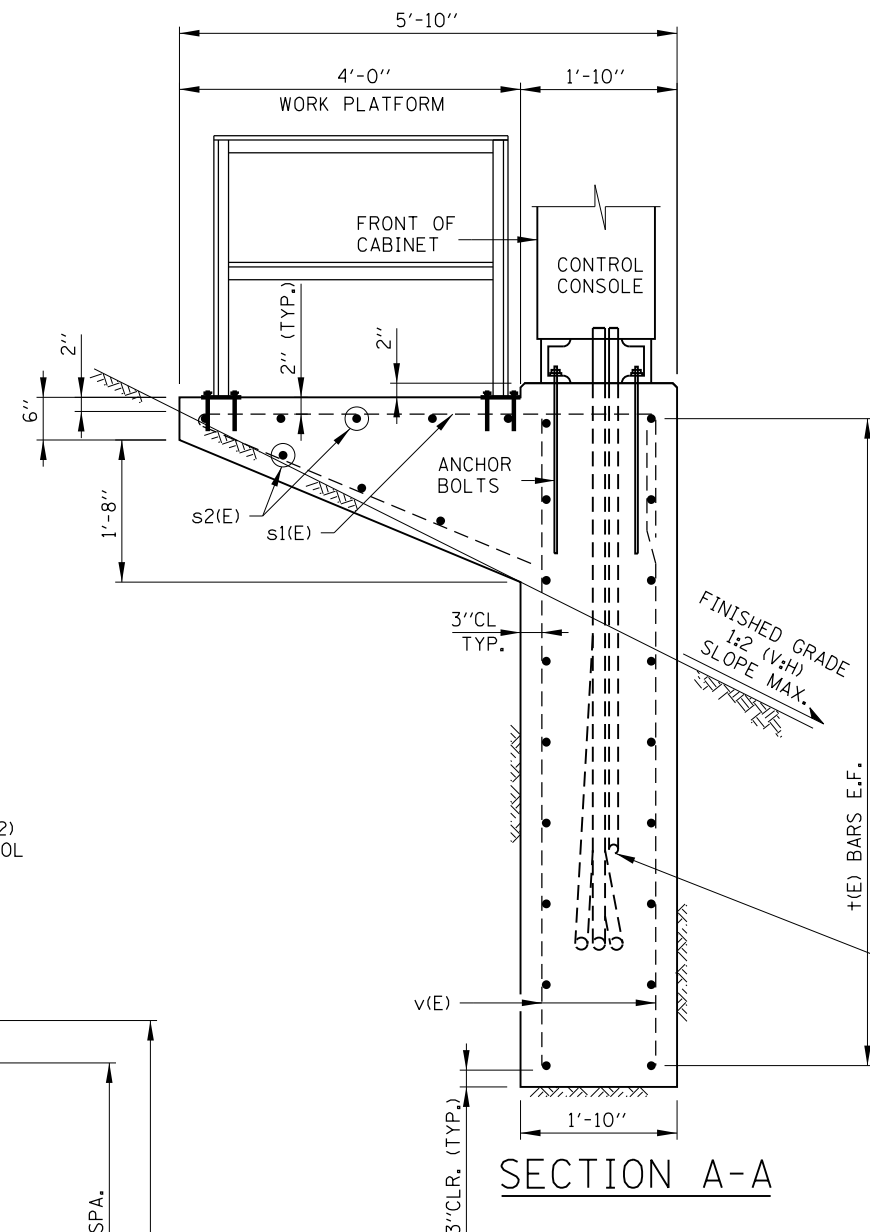
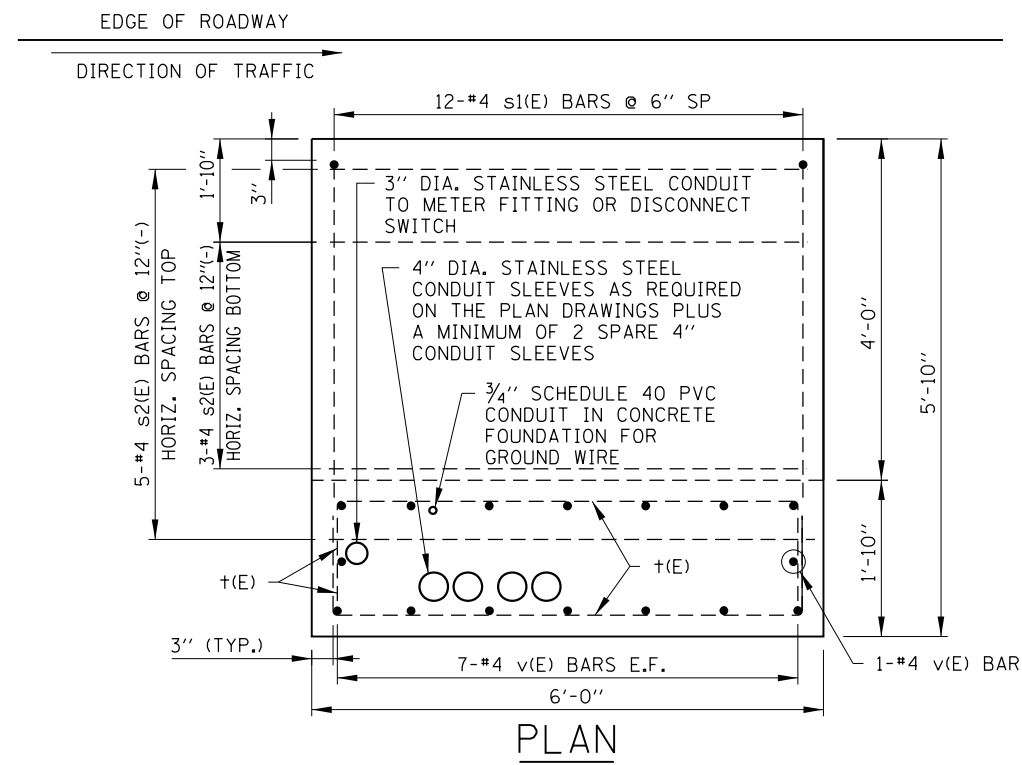
BILL OF MATERIAL		
DESCRIPTION	UNIT	QUANTITY
REINF. BARS, EPOXY COATED	POUND	136
CLASS "SI" CONCRETE	CU. YD.	2.3



DATE	REVISIONS
2-07-2012	REVISED TYPE A AND TYPE B CONTROL CONSOLE FOUNDATIONS.
3-11-2015	REVISED CONDUITS TO STAINLESS STEEL.
3-04-2019	REVISED CONDUITS TO MATCH H5

APPROVED: *Paul Kovacs* CHIEF ENGINEER DATE: 2-7-2012

TYPE A CONTROL CONSOLE FOUNDATION



REINFORCEMENT BARS SCHEDULE					
BARS	NO.	SIZE	LENGTH	WT. LB.	SHAPE
v(E)	16	#4	7'-10"	84	—
t(E)	18	#4	8'-7"	103	┌
s1(E)	12	#4	11'-9"	94	└
s2(E)	8	#4	5'-6"	29	—

BILL OF MATERIAL		
DESCRIPTION	UNIT	QTY
REINF. BARS, EPOXY COATED	POUND	310
CLASS "SI" CONCRETE	CU. YD.	9.4
STRUCTURAL STEEL	POUND	158

Paul Kovacs
APPROVED... CHIEF ENGINEER... DATE 2-7-2012

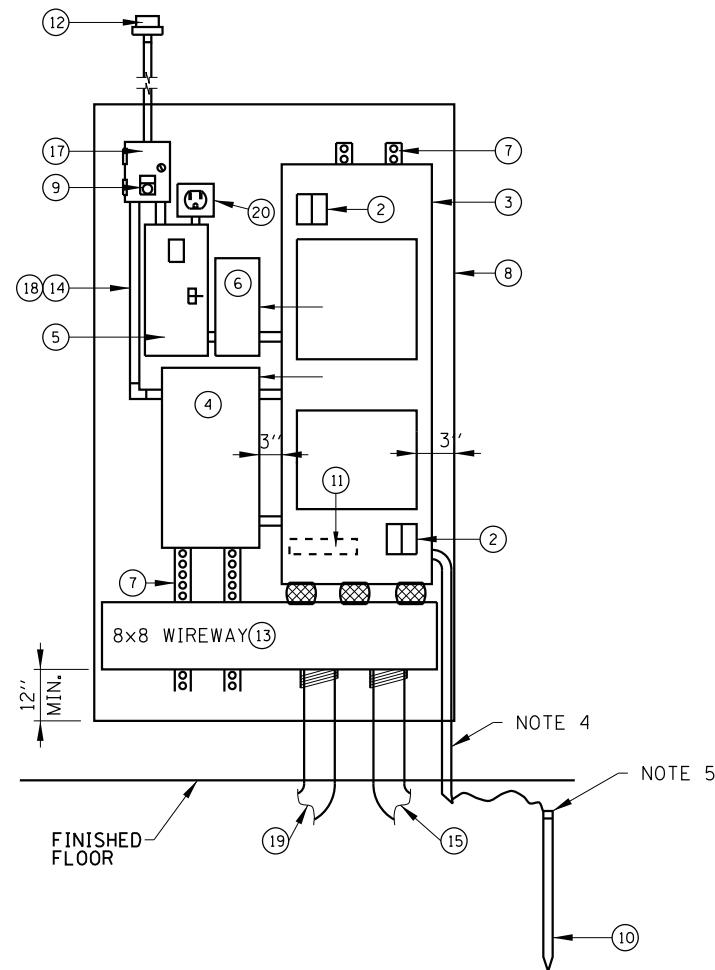
TYPE B CONTROL CONSOLE FOUNDATION

NOTES:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

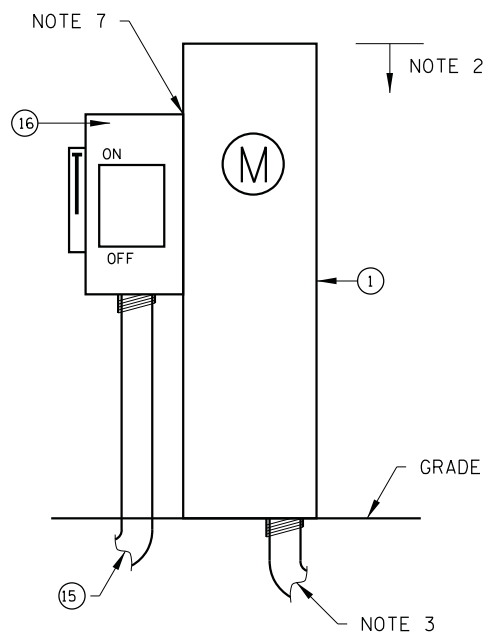
SHEET 2 OF 2

EXTERIOR CONTROL CONSOLE FOUNDATION DETAILS

STANDARD H7-03



INTERIOR EQUIPMENT LAYOUT



SERVICE ENTRANCE DETAIL

NOTES:

1. PROVIDE POWER UTILITY CO. METER HOUSING AS INDICATED ON PLANS.
2. 5'-0" MAXIMUM HEIGHT ABOVE GRADE.
3. STAINLESS STEEL CONDUIT TO UTILITY SERVICE AS INDICATED ON PLANS.
4. 3/4" PVC CONDUIT.
5. EXOTHERMIC WELD NO. 2 BARE TINNED COPPER GROUND CABLE TO GROUND ROD 12"-24" BELOW GRADE.
6. TO POWER UTILITY COMPANY, SERVICE AS INDICATED ON PLANS.
7. CONDUIT AND CABLE BETWEEN METER FITTING AND DISCONNECT SWITCH. CONDUIT AND CABLE SHALL BE THE SAME AS THE SERVICE.
8. LABEL ALL EQUIPMENT AS "ROADWAY LIGHTING" + DEVICE AND BUILDING* (IF APPLICABLE).
9. FOR WIRING DIAGRAM SEE SHEET 2 OF THIS SERIES.
10. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.

ITEM

DESCRIPTION

- | | |
|---|---|
| <ol style="list-style-type: none"> ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑳ | <p>METER HOUSING, MILBANK U8436-0.</p> <p>SECONDARY SURGE ARRESTERS, 2 POLE, 650 VOLT.</p> <p>MAIN PANELBOARD IN A NEMA 1 ENCLOSURE, 480/240 VOLT, 1 PHASE, 3 WIRE, 2 SECTION, 200 AMP, 2 POLE MAIN CIRCUIT BREAKER 65,000 AMPERES SYMMETRICAL INTERRUPTING CAPACITY WITH CIRCUIT BREAKERS PER SCHEDULE ON PLANS. DOOR HINGES ON RIGHT SIDE.</p> <p>LIGHTING CONTACTOR, ELECTRICALLY HELD, 480 VOLT, 200 AMP, 2 POLE, 120 VOLT CONTROL, WITH 250 VOLT, 15 AMP CONTROL LINE FUSE, IN A NEMA 1 ENCLOSURE.</p> <p>SECONDARY BREAKER, 15 AMPERE TRIP, 120 VOLT, SINGLE POLE, 65,000 AMPERES SYMMETRICAL INTERRUPTING CAPACITY IN A NEMA 1 SURFACE MOUNTED ENCLOSURE.</p> <p>STEP DOWN TRANSFORMER, 1500 VA, 480 VOLT PRIMARY, 120 VOLT SECONDARY, SINGLE PHASE, 60 HERTZ, DRY TYPE, NEMA 3R ENCLOSURE.</p> <p>1/4" X 3/4" C-CHANNEL (UNISTRUT) FOR ALL EQUIPMENT STANDOFF</p> <p>1/2" EQUIPMENT MOUNTING PANEL (4' W X 7' H)</p> <p>HAND-OFF-AUTO SELECTOR SWITCH WITH LEGEND PLATE. MOUNTED IN THE COVER OF ITEM 17.</p> <p>ROUTED TO BUILDING GROUND SYSTEM. IF NO GROUND AVAILABLE CONTRACTOR SHALL PROVIDE 5/8" DIA. X 10'-0" LONG GROUND ROD WITHIN GROUND WELL.</p> <p>GROUND BUS MOUNTED IN PANELBOARD ENCLOSURE.</p> <p>PHOTO ELECTRIC CONTROL SWITCH MOUNTED ON SOUTH EXTERIOR SIDE OF BUILDING (VIEW UNOBSTRUCTED).</p> <p>8"x8" WIREWAY WITH 3-3" NIPPLES.</p> <p>INTERNAL CONTROL WIRING SHALL BE #12 AWG, STRANDED, INSULATED NEC TYPE THWN/THHN RATED 600 VOLT, WITH SUITABLE COLOR CODING TO BE APPROVED BY THE ENGINEER BEFORE CONSTRUCTION.</p> <p>2" STAINLESS STEEL CONDUIT FROM SERVICE SAFETY SWITCH TO LIGHTING CONTROLLER WIREWAY.</p> <p>SERVICE SAFETY SWITCH, 200 AMP, 600 VOLT, NON-FUSED, NEMA 4X STAINLESS STEEL ENCLOSURE.</p> <p>NEMA TYPE 1, 8"x6"x4" JUNCTION BOX & COVER WITHOUT KNOCKOUTS. ITEM 9 IS MOUNTED IN THE COVER.</p> <p>INTERNAL CONDUIT AND FITTINGS SHALL BE 3/4" MINIMUM.</p> <p>(2) 4" STAINLESS STEEL CONDUIT TO LIGHTING CONTROLLER HANDHOLE. REFER TO SITE PLAN FOR LOCATION.</p> <p>GCFI OUTLET.</p> |
|---|---|



INTERIOR
CONTROL CONSOLE
DETAILS

STANDARD H8-03

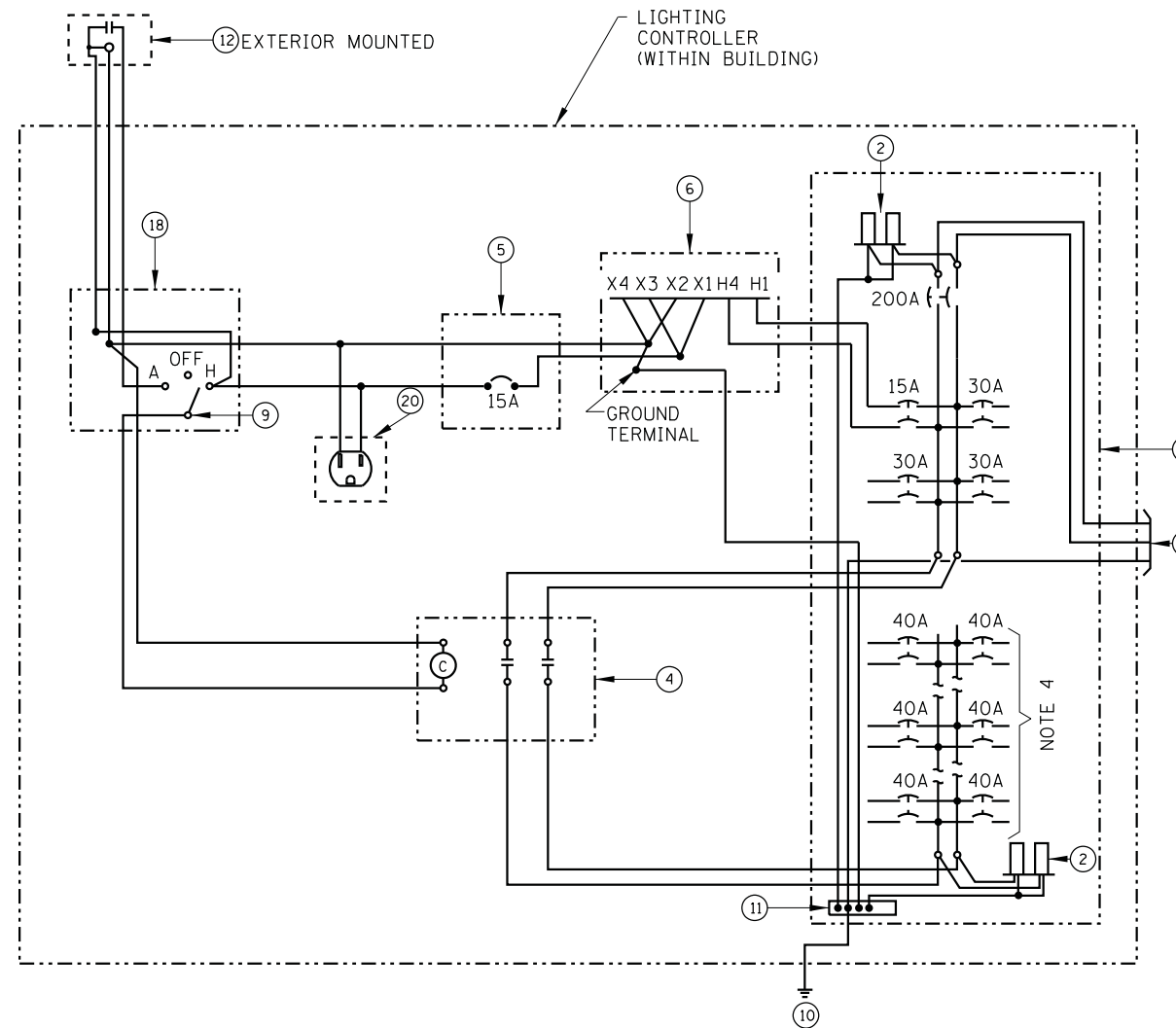
DATE	REVISIONS
3-31-2016	REVISED NOTE 2.
3-01-2017	REMOVED MFR. & PART NUMBERS
3-01-2018	REMOVED CONTACTOR RELAY, ADDED GCFI OUTLET.

CONTROL CONSOLE DETAILS
(INTERIOR INSTALLATION)

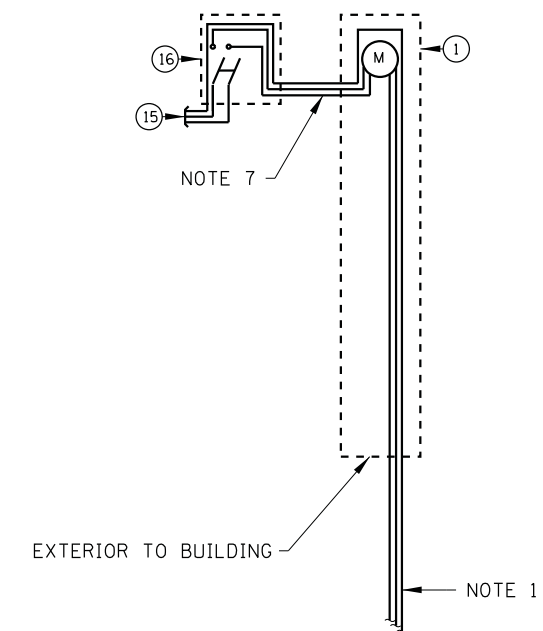
Paul Kovacs
APPROVED CHIEF ENGINEERING OFFICER DATE 2-7-2012

NOTES:

1. TO UTILITY SERVICE. 480/240V, 1 PHASE, 3 WIRE, GROUNDED, WHEN A METER HOUSING IS REQUIRED (FED FROM PAD MOUNTED UTILITY TRANSFORMER WITHIN ILLINOIS TOLLWAY RIGHT-OF-WAY).
2. TO SERVICE PEDESTAL, 480/240V, 1 PHASE, 3 WIRE, GROUNDED. SEE STANDARD H5.
3. ITEM NUMBERS REFER TO EQUIPMENT LIST ON SHEET 1 OF THIS SERIES.
4. PROVIDE CIRCUIT BREAKERS PER SCHEDULE ON THE CONTRACT PLANS (MINIMUM OF 12).
5. FOR INTERIOR EQUIPMENT LAYOUT SEE SHEET 1 OF THIS SERIES.
6. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
7. CONDUIT AND CABLE BETWEEN METER FITTING AND DISCONNECT SWITCH ROUTED BETWEEN CONTROL CONSOLE AND CONCRETE FOUNDATION, WHEN A METER HOUSING IS REQUIRED. CONDUIT AND CABLE SHALL BE THE SAME AS THE SERVICE.



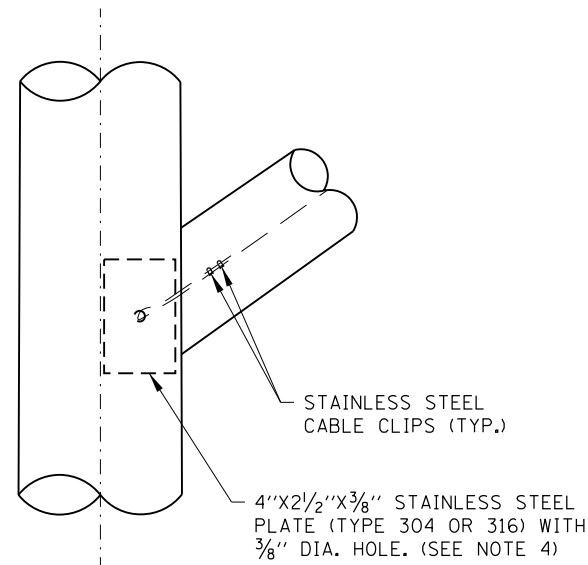
CONTROL CONSOLE WIRING DIAGRAM



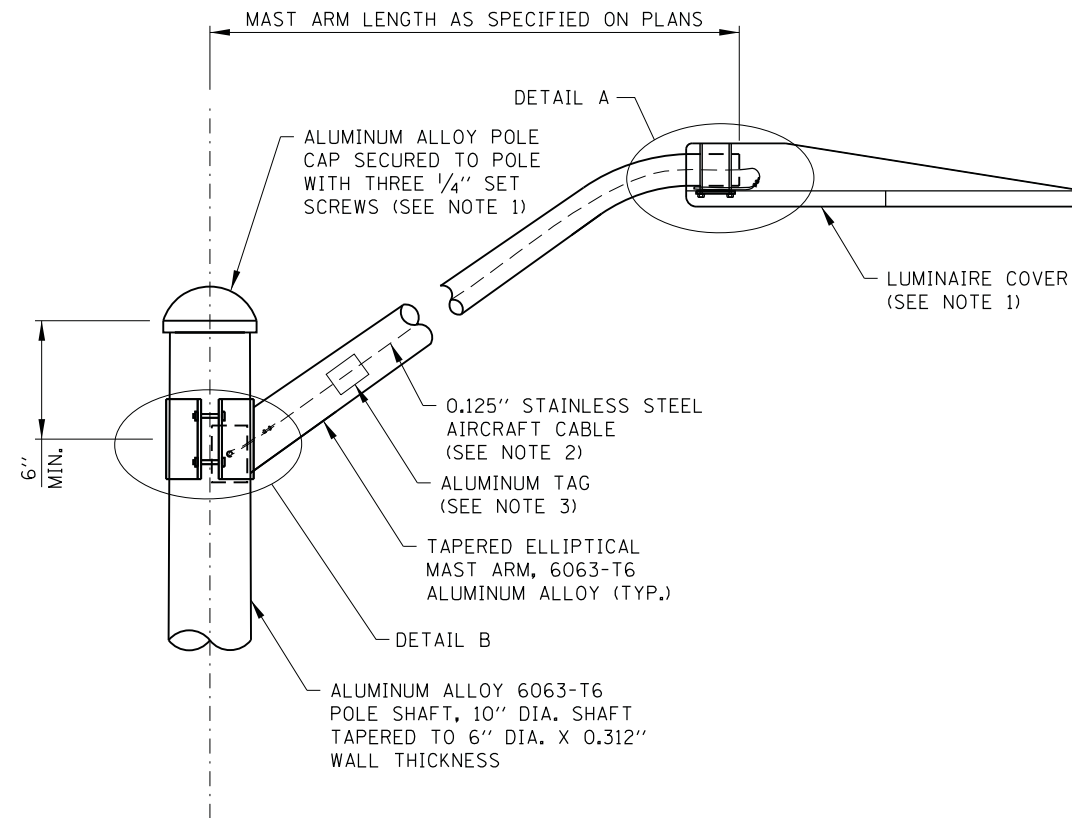
CONTROL CONSOLE DETAILS
(INTERIOR INSTALLATION)

Paul Kovacs
APPROVED CHIEF ENGINEERING OFFICER DATE 2-7-2012

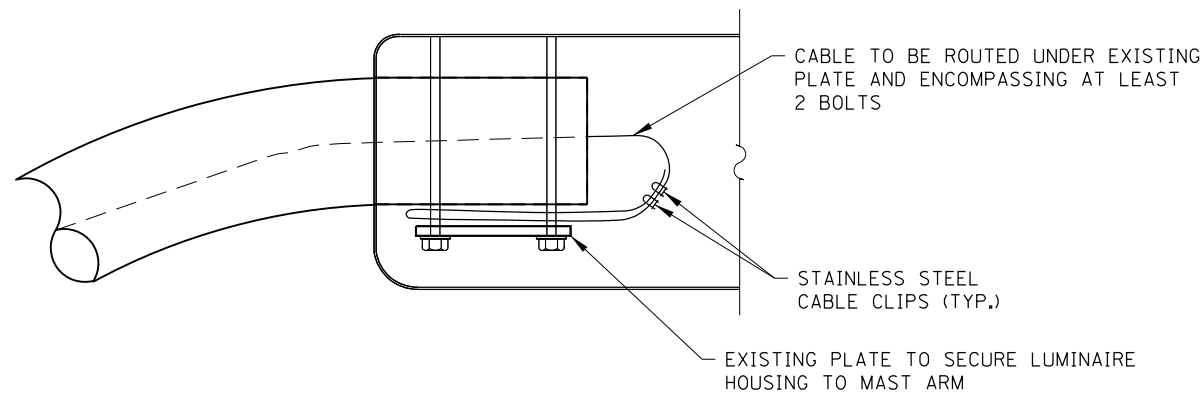




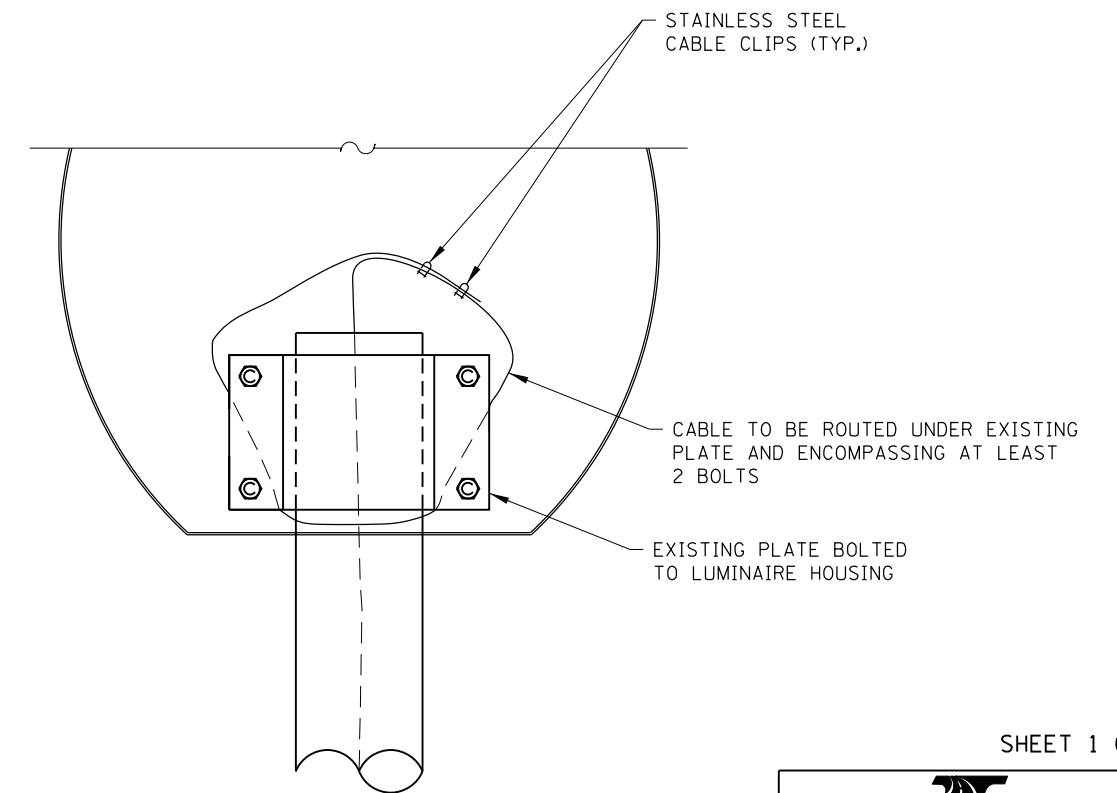
DETAIL B
(BRACKET CLAMPS OMITTED FOR CLARITY)
N.T.S.



LIGHT STANDARD - MAST ARM
(SINGLE MAST ARM SHOWN, TRUSS TYPE SINGLE MAST ARM SIMILAR)
N.T.S.



DETAIL A
N.T.S.



BOTTOM VIEW
N.T.S.


NOTES:

1. POLE CAP TO BE REMOVED AND LUMINAIRE LID TO BE OPENED FOR PLACEMENT OF THE CABLE ASSEMBLY AND PUT BACK IN PLACE. NEW CAP SCREWS SHALL BE USED.
2. THE BREAKING STRENGTH OF THE ASSEMBLED CABLE SHALL BE 1,700 POUNDS MINIMUM. ALLOW FOR MAXIMUM 6" SLACK IN THE CABLE.
3. ALUMINUM TAG WITH POLE IDENTIFICATION NUMBERS AS PER SPECIAL PROVISIONS.
4. ALL PLATE EDGES SHALL BE SMOOTH.

APPROVED: *Paul Kovacs* DATE 2-22-2018
CHIEF ENGINEERING OFFICER

DATE	REVISIONS

SHEET 1 OF 1



MAST ARM
CABLE ASSEMBLY
(SINGLE MAST ARM)

STANDARD H17

GENERAL NOTES - EROSION AND SEDIMENT CONTROLS

1. THE WORK DESCRIBED ON THESE DRAWINGS IS AN INTEGRAL PART OF THE STORM WATER POLLUTION PREVENTION PLAN USED TO OBTAIN AN NPDES PERMIT FROM IEPA FOR THE CONSTRUCTION OF THIS PROJECT.
2. THE PURPOSE OF THE EROSION AND SEDIMENT CONTROL MEASURES INCLUDED FOR THIS PROJECT IS TO LIMIT THE SEDIMENT POLLUTION IMPACT OF ANY STORM WATER DISCHARGES THAT ORIGINATE ON THIS SITE OR OFF-SITE FLOWS THAT FLOW OVER THE DISTURBED AREAS.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT SEDIMENT TRANSPORT OFF THE SITE IS REDUCED BY A COMBINATION OF MINIMIZATION OF EROSION AT THE SOURCE AND INSTALLATION OF SPECIFIC MEASURES TO CONTROL OR REDUCE THE TRANSPORT OF SEDIMENT. A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN, NOI, SWPPP, AND INSPECTION LOG BEING IMPLEMENTED BY THE CONTRACTOR SHALL BE ON THE CONSTRUCTION SITE AT ALL TIMES.
4. TO THE MAXIMUM EXTENT POSSIBLE EROSION SHALL BE MINIMIZED AT THE SOURCE. ALL FLOWS ORIGINATING OFF THE CONSTRUCTION SITE SHALL BE DIVERTED AROUND DISTURBED AREAS OR SHALL BE CONVEYED THROUGH THE SITE IN A MANNER THAT UNTREATED ON-SITE RUNOFF, SHALL BE MINIMIZED AND DOES NOT MIX WITH THE OFF-SITE RUNOFF.
5. ALL RUNOFF ORIGINATING ON DISTURBED AREAS ASSOCIATED WITH THIS PROJECT SHALL PASS THROUGH ONE OR MORE MEASURES THAT SHALL MINIMIZE THE OFF-SITE SEDIMENT IMPACTS OF THE CONSTRUCTION ACTIVITY.
6. ALL PERMANENT SEDIMENT BASINS, PERMANENT STORM WATER CONTROL MEASURES, PERIMETER SILT FENCE, AND RUNOFF CONTROL MEASURES REQUIRED TO KEEP OFF-SITE RUNOFF FROM FLOWING OVER THE CONSTRUCTION AREA SHALL BE INSTALLED BEFORE CLEARING AND STRIPPING OF THE SITE PROCEEDS. PRIOR TO PROCEEDING WITH EARTHWORK ON A PROJECT THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A PROPOSED EARTHWORK AND STABILIZATION SCHEDULE FOR REVIEW AND APPROVAL.
7. A MAXIMUM OF 10 ACRES IS ALLOWED TO BE IN SOME STAGE OF GRADING AT A SINGLE TIME. ADDITIONAL AREAS (UP TO 10 ACRES) MAY BE CLEARED BUT SHALL NOT BE STRIPPED OF VEGETATION UNTIL THE GRADED AREAS HAVE BEEN PROTECTED FROM EROSION THROUGH INSTALLATION OF EITHER TEMPORARY OR PERMANENT MEASURES. WHENEVER POSSIBLE, THE GRADING SHALL BE COMPLETED TO THE DESIGN GRADE AND THE PERMANENT VEGETATION PLAN IMPLEMENTED PRIOR TO STARTING GRADING ACTIVITIES ON THE NEXT SITE.
 - A. WHEN BALANCING EARTHWORK (BORROW FROM A CUT USED AS FILL AT A LOCATION DISTANT FROM THE CUT) THE CHIEF ENGINEER MAY ALLOW MORE THAN 10 ACRES OF CONSTRUCTION WORK AREAS AND STORAGE AREAS.
 - B. WHERE NEW INTERCHANGES ARE BEING CONSTRUCTED THE ALLOWABLE AREA BEING GRADED MAY BE LARGER THAN 10 ACRES WHEN THE CONTRACT DRAWINGS AND SWPPP DEFINE SUCH INCREASES.
 - C. VARIATIONS TO THE ABOVE MAY BE CONSIDERED BY THE CHIEF ENGINEER UNDER ALL THE FOLLOWING CONDITIONS:
 - IF THE CONTRACTOR FALLS BEHIND SCHEDULE THROUGH NO FAULT OF HIS OWN.
 - THE CONTRACTOR SHALL PRESENT A SCHEDULE DEMONSTRATING THE NEED FOR SUCH VARIATION IN ORDER TO COMPLETE THE WORK ON TIME.
 - THE CONTRACTOR SHALL COMPLY WITH ALL OTHER CONTRACT AND PERMIT REQUIREMENTS.
8. STABILIZATION OF DISTURBED AREAS SHALL, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING, OR OTHER EARTH DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE

- SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND SHALL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. STABILIZATION OF DISTURBED AREAS SHALL BE INITIATED WITHIN 1 WORKING DAY OF PERMANENT OR TEMPORARY CESSATION OF EARTH DISTURBING ACTIVITIES AND SHALL BE COMPLETED AS SOON AS POSSIBLE BUT NOT LATER THAN 14 DAYS FROM THE INITIATION OF STABILIZATION WORK IN AN AREA. WHERE THE INITIATION OF STABILIZATION MEASURES IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.
9. STABILIZATION OF CUT OR FILL SLOPES WITH TEMPORARY OR PERMANENT EROSION CONTROL MEASURES IS REQUIRED WHENEVER THE CUT OR FILL ACTIVITY REACHES 15 FEET VERTICALLY OR THE FINISHED SLOPE EQUALS 50 FEET, WHICHEVER IS MORE RESTRICTIVE. ONCE THE STABILIZATION MEASURES ARE INSTALLED, THE PLACEMENT OF FILL OR EXCAVATION ACTIVITIES ARE ALLOWED TO PROCEED.
10. THE CONTRACTOR SHALL DESIGNATE ONE OF HIS EMPLOYEES AS EROSION AND SEDIMENT CONTROL MANAGER. THIS PERSON SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF THE EROSION AND SEDIMENT CONTROL PLAN ON ALL DISTURBED AREAS. THIS PERSON SHALL POSSESS THE NECESSARY TRAINING AND CERTIFICATION ON EROSION AND SEDIMENT CONTROL MEASURES FOR ACCEPTANCE BY THE ILLINOIS TOLLWAY. THIS EMPLOYEE IS TO HAVE THE AUTHORITY TO CARRY OUT THE IMPLEMENTATION OF ANY INSTRUCTIONS CONCERNING THE EROSION AND SEDIMENT CONTROL PLAN GIVEN BY THE ENGINEER. ALL MEASURES SHALL BE INSPECTED BY THIS INDIVIDUAL AND THE ENGINEER ON A REGULAR BASIS (AT LEAST ONCE EVERY 7 DAYS) AND AFTER ANY RAINFALL EVENT GREATER THAN 0.5 INCHES, OR EQUIVALENT SNOWFALL (I.E. + 5").
11. SEDIMENT TRAPS, SEDIMENT BASINS, DITCHES, SILT FENCES, FENCES, STONE OUTLET STRUCTURES, EARTH BERMS, ETC. SHALL BE MAINTAINED DURING THE CONSTRUCTION SEASON AS WELL AS THE WINTER MONTHS AND OTHER TIMES WHEN THE PROJECT IS CLOSED DOWN. TRAPS SHALL BE CLEANED WHEN THEY ARE 50% FILLED. SILT FENCE AND STONE OUTLET STRUCTURES SHALL HAVE SEDIMENT REMOVED WHEN IT REACHES 50% THE HEIGHT OF THE CONTROL DEVICE. THESE SPOILS SHALL BE REMOVED TO AN APPROVED SITE.
12. SALVAGED TOPSOIL SHALL BE PLACED ON WELL DRAINED LAND AWAY FROM INTERMITTENT AND LIVE STREAMS OR WETLANDS WITH THE APPROPRIATE RUNOFF CONTROL AND SEDIMENT CONTROL MEASURES INSTALLED AROUND THE STORAGE SITE. SALVAGED TOPSOIL SHALL BE STABILIZED WITH STRAW MULCH IMMEDIATELY AFTER SHAPING OF THE PILE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS. SILT FENCE SHALL BE PROVIDED AT THE PERIMETER OF THE STOCKPILE.
13. MATERIALS EXCAVATED FOR THE CONSTRUCTION OR CLEAN OUT OF SEDIMENT TRAPS SHALL NOT BE STOCKPILED IN THE VICINITY OF THE TRAP. IT SHALL BE PLACED IN AN EMBANKMENT OR WASTED AS DIRECTED BY THE ENGINEER.
14. EXCAVATION TO BE USED FOR EMBANKMENTS SHALL NOT BE STOCKPILED UNLESS PERIMETER CONTROLS ARE UTILIZED. WHEN THIS MATERIAL IS STOCKPILED FOR THE CONVENIENCE OF THE CONTRACTOR THE COST OF PROVIDING THE CONTROLS ARE THE RESPONSIBILITY OF THE CONTRACTOR. IF THE MATERIAL IS STOCKPILED AT THE DIRECTION OF THE ENGINEER THE ILLINOIS TOLLWAY SHALL ASSUME THE COSTS OF THE CONTROLS.
15. SEDIMENT LADEN DEWATERING DISCHARGE SHALL BE DIRECTED TO AN APPROVED SEDIMENT TRAPPING MEASURE PRIOR TO RELEASE FROM THE SITE.


16. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE CONSIDERED TEMPORARY. THESE MEASURES SHALL BE REMOVED BY THE CONTRACTOR AS DESIGNATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. DISTURBED AREAS SHALL BE RESTORED UPON REMOVAL.
17. WHEN THE CONTRACTOR REQUESTS A CHANGE TO POSTPONE COMPLETION OF THE EXCAVATION OF A SPECIFIC AREA AS A CONTINUOUS OPERATION AND PLACING THE TOPSOIL AS DEFINED IN THE STANDARD SPECIFICATIONS, THE ENGINEER MAY ALLOW THE CONTRACTOR TO STABILIZE THE AREA USING TEMPORARY STABILIZATION WITH STRAW MULCH PROVIDED THE FOLLOWING CONDITIONS ARE MET:
 - A. ALL AREAS BEING STABILIZED ARE 1:3 (V:H) SLOPES OR FLATTER.
 - B. THE COST OF PREPARING THE SEED BED AND STABILIZING THE AREA WITH TEMPORARY STABILIZATION WITH STRAW MULCH IS THE RESPONSIBILITY OF THE CONTRACTOR.
 - C. ALL REQUIRED SEDIMENT CONTROL MEASURES FOR THE SECTION OF ROAD IN QUESTION HAVE BEEN INSTALLED AND ARE BEING MAINTAINED.
18. THE CONTRACTOR SHALL PREPARE A SKETCH SHOWING DIMENSIONS FROM TWO ADJACENT OBJECTS TO ALL DRAINAGE STRUCTURES THAT HAVE BEEN PROTECTED. THIS IS TO LOCATE THE STRUCTURE IN CASE OF HEAVY RAINFALL AND THE STRUCTURE IS BLOCKED OR FLOODED. THE ENGINEER SHALL BE PROVIDED WITH A COPY OF THE SKETCH.
19. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN ACCORDANCE WITH THE STANDARD DRAWINGS AND SPECIAL PROVISION (S.P.) 111, STORM WATER POLLUTION PREVENTION PLAN INCLUDING CONTROLS AND SPILL PREVENTION-MATERIAL MANAGEMENT PRACTICES. THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL SIGN THE CONTRACTOR'S CERTIFICATION STATEMENT. LIST THE MATERIALS OR SUBSTANCES EXPECTED TO BE PRESENT ON-SITE IN THE INVENTORY FOR POLLUTION PREVENTION PLAN AND SHALL NAME TWO ADDITIONAL INDIVIDUALS TO ASSIST IN SPILL PREVENTION AND CLEAN UP AT THE PRECONSTRUCTION CONFERENCE. SEE S.P. 111.
20. AT THE TIME OF THE PRECONSTRUCTION CONFERENCE, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL THE PROPOSED CONCRETE TRUCK WASHOUT LOCATIONS AS REQUIRED IN SPECIAL PROVISION 111. RUNOFF FROM WASH AREAS SHALL BE CONTAINED IN DESIGNATED AREAS SO THAT RUNOFF DOES NOT REACH THE STORM SEWER OR DITCH SYSTEMS. WASHOUT WATER SHALL BE TAKEN TO AN APPROVED DISCHARGE LOCATION.
21. IF AN ALTERNATIVE SIZE DITCH CHECK IS PROPOSED BY THE CONTRACTOR FOR USE ON THE PROJECT, A CONTRACT DITCH CHECK SPACING SHALL BE RECALCULATED BY THE CONTRACTOR IN ACCORDANCE WITH THE ILLINOIS TOLLWAY EROSION AND SEDIMENT CONTROL, LANDSCAPE DESIGN CRITERIA MANUAL. ANY RESULTING QUANTITY CHANGES SHALL BE APPROVED BY THE ENGINEER PRIOR TO START OF WORK.
22. ALL RUNOFF, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE LOCATED OUTSIDE THE CLEAR ZONE. THE CONTRACTOR SHALL REVIEW THE LOCATIONS OF ALL MEASURES AND PERFORM A BARRIER WARRANT ANALYSIS IF NECESSARY TO ENSURE ROADSIDE OBSTACLES ARE NOT CREATED.
23. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).



TEMPORARY EROSION AND SEDIMENT CONTROLS

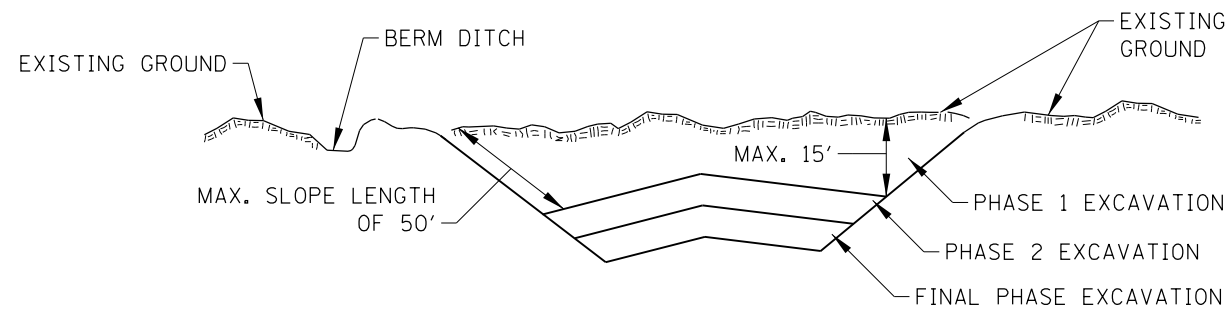
STANDARD K1-08

DATE	REVISIONS
3-31-2014	REVISED GENERAL NOTES.
3-11-2015	REVISED NOTES.
3-31-2016	REMOVED TEMPORARY DITCH CHECKS
3-01-2018	REVISED BUFFER WIDTHS AND DETAIL.
3-01-2019	REVISED FABRIC INLET PROTECTION AND STABILIZED CONSTRUCTION ENTRANCE.


 APPROVED..... CHIEF ENGINEERING OFFICER DATE 2-7-2012

STANDARD SYMBOLS

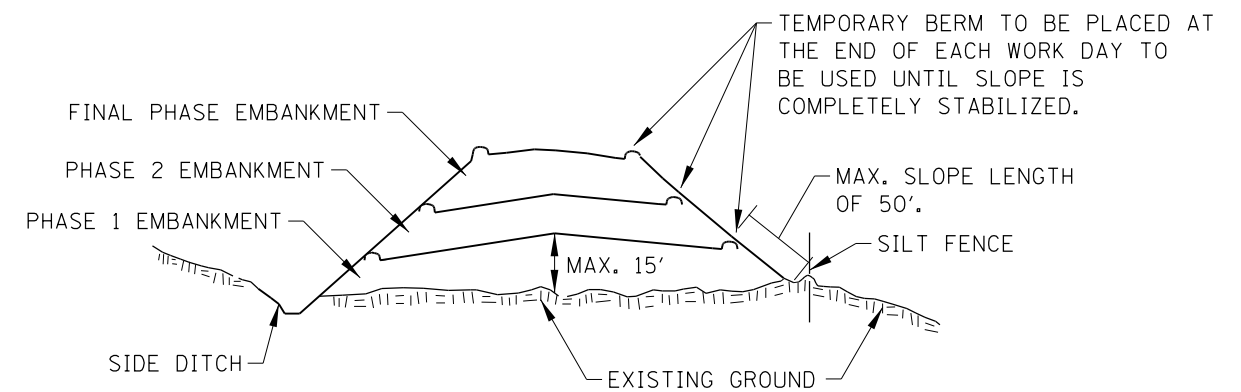
-----	CLEARING & GRADING LIMITS (LIMITS OF CONSTRUCTION)		SILT FENCE
	CULVERT INLET PROTECTION-FENCE		STABILIZED CONSTRUCTION ENTRANCE
	CULVERT INLET PROTECTION-STONE		STONE OUTLET STRUCTURE SEDIMENT TRAP
CIP			
	DEWATERING BASINS		STREAM DIVERSION
DB			
	DIVERSION DIKE		SUPER SILT FENCE
	DRAINAGE DIVIDE		TEMPORARY DITCH CHECK
	EXISTING DRAINAGE PATH		TEMPORARY PIPE SLOPE DRAIN
	FILTER FABRIC INLET PROTECTION, COVER TYPE		TEMPORARY RIPRAP
	FILTER FABRIC INLET PROTECTION, BASKET TYPE		TEMPORARY ROCK CHECK DAM
	FLOTATION BOOM		TEMPORARY STREAM CROSSING
FB			
	INITIAL CONSTRUCTION ITEM		TEMPORARY SWALE
	PROPOSED DRAINAGE PATH		TREE PROTECTION
	RECTANGULAR INLET PROTECTION		
RIP			
	SEDIMENT BASIN AGGREGATE BERM		
	SEDIMENT BASIN		



NOTES:

1. ALL CUT SLOPES SHALL BE EXCAVATED AND STABILIZED (PLACE TOPSOIL, PREPARE SEEDBED, APPLY SEED, PROTECT SLOPE WITH MULCH OR EROSION BLANKET) AS THE WORK PROGRESSES.
2. CONSTRUCTION SEQUENCE:
 - A) EXCAVATE AND STABILIZE BERM, SIDE AND OUTLET DITCHES, PROVIDE SEDIMENT TRAPS FOR DITCHES.
 - B) PERFORM PHASE 1 EXCAVATION AND STABILIZE SLOPES WITH PERMANENT SEEDING.
 - C) PERFORM PHASE 2 EXCAVATION AND STABILIZE SLOPES WITH PERMANENT SEEDING. OVER SEED PHASE 1 SLOPES, IF REQUIRED.
 - D) PERFORM FINAL PHASE EXCAVATION, DRESS, SEED AND MULCH SLOPES WITH PERMANENT SEEDING. STABILIZE SURFACE DRAIN DITCHES. OVER SEED PHASE 1 & 2 SLOPES, IF REQUIRED, AS DETERMINED BY THE ENGINEER.
3. IF PERMANENT SEEDING CANNOT BE PLACED DUE TO CONTRACT REQUIREMENTS REGARDING PLANTING SEASONS, THE CUT SLOPE IS TO HAVE TOPSOIL PLACED AND SEEDING PREPARED PRIOR TO USING TEMPORARY STABILIZATION WITH STRAW MULCH OR TEMPORARY SEEDING WITH EROSION BLANKET.
4. THE CONTRACTOR HAS THE OPTION OF DELAYING TOPSOIL SEEDING BEYOND THE 15 FOOT LIMITATION. IF THIS OPTION IS CHOSEN, THE CUT SLOPE MUST BE "TEMPORARY STABILIZED" AT NO COST TO THE ILLINOIS TOLLWAY.
5. ONCE THE EXCAVATION WITHIN A SPECIFIC AREA HAS BEGUN, THE OPERATION SHALL BE CONTINUOUS FROM STRIPPING THROUGH THE COMPLETION OF THE GRADING AND PLACEMENT OF SLOPE STABILIZATION MEASURES. ANY INTERRUPTIONS IN THE OPERATION OF 14 DAYS OR MORE MUST BE APPROVED BY THE ENGINEER. ANY VIOLATION OF THIS REQUIREMENT WILL RESULT IN THE CONTRACTOR ASSUMING THE RESPONSIBILITY OF PLACING TEMPORARY STABILIZATION AT HIS OWN COST AND EXPENSE.

EXCAVATION PHASING PLAN - CUT SECTION



NOTES:

1. THE EMBANKMENT WILL BE MADE IN STAGES NOT TO EXCEED 15' IN HEIGHT OR 50' IN SLOPE LENGTH. THE EMBANKMENT SLOPES WILL BE STABILIZED USING TEMPORARY MEASURES BEFORE BEGINNING NEXT STAGE.
2. AT THE END OF EACH WORK DAY TEMPORARY BERMS (EARTH) AND TEMPORARY PIPE SLOPE DRAINS WILL BE CONSTRUCTED ALONG THE TOP EDGE(S) OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF.
3. CONSTRUCTION SEQUENCE:
 - A) EXCAVATE AND STABILIZE SIDE DITCH AND/OR INSTALL PROPOSED PERIMETER CONTROLS AT THE TOE OF SLOPE.
 - B) PLACE PHASE 1 EMBANKMENT AND STABILIZE WITH TEMPORARY SEEDING AND MULCH.
 - C) PLACE PHASE 2 EMBANKMENT AND STABILIZE WITH TEMPORARY SEEDING AND MULCH.
 - D) PLACE FINAL PHASE EMBANKMENT AND STABILIZE WITH PERMANENT VEGETATIVE PLAN ON THE ENTIRE SLOPE.
4. ONCE THE PLACEMENT OF FILL WITHIN A SPECIFIC AREA HAS BEGUN, THE OPERATION SHALL BE CONTINUOUS FROM STRIPPING THROUGH THE COMPLETION OF THE GRADING AND PLACEMENT OF PERMANENT VEGETATIVE PLAN. ANY INTERRUPTIONS IN THE OPERATION OF 14 DAYS OR MORE MUST BE APPROVED BY THE ENGINEER. ANY VIOLATION OF THIS REQUIREMENT WILL RESULT IN THE CONTRACTOR ASSUMING THE RESPONSIBILITY OF PLACING TEMPORARY STABILIZATION AT HIS OWN COST AND EXPENSE.

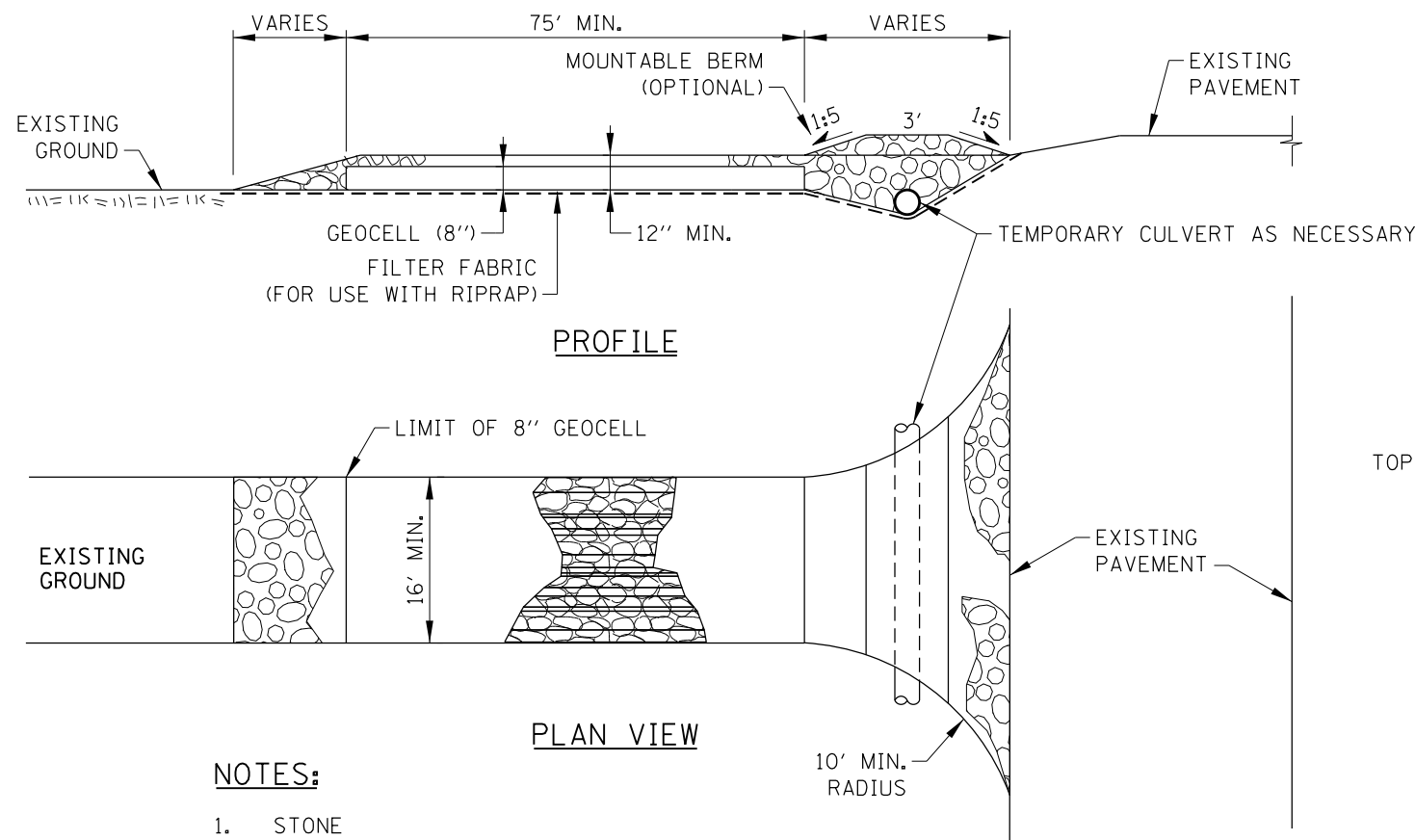
EMBANKMENT PHASING PLAN - FILL SECTION



TEMPORARY EROSION AND SEDIMENT CONTROLS

STANDARD K1-08

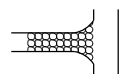
APPROVED: *Paul Kovacs* DATE 2-7-2012
CHIEF ENGINEERING OFFICER



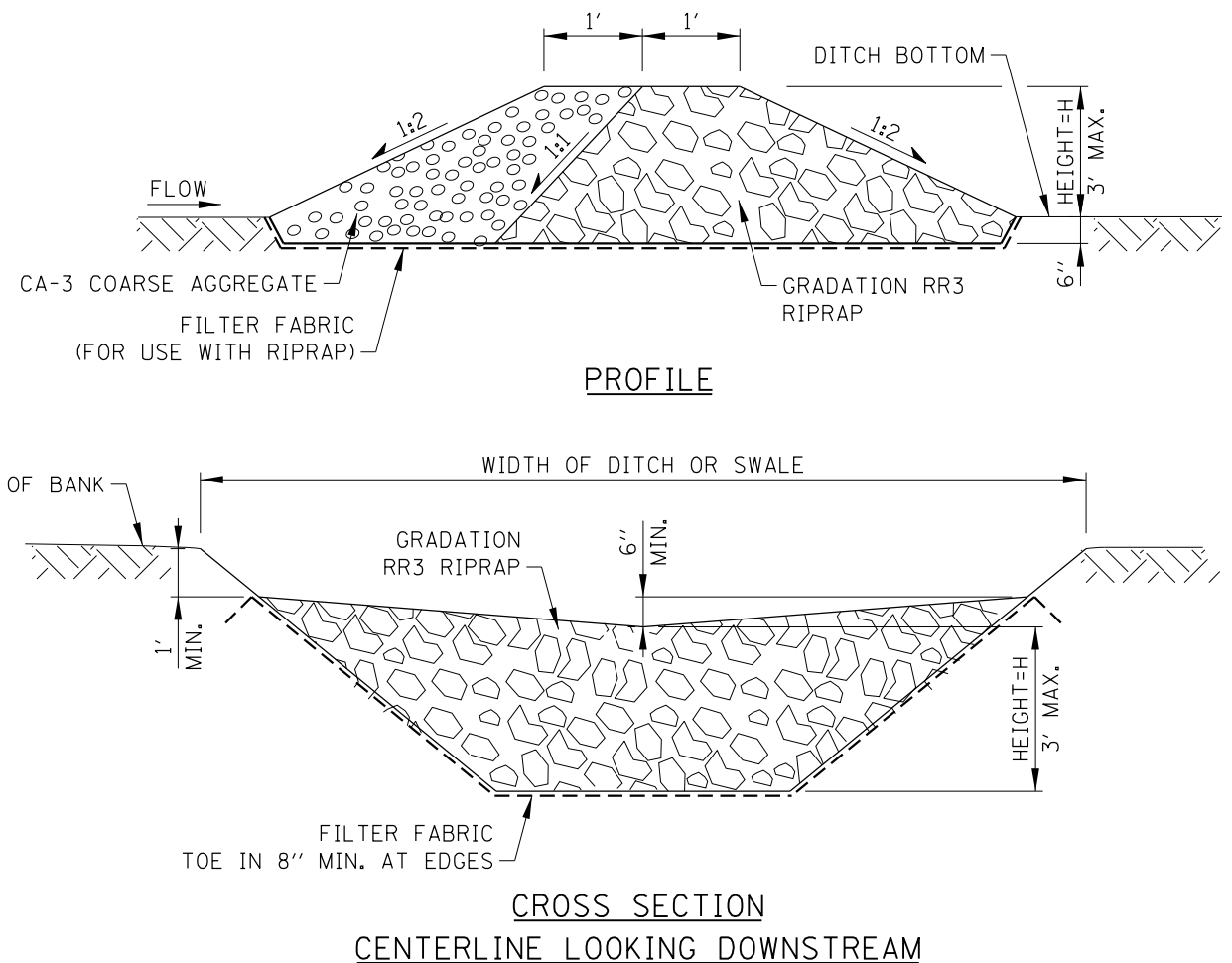
NOTES:

1. STONE
 - A. STONE SIZE - CA-3
 - B. LENGTH - AS REQUIRED, BUT NOT LESS THAN 75'.
 - C. THICKNESS - NOT LESS THAN 4" ABOVE TOP OF GEOCELL.
2. WIDTH - 16' MINIMUM FOR ONE WAY TRAFFIC; 24' MINIMUM FOR TWO-WAY TRAFFIC; BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
3. GEOCELL NOT LESS THAN 8" IN DEPTH WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
4. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 1:5 SLOPES WILL BE PERMITTED.
5. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.
6. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER HEAVY USE AND EACH RAINFALL EVENT.
7. TO BE USED TO REDUCE OR ELIMINATE TRACKING OF SEDIMENT ONTO PUBLIC STREETS. PLACE AT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS. DISTURBED AREAS TO BE RESTORED UPON REMOVAL.

STABILIZED CONSTRUCTION ENTRANCE
STANDARD SYMBOL



Paul Kovacs
APPROVED... CHIEF ENGINEERING OFFICER DATE 2-7-2012

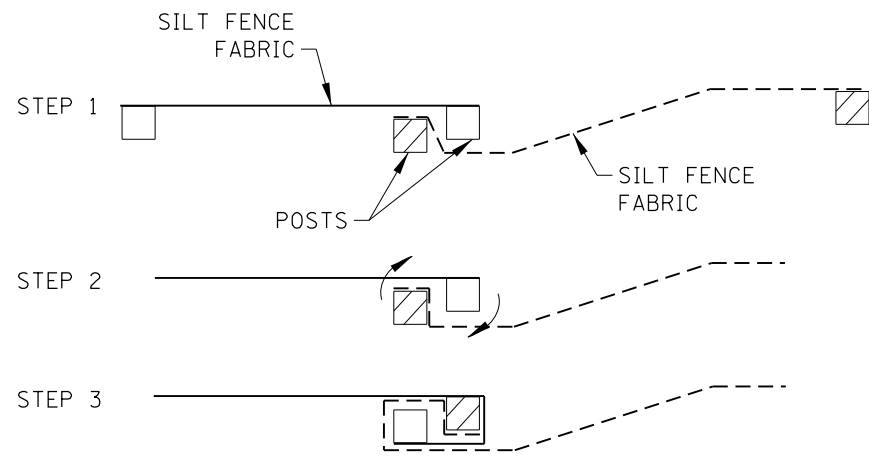


NOTES:

1. FOR LOCATIONS AND HEIGHTS OF ROCK CHECK DAMS REFER TO CONSTRUCTION DRAWINGS.
2. TEMPORARY ROCK CHECK DAMS SHALL BE REPLACED WHEN THEY CEASE TO FUNCTION AS INTENDED DUE TO WASHOUT OR CONSTRUCTION TRAFFIC DAMAGE.
3. SEDIMENT SHALL BE REMOVED WHEN IT REACHES 50% OF DAM HEIGHT. THIS PRACTICE IS NOT A SUBSTITUTE FOR MAJOR PERIMETER TRAPPING SUCH AS A TEMPORARY SEDIMENT TRAP OR BASIN.
4. SPACING BETWEEN DAMS SHALL BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS TOP OF RIPRAP AT THE CENTER OF THE DOWNSTREAM DAM.
5. WHEN A TEMPORARY ROCK CHECK DAM IS IN THE CLEAR ZONE, IT MUST BE MADE TRAVERSABLE TO AN ERRANT VEHICLE. THE MAXIMUM UNSHIELDED TRANSVERSE SLOPE ALLOWED TO FACE TRAFFIC SHALL BE 1:10 (V:H) AND THE MAXIMUM TRANSVERSE FACING AWAY FROM TRAFFIC SHALL BE 1:4 (V:H). AN UNSHIELDED TEMPORARY ROCK CHECK DAM SHALL HAVE AN ADDITIONAL LAYER OF CA-3 COURSE AGGREGATE (6" MIN.) PLACED ON THE DOWNSTREAM SIDE OF THE ROCK CHECK DAM. THE FILTER FABRIC SHALL BE PLACED ALONG THE ENTIRE BASE OF THE TEMPORARY ROCK CHECK DAM.

TEMPORARY ROCK CHECK DAM
STANDARD SYMBOL

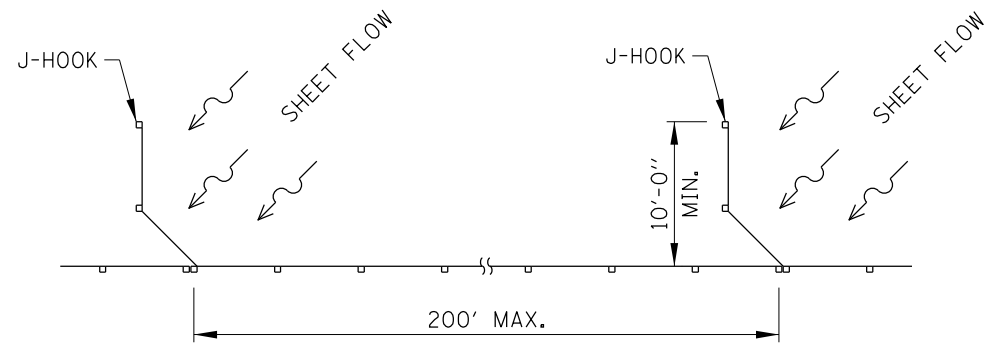




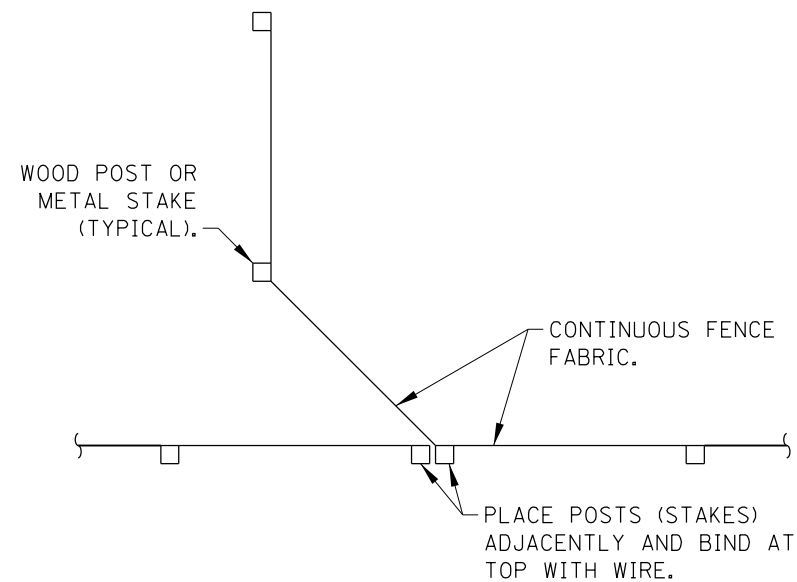
NOTES:

1. PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE.
2. ROTATE BOTH POSTS AT LEAST 180 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL.
3. DRIVE BOTH POSTS A MINIMUM OF 24" INTO THE GROUND.

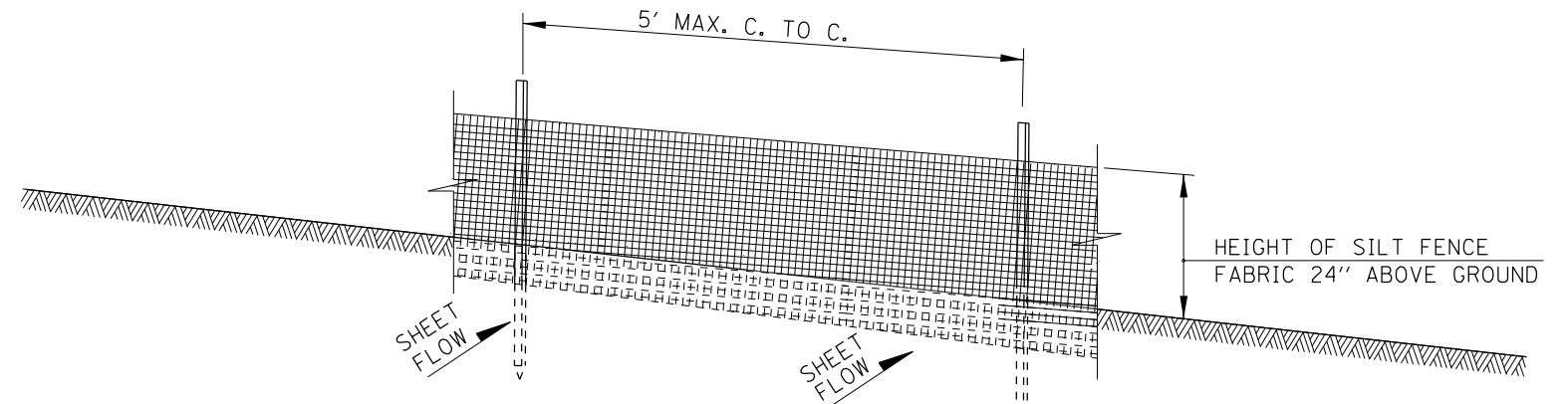
ATTACHING TWO SILT FENCES



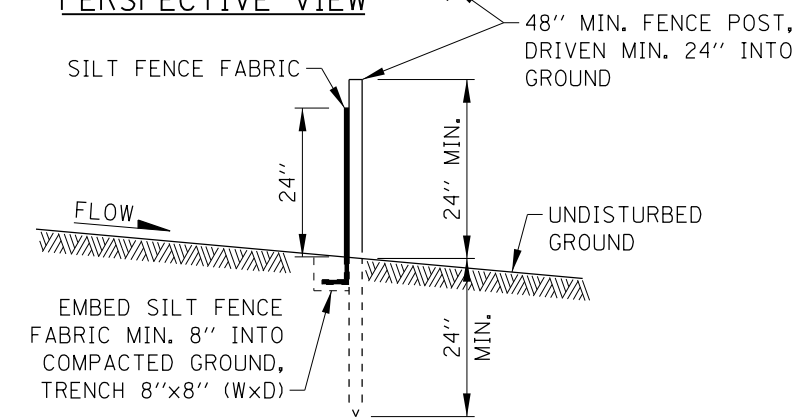
SILT FILTER J-HOOK PLACEMENT



J-HOOK



PERSPECTIVE VIEW

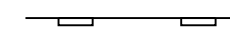


SECTION

NOTES:

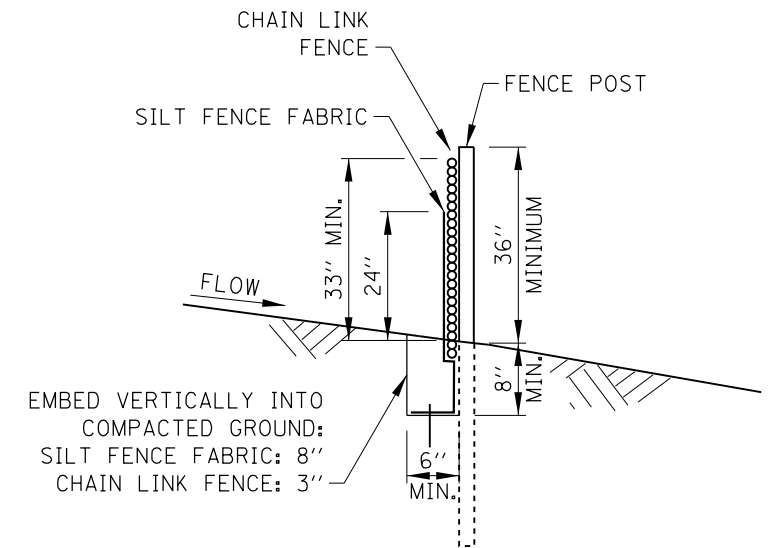
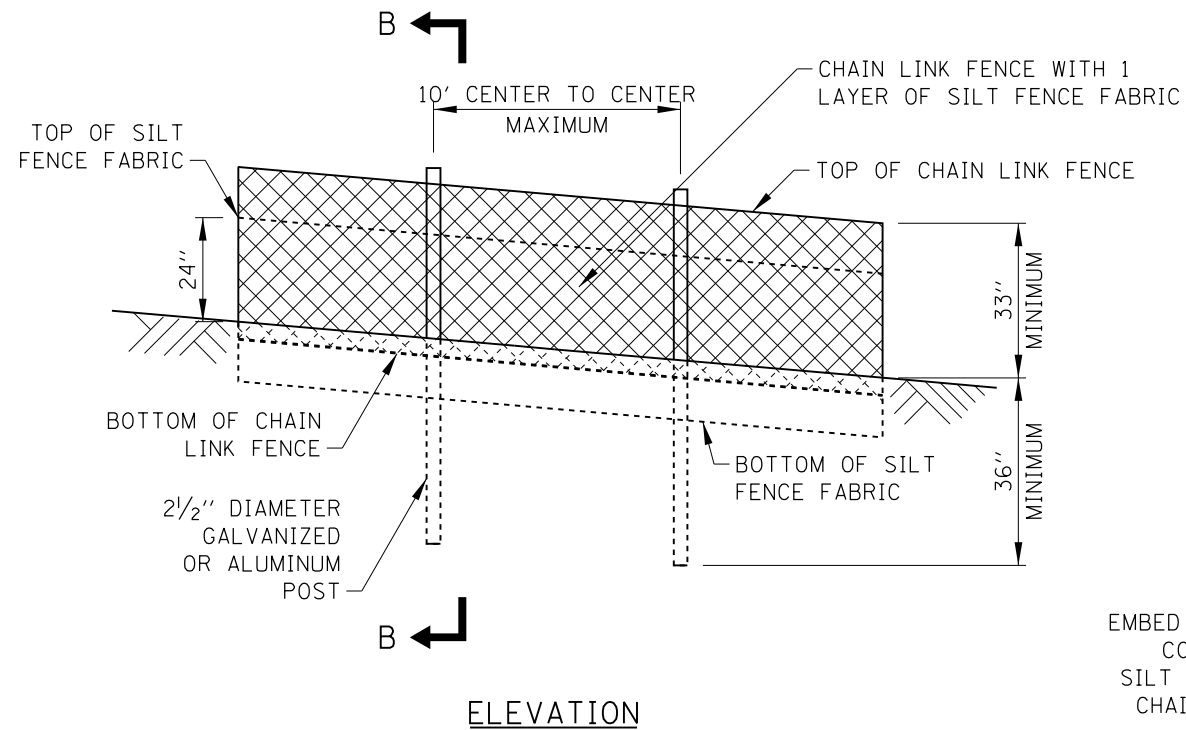
1. SILT FENCE FABRIC TO BE FASTENED SECURELY TO FENCE POSTS.
2. WHEN TWO SECTIONS OF SILT FENCE FABRIC ADJOIN EACH OTHER THEY SHALL BE SECURELY FASTENED PER THE DETAIL ATTACHING TWO SILT FENCES.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED. SILT BUILD UP AGAINST FENCE SHALL BE REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES 50% OF FENCE HEIGHT.
4. FENCE POSTS: 2"x2" (NOMINAL) HARDWOOD OR SCHEDULE 40 METAL PIPE OR 1.33 LB/FT MIN. STANDARD T OR U SECTION STEEL POSTS.
5. THIS DEVICE IS TO CONTROL SHEET FLOW ONLY. DO NOT USE FOR CONCENTRATED FLOWS, DRAINAGE CHANNELS, ABOVE OR BELOW DRAINAGE PIPES.

SILT FENCE (SF)
STANDARD SYMBOL

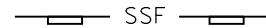


NOTES:

1. FENCING SHALL BE 36" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH ILLINOIS TOLLWAY STANDARD DRAWING D1, RIGHT-OF-WAY FENCE, TYPE 1. THE SPECIFICATION FOR A 6' FENCE SHALL BE USED, SUBSTITUTING 36" FABRIC AND 6' LENGTH POSTS.
2. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS AND POST CAPS ARE NOT REQUIRED. PULL POSTS, CORNER POSTS, HORIZONTAL BRACING AND TIE RODS ARE NOT REQUIRED.
3. SILT FENCE FABRIC SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID SECTION.
4. WHEN TWO SECTIONS OF SILT FENCE FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED 2' HORIZONTALLY.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED. SILT BUILD-UP AGAINST FENCE SHALL BE REMOVED WHEN SILT REACHES 50% OF FENCE HEIGHT.
6. SUPER SILT FENCE IS TO BE USED TO PROTECT ENVIRONMENTALLY SENSITIVE AREAS AND CONTROL SEDIMENT RUNOFF FROM CONSTRUCTION SITES WHEN ADDITIONAL REINFORCEMENT IS REQUIRED DUE TO SLOPE OF SITE OR VOLUME OF STORM WATER RUNOFF.

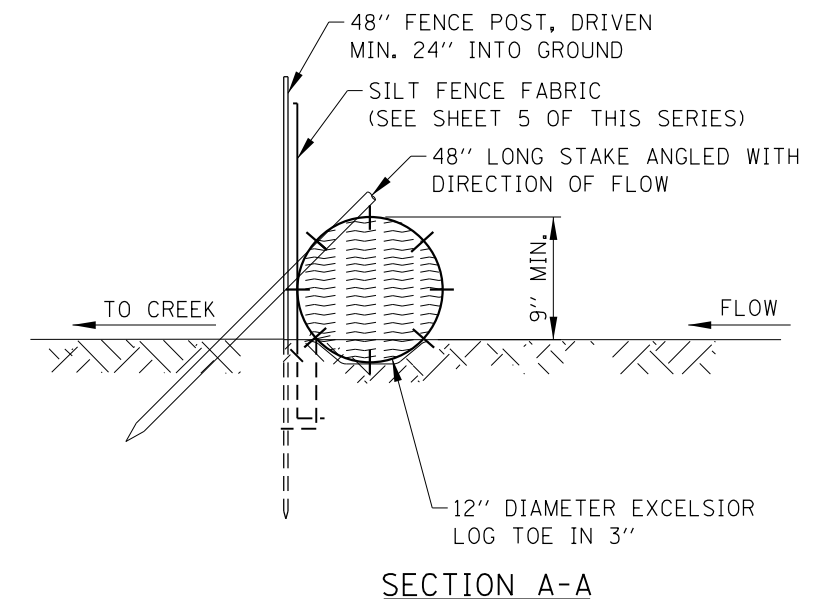
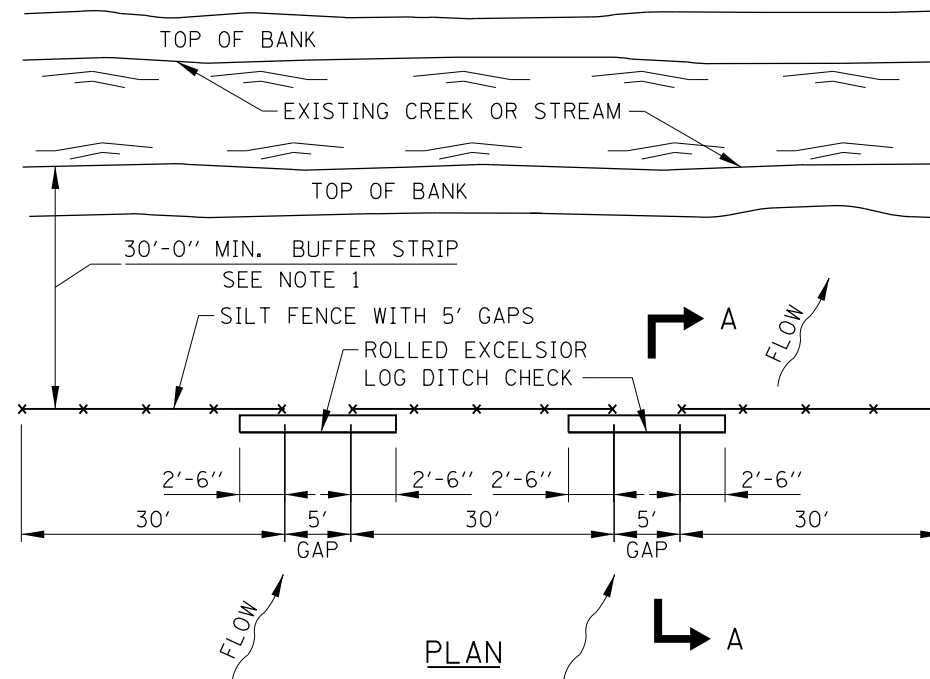


SUPER SILT FENCE (SSF)
STANDARD SYMBOL



NOTES:

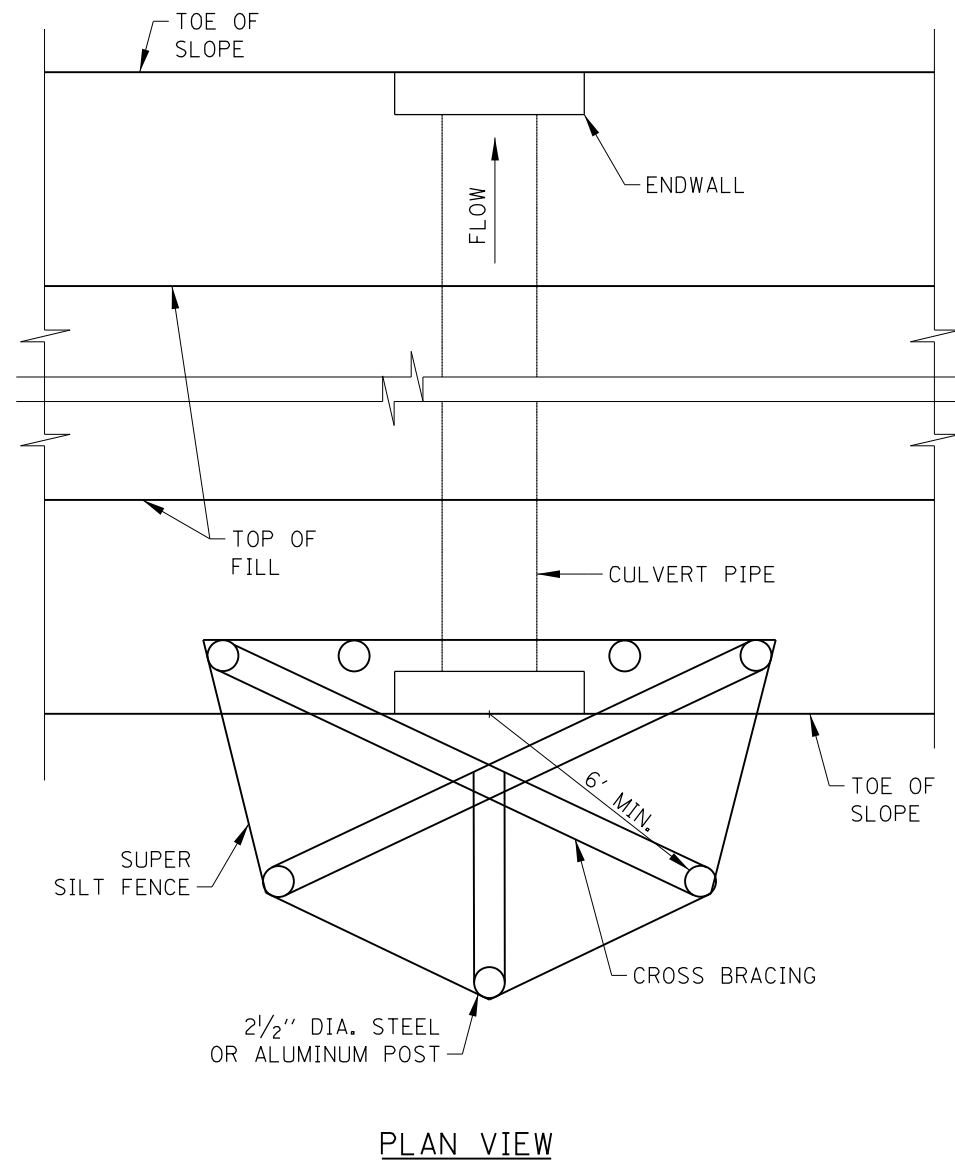
1. A MINIMUM 50' WIDE VEGETATED BUFFER STRIP SHALL BE PRESERVED AND/OR RE-ESTABLISHED WHERE POSSIBLE ALONG EXISTING CHANNELS.
 - a. FOR ANY WATERS OF THE U.S. DETERMINED TO BE A HIGH-QUALITY AQUATIC RESOURCE, THE BUFFER MUST BE A MINIMUM OF 100'.
 - b. FOR ANY WATERS OF THE U.S. THAT DO NOT QUALIFY AS WETLAND (FOR EXAMPLE LAKES, RIVERS, PONDS, ETC.), THE BUFFER MUST BE A MINIMUM OF 50' FROM THE ORDINARY HIGH WATER MARK (OHWM).
 - c. FOR ANY JURISDICTIONAL WETLAND, THE BUFFER MUST BE A MINIMUM OF 50'.
2. THE 5' GAPS IN THE SILT FENCE AND THE 12" DIAMETER TEMPORARY DITCH CHECKS ARE TO ALLOW FLOODWATER FLOW INTO THE CREEK FROM THE SITE WITHOUT DAMAGE TO THE SILT FENCE.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT SHALL BE REMOVED WHEN IT REACHES 50% OF ROLL HEIGHT. WHEN THE ROLLED EXCELSIOR LOG IS REDUCED TO 50% OF ROLL HEIGHT IT SHALL BE REPLACED.



CREEK BUFFER STRIP AND SILT FENCE

APPROVED: *Paul Kovacs* DATE 2-7-2012
CHIEF ENGINEERING OFFICER





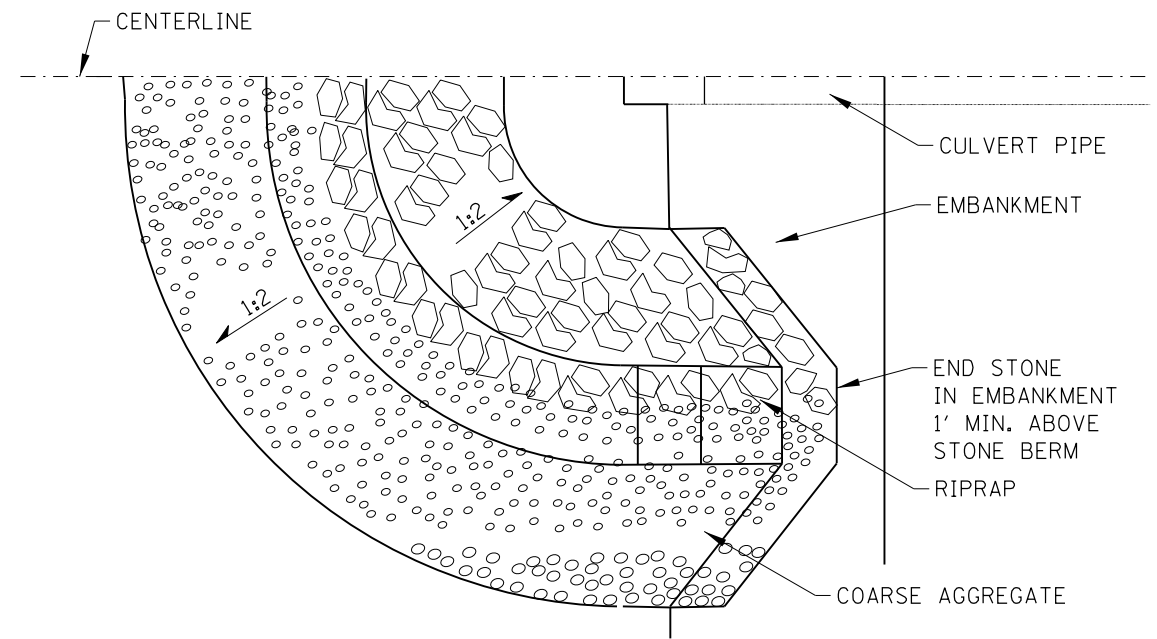
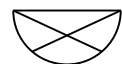
PLAN VIEW

NOTES:

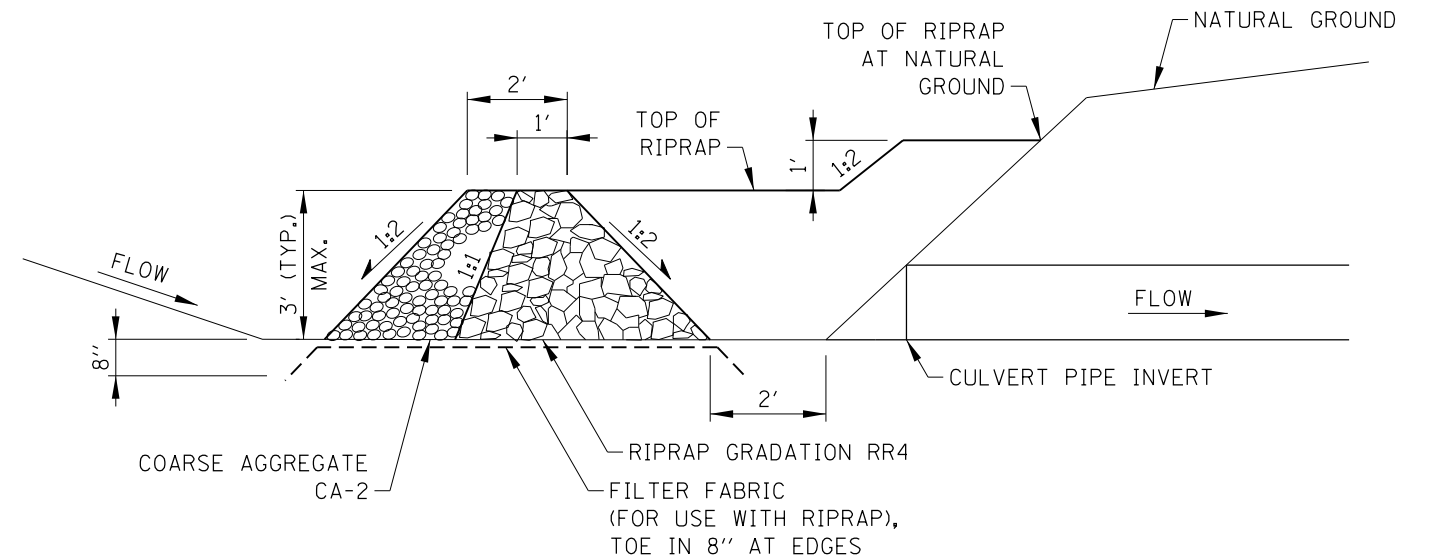
1. CONSTRUCT SUPER SILT FENCE PER SHEET 6 IN THIS SERIES, EXCEPT THE MAXIMUM POST SPACING SHALL BE 3 FEET AND THE TOPS OF POSTS SHALL BE CROSSED BRACED.
2. MAINTENANCE SHALL BE PERFORMED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN IT REACHES 50% OF THE FENCE HEIGHT.
3. THE CULVERT INLET PROTECTION AND SEDIMENT SHALL BE REMOVED WHEN CONSTRUCTION IS COMPLETE.
4. THE CULVERT INLET PROTECTION - FENCE TO BE MEASURED AND PAID FOR AS SUPER SILT FENCE.

CULVERT INLET PROTECTION - FENCE

STANDARD SYMBOL



HALF PLAN VIEW



CENTERLINE CROSS SECTION

NOTES:

1. MAINTENANCE SHALL BE PERFORMED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN IT REACHES 50% OF THE STONE HEIGHT.
2. THE CULVERT INLET PROTECTION AND SEDIMENT SHALL BE REMOVED WHEN CONSTRUCTION IS COMPLETE.
3. THE CULVERT INLET PROTECTION - STONE TO BE MEASURED AND PAID FOR AS TEMPORARY RIPRAP.

CULVERT INLET PROTECTION - STONE

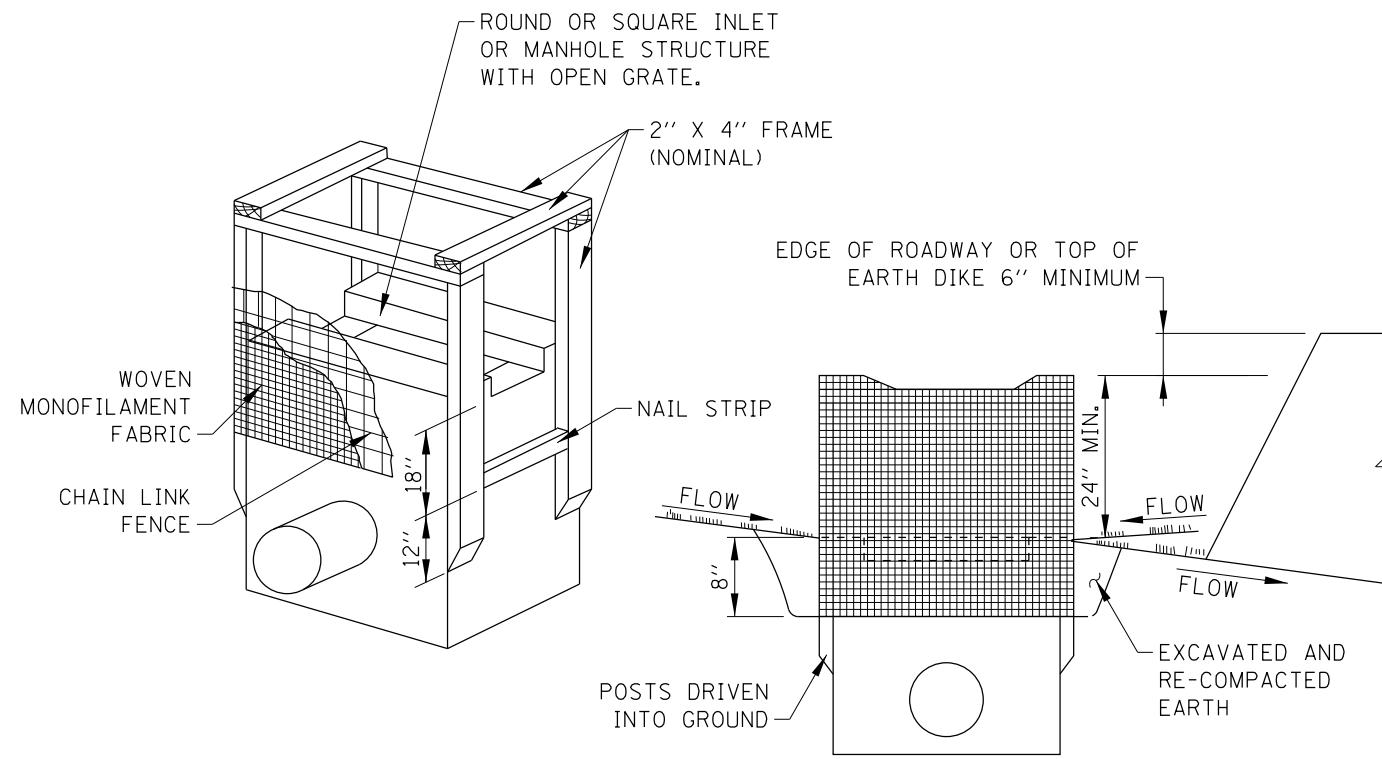
STANDARD SYMBOL



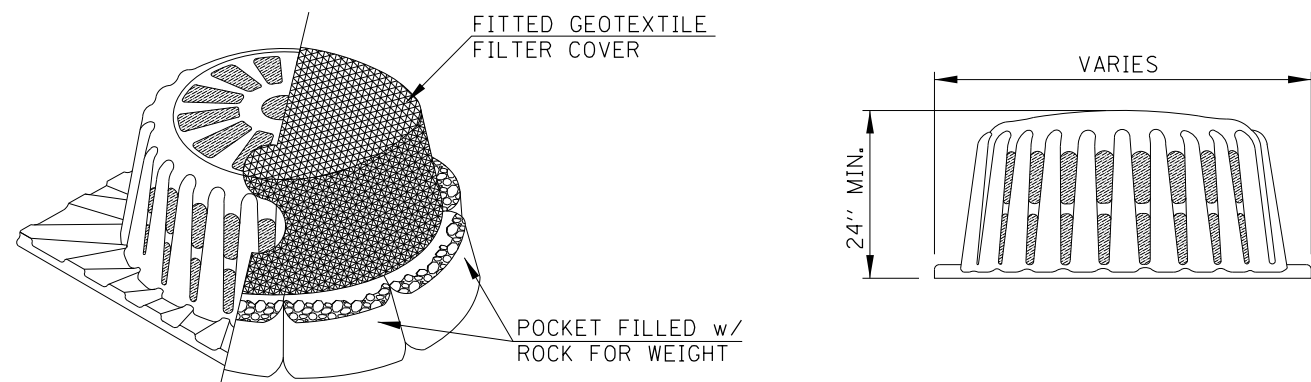
TEMPORARY EROSION AND SEDIMENT CONTROLS

STANDARD K1-08

APPROVED: *Paul Kovacs* DATE 2-7-2012
CHIEF ENGINEERING OFFICER



WOOD FRAME



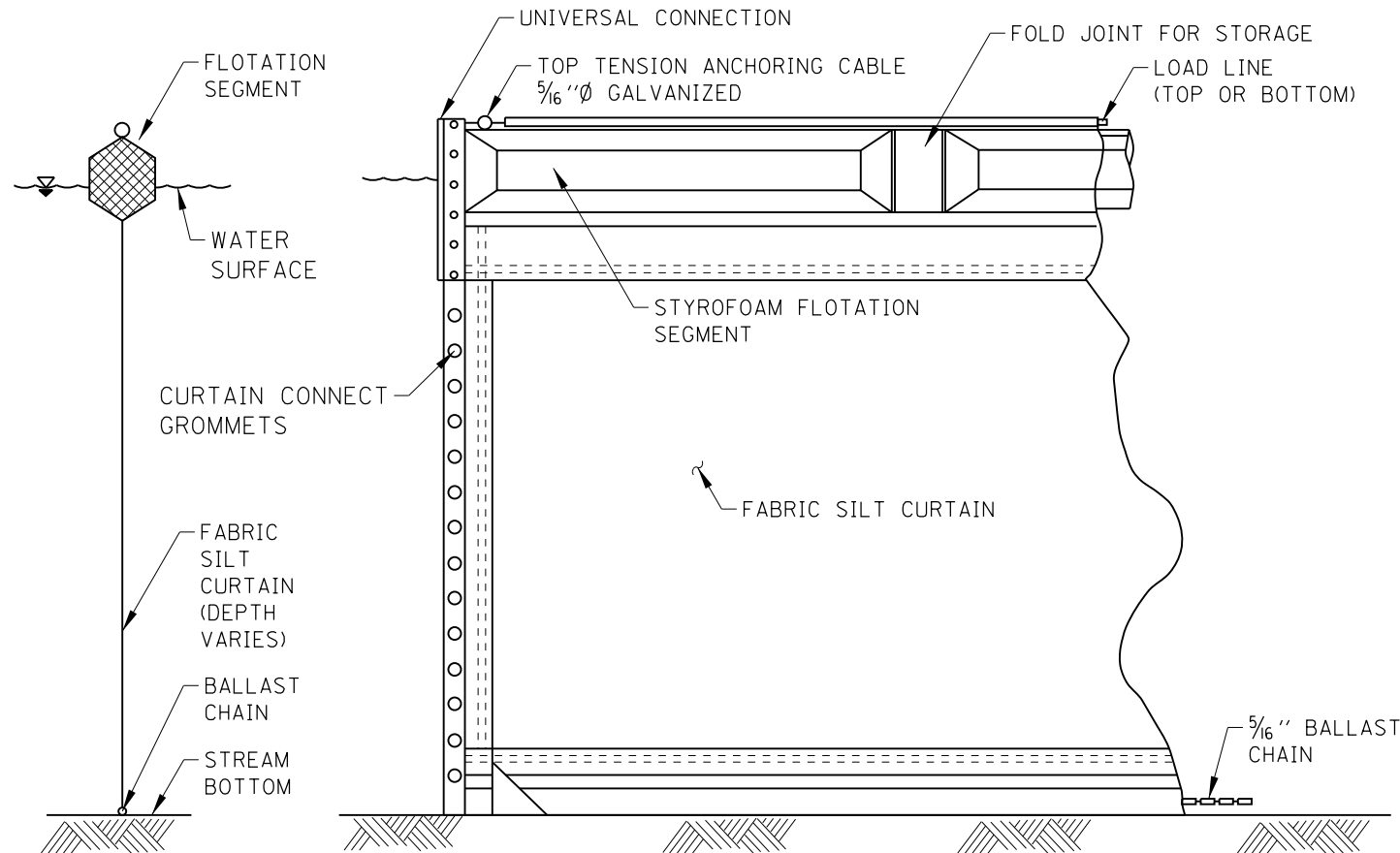
POLYETHYLENE FRAME

NOTES:

1. WOODEN FRAME IS TO BE CONSTRUCTED OF 2"x4" CONSTRUCTION GRADE LUMBER. AT THE CONTRACTOR'S OPTION, THE WOOD FRAME CAN BE SUBSTITUTED USING 2 1/2" GALVANIZED OR ALUMINUM POSTS INSTALLED AS SPECIFIED FOR SUPER SILT FENCE.
2. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT REMOVED WHEN IT REACHES 50% OF FENCE HEIGHT.
3. TO BE USED TO PROTECT EXISTING AND NEW INLETS, CATCH BASINS AND MANHOLES WITH OPEN LIDS IN NON-PAVED AREAS.

RECTANGULAR INLET PROTECTION
STANDARD SYMBOL

Paul Kovacs
APPROVED... CHIEF ENGINEERING OFFICER DATE 2-7-2012



SECTION

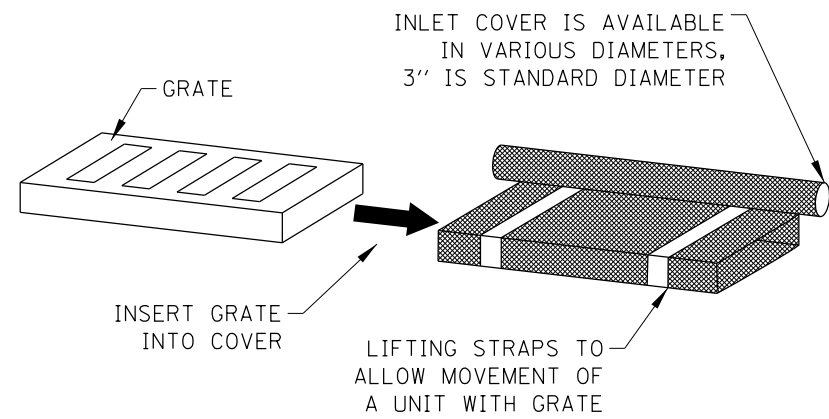
ELEVATION

NOTES:

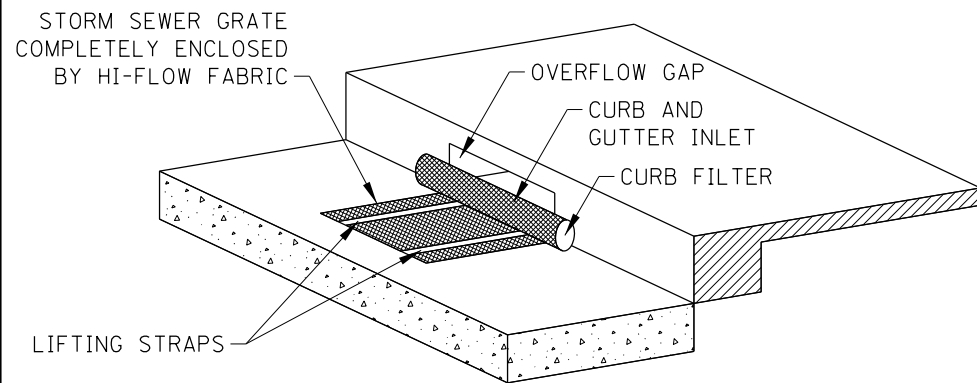
1. FLOTATION BOOM FOR USE IN MOVING WATER SHALL BE ANCHORED TO PREVENT DRIFT SHOREWARD OR DOWNSTREAM. ANCHORAGES SHALL BE INSTALLED ON BOTH SHORE AND STREAM SIDE. BOOMS ARE NOT TO BE INSTALLED ACROSS FLOWING BODY OF WATER.
2. SHORE ANCHORS SHALL CONSIST OF A POST WITH DEADMAN OR APPROVED EQUAL. STREAM ANCHORS SHALL BE OF SUFFICIENT SIZE TO STABILIZE THE BARRIER WITH NUMBER AND SPACING DEPENDENT ON WATERWAY VELOCITIES.
3. FABRIC SECTIONS SHALL BE CONNECTED END TO END WITH MINIMUM 5/8" DIAMETER POLYPROPYLENE ROPE.
4. DESIGN OF BOOM AND ANCHORAGE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. BOTTOM OF BOOM SHALL REACH BOTTOM OF WATERWAY USING ONE VERTICAL SECTION AS REQUIRED.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED. CONTRACTOR SHALL REMOVE THE BOOM AT COMPLETION OF WORK IN A MANNER THAT WILL PREVENT SILTATION OF THE WATERWAY.
6. CONSTRUCTION DEBRIS/MATERIALS SHALL BE REMOVED IMMEDIATELY TO PREVENT DAMAGE TO THE CURTAIN AND ENTRY INTO THE WATERWAY.
7. FLOTATION BOOMS TO BE USED TO CONTROL TURBIDITY WHEN WORKING IN WATERWAYS.

FLOTATION BOOM
STANDARD SYMBOL
—FB— FB—





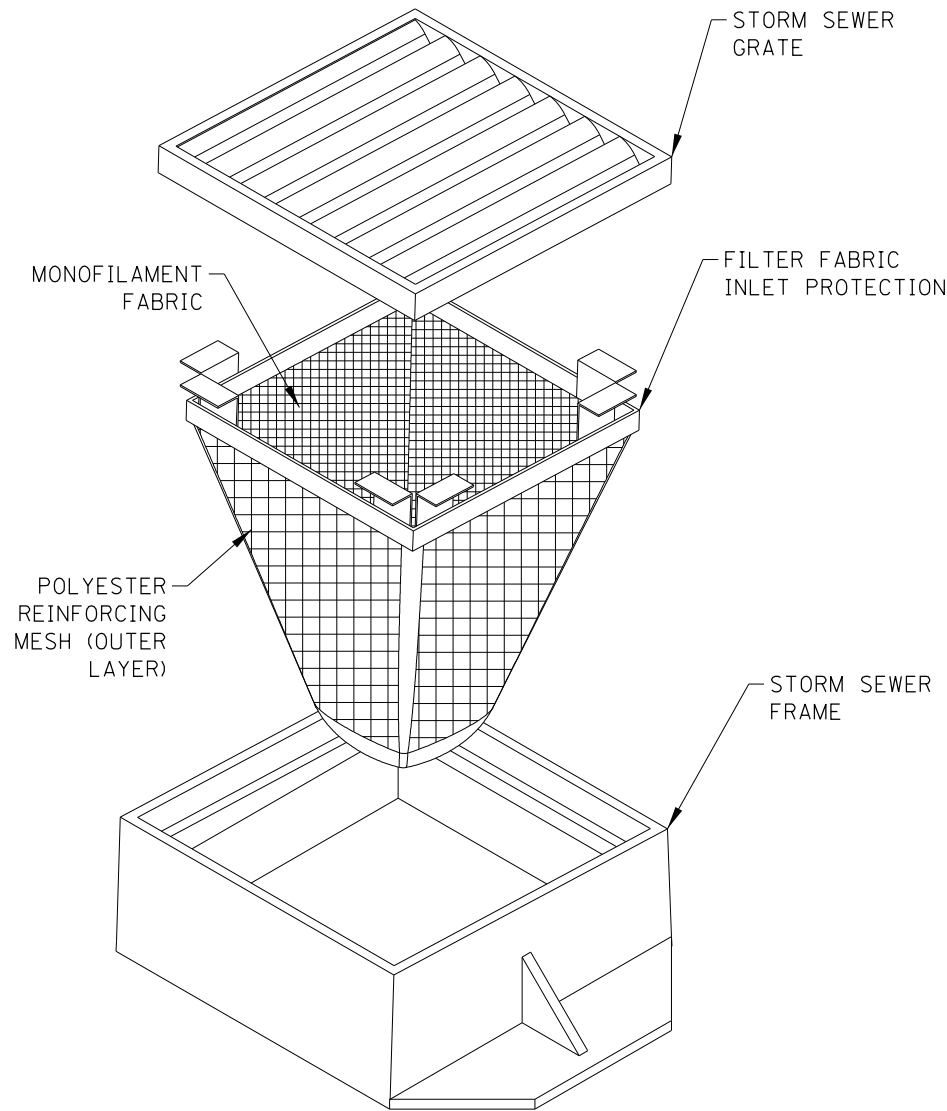
GRATE AND COVER DETAIL



NOTES:

1. COVER TYPE INLET PROTECTION SHALL CONSIST OF FABRIC SLEEVE AND, IF NECESSARY, CURB FILTER.
2. DEVICE SHALL BE EQUIPPED WITH AN OVERFLOW GAP SO DRAINAGE TO INLET IS NOT COMPLETELY BLOCKED IF DEVICE IS FULL OF SILT.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED. REMOVE SILT FROM FABRIC INSERT WHEN SEDIMENT ACCUMULATES, THE FILTER BECOMES CLOGGED, AND/OR PERFORMANCE IS COMPROMISED. WHEN THERE IS EVIDENCE OF SEDIMENT ACCUMULATION ADJACENT THE THE INLET PROTECTION MEASURE, THE DEPOSITED SEDIMENT SHALL BE REMOVED BY THE END OF THE SAME BUSINESS DAY IN WHICH IT IS FOUND OR BY THE END OF THE FOLLOWING BUSINESS DAY IF REMOVAL THE SAME BUSINESS DAY IS NOT FEASIBLE.
4. STORM SEWER GRATE SHALL BE COMPLETELY ENCLOSED BY FABRIC.
5. GRATE AND FILTER ARE TO BE SET SECURELY BACK IN FRAME.

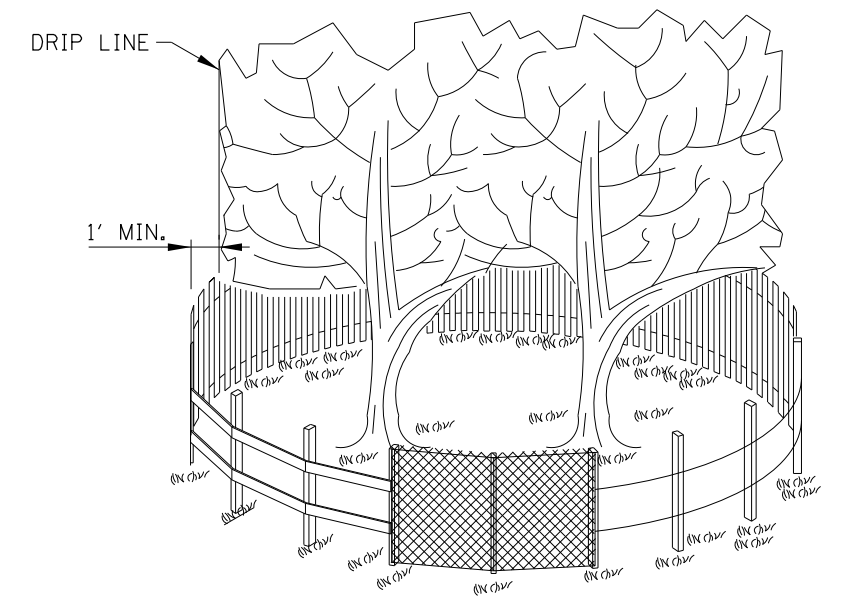
FILTER FABRIC INLET PROTECTION - COVER TYPE



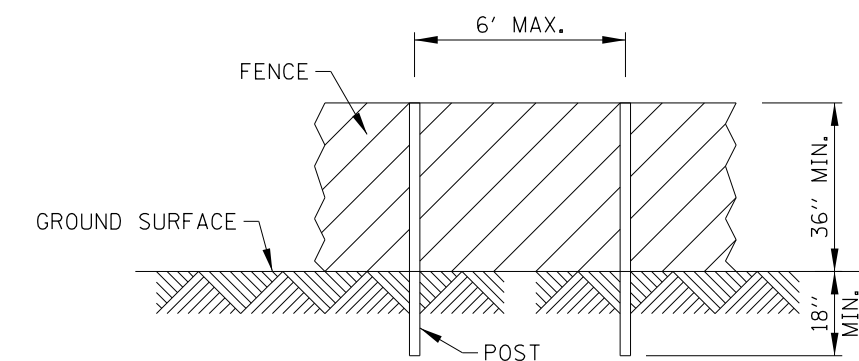
NOTES:

1. MONOFILAMENT FABRIC INLET PROTECTION SHALL CONSIST OF INLET BASKET, FRAME AND FABRIC INSERT.
2. DEVICE SHALL BE EQUIPPED WITH AN OVERFLOW FEATURE SO DRAINAGE TO INLET IS NOT COMPLETELY BLOCKED IF DEVICE IS FULL OF SILT.
3. INLET BASKET IS AVAILABLE TO FIT ROUND, RECTANGULAR, BEEHIVE OR CURB INLET CASTINGS.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED. REMOVE SILT FROM FABRIC INSERT WHEN 50% OF CAPACITY IS REACHED. REMOVE SILT FROM INTERIOR AND EXTERIOR OF INLET COVER WHEN 50% OF COVER HEIGHT IS REACHED. WHEN THERE IS EVIDENCE OF SEDIMENT ACCUMULATION ADJACENT THE THE INLET PROTECTION MEASURE, THE DEPOSITED SEDIMENT SHALL BE REMOVED BY THE END OF THE SAME BUSINESS DAY IN WHICH IT IS FOUND OR BY THE END OF THE FOLLOWING BUSINESS DAY IF REMOVAL THE SAME BUSINESS DAY IS NOT FEASIBLE.

FILTER FABRIC INLET PROTECTION - BASKET TYPE



SIDE VIEW



POST AND FENCE DETAIL

NOTES:

1. THE FENCE SHALL BE LOCATED 1 FOOT MINIMUM OUTSIDE THE DRIP LINE OF THE TREE TO BE SAVED AND IN NO CASE CLOSER THAN 5 FEET TO THE TRUNK OF ANY TREE.
2. THE FENCE SHALL BE HIGH VISIBILITY PLASTIC OR WOOD LATH SNOW FENCE TO CLEARLY DELINEATE THE PROTECTION AREA.
3. USED TO PROTECT TREES FROM DISTURBANCE AND FROM EQUIPMENT TRAVELING OVER THE ROOT ZONE.

**TREE PROTECTION
STANDARD SYMBOL**

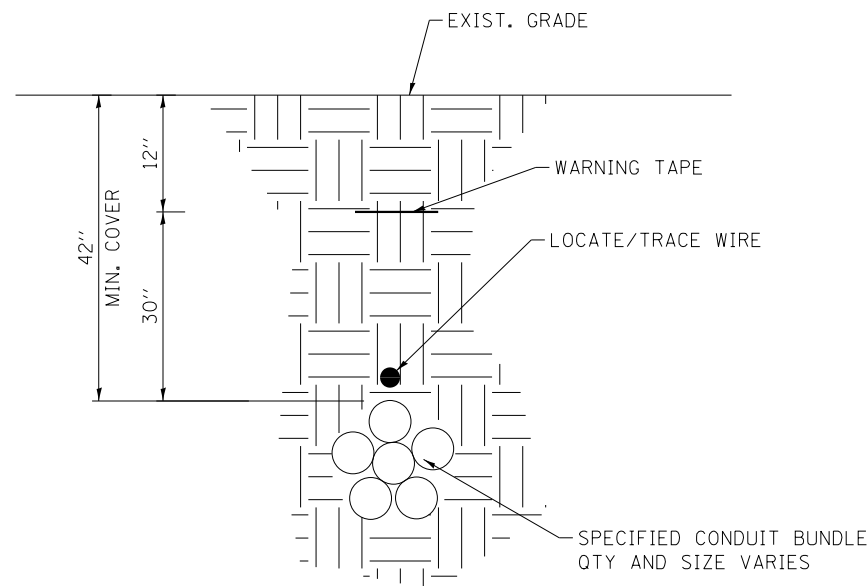


TYPES OF BURY
CABLE AND CONDUIT
BORED, TRENCHED, AND PLOWED

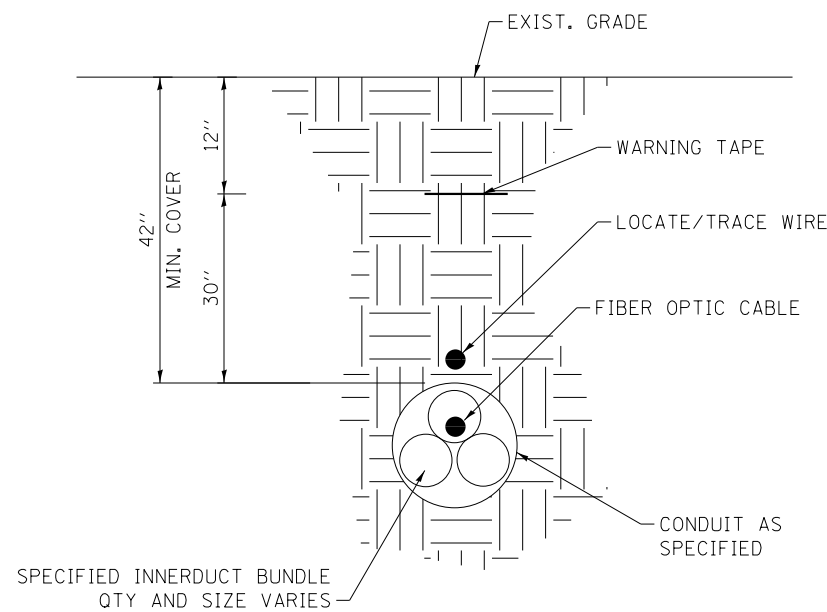
GENERAL NOTES:

1. UNDERGROUND CONDUIT SHALL BE PLACED AT 42" MINIMUM COVER UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. UNDERGROUND CONDUIT SHALL BE PLACED AT 48" MINIMUM COVER UNDER STREAM, CREEK AND DRAINAGE DITCH'S UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. IF WHILE LOWERING THE CONDUIT THERE IS NOT ENOUGH SLACK, ADDITIONAL CONDUIT SHALL BE ADDED. EMPTY CONDUITS CAN BE CUT AND HAVE NEW CONDUIT FUSED ON. CONDUITS WITH FIBER INSTALLED SHALL BE RING CUT WITH A TUBE CUTTER SO AS NOT TO DAMAGE THE FIBER.
4. ALL CONDUIT USED ABOVE GROUND SHALL BE PVC COATED GALVANIZED RIGID STEEL ACCORDING TO SECTION 811 OF THE STANDARD SPECIFICATIONS, AS MODIFIED BY THE TOLLWAY SUPPLEMENTAL SPECIFICATIONS.

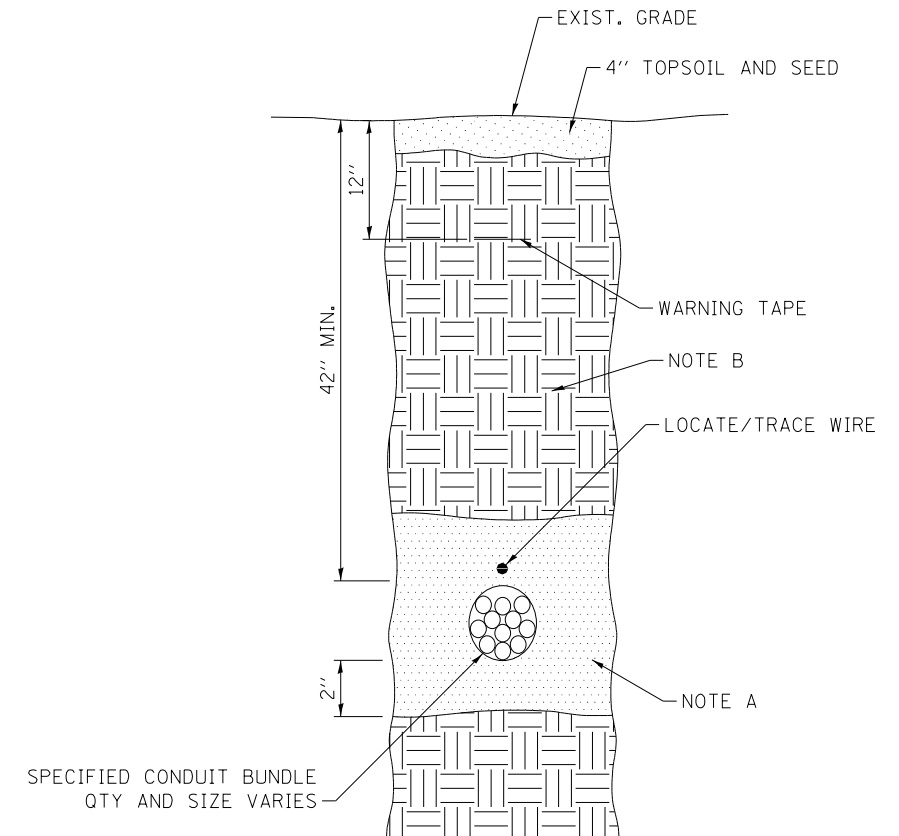
5. LOCATE/TRACE WIRE SHALL BE DIRECT BURIED WITH EVERY CONDUIT BUNDLE PATH AS CLOSE TO THE CENTER OF THE CONDUITS AS POSSIBLE. LOCATE/TRACE WIRE SHALL NOT BE INSTALLED IN A CONDUIT WITHOUT APPROVAL OF THE ENGINEER.
6. WHEN AN OPTIC FIBER CONDUIT SEPARATES FROM A CONDUIT BUNDLE OR DUCT BANK, AN ADDITIONAL LOCATE WIRE SHALL BE INSTALLED WITH THAT SEPARATE CONDUIT PATH GOING BACK TO THE PREVIOUS HANDHOLE.
7. ALL LOCATE/TRACE WIRE WILL BE TESTED PER SPECIFICATIONS PRIOR TO ANY FIBER BEING INSTALLED.
8. ALL UNUSUED CONDUIT SHALL HAVE 1200 LB MULE TAPE INSTALLED FOR FUTURE USE.



PLOWED CONDUIT BUNDLES
QTY VARIES



BORED CONDUIT WITH FIBER OPTIC CABLE AND/OR MULTIPLE INNERDUCTS
AS REQUIRED



CONSTRUCTION NOTES TRENCHED CONDUIT BUNDLES

- A. A MINIMUM OF 2" OF SAND SHALL BE PLACED UNDER THE CONDUIT. SAND SHALL TRANSITION TO BACKFILL ACCORDING TO NOTE B 4" ABOVE CONDUIT.
- B. BACKFILL SHALL BE ACCORDING TO ARTICLE 810.04 OF THE STANDARD SPECIFICATIONS.

TRENCHED CONDUIT BUNDLES

APPROVED: *Paul Kovacs* DATE 3-31-2017
CHIEF ENGINEERING OFFICER

DATE	REVISIONS
3-01-2019	ADDED NEW TORSION ASSIST TYPE HANDHOLE DRAWING, ADDED LOCATE AND TRACER WIRE

SHEET 1 OF 15

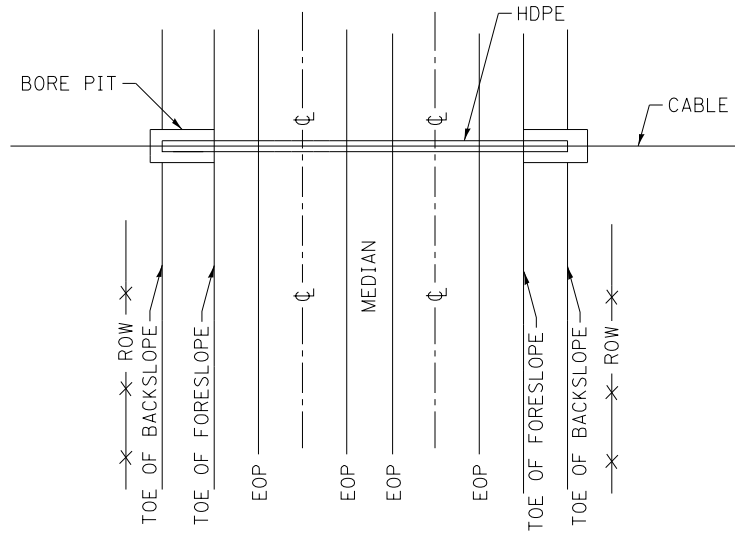
FIBER OPTIC SYSTEM
TYPICALS AND DRAWINGS

STANDARD L1-01

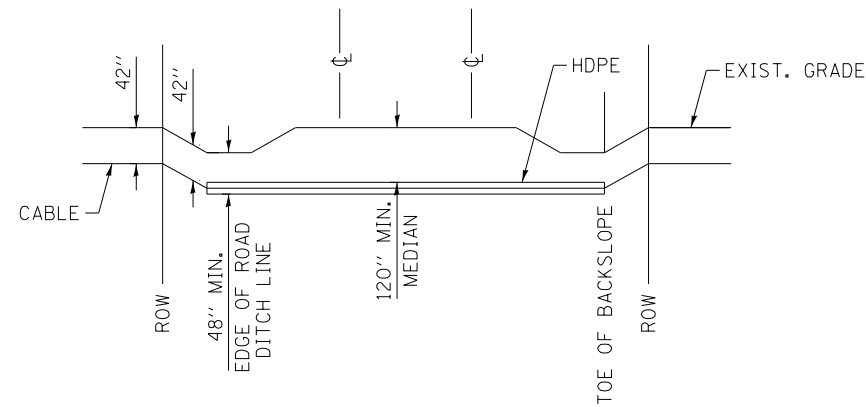
TYPICAL ROAD CROSSINGS

TYPICAL ROAD CROSSING

PLAN VIEW

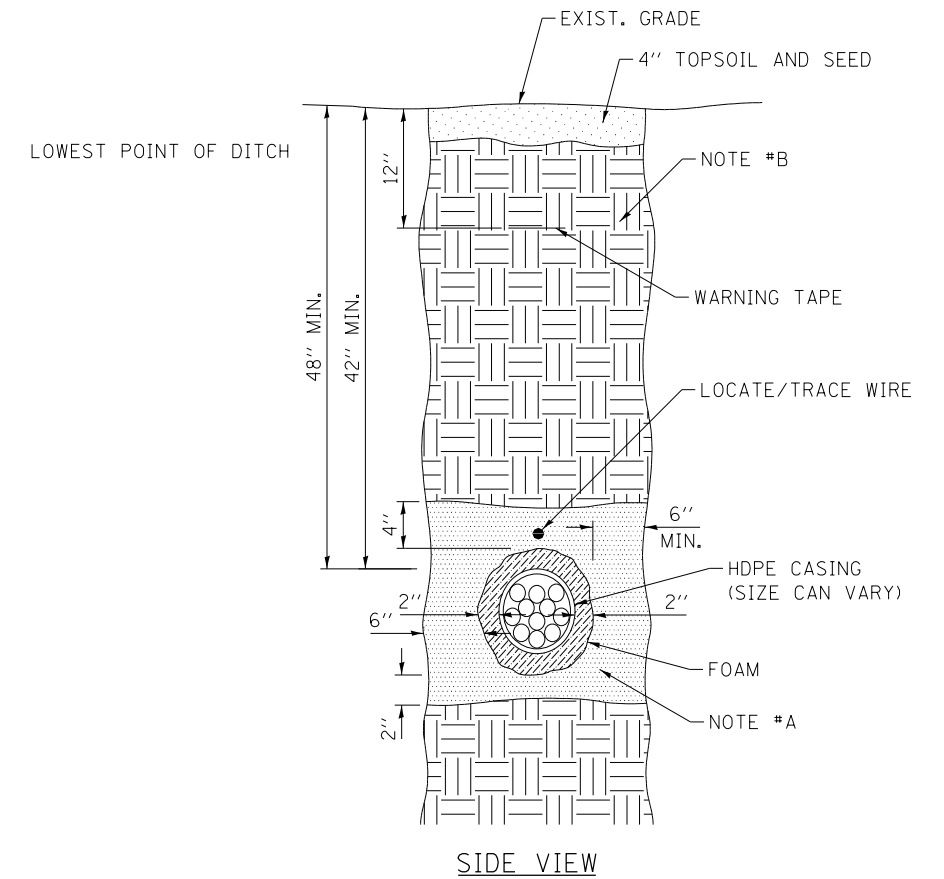


PROFILE VIEW



GENERAL NOTES:

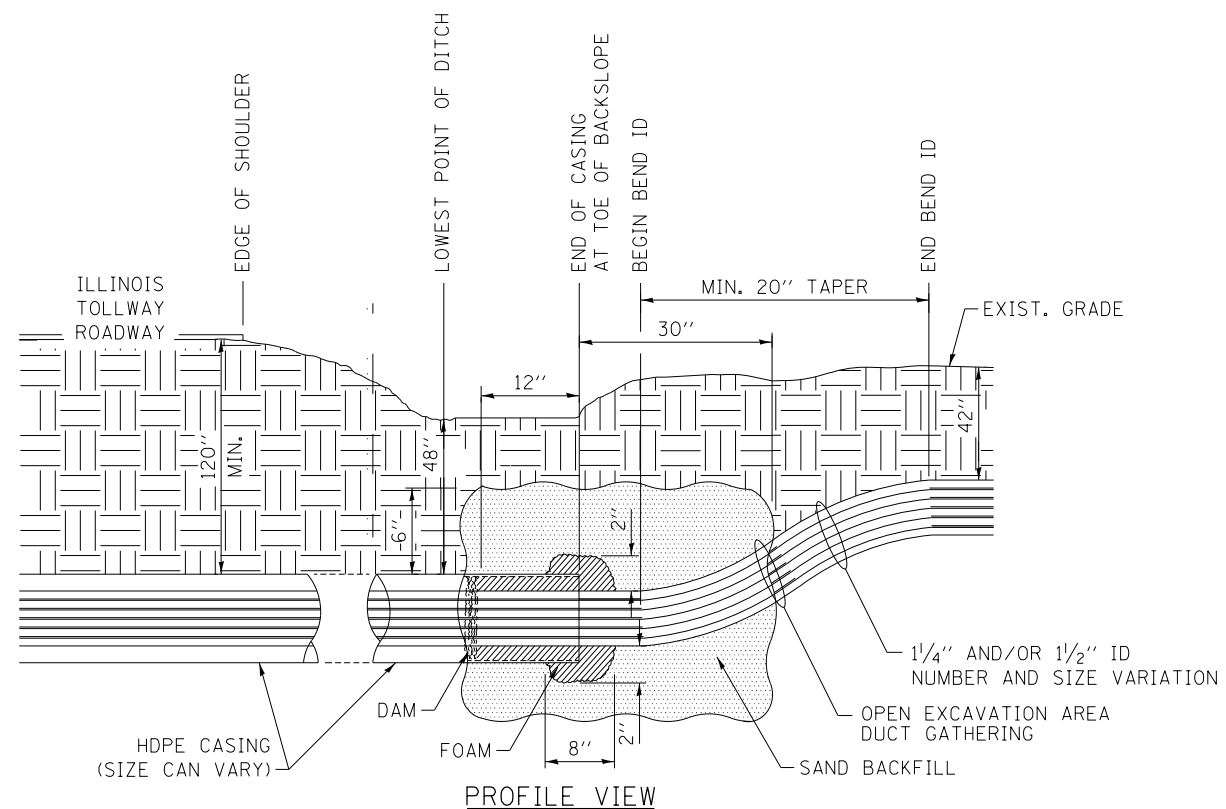
1. UNDERGROUND CONDUIT SHALL BE PLACED AT 42" MINIMUM COVER UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. UNDERGROUND CONDUIT SHALL BE PLACED AT 48" MINIMUM COVER UNDER STREAM, CREEK AND DRAINAGE DITCH'S UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. THE MINIMUM COVER UNDER A PUBLIC ROADWAY, ILLINOIS TOLLWAY HIGHWAY AND RAMPS SHALL BE 120" OR SUCH GREATER DEPTH AS MAY BE REQUIRED TO CLEAR THE PAVEMENT STRUCTURE.
4. IF WHILE LOWERING THE DUCTS, THERE IS NOT ENOUGH SLACK IN THE DUCTS, ADDITIONAL DUCT SHALL BE ADDED. EMPTY DUCTS CAN BE CUT AND HAVE NEW DUCT FUSED ON. DUCTS WITH FIBER INSTALLED SHALL BE RING CUT WITH A TUBE CUTTER SO AS NOT TO DAMAGE THE FIBER.
5. HDPE CASING SHALL EXTEND FROM TOE OF BACK SLOPE TO TOE OF BACK SLOPE UNLESS OTHERWISE APPROVED.
6. BORE AND RECEIVING PITS SHALL BE A MINIMUM OF 30 FEET FROM THE EDGE OF SHOULDER ON TOLL HIGHWAYS UNLESS OTHERWISE APPROVED.
7. TOP OF CASING SHALL BE A MINIMUM OF 48" BELOW THE DESIGNED DITCH GRADES ON EACH SIDE OF HIGHWAY.
8. ENDS OF ALL CASING SHALL BE FOAM PLUGGED. (ARNCO HYDRA-SEAL S-60 OR ENGINEER APPROVED EQUAL).
9. PITS FOR BORING ARE NOT PERMITTED IN THE HIGHWAY MEDIAN.
10. TOP HDPE CASING SHALL BE A MIN. OF 120" BELOW LOWEST ILLINOIS TOLLWAY ROAD SURFACE.
11. ALL CONDUIT USED ABOVE GROUND SHALL BE PVC COATED GALVANIZED RIGID STEEL ACCORDING TO SECTION 811 OF THE IDOT STANDARD SPECIFICATIONS, AS MODIFIED BY THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.
12. HANDHOLES SHALL BE INSTALLED ON BOTH SIDES OF ANY STREAM, CREEK, OR RAILROAD CROSSING.




SIDE VIEW

CONSTRUCTION NOTES TRENCHED HDPE BUNDLES

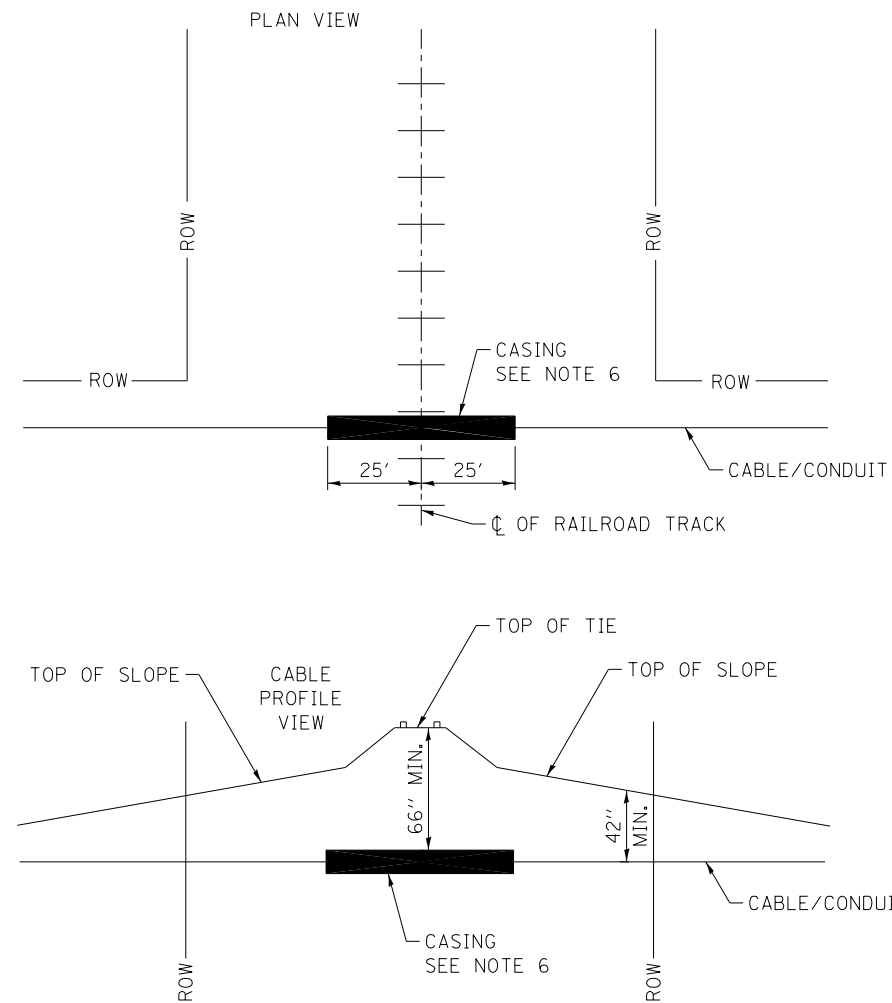
- A. A MINIMUM OF 2" OF SAND SHALL BE PLACED UNDER THE CONDUIT. SAND SHALL TRANSITION TO BACKFILL ACCORDING TO NOTE B 4" ABOVE CONDUIT.
- B. BACKFILL SHALL BE ACCORDING TO ARTICLE 810.04 OF THE STANDARD SPECIFICATIONS.




 APPROVED..... CHIEF ENGINEER..... DATE 3-31-2017.....

OUTSIDE PLANT TYPICAL BORES

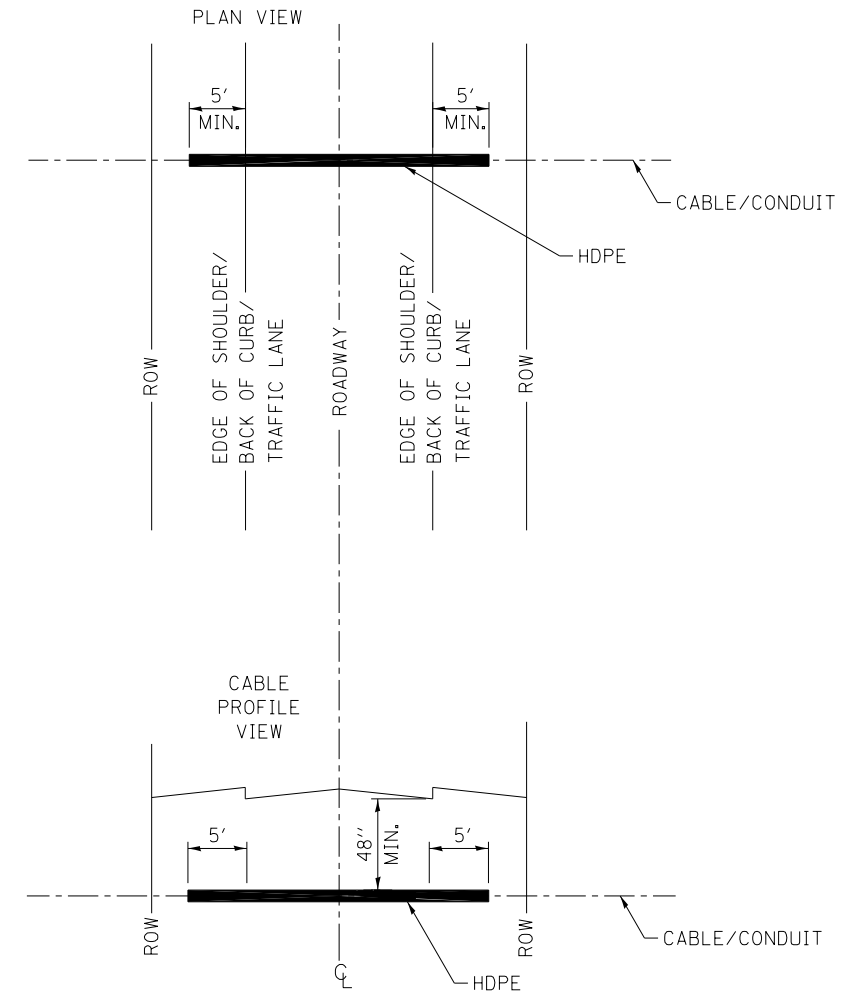
TYPICAL RAILROAD BORE OR JACK



NOTES FOR RAILROAD BORE OR JACK

1. CASING SHALL EXTEND 25 FT. EACH SIDE OF C.L. OF OUTERMOST TRACK OR AS DICTATED BY RAILROAD PERMIT.
2. R.R. BALLAST SHALL NOT BE DISTURBED.
3. BORE AND RECEIVING PITS SHALL NOT BE EXCAVATED CLOSER THAN 10 FT. FROM THE TOE OF SLOPE ON EACH SIDE OF TRACK.
4. ENDS OF ALL CASING SHALL BE FOAM PLUGGED (ARNCO HYDRA-SEAL S-60 OR ENGINEER APPROVAL EQUAL). SEE SHEET 2 OF THIS SERIES.
5. ALL OPERATIONS SHALL MEET REGULATING AGENCY REQUIREMENTS.
6. CASING AS REQUIRED BY CUSTOMER OR RAILROAD OWNER.
7. DEPTH TO TOP OF CASING TO TOP OF RR TIE MAY BE GREATER THAN 66" AS REQUIRED BY RAILROAD OWNER, NEVER LESS THAN 66".

TYPICAL CITY ST. AND DRIVEWAY BORE OR JACK



NOTES FOR CITY STREET AND DRIVEWAY BORE OR JACK

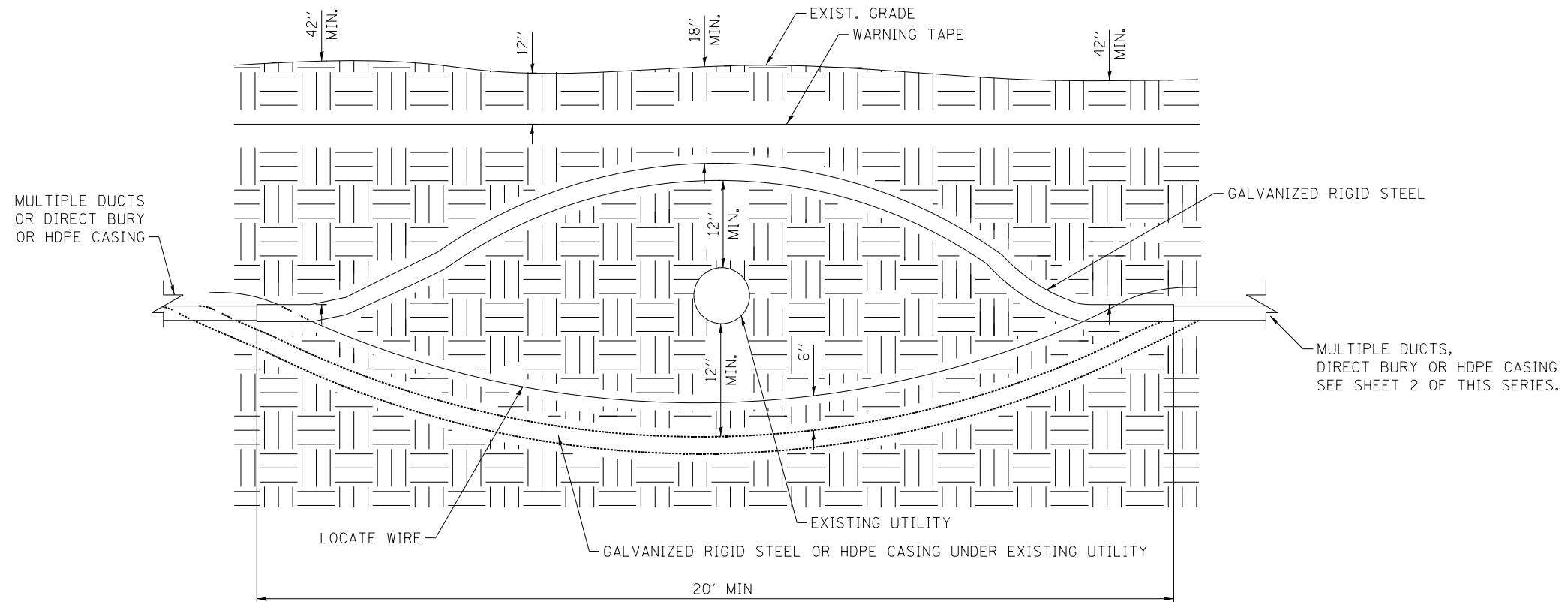
1. HDPE SHALL EXTEND 5 FT. EACH SIDE OF EDGE OF SHOULDER/BACK OF CURB.
2. BORE AND RECEIVING PITS SHALL NOT BE EXCAVATED WITHIN 5 FT. OF EDGE OF SHOULDER/BACK OF CURB.
3. ENDS OF ALL HDPE SHALL BE FOAM PLUGGED. (ARNCO HYDRA-SEAL S-60 OR ENGINEER APPROVED EQUAL). SEE SHEET 2 OF THIS SERIES.
4. HDPE SHALL BE A MINIMUM OF 48" BELOW PAVEMENT ELEVATION TO TOP OF HDPE, MAY BE GREATER THAN 48" AS REQUIRED BY CITY, VILLAGE AND/OR TWP/COUNTY.
5. ALL OPERATIONS SHALL MEET REGULATING AGENCY REQUIREMENTS.



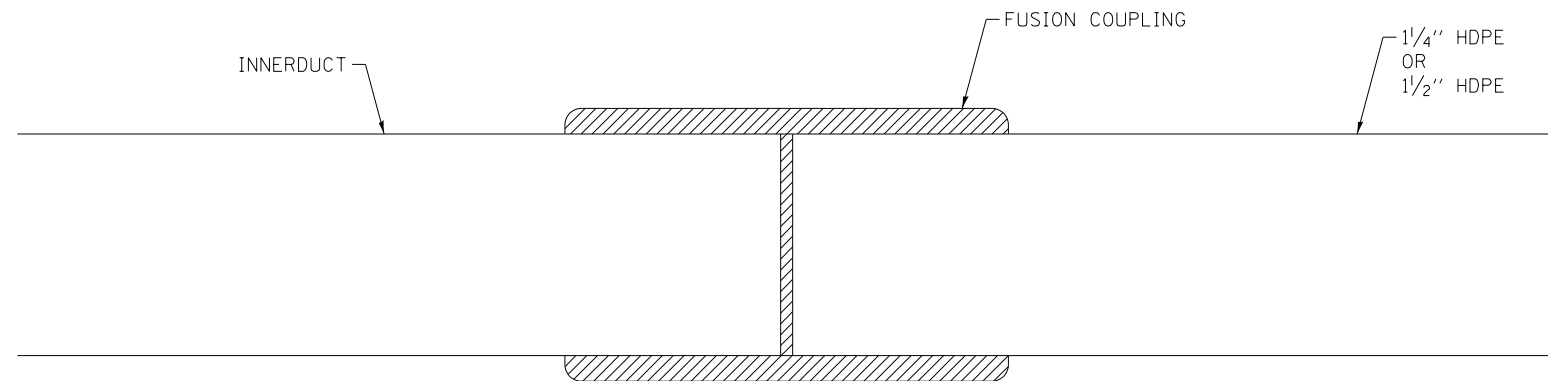
UTILITY AVOIDANCE DETAIL

NOTES:

1. IF 18" MIN COVER CANNOT BE ACHIEVED, HDPE(S) MUST BE PLACED UNDER EXISTING UTILITY.
2. 12" MIN SEPARATION MUST BE ADHERED TO BETWEEN GALVANIZED RIGID STEEL/CASING HDPE AND EXISTING UTILITY.
3. NO DIRECT BURY UNDER ANY EXISTING UTILITY.
4. 18" TO 24" SEPARATION FOR OIL, GAS UTILITY BETWEEN PIPE AND CONDUIT.
5. IF CROSSING AN EXISTING UTILITY, SHOULD BE CONSTRUCTED AS CLOSE TO 90° AS POSSIBLE.

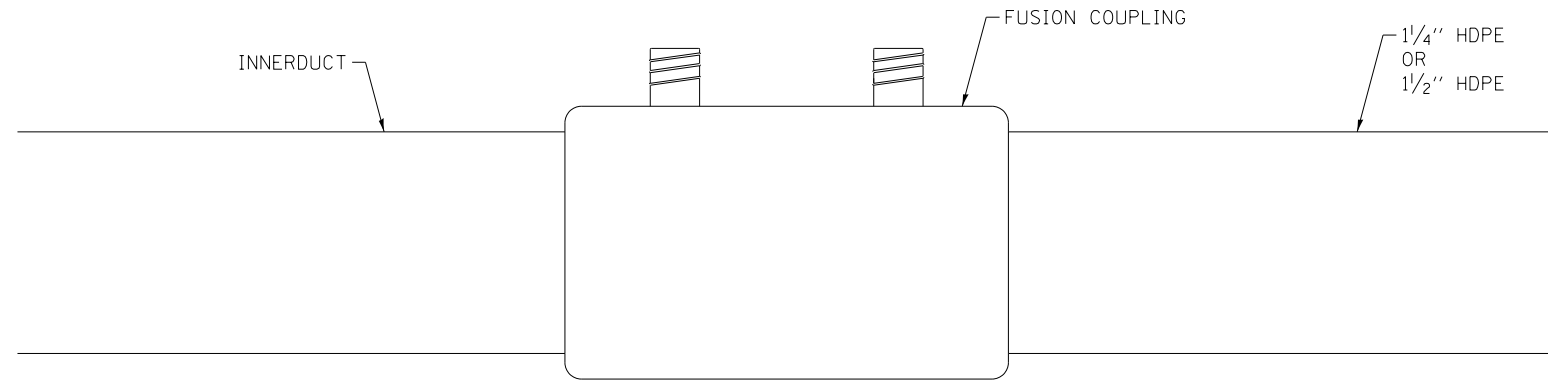


FUSION COUPLINGS DETAIL



NOTE:
 IN A PROPER ELECTROFUSION JOINT, MOLTEN MATERIAL FLOWS TO THE COLD ZONE WHERE IT SOLIDIFIES AND FREEZES OFF THE ESCAPE PATH. WITH THE MOLTEN MATERIAL CONTAINED, MELT PENETRATION WILL BUILD INTERFACE PRESSURE. WIRE WINDINGS WILL FLOW IN A DESIGNED AND CONTROLLED PATTERN AND A PROPER BONDING OF MATERIALS CAN BE OBTAINED.

PROPER FUSION DETAIL



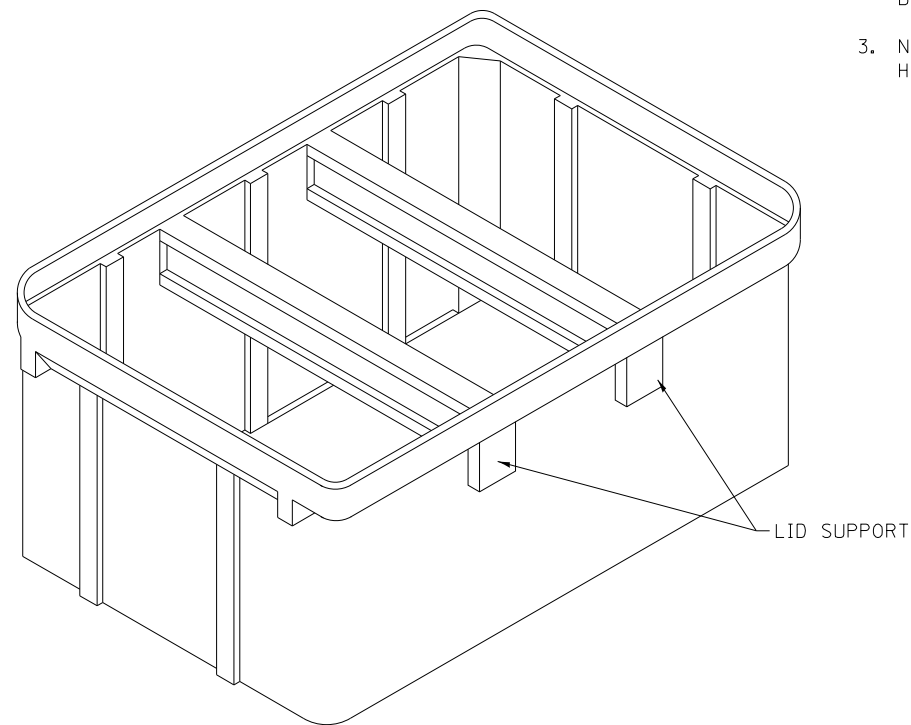
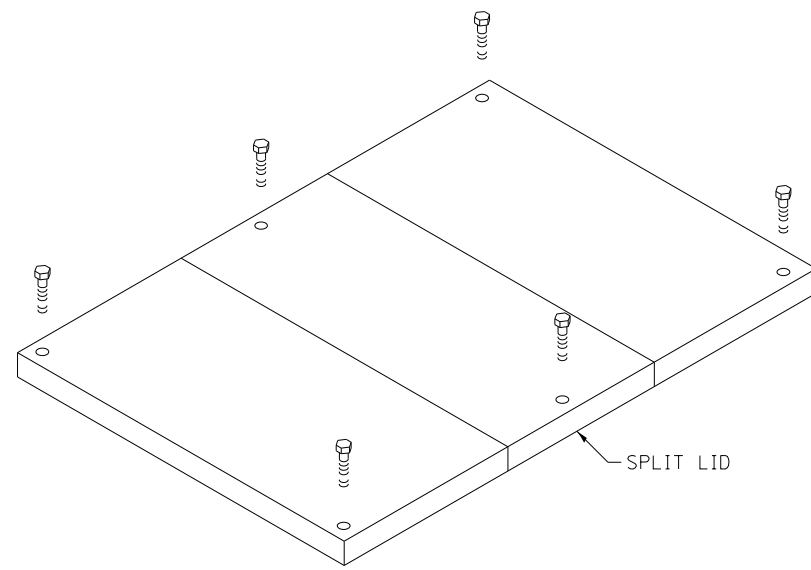
STANDARD JOINING PROCEDURES

1. ONLY FUSION COUPLINGS SHALL BE USED. COMPRESSION COUPLINGS SHALL NOT BE ALLOWED.
 2. SHALL INSTALL PER FUSION COUPLING MANUFACTURER RECOMMENDATIONS.
 3. THE PIPE SHALL HAVE A SQUARE EVEN CUT.
 4. REMOVE ANY BURRS OR SHAVING FROM THE PIPE ENDS THAT MAY HAVE DEVELOPED DURING THE CUTTING PROCESS.
 5. CLEAN PIPE ENDS INSIDE AND OUT WITH A CLEAN CLOTH TO REMOVE ANY DIRT OR CONTAMINANTS.
 6. PIPE PREPARATION AND CONTAMINATION ARE VERY IMPORTANT CONSIDERATIONS IN THE ELECTROFUSION PROCESS. THEREFORE, CAREFUL ATTENTION SHALL BE GIVEN TO PROPER SCRAPING AND CLEANING PROCEDURES.
 7. SCRAPE PIPE ENDS TO REMOVE ANY OXIDATION OR SURFACE CONTAMINATION. FOR BEST RESULTS, SECURE TOOL ON PIPE AND MAKE TWO REVOLUTIONS.
 8. DISCONNECT LEADS FROM FITTING. CLAMPING DEVICE SHALL REMAIN IN PLACE TO SECURE PIPE AND FITTING DURING THE RECOMMENDED COOLING TIME. AFTER REMOVING CLAMP, ADDITIONAL COOLING TIME SHALL BE ALLOWED BEFORE SUBJECTING THE JOINT TO BENDING, BURYING, PRESSURE TESTING, OR SIMILAR HANDLING AND BACKFILL STRESS.
- NOTE: IN THE EVENT OF OUT-OF-ROUND PIPE, IT IS IMPORTANT TO ASSURE AN ADEQUATE AND EVEN SCRAPE IS ACHIEVED AROUND THE ENTIRE CIRCUMFERENCE OF THE PIPE. A RUBBER PIPE STOPPER CAN BE PLACED IN THE END OF THE PIPE TO AID IN ROUNDING THE AREA TO BE SCRAPED.
9. MULTIPLE DUCTS FUSION SHALL BE STAGGERED AND AFTER COMPLETION SHALL BE BOUND TOGETHER WITH TY-STRAPS (AT 5' SPACING) SO TO OCCUPY MINIMUM POSSIBLE SPACE AND THEN BACKFILLED.

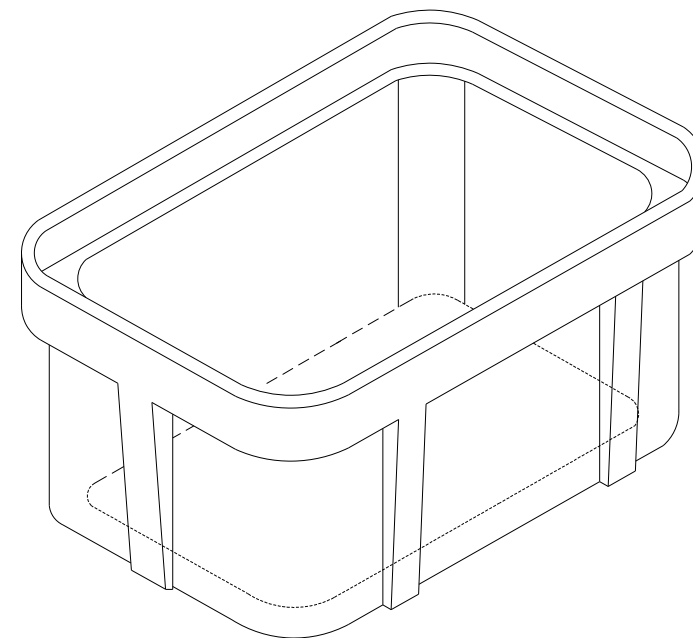
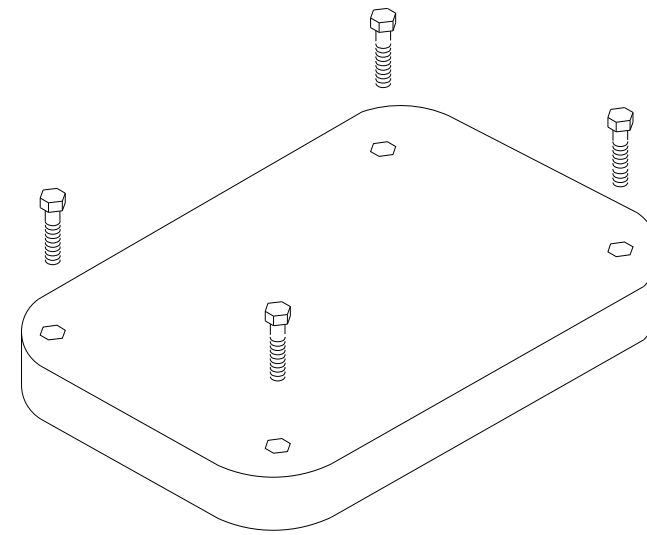


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HANDHOLE



4'x6' HANDHOLE
 2 OR 3 SECTION SPLIT LID
 (PG STYLE LARGE BOX)
 5-1 1/4" OR MORE DUCTS



3'x5' HANDHOLE
 SINGLE OR SPLIT LID
 LESS THAN 5-1 1/4" DUCTS

NOTES:

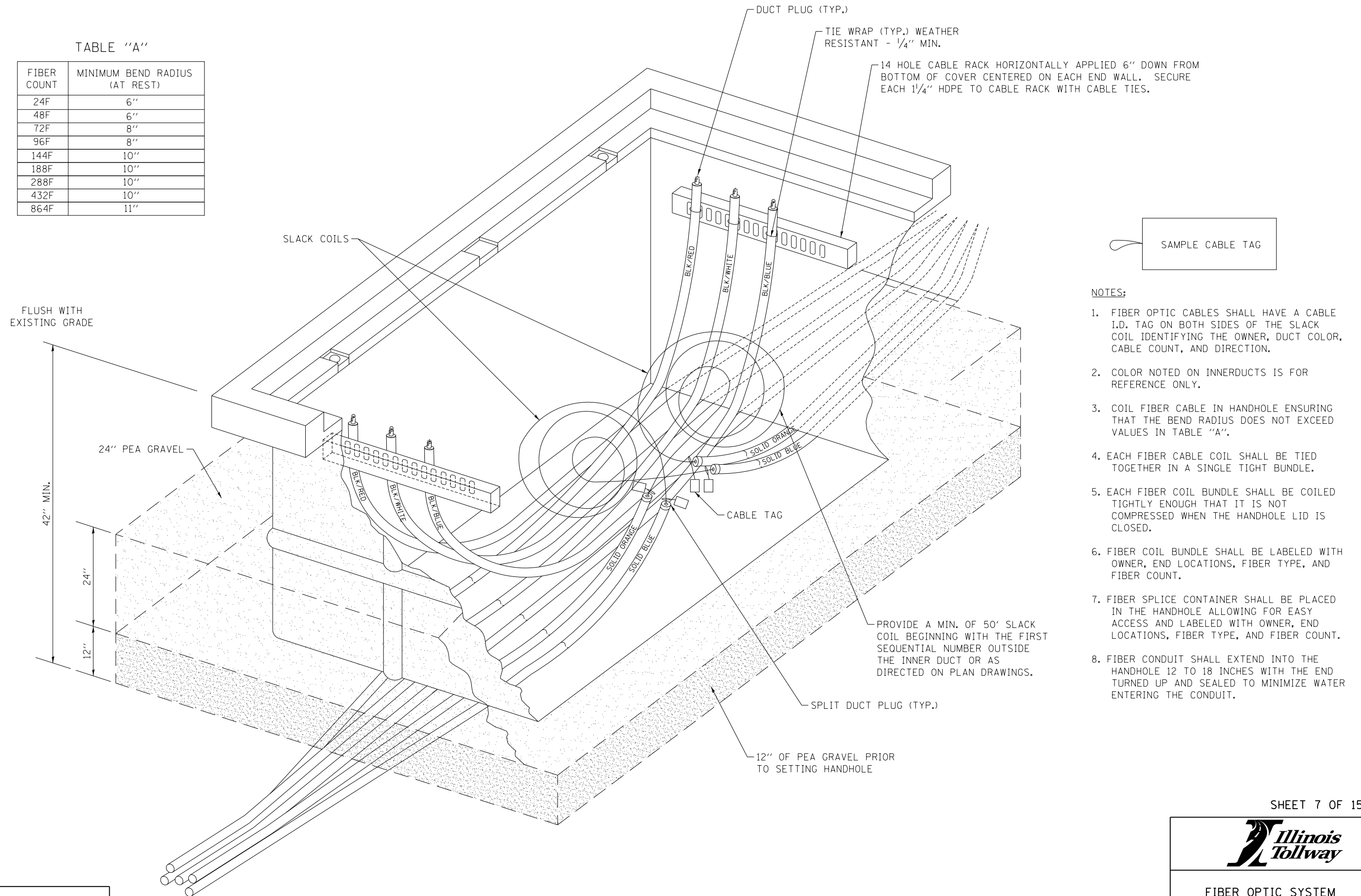
1. NO MARKING ON LID.
2. ALL BOLTS SHALL BE 1/2" x 3/2" HEX HEAD ASTM STANDARD F593C STAINLESS STEEL BOLTS.
3. NO CORING/DRILLING OR ALTERATION OF HANDHOLE SHALL BE ALLOWED.

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HDPE AND FIBER OPTIC CABLE PLACEMENT IN HANDHOLE

TABLE "A"

FIBER COUNT	MINIMUM BEND RADIUS (AT REST)
24F	6"
48F	6"
72F	8"
96F	8"
144F	10"
188F	10"
288F	10"
432F	10"
864F	11"

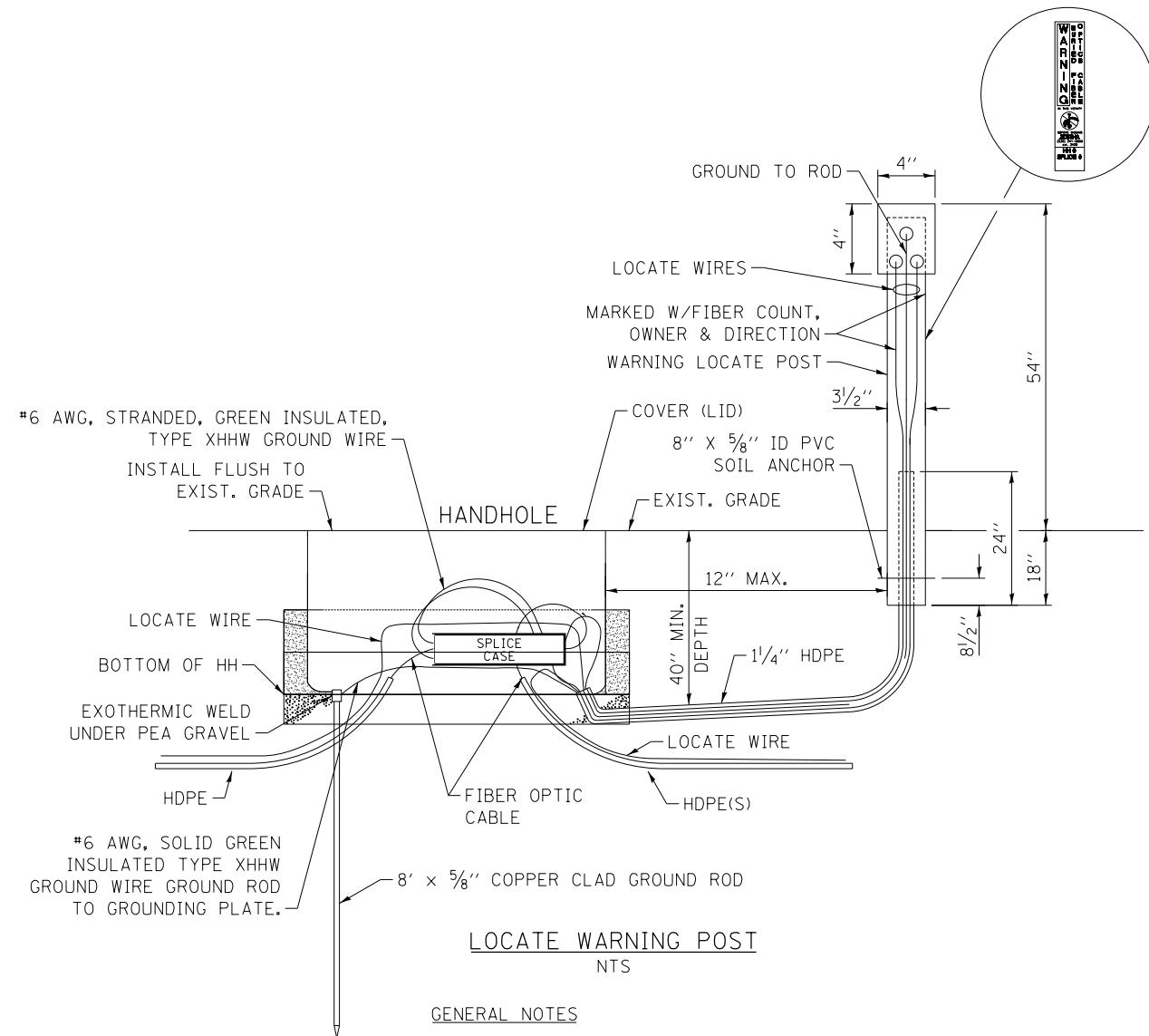


NOTES:

1. FIBER OPTIC CABLES SHALL HAVE A CABLE I.D. TAG ON BOTH SIDES OF THE SLACK COIL IDENTIFYING THE OWNER, DUCT COLOR, CABLE COUNT, AND DIRECTION.
2. COLOR NOTED ON INNERDUCTS IS FOR REFERENCE ONLY.
3. COIL FIBER CABLE IN HANDHOLE ENSURING THAT THE BEND RADIUS DOES NOT EXCEED VALUES IN TABLE "A".
4. EACH FIBER CABLE COIL SHALL BE TIED TOGETHER IN A SINGLE TIGHT BUNDLE.
5. EACH FIBER COIL BUNDLE SHALL BE COILED TIGHTLY ENOUGH THAT IT IS NOT COMPRESSED WHEN THE HANDHOLE LID IS CLOSED.
6. FIBER COIL BUNDLE SHALL BE LABELED WITH OWNER, END LOCATIONS, FIBER TYPE, AND FIBER COUNT.
7. FIBER SPLICE CONTAINER SHALL BE PLACED IN THE HANDHOLE ALLOWING FOR EASY ACCESS AND LABELED WITH OWNER, END LOCATIONS, FIBER TYPE, AND FIBER COUNT.
8. FIBER CONDUIT SHALL EXTEND INTO THE HANDHOLE 12 TO 18 INCHES WITH THE END TURNED UP AND SEALED TO MINIMIZE WATER ENTERING THE CONDUIT.



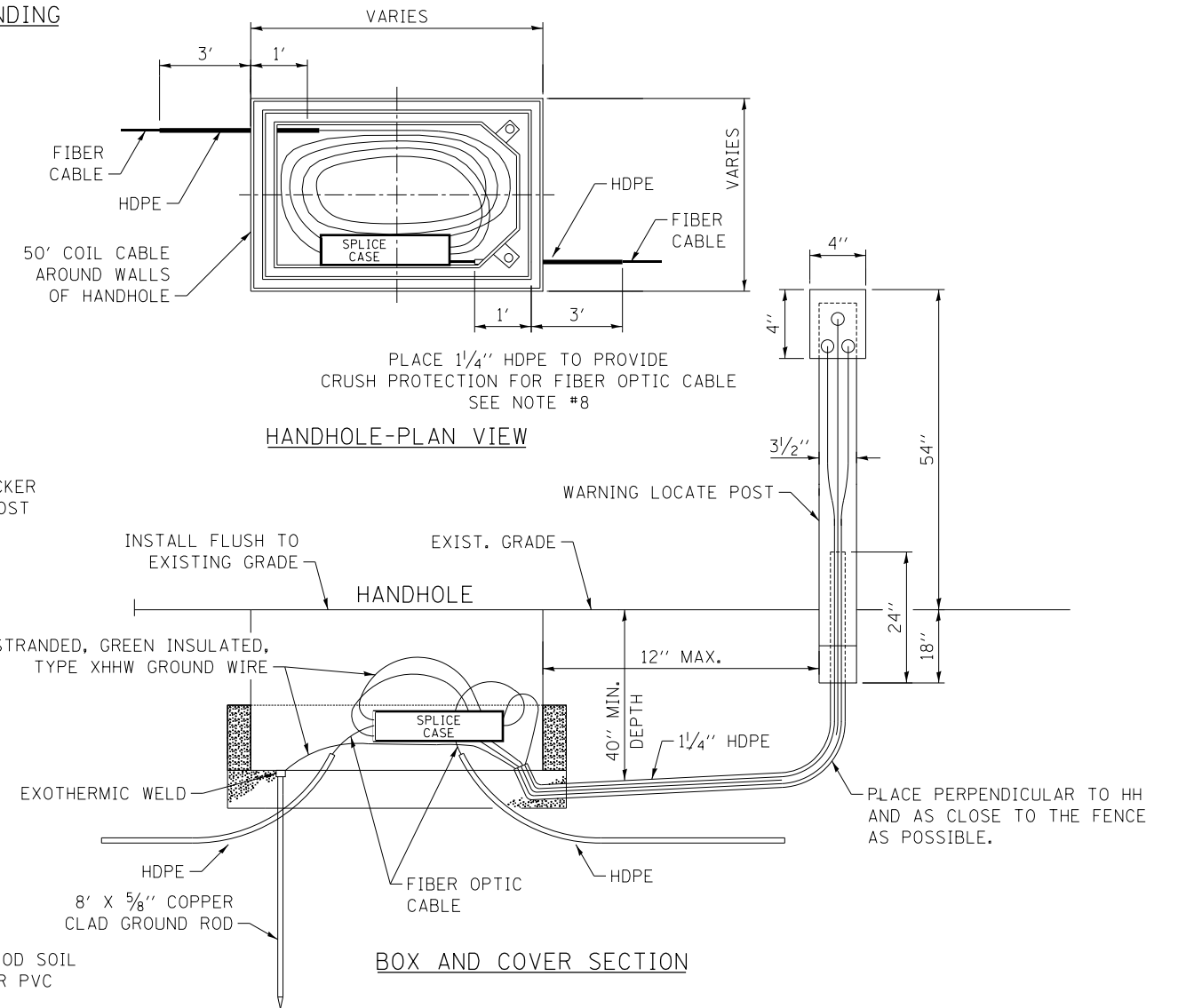
FIBER HANDHOLE GROUNDING
LATERAL HANDHOLE GROUNDING



LOCATE WARNING POST
NTS

GENERAL NOTES

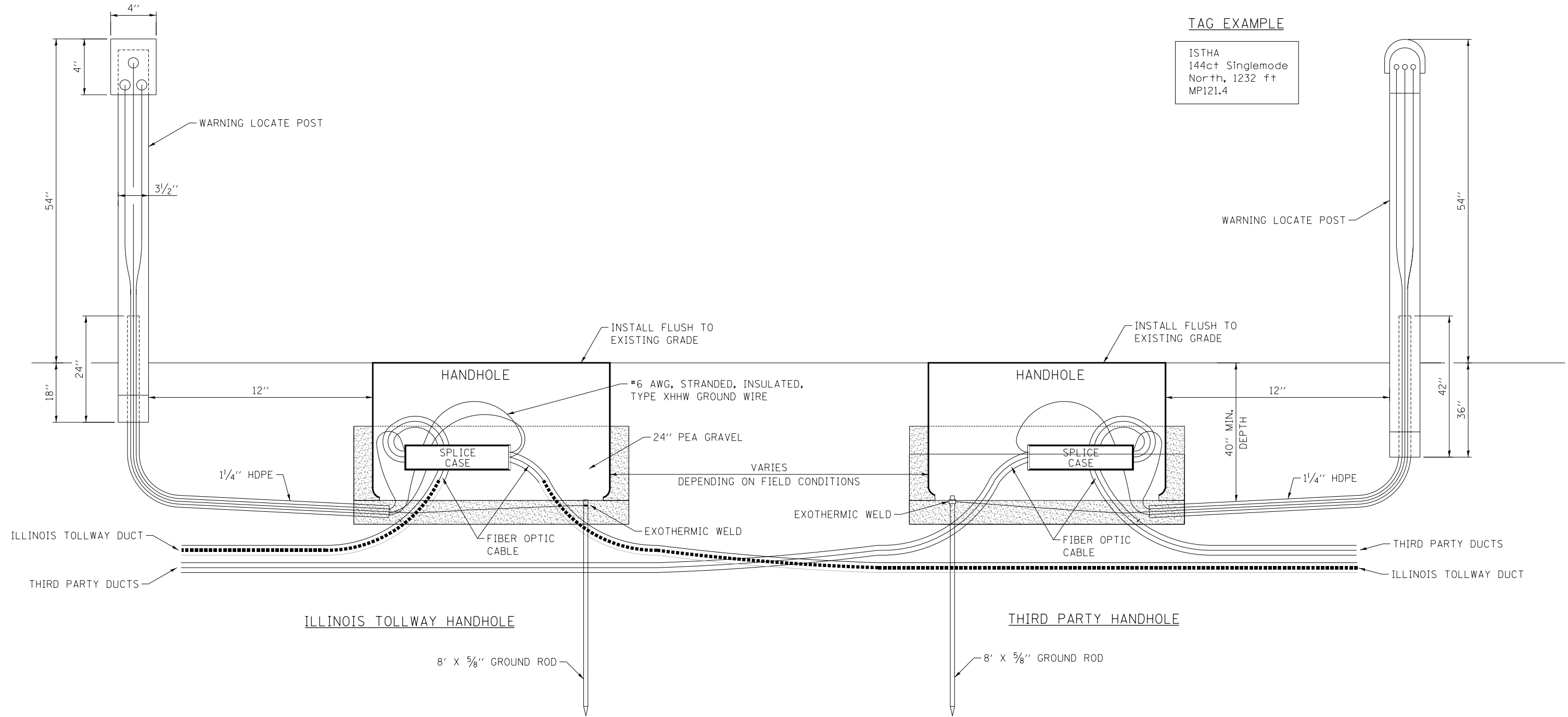
1. ROUTE MARKER SHALL BE PLACED 1 FOOT FROM HANDHOLE OR AT FENCE LINE IF POSSIBLE.
2. HANDHOLES SHALL BE BACKFILLED ONLY TO THE TOP OF THE BOX, FLUSH TO EXISTING GRADE.
3. COIL FIBER CABLE IN HANDHOLE ENSURING THAT THE BEND RADIUS SHALL NOT EXCEED 6".
4. INSTALL GROUND ROD & EXOTHERMIC WELD AS PER MANUFACTURER'S INSTRUCTIONS. PLACE THE #6 GROUND WIRE (TYPE XHHW, SOLID, GREEN INSULATED) THAT HAS BEEN ATTACHED TO THE GROUND ROD AND TO THE CENTER LUG OF THE LOCATE POST.
5. BACKFILL MATERIAL SHALL BE COMPACTED TO THE SATISFACTION OF THE ENGINEER.
6. GROUND WIRE SHALL BE BONDED TO BOTH SHEATHS OF ARMORED FIBER OPTIC CABLE IN THE SPLICE ENCLOSURE USING #6 GROUND STRANDED, GREEN INSULATED WIRE. EACH GROUND SHALL BE ISOLATED WITHIN THE ENCLOSURE.
7. INSTALL 1/4" HDPE CONDUIT FROM HANDHOLE TO WARNING POST TO ALLOW GROUNDING CABLE AND LOCATE TRACE WIRES TO BE INSTALLED.
8. PLACE 1/4" HDPE OVER FIBER OPTIC CABLE TO PROVIDE CRUSH PROTECTION EXTEND HDPE 1' INSIDE HANDHOLE.
9. NO HANDHOLES WILL BE ALLOWED IN PAVED ROADWAYS OR SHOULDERS.
10. THE TOPS OF ALL HANDHOLES SHALL BE FLUSH WITH THE EXISTING GRADE.
11. HANDHOLE SHALL NOT BE INSTALLED ON STEEP BANKS OR SLOPES WHERE THE COVER CANNOT BE LEVELED WITHIN A TOLERANCE OF ONE INCH (1") OF DROP TO TWELVE INCHES (12") OF GRADE AND REMAIN BURIED.
12. A WATER PROOF SEALING SIMPLEX DUCT PLUG SHALL BE INSTALLED AROUND THE FIBER OPTIC TO SEAL AROUND THE CONDUIT. A WATER PROOF SEALING PLUG SHALL BE INSTALLED IN ALL VACANT CONDUIT.
13. ANY WORK IN AN EXISTING SINGLE MODE HANDHOLE OR INVOLVING AN EXISTING SINGLE MODE DUCT AND FIBER SHALL BE COORDINATED WITH THE TOLLWAY FIBER OPTIC CONTRACTOR. USING A-36 PROCESS.
14. FOR ALL SPLICE AND HANDHOLE, NUMBER DECALS SHALL BE APPLIED AFTER INSTALLATION IS COMPLETED.
15. PLACEMENT OF SIGNS IS PREFERRED OVER POSTS. SIGNS SHALL BE USED ON LOCATIONS WHERE FENCE IS VISIBLE FROM ROAD. POSTS SHALL ONLY BE USED WHERE SIGN WOULD NOT BE VISIBLE FROM ROAD.



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HANDHOLE SPLICE GROUNDING
THIRD PARTY CONDUIT



TAG EXAMPLE

ISTHA
144ct Singlemode
North, 1232 ft
MP121.4

NOTES:

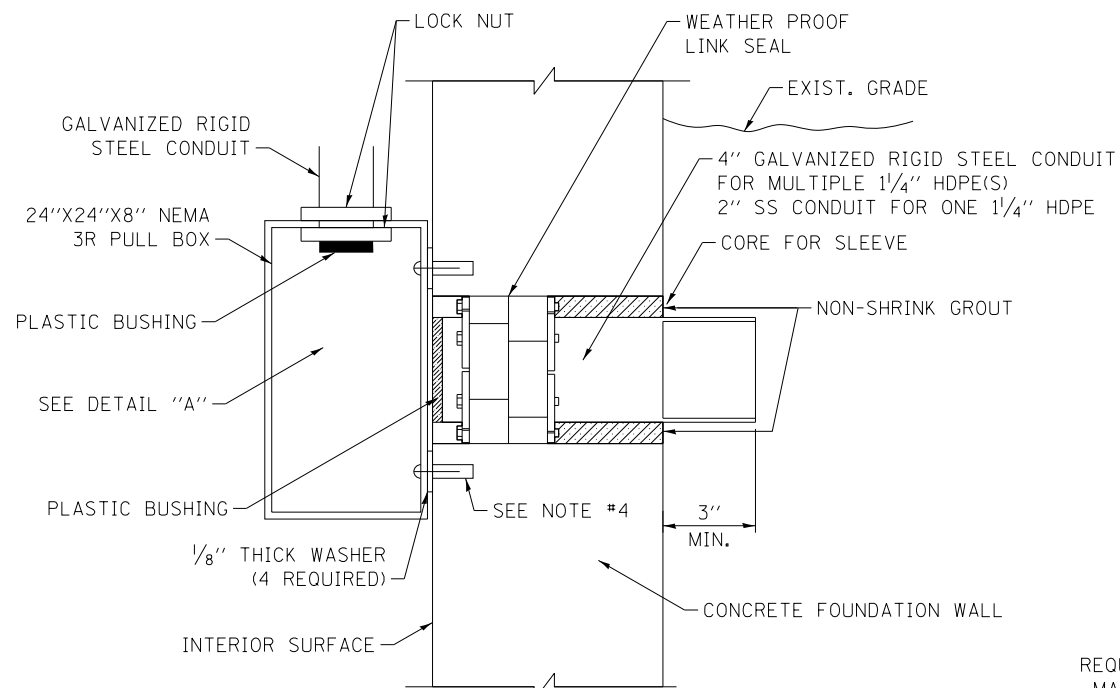
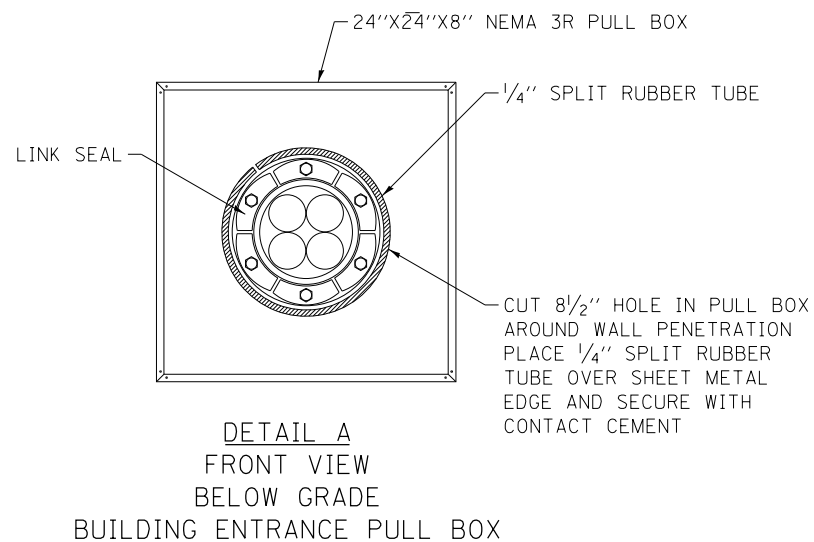
1. WARNING LOCATE POST SHALL BE PLACED 1 FOOT FROM HANDHOLE OR AT FENCE LINE IF POSSIBLE.
2. HANDHOLES SHALL BE BACKFILLED ONLY TO THE TOP OF THE BOX FLUSH TO EXISTING GRADE.
3. INSTALL GROUND ROD & EXOTHERMIC WELD AS PER MANUFACTURER'S INSTRUCTIONS. PLACE THE #6 GROUND WIRE (TYPE XHHW, SOLID, GREEN INSULATED) THAT HAS BEEN ATTACHED TO THE GROUND ROD ON THE CENTER LUG OF THE WARNING LOCATE POST.
4. GROUND WIRE SHALL BE BONDED TO BOTH SHEATHS OF ARMORED FIBER OPTIC CABLE IN THE SPLICE ENCLOSURE USING #6 STRANDED GREEN INSULATED TYPE XHHW GROUND WIRE. EACH GROUND SHALL BE ISOLATED WITHIN THE ENCLOSURE.
5. PLACE 1/4" HDPE OVER FIBER OPTIC CABLE TO PROVIDE CRUSH PROTECTION EXTEND HDPE 1' INSIDE HANDHOLE.
6. NO HANDHOLES SHALL BE ALLOWED IN PAVED ROADWAYS OR SHOULDERS.
7. THE TOPS OF ALL HANDHOLES SHALL BE FLUSH WITH THE EXISTING GRADE UNLESS THE SLOPE IS GREATER THEN 1:4. IF SO, THE HANDHOLE SHALL BE PLACED LEVEL WITH THE EARTH GRADED AROUND IT SO NO PART OF THE SIDES OF THE HANDHOLE IS EXPOSED.
8. A WARNING LOCATE POST SHALL BE INSTALLED AT ALL HANDHOLES.
9. LOCATE WIRE SHALL BE TESTED FROM HANDHOLE TO HANDHOLE PRIOR TO ANY FIBER BEING INSTALLED IN CONDUIT.
10. LOCATE WIRES SHALL BE TAGGED INSIDE LOCATE POST. THE TAG SHALL SHOW THE FIBER OWNER, FIBER COUNT, FIBER TYPE, DIRECTION (N,S,E,W), DISTANCE TO NEXT LOCATE POST, AND MILE POST AT THAT LOCATION.

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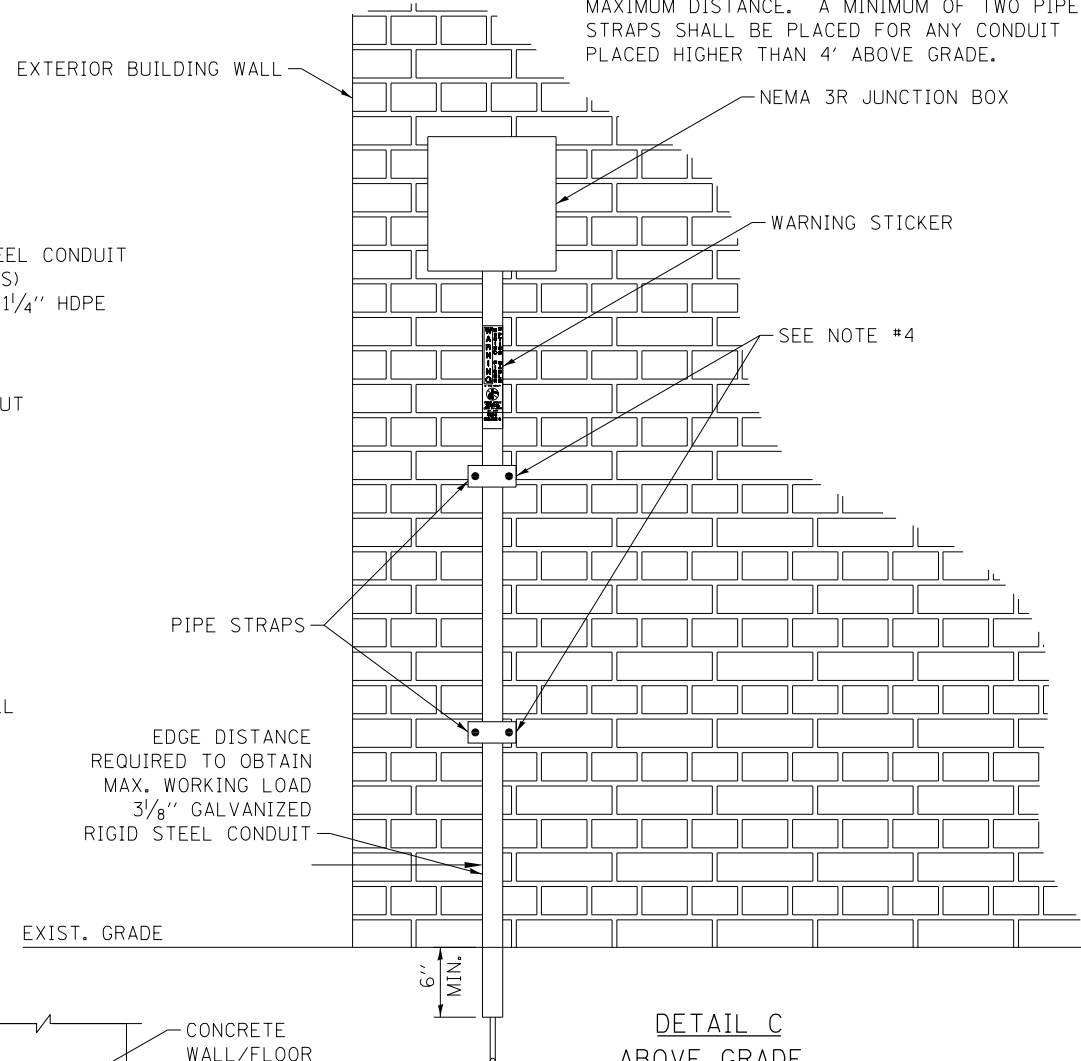


WALL PENETRATION DETAIL

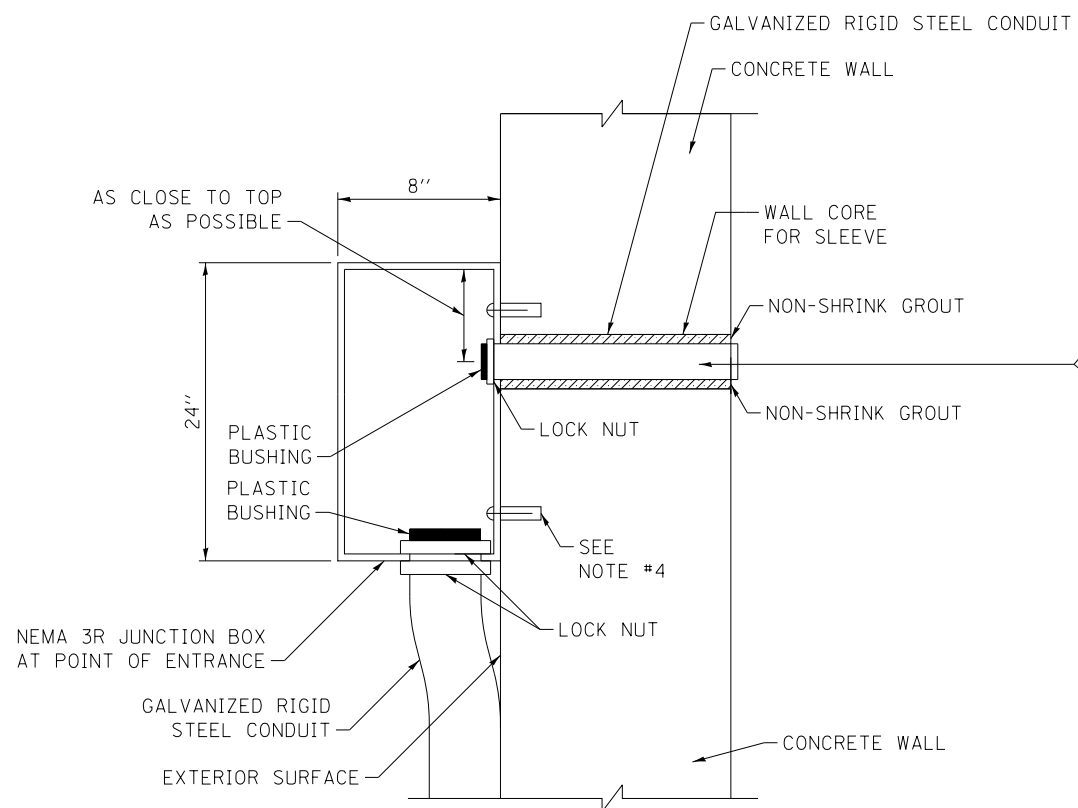
NOTE:
THE MAXIMUM PIPE STRAP SPACING SHALL BE 30" MAX. VERTICAL AND 18" HORIZONTAL MAXIMUM DISTANCE. A MINIMUM OF TWO PIPE STRAPS SHALL BE PLACED FOR ANY CONDUIT PLACED HIGHER THAN 4' ABOVE GRADE.



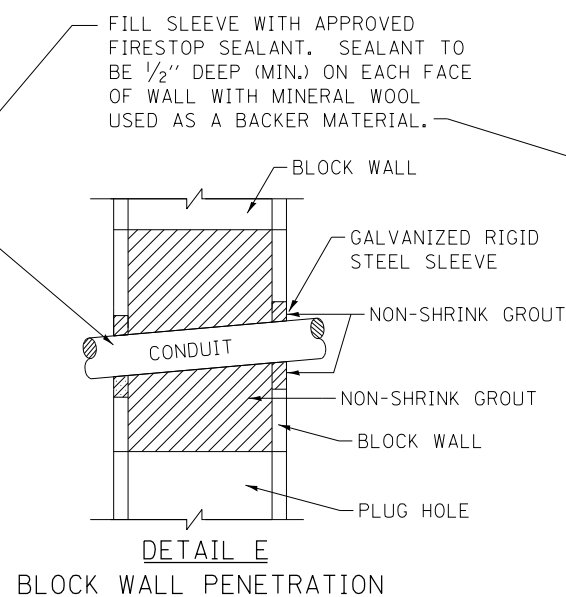
DETAIL B
SIDE VIEW
BELOW GRADE
BUILDING ENTRANCE PULL BOX



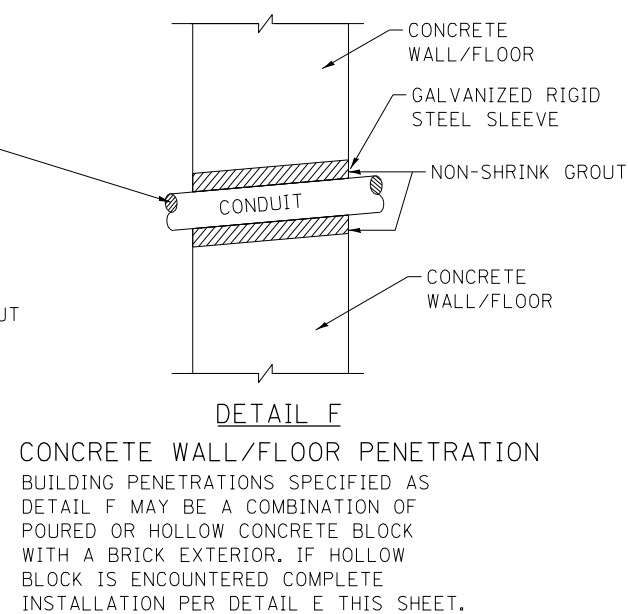
DETAIL C
ABOVE GRADE
BUILDING ENTRANCE
CONDUIT



DETAIL D
ABOVE GRADE
BUILDING ENTRANCE PULL BOX



DETAIL E
BLOCK WALL PENETRATION

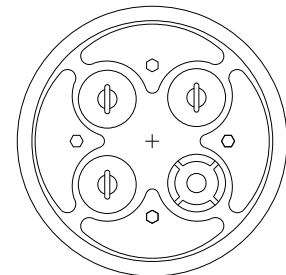


GENERAL NOTES:

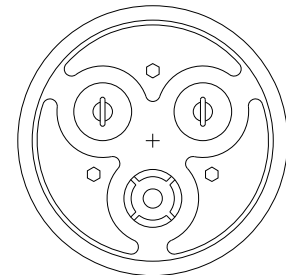
1. ALL PENETRATIONS SHALL UTILIZE EXISTING UNUSED BUILDING PENETRATIONS TO THE MAXIMUM EXTENT POSSIBLE.
2. ALL EXTERIOR MATERIALS SHALL BE STAINLESS STEEL UNLESS OTHERWISE NOTED.
3. ALL ANCHORS SHALL BE INSTALLED IN SOUND CONCRETE OR MASONRY.
4. USE APPROVED MASONRY ANCHOR.



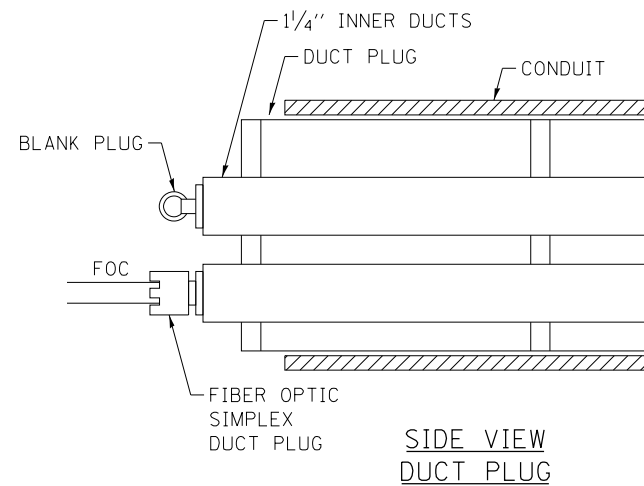
UNDERGROUND PENETRATION DETAIL



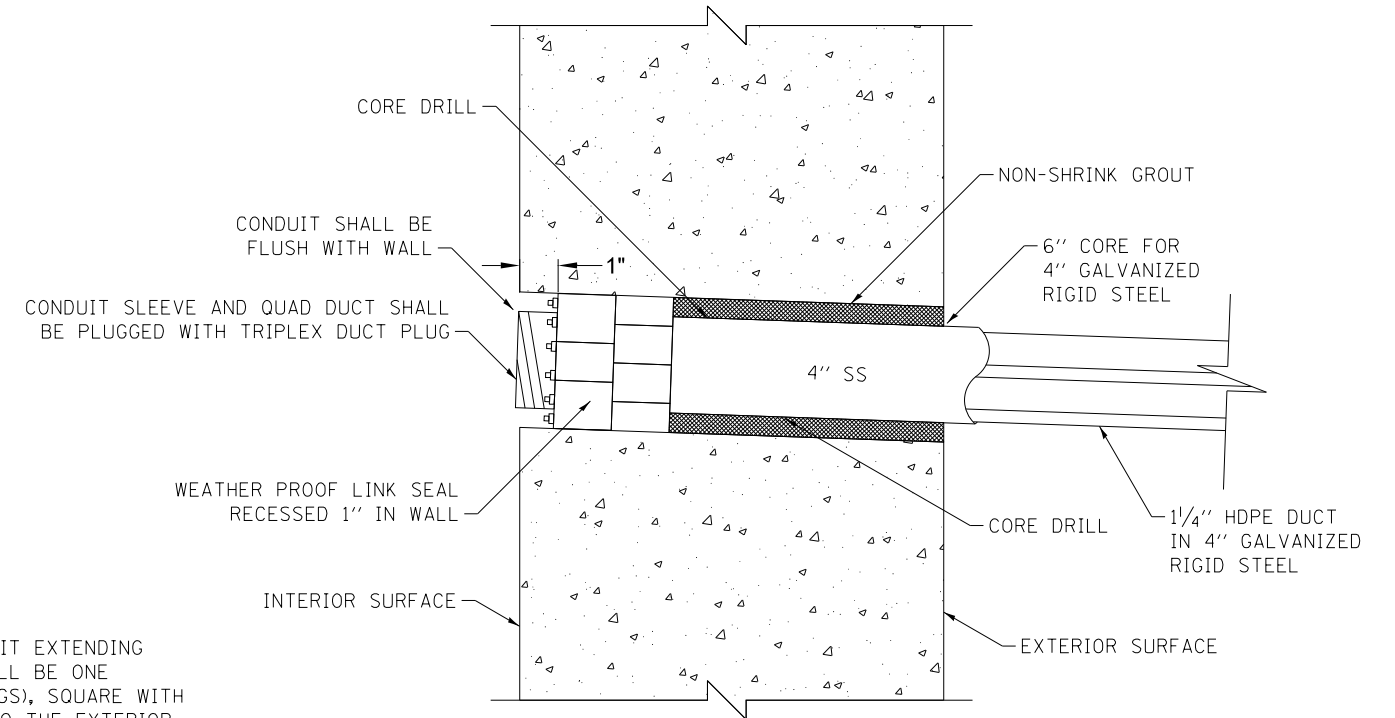
FRONT VIEW
QUAD DUCT PLUG



FRONT VIEW
DUCT PLUG



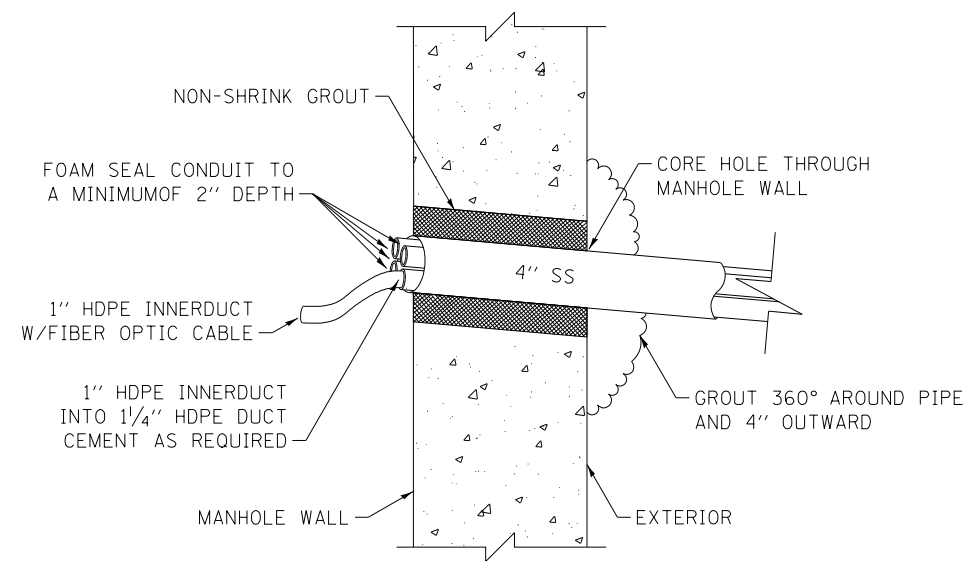
DUCT PLUG DETAIL
NOT TO SCALE



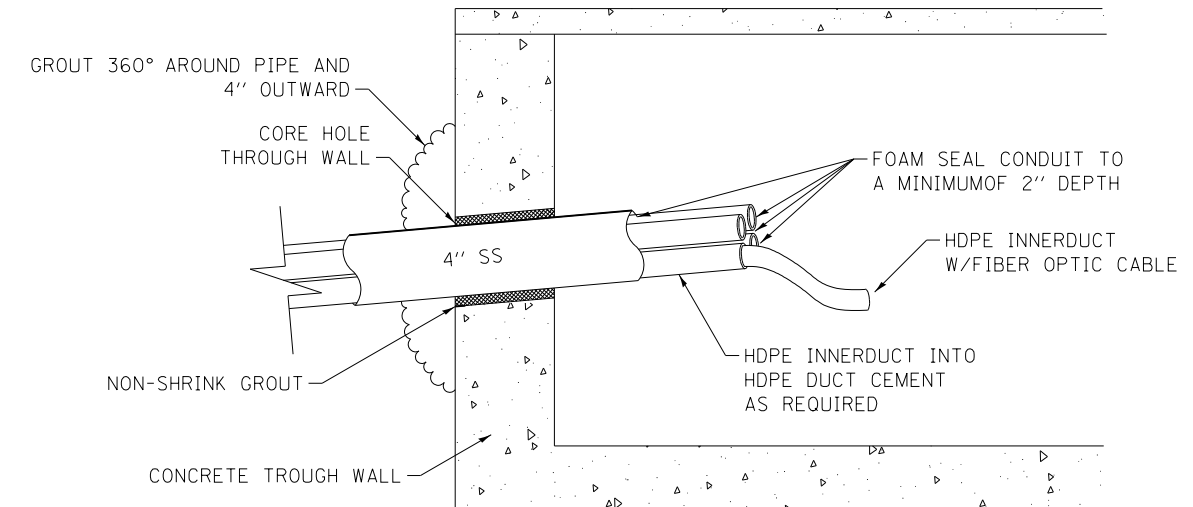
BELOW GRADE PENETRATION BUILDING
NOT TO SCALE

GENERAL NOTES:

1. GALVANIZED RIGID STEEL CONDUIT EXTENDING THROUGH FOUNDATION WALL SHALL BE ONE CONTINUOUS PIECE (NO COUPLINGS), SQUARE WITH BUILDING AT A SLIGHT ANGLE TO THE EXTERIOR TO PREVENT WATER SEEPAGE.



MANHOLE PENETRATION DETAIL
NOT TO SCALE



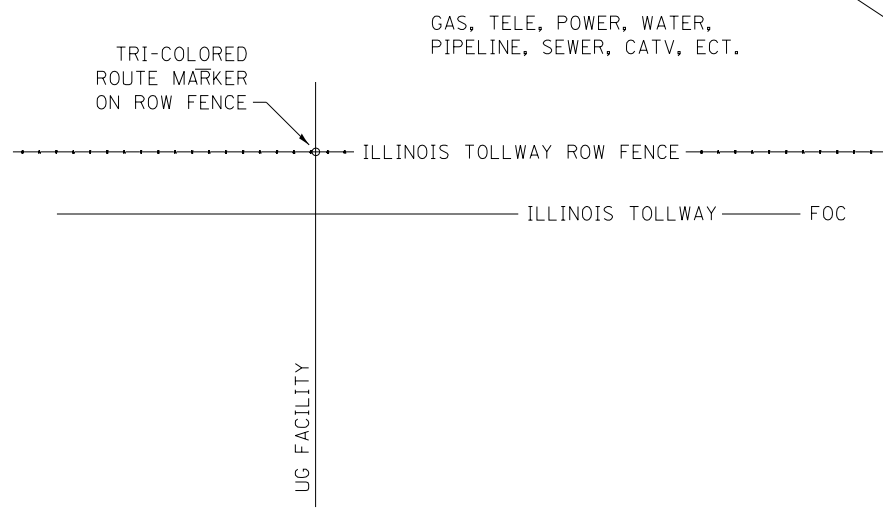
CONCRETE TROUGH PENETRATION
NOT TO SCALE

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SHEET 11 OF 15

FIBER OPTIC SYSTEM
TYPICALS AND DRAWINGS

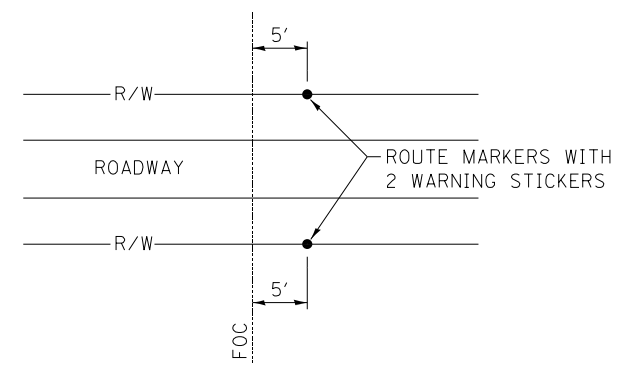
STANDARD L1-01



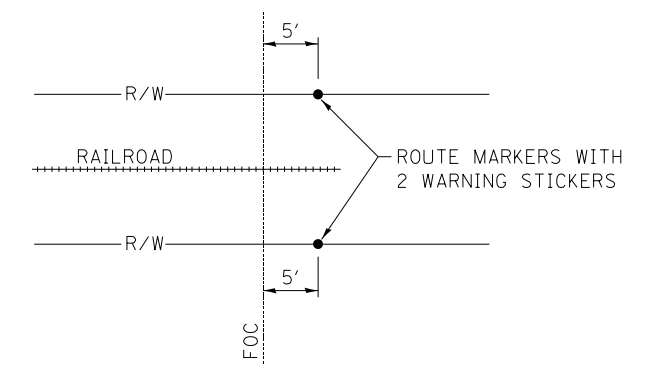
FACILITY CROSSING
FIG. 1

GAS, TELE, POWER, WATER,
PIPELINE, SEWER, CATV, ECT.

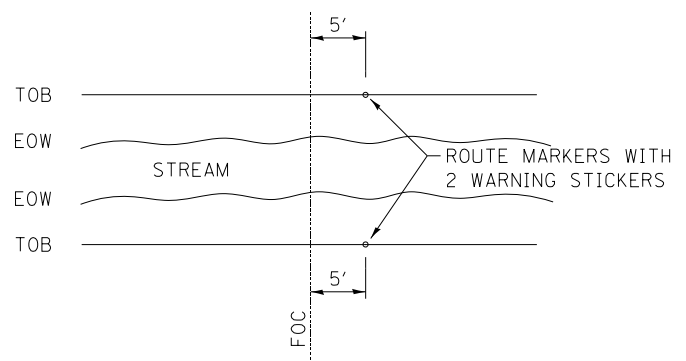
BURIED CABLE SIGNAGE



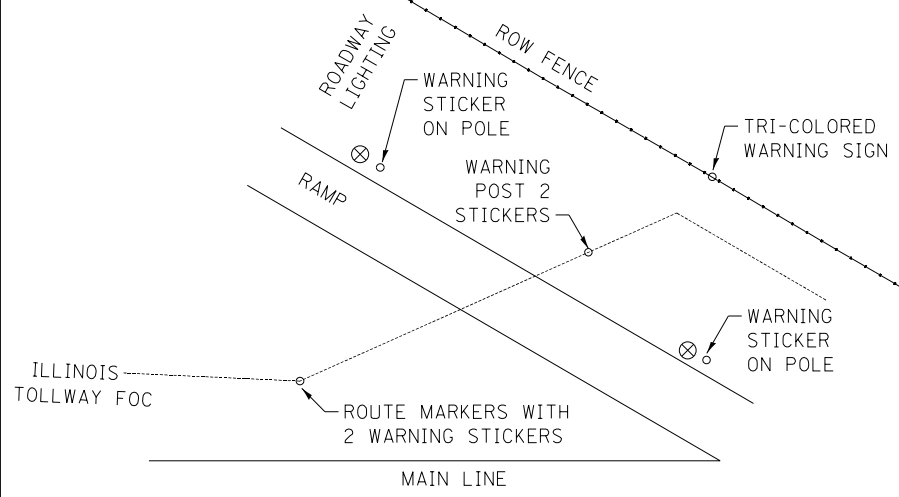
TYPICAL MARKER PLACEMENT AT ROAD AND BRIDGE CROSSING
FIG. 2



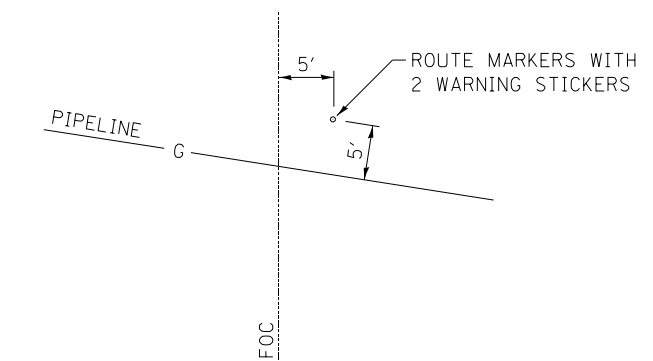
TYPICAL MARKER PLACEMENT AT RAILROAD CROSSING
FIG. 3



TYPICAL MARKER PLACEMENT AT RIVER,
CREEK & DRAINAGE DITCH CROSSING
FIG. 4



ON/OFF RAMP CROSSING
FIG. 5



TYPICAL MARKER PLACEMENT AT PIPELINE CROSSING
FIG. 6

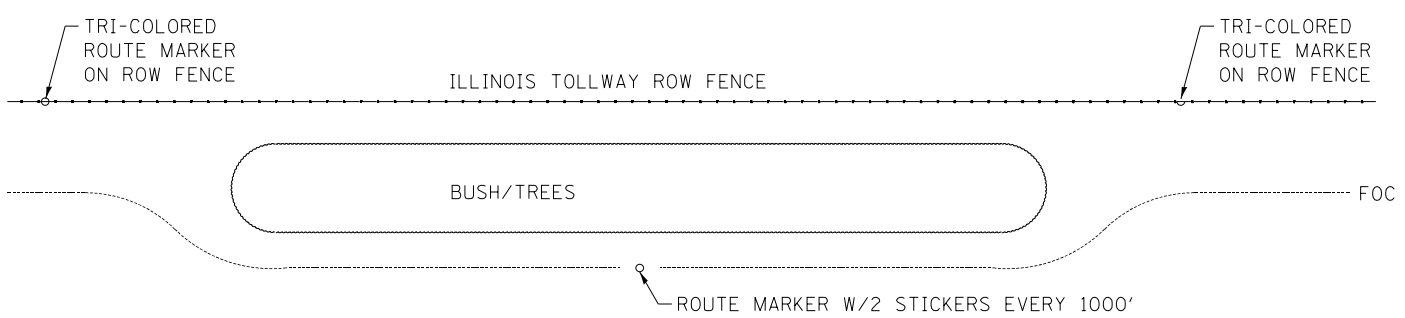
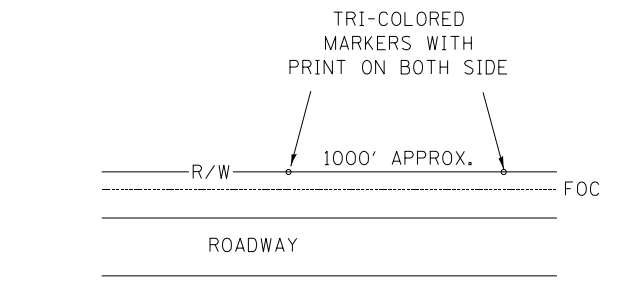


FIG. 7



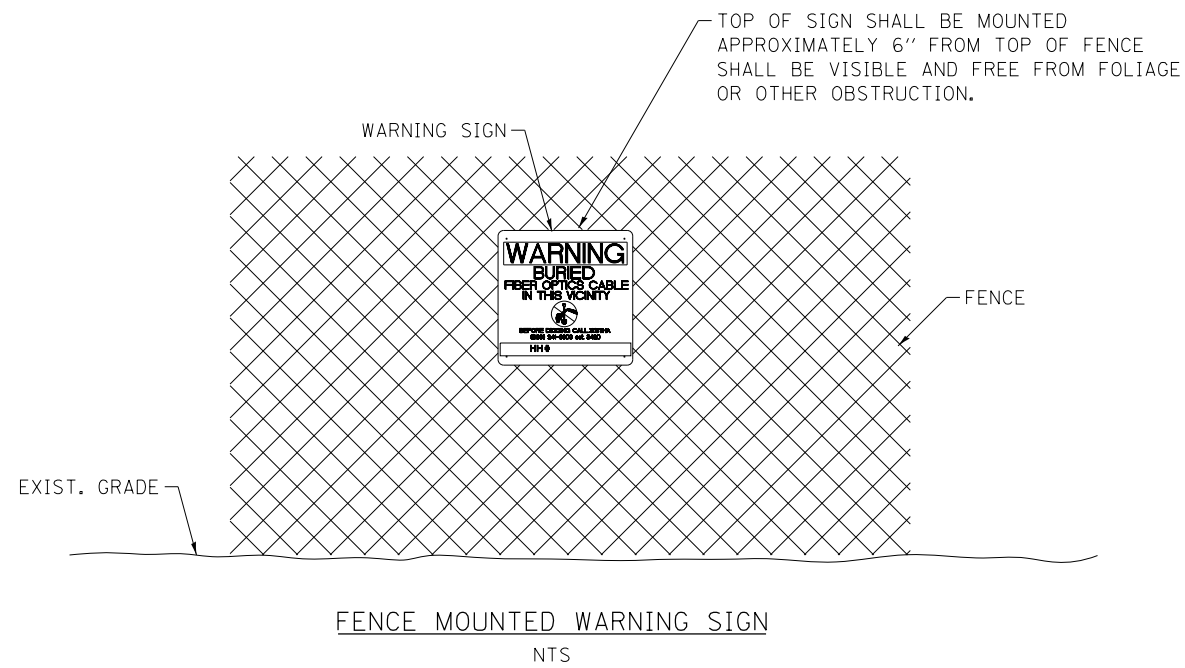
TYPICAL MARKER PLACEMENT
TO BE PLACED NEXT TO R.O.W. FENCE LINE
FIG. 8

GENERAL NOTES:

1. MAINTAIN A MINIMUM DISTANCE OF 5' FROM ANY UTILITY POLE OR PEDESTAL SIGN, MARKER POLE, OR ANY OTHER STRUCTURE.
2. WARNING MARKERS SHALL BE PLACED AT 1000' INTERVALS AND AT CHANGES IN CABLE LOCATION/DIRECTION OR TO MARK THE LOCATION OF HANDHOLES OR AT CROSSING POINT OF OTHER UNDERGROUND FACILITIES. THE CONTRACTOR SHALL ADJUST EXCAVATION AS NECESSARY TO AVOID HIDDEN OBSTACLES AND TO MAINTAIN MAXIMUM DISTANCE FROM THE EDGE OF PAVEMENT. ALL DEVIATIONS SHALL BE APPROVED BY THE ENGINEER.

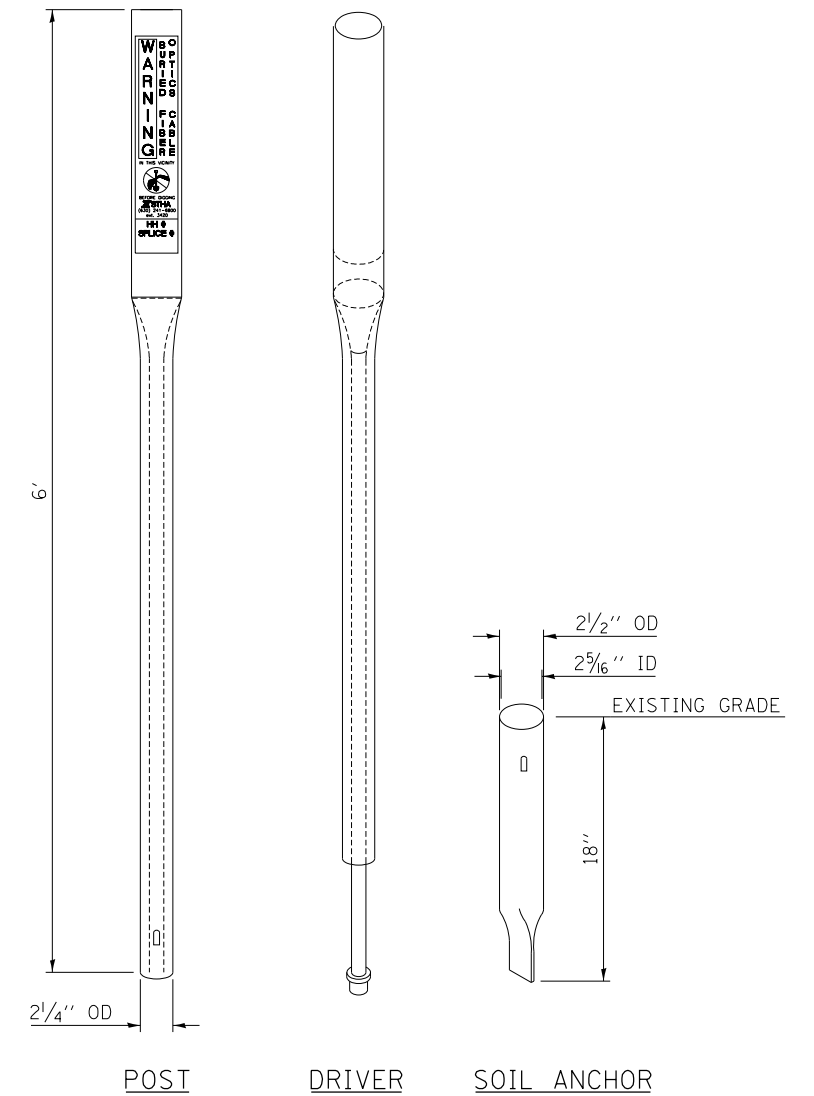


ROUTE MARKER INSTALLATION PROCEDURE



INSTALLATION OF WARNING POST:

1. INSTALL WARNING POST ACCORDING TO MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.
2. PLACEMENT OF POST SHALL NOT INTERFERE WITH THE REMOVAL OF HANDHOLE LIDS
3. WARNING SIGN SHALL BE ATTACHED TO ROW FENCE WHEREVER POSSIBLE. UV STABILIZED BLACK NYLON CABLE TIES (14" LENGTH, 0.30" WIDTH, 120 LBS TENSILE STRENGTH), (4 EA.) 3 WRAPS EACH TIE, SHALL BE USED TO ATTACH WARNING SIGN TO FENCE.
4. SEE SHEET 14 OF THIS SERIES FOR FIBER WARNING LABEL AND WARNING SIGN DETAILS.



FIBER WARNING LABEL & WARNING SIGN DETAILS



FENCE SIGN

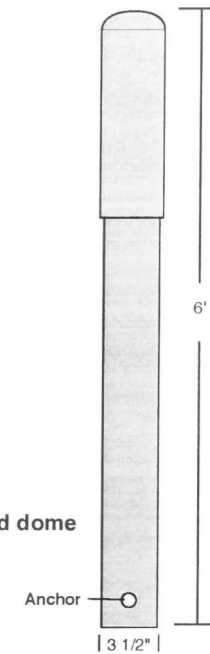
Part #: SA-ISTHA
 Size: 12" T X 9" W
 Material: Polyethylene
 Color: Black text with Orange bkgd, with white
 Holes: 4 - 3/16"



Products provided by:



Part #: PP6-ISTHA
 Size: 6"
 Material: Polydome
 Color: Orange Post and dome



ROUTE MARKER POST

ROUTE MARKER POST DECAL



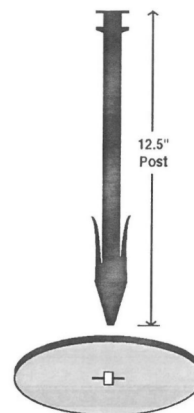
Part #: PTP466000-ISTHA - 4" X 6,000', 6MIL Orange with black text

WARNING TAPE



FLUSH DISC MARKER

Part #: FMM-6-ISTHA
 Size: 6"
 Material: Clear .125 Lexan
 Color: Black text with Orange bkgd
 Holes: center for 12.5 plastic anchor



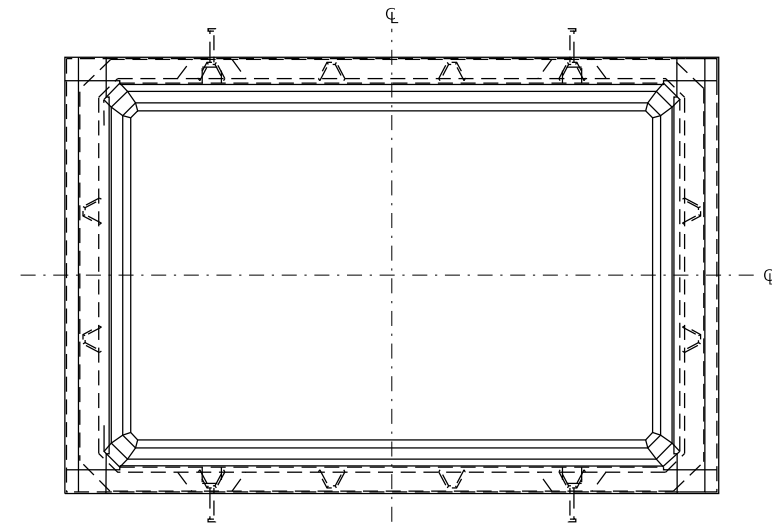
Part #: D-314-ISTHA
 Size: 14" x 3"
 Material: Decal
 Color: Orange with black text, Black "Warning" panel with white text, White no dig
 Scale: Shown @ 50%

NOTE:
 SIGN AND LABEL SHOWN IS AVAILABLE THROUGH ACP INTERNATIONAL.
 ALTERNATE SIGN LABELS SHALL BE SUBMITTED FOR APPROVAL BY THE ENGINEER.

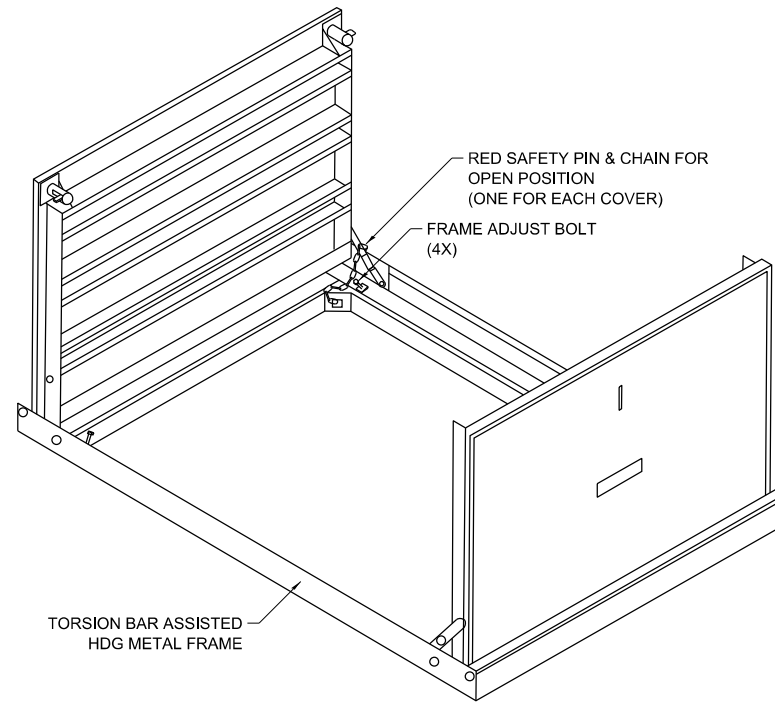
APPROVED: *Paul Kovacs* CHIEF ENGINEER DATE 3-31-2017



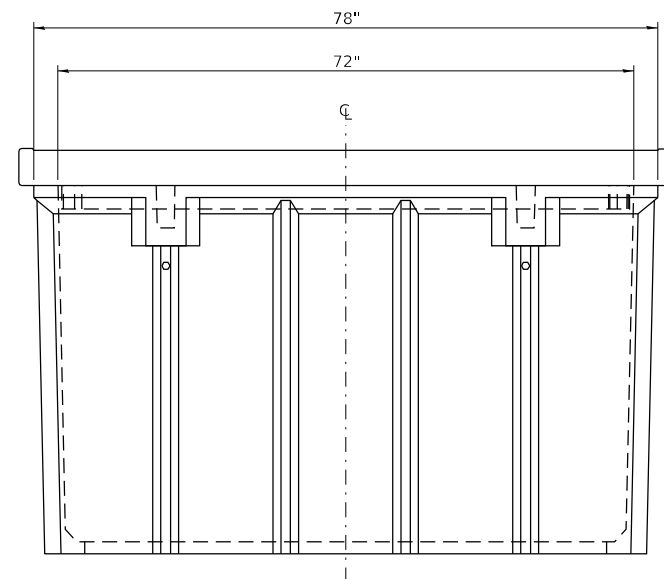
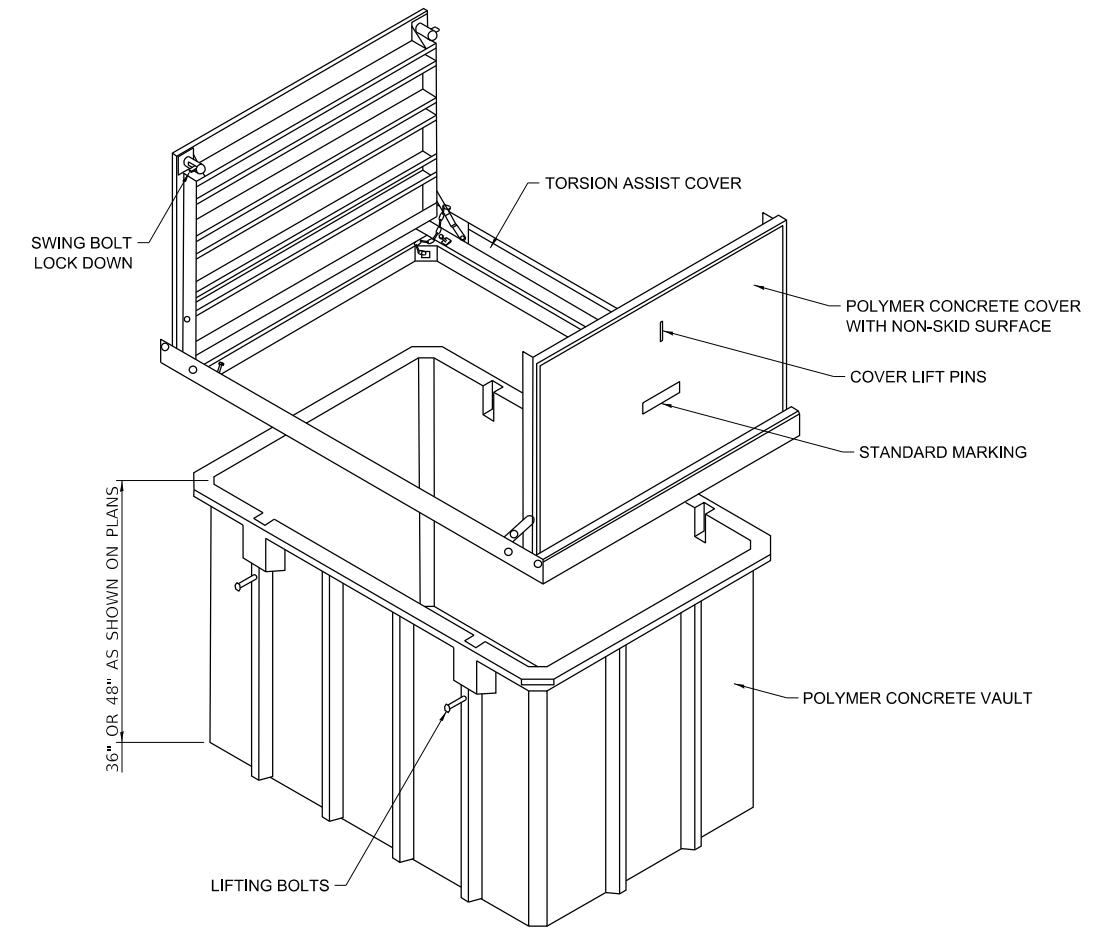
48" X 72" HANDHOLE ASSEMBLY



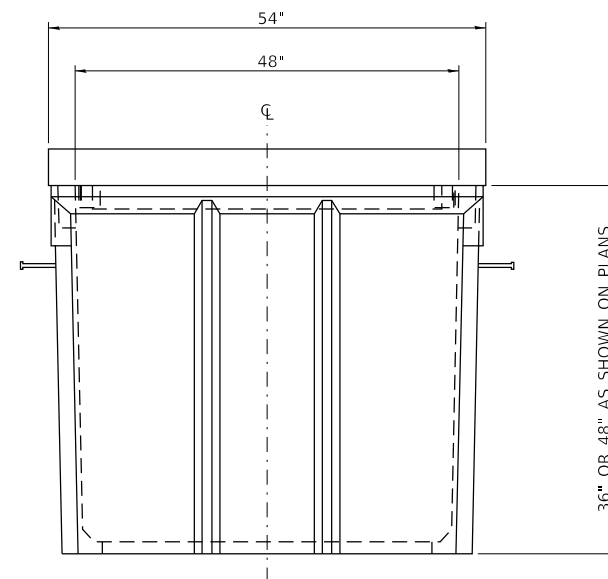
TOP VIEW



TORSION ASSIST COVER



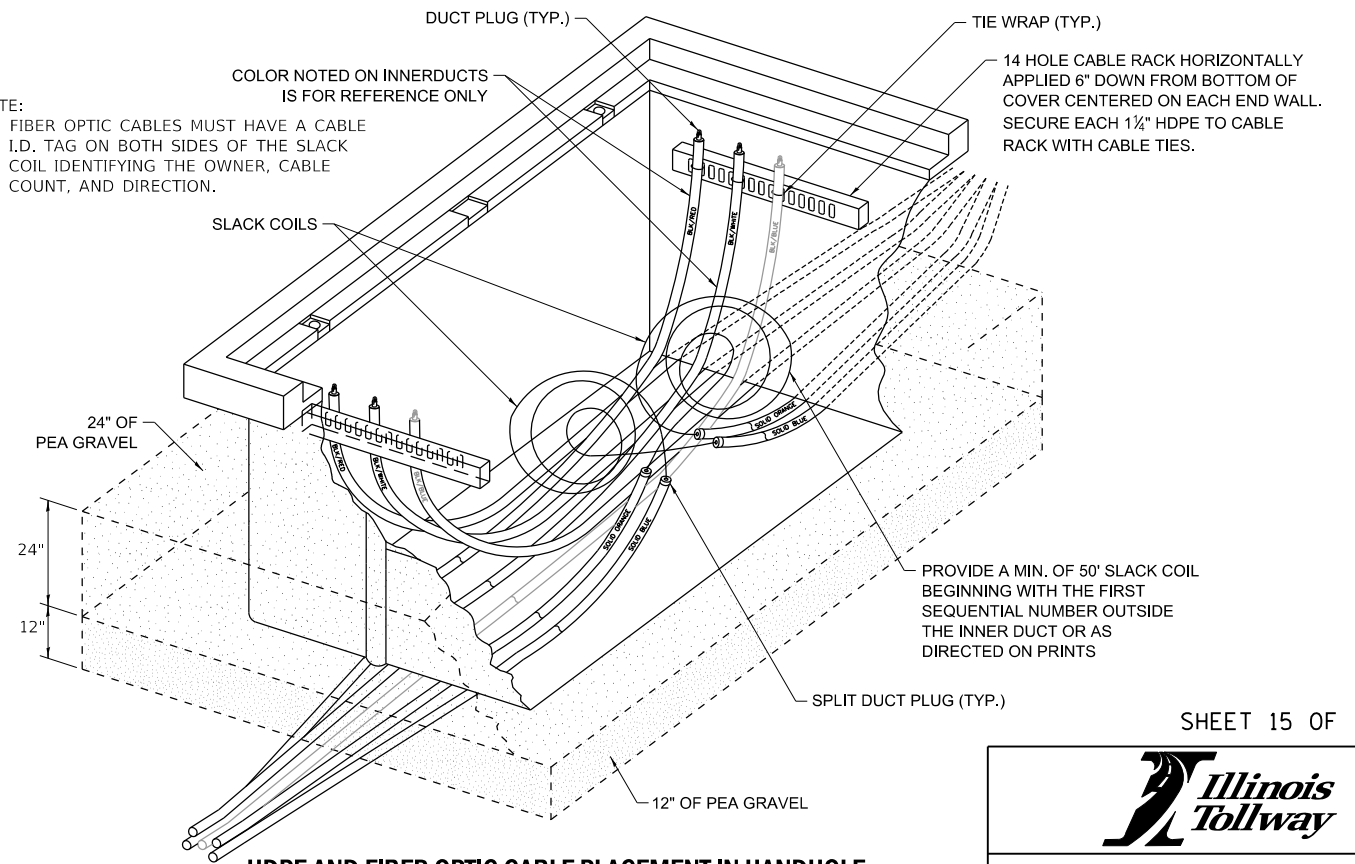
SIDE VIEW



END VIEW

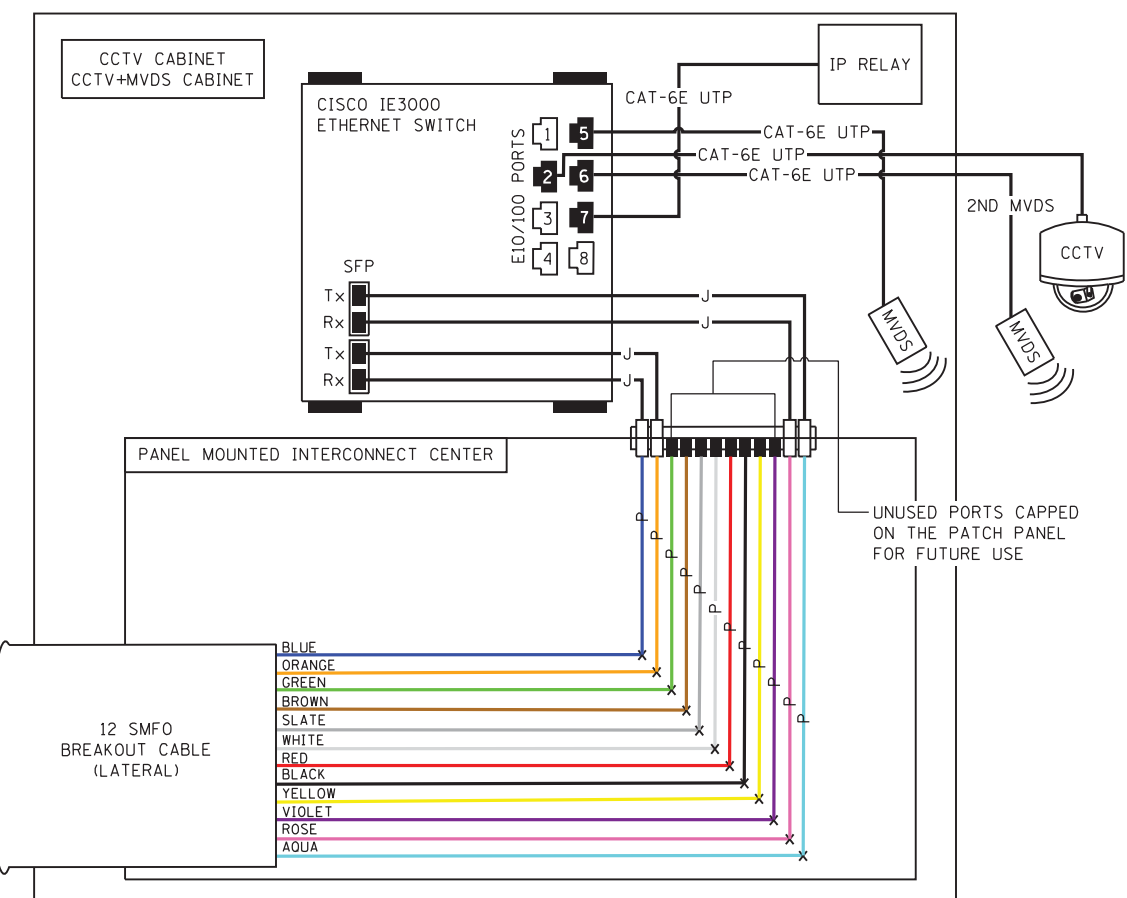
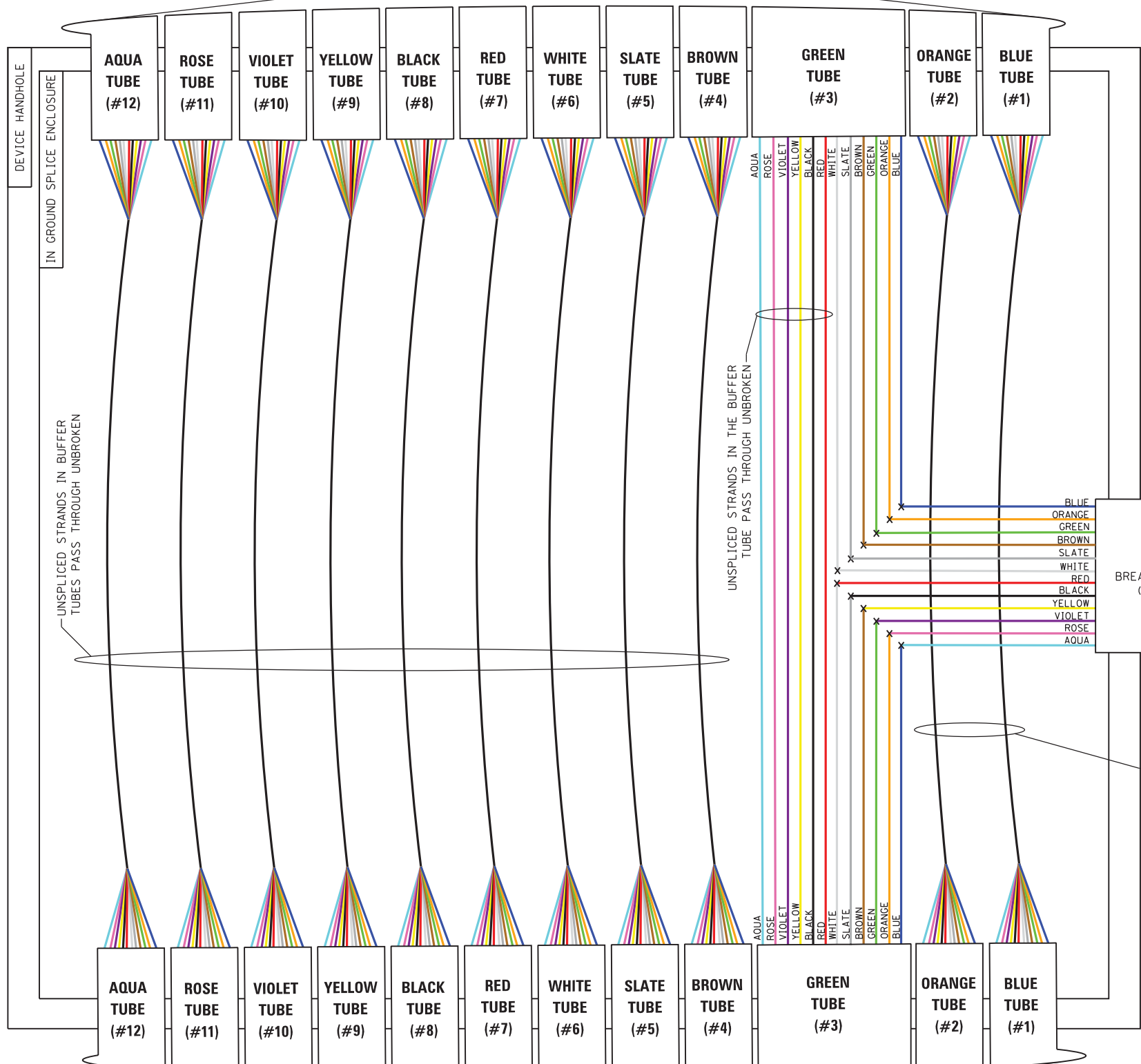
NOTE:

- 1) FIBER OPTIC CABLES MUST HAVE A CABLE I.D. TAG ON BOTH SIDES OF THE SLACK COIL IDENTIFYING THE OWNER, CABLE COUNT, AND DIRECTION.



144 SMFO ITS COMMUNICATIONS CABLE
TO NEXT UPSTREAM ITS DEVICE CABINET

CCTV & CO-LOCATED DEVICE CABINET
SPLICING DETAILS



ITS DEVICE GROUP FIBER ASSIGNMENTS (144 SMFO ITS COMMUNICATIONS CABLE)

BUFFER TUBE #1 (BLUE)	- PRIMARY INFRASTRUCTURE SUBGROUP
BUFFER TUBE #2 (ORANGE)	- SECONDARY INFRASTRUCTURE SUBGROUP
BUFFER TUBE #3 (GREEN)	- CCTV & CO-LOCATED ITS DEVICES SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #4 (BROWN)	- DMS (TYPE 1 & TYPE 2) SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #5 (SLATE)	- MVDS SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #6 (WHITE)	- RWIS & WIM SUBGROUP (LOCAL FIELD DEVICES)

LEGEND

- FIBER OPTIC JUMPER, SINGLE MODE
- FIBER OPTIC PIGTAIL, SINGLE MODE
- BARE FIBER LEFT COILED IN SPLICE TRAY
- FIBER OPTIC FUSION SPLICE
- FIBER PATCH PANEL, SC CONNECTORS

- NOTES:**
- CONTRACTOR SHALL COORDINATE WITH THE ENGINEER AND THE ILLINOIS TOLLWAY FIBER OPTIC MANAGER FOR FINAL PORT ASSIGNMENTS DURING INSTALLATION AND INTEGRATION.
 - CONTRACTOR SHALL LABEL ALL NETWORK SWITCHES, DATA CABLES, FIBER OPTIC CABLES AND JUMPERS AS PER THE LATEST ILLINOIS TOLLWAY "ITS LABELING GUIDELINE".
 - CONTRACTOR SHALL MAKE ALL NETWORK SWITCH CONNECTIONS, UNLESS OTHERWISE NOTED.
 - THE COLOR VERSION OF THE L2 STANDARD DRAWINGS ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE.

DATE	REVISIONS

SHEET 1 OF 7

FIBER OPTIC
SPLICING DETAILS

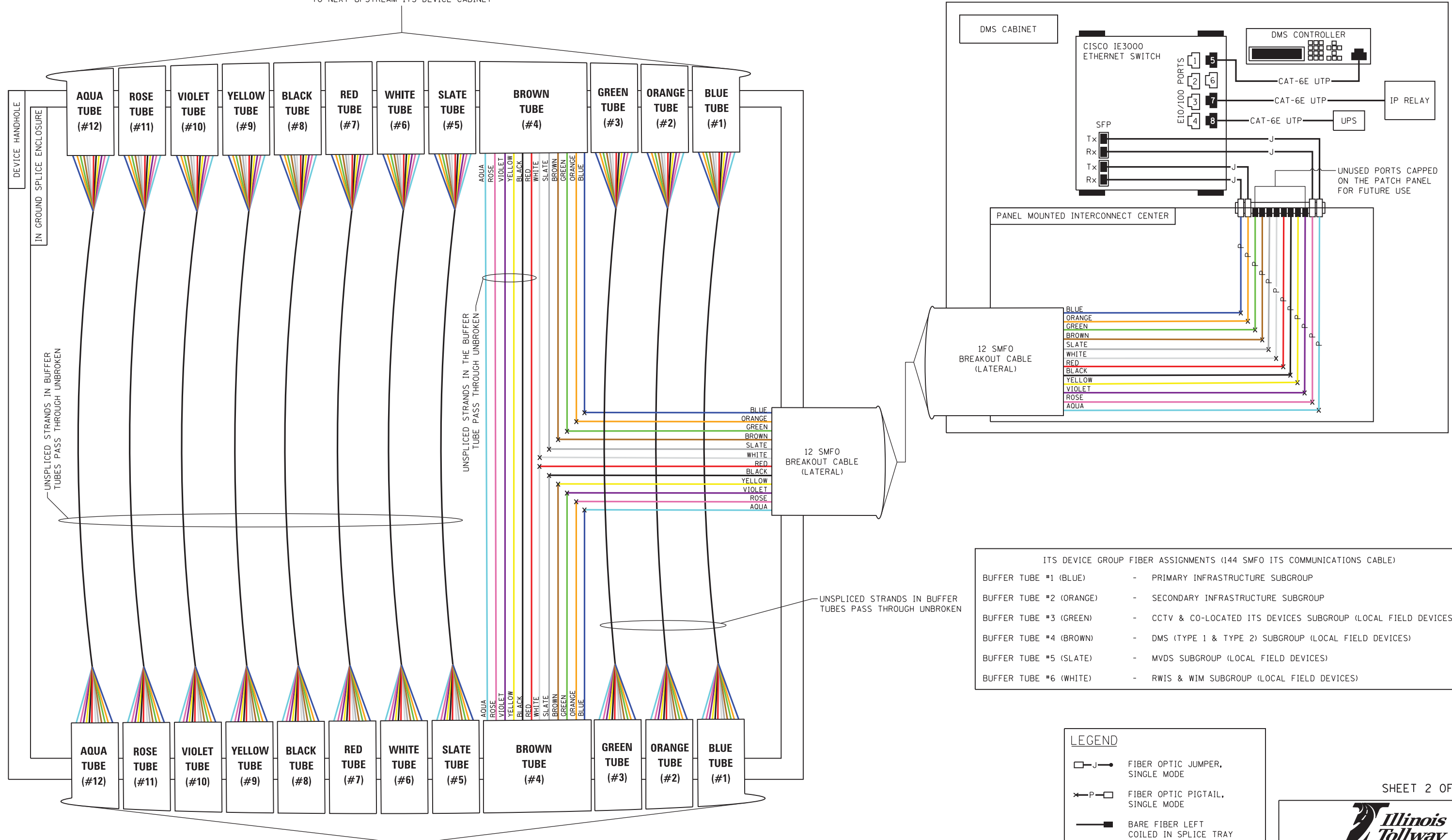
STANDARD L2-00

Paul Kovacs
APPROVED CHIEF ENGINEER DATE 3-31-2017

144 SMFO ITS COMMUNICATIONS CABLE
TO NEXT DOWNSTREAM ITS DEVICE CABINET

144 SMFO ITS COMMUNICATIONS CABLE
TO NEXT UPSTREAM ITS DEVICE CABINET

DMS CABINET SPLICING DETAILS



ITS DEVICE GROUP FIBER ASSIGNMENTS (144 SMFO ITS COMMUNICATIONS CABLE)

BUFFER TUBE #1 (BLUE)	- PRIMARY INFRASTRUCTURE SUBGROUP
BUFFER TUBE #2 (ORANGE)	- SECONDARY INFRASTRUCTURE SUBGROUP
BUFFER TUBE #3 (GREEN)	- CCTV & CO-LOCATED ITS DEVICES SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #4 (BROWN)	- DMS (TYPE 1 & TYPE 2) SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #5 (SLATE)	- MVDS SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #6 (WHITE)	- RWIS & WIM SUBGROUP (LOCAL FIELD DEVICES)

LEGEND

- FIBER OPTIC JUMPER, SINGLE MODE
- FIBER OPTIC PIGTAIL, SINGLE MODE
- BARE FIBER LEFT COILED IN SPLICE TRAY
- FIBER OPTIC FUSION SPLICE
- FIBER PATCH PANEL, SC CONNECTORS

NOTE:
SEE SHEET 1 OF 7 FOR NOTES.

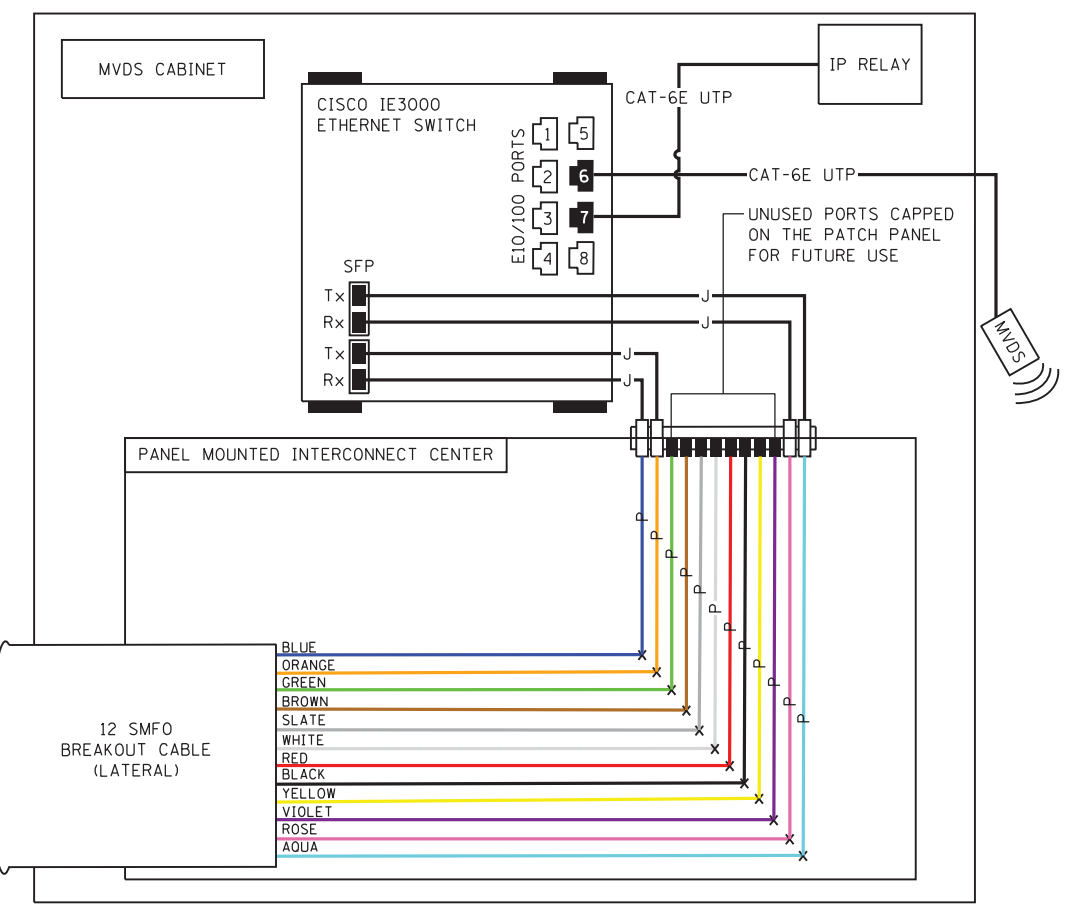
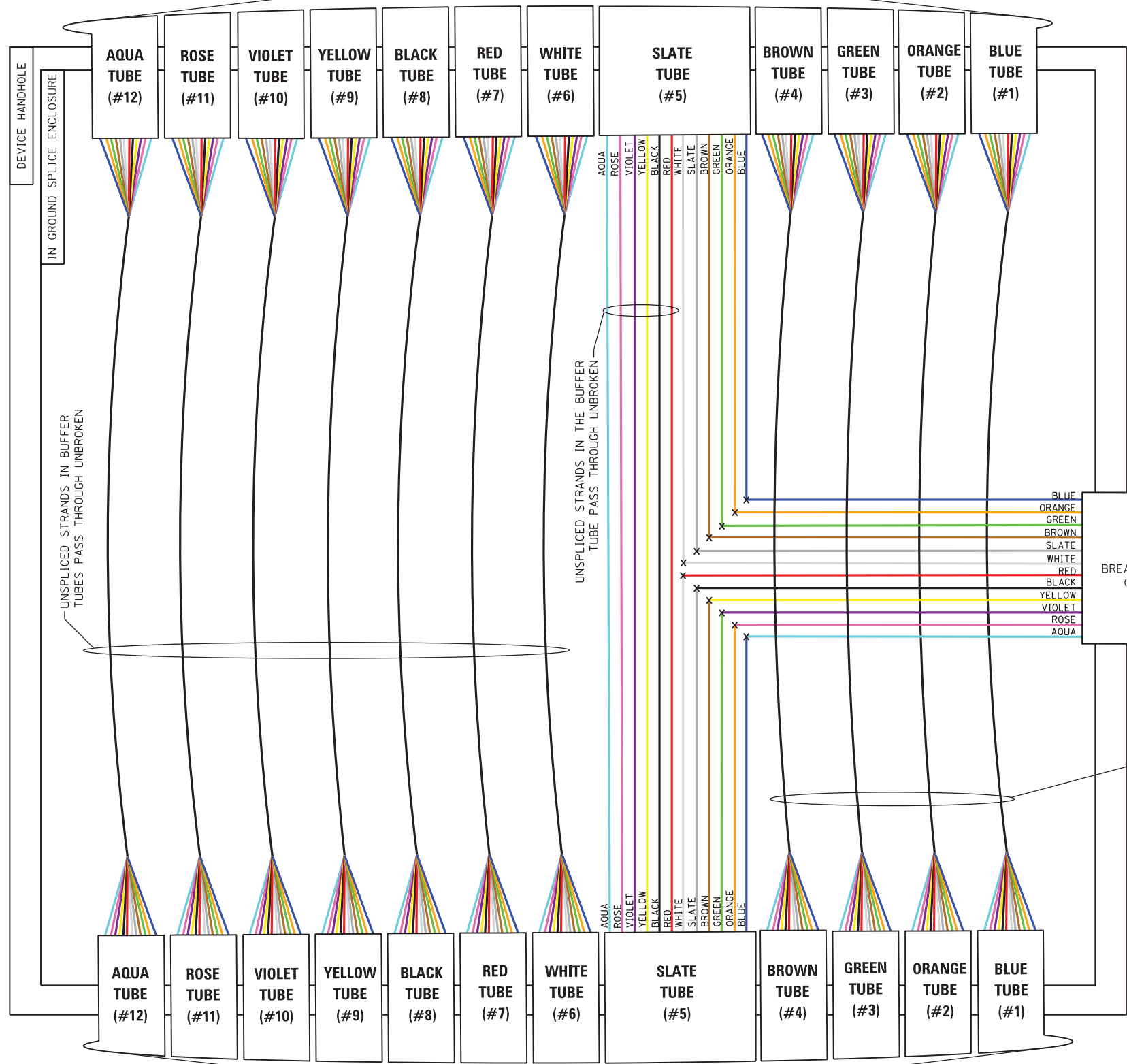
Paul Kovacs
APPROVED CHIEF ENGINEER DATE 3-31-2017

144 SMFO ITS COMMUNICATIONS CABLE
TO NEXT DOWNSTREAM ITS DEVICE CABINET



144 SMFO ITS COMMUNICATIONS CABLE
TO NEXT UPSTREAM ITS DEVICE CABINET

MVDS CABINET SPLICING DETAILS



ITS DEVICE GROUP FIBER ASSIGNMENTS (144 SMFO ITS COMMUNICATIONS CABLE)

BUFFER TUBE #1 (BLUE)	- PRIMARY INFRASTRUCTURE SUBGROUP
BUFFER TUBE #2 (ORANGE)	- SECONDARY INFRASTRUCTURE SUBGROUP
BUFFER TUBE #3 (GREEN)	- CCTV & CO-LOCATED ITS DEVICES SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #4 (BROWN)	- DMS (TYPE 1 & TYPE 2) SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #5 (SLATE)	- MVDS SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #6 (WHITE)	- RWIS & WIM SUBGROUP (LOCAL FIELD DEVICES)

LEGEND

- FIBER OPTIC JUMPER, SINGLE MODE
- FIBER OPTIC PIGTAIL, SINGLE MODE
- BARE FIBER LEFT COILED IN SPLICE TRAY
- FIBER OPTIC FUSION SPLICE
- FIBER PATCH PANEL, SC CONNECTORS

NOTE:
SEE SHEET 1 OF 7 FOR NOTES.

Paul Kovacs
APPROVED CHIEF ENGINEER DATE 3-31-2017

144 SMFO ITS COMMUNICATIONS CABLE
TO NEXT DOWNSTREAM ITS DEVICE CABINET

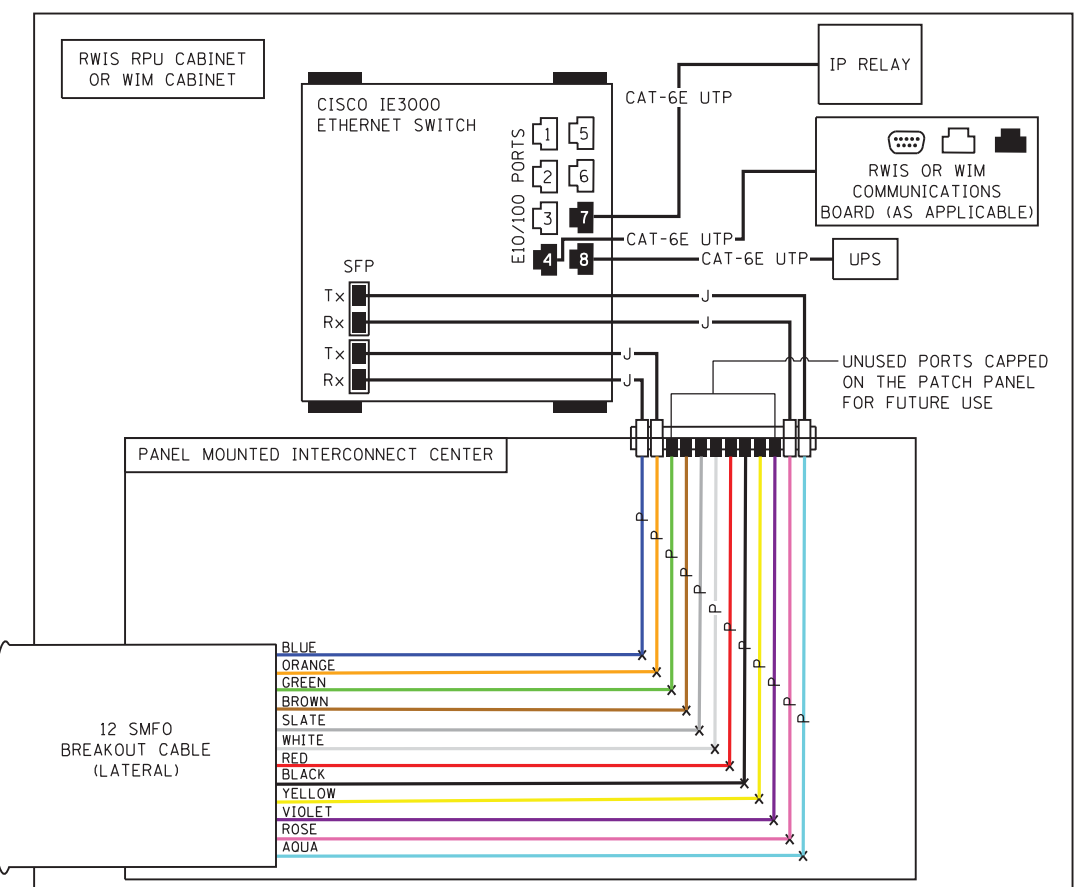
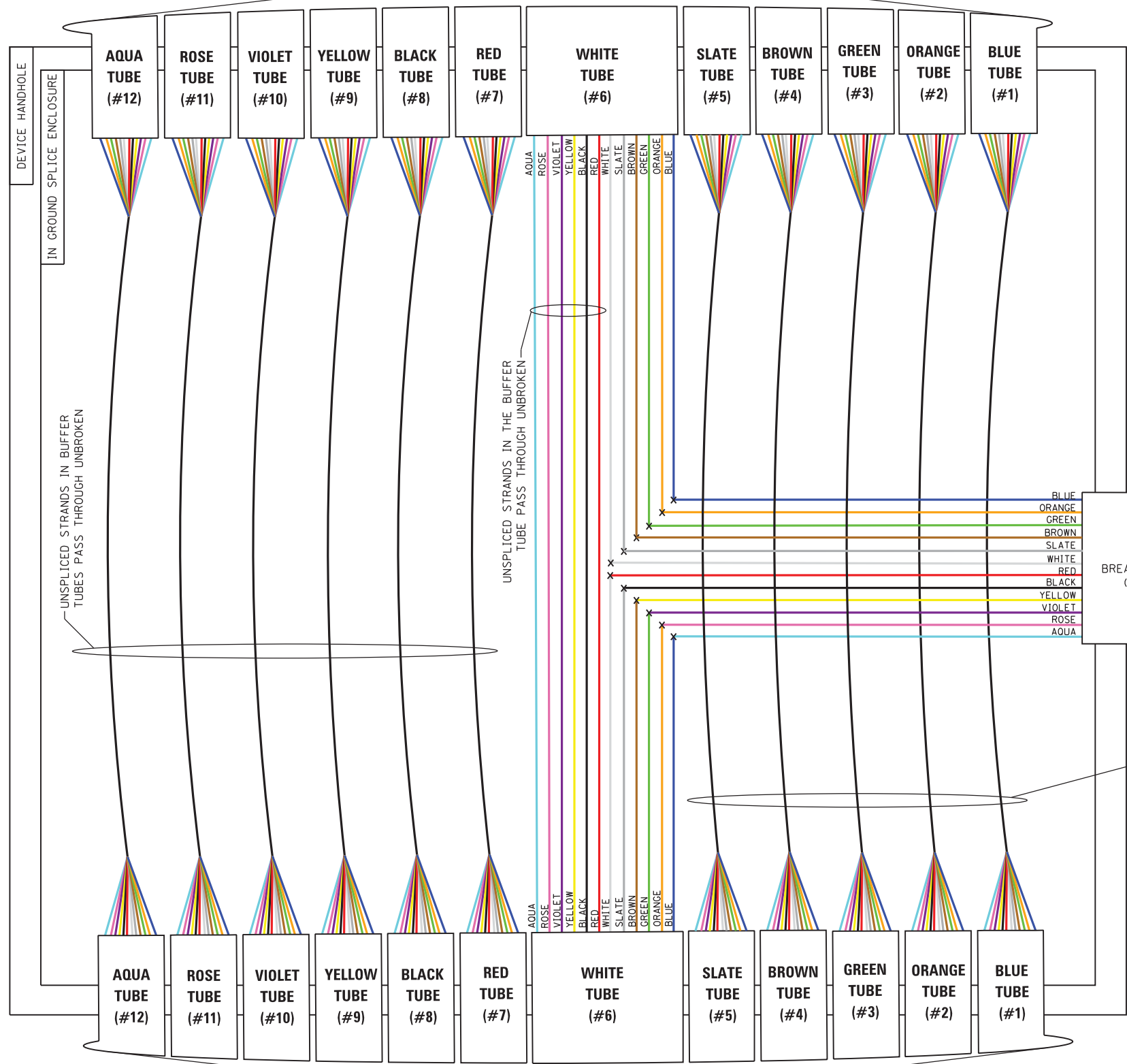
SHEET 3 OF 7

FIBER OPTIC
SPLICING DETAILS

STANDARD L2-00

144 SMFO ITS COMMUNICATIONS CABLE
TO NEXT UPSTREAM ITS DEVICE CABINET

RWIS / WIM CABINET SPLICING DETAILS



ITS DEVICE GROUP FIBER ASSIGNMENTS (144 SMFO ITS COMMUNICATIONS CABLE)

BUFFER TUBE #1 (BLUE)	- PRIMARY INFRASTRUCTURE SUBGROUP
BUFFER TUBE #2 (ORANGE)	- SECONDARY INFRASTRUCTURE SUBGROUP
BUFFER TUBE #3 (GREEN)	- CCTV & CO-LOCATED ITS DEVICES SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #4 (BROWN)	- DMS (TYPE 1 & TYPE 2) SUBGROUP (LOCAL FIELD DEVICES)
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BUFFER TUBE #6 (WHITE)	- RWIS & WIM SUBGROUP (LOCAL FIELD DEVICES)

LEGEND

- FIBER OPTIC JUMPER, SINGLE MODE
- FIBER OPTIC PIGTAIL, SINGLE MODE
- BARE FIBER LEFT COILED IN SPLICE TRAY
- FIBER OPTIC FUSION SPLICE
- FIBER PATCH PANEL, SC CONNECTORS

NOTE:
SEE SHEET 1 OF 7 FOR NOTES.

Paul Kovacs
APPROVED CHIEF ENGINEER DATE 3-31-2017

144 SMFO ITS COMMUNICATIONS CABLE
TO NEXT DOWNSTREAM ITS DEVICE CABINET

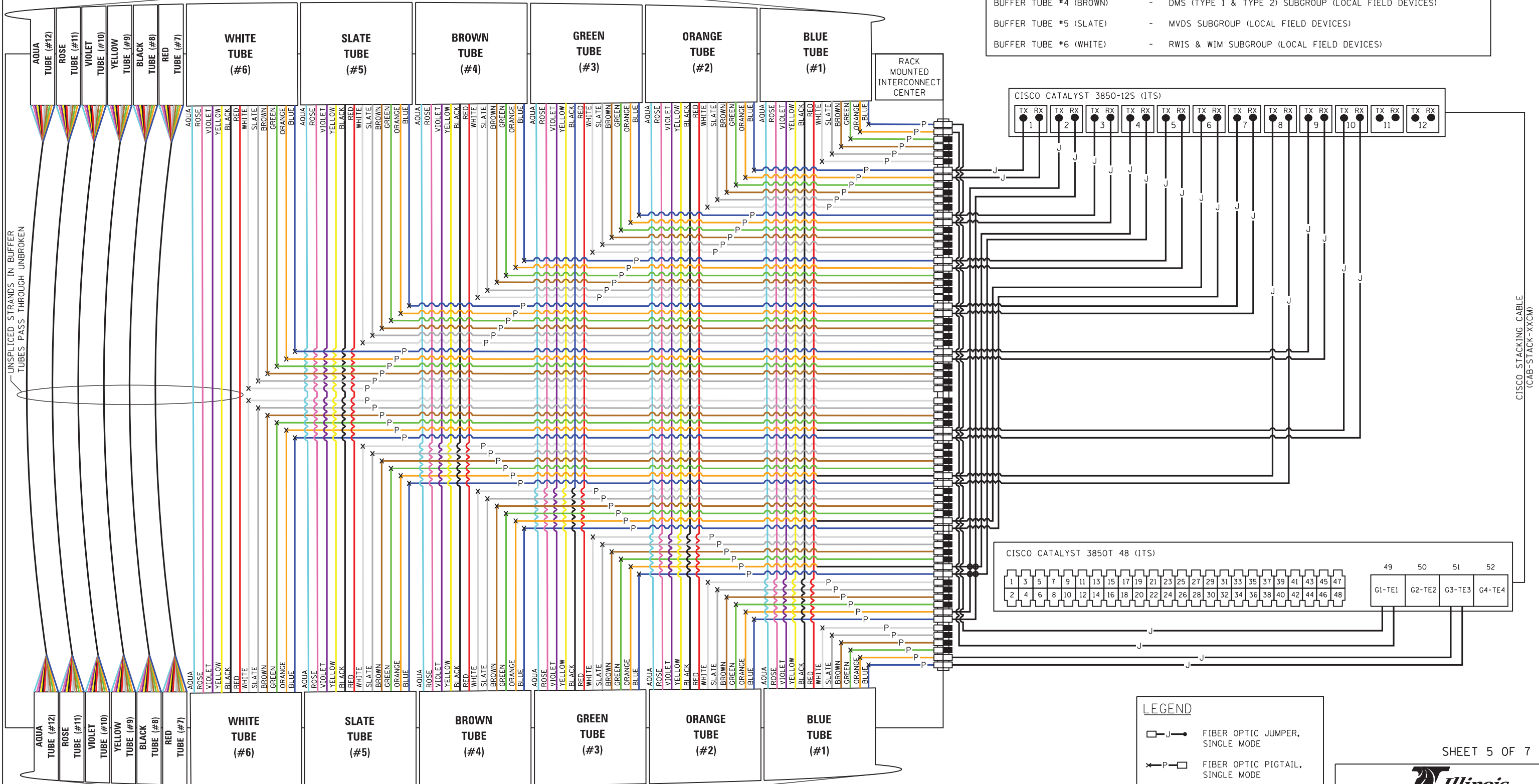


144 SMFO ITS COMMUNICATIONS
CABLE TO NEXT UPSTREAM DEVICE

IPDC/PLAZA/OASIS/MAINTENANCE BUILDING
NETWORK SWITCH CONNECTION DETAILS - ITS

ITS DEVICE GROUP FIBER ASSIGNMENTS (144 SMFO ITS COMMUNICATIONS CABLE)

BUFFER TUBE #1 (BLUE)	- PRIMARY INFRASTRUCTURE SUBGROUP
BUFFER TUBE #2 (ORANGE)	- SECONDARY INFRASTRUCTURE SUBGROUP
BUFFER TUBE #3 (GREEN)	- CCTV & CO-LOCATED ITS DEVICES SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #4 (BROWN)	- DMS (TYPE 1 & TYPE 2) SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #5 (SLATE)	- MVDS SUBGROUP (LOCAL FIELD DEVICES)
BUFFER TUBE #6 (WHITE)	- RWIS & WIM SUBGROUP (LOCAL FIELD DEVICES)



UNSPliced STRANDS IN BUFFER
TUBES PASS THROUGH UNBROKEN

CISCO STACKING CABLE
(CAB-STACK-XXCM)

144 SMFO ITS COMMUNICATIONS
CABLE TO NEXT DOWNSTREAM DEVICE

APPROVED *Paul Kovacs* CHIEF ENGINEER DATE 3-31-2017

NOTE:
SEE SHEET 1 OF 7 FOR NOTES.

LEGEND

- FIBER OPTIC JUMPER, SINGLE MODE
- FIBER OPTIC PIGTAIL, SINGLE MODE
- BARE FIBER LEFT COILED IN SPLICE TRAY
- FIBER OPTIC FUSION SPLICE
- FIBER PATCH PANEL, SC CONNECTORS

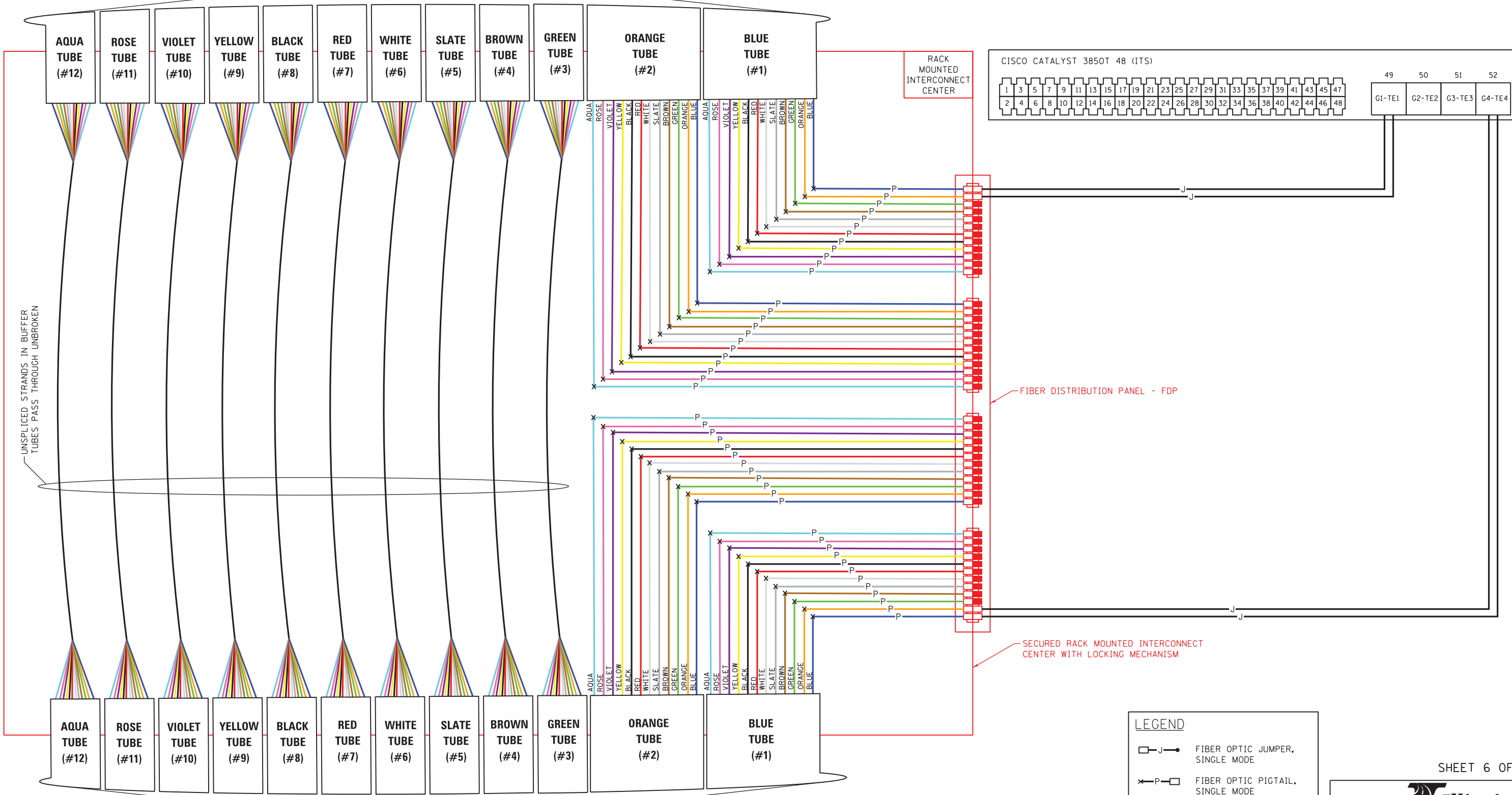
SHEET 5 OF 7

FIBER OPTIC
SPLICING DETAILS

STANDARD L2-00

144 SMFO TOLLWAY BACKBONE
CABLE TO NEXT TOLL PLAZA

AET GROUP FIBER ASSIGNMENTS (144 SMFO TOLLWAY BACKBONE CABLE)
BUFFER TUBE #1 (BLUE) - PRIMARY INFRASTRUCTURE SUBGROUP



UNSPliced STRANDS IN BUFFER
TUBES PASS THROUGH UNBROKEN

RACK MOUNTED
INTERCONNECT
CENTER

CISCO CATALYST 3850T 48 (ITS)

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	50	51	52
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	G1-TE1	G2-TE2	G3-TE3	G4-TE4

FIBER DISTRIBUTION PANEL - FDP

SECURED RACK MOUNTED INTERCONNECT
CENTER WITH LOCKING MECHANISM

LEGEND

- J-□ FIBER OPTIC JUMPER, SINGLE MODE
- ✕-P-□ FIBER OPTIC PIGTAIL, SINGLE MODE
- BARE FIBER LEFT COILED IN SPLICE TRAY
- ✕ FIBER OPTIC FUSION SPLICE
- FIBER PATCH PANEL, SC CONNECTORS

NOTE:
SEE SHEET 1 OF 7 FOR NOTES.

144 SMFO TOLLWAY BACKBONE
CABLE TO NEXT TOLL PLAZA

Paul Kovacs
APPROVED CHIEF ENGINEER DATE 3-31-2017

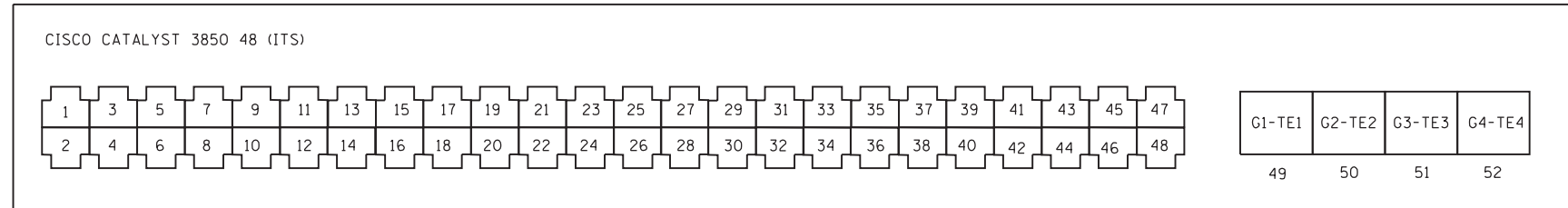
SHEET 6 OF 7

FIBER OPTIC
SPLICING DETAILS

STANDARD L2-00

PROPOSED NETWORK SWITCH PORT ASSIGNMENT SCHEMATIC

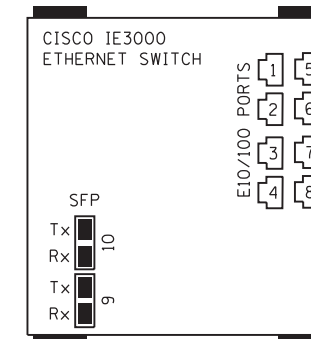
CISCO WS-3850-48T ETHERNET SWITCH
10/100/1000 ETHERNET AND 10G SFP PORT ARRANGEMENT



- | | | | |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 1. LOCALLY CONNECTED DEVICES | 13. LOCALLY CONNECTED DEVICES | 25. LOCALLY CONNECTED DEVICES | 37. LOCALLY CONNECTED DEVICES |
| 2. LOCALLY CONNECTED DEVICES | 14. LOCALLY CONNECTED DEVICES | 26. LOCALLY CONNECTED DEVICES | 38. LOCALLY CONNECTED DEVICES |
| 3. LOCALLY CONNECTED DEVICES | 15. LOCALLY CONNECTED DEVICES | 27. LOCALLY CONNECTED DEVICES | 39. LOCALLY CONNECTED DEVICES |
| 4. LOCALLY CONNECTED DEVICES | 16. LOCALLY CONNECTED DEVICES | 28. LOCALLY CONNECTED DEVICES | 40. LOCALLY CONNECTED DEVICES |
| 5. LOCALLY CONNECTED DEVICES | 17. LOCALLY CONNECTED DEVICES | 29. LOCALLY CONNECTED DEVICES | 41. LOCALLY CONNECTED DEVICES |
| 6. LOCALLY CONNECTED DEVICES | 18. LOCALLY CONNECTED DEVICES | 30. LOCALLY CONNECTED DEVICES | 42. LOCALLY CONNECTED DEVICES |
| 7. LOCALLY CONNECTED DEVICES | 19. LOCALLY CONNECTED DEVICES | 31. LOCALLY CONNECTED DEVICES | 43. LOCALLY CONNECTED DEVICES |
| 8. LOCALLY CONNECTED DEVICES | 20. LOCALLY CONNECTED DEVICES | 32. LOCALLY CONNECTED DEVICES | 44. LOCALLY CONNECTED DEVICES |
| 9. LOCALLY CONNECTED DEVICES | 21. LOCALLY CONNECTED DEVICES | 33. LOCALLY CONNECTED DEVICES | 45. LOCALLY CONNECTED DEVICES |
| 10. LOCALLY CONNECTED DEVICES | 22. LOCALLY CONNECTED DEVICES | 34. LOCALLY CONNECTED DEVICES | 46. LOCALLY CONNECTED DEVICES |
| 11. LOCALLY CONNECTED DEVICES | 23. LOCALLY CONNECTED DEVICES | 35. LOCALLY CONNECTED DEVICES | 47. LOCALLY CONNECTED DEVICES |
| 12. LOCALLY CONNECTED DEVICES | 24. LOCALLY CONNECTED DEVICES | 36. LOCALLY CONNECTED DEVICES | 48. LOCALLY CONNECTED DEVICES |

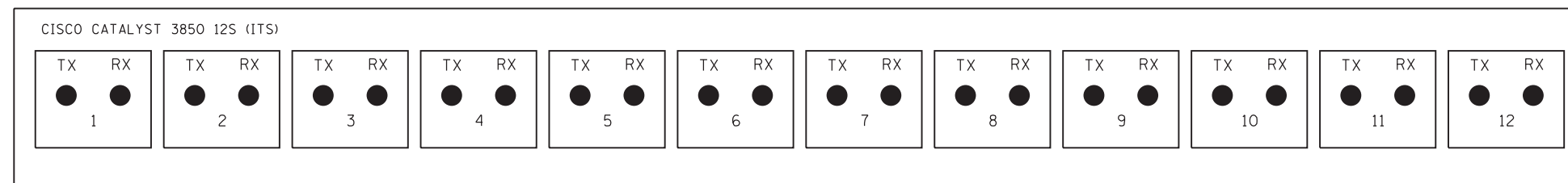
- TE1 - (AET/ITS) PRIMARY LAYER 3 UPLINK
TE3 - (AET/ITS) PRIMARY LAYER 3 DOWNLINK
- OR
- TE2 - (AE/ITS) PRIMARY LAYER 3 UPLINK
TE4 - (AE/ITS) PRIMARY LAYER 3 DOWNLINK

CISCO IE-3000-8TC-E ETHERNET SWITCH
10/100/1000 SFP PORT ARRANGEMENT



- LOCAL USE
- CCTV CAT-6 CONNECTION
- CCTV CAT-6 CONNECTION
- RWIS COMMUNICATION BOARD / WIM CONTROLLER
- DMS CONTROLLER
- MVDS
- IP RELAY CAT-6 CONNECTION
- UPS (POWER)
- FIELD SWITCH UPLINK
- FIELD SWITCH DOWNLINK

CISCO WS-3850-12S-E ETHERNET SWITCH
10/100/1000 SFP PORT ARRANGEMENT



- | | |
|--|--|
| 1. (AET/ITS) SECONDARY LAYER 3 UPLINK | 7. (ITS) MVDS SUBGROUP - UPLINK |
| 2. (AET/ITS) SECONDARY LAYER 3 DOWNLINK | 8. (ITS) MVDS SUBGROUP - DOWNLINK |
| 3. (ITS) CCTV & CO-LOCATED DEVICES SUBGROUP - UPLINK | 9. (ITS) CONNECTED VEHICLE - UPLINK |
| 4. (ITS) CCTV & CO-LOCATED DEVICES SUBGROUP - DOWNLINK | 10. (ITS) CONNECTED VEHICLE - DOWNLINK |
| 5. (ITS) DMS SUBGROUP - UPLINK | 11. NOT USED |
| 6. (ITS) DMS SUBGROUP - DOWNLINK | 12. NOT USED |



FIBER OPTIC
SPLICING DETAILS


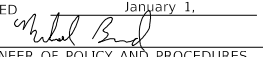
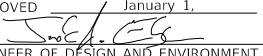
STANDARD L2-00

NOTES:

- SEE SHEET 1 OF 7 FOR NOTES.
- ALL NETWORK SWITCH CONNECTIONS SHOWN ON THIS SHEET SHALL BE PERFORMED BY THE TOLLWAY FIBER MAINTENANCE TEAM, IN COORDINATION WITH THE ENGINEER.

Paul Kovacs
APPROVED CHIEF ENGINEER DATE 3-31-2017

ABV	ABOVE	CU YD	CUBIC YARD	HD	HEAD	PED	PEDESTAL	STD	STANDARD
A/C	ACCESS CONTROL	CULV	CULVERT	HDW	HEADWALL	PNT	POINT	SBI	STATE BOND ISSUE
AC	ACRE	C&G	CURB & GUTTER	HDUTY	HEAVY DUTY	PC	POINT OF CURVATURE	SR	STATE ROUTE
ADJ	ADJUST	D	DEGREE OF CURVE	ha	HECTARE	PI	POINT OF INTERSECTION OF HORIZONTAL CURVE	STA	STATION
AS	AERIAL SURVEYS	DC	DEPRESSED CURVE	HMA	HOT MIX ASPHALT			SPBGR	STEEL PLATE BEAM GUARDRAIL
AGG	AGGREGATE	DET	DETECTOR	HWY	HIGHWAY	PRC	POINT OF REVERSE CURVE	SS	STORM SEWER
AH	AHEAD	DIA	DIAMETER	HORIZ	HORIZONTAL	PT	POINT OF TANGENCY	STY	STORY
APT	APARTMENT	DIST	DISTRICT	HSE	HOUSE	POT	POINT ON TANGENT	ST	STREET
ASPH	ASPHALT	DOM	DOMESTIC	IL	ILLINOIS	POLYETH	POLYETHYLENE	STR	STRUCTURE
AUX	AUXILIARY	DBL	DOUBLE	IMP	IMPROVEMENT	PCC	PORTLAND CEMENT CONCRETE	e	SUPERELEVATION RATE
AGS	AUXILIARY GAS VALVE (SERVICE)	DSEL	DOWNSTREAM ELEVATION	IN DIA	INCH DIAMETER	PP	POWER POLE OR PRINCIPAL POINT	S.E. RUN.	SUPERELEVATION RUNOFF LENGTH
AVE	AVENUE	DSFL	DOWNSTREAM FLOWLINE	INL	INLET	PRM	PRIME	SURF	SURFACE
AX	AXIS OF ROTATION	DR	DRAINAGE OR DRIVE	INST	INSTALLATION	PE	PRIVATE ENTRANCE	SMK	SURVEY MARKER
BK	BACK	DI	DRAINAGE INLET OR DROP INLET	IDS	INTERSECTION DESIGN STUDY	PROF	PROFILE	T	TANGENT DISTANCE
B-B	BACK TO BACK	DRV	DRIVEWAY	INV	INVERT	PGL	PROFILE GRADELINE	T.R.	TANGENT RUNOUT DISTANCE
BKPL	BACKPLATE	DCT	DUCT	IP	IRON PIPE	PROJ	PROJECT	TEL	TELEPHONE
B	BARN	EA	EACH	IR	IRON ROD	P.C.	PROPERTY CORNER	TB	TELEPHONE BOX
BARR	BARRICADE	EB	EASTBOUND	JT	JOINT	PL	PROPERTY LINE	TP	TELEPHONE POLE
BGN	BEGIN	EOP	EDGE OF PAVEMENT	kg	KILOGRAM	PR	PROPOSED	TEMP	TEMPORARY
BM	BENCHMARK	E-CL	EDGE TO CENTERLINE	km	KILOMETER	R	RADIUS	TBM	TEMPORARY BENCH MARK
BIND	BINDER	E-E	EDGE TO EDGE	LS	LANDSCAPING	RR	RAILROAD	TD	TILE DRAIN
BIT	BITUMINOUS	EL	ELEVATION	LN	LANE	RRS	RAILROAD SPIKE	TBE	TO BE EXTENDED
BTM	BOTTOM	ENTR	ENTRANCE	LT	LEFT	RPS	REFERENCE POINT STAKE	TBR	TO BE REMOVED
BLVD	BOULEVARD	EXC	EXCAVATION	LP	LIGHT POLE	REF	REFLECTIVE	TBS	TO BE SAVED
BRK	BRICK	EX	EXISTING	LGT	LIGHTING	RCCP	REINFORCED CONCRETE CULVERT PIPE	TWP	TOWNSHIP
BBOX	BUFFALO BOX	EXPWAY	EXPRESSWAY	LF	LINEAL FEET OR LINEAR FEET	REINF	REINFORCEMENT	TR	TOWNSHIP ROAD
BLDG	BUILDING	E	EXTERNAL DISTANCE OF HORIZONTAL CURVE	L	LITER OR CURVE LENGTH	REM	REMOVAL	TS	TRAFFIC SIGNAL
CIP	CAST IRON PIPE	E	OFFSET DISTANCE TO VERTICAL CURVE	LC	LONG CHORD	RC	REMOVE CROWN	TSCB	TRAFFIC SIGNAL CONTROL BOX
CB	CATCH BASIN	F-F	FACE TO FACE	LNG	LONGITUDINAL	REP	REPLACEMENT	TSC	TRAFFIC SYSTEMS CENTER
C-C	CENTER TO CENTER	FA	FEDERAL AID	L SUM	LUMP SUM	REST	RESTAURANT	TRVS	TRANSVERSE
CL	CENTERLINE OR CLEARANCE	FAI	FEDERAL AID INTERSTATE	MACH	MACHINE	RESURF	RESURFACING	TRVL	TRAVEL
CL-E	CENTERLINE TO EDGE	FAP	FEDERAL AID PRIMARY	MB	MAIL BOX	RET	RETAINING	TRN	TURN
CL-F	CENTERLINE TO FACE	FAS	FEDERAL AID SECONDARY	MH	MANHOLE	RT	RIGHT	TY	TYPE
CTS	CENTERS	FAUS	FEDERAL AID URBAN SECONDARY	MATL	MATERIAL	ROW	RIGHT-OF-WAY	T-A	TYPE A
CERT	CERTIFIED	FP	FENCE POST	MED	MEDIAN	RD	ROAD	TYP	TYPICAL
CHSLD	CHISELED	FE	FIELD ENTRANCE	m	METER	RDWY	ROADWAY	UNDGND	UNDERGROUND
CS	CITY STREET	FH	FIRE HYDRANT	METH	METHOD	RTE	ROUTE	USGS	U.S. GEOLOGICAL SURVEY
CP	CLAY PIPE	FL	FLOW LINE	M	MID-ORDINATE	SAN	SANITARY	USEL	UPSTREAM ELEVATION
CLSD	CLOSED	FB	FOOT BRIDGE	mm	MILLIMETER	SANS	SANITARY SEWER	USFL	UPSTREAM FLOWLINE
CLID	CLOSED LID	FDN	FOUNDATION	mm DIA	MILLIMETER DIAMETER	SEC	SECTION	UTIL	UTILITY
CT	COAT OR COURT	FR	FRAME	MIX	MIXTURE	SEED	SEEDING	VBOX	VALVE BOX
COMB	COMBINATION	F&G	FRAME & GRATE	MBH	MOBILE HOME	SHAP	SHAPING	VV	VALVE VAULT
C	COMMERCIAL BUILDING	FRWAY	FREEWAY	MOD	MODIFIED	S	SHED	VLT	VAULT
CE	COMMERCIAL ENTRANCE	GAL	GALLON	MFT	MOTOR FUEL TAX	SH	SHEET	VEH	VEHICLE
CONC	CONCRETE	GALV	GALVANIZED	N & BC	NAIL & BOTTLE CAP	SHLD	SHOULDER	VP	VENT PIPE
CONST	CONSTRUCT	G	GARAGE	N & C	NAIL & CAP	SW	SIDEWALK OR SOUTHWEST	VERT	VERTICAL
CONTD	CONTINUED	GM	GAS METER	N & W	NAIL & WASHER	SIG	SIGNAL	VC	VERTICAL CURVE
CONT	CONTINUOUS	GV	GAS VALVE	NOAA	NATIONAL OCEANIC ATMOSPHERIC ADMINISTRATION	SOD	SODDING	VPC	VERTICAL POINT OF CURVATURE
COR	CORNER	GRAN	GRANULAR	NC	NORMAL CROWN	SM	SOLID MEDIAN	VPI	VERTICAL POINT OF INTERSECTION
CORR	CORRUGATED	GR	GRATE	NB	NORTHBOUND	SB	SOUTHBOUND	VPT	VERTICAL POINT OF TANGENCY
CMP	CORRUGATED METAL PIPE	GRVL	GRAVEL	NE	NORTHEAST	SE	SOUTHEAST	WM	WATER METER
CNTY	COUNTY	GND	GROUND	NW	NORTHWEST	SPL	SPECIAL	VV	WATER VALVE
CH	COUNTY HIGHWAY	GUT	GUTTER	OLID	OPEN LID	SD	SPECIAL DITCH	WMAIN	WATER MAIN
CSE	COURSE	GP	GUY POLE	PAT	PATTERN	SQ FT	SQUARE FEET	WB	WESTBOUND
XSECT	CROSS SECTION	GW	GUY WIRE	PVD	PAVED	m ²	SQUARE METER	WILDFL	WILDFLOWERS
m ³	CUBIC METER	HH	HANDHOLE	PVMT	PAVEMENT	mm ²	SQUARE MILLIMETER	W	WITH
mm ³	CUBIC MILLIMETER	HATCH	HATCHING	PM	PAVEMENT MARKING	SQ YD	SQUARE YARD	WO	WITHOUT

 Illinois Department of Transportation	
PASSED	January 1, 2019
 ENGINEER OF POLICY AND PROCEDURES	
APPROVED	January 1, 2019
 ENGINEER OF DESIGN AND ENVIRONMENT	

ISSUED 1-1-97

DATE	REVISIONS
1-1-19	Added new symbols.
1-1-11	Updated abbreviations and symbols.

STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS

(Sheet 1 of 9)

STANDARD 000001-07

<u>ADJUSTMENT ITEMS</u>		<u>EX</u>	<u>PR</u>	<u>ALIGNMENT ITEMS</u>		<u>EX</u>	<u>PR</u>	<u>DRAINAGE ITEMS</u>		<u>EX</u>	<u>PR</u>
Structure To Be Adjusted			ADJ	Baseline	_____	_____		Channel or Stream Line	-----	-----	
Structure To Be Cleaned			C	Centerline	-----	-----		Culvert Line	-----	-----	
Main Structure To Be Filled			FM	Centerline Break Circle	○	⊙		Grading & Shaping Ditches	-----	-----	
Structure To Be Filled			F	Baseline Symbol	\	\		Drainage Boundary Line	////	////	
Structure To Be Filled Special			FSP	Centerline Symbol	⊕	⊕		Paved Ditch	-----	-----	
Structure To Be Removed			R	PI Indicator	△	△		Aggregate Ditch	-----	-----	
Structure To Be Reconstructed			REC	Point Indicator	○	○		Pipe Underdrain	-----	-----	
Structure To Be Reconstructed Special			RSP	Horizontal Curve Data (Half Size)	CURVE P.I. STA= Δ= D= R= T= L= E= e= T.R.= S.E. RUN= P.C. STA= P.T. STA=	CURVE P.I. STA= Δ= D= R= T= L= E= e= T.R.= S.E. RUN= P.C. STA= P.T. STA=		Storm Sewer	-----	-----	
Frame and Grate To Be Adjusted			A	<u>BOUNDARIES ITEMS</u>		<u>EX</u>	<u>PR</u>	Flowline	⊕	⊕	
Frame and Lid To Be Adjusted			A	Dashed Property Line	-----	-----		Ditch Check	◆	◆	
Domestic Service Box To Be Adjusted			A	Solid Property/Lot Line	_____	_____		Headwall	-	∩	
Valve Vault To Be Adjusted			A	Section/Grant Line	-----	-----		Inlet	□	■	
Special Adjustment			SP	Quarter Section Line	-----	-----		Manhole	⊙	⊙	
Item To Be Abandoned			AB	Quarter/Quarter Section Line	-----	-----		Summit	↔	↔	
Item To Be Moved			M	County/Township Line	-----	-----		Roadway Ditch Flow	~→	~→	
Item To Be Relocated			REL	State Line	-----	-----		Swale	→	→	
Pavement Removal and Replacement				Iron Pipe Found	○	○		Catch Basin	○	●	
				Iron Pipe Set	●	●		Culvert End Section	◁	◁	
				Survey Marker	◐	◐		Water Surface Indicator	▽	▽	
				Property Line Symbol	P	P		Riprap	▒	▒	
				Same Ownership Symbol (Half Size)	↗	↗		<u>HYDRAULICS ITEMS</u>		<u>EX</u>	<u>PR</u>
				Northwest Quarter Corner (Half Size)	⊕	⊕		Overflow	↪	↪	
				Section Corner (Half Size)	⊕	⊕		Sheet Flow	→	→	
				Southeast Quarter Corner (Half Size)	⊕	⊕		Hydrant Outlet	→	→	

**STANDARD SYMBOLS,
ABBREVIATIONS
AND PATTERNS**
(Sheet 2 of 9)
STANDARD 000001-07

Illinois Department of Transportation

PASSED January 1, 2019

 ENGINEER OF POLICY AND PROCEDURES

ISSUED 1-1-97

APPROVED January 1, 2019

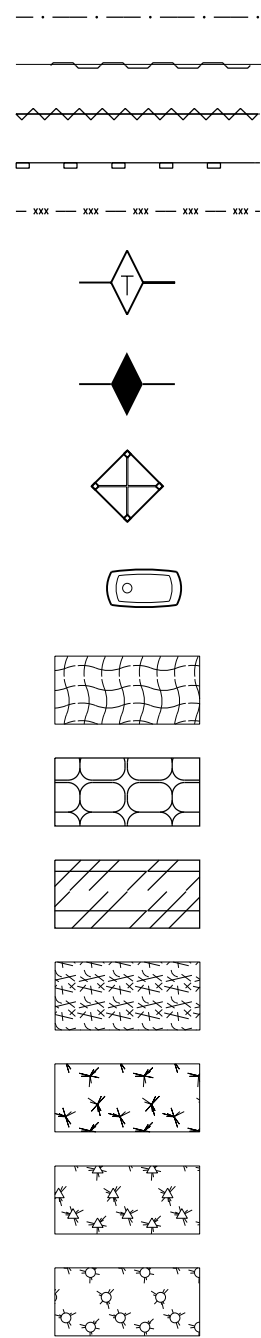
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EROSION & SEDIMENT CONTROL ITEMS

EX

PR

- Cleaning & Grading Limits
- Dike
- Erosion Control Fence
- Perimeter Erosion Barrier
- Temporary Fence
- Ditch Check Temporary
- Ditch Check Permanent
- Inlet & Pipe Protection
- Sediment Basin
- Erosion Control Blanket
- Fabric Formed Concrete Revetment Mat
- Turf Reinforcement Mat
- Mulch Temporary
- Mulch Method 1
- Mulch Method 2 Stabilized
- Mulch Method 3 Hydraulic

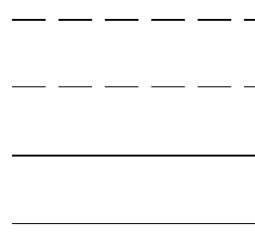


CONTOUR ITEMS

EX

PR

- Approx. Index Line
- Approx. Intermediate Line
- Index Contour
- Intermediate Contour

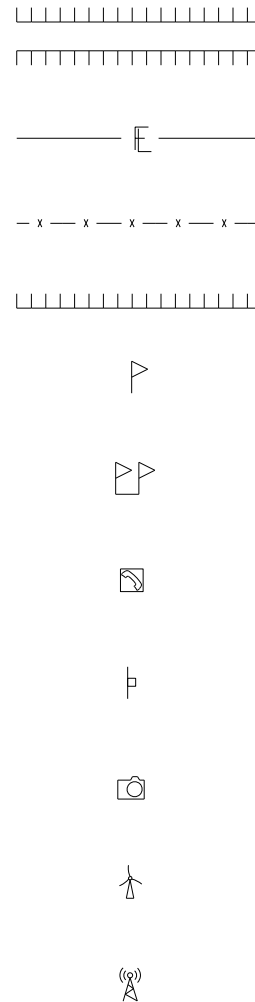


NON-HIGHWAY IMPROVEMENT ITEMS

EX

PR

- Noise Attn./Levee
- Field Line
- Fence
- Base of Levee
- Mailbox
- Multiple Mailboxes
- Pay Telephone
- Advertising Sign
- ITS* Camera
- Wind Turbine
- Cellular Tower



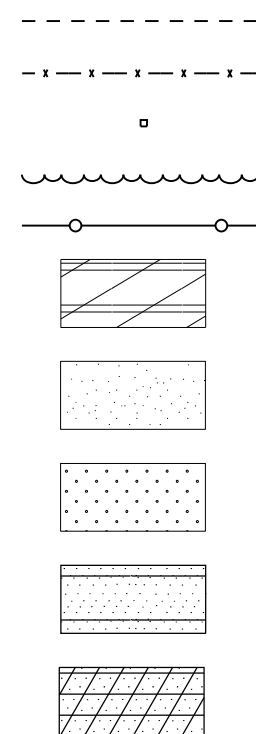
*Intelligent Transportation Systems

LANDSCAPING ITEMS

EX

PR

- Contour Mounding Line
- Fence
- Fence Post
- Shrubs
- Mowline
- Perennial Plants
- Seeding Class 2
- Seeding Class 2A
- Seeding Class 4
- Seeding Class 4 & 5 Combined

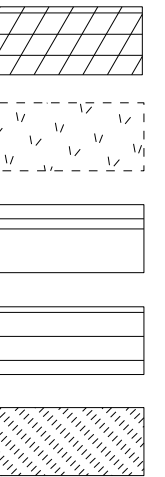


EXISTING LANDSCAPING ITEMS (contd.)

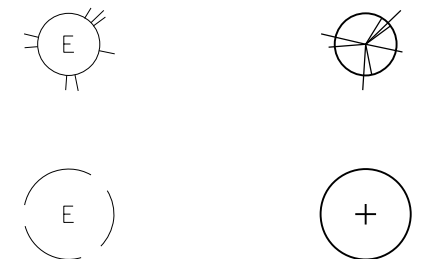
EX

PR

- Seeding Class 5
- Seeding Class 7
- Seedlings Type 1
- Seedlings Type 2
- Sodding
- Mowstake w/Sign



- Tree Trunk Protection
- Evergreen Tree
- Shade Tree

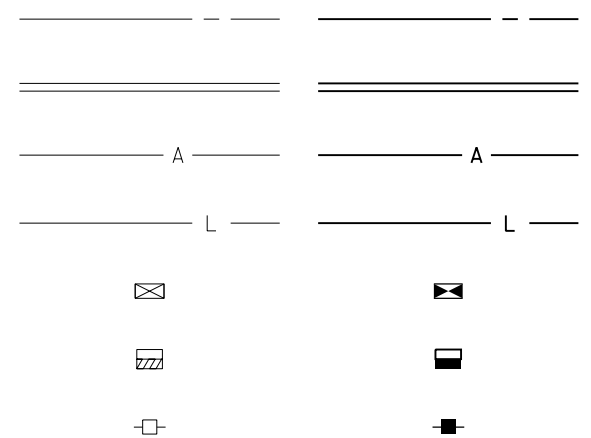


LIGHTING

EX

PR

- Duct
- Conduit
- Electrical Aerial Cable
- Electrical Buried Cable
- Controller
- Underpass Luminaire
- Power Pole



STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS

(Sheet 3 of 9)

STANDARD 000001-07

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**LIGHTING
(contd.)**

	EX	PR
Pull Point		
Handhole		
Heavy Duty Handhole		
Junction Box		
Light Unit Comb.		
Electrical Ground		
Traffic Flow Arrow		
High Mast Pole (Half Size)		
Light Unit-1		

PAVEMENT (MISC.)

	EX	PR
Keyed Long. Joint		
Keyed Long. Joint w/Tie Bars		
Sawed Long. Joint w/Tie Bars		
Bituminous Shoulder		
Bituminous Taper		
Stabilized Driveway		
Widening		

PAVEMENT MARKINGS

	EX	PR
Handicap Symbol		
RR Crossing		
Raised Marker Amber 1 Way		
Raised Marker Amber 2 Way		
Raised Marker Crystal 1 Way		
Two Way Turn Left		
Shoulder Diag. Pattern		
Skip-Dash White		
Skip-Dash Yellow		
Stop Line		
Solid Line		
Double Centerline		
Dotted Lines		

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**STANDARD SYMBOLS,
ABBREVIATIONS
AND PATTERNS**

(Sheet 4 of 9)

STANDARD 000001-07

PAVEMENT MARKINGS
(contd.)

CL 2Ln 2Way
RRPM 12.2 m (40') o.c.

CL 2Ln 2Way
RRPM 80' (24.4 m) o.c.

CL Multilane Div.
RRPM 40' (12.2 m) o.c.

CL Multilane Div.
RRPM 80' (24.4 m) o.c.

CL Multilane Div. Dbl.
RRPM 80' (24.4 m) o.c.

CL Multilane Undiv.

Two Way Turn Left Line

Urban Combination Left

Urban Combination Right

Urban Left Turn Arrow

Urban Right Turn Arrow

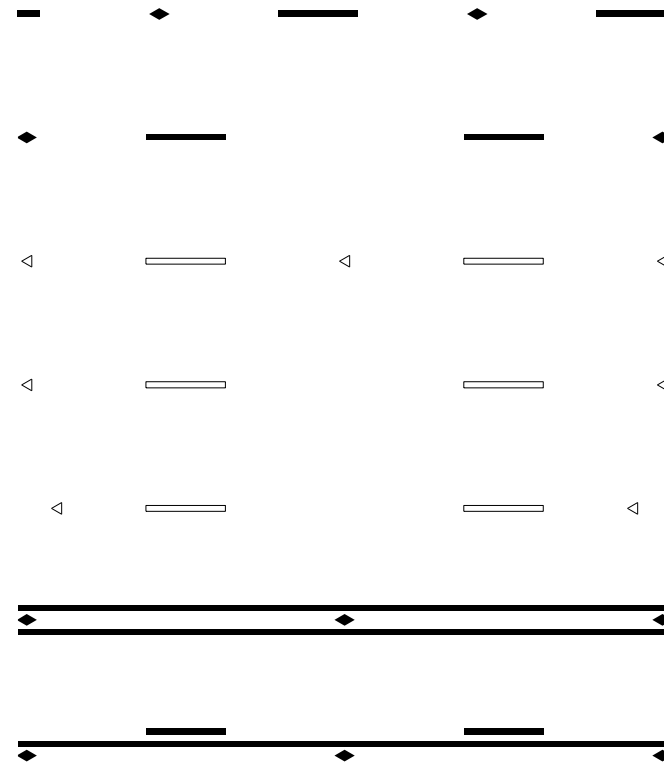
Urban Left Turn Only

Urban Right Turn Only

Urban Thru Only

EX

PR



ONLY ONLY ONLY



ONLY ONLY ONLY

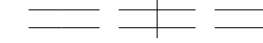


RAILROAD ITEMS

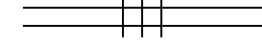
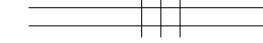
EX

PR

Abandoned Railroad



Railroad



Railroad Point



Control Box



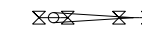
Crossing Gate



Flashing Signal



Railroad Cant. Mast Arm



Crossbuck

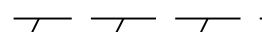


REMOVAL ITEMS

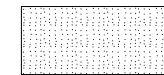
EX

PR

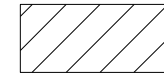
Removal Tic



Bituminous Removal



Hatch Pattern



Tree Removal Single



RIGHT OF WAY ITEMS

EX

PR

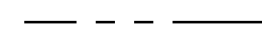
Future ROW Corner Monument



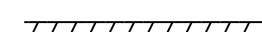
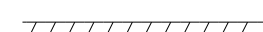
ROW Marker



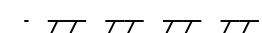
ROW Line



Easement



Temporary Easement



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**STANDARD SYMBOLS,
ABBREVIATIONS
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(Sheet 5 of 9)

STANDARD 000001-07

PAVEMENT MARKINGS
(contd.)

EX

PR

Urban U-Turn



Urban Combined U-Turn



Rural Combination Left



Rural Combination Right



Rural Left Turn Arrow



Rural Right Turn Arrow



Rural Left Turn Only



ONLY



Rural Right Turn Only



ONLY



Rural Thru Only



ONLY



Bike Lane Symbol



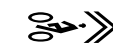
Bike Lane Text

BIKE LANE

Bike Path Shared



Bike Shared Roadway



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**STANDARD SYMBOLS,
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AND PATTERNS**

(Sheet 6 of 9)

STANDARD 000001-07

**RIGHT OF WAY ITEMS
(contd.)**

	<u>EX</u>	<u>PR</u>
Access Control Line	—	— AC —
Access Control Line & ROW	— AC —	— AC —
Access Control Line & ROW with Fence	— x — AC —	— x — AC — x —
Excess ROW Line		— XS —

**ROADWAY PLAN
ITEMS**

	<u>EX</u>	<u>PR</u>
Cable Barrier		
Concrete Barrier		
Edge of Pavement	---	---
Bit Shoulders, Medians and C&G Line	---	---
Aggregate Shoulder	---	---
Sidewalks, Driveways	---	---
Guardrail		
Guardrail Post	□	
Traffic Sign		
Corrugated Median		
Impact Attenuator		
North Arrow with District Office (Half Size)		
Match Line		STA. 45+00
Slope Limit Line	---	
Typical Cross-Section Line	---	---

ROADWAY PROFILES

	<u>EX</u>	<u>PR</u>
P.I. Indicator	△	△
Point Indicator	○	○
Earthworks Balance Point		
Begin Point		
Vert. Curve Data	VPI = ELEV = L = E =	VPI = ELEV = L = E =
Ditch Profile Left Side	-----	-----
Ditch Profile Right Side	-----	-----
Roadway Profile Line	-----	-----
Storm Sewer Profile Left Side	-----	-----
Storm Sewer Profile Right Side	-----	-----

SIGNING ITEMS

	<u>EX</u>	<u>PR</u>
Cone, Drum or Barricade		○
Barricade Type II		
Barricade Type III		TT
Barricade With Edge Line		
Flashing Light Sign		○
Panels I		
Panels II		
Direction of Traffic		
Sign Flag (Half Size)		

**SIGNING ITEMS
(contd.)**

	<u>EX</u>	<u>PR</u>
Reverse Left W1-4L (Half Size)		
Reverse Right W1-4R (Half Size)		
Two Way Traffic Sign W6-3 (Half Size)		
Detour Ahead W20-2(O) (Half Size)		
Left Lane Closed Ahead W20-5L(O) (Half Size)		
Right Lane Closed Ahead W20-5R(O) (Half Size)		
Road Closed Ahead W20-3(O) (Half Size)		
Road Construction Ahead W20-1(O) (Half Size)		
Single Lane Ahead (Half Size)		
Transition Left W4-2L (Half Size)		
Transition Right W4-2R (Half Size)		

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(Sheet 7 of 9)

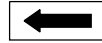
STANDARD 000001-07

SIGNING ITEMS
(contd.)

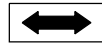
EX

PR

One Way Arrow Lrg. W1-6-(O)
(Half Size)



Two Way Arrow Large W1-7-(O)
(Half Size)



Detour M4-10L-(O)
(Half Size)



Detour M4-10R-(O)
(Half Size)



One Way Left R6-1L
(Half Size)



One Way Right R6-1R
(Half Size)



Left Turn Lane R3-I100L
(Half Size)



Keep Left R4-7AL
(Half Size)



Keep Left R4-7BL
(Half Size)



Keep Right R4-7AR
(Half Size)



Keep Right R4-7BR
(Half Size)



Stop Here On Red R10-6-AL
(Half Size)



Stop Here On Red R10-6-AR
(Half Size)



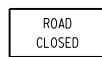
No Left Turn R3-2
(Half Size)



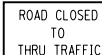
No Right Turn R3-1
(Half Size)



Road Closed R11-2
(Half Size)



Road Closed Thru Traffic R11-2
(Half Size)

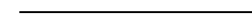


STRUCTURES ITEMS

EX

PR

Box Culvert Barrel



Box Culvert Headwall



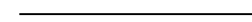
Bridge Pier



Bridge



Retaining Wall



Temporary Sheet Piling



TRAFFIC SHEET
ITEMS

EX

PR

Cable Number



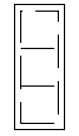
Left Turn Green



Left Turn Yellow



Signal Backplate



Signal Section 8" (200 mm)



Signal Section 12" (300 mm)



Walk/Don't Walk Letters



Walk/Don't Walk Symbols



TRAFFIC SIGNAL
ITEMS

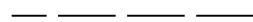
EX

PR

Galv. Steel Conduit



Underground Cable



Detector Loop Line



Detector Loop Large



Detector Loop Small



Detector Loop Quadrapole



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(Sheet 8 of 9)

STANDARD 000001-07

TRAFFIC SIGNAL ITEMS (contd.)

EX

PR

Detector Raceway



Aluminum Mast Arm



Steel Mast Arm



Veh. Detector Magnetic



Conduit Splice



Controller



Gulfbox Junction



Wood Pole



Temp. Signal Head



Handhole



Double Handhole



Heavy Duty Handhole



Junction Box



Ped. Pushbutton Detector



Ped. Signal Head



Power Pole Service



Priority Veh. Detector



Signal Head



Signal Head w/Backplate



Signal Post



Closed Circuit TV



Video Detector System



UNDERGROUND UTILITY ITEMS

EX

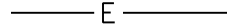
PR

ABANDONED

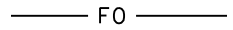
Cable TV



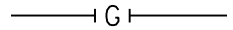
Electric Cable



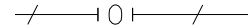
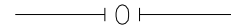
Fiber Optic



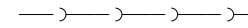
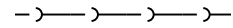
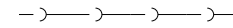
Gas Pipe



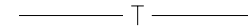
Oil Pipe



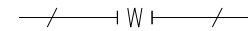
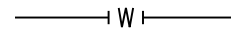
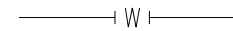
Sanitary Sewer



Telephone Cable



Water Pipe



UTILITIES ITEMS

EX

PR

Controller



Double Handhole



Fire Hydrant



GuyWire or Deadman Anchor



Handhole



Heavy Duty Handhole



Junction Box



Light Pole



Manhole



Monitoring Well (Gasoline)



Pipeline Warning Sign



Power Pole



Power Pole with Light



Sanitary Sewer Cleanout



Splice Box Above Ground



Telephone Splice Box Above Ground



Telephone Pole



UTILITY ITEMS (contd.)

EX

PR

Traffic Signal



Traffic Signal Control Box



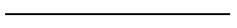
Water Meter



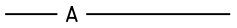
Water Meter Valve Box



Profile Line



Aerial Power Line



VEGETATION ITEMS

EX

PR

Deciduous Tree



Bush or Shrub



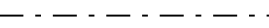
Evergreen Tree



Stump



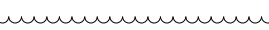
Orchard/Nursery Line



Vegetation Line



Woods & Bush Line

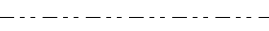


WATER FEATURE ITEMS

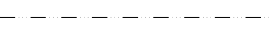
EX

PR

Stream or Drainage Ditch



Waters Edge



Water Surface Indicator



Water Point



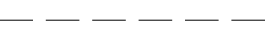
Disappearing Ditch



Marsh



Marsh/Swamp Boundary



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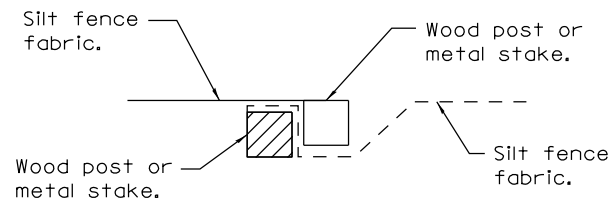
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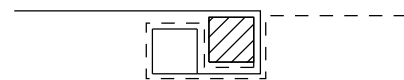
(Sheet 9 of 9)

STANDARD 000001-07



Place end-post (stake) of first silt fence adjacent to end-post (stake) of second silt fence with fabric positioned as shown.

STEP 1

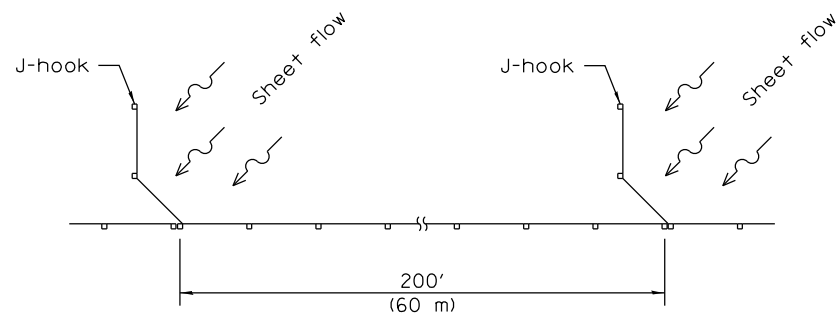


Rotate posts (stakes) together 180° clockwise and drive both posts (stakes) 18 (450) into ground.

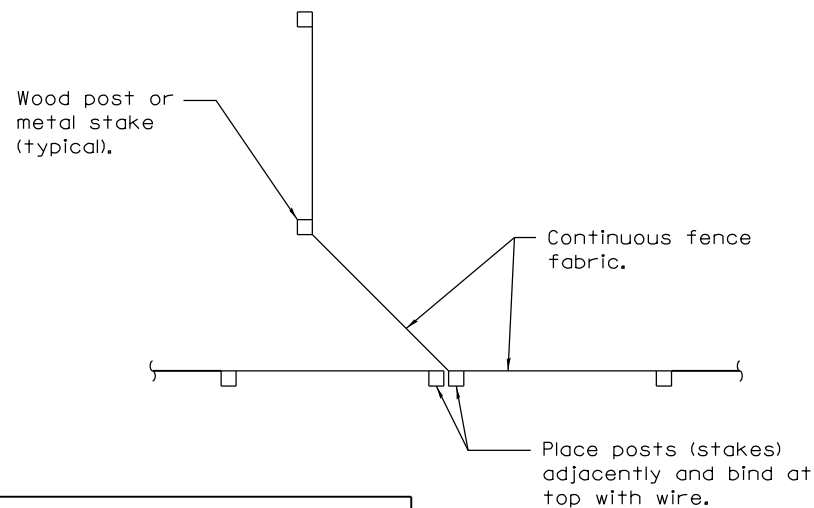
STEP 2

ATTACHING TWO SILT FILTER FENCES

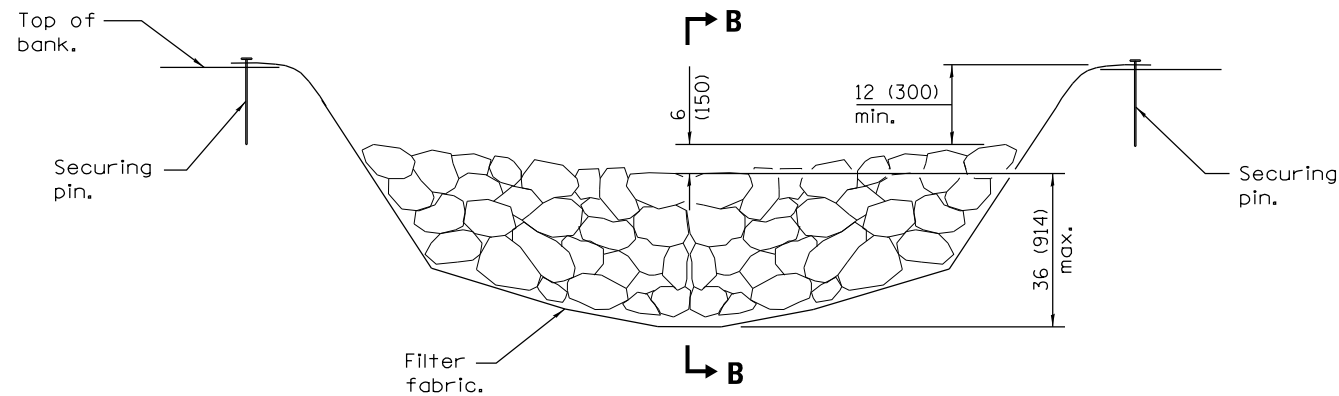
(Not applicable for J-hooks)



SILT FILTER J-HOOK PLACEMENT

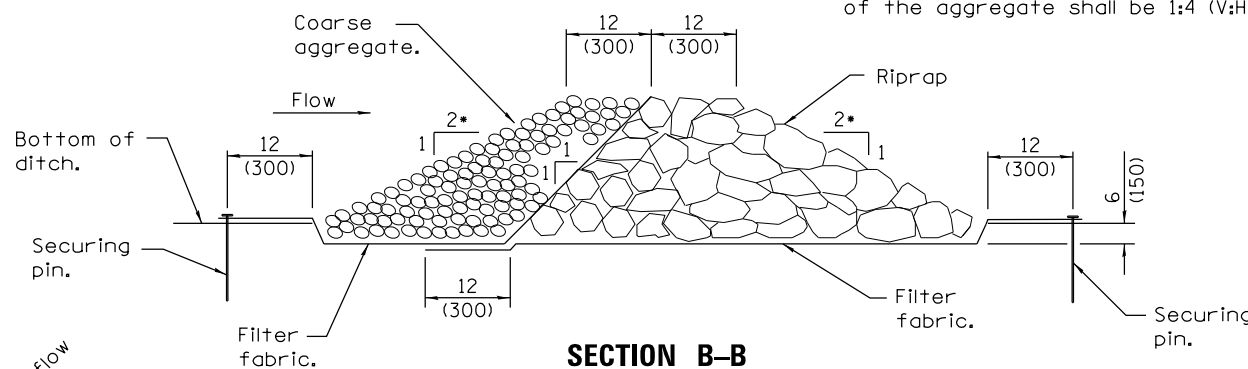


J-HOOK



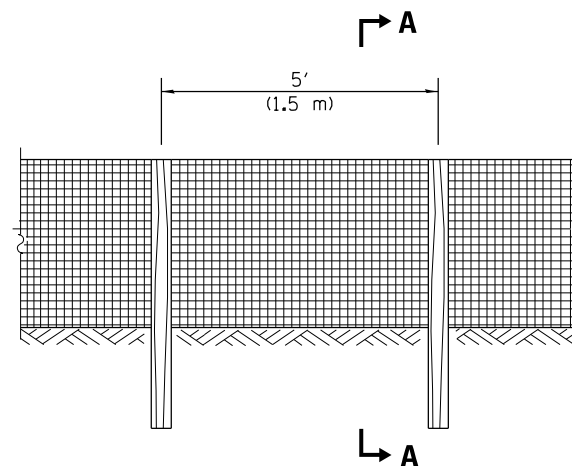
ELEVATION

• When the ditch check is within the clear zone and the road is open to traffic, the traffic approach slope of the aggregate shall be 1:4 (V:H).



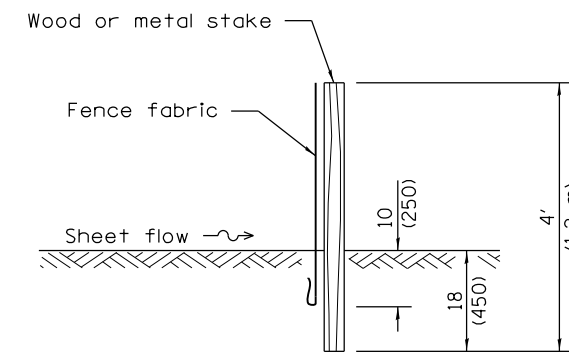
SECTION B-B

AGGREGATE DITCH CHECK

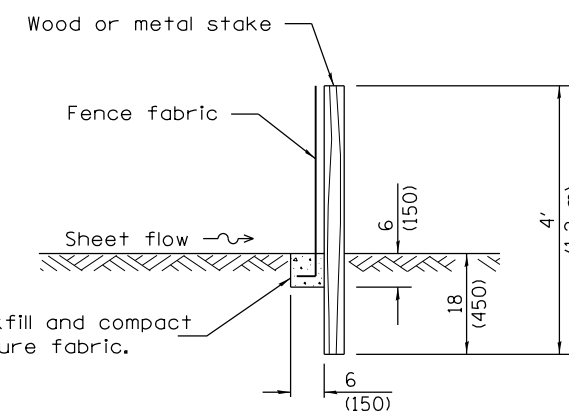


ELEVATION

SILT FILTER FENCE AS A PERIMETER EROSION BARRIER



SLICE METHOD



TRENCH METHOD

SECTION A-A

Excavate, backfill and compact trench to secure fabric.

GENERAL NOTES

The installation details and dimensions shown for perimeter erosion barriers shall also apply for inlet and pipe protection.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-13	Corrected notation for flowline (E) on SEDIMENT BASIN ELEVATION.
1-1-12	Omitted hay/straw perimeter barrier. Added SLICE METHOD to SECTION A-A.

TEMPORARY EROSION CONTROL SYSTEMS

(Sheet 1 of 2)

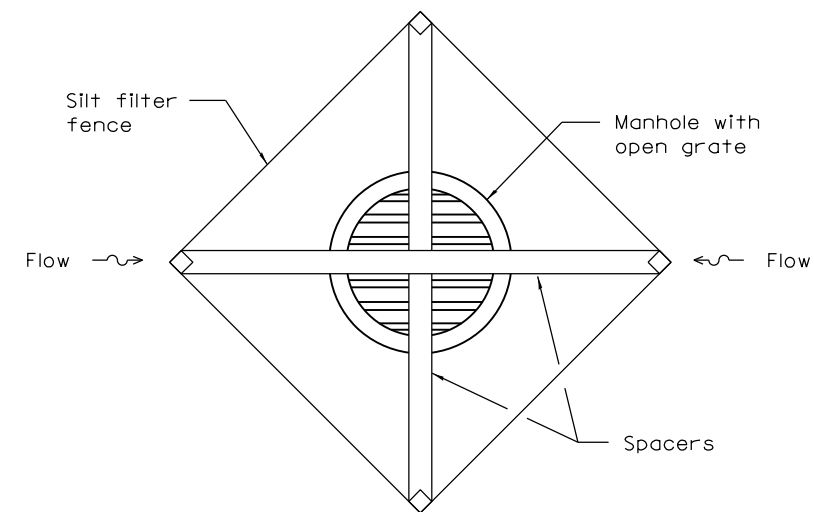
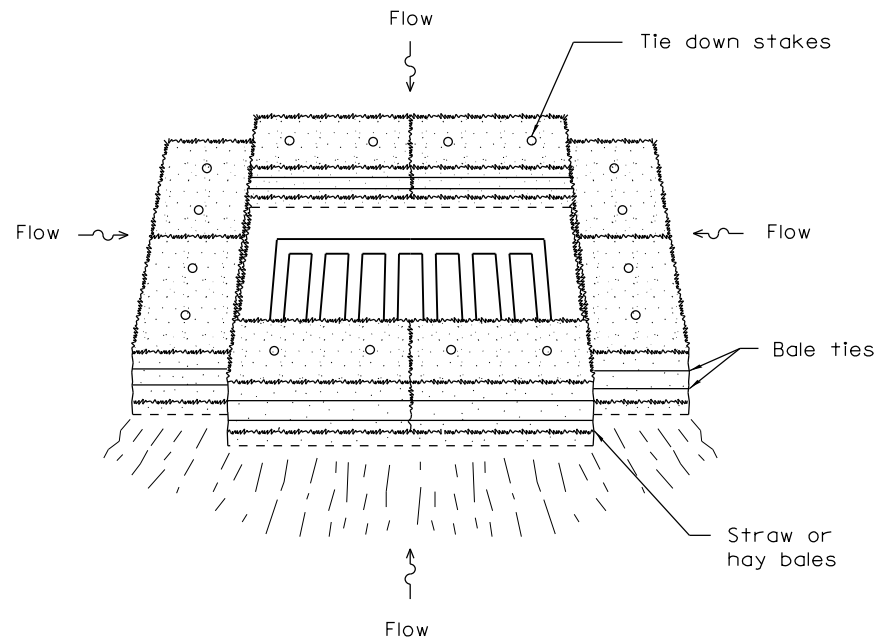
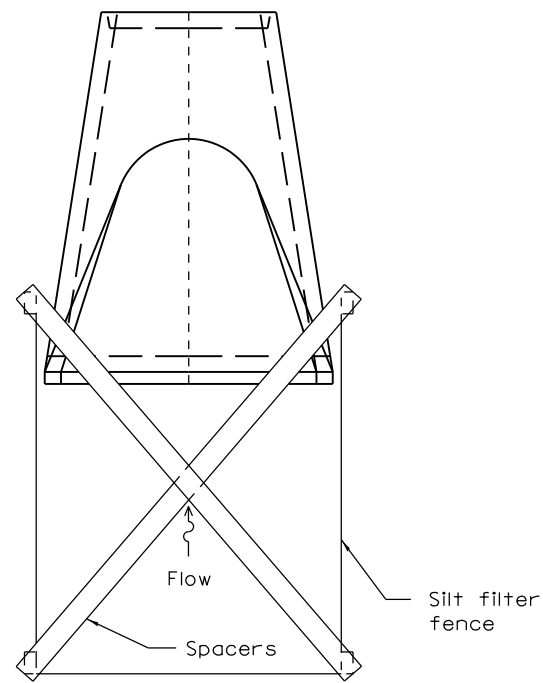
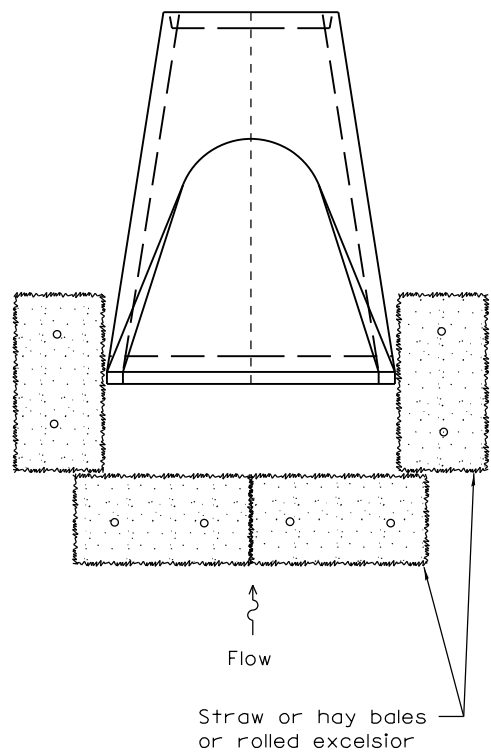
STANDARD 280001-07

Illinois Department of Transportation

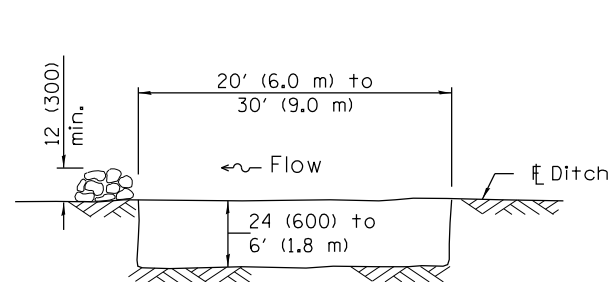
PASSED January 1, 2013
Michael Brand
 ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2013
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

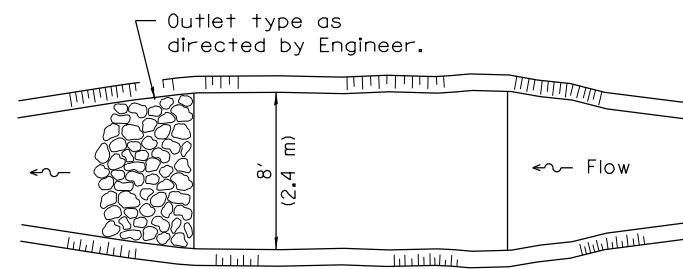


INLET AND PIPE PROTECTION



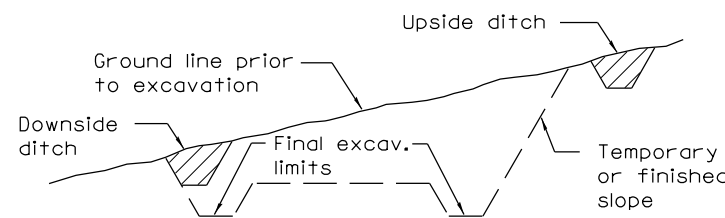
The performance of the basin will improve if put into a series.

ELEVATION

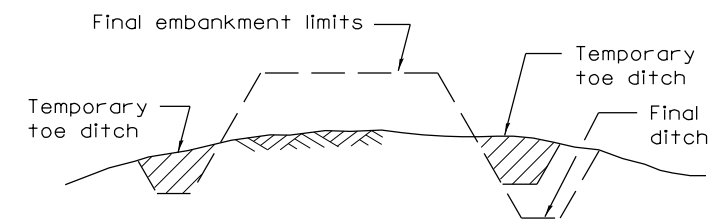


The long dimension should be parallel with the direction of the flow. Accumulated silt shall be removed anytime the basins become 75% filled.

PLAN



TYPICAL CUT CROSS-SECTION



TYPICAL FILL CROSS-SECTION

TEMPORARY DITCHES FOR CUT & FILL SECTIONS

SEDIMENT BASIN

Illinois Department of Transportation

PASSED January 1, 2013

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ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2013

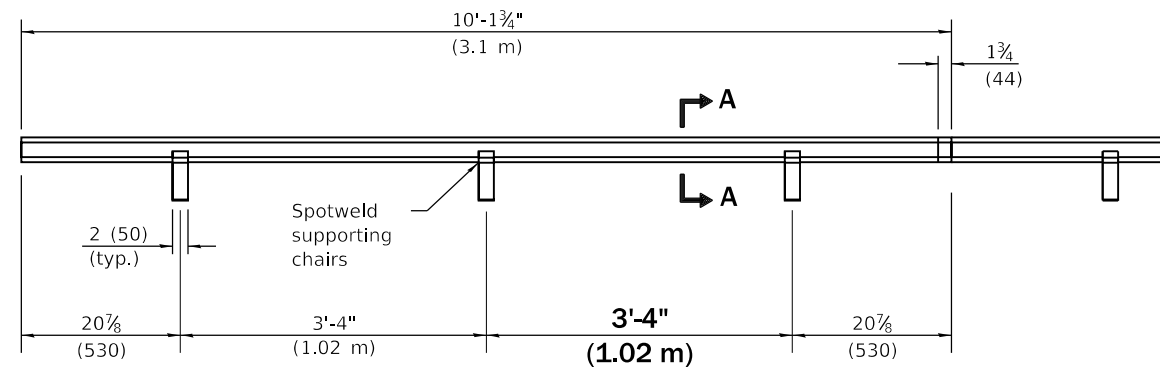
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

TEMPORARY EROSION CONTROL SYSTEMS

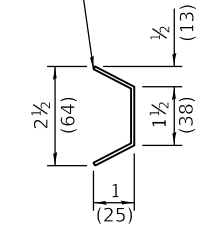
(Sheet 2 of 2)

STANDARD 280001-07

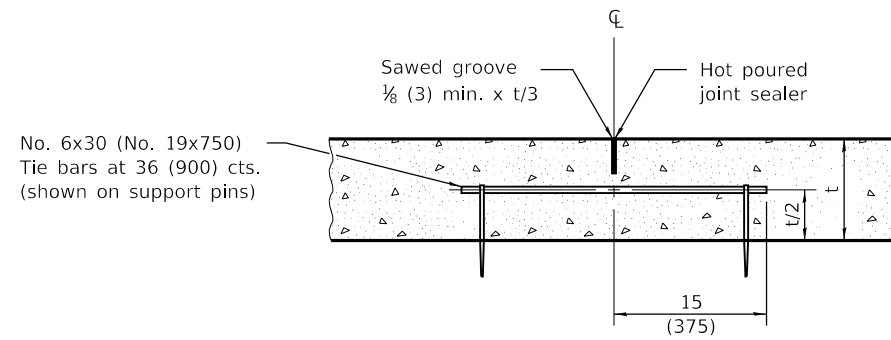


TYPE C METAL JOINT

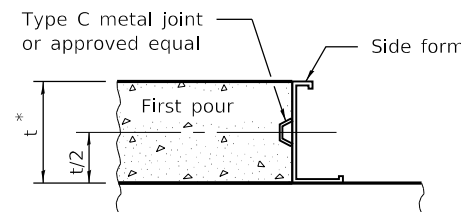
Sheet steel of suitable thickness to form keyway as detailed or approved equal.



SECTION A-A

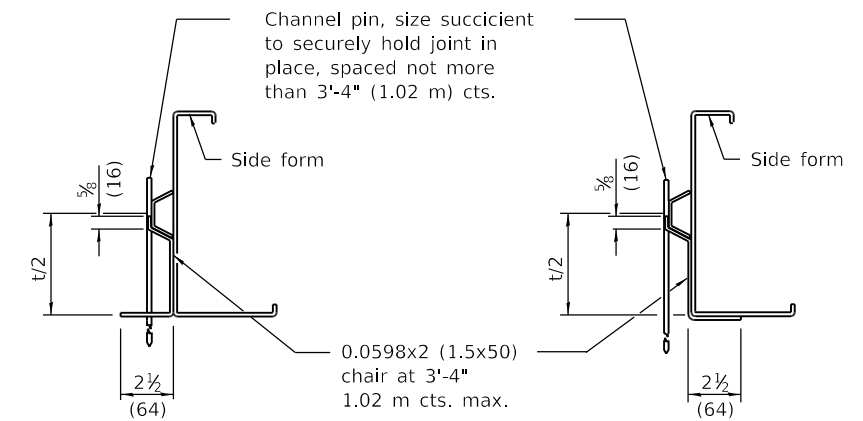


LONGITUDINAL SAWED JOINT



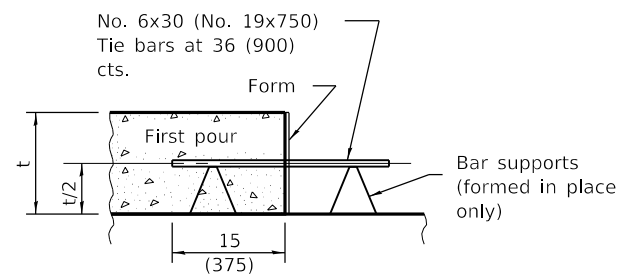
LONGITUDINAL KEYED JOINT

* 8 (203) min. pavement thickness for keyed joints.



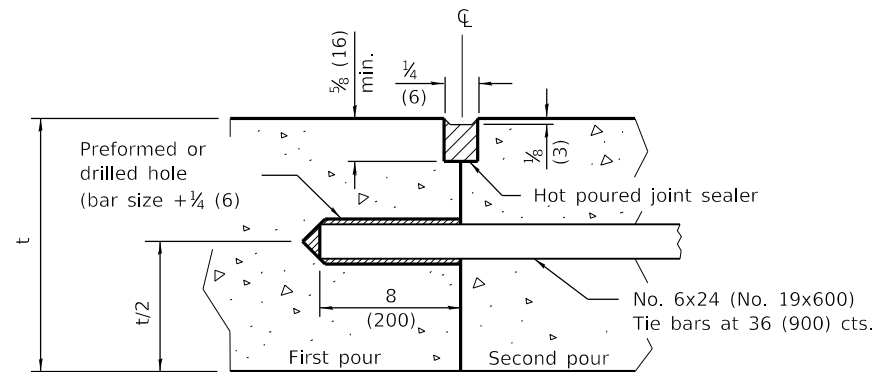
SUPPORTING CHAIR ALTERNATE

SUPPORTING CHAIR ALTERNATE



LONGITUDINAL CONSTRUCTION JOINT

(TIE BAR FORMED IN PLACE OR MECHANICALLY INSERTED)



LONGITUDINAL CONSTRUCTION JOINT

(TIE BAR GROUTED IN PLACE)

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2018
Michael Beard
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APPROVED January 1, 2018
Marcus M. Beck
 ENGINEER OF DESIGN AND ENVIRONMENT

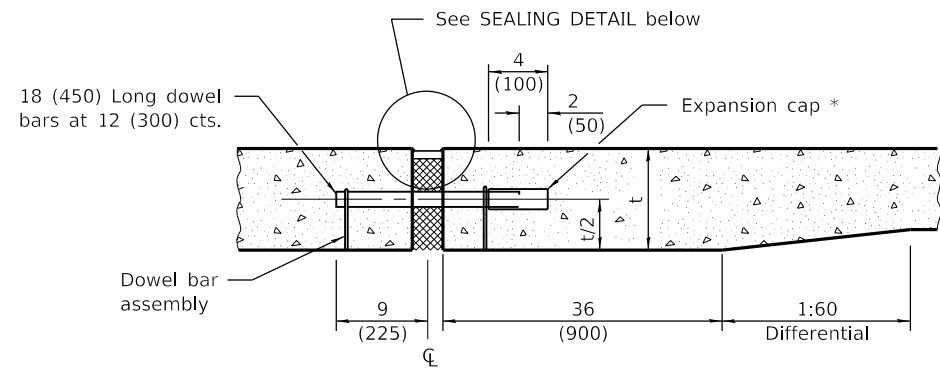
ISSUED 1-1-97

DATE	REVISIONS
1-1-18	Changed tie bar spacing to 36 (900) cts. Revised DOWEL BAR TABEL.
1-1-08	Switched units to English (metric).

PAVEMENT JOINTS

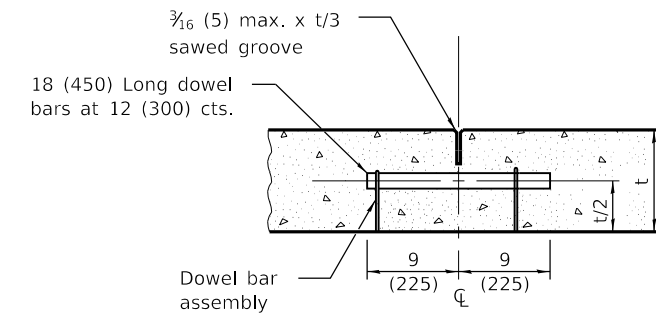
(Sheet 1 of 2)

STANDARD 420001-09

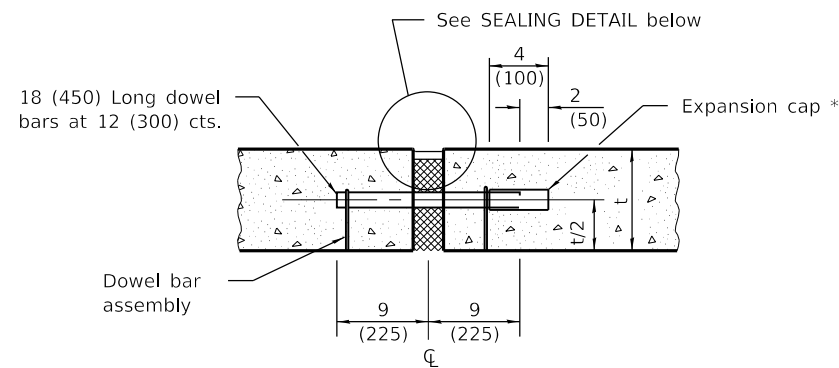


TRANSVERSE EXPANSION JOINT
(FOR PAVEMENTS WITH UNEQUAL THICKNESS)

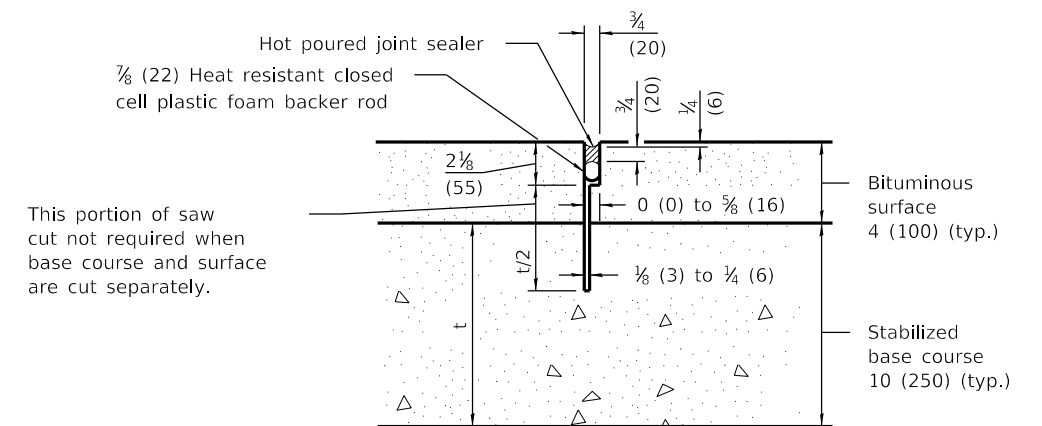
* Expansion caps shall be installed on the exposed end of each dowel bar once the header has been removed and the joint filler material has been installed.



TRANSVERSE CONTRACTION JOINT

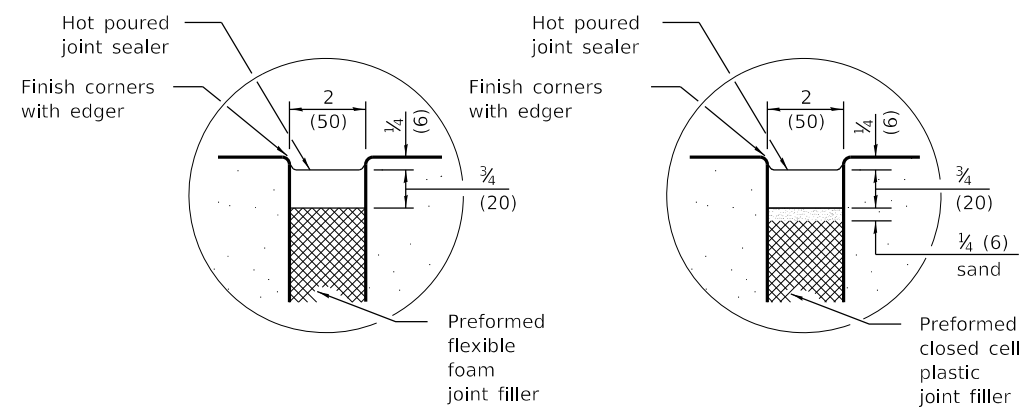


TRANSVERSE EXPANSION JOINT
(FOR PAVEMENTS WITH EQUAL THICKNESS)



This portion of saw cut not required when base course and surface are cut separately.

TRANSVERSE CONTRACTION JOINT
(FOR CAM, CFA AND LFA BASE COURSE MIXTURES)



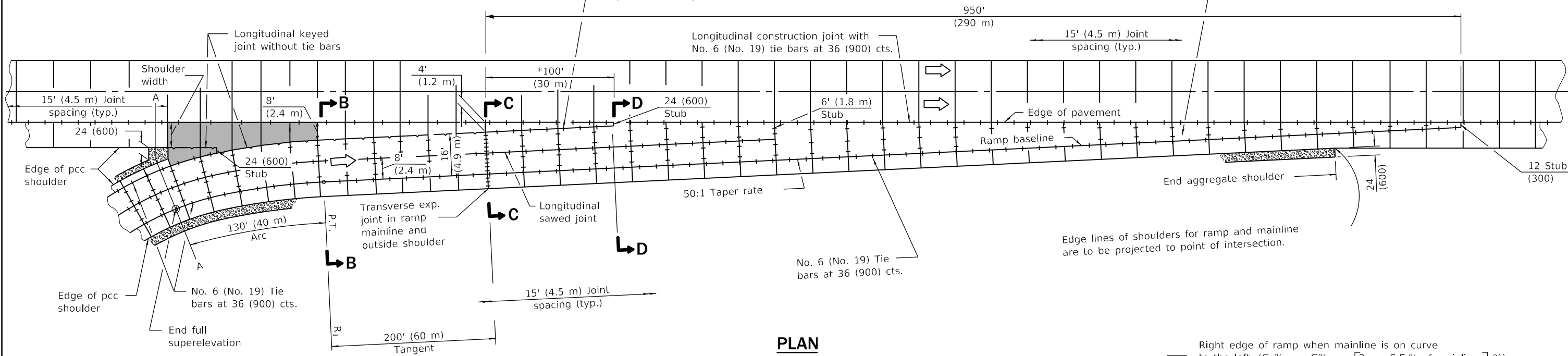
SEALING DETAIL

DOWEL BAR TABLE	
PAVEMENT THICKNESS	DOWEL BAR DIAMETER
10 (250) or greater	1 1/2 (38)
8 (200) thru 9.99 (249)	1 1/4 (32)
Less than 8 (200)	1 (25)

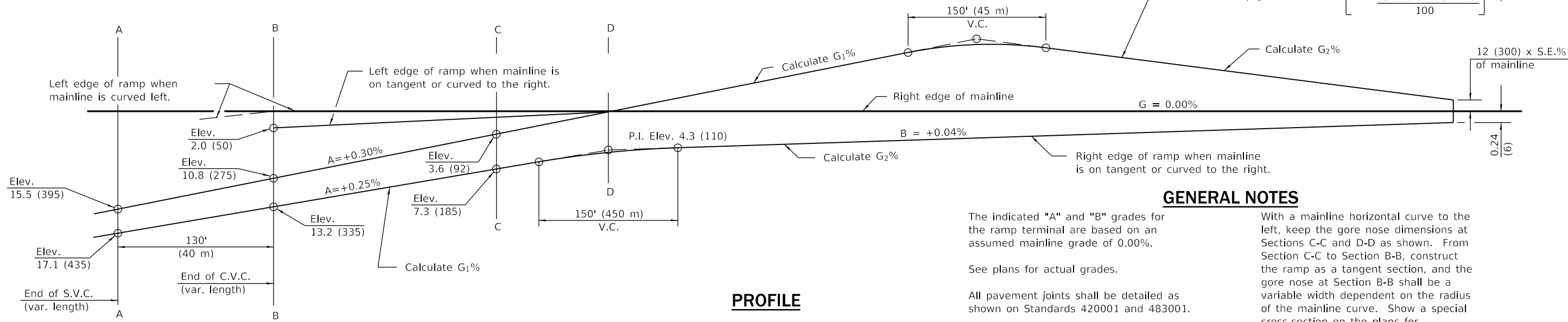
* This distance shall be adjusted to place the transverse expansion joint in prolongation with the existing joint in the mainline pavement.

Longitudinal sawed joint or a longitudinal construction joint with No. 6 (No. 19) tie bars at 36 (900) cts. for a distance of 100' (30 m) beginning at the 24 (600) stub. Joint line is parallel to ramp baseline.

Pavement thickness and joint type in the ramp taper, for a distance of 950' (290 m), shall be the same as the mainline. Joints shall be in prolongation with mainline pavement joints.



PLAN



PROFILE

GENERAL NOTES

The indicated "A" and "B" grades for the ramp terminal are based on an assumed mainline grade of 0.00%.

See plans for actual grades.

All pavement joints shall be detailed as shown on Standards 420001 and 483001.

See Standard 483001 for ramp shoulder details.

Between Sections A-A and B-B (shaded area), provide a drainage swale and flush inlet to enhance drainage.

When using grades expressed in %, the grade value shall be divided by 100 to obtain vertical offsets.

When using radius R1 less than the minimum, verify the required acceleration length will be provided.

With a mainline horizontal curve to the left, keep the gore nose dimensions at Sections C-C and D-D as shown. From Section C-C to Section B-B, construct the ramp as a tangent section, and the gore nose at Section B-B shall be a variable width dependent on the radius of the mainline curve. Show a special cross-section on the plans for Section B-B.

With a mainline horizontal curve to the right, keep the gore nose dimensions at Sections D-D, C-C, and B-B as shown, and the edge of the ramp between Sections C-C and B-B is constructed as a compound curve tying Section C-C.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-18	Changed tie bar spacing to 36 (900) cts.
1-1-17	Added longitudinal sawed joint to middle of ramp pavement.

ENTRANCE RAMP TERMINAL
(JOINTED PCC RAMP PAVEMENT ADJACENT TO JOINTED PCC MAINLINE PAVEMENT)

(Sheet 1 of 2)

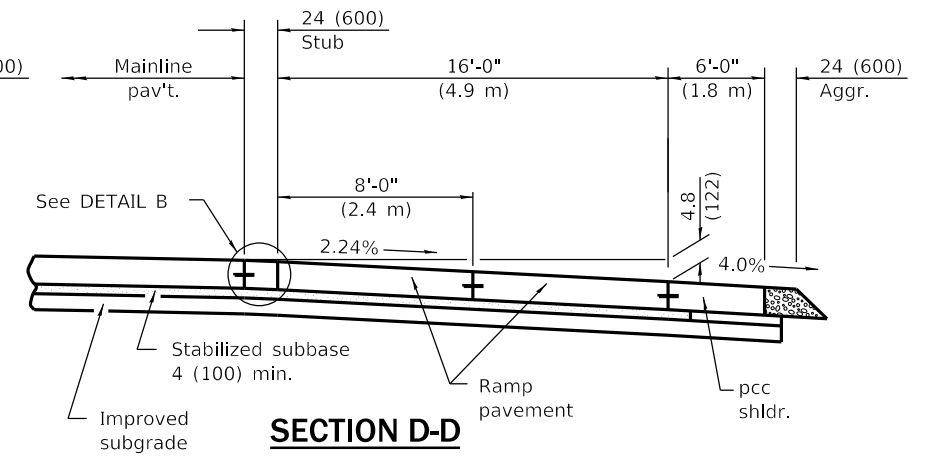
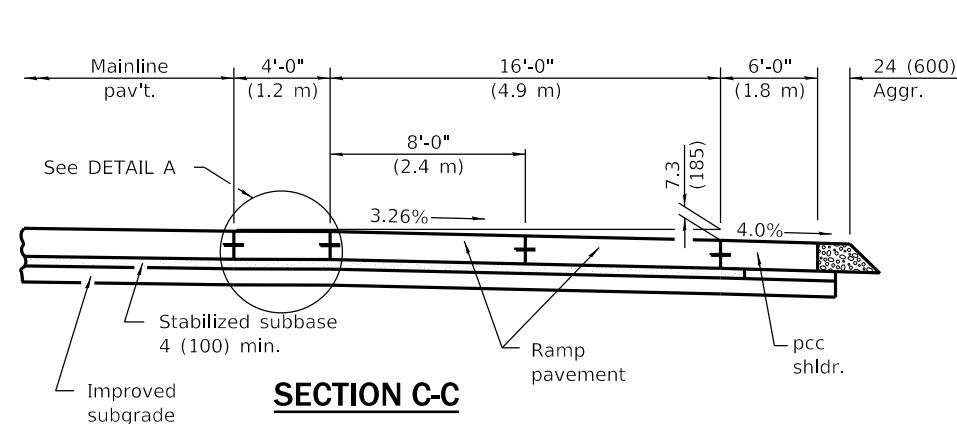
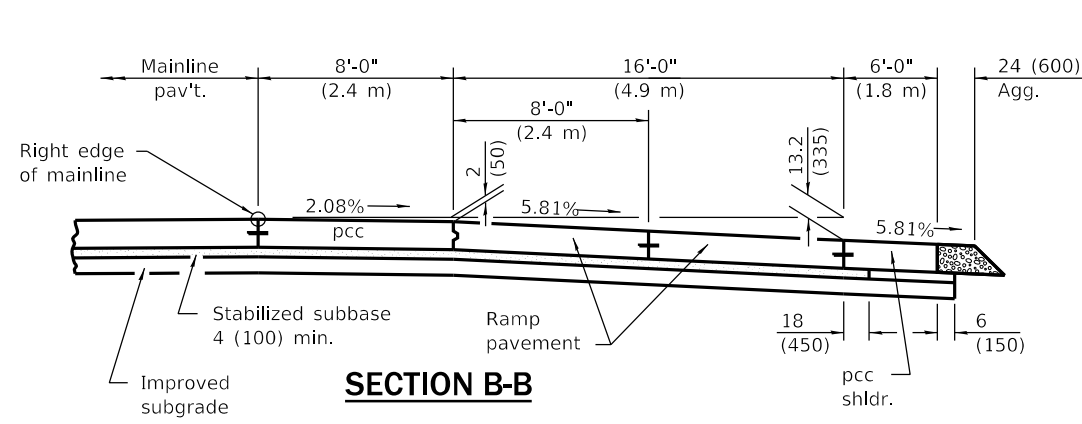
STANDARD 420201-11

Illinois Department of Transportation

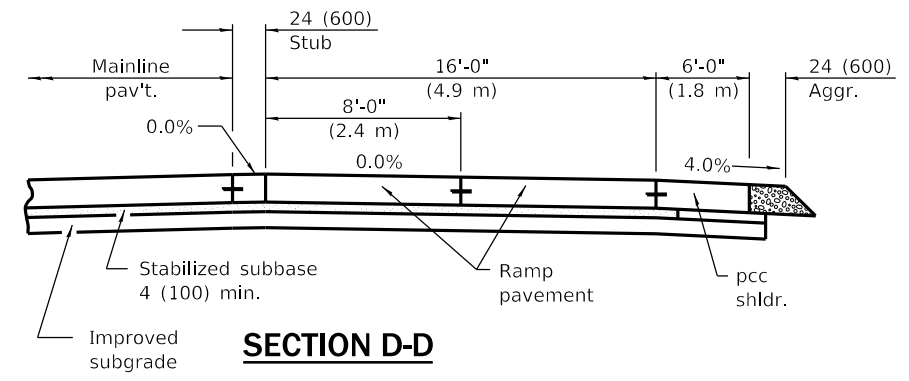
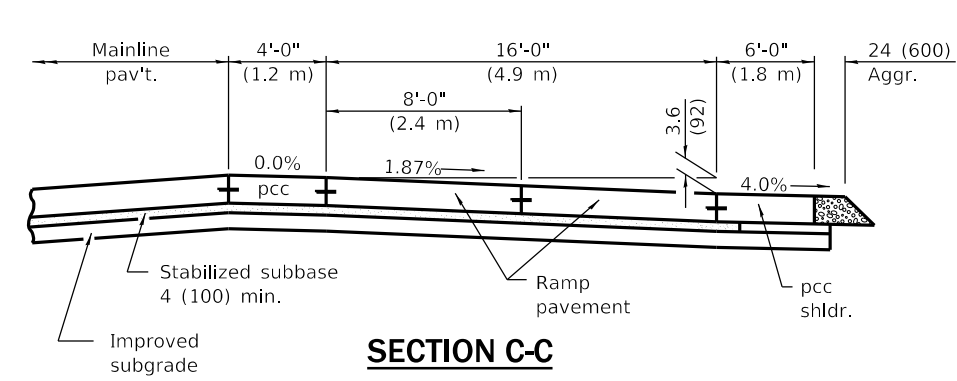
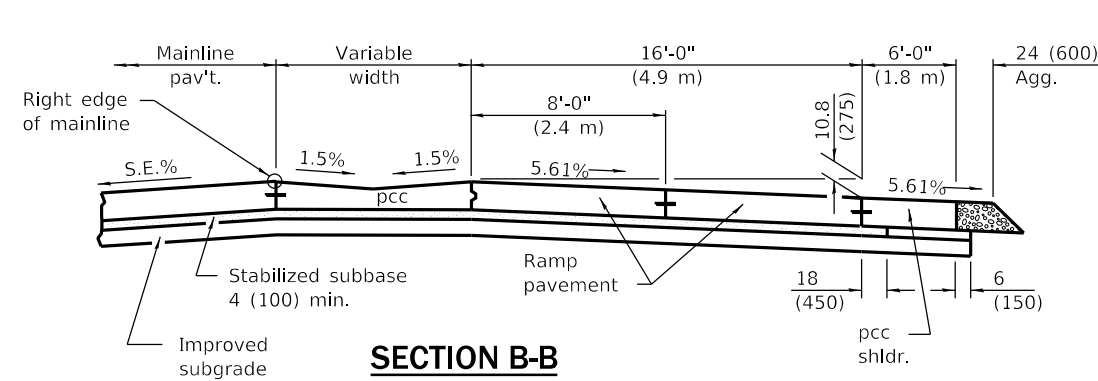
PASSED January 1, 2018
Michael Beard
 ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2018
Marcus M. Adams
 ENGINEER OF DESIGN AND ENVIRONMENT

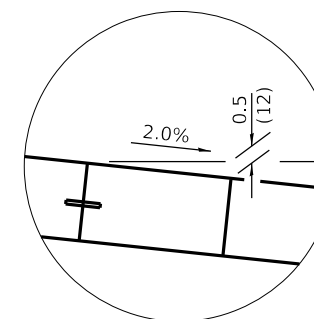
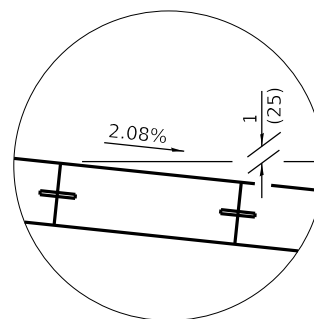
ISSUED 1-1-97



CROSS SECTIONS WHEN MAINLINE IS ON TANGENT OR CURVED TO THE RIGHT



CROSS SECTIONS WHEN MAINLINE IS CURVED TO THE LEFT



DETAIL A

DETAIL B

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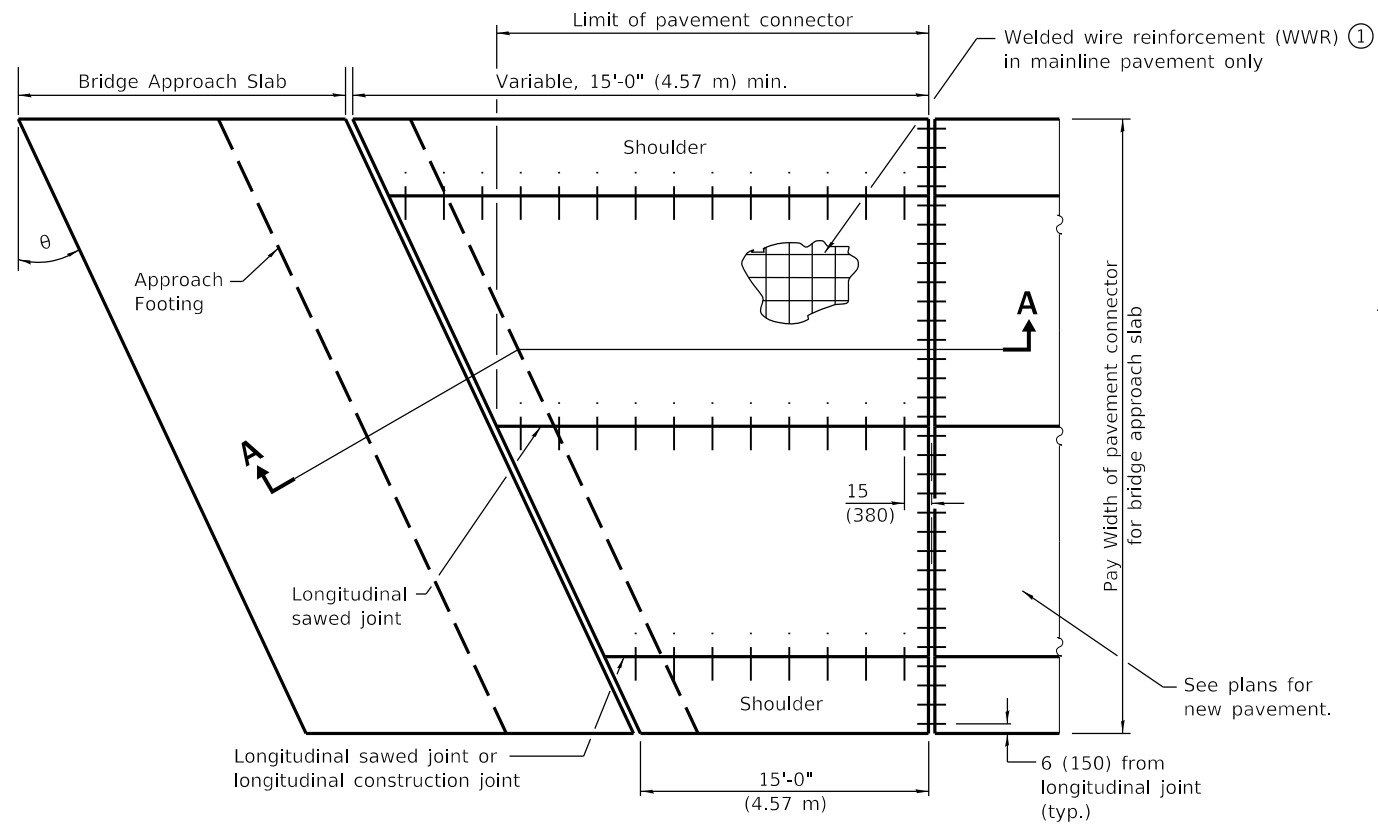
APPROVED January 1, 2018
Marcus M. Beck
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

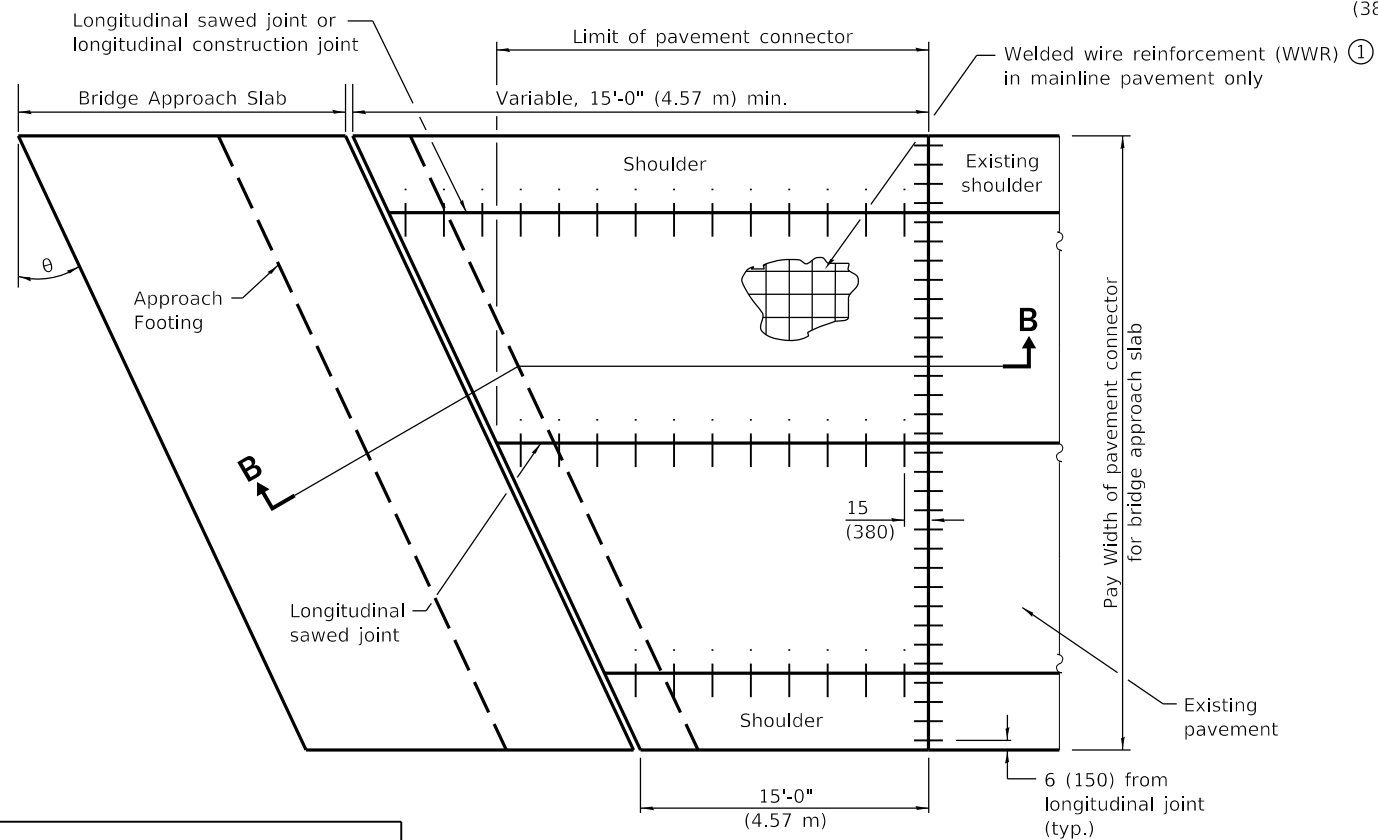
ENTRANCE RAMP TERMINAL
 (JOINTED PCC RAMP PAVEMENT ADJACENT TO
 JOINTED PCC MAINLINE PAVEMENT)

(Sheet 2 of 2)

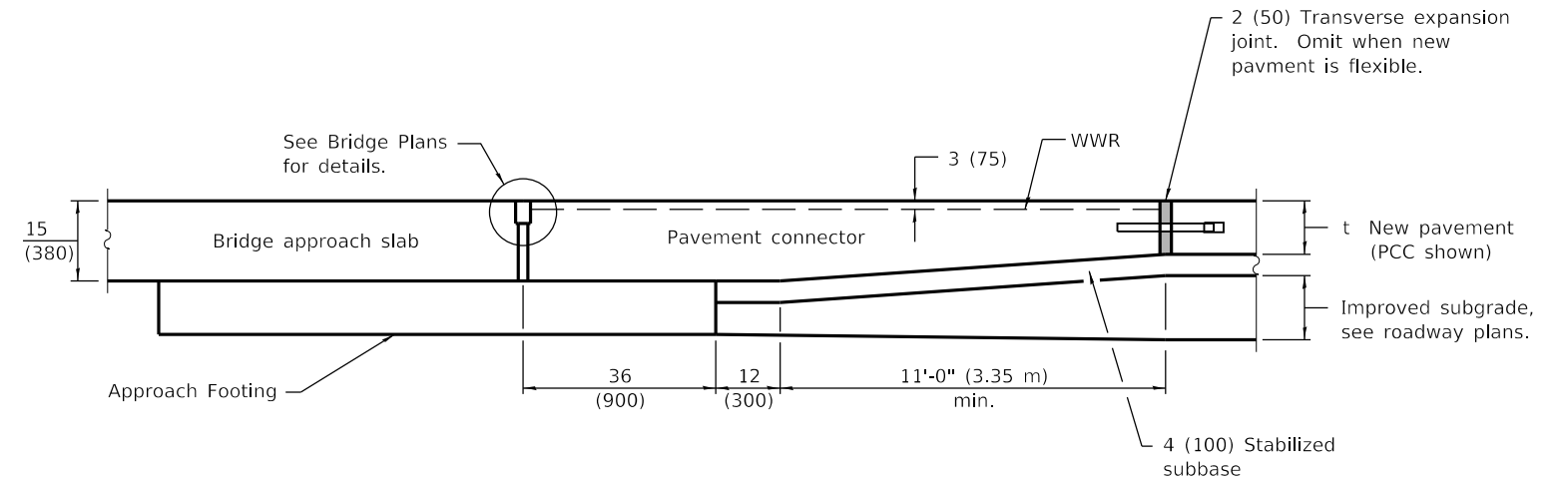
STANDARD 420201-11



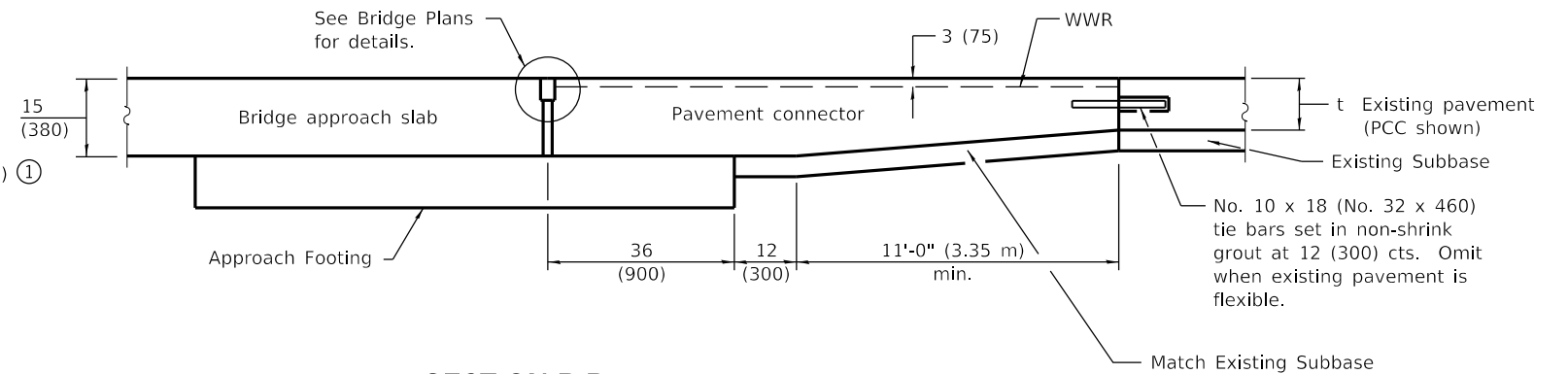
**PLAN
NEW CONSTRUCTION**



**PLAN
EXISTING CONSTRUCTION**



SECTION A-A



SECTION B-B

① WWR shall be 0.11 sq. in./ft. (230 sq. mm/m) in both directions. Maximum wire spacing shall be 6 (150). Minimum lap distance shall be two cross wires.

GENERAL NOTES

- THICKNESS-*t*=Thickness of Pavement.
- See Standard 420001 for pavement joint details not shown.
- See Standard 610001 for shoulder inlet with curb when required.
- See plans for details of bridge approach slab, approach footing and joint treatment.
- All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-19	Changed rebar in pavement connector to welded wire reinforcement.
4-1-16	Revised pavement connector to be rigid only. Omitted WFB term. joint. Renamed std.

**PAVEMENT CONNECTOR (PCC)
FOR BRIDGE APPROACH SLAB**

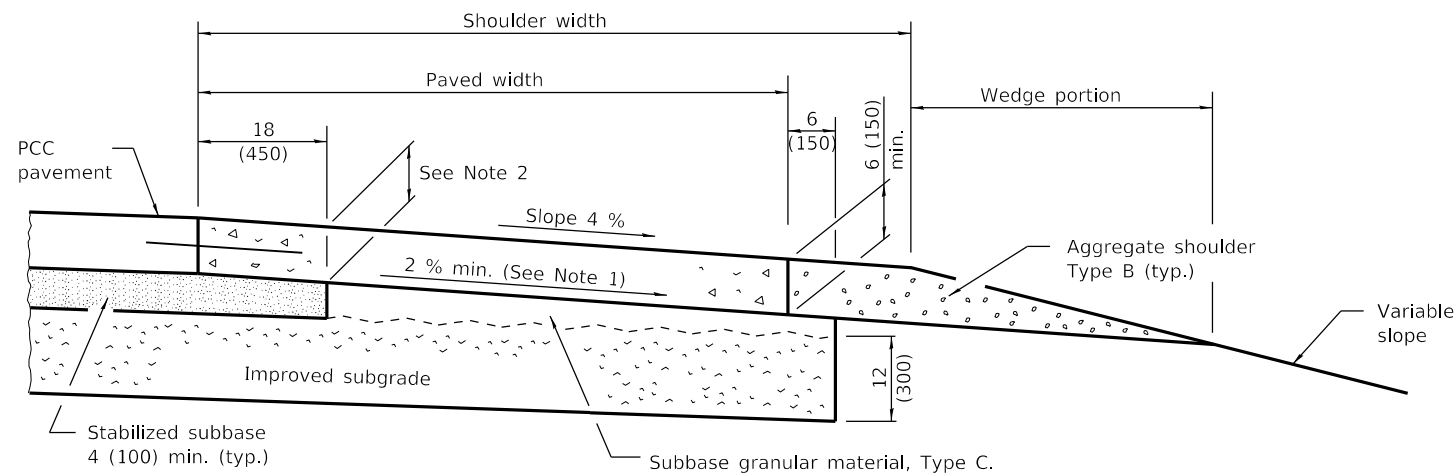
STANDARD 420401-13

Illinois Department of Transportation

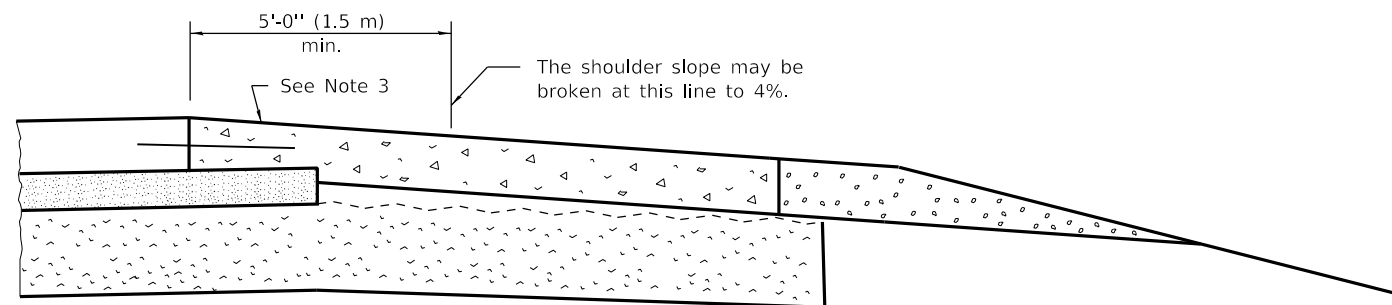
PASSED January 1 2019
Michael Bond
 ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1 2019
John E. ...
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

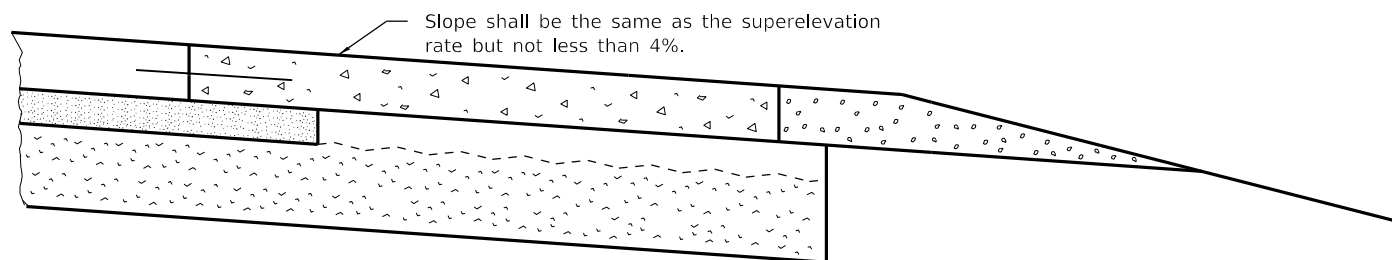


SHOULDER FOR TANGENT PAVEMENT



SHOULDER FOR SUPERELEVATED PAVEMENT

(Outside of curve)

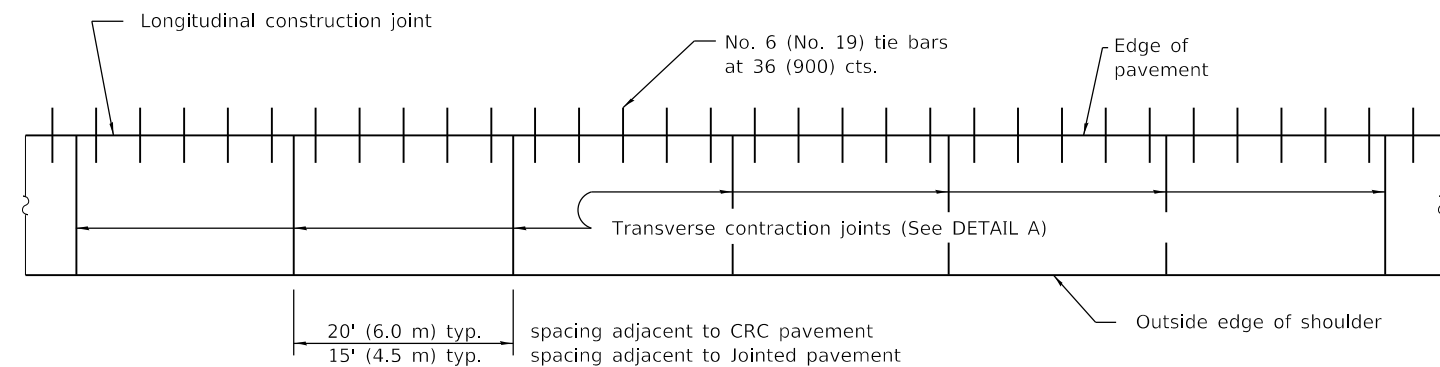


SHOULDER FOR SUPERELEVATED PAVEMENT

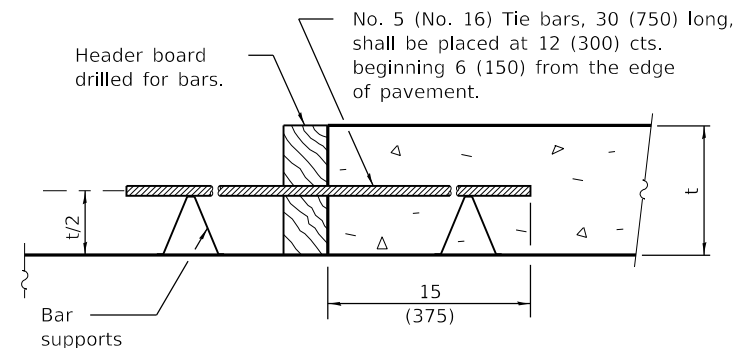
(Inside of curve)

NOTES

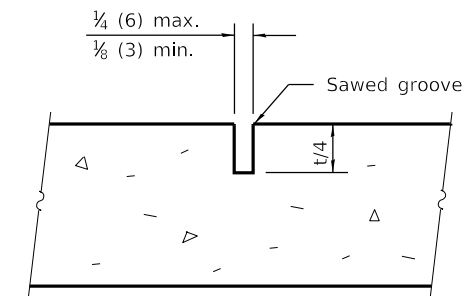
- Note 1: Does not apply when sub-surface drains are installed.
- Note 2: When the subbase is not removed, this thickness will vary with the thickness of pavement, extended length of subbase, and the slope of pavement. When this thickness is less than 6 (150), the paved shoulder shall be stepped down at this line to provide a 6 (150) minimum thickness.
- Note 3: When the superlevation rate of the pavement is between 0% and 4%, the shoulder shall be sloped at 4%. When the superlevation rate of the pavement exceeds 4%, the shoulder shall be sloped so that the algebraic difference between the pavement and shoulder slopes will not be greater than 8%.



PLAN



TRANSVERSE CONSTRUCTION JOINT



DETAIL A

TRANSVERSE CONTRACTION JOINT

GENERAL NOTES

Except as noted or shown, the dimensions and notes specified for the shoulder of the tangent pavement are typical for the shoulders of superelevated pavement.

Transverse expansion joints shall be as detailed on Standard 420001 except that dowel bars will not be required.

See Standard 420001 for details not shown.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-18	Modified PLAN view.
	Changed tie bar spacing to 36 (900).
1-1-08	Switched units to English (metric).

PCC SHOULDER

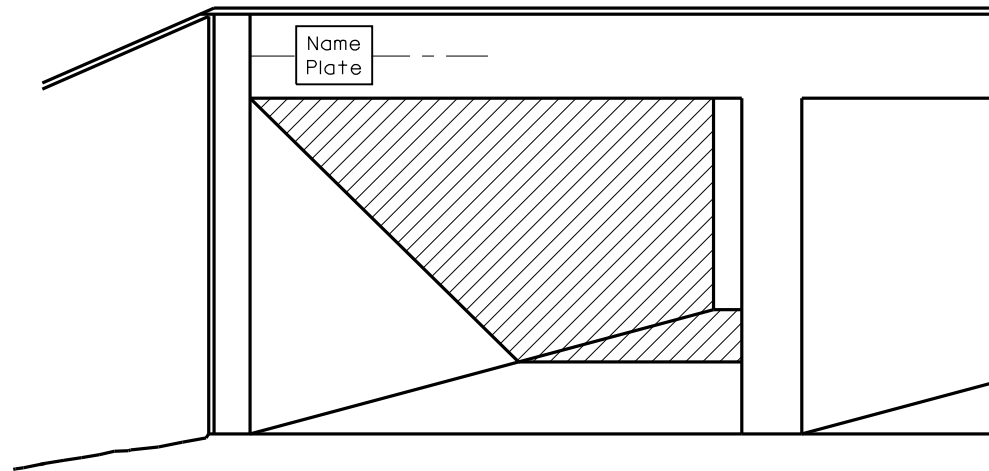
STANDARD 483001-05

Illinois Department of Transportation

PASSED January 1, 2018
Michael Beard
 ENGINEER OF POLICY AND PROCEDURES

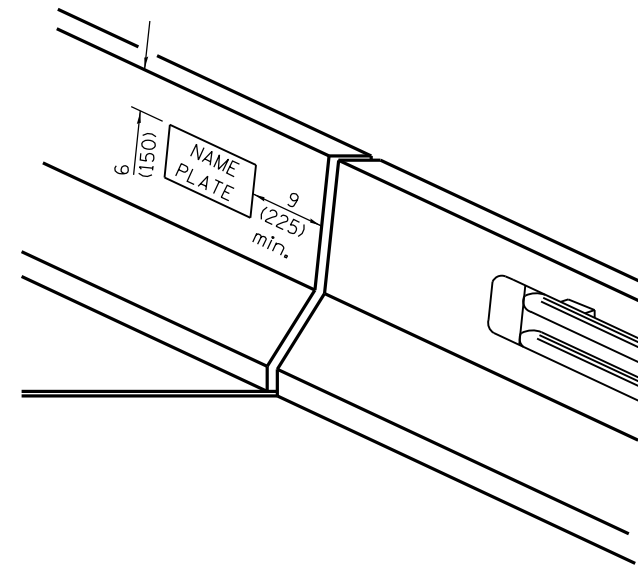
APPROVED January 1, 2018
Marcus M. Adams
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

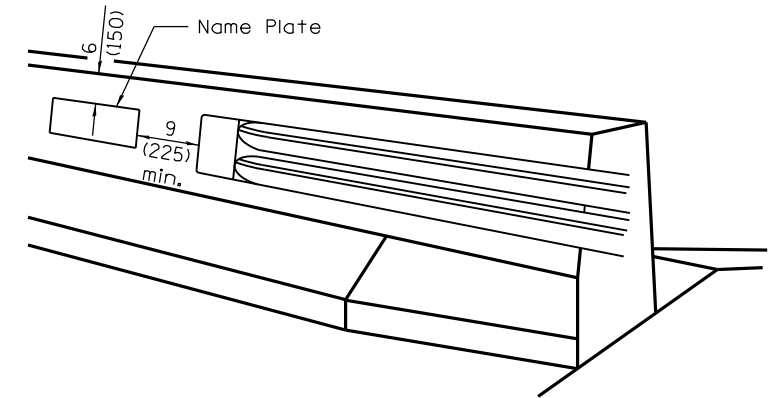


FOR MULTI-SPAN CULVERTS

(Unless otherwise noted on the plans, name plates are not required for structures less than 20' (6.1 m) in length)

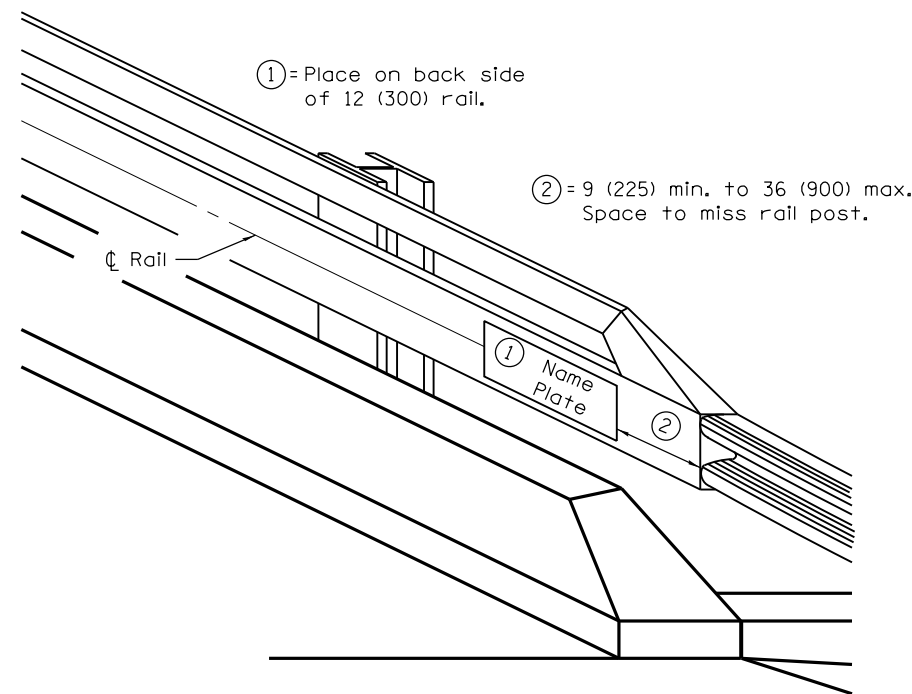


FOR PARAPET AND END POST MOUNTED

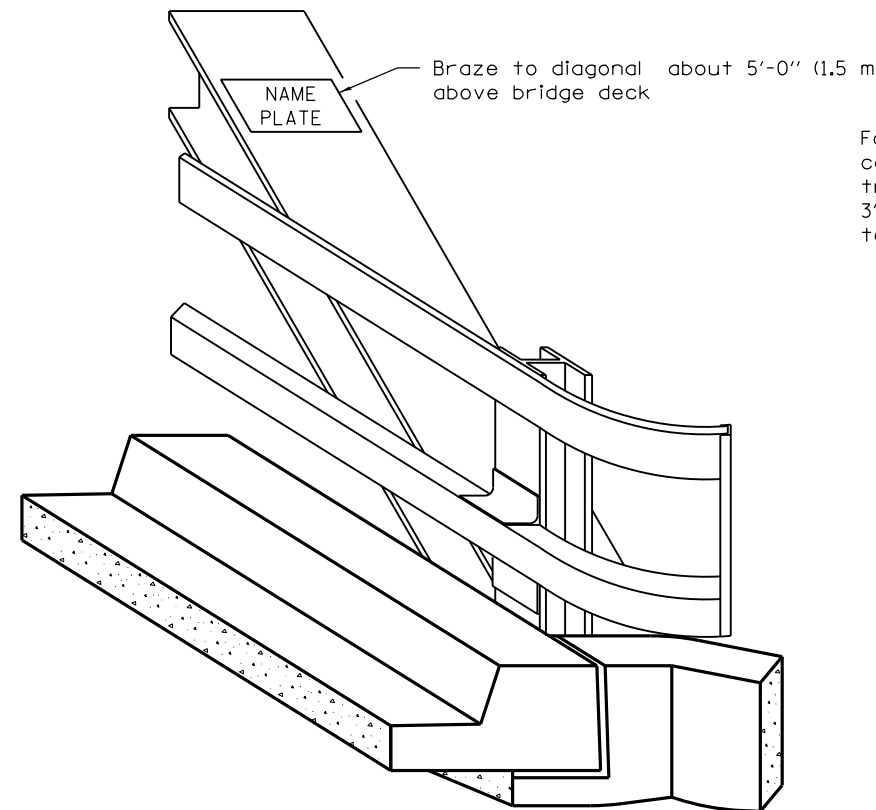


FOR PARAPET

(When Dog Ear Wing is used)



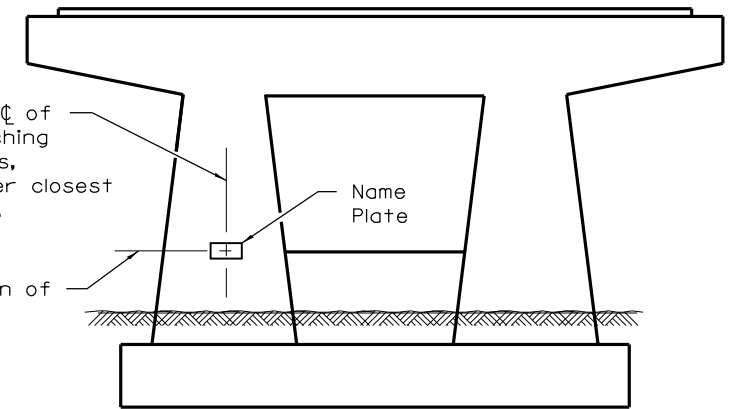
FOR STEEL RAILS



FOR TRUSSES

For column type piers, ϕ of column nearest approaching traffic. For solid piers, 3'-0" \pm from end of pier closest to approaching traffic.

4'-0" \pm above crown of roadway elevation.



FOR PIERS ON FAI ROUTES

GENERAL NOTES

On one-way traffic structures, place name plate on right side of approach end. On two-way traffic structures, place name plate on right side of approach end while looking in the direction of increasing stationing.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2009
Ralph E. Anderson
 ENGINEER OF BRIDGES AND STRUCTURES

APPROVED January 1, 2009
Lee E. Han
 ENGINEER OF DESIGN AND ENVIRONMENT

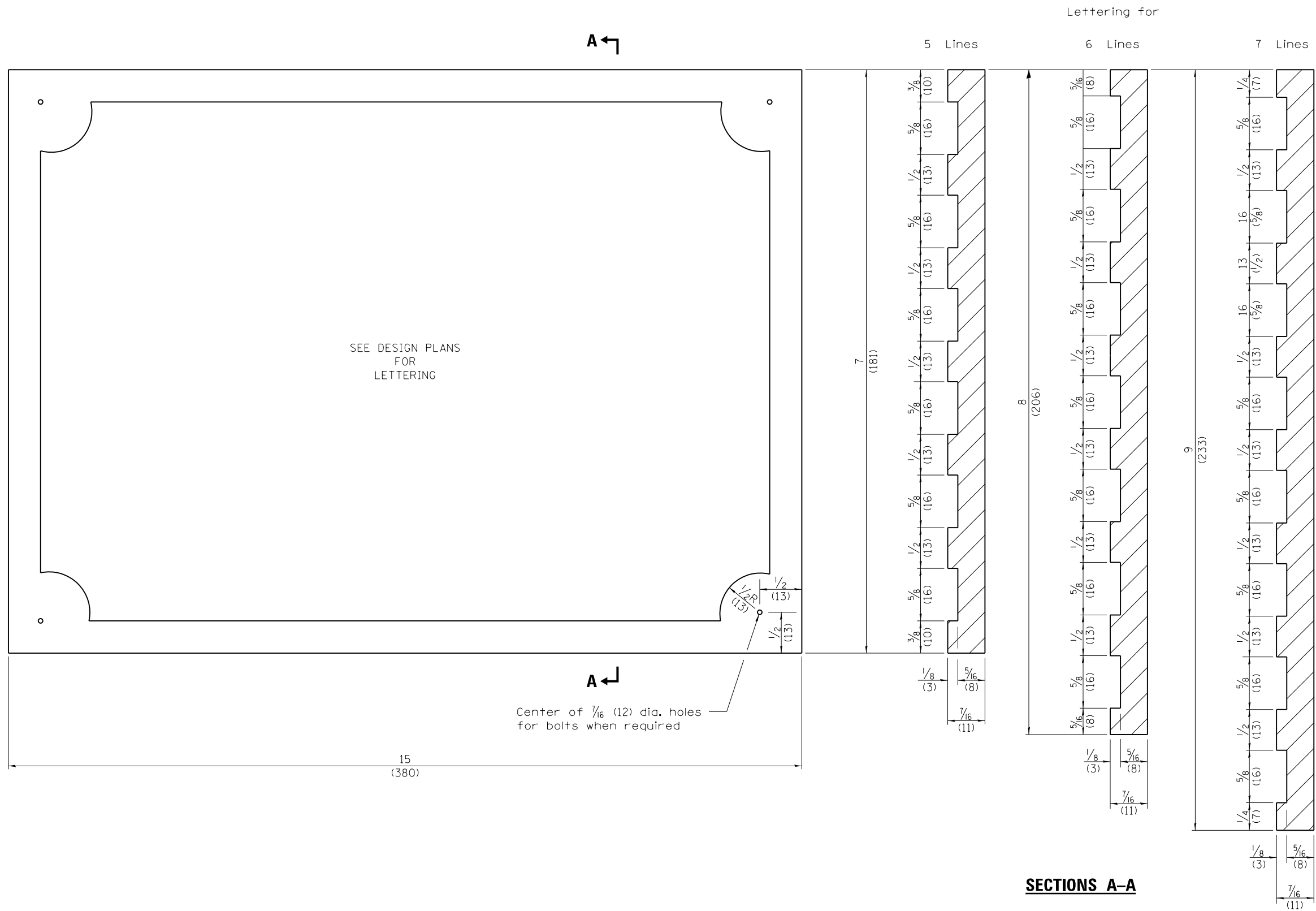
ISSUED 1-1-97

DATE	REVISIONS
1-1-09	Switched units to English (metric). Added pier detail.
1-1-02	Remove Placing: note on sht. 2. Added Braze to diag. note on sht. 1.

NAME PLATE FOR BRIDGES

(Sheet 1 of 2)

STANDARD 515001-03



NOTE
 Border and lettering:
 Raised $\frac{1}{8}$ (3), square cut and not tapered.

Illinois Department of Transportation

APPROVED January 1, 2009
Ralph E. Anderson
 ENGINEER OF BRIDGES AND STRUCTURES

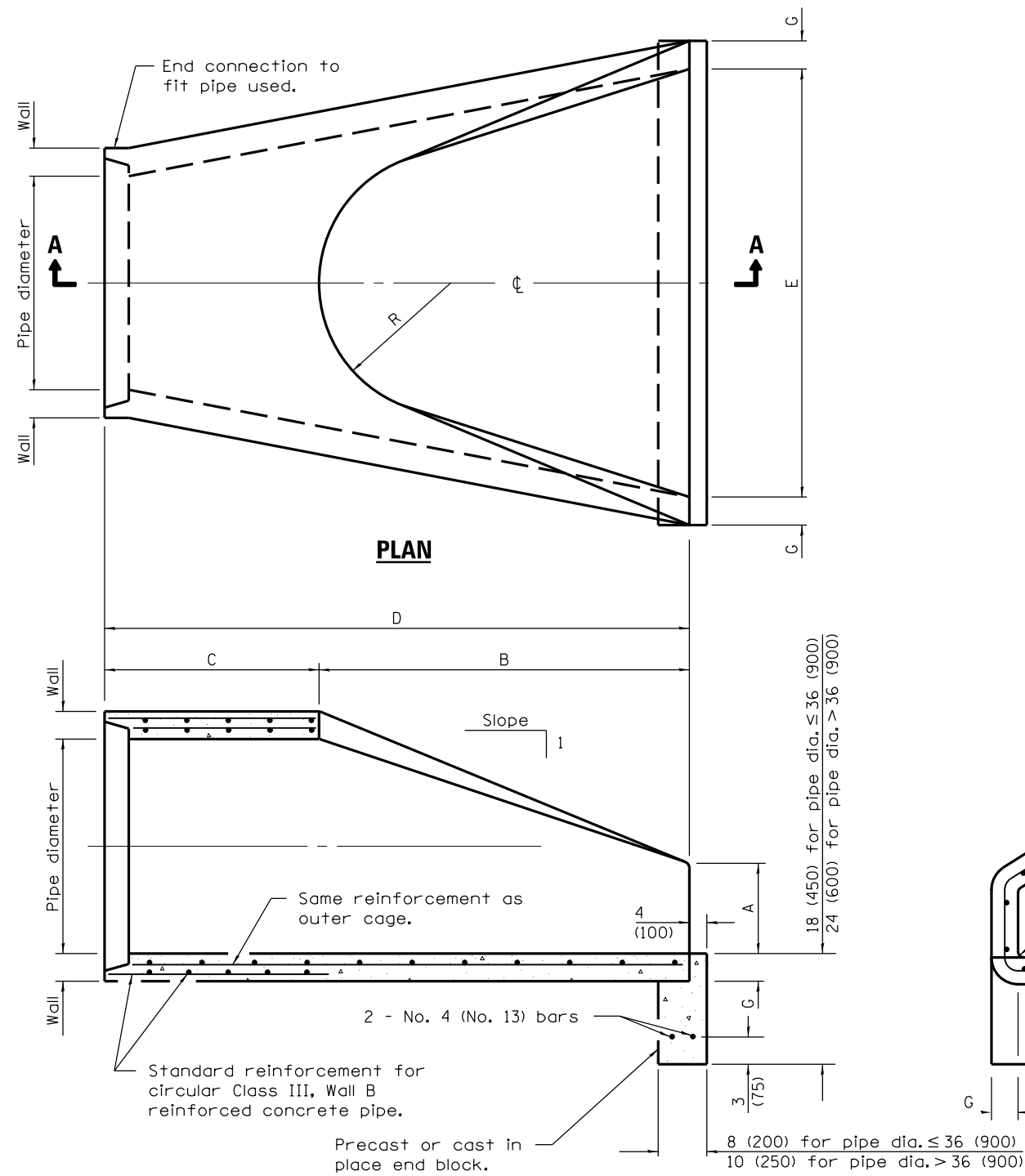
APPROVED January 1, 2009
Ken E. Han
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

NAME PLATE FOR BRIDGES

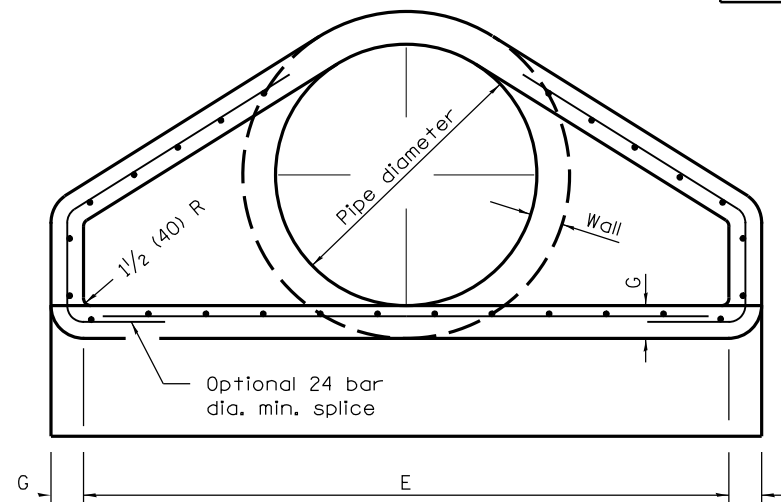
(Sheet 2 of 2)

STANDARD 515001-03



PLAN

SECTION A-A



END VIEW

PIPE DIA.	APPROX. QTY. lbs. (kg)	WALL	A	B	C	D	E	G	R	APPROX. SLOPE
12 (300)	530 (240)	2 (51)	4 (102)	24 (610)	4'-0 7/8" (1.241 m)	6'-0 7/8" (1.851 m)	24 (610)	2 (51)	9 (229)	1:2.4
15 (375)	740 (335)	2 1/4 (57)	6 (152)	27 (686)	3'-10" (1.168 m)	6'-1" (1.854 m)	30 (762)	2 1/4 (57)	11 (280)	1:2.4
18 (450)	990 (450)	2 1/2 (64)	9 (229)	27 (686)	3'-10" (1.168 m)	6'-1" (1.854 m)	36 (914)	2 1/2 (64)	12 (305)	1:2.4
21 (525)	1280 (580)	2 3/4 (70)	9 (229)	35 (889)	38 (965)	6'-1" (1.854 m)	3'-6" (1.067 m)	2 3/4 (70)	13 (330)	1:2.4
24 (600)	1520 (690)	3 (76)	9 1/2 (241)	3'-7 1/2" (1.105 m)	30 (762)	6'-1 1/2" (1.867 m)	4'-0" (1.219 m)	3 (76)	14 (356)	1:2.5
27 (675)	1930 (875)	3 1/4 (83)	10 1/2 (267)	4'-0" (1.219 m)	25 1/2 (648)	6'-1 1/2" (1.867 m)	4'-6" (1.372 m)	3 1/4 (83)	14 1/2 (368)	1:2.4
30 (750)	2190 (995)	3 1/2 (89)	12 (305)	4'-6" (1.375 m)	19 3/4 (502)	6'-1 3/4" (1.874 m)	5'-0" (1.524 m)	3 1/2 (89)	15 (381)	1:2.5
33 (825)	3200 (1450)	3 3/4 (95)	13 1/2 (343)	4'-10 1/2" (1.486 m)	39 1/4 (997)	8'-1 3/4" (2.483 m)	5'-6" (1.676 m)	3 3/4 (95)	17 1/2 (445)	1:2.5
36 (900)	4100 (1860)	4 (102)	15 (381)	5'-3" (1.6 m)	34 3/4 (883)	8'-1 3/4" (2.483 m)	6'-0" (1.829 m)	4 (102)	20 (508)	1:2.5
42 (1050)	5380 (2440)	4 1/2 (114)	21 (533)	5'-3" (1.6 m)	35 (889)	8'-2" (2.489 m)	6'-6" (1.981 m)	4 1/2 (114)	22 (559)	1:2.5
48 (1200)	6550 (2970)	5 (127)	24 (610)	6'-0" (1.829 m)	26 (660)	8'-2" (2.489 m)	7'-0" (2.134 m)	5 (127)	22 (559)	1:2.5
54 (1350)	8240 (3740)	5 1/2 (140)	27 (686)	5'-5" (1.651 m)	35 (889)	8'-4" (2.54 m)	7'-6" (2.286 m)	5 1/2 (140)	24 (610)	1:2.0
60 (1500)	8730 (3960)	6 (152)	35 (889)	5'-0" (1.524 m)	39 (991)	8'-3" (2.515 m)	8'-0" (2.438 m)	5 (127)	*	1:1.9
66 (1650)	10710 (4860)	6 1/2 (165)	30 (762)	6'-0" (1.829 m)	27 (686)	8'-3" (2.515 m)	8'-6" (2.591 m)	5 1/2 (140)	*	1:1.7
72 (1800)	12520 (5680)	7 (178)	36 (914)	6'-6" (1.981 m)	21 (533)	8'-3" (2.514 m)	9'-0" (2.743 m)	6 (152)	*	1:1.8
78 (1950)	14770 (6700)	7 1/2 (191)	36 (914)	7'-6" (2.286 m)	21 (533)	9'-3" (2.819 m)	9'-6" (2.896 m)	6 1/2 (165)	*	1:1.8
84 (2100)	18160 (8240)	8 (203)	36 (914)	7'-6 1/2" (2.299 m)	21 (533)	9'-3 1/2" (2.832 m)	10'-0" (3.048 m)	6 1/2 (165)	*	1:1.6

* Radius as furnished by manufacturer

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-11	Clarified ref. to pipe dia. on Section A-A. Changed 'inner' to 'outer' cage ref.
1-1-09	Switched units to English (metric).

PRECAST REINFORCED CONCRETE FLARED END SECTION

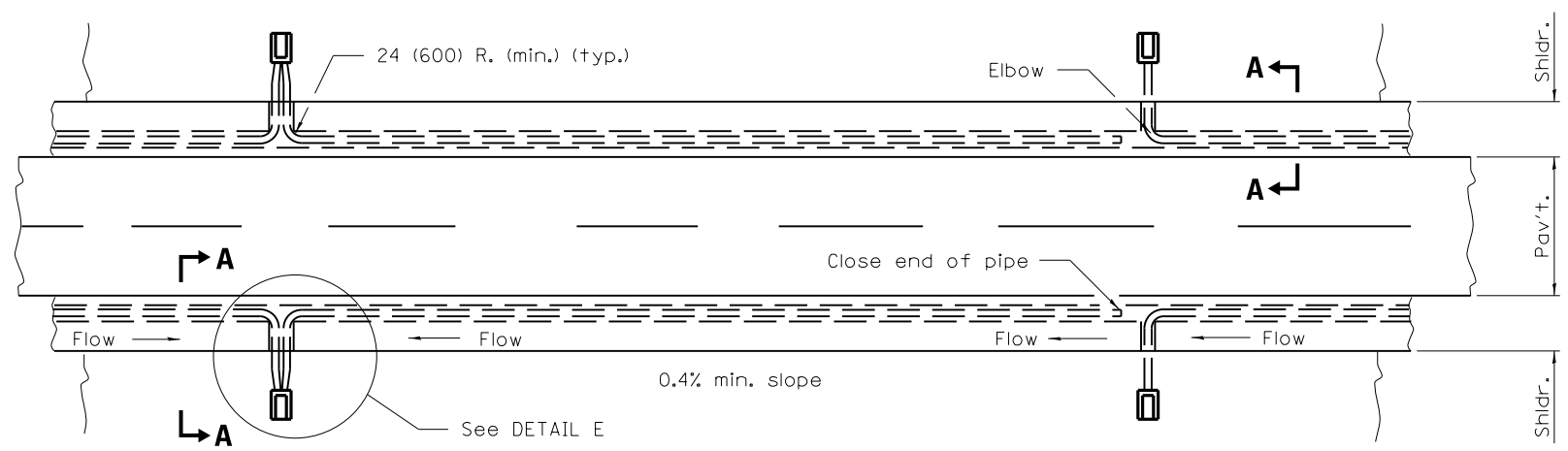
STANDARD 542301-03

Illinois Department of Transportation

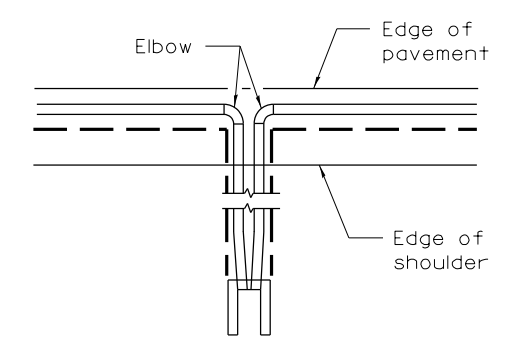
APPROVED January 1, 2011
Ralph E. Anderson
 ENGINEER OF BRIDGES AND STRUCTURES

APPROVED January 1, 2011
Scott Schick
 ENGINEER OF DESIGN AND ENVIRONMENT

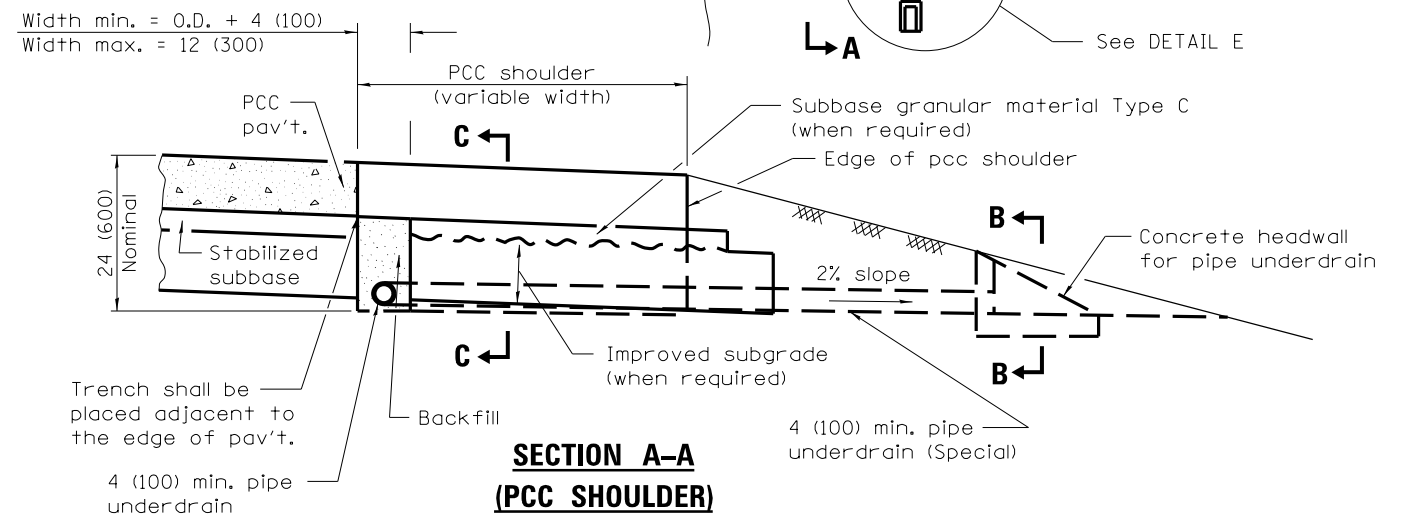
ISSUED 1-1-97



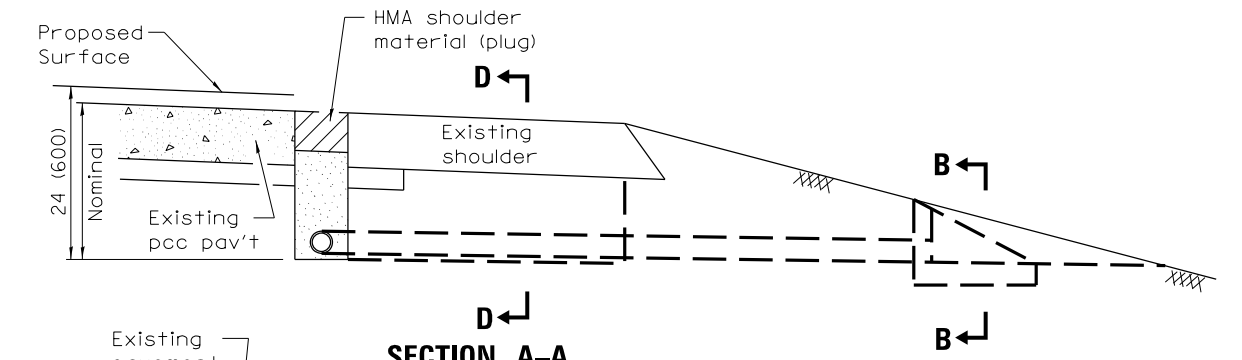
PLAN



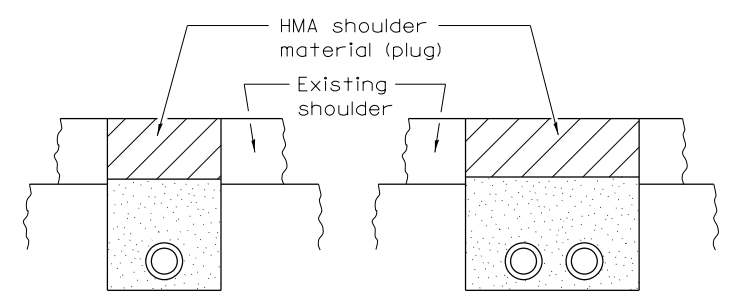
DETAIL E



**SECTION A-A
(PCC SHOULDER)**

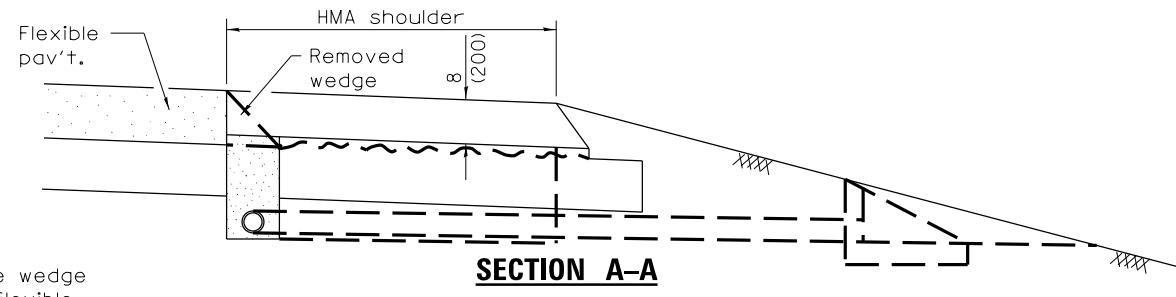


SECTION A-A



SECTION D-D

**SECTION D-D
(Sag Locations)**



**SECTION A-A
(HMA SHOULDER)**

TRENCH FOR CORRUGATED POLYETHYLENE TUBING ALTERNATE

EXISTING CONSTRUCTION

(Except as noted or shown, dimensions and notes specified for Existing Construction are the same as those of New Construction)

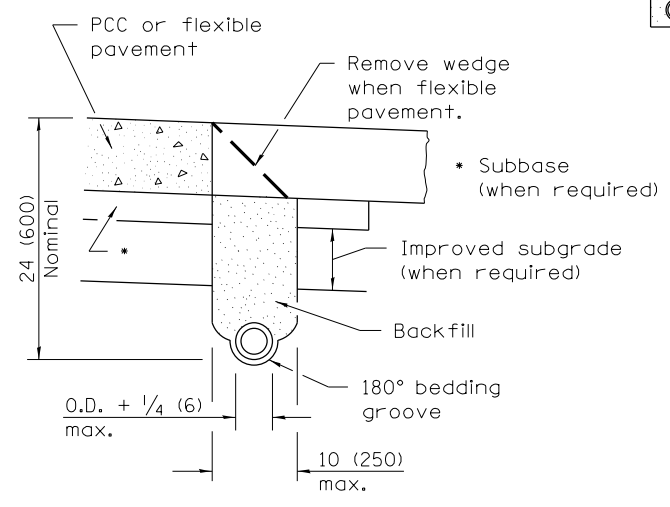
GENERAL NOTES

See Standard 601101 for details of concrete headwall.

See Standards 482001, 482006 and 483001 for details of shoulders not shown.

The 24 (600) radius on the drainage fitting is only a minimum. Larger radii meeting the approval of the Engineer may be substituted.

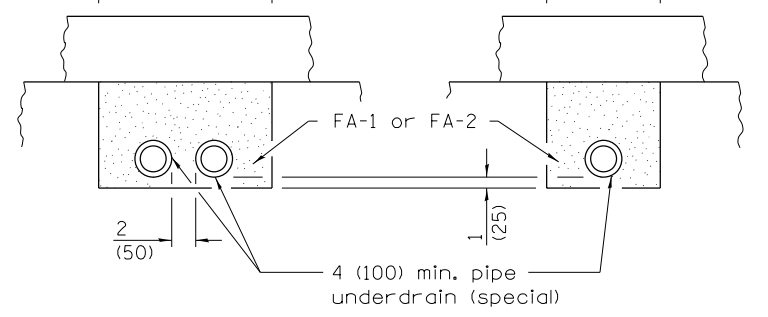
All dimensions are in inches (millimeters) unless otherwise shown.



TRENCH FOR CORRUGATED POLYETHYLENE TUBING ALTERNATE

Width min. = $(2 \times O.D.) + 6$ (150)
Width max. = 18 (450)

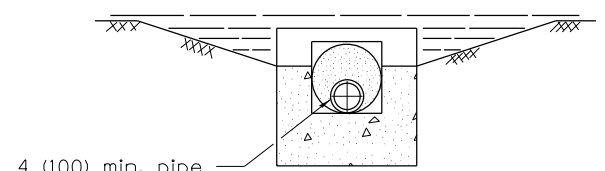
Width min. = $O.D. + 4$ (100)
Width max. = 12 (300)



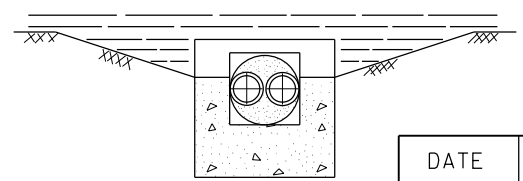
**SECTION C-C
(Sag locations)**

SECTION C-C

NEW CONSTRUCTION



SECTION B-B



**SECTION B-B
(Sag locations)**

DATE	REVISIONS
4-1-16	Renamed standard. Omitted drainage mat option.
1-1-11	Added 'PCC' and 'HMA' to SECTION A-A titles on Sheet 2.

PIPE UNDERDRAINS

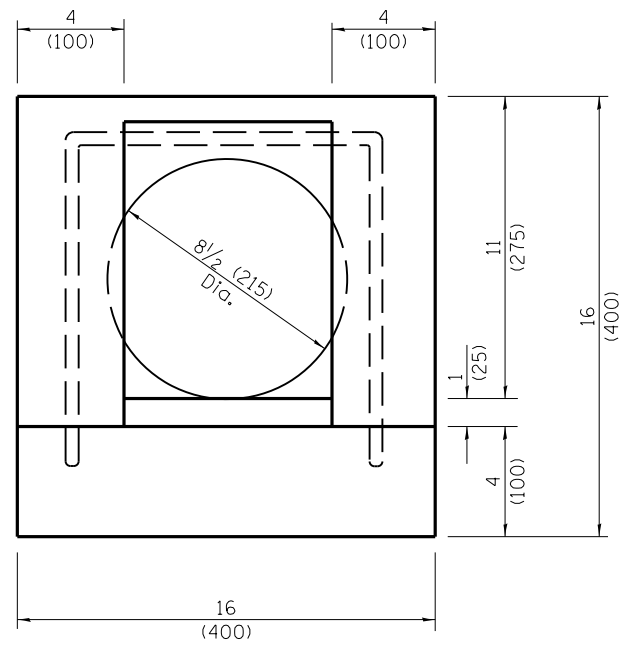
STANDARD 601001-05

Illinois Department of Transportation

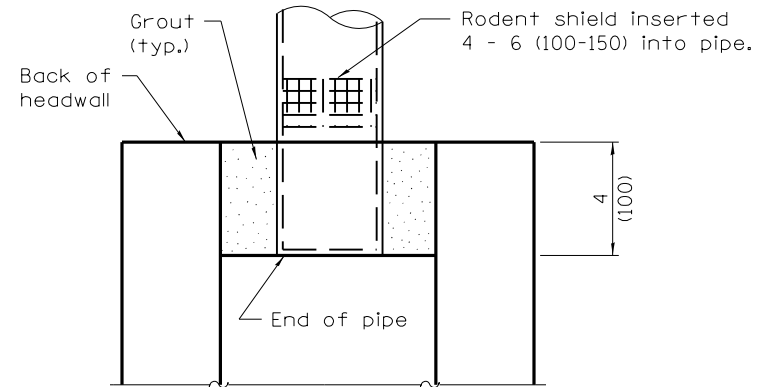
PASSED April 1, 2016
Michael Beard
 ENGINEER OF POLICY AND PROCEDURES

APPROVED April 1, 2016
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

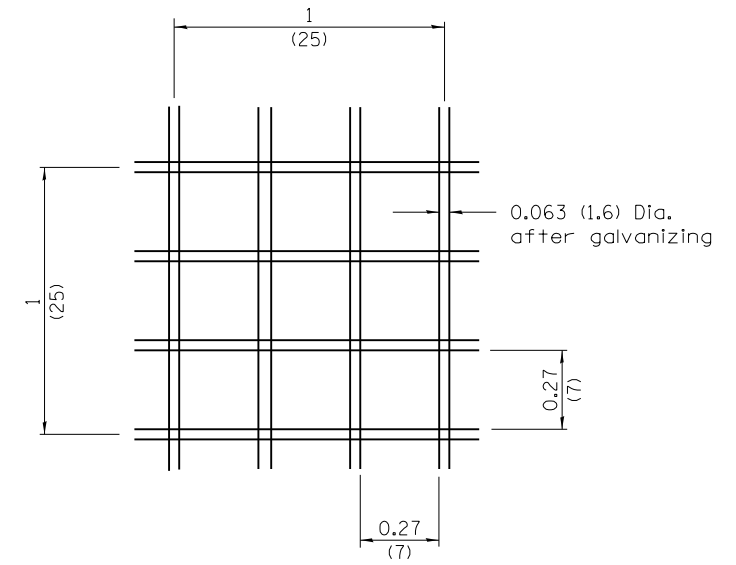
ISSUED 1-1-97



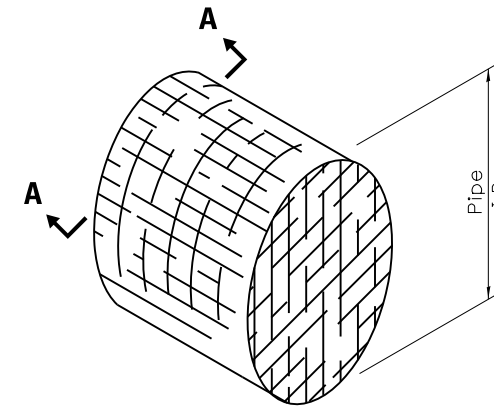
FRONT VIEW



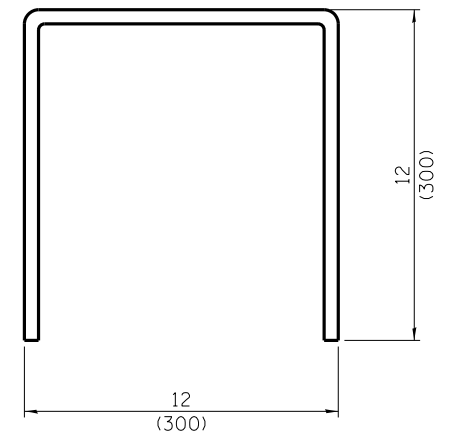
RODENT SHIELD PLACEMENT



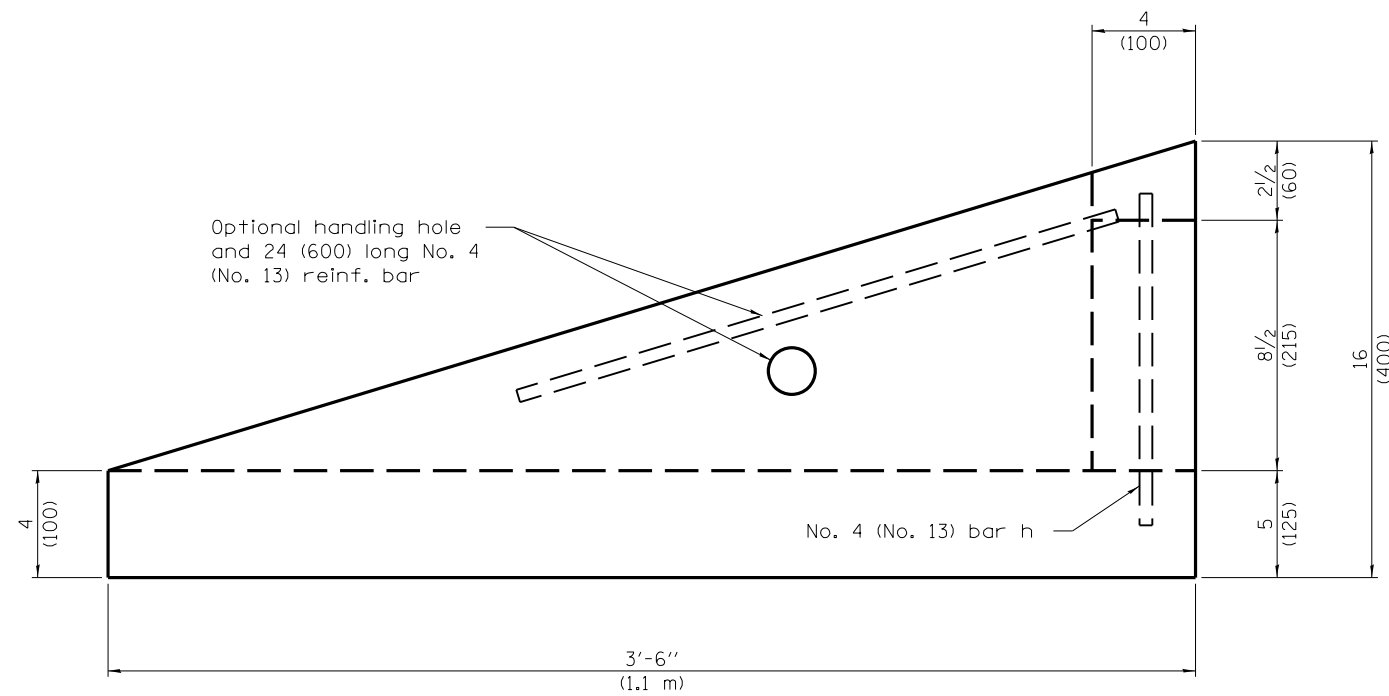
SECTION A-A



DETAIL OF RODENT SHIELD



BAR h



SIDE VIEW

GENERAL NOTES

An alternate paved invert meeting the approval of the Engineer may be substituted for that shown in side view.

All dimensions are in inches (millimeters) unless otherwise shown.

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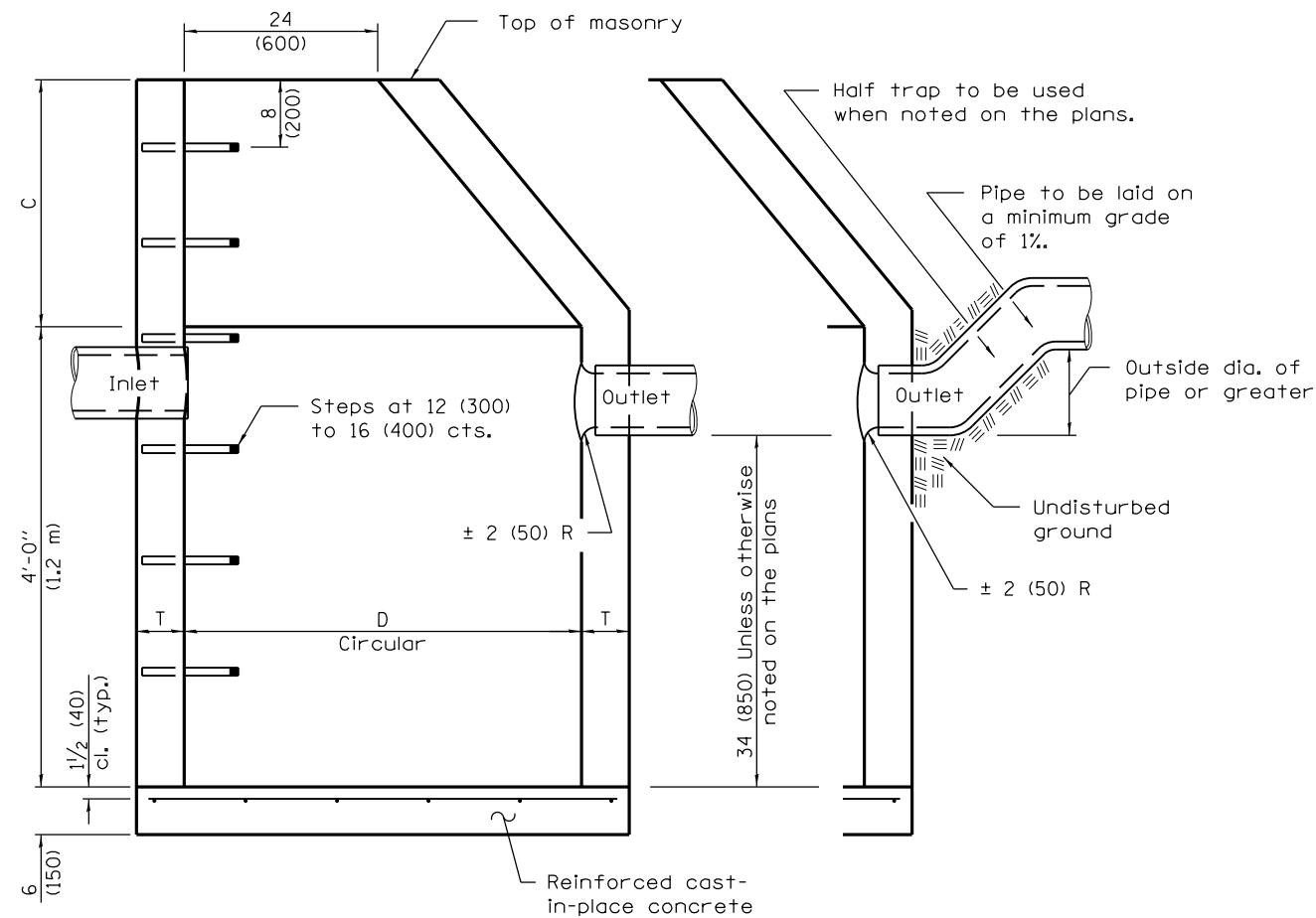
APPROVED April 1, 2016
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
4-1-16	Renamed standard to be consistent with specs and other standards.
1-1-09	Switched units to English (metric).

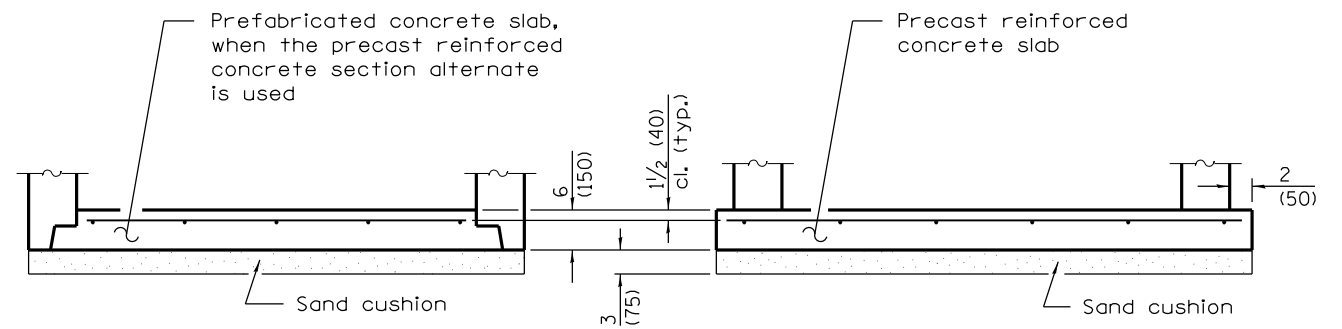
CONCRETE HEADWALL FOR PIPE UNDERDRAINS

STANDARD 601101-02



ELEVATION
(Standard Outlet)

ELEVATION
(Half Trap)



ALTERNATE BOTTOM SLAB

ALTERNATE MATERIALS FOR WALLS	D	C*	T (min.)
Concrete Masonry Unit	4'-0" (1.2 m)	30 (750)	5 (125)
	5'-0" (1.5 m)	3'-9" (1.15 m)	5 (125)
Brick Masonry	4'-0" (1.2 m)	30 (750)	8 (200)
	5'-0" (1.5 m)	3'-9" (1.15 m)	8 (200)
Precast Reinforced Concrete Section	4'-0" (1.2 m)	30 (750)	4 (100)
	5'-0" (1.5 m)	3'-9" (1.15 m)	5 (125)
Cast-in-place Concrete	4'-0" (1.2 m)	30 (750)	6 (150)
	5'-0" (1.5 m)	3'-9" (1.15 m)	6 (150)

- For precast reinforced concrete sections, dimension "C" may vary from the dimension given to plus 6 (150).

GENERAL NOTES

Bottom slabs shall be reinforced with a minimum of 0.20 sq. in./ft (420 sq. mm/m) in both directions with a maximum spacing of 12 (300).

Bottom slabs may be connected to the riser as determined by the fabricator; however, only a single row of reinforcement around the perimeter may be utilized.

See Standard 602601 for optional precast reinforced concrete flat slab top.

See Standard 602701 for details of steps.

All dimensions are in inches (millimeters) unless otherwise shown.

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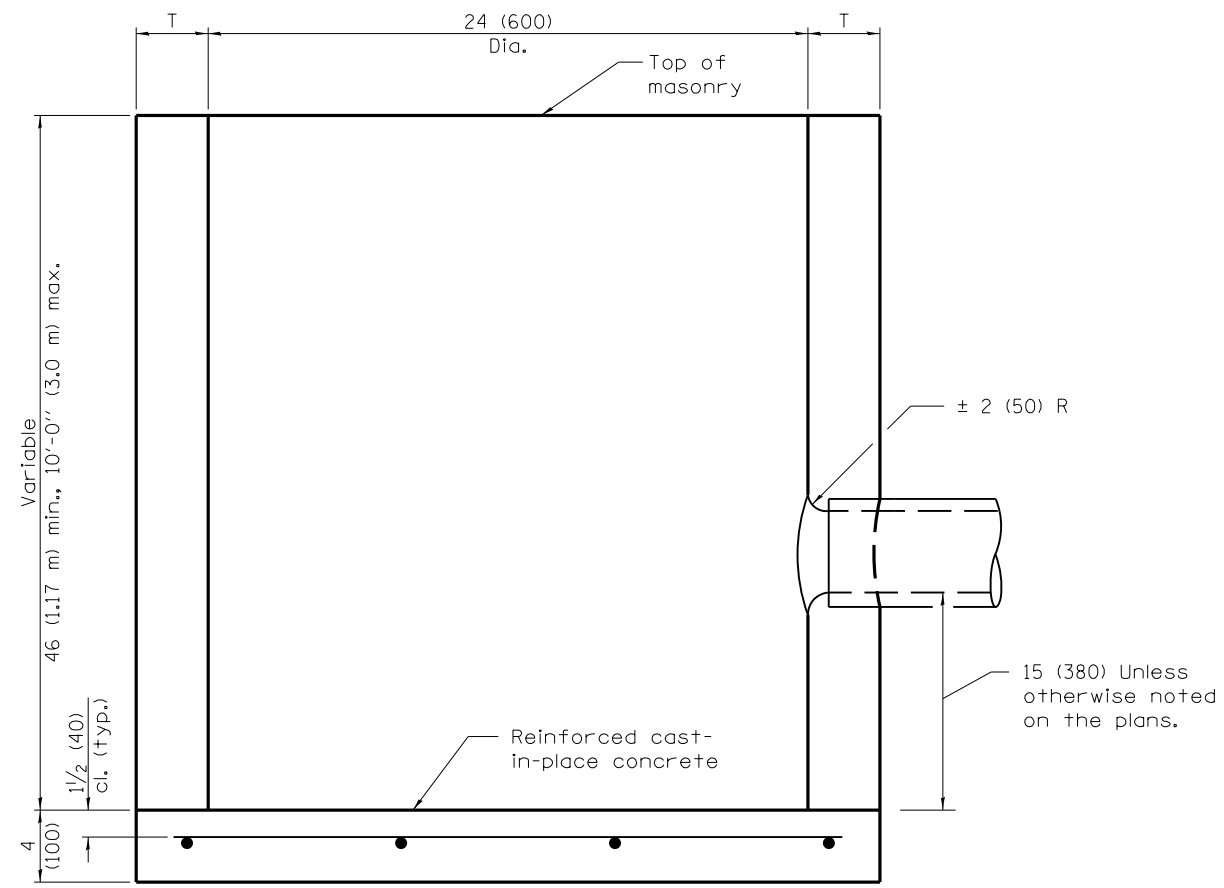
APPROVED January 1, 2011
Scott Schick
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-11	Added 'Outside' to half trap note. Detail rein. in slabs.
	Revised general notes.
1-1-09	Switched units to English (metric).

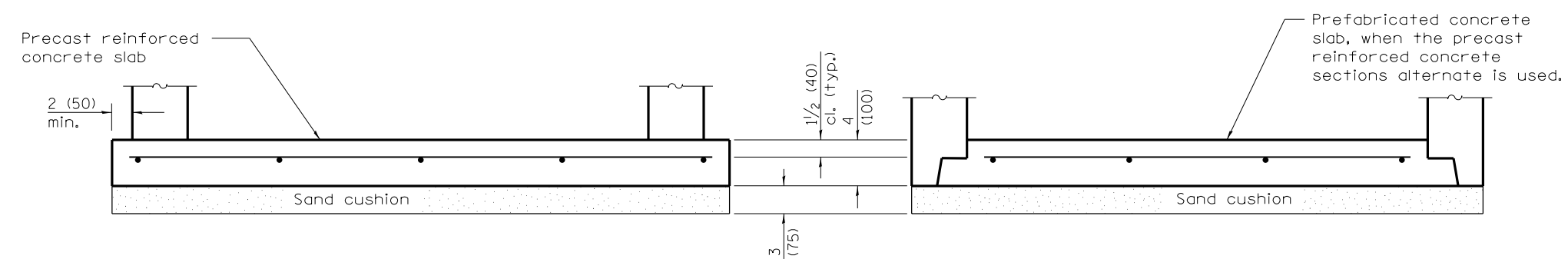
**CATCH BASIN
TYPE A**

STANDARD 602001-02



ALTERNATE MATERIALS FOR WALLS	T (min)
Precast Reinforced Concrete Section	3 (75)
Concrete Masonry Unit	5 (125)
Cast-in-Place Concrete	6 (150)
Brick Masonry	8 (200)

ELEVATION



ALTERNATE BOTTOM SLAB

GENERAL NOTES

Bottom slabs shall be reinforced with a minimum of 0.27 sq. in./ft. (570 sq. mm/m) in both directions with a maximum spacing of 9 (230).

Bottom slabs may be connected to the riser as determined by the fabricator; however, only a single row of reinforcement around the perimeter may be utilized.

All dimensions are in inches (millimeters) unless otherwise shown.

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Michael Beard
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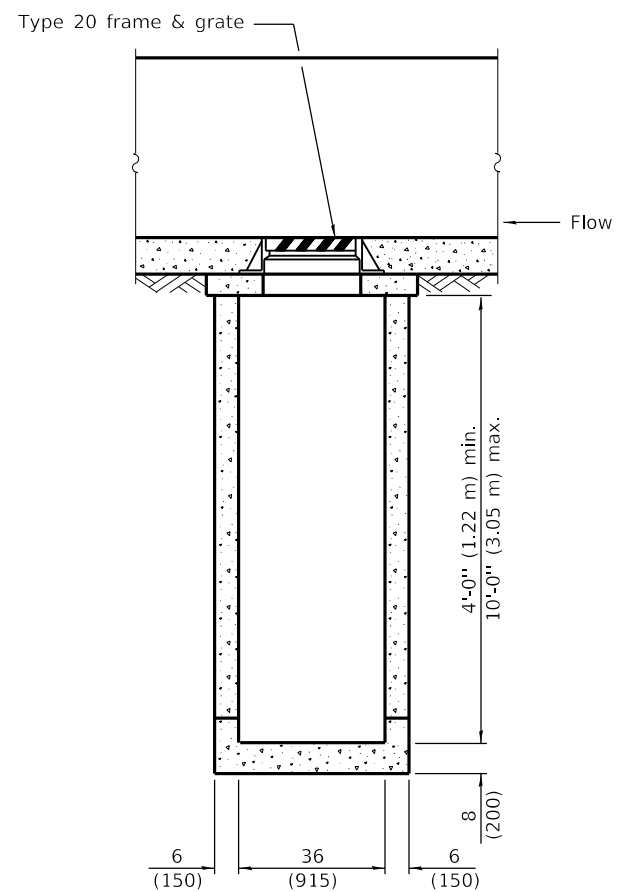
APPROVED January 1, 2011
Spencer
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

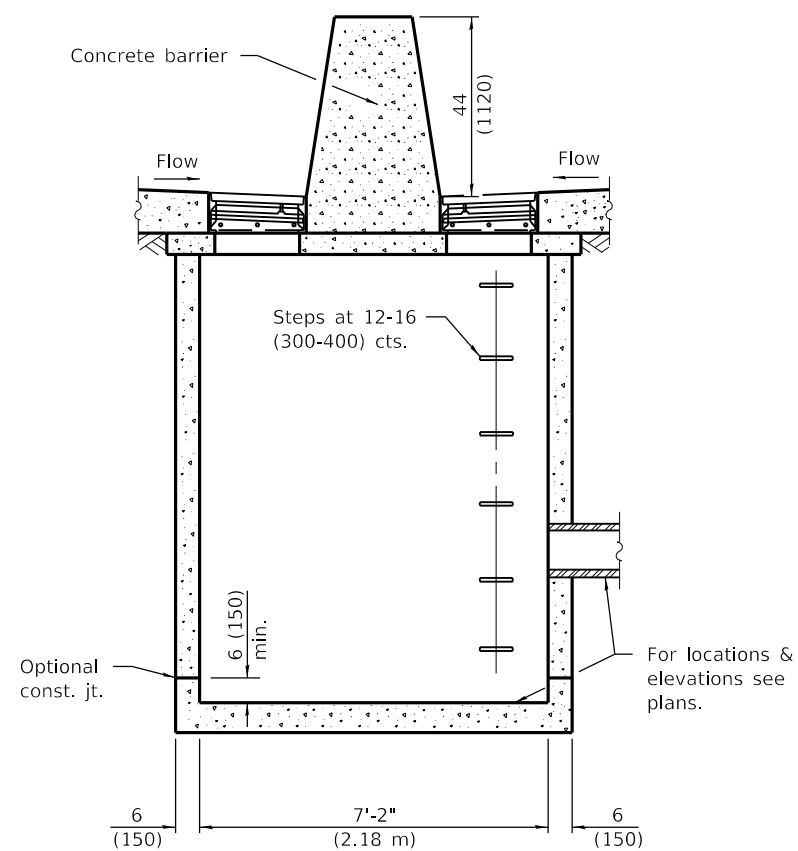
DATE	REVISIONS
1-1-11	Detailed rein. in slabs.
	Added max. limit to height.
	Added general notes.
1-1-09	Switched units to
	English (metric).

CATCH BASIN TYPE C

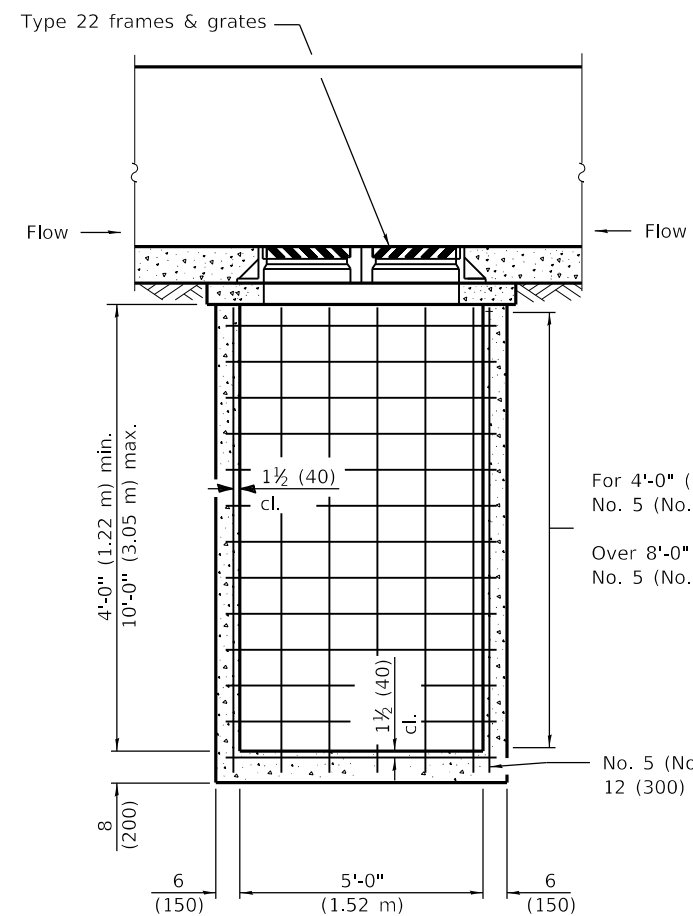
STANDARD 602011-02



FRONT ELEVATION - TYPE 4



SIDE ELEVATION - TYPE 4 & 5



FRONT ELEVATION - TYPE 5

For 4'-0" (1.22 m) to 8'-0" (2.44 m) use No. 5 (No. 16) bars at 8 (200) cts. (all sides).
Over 8'-0" (2.44 m) to 10'-0" use No. 5 (No. 16) bars at 7 (175) cts. (all sides).

No. 5 (No. 16) Bars at 12 (300) cts. (all sides)

GENERAL NOTES

These structures are for use with concrete barrier, double face, 44 (1120) height (Standard 637006).

The reinforcement shown in the front elevation of the Type 5 is typical for both elevations of all types.

See Standard 602701 for details of steps.

Exposed edges shall be beveled 3/4 (19).

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-19	Deleted Type 6 and revised Types 4 and 5 to fit with 44 (1120) height, constant slope barrier.
1-1-09	Switched units to English (metric).

**DRAINAGE STRUCTURES
TYPES 4 & 5**

(Sheet 1 of 2)

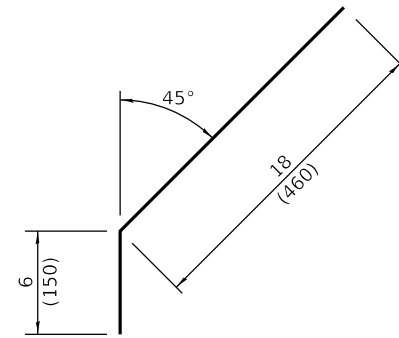
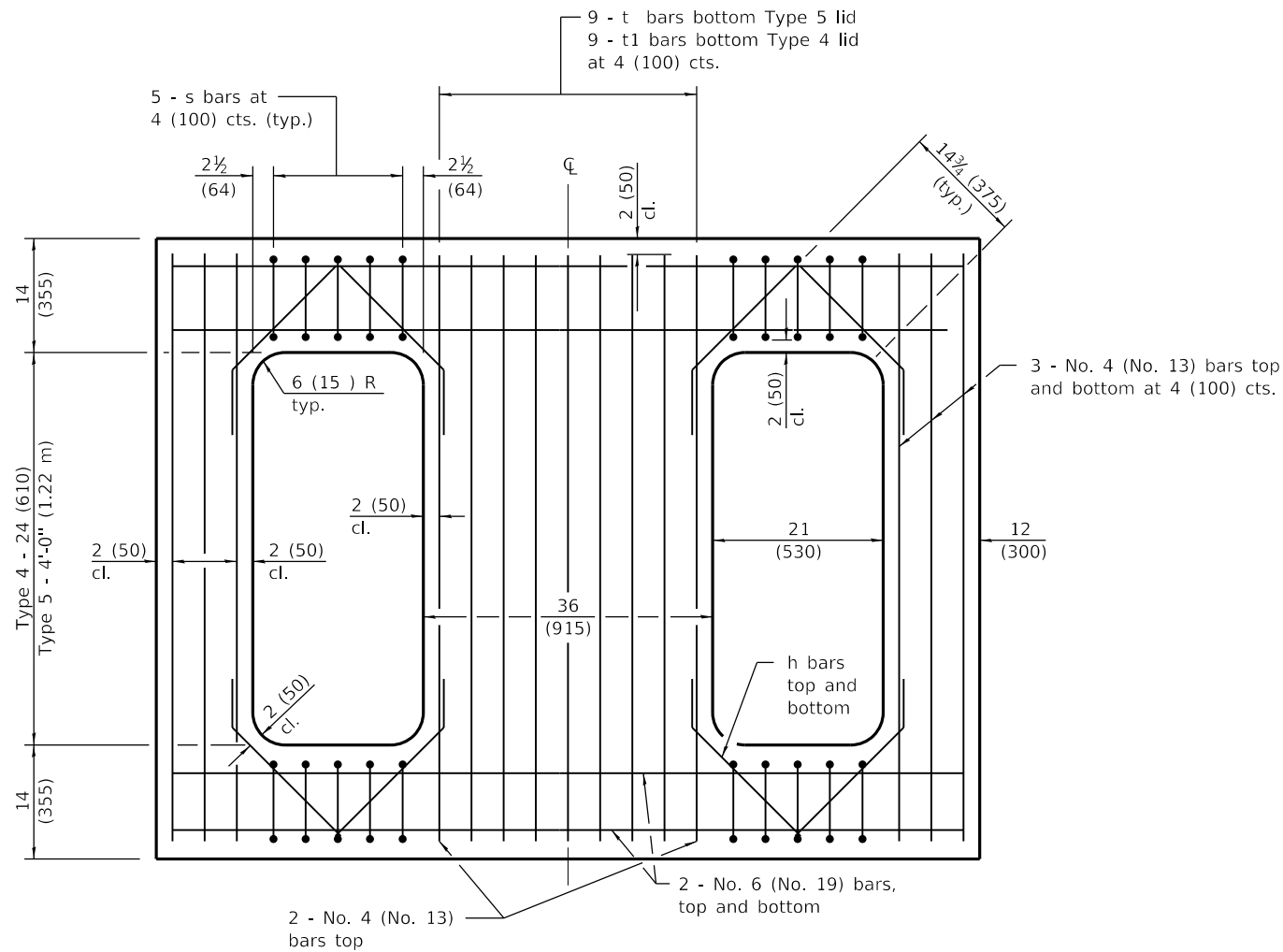
STANDARD 602106-02

Illinois Department of Transportation

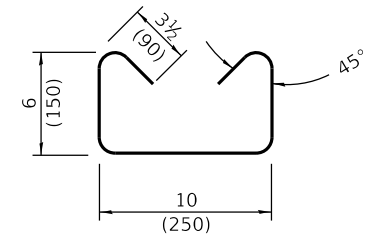
PASSED January 1, 2019
Michael Bond
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2019
Joe E. ...
ENGINEER OF DESIGN AND ENVIRONMENT

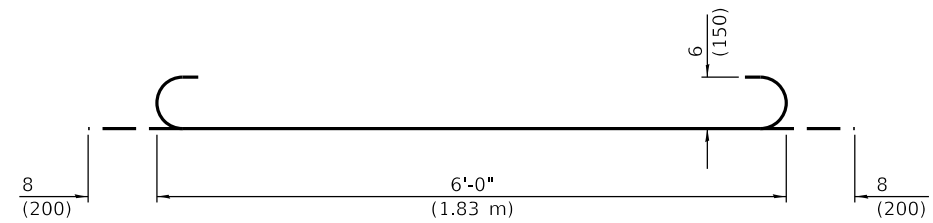
ISSUED 4-1-04



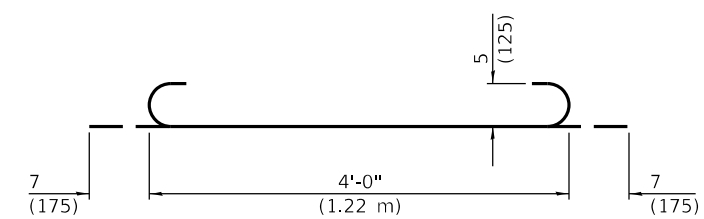
No. 4 (No. 13) Bar h



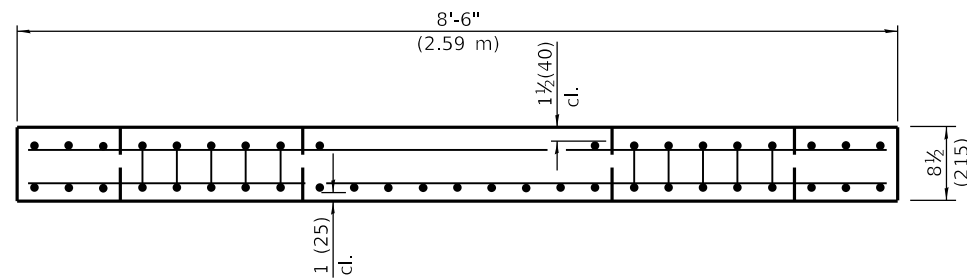
No. 3 (No. 10) Bar s



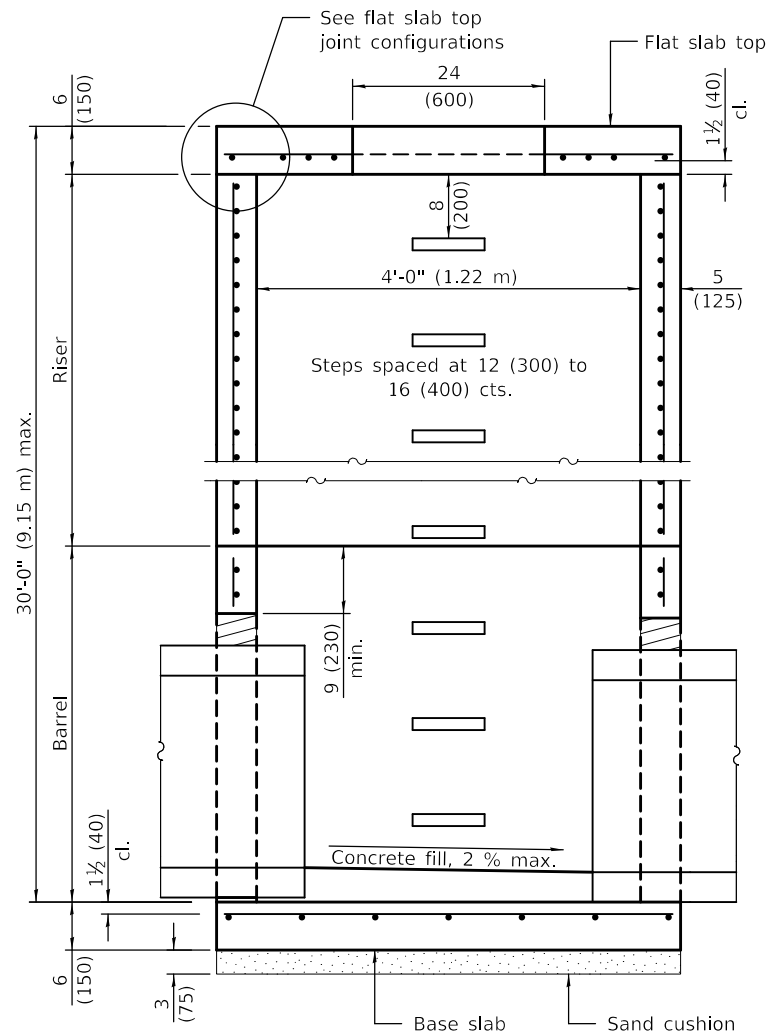
No. 6 (No. 19) Bar t



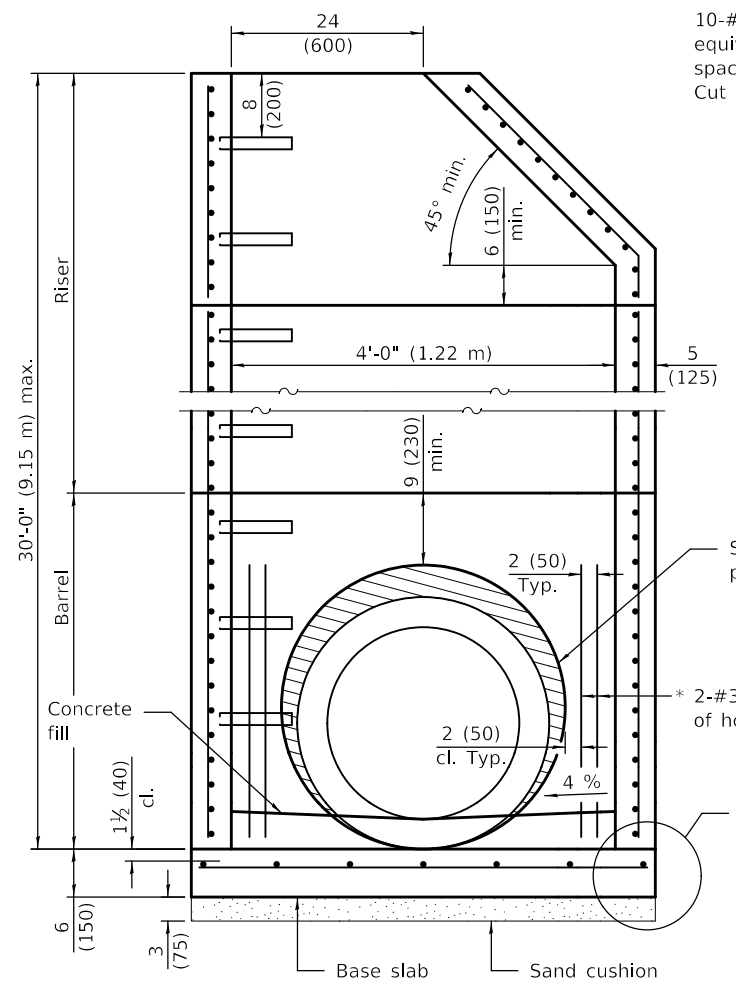
No. 5 (No. 16) Bar t1



REINFORCED LID - TYPE 4 & 5



SECTION PARALLEL TO PIPE
(Without conical top riser)

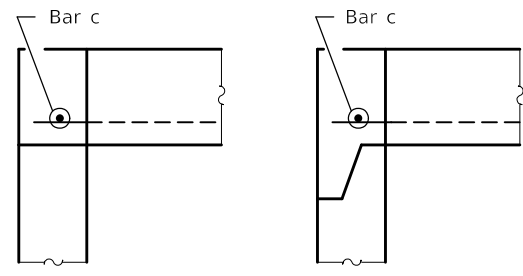


SECTION PERPENDICULAR TO PIPE
(With conical top riser)

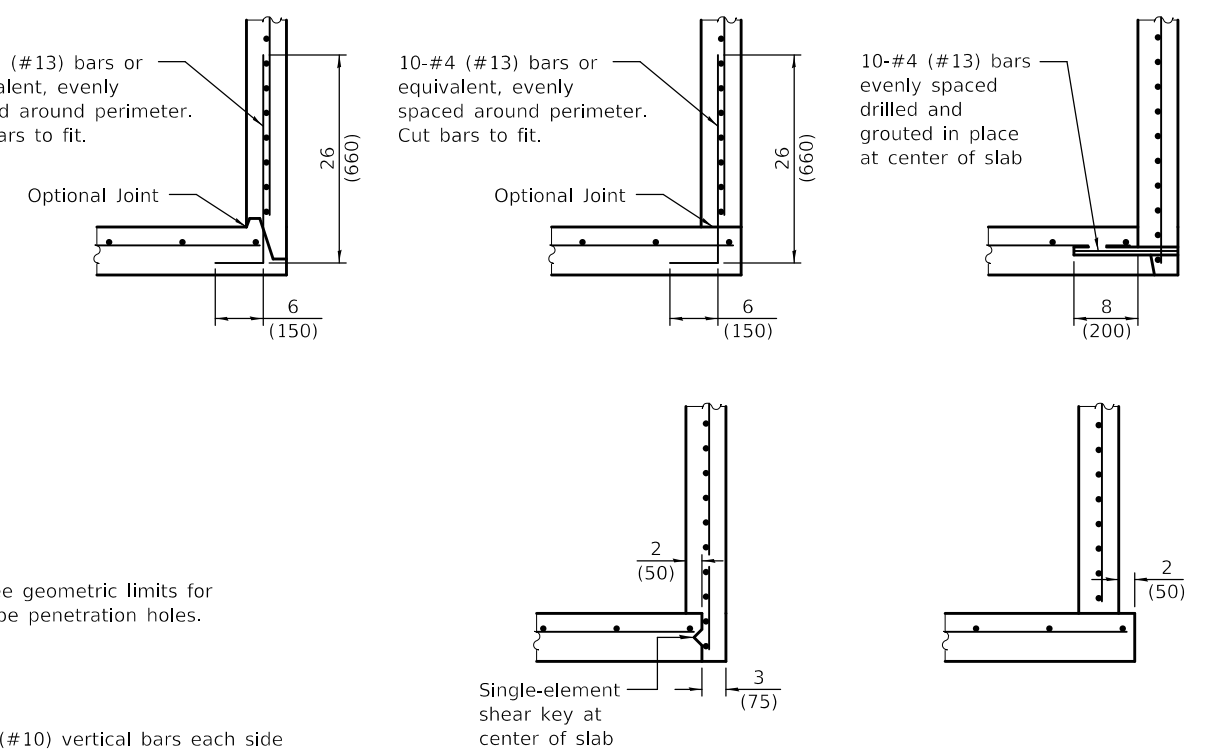
* As an alternate, the barrel wall reinforcement may be reduced to riser wall reinforcement with #3 (#10) bars placed around the pipe penetration holes as shown. This option may be utilized when the pipe penetration holes are formed as opposed to cored.

GEOMETRIC LIMITS FOR PIPE PENETRATION HOLES

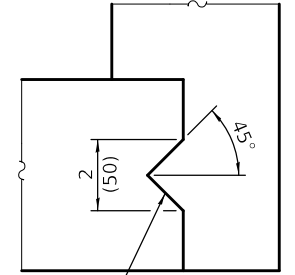
1. A minimum of 9 (230) of monolithic reinforced concrete shall be maintained above pipe penetration holes > 24 (600).
2. A minimum 12 (300) inside arc length of reinforced concrete shall be maintained between pipe penetration holes > 15 (380).
3. A maximum of 60 percent of the inside perimeter of the reinforced concrete manhole walls may be removed.
4. Horizontal joints that intersect pipe penetration holes > 15 (380) shall have one joint splice for every location around the perimeter of the joint where the inside arc length between pipe penetration holes is < 24 (600). See joint splice detail.
5. The recommended pipe penetration hole is equal to the O.D. of the pipe plus 4 (100).
6. Only pipe penetration holes ≤ 15 (380) are allowed in riser sections.



FLAT SLAB TOP JOINT CONFIGURATIONS
(Shown at access hole)



BASE SLAB JOINT CONFIGURATIONS



Single-element shear key at center of slab

SHEAR KEY GEOMETRY

(Reinforcement not shown for clarity)

GENERAL NOTES

The manufacturer shall ensure that all precast manhole sections are additionally reinforced where required to resist damage from handling, shipping and installation stresses.

Lifting holes shall be located in the sections as per the manufacturer's recommendations, except as noted.

See Standard 602701 for details of manhole steps.

All dimensions are in inches (millimeters) unless otherwise noted.

DATE	REVISIONS
3-1-19	Moved wall reinforcement from inside face to middle.
1-1-19	Expanded / refined reinforcement options. Increased manhole depths.

PRECAST MANHOLE TYPE A
4' (1.22 m) DIAMETER
(Sheet 1 of 2)

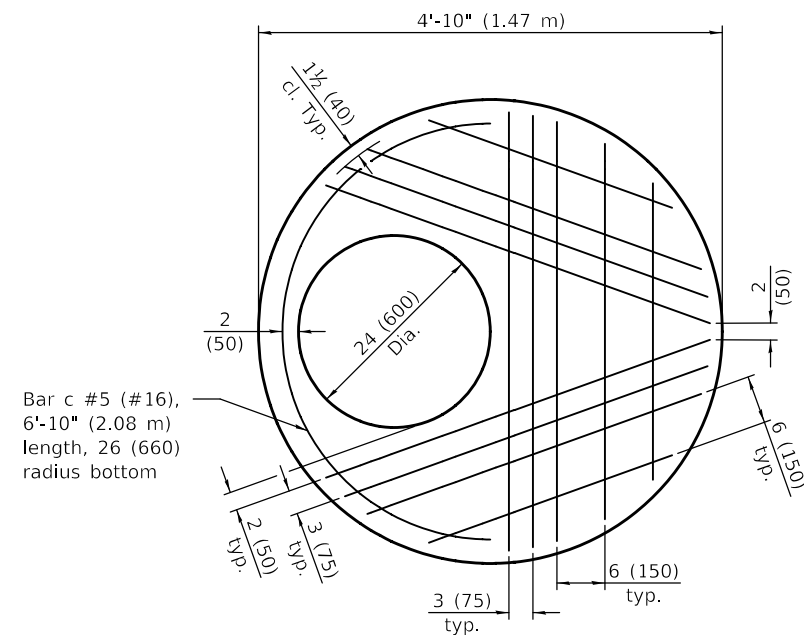
STANDARD 602401-06

Illinois Department of Transportation

PASSED March 1, 2019
ENGINEER OF POLICY AND PROCEDURES

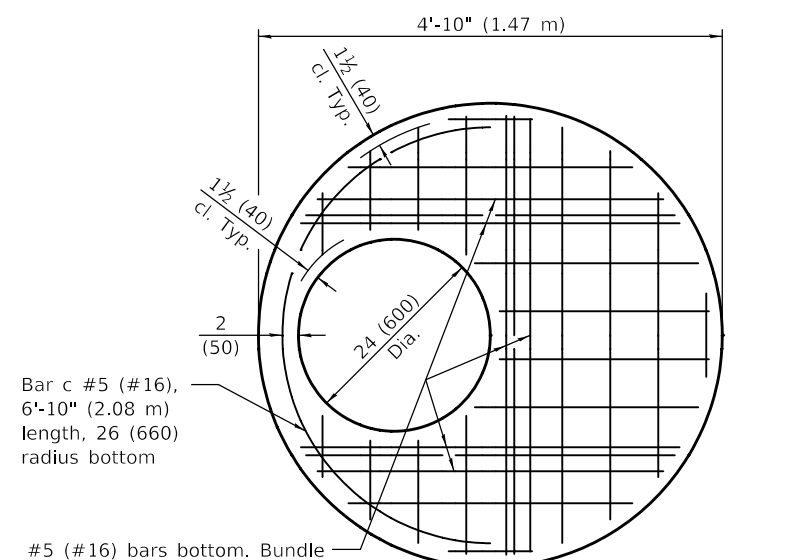
APPROVED March 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



PLAN - FLAT SLAB TOP

(Showing layout of reinforcement bars and c bars)

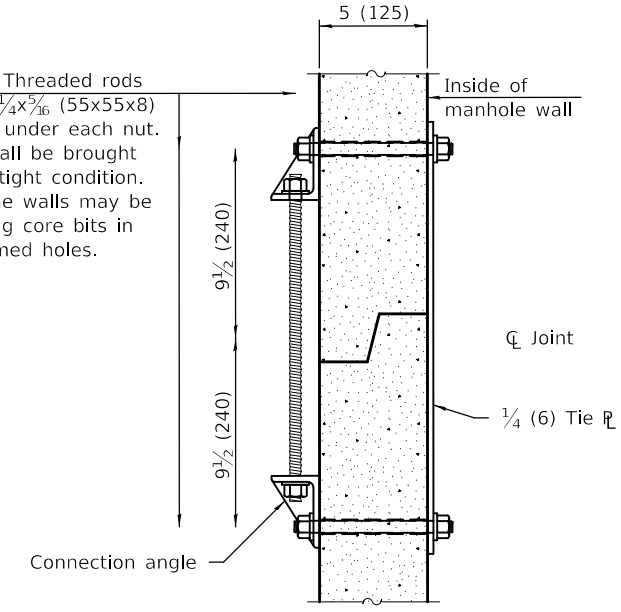


PLAN - FLAT SLAB TOP

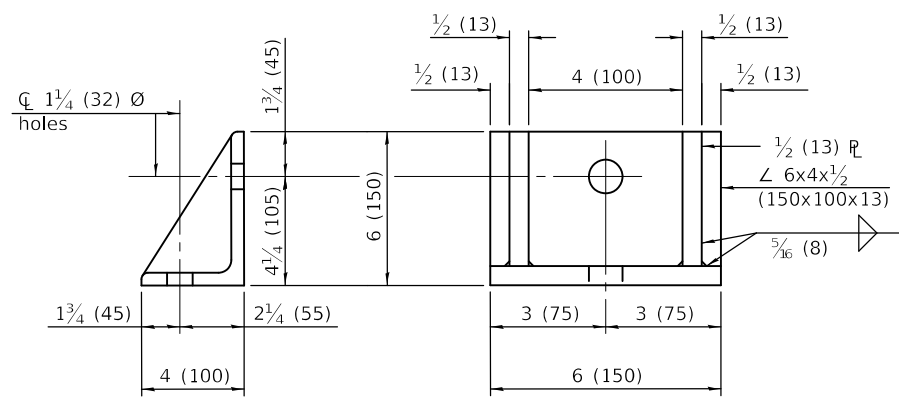
(Showing layout of welded wire reinforcement and c bars)

#5 (#16) bars bottom. Bundle first bar with closest WWR bar to the opening and place second bar ±3 (75) away.

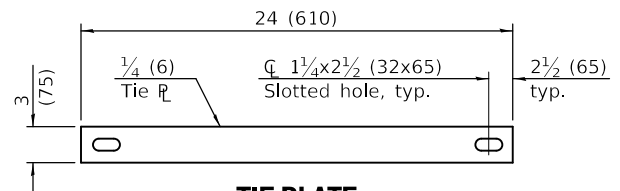
1 (25) Ø Threaded rods with 2 1/4 x 2 1/4 x 3/16 (55x55x8) washers under each nut. All nuts shall be brought to a snug tight condition. Holes in the walls may be drilled using core bits in lieu of formed holes.



JOINT SPLICE



CONNECTION ANGLE



TIE PLATE

FLAT SLAB TOP REINFORCEMENT

Location	WWR (each direction)		Rebar		
	A _s (min.)	Spacing (max.)	A _s (min.)	Spacing (max.)	Bar Size
Bottom Mat	** 0.62 sq. in./ft. (1312 sq. mm/m)	6 (150)	See plan view for rebar orientation and spacing and this table for bar size		#5 (#16)

** Only one layer of WWR permitted to avoid congestion.

WALL REINFORCEMENT

Location	Orientation	WWR or Rebar	
		A _s (min.)	Spacing (max.)
Riser	Circumferential	0.12 sq. in./ft. (254 sq. mm/m)	6 (150)
	Vertical	0.045 sq. in./ft. (95 sq. mm/m)	8 (200)
Barrel	Circumferential	0.12 sq. in./ft. (254 sq. mm/m)	6 (150)
	Vertical	0.16 sq. in./ft. (339 sq. mm/m)	4 (100)

BASE SLAB REINFORCEMENT

Location	Total Height	WWR or Rebar (each direction)	
		A _s (min.)	Spacing (max.)
Top Mat	≤ 20 ft. (6.10 m)	0.24 sq. in./ft. (508 sq. mm/m)	10 (250)
	> 20 ft. (6.10 m)	0.24 sq. in./ft. (508 sq. mm/m)	10 (250)

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PASSED March 1, 2019

 ENGINEER OF POLICY AND PROCEDURES

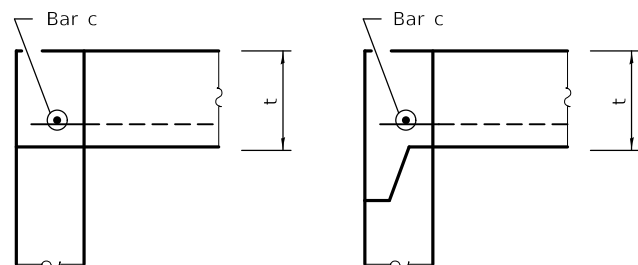
APPROVED March 1, 2019

 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

PRECAST MANHOLE TYPE A
4' (1.22 m) DIAMETER
 (Sheet 2 of 2)

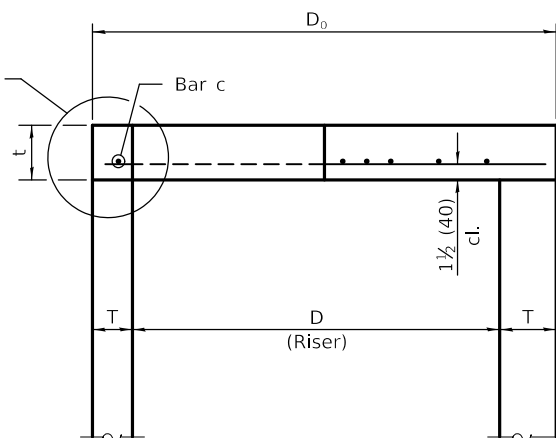
STANDARD 602401-06



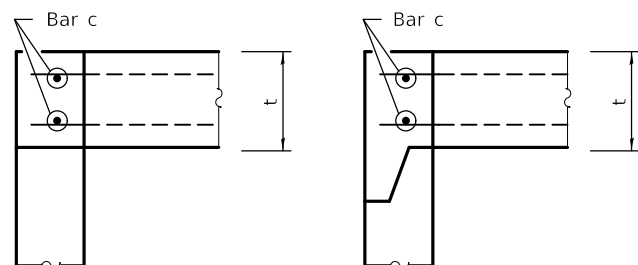
**FLAT SLAB TOP JOINT CONFIGURATIONS
FOR D = 36 (900) AND D = 4'-0" (1.22 m)**

(Shown at access hole)

See Top Slab Joint Configurations for D=36 (900) and D=4'-0" (1.22 m)



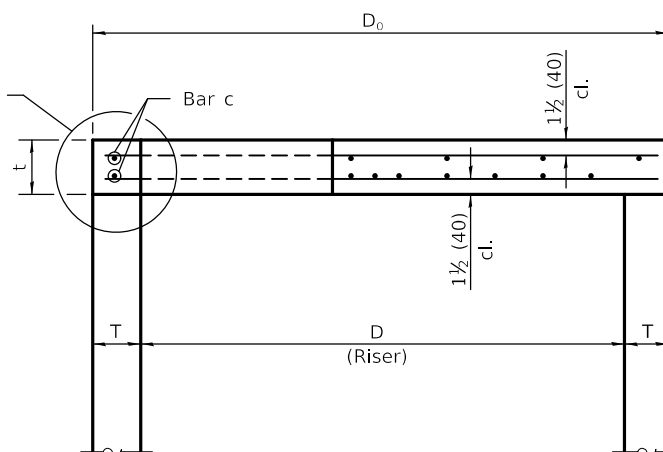
**SECTION THRU FLAT SLAB TOP
FOR D = 36 (900) AND D = 4'-0" (1.22 m)**



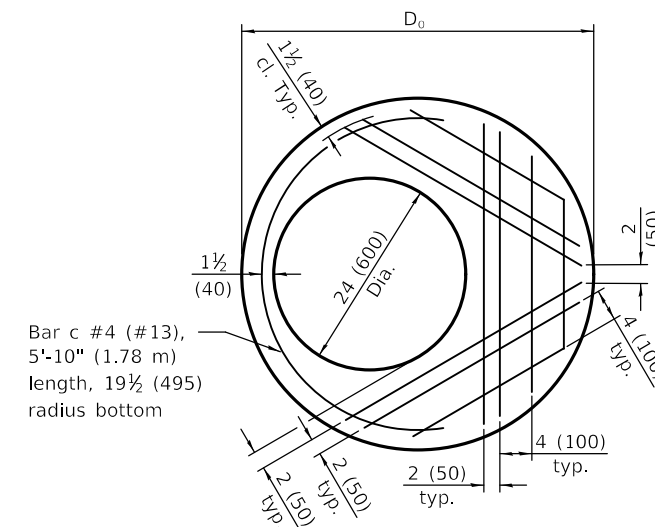
**FLAT SLAB TOP JOINT CONFIGURATIONS
D = 5'-0" (1.52 m)**

(Shown at access hole)

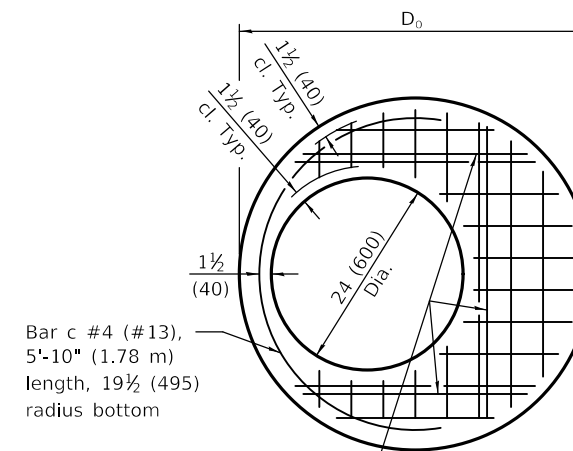
See Top Slab Joint Configurations for D=5'-0" (1.52 m)



**SECTION THRU FLAT SLAB TOP
FOR D = 5'-0" (1.52 m)**



PLAN - FLAT SLAB TOP FOR D = 36 (900)
(Showing layout of reinforcement bars and c bars)



#4 (#13) bars bottom. Bundle with closest WWR bar to the opening.

PLAN - FLAT SLAB TOP FOR D = 36 (900)
(Showing layout of welded wire reinforcement and c bars)

TABLE

D	T	D ₀ (min.)	t
36 (900)	See applicable Standards	D + 2T	6 (150)
4'-0" (1.2 m)			6 (150)
5'-0" (1.5 m)			8 (200)

GENERAL NOTES

The flat slab top may be used in lieu of the tapered tops shown on Standards 602001, 602016, or 602306 at the option of the Contractor or when field conditions prohibit the use of tapered tops.

Lifting holes shall be located in the sections as per the manufacturer's recommendations.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-19	Expanded / refined reinforcement options.
1-1-18	Revised for compliance with LRFD.

**PRECAST REINFORCED
CONCRETE FLAT SLAB TOP**

(Sheet 1 of 2)

STANDARD 602601-06

Illinois Department of Transportation

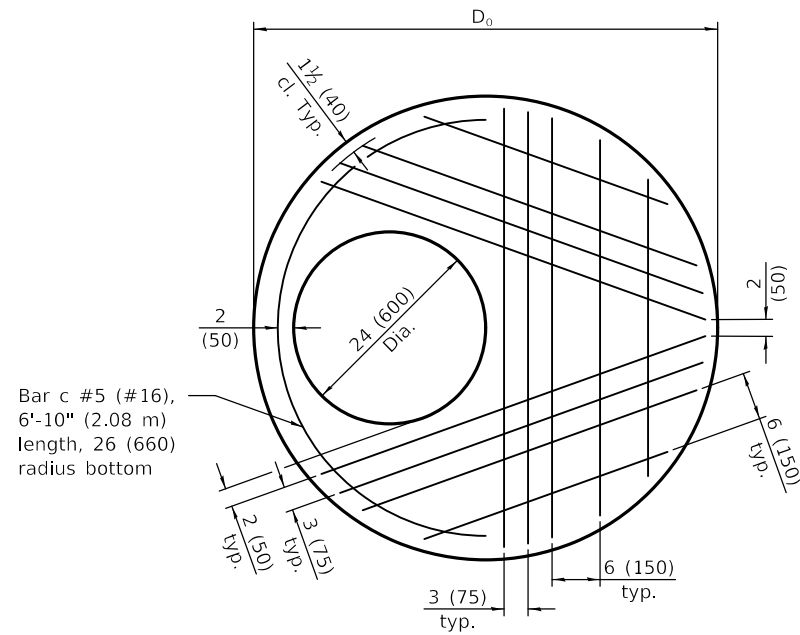
PASSED January 1, 2019

 ENGINEER OF POLICY AND PROCEDURES

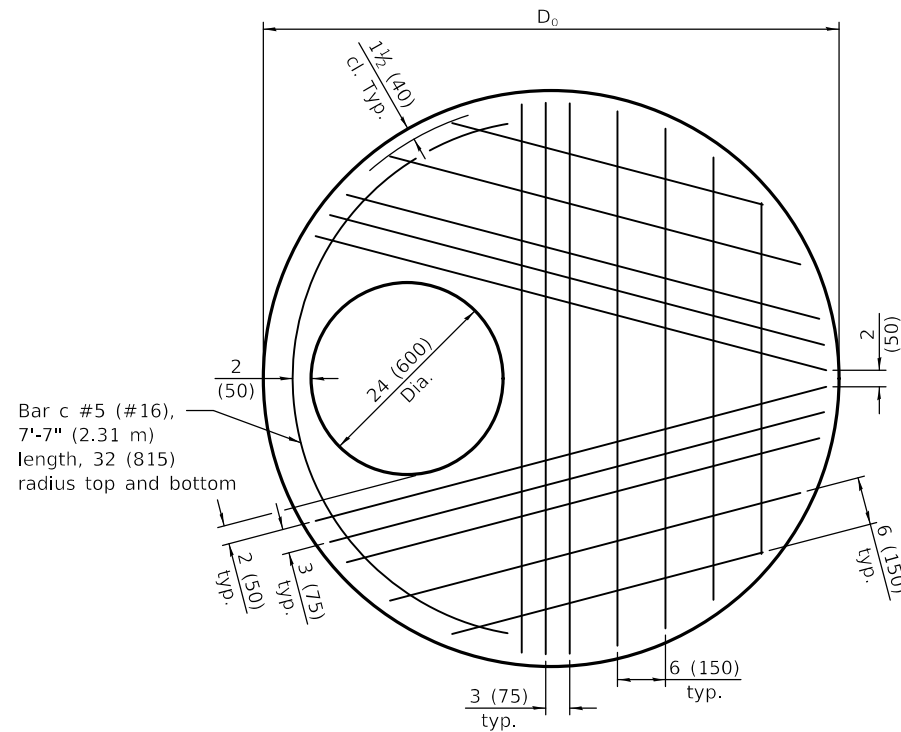
APPROVED January 1, 2019

 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



PLAN - FLAT SLAB TOP FOR D = 4'-0" (1.22 m)
(Showing layout of reinforcement bars and c bars)



PLAN - FLAT SLAB TOP FOR D = 5'-0" (1.52 m)
(Showing layout of bottom reinforcement bars and c bars)

FLAT SLAB TOP REINFORCEMENT FOR D = 36 (900)

Location	WWR (each direction)		Rebar		
	A _s (min.)	Spacing (max.)	A _s (min.)	Spacing (max.)	Bar Size
Bottom Mat	* 0.60 sq. in./ft. (1270 sq. mm/m)	6 (150)	See plan view for rebar orientation and spacing and this table for bar size		#4 (#13)

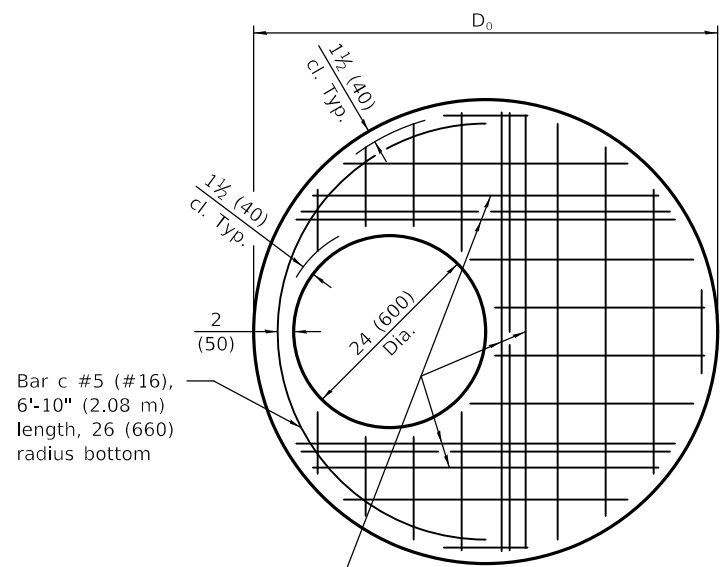
FLAT SLAB TOP REINFORCEMENT FOR D = 4'-0" (1.22 m)

Location	WWR (each direction)		Rebar		
	A _s (min.)	Spacing (max.)	A _s (min.)	Spacing (max.)	Bar Size
Bottom Mat	* 0.62 sq. in./ft. (1312 sq. mm/m)	6 (150)	See plan view for rebar orientation and spacing and this table for bar size		#5 (#16)

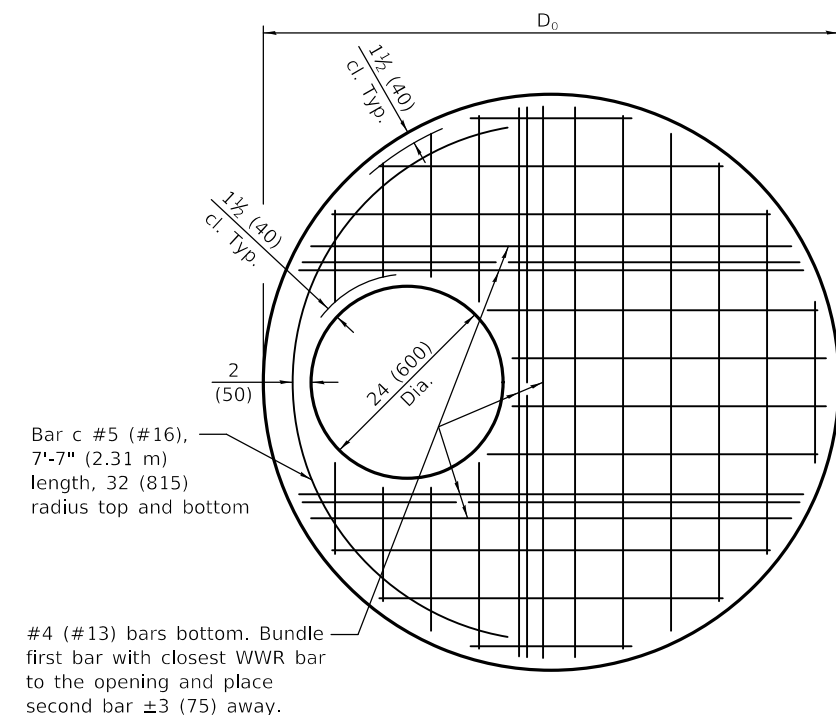
FLAT SLAB TOP REINFORCEMENT FOR D = 5'-0" (1.52 m)

Location	WWR (each direction)		Rebar (each direction except as noted)		
	A _s (min.)	Spacing (max.)	A _s (min.)	Spacing (max.)	Bar Size
Top Mat	0.11 sq. in./ft. (233 sq. mm/m)	18 (450)	0.11 sq. in./ft. (233 sq. mm/m)	18 (450)	#3 or #4 (#10) (#13)
Bottom Mat	* 0.40 sq. in./ft. (847 sq. mm/m)	6 (150)	See plan view for rebar orientation and spacing and this table for bar size		#4 (#13)

* Only one layer of WWR permitted to avoid congestion.



PLAN - FLAT SLAB TOP FOR D = 4'-0" (1.22 m)
(Showing layout of welded wire reinforcement and c bars)



PLAN - FLAT SLAB TOP FOR D = 5'-0" (1.52 m)
(Showing layout of welded wire reinforcement and c bars)

#5 (#16) bars bottom. Bundle first bar with closest WWR bar to the opening and place second bar ±3 (75) away.

#4 (#13) bars bottom. Bundle first bar with closest WWR bar to the opening and place second bar ±3 (75) away.

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PASSED January 1, 2019
Michael Bond
ENGINEER OF POLICY AND PROCEDURES

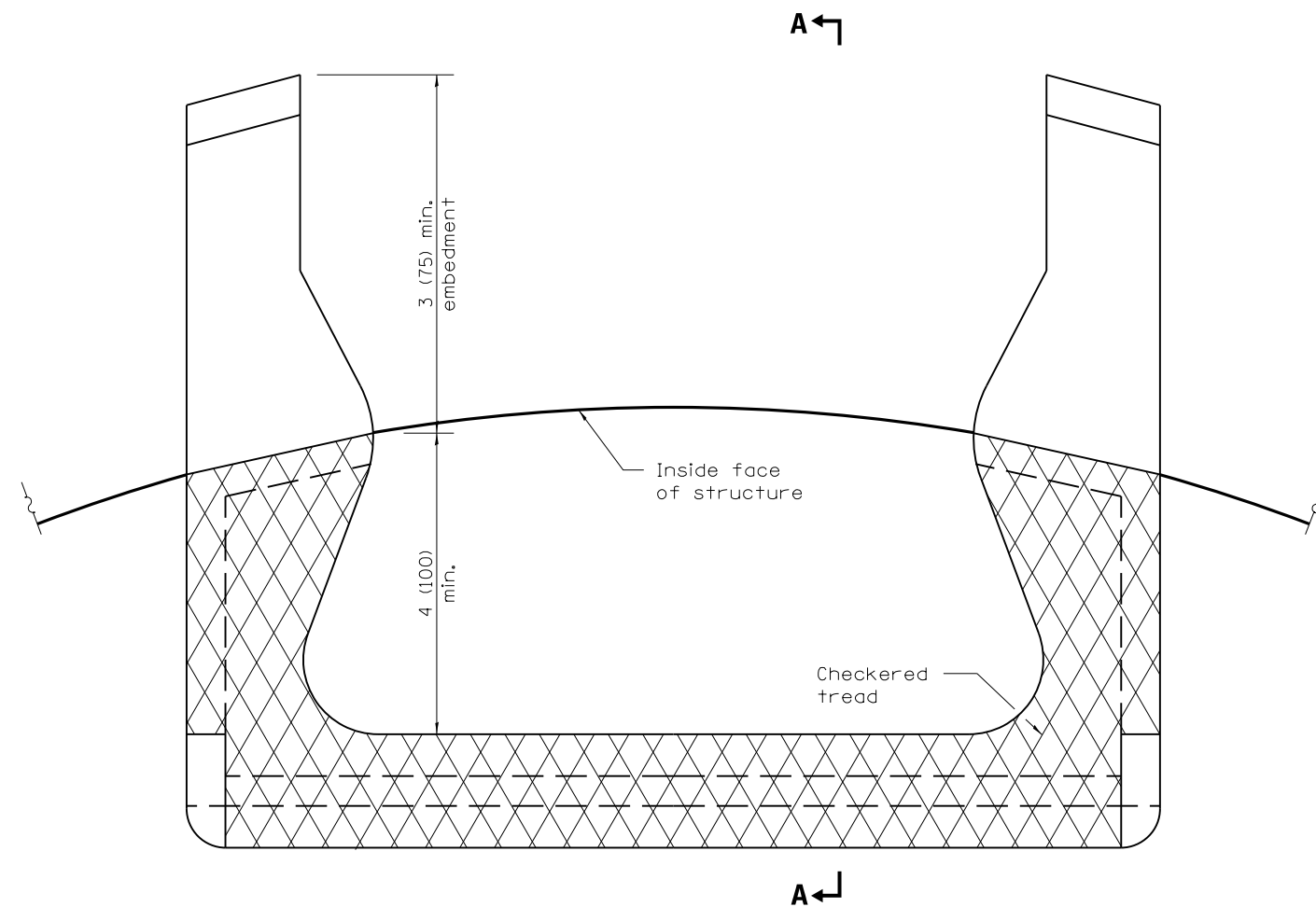
APPROVED January 1, 2019
Joe E. ...
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

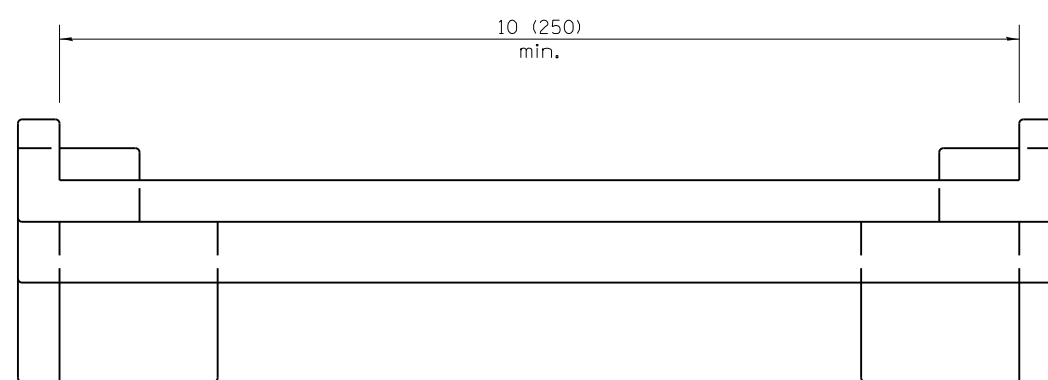
**PRECAST REINFORCED
CONCRETE FLAT SLAB TOP**

(Sheet 2 of 2)

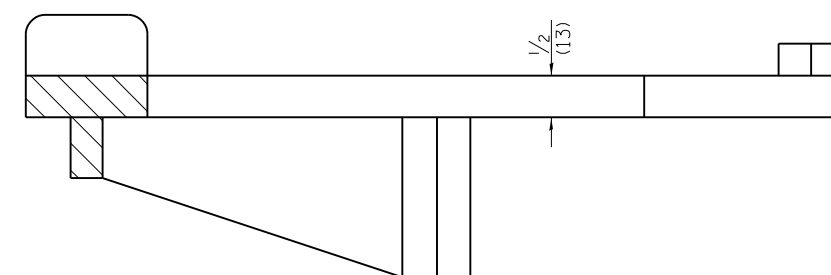
STANDARD 602601-06



PLAN VIEW



ELEVATION VIEW



SECTION A-A

All dimensions are in inches (millimeters) unless otherwise shown.

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PASSED January 1, 2009

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APPROVED January 1, 2009

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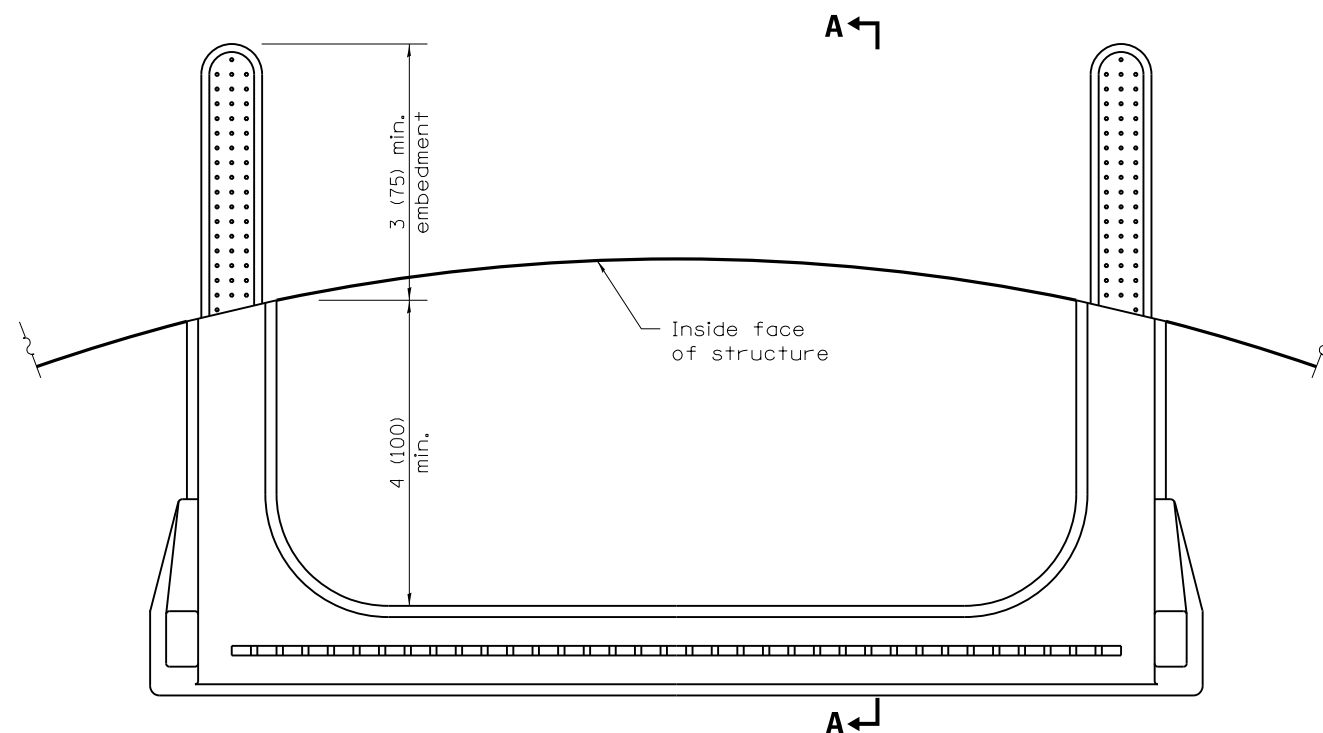
ISSUED 1-1-97

DATE	REVISIONS
1-1-09	Switched units to English (metric).
4-1-06	Revised title, drawings, and added plastic steps on sheet 2.

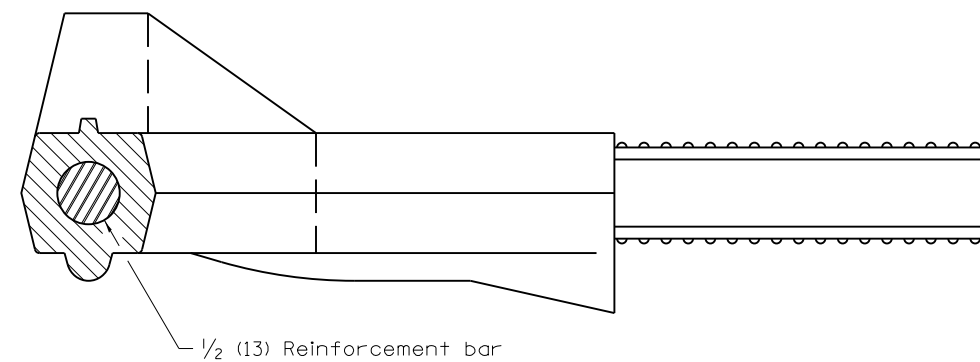
MANHOLE STEPS

(Sheet 1 of 2)

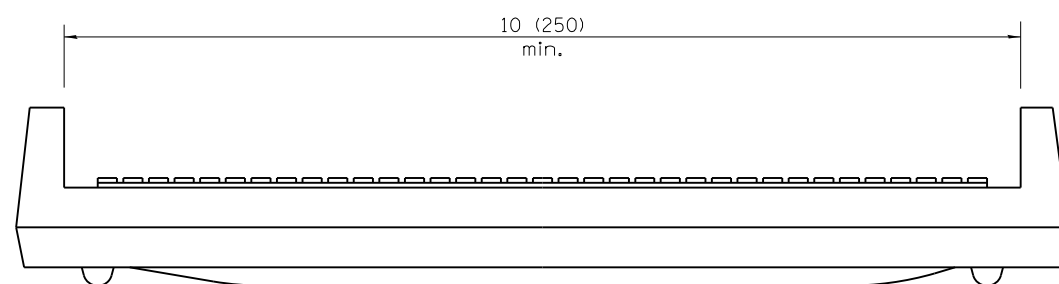
STANDARD 602701-02



PLAN VIEW



SECTION A-A



ELEVATION VIEW

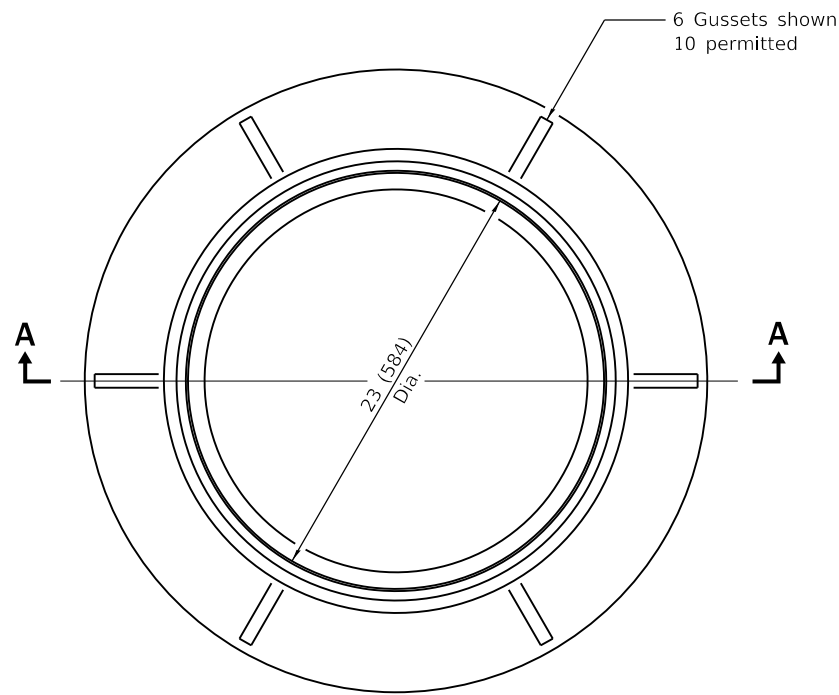
Illinois Department of Transportation
PASSED January 1, 2009
ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

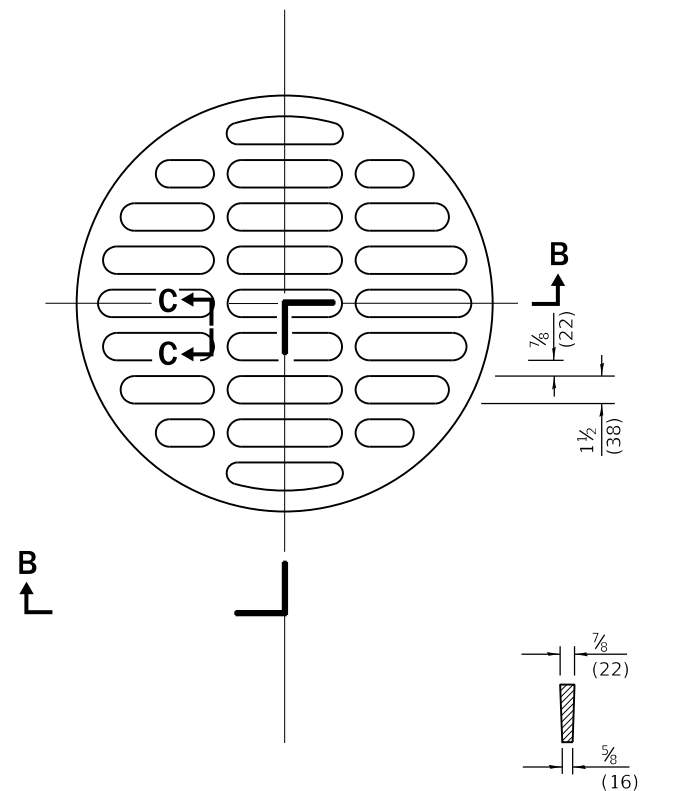
MANHOLE STEPS

(Sheet 2 of 2)

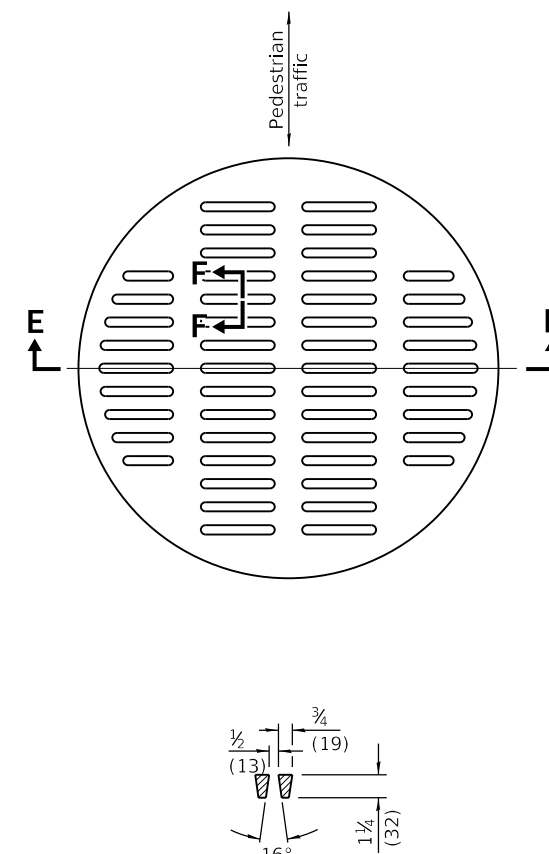
STANDARD 602701-02



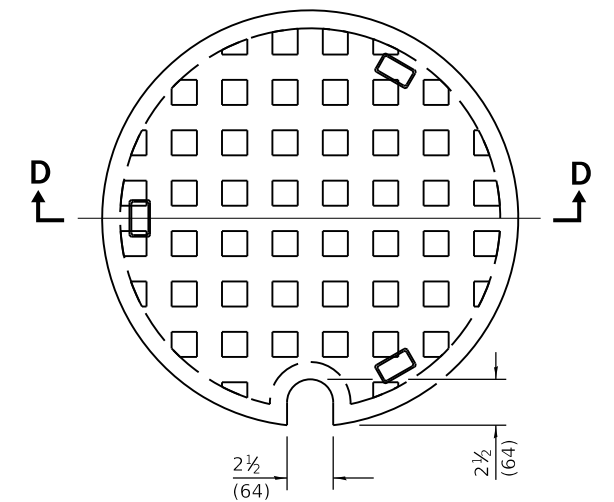
CAST FRAME



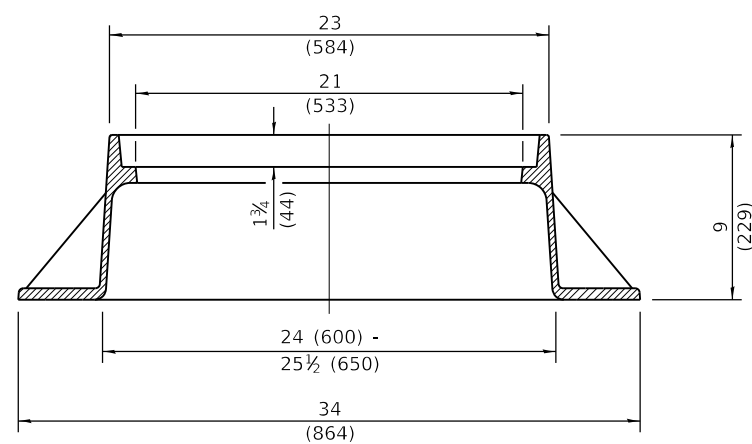
SECTION C-C



SECTION F-F

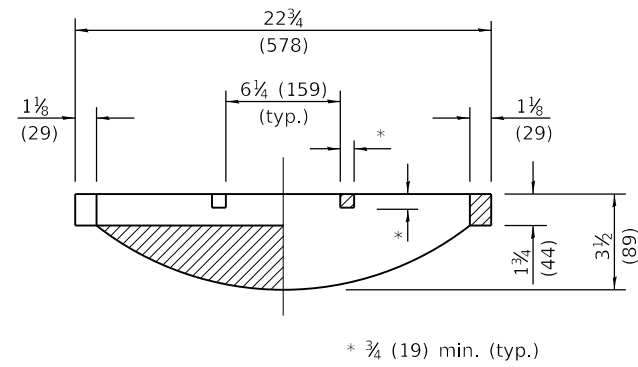


SECTION D-D



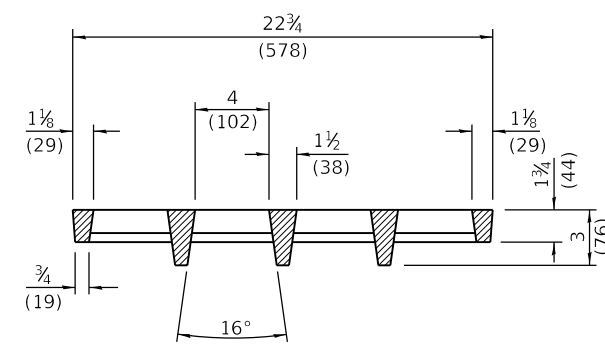
SECTION A-A

Gray Iron



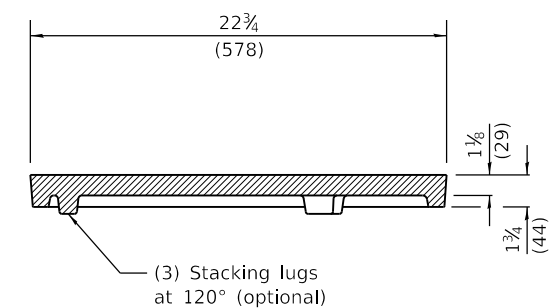
SECTION B-B

CAST OPEN LID



SECTION E-E

**ADA COMPLIANT
CAST OPEN LID**



CAST CLOSED LID

Gray Iron Lid

All dimensions are in inches (millimeters) unless otherwise shown.

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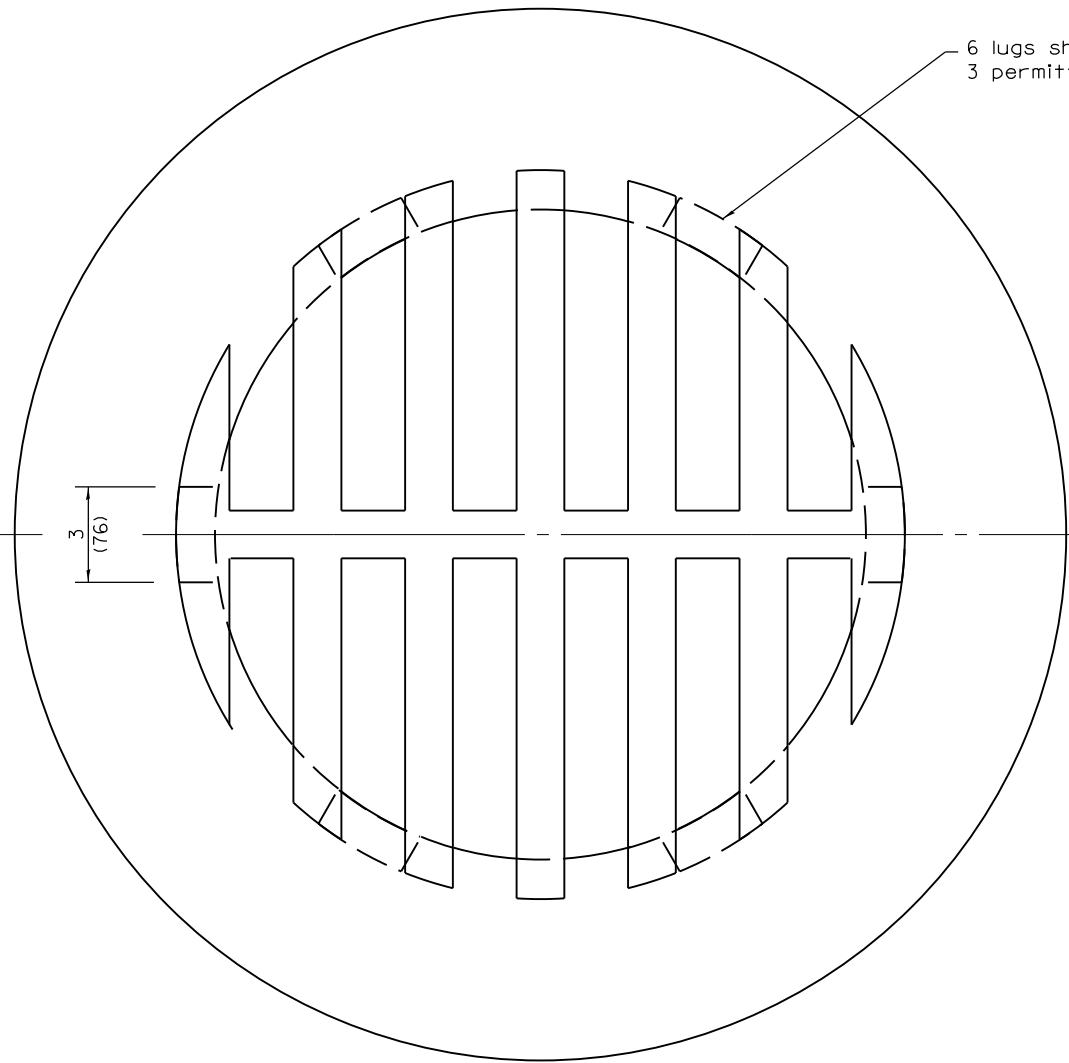
APPROVED January 1, 2020
J. S. E. E.
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

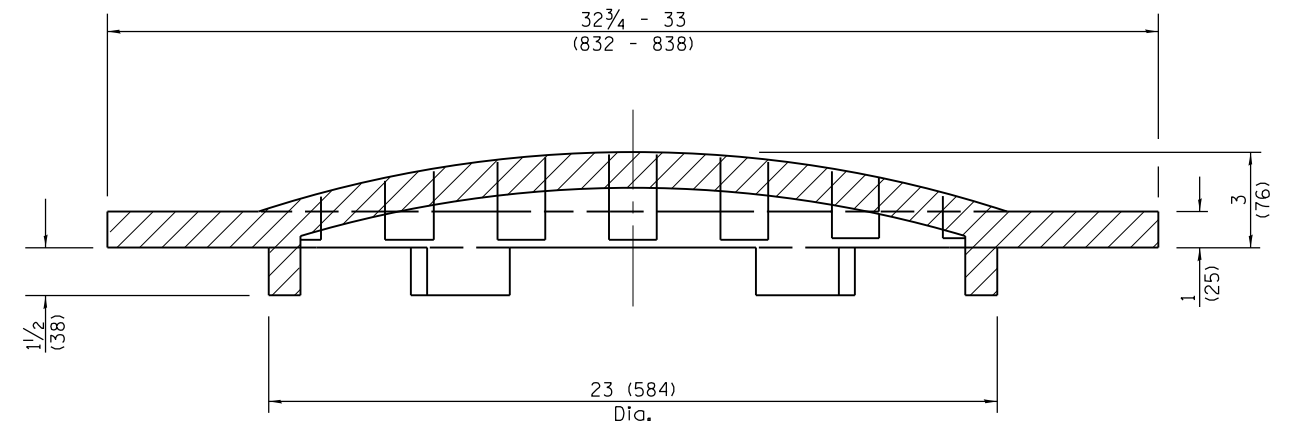
DATE	REVISIONS
1-1-20	Revised dimension in Section B-B of cast open lid.
1-1-15	Revised dimensioning of frame. Added ADA compliant open lid.
1-1-09	Switched units to English (metric).

**FRAME AND LIDS
TYPE 1**

STANDARD 604001-05


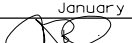


CAST GRATE



SECTION A-A

All dimensions are in inches (millimeters)
unless otherwise shown.

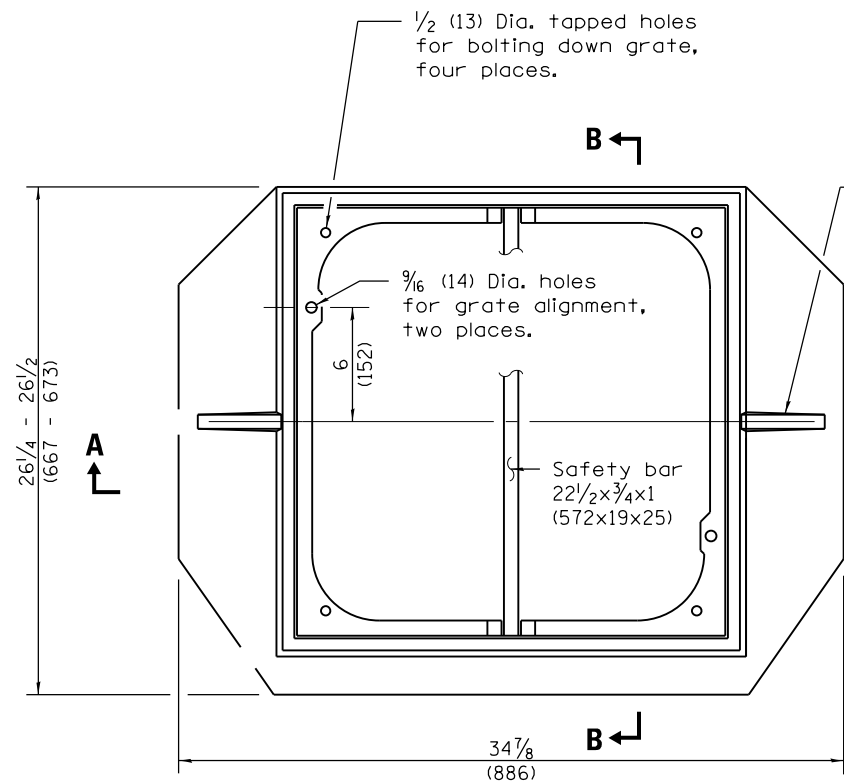
 Illinois Department of Transportation
 PASSED January 1, 2015
Michael Beard
 ENGINEER OF POLICY AND PROCEDURES
 APPROVED January 1, 2015

 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-15	Revised dimensions.
1-1-09	Switched units to English (metric).

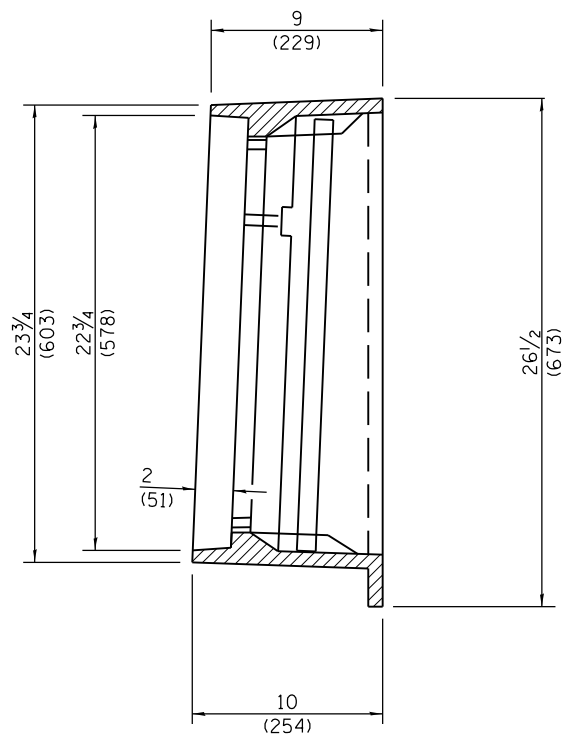
GRATE TYPE 8

STANDARD 604036-03



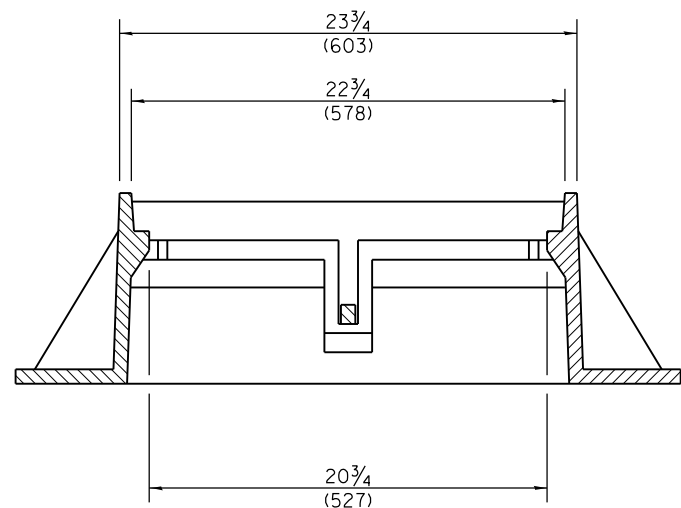
PLAN

One gusset shown each side, two permitted.

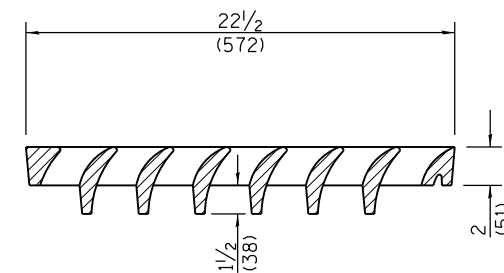


SECTION B-B

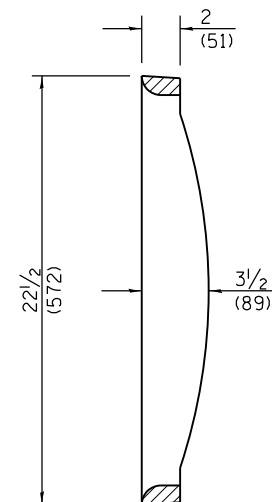
CAST FRAME



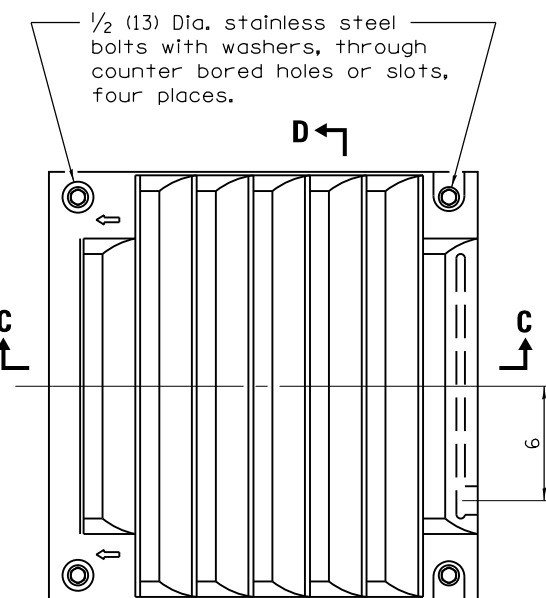
SECTION A-A



SECTION C-C



SECTION D-D



CAST GRATE

All dimensions are in inches (millimeters) unless otherwise shown.

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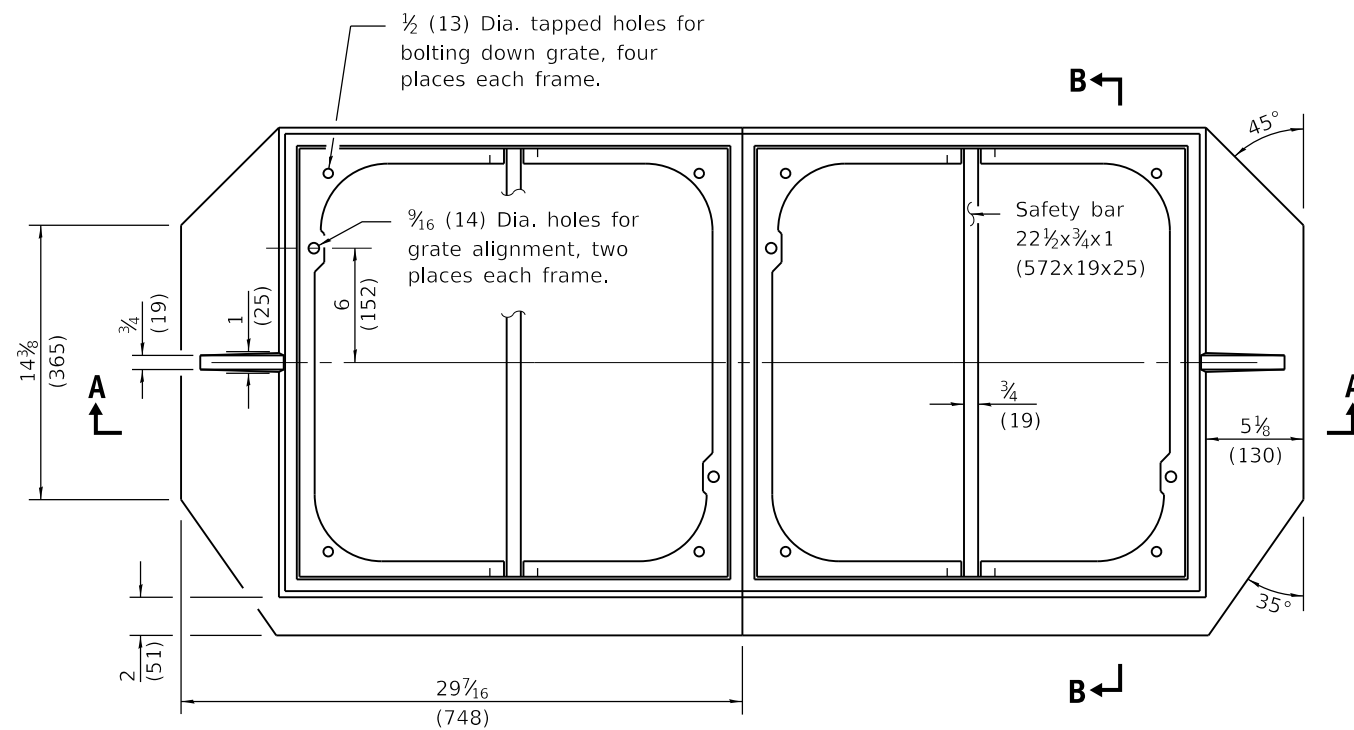
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-15	Revised dimensions of frame.
1-1-09	Switched units to English (metric).

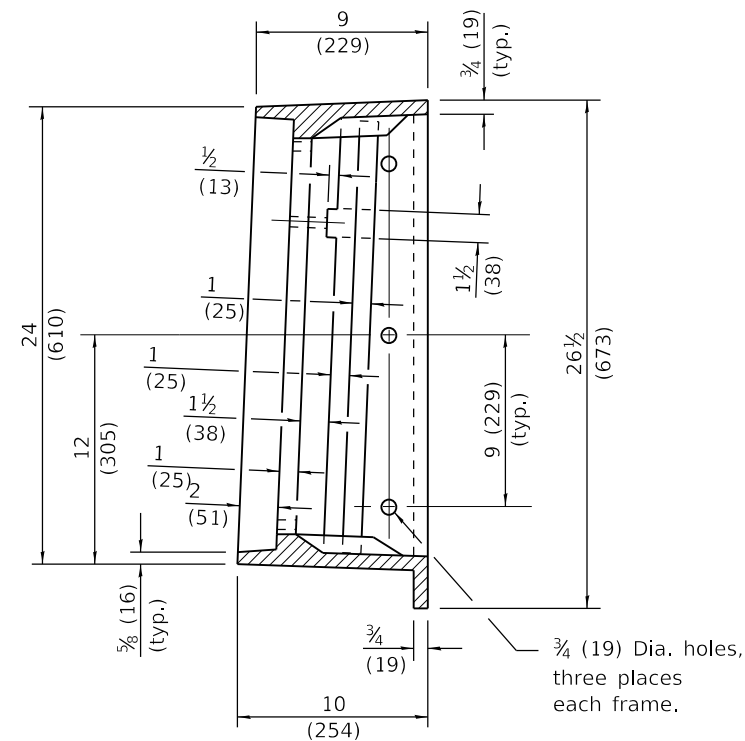
**FRAME AND GRATE
TYPE 20**

STANDARD 604071-05

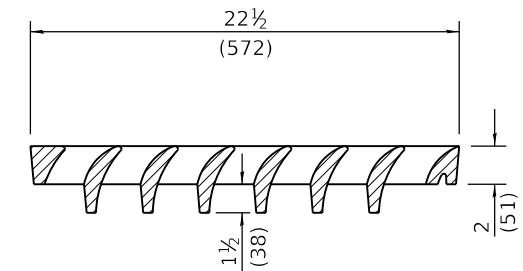


PLAN

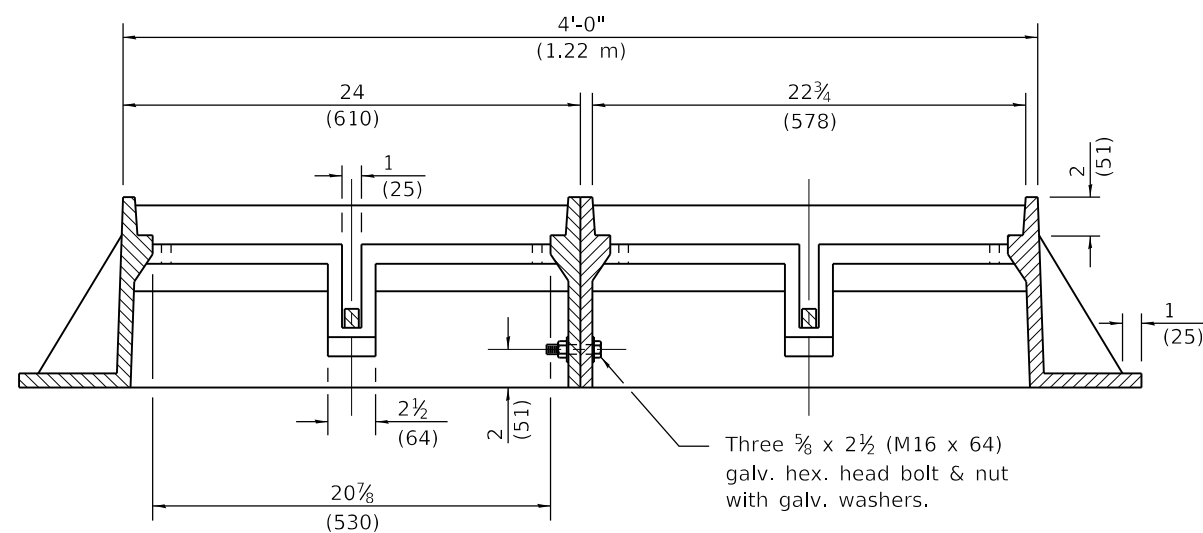
CAST FRAME



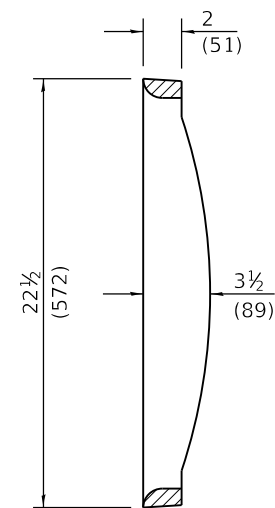
SECTION B-B



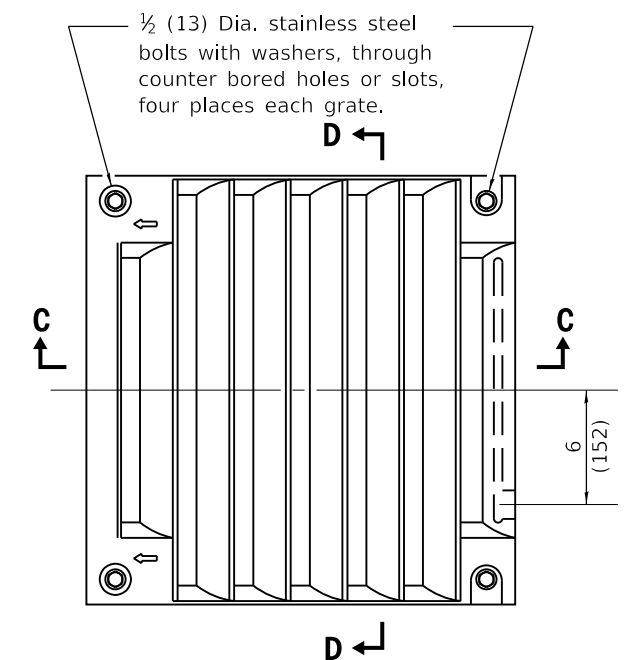
SECTION C-C



SECTION A-A



SECTION D-D



CAST GRATE

All dimensions are in inches (millimeters) unless otherwise shown.

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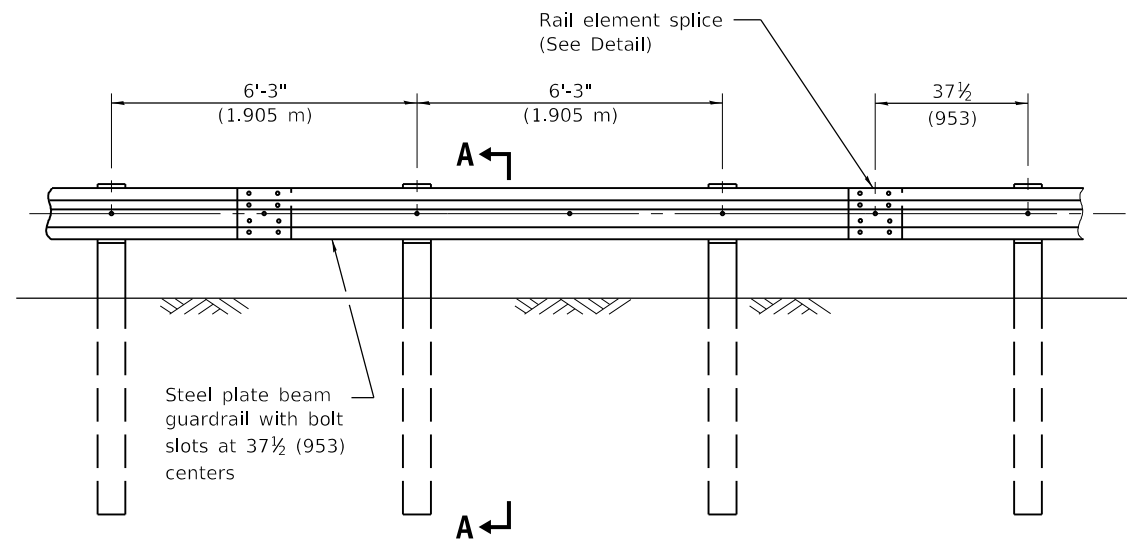
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-09

DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-07	Revised frame flanges, changed to a bolt down grate w/ deeper vanes.

**FRAMES AND GRATES
TYPE 22**

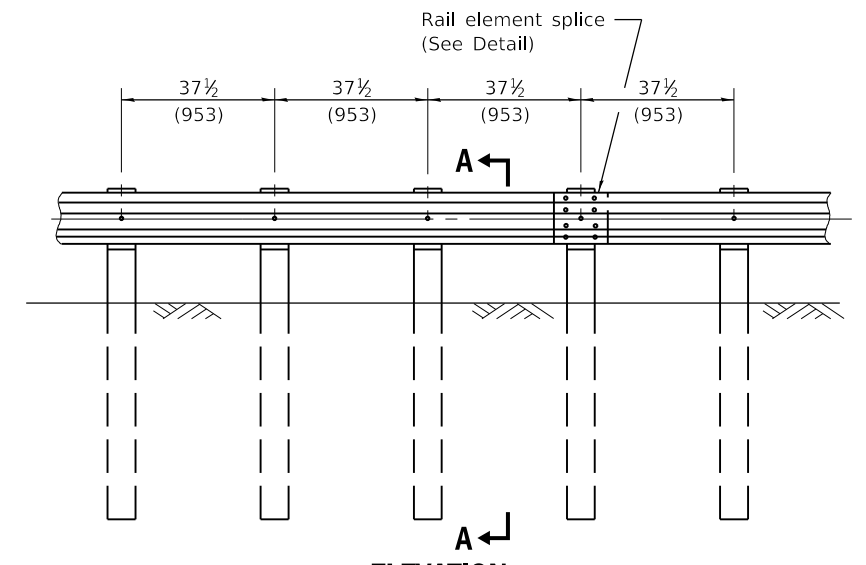
STANDARD 604081-04



ELEVATION

TYPE A

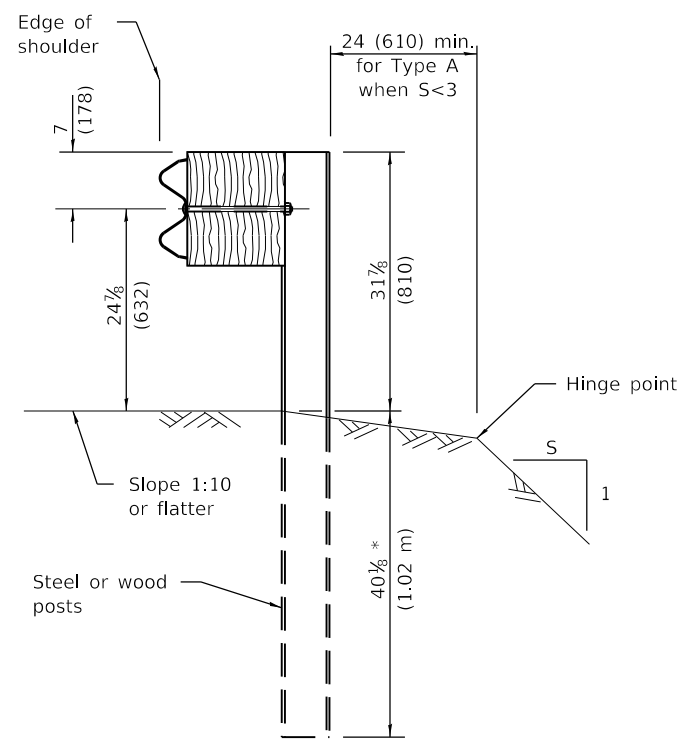
6'-3" (1.905 m) Typical post spacing



ELEVATION

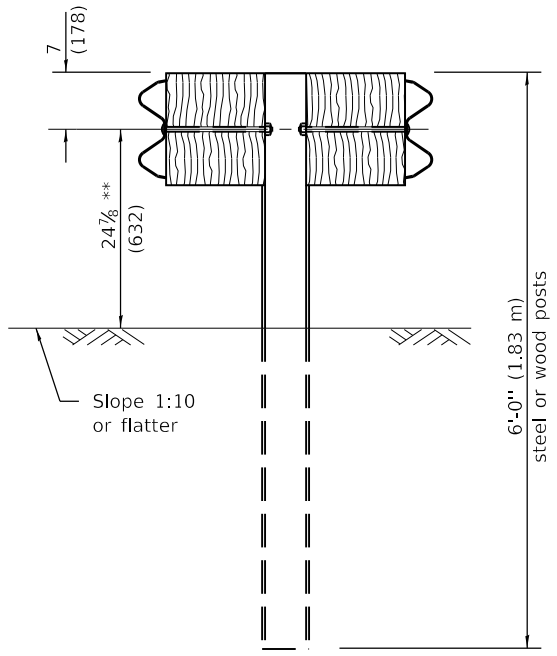
TYPE B

37 1/2 (953) Closed post spacing



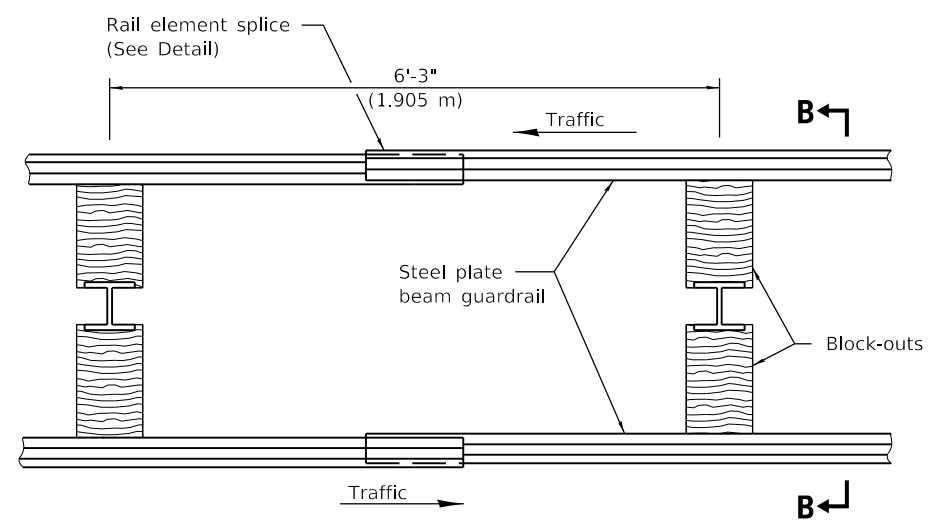
SECTION A-A

* When "S" is less than 3 and the distance from the back of post is less than 24 (610), the post shall be steel and the embedment shall be 76 1/8 (1.93 m) and the minimum top of rail height shall be 31 (787).



SECTION B-B

** When connecting Type D guardrail to an impact attenuator, adjust this dimension to match over a distance of 25'-0" (7.62 m) from point of connection if necessary.



PLAN

TYPE D

Double steel plate beam guardrail
6'-3" (1.905 m) typical post spacing

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2018
Michael Beard
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2018
Marcus M. Beck
ENGINEER OF DESIGN AND ENVIRONMENT

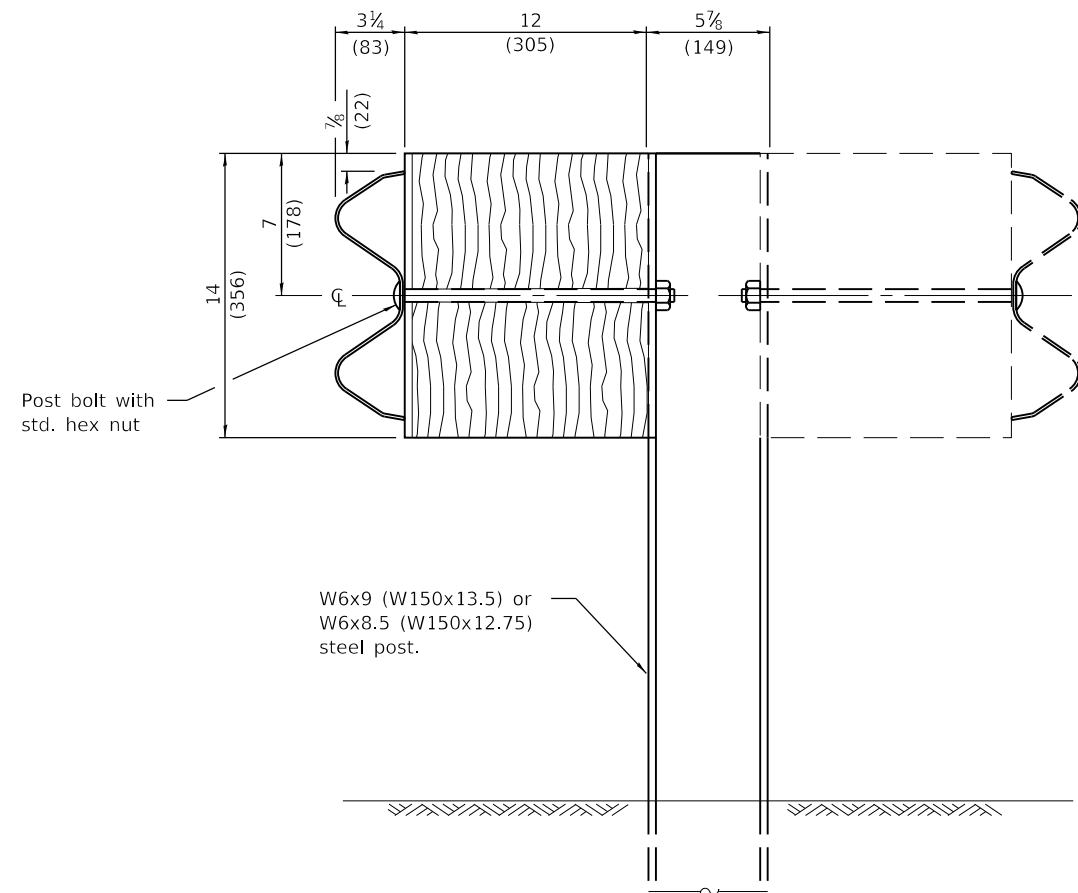
ISSUED 1-1-97

DATE	REVISIONS
1-1-18	Revised steel post to have four holes in each flange.
1-1-17	Added detail for leave-out.
	Rev. 'D' to less than 6 (150) for guardrail behind curb.

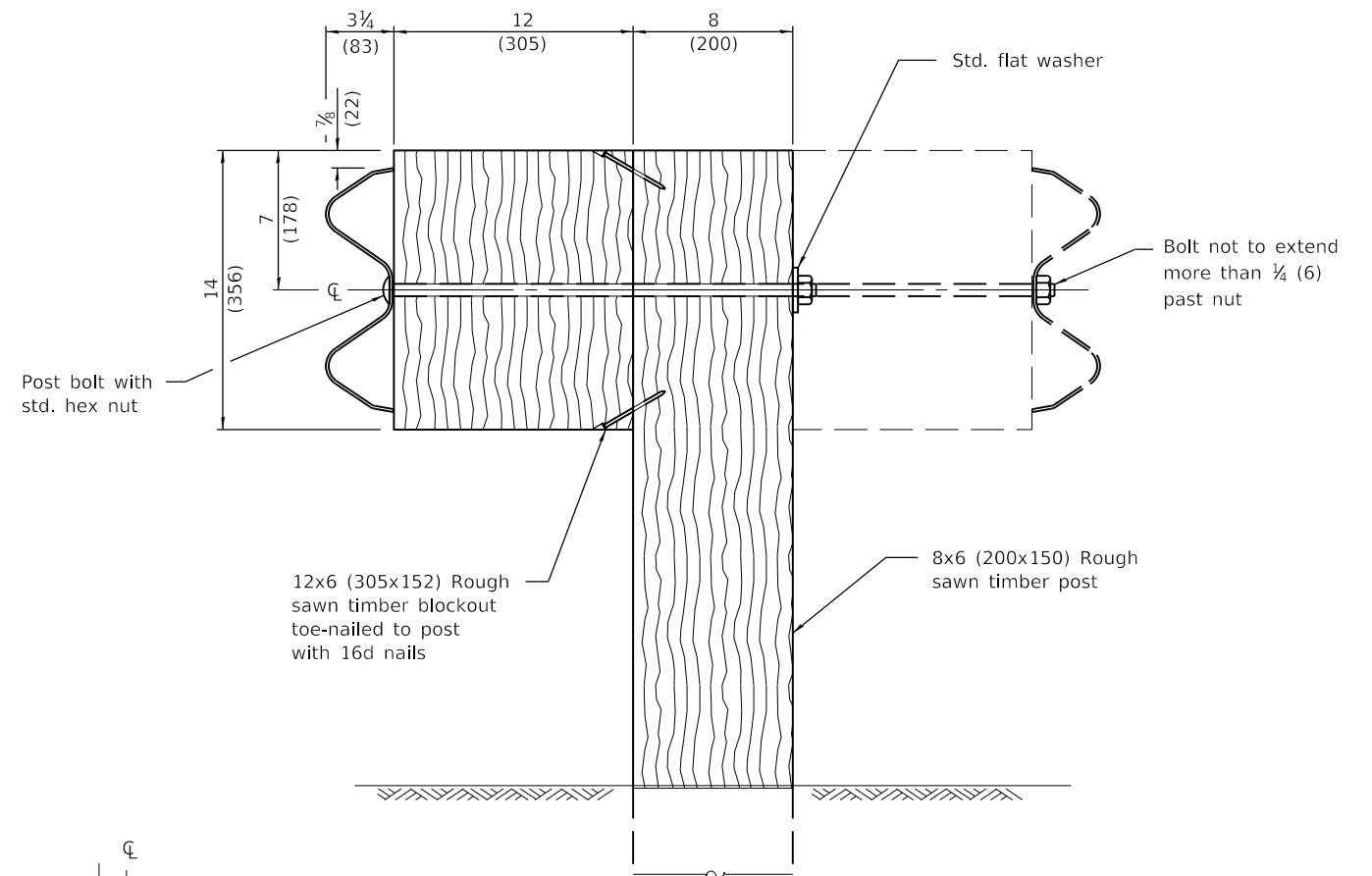
STEEL PLATE BEAM GUARDRAIL

(Sheet 1 of 4)

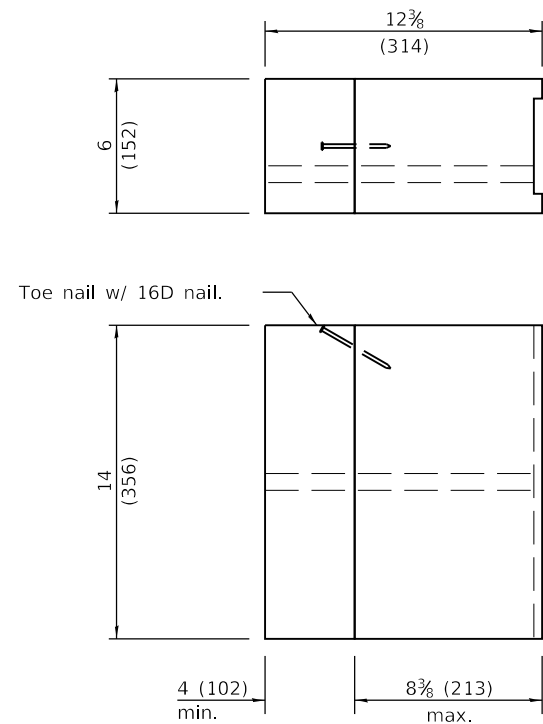
STANDARD 630001-12



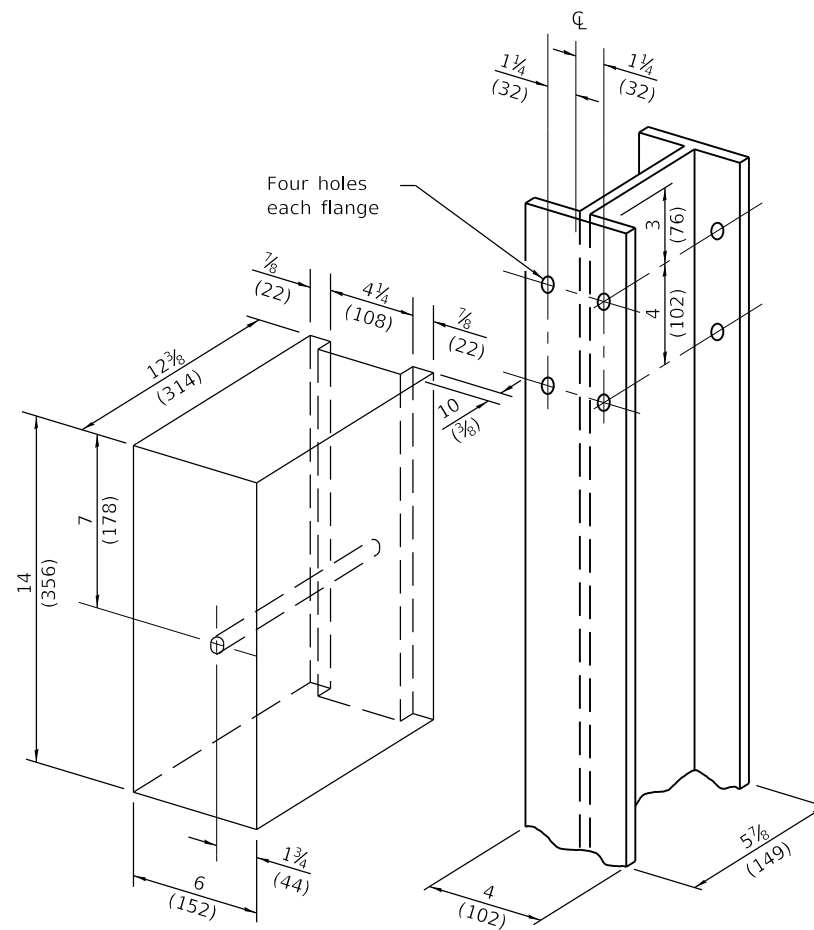
STEEL POST CONSTRUCTION



WOOD POST CONSTRUCTION

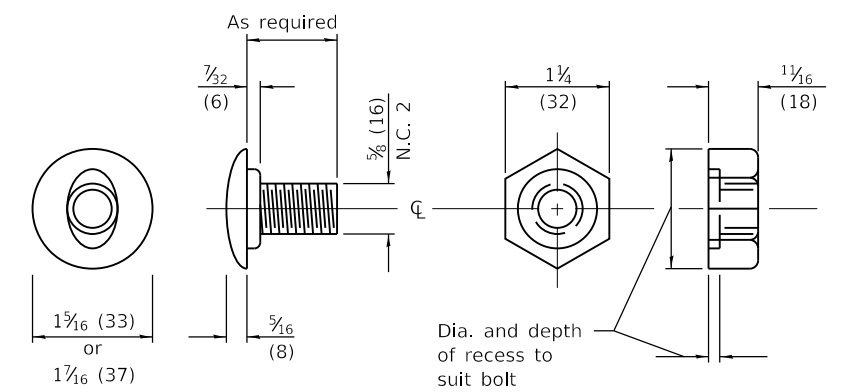


TWO-PIECE WOOD BLOCKOUT OPTION



Note:
All holes 3/4 (20) dia.

WOOD BLOCK-OUT AND STEEL POST DETAILS



POST OR SPLICE BOLT & NUT

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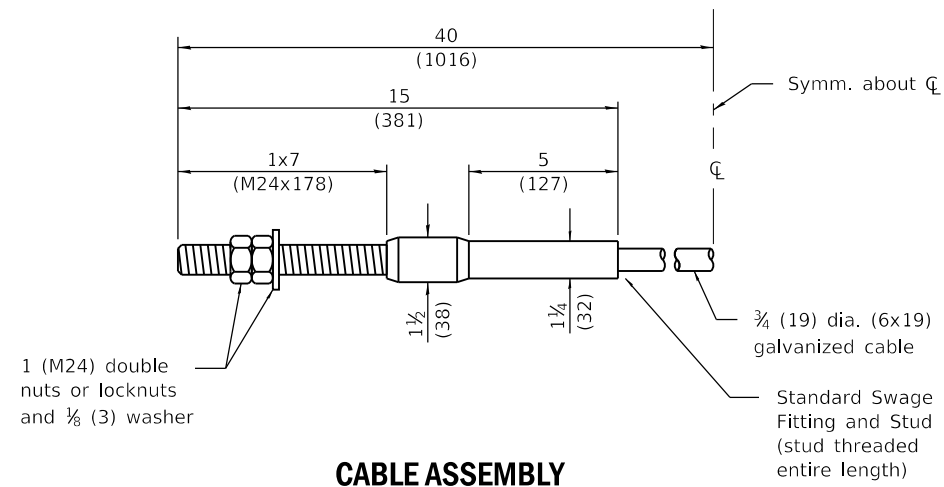
APPROVED January 1, 2018
Marcus M. Beck
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-18

STEEL PLATE BEAM GUARDRAIL

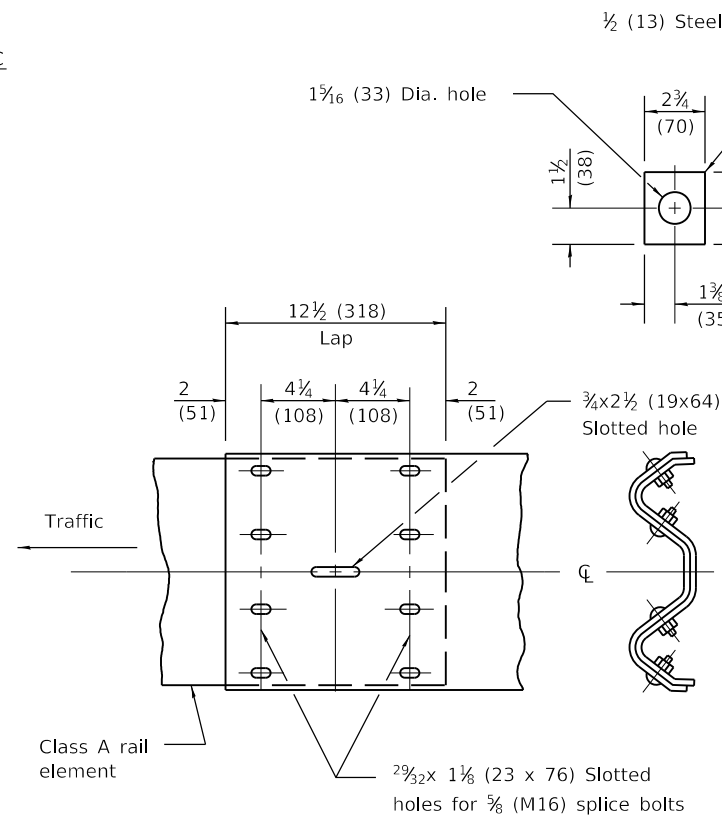
(Sheet 2 of 4)

STANDARD 630001-12



CABLE ASSEMBLY

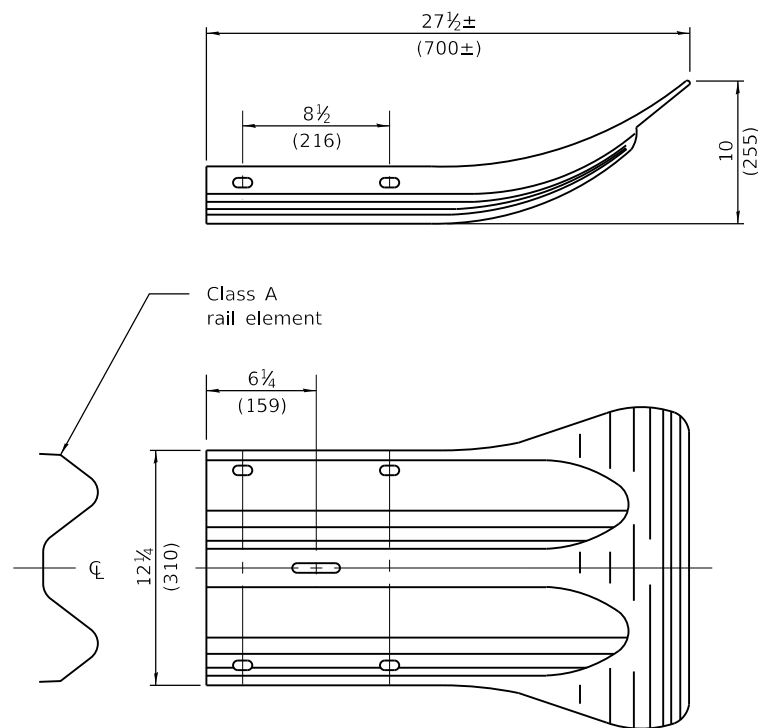
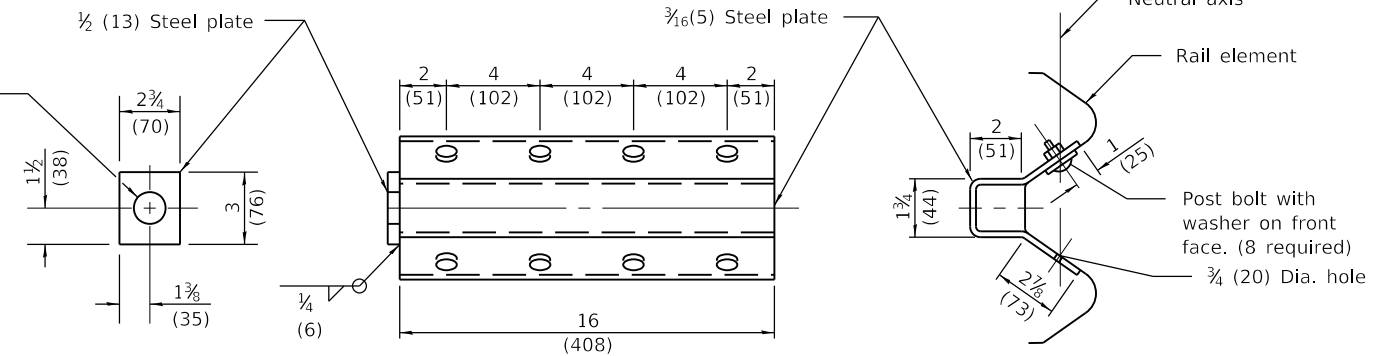
(42,800 lbs. (190 kN) min. breaking strength)
Tighten to taut tension.



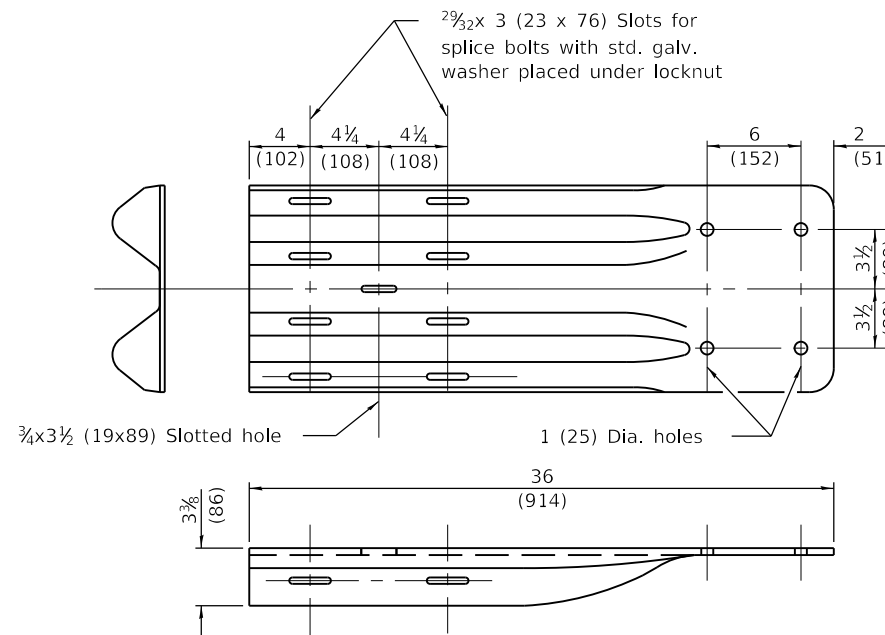
RAIL ELEMENT SPLICE

NOTE
Anchor plate T shall be used to attach cable assembly to guardrail when required on traffic barrier terminals.

ANCHOR PLATE T DETAILS



END SECTION

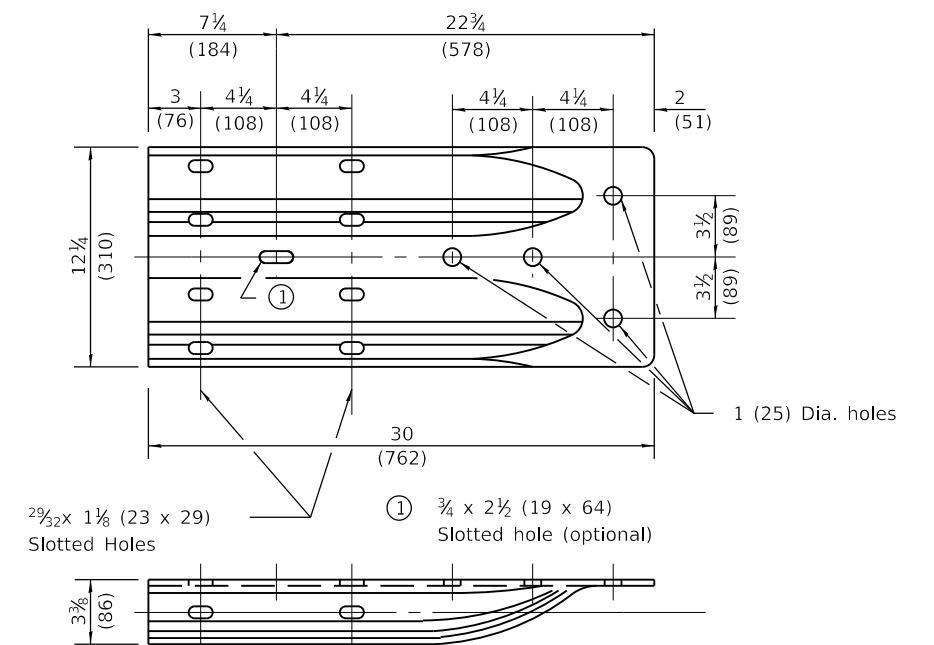


NOTE
When end shoe is attached to a bridge parapet which has an expansion joint, the bolts shall be provided with a locknut or double nut and shall be tightened only to a point that will allow guardrail movement.

The standard end shoe shall be attached to the concrete with pre-drilled or self-drilling anchor bolts. The anchor cone shall be set flush with the surface of the concrete.

Externally threaded studs protruding from the surface of the concrete will not be permitted.

END SHOE



ALTERNATE END SHOE

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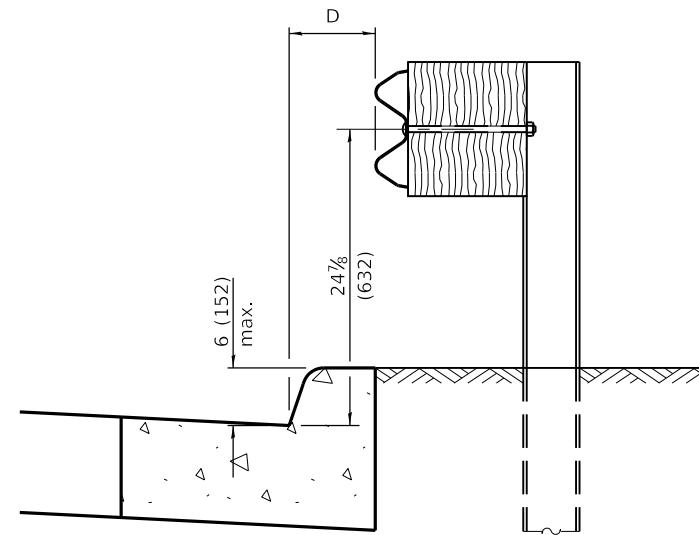
APPROVED January 1, 2018
Marcus M. Beck
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

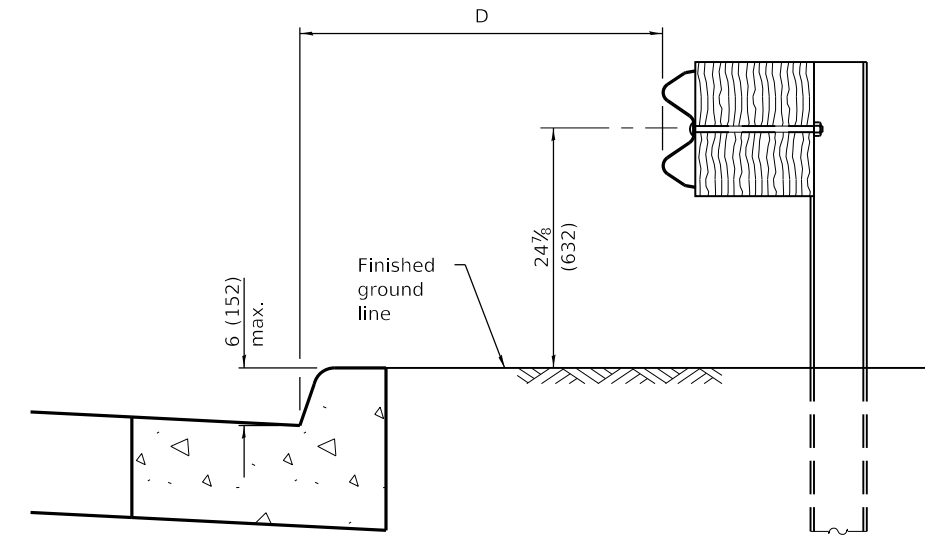
**STEEL PLATE BEAM
GUARDRAIL**

(Sheet 3 of 4)

STANDARD 630001-12



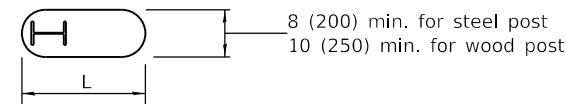
$0 \leq D < 6 (150 \text{ m})$



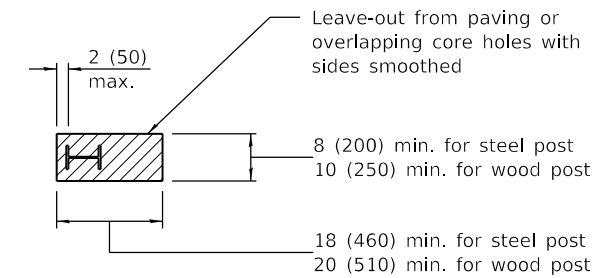
$4'-0'' (1.2 \text{ m}) \leq D \leq 12'-0'' (3.7 \text{ m})$

GUARDRAIL PLACED BEHIND CURB

Note: 'D' shall not exceed 6 (152) for design speeds greater than 45 mph.

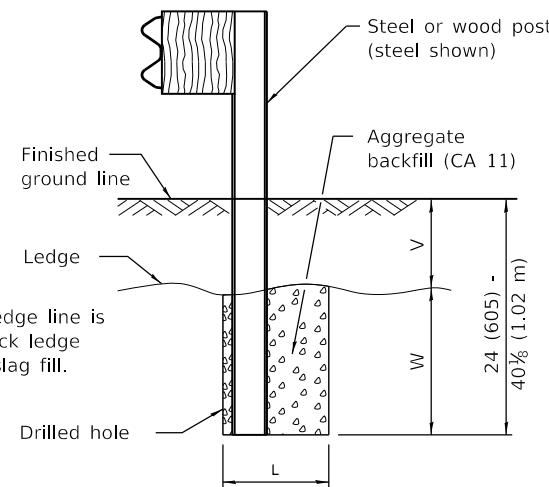


PLAN



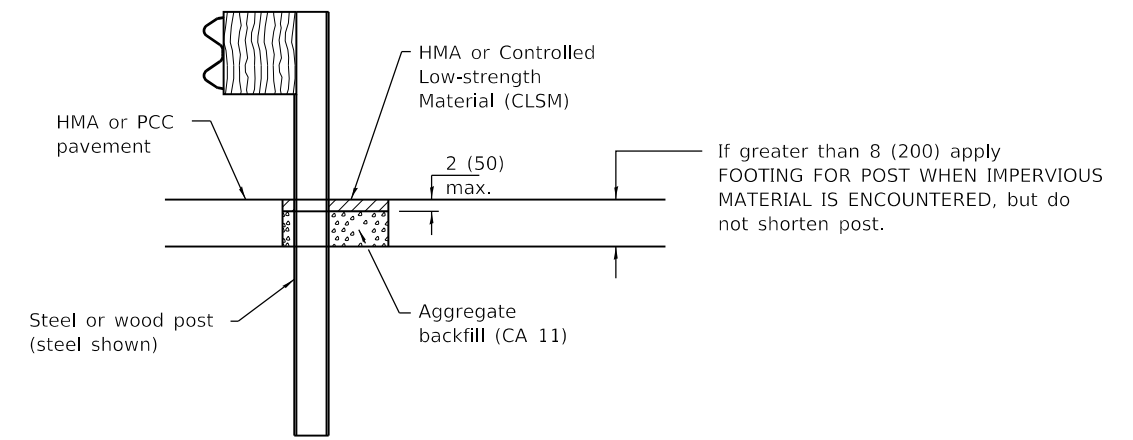
PLAN

V	W	L	
		Steel Post	Wood Post
0 - 6 (0 - 152)	24 (610)	21 (530)	23 (580)
> 6 - 18 (> 152 - 458)	18 (458)	14½ (368)	16½ (419)
> 18 - 31 (> 458 - 787)	12 (305)	8 (203)	10 (250)
> 31 - 40½ (> 787 - 1.02 m)	12 - 0 (305 - 0)	8 (203)	10 (250)



ELEVATION

FOOTING FOR POST WHEN IMPERVIOUS MATERIAL IS ENCOUNTERED



ELEVATION

LEAVE-OUT FOR POST WHEN PAVED MATERIAL IS ENCOUNTERED

Illinois Department of Transportation

APPROVED January 1, 2018
Michael Beard
 ENGINEER OF POLICY AND PROCEDURES

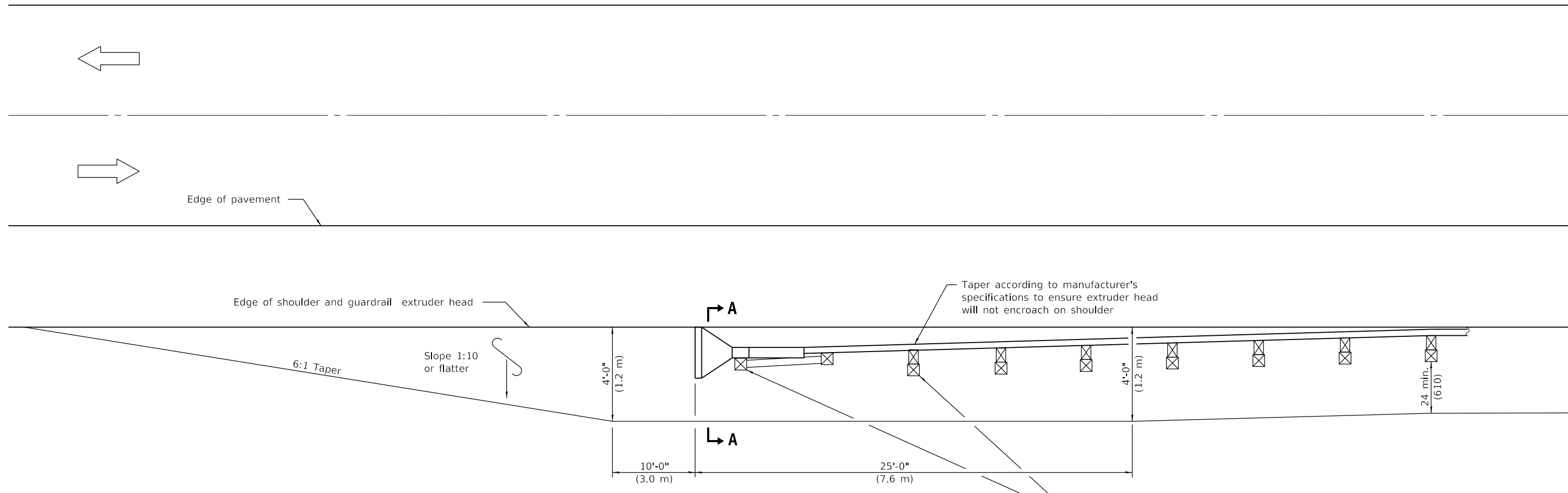
APPROVED January 1, 2018
Marcus M. Beck
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

STEEL PLATE BEAM GUARDRAIL

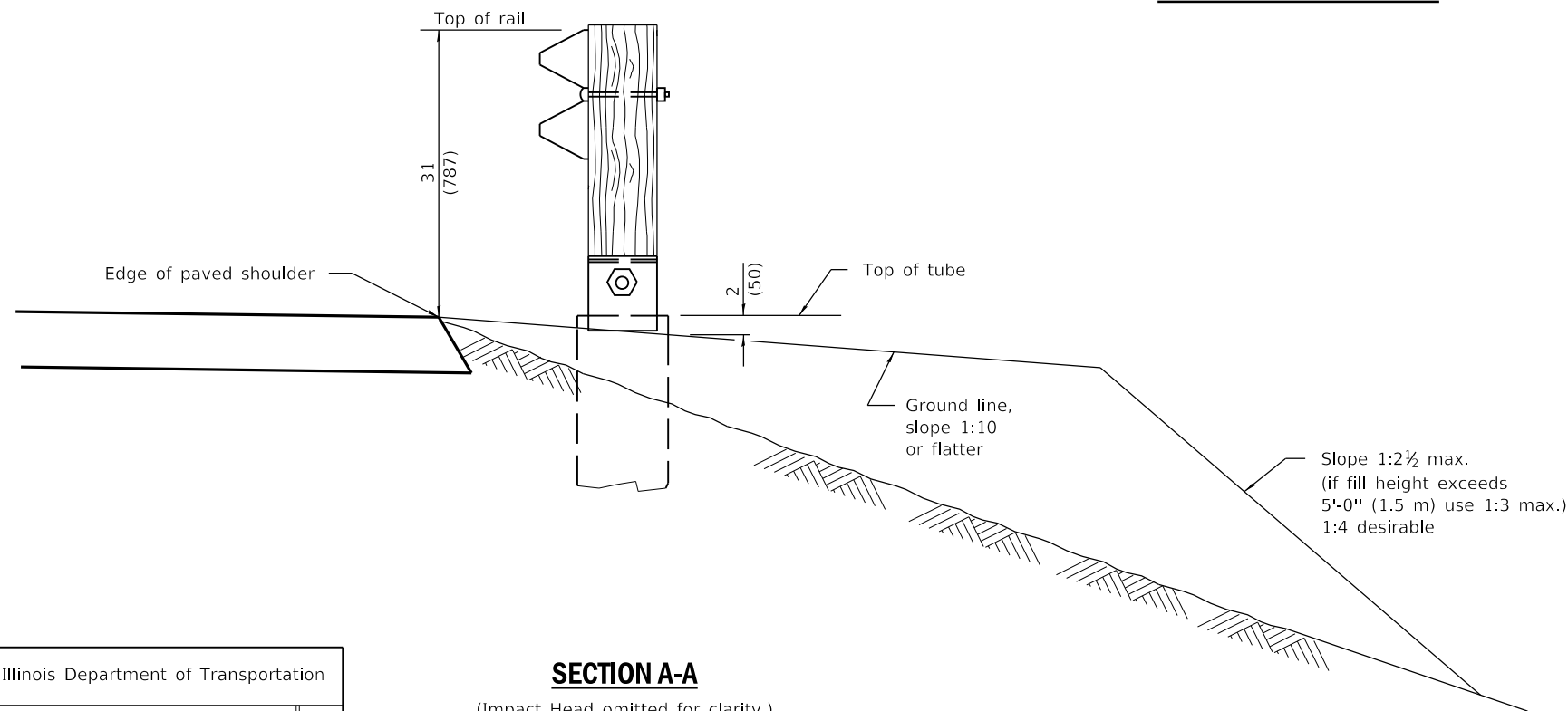
(Sheet 4 of 4)

STANDARD 630001-12



**SHOULDER WIDENING TRANSITION
FOR TANGENT TERMINAL**

Beginning length of need point varies by manufacturer. Typically occurs between posts 1 and 3.



SECTION A-A

(Impact Head omitted for clarity.)

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-19	Removed pay limits. Revised notes regarding the taper/flare and length of need point.
1-1-18	Omitted posts from 'Pay limits of other type'.

**SHOULDER WIDENING FOR
TYPE 1 (SPECIAL)
GUARDRAIL TERMINALS**

(Sheet 1 of 2)

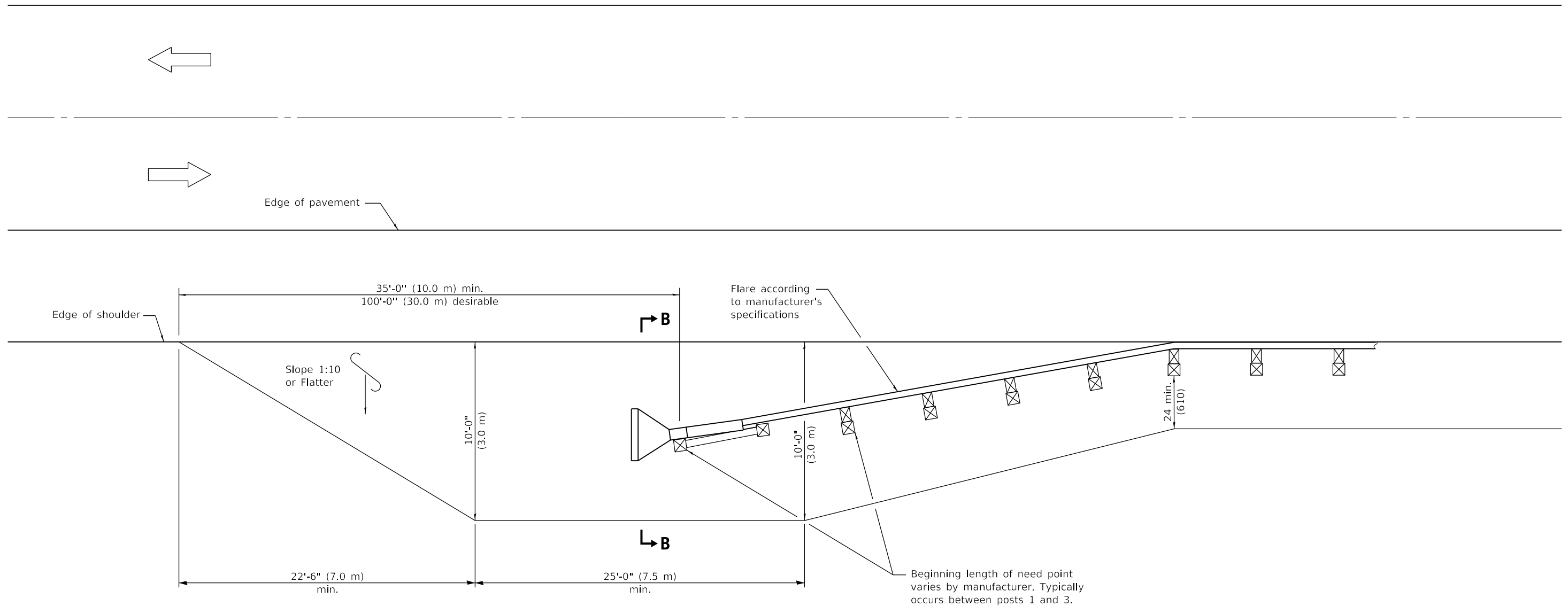
STANDARD 630301-09

Illinois Department of Transportation

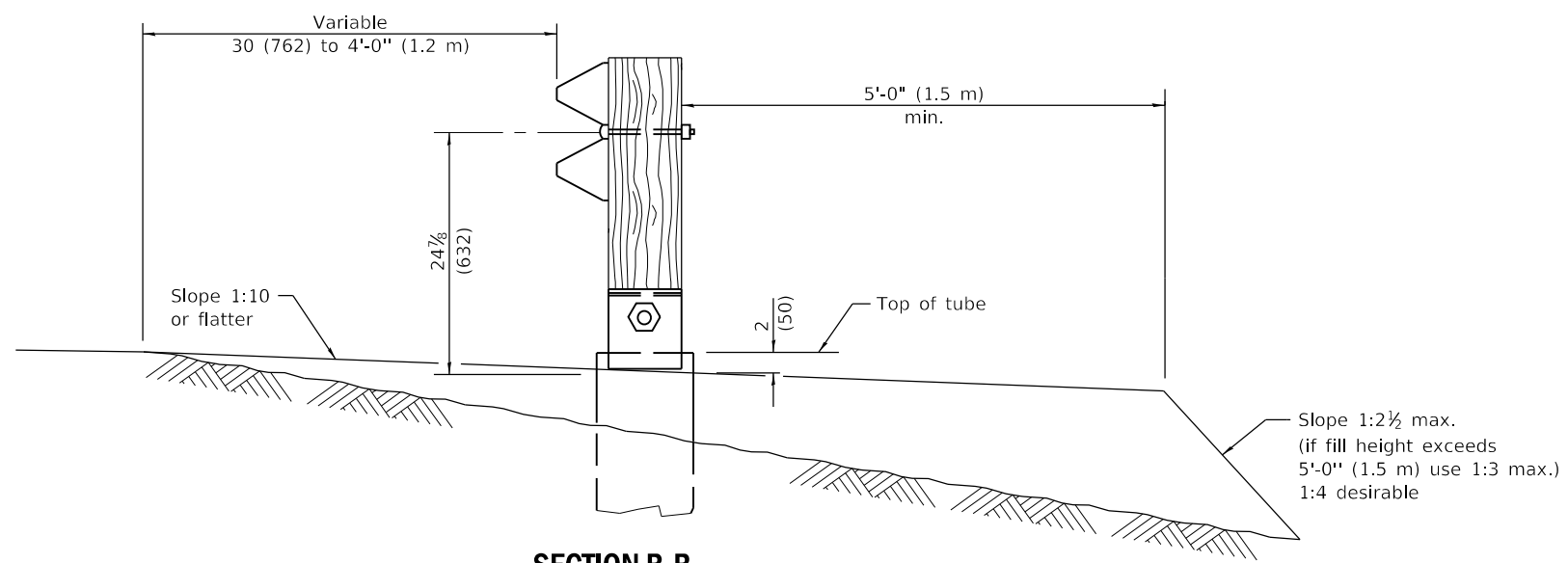
PASSED January 1, 2019
Michael Bond
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2019
John E. ...
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-00



**SHOULDER WIDENING TRANSITION
FOR FLARED TERMINAL**



SECTION B-B
(Impact Head omitted for clarity.)

**SHOULDER WIDENING FOR
TYPE 1 (SPECIAL)
GUARDRAIL TERMINALS**
(Sheet 2 of 2)

STANDARD 630301-09

Illinois Department of Transportation

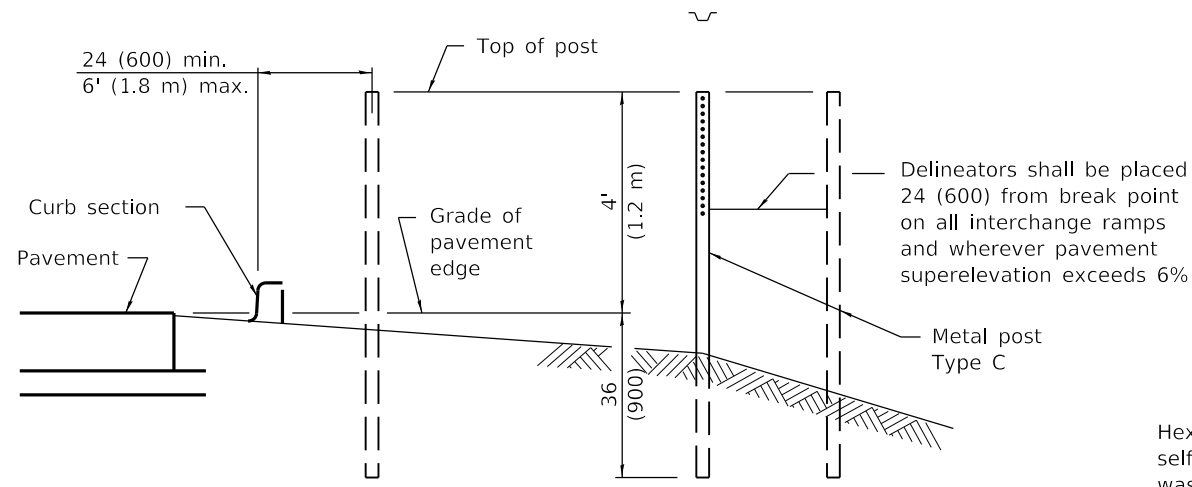
PASSED January 1, 2019
Michael Bond
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2019
John E. Elger
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-00

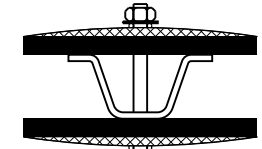
**SPACING FOR DELINEATORS
ON HORIZONTAL CURVES**

Radius of Curve Feet (m)	Spacing on Curve Feet (m)	Spacing in Advance and Beyond Curve Feet (m)		
		1st. Space	2nd. Space	3rd. Space
Less than 100 (30)	20 (5)	40 (10)	65 (20)	125 (40)
100 - 174 (30 - 54)	30 (10)	60 (20)	90 (25)	180 (55)
175 - 224 (55 - 69)	35 (10)	70 (20)	110 (35)	200 (60)
225 - 274 (70 - 84)	40 (10)	85 (25)	125 (40)	200 (60)
275 - 349 (85 - 104)	50 (15)	95 (30)	145 (45)	200 (60)
350 - 449 (105 - 134)	55 (15)	110 (35)	170 (50)	200 (60)
450 - 549 (135 - 164)	65 (20)	125 (40)	190 (60)	200 (60)
550 - 649 (165 - 199)	70 (20)	140 (45)	200 (60)	200 (60)
650 - 749 (200 - 229)	75 (25)	150 (45)	200 (60)	200 (60)
750 - 849 (230 - 259)	80 (25)	165 (50)	200 (60)	200 (60)
850 - 949 (260 - 289)	85 (25)	175 (55)	200 (60)	200 (60)
950 - 1049 (290 - 319)	90 (25)	185 (55)	200 (60)	200 (60)
1050 - 1299 (320 - 394)	100 (30)	200 (60)	200 (60)	200 (60)
1300 - 1999 (395 - 609)	125 (40)	200 (60)	200 (60)	300 (90)
2000 - 2999 (610 - 914)	150 (45)	200 (60)	200 (60)	300 (90)
3000 - 3999 (915 - 1219)	175 (55)	200 (60)	300 (90)	300 (90)
4000 or greater (1220)	400 (120)	400 (120)	400 (120)	400 (120)



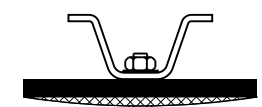
SECTIONAL VIEW

Hex head bolt with self locking nut and washer



Two sided

Hex head bolt with self locking nut and washer

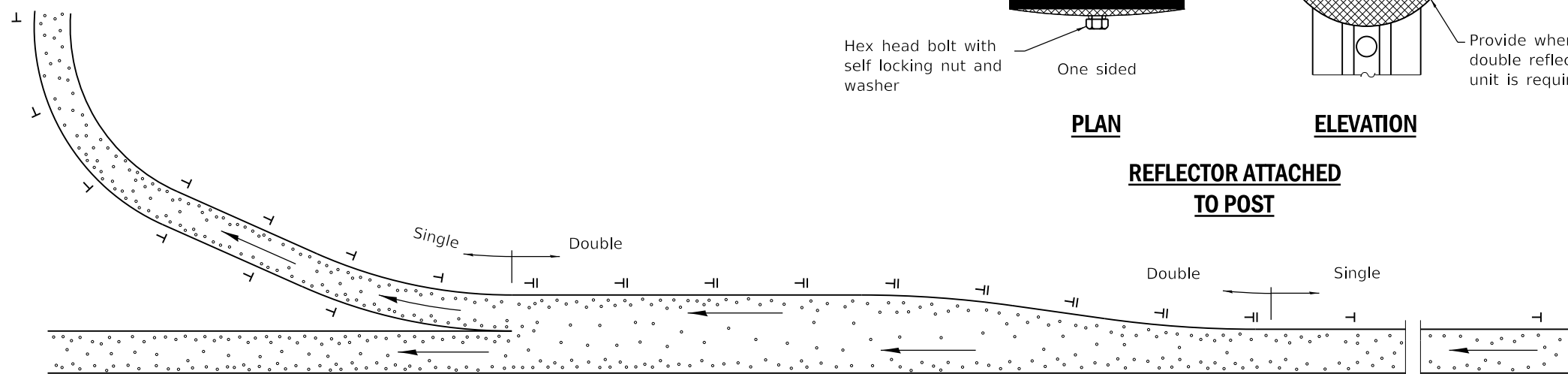


One sided

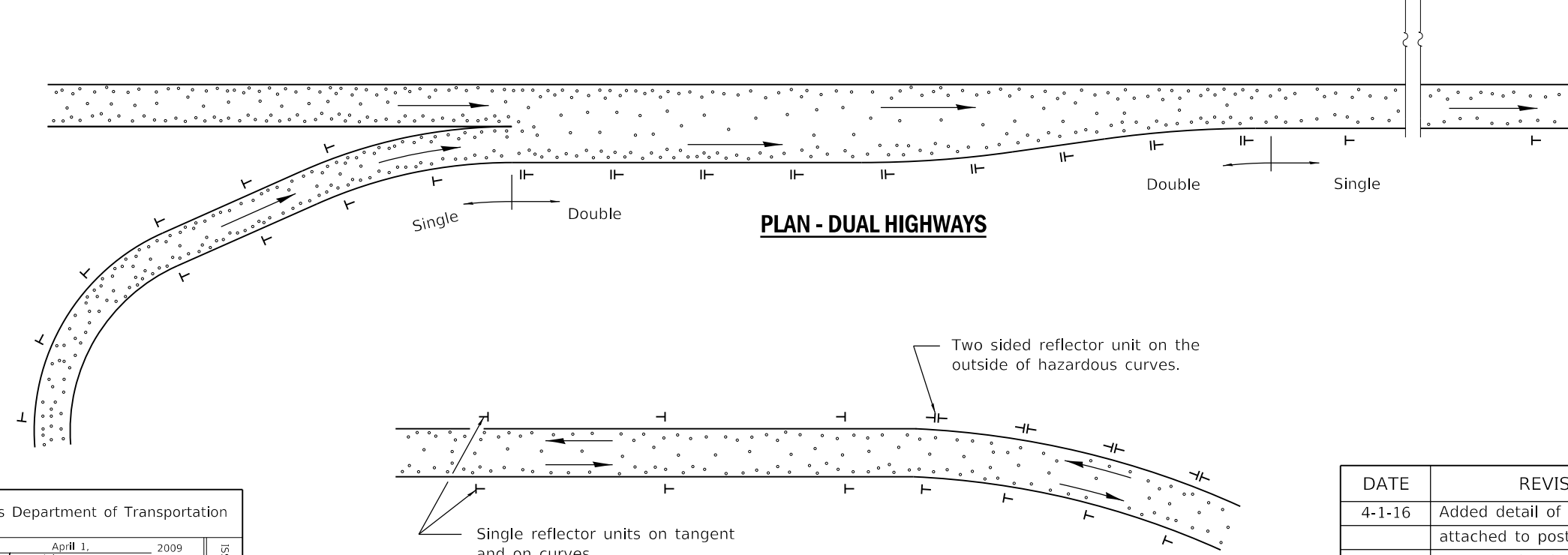
PLAN

ELEVATION

REFLECTOR ATTACHED TO POST



PLAN - DUAL HIGHWAYS



PLAN - TWO-WAY ROADWAYS

GENERAL NOTES

Delineators on tangent sections of main line roadways shall be placed at 400' (120 m) spacing. Delineators on ramps and acceleration and deceleration lanes shall be placed at a maximum spacing of 100' (30 m).

Refer to Standard 720011 for details of metal post.

Double reflector units shall be used on the outside of all acceleration and deceleration lanes. Single reflector units shall be used on ramps. Delineators shall be used on outside of all curved sections of ramps.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
4-1-16	Added detail of reflector attached to post. Revised signature block.
1-1-09	Switched units to English (metric). Revised notes.

DELINEATORS

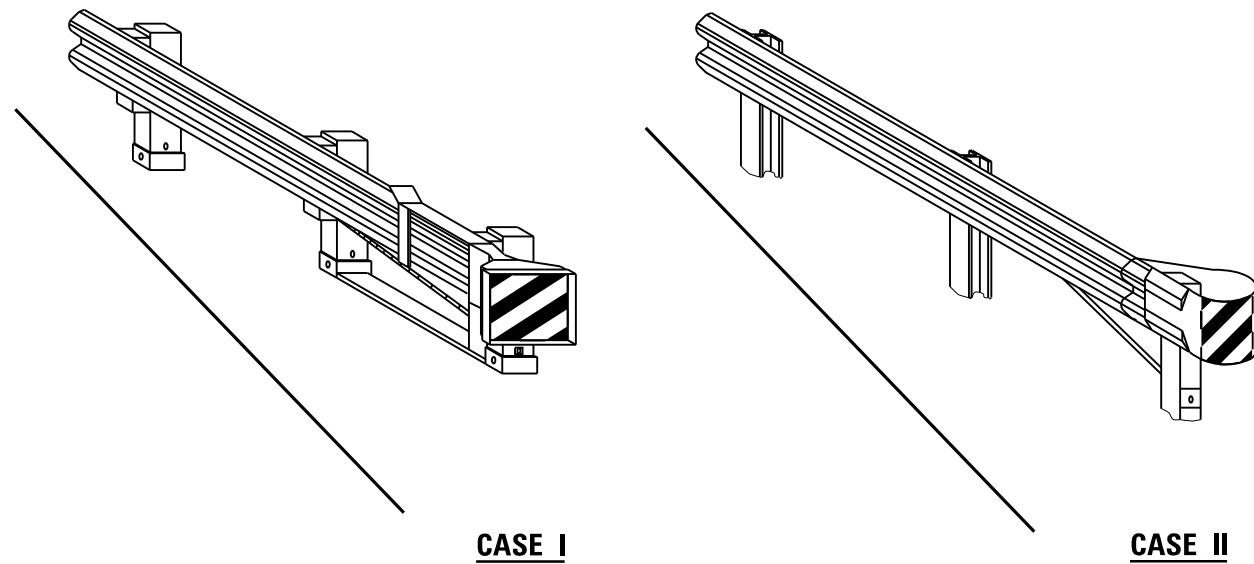
STANDARD 635001-02

Illinois Department of Transportation

PASSED April 1, 2009
Amy Allen
 ENGINEER OF OPERATIONS

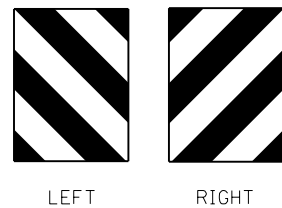
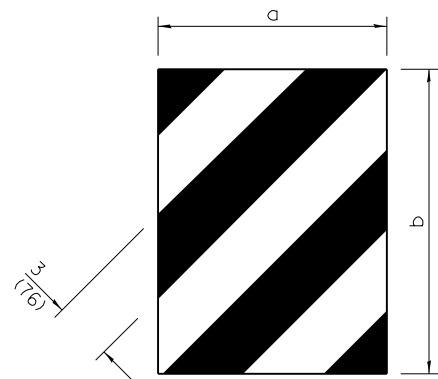
APPROVED April 1, 2009
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



CASE I

CASE II



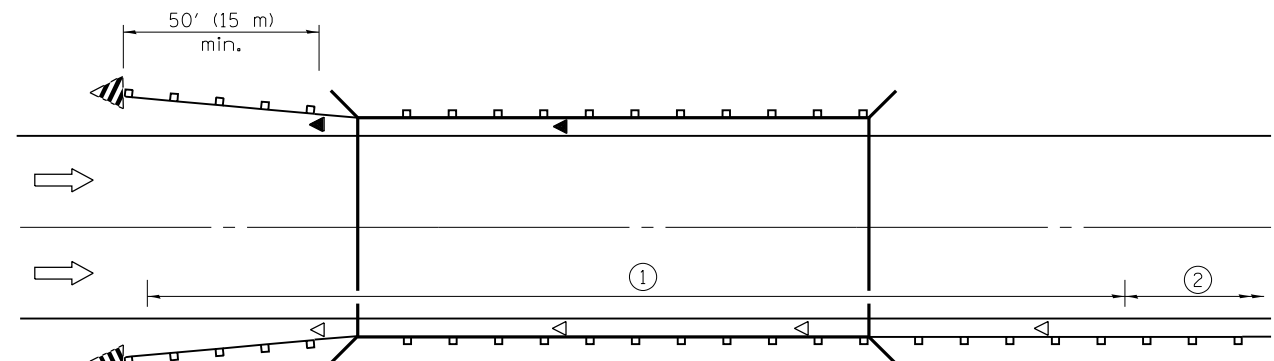
LEFT RIGHT

DIMENSION	CASE I	CASE II
a	*	18 (450)
b	*	16 (406)

* The width and height (a, b) of the terminal marker shall be within approximately 1 (25) of the outer edge of the terminal end, with a minimum reflective area of 288 sq. in. (0.18 m²).

TERMINAL MARKER DETAILS

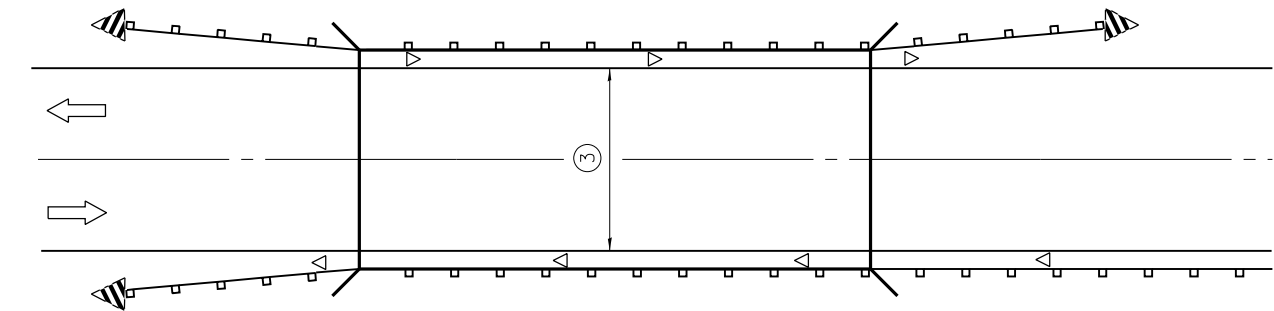
Color: Black / Yellow reflectorized



① Spacing 80 ft. (24 m) max. for first 400 ft. (122 m) or curve spacing shown in Standard 635001, whichever is less (min. 4 reflectors regardless of length).

② After 400 ft. (122 m), transition to normal delineator spacing shown in Standard 635001, and continue as required.

ONE-WAY TRAFFIC

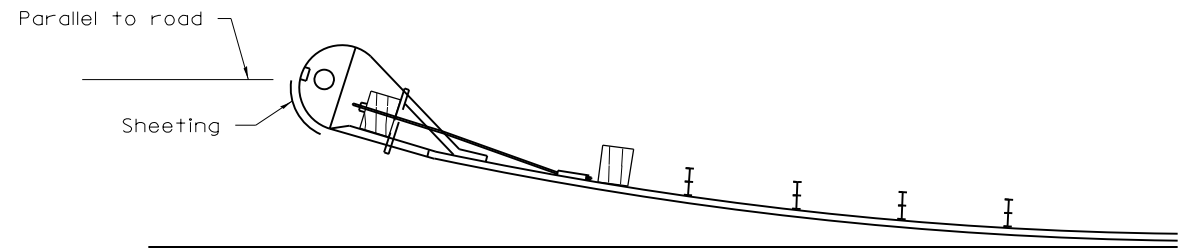


③ Bidirectional silver/silver should be used in lieu of monodirectional silver on both sides of two-lane bridges where the pavement is less than 24 (610) wider than the pavement approaching the bridge.

- ◁ Monodirectional crystal
- ◄ Monodirectional amber
- ▤ Terminal Marker - Black/Yellow Left or Right as appropriate

TWO-WAY TRAFFIC

GUARDRAIL / BARRIER WALL / BRIDGE RAIL REFLECTORS



SHEETING POSITION: CASE II

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2009
[Signature]
 ENGINEER OF OPERATIONS

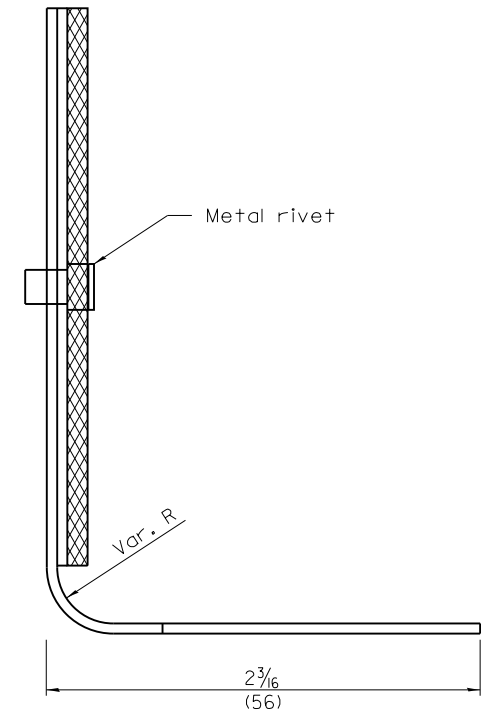
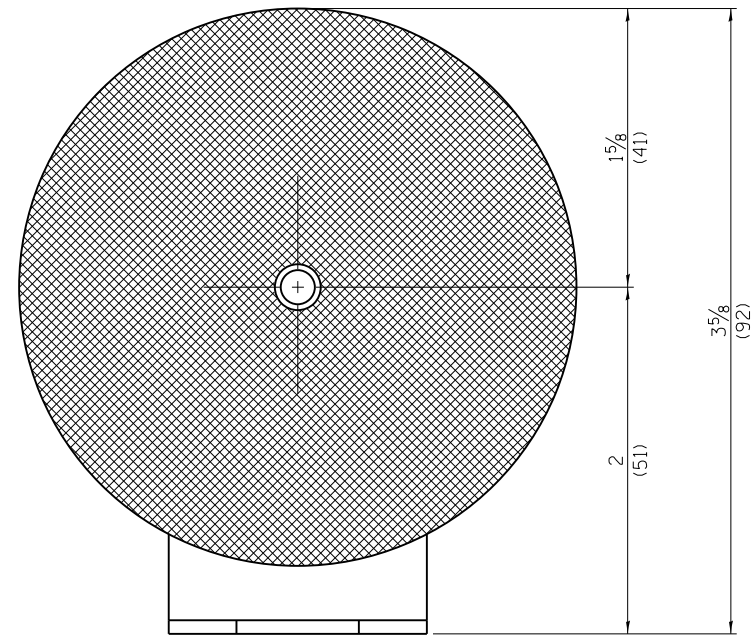
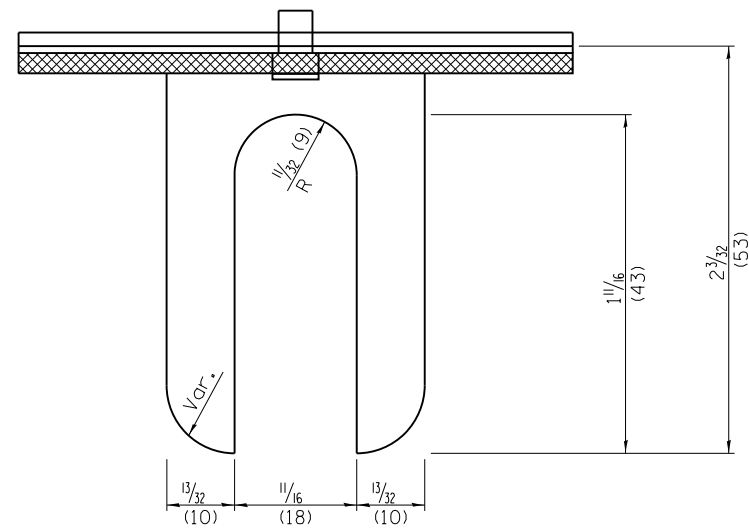
APPROVED January 1, 2009
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-2000

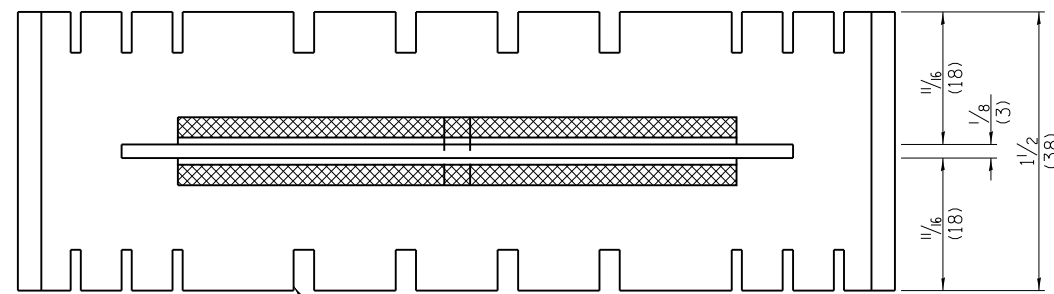
DATE	REVISIONS
1-1-09	Switched units to English (metric). Changed 'white' to 'crystal' ref.
1-1-02	Revise Case I Dimension and removed alternate detail.

REFLECTOR AND TERMINAL MARKER PLACEMENT

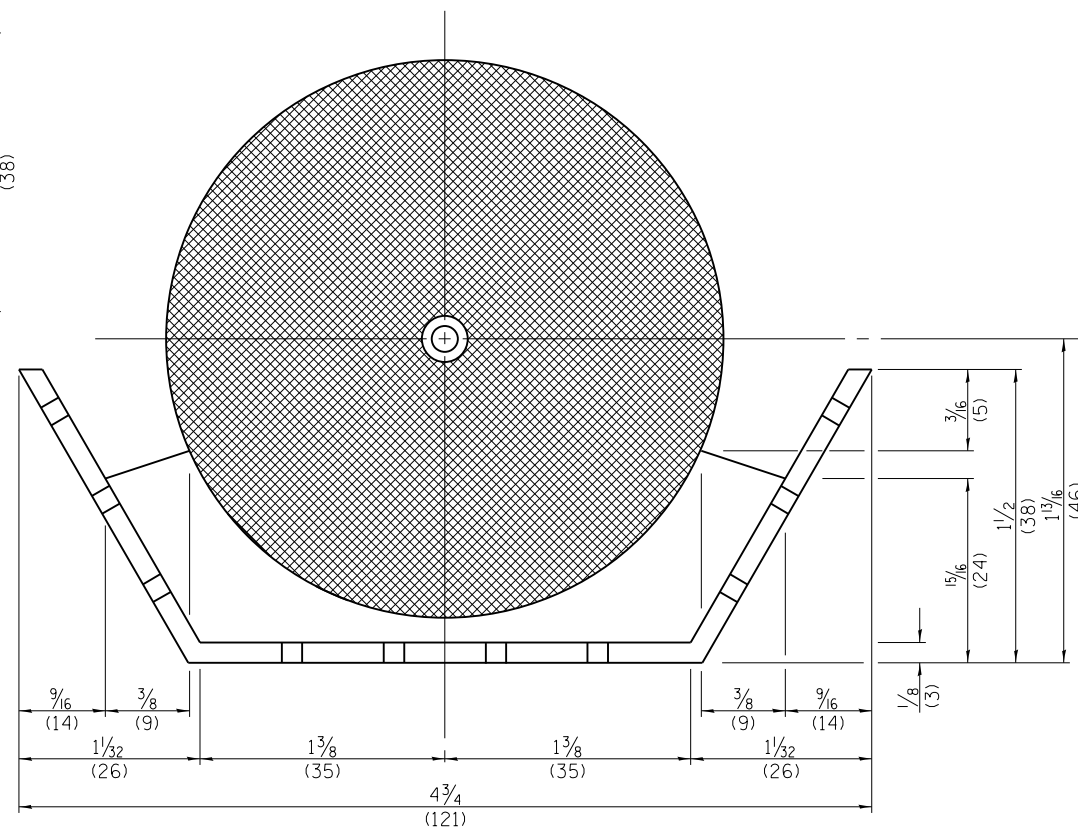
STANDARD 635006-03



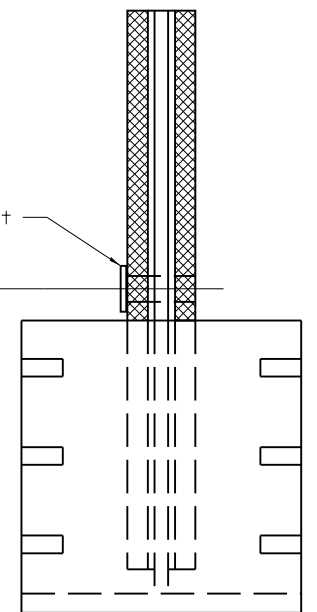
REFLECTOR MARKER TYPE A



Adhesive weep slots or holes
equally spaced on both sides



Brass or plastic rivet



REFLECTOR MARKER TYPE B

All dimensions are in inches (millimeters)
unless otherwise shown.

Illinois Department of Transportation
APPROVED January 1, 2009
ENGINEER OF OPERATIONS
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-2000

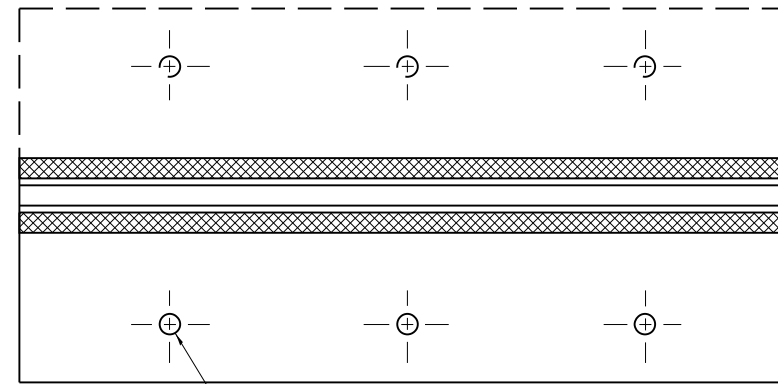
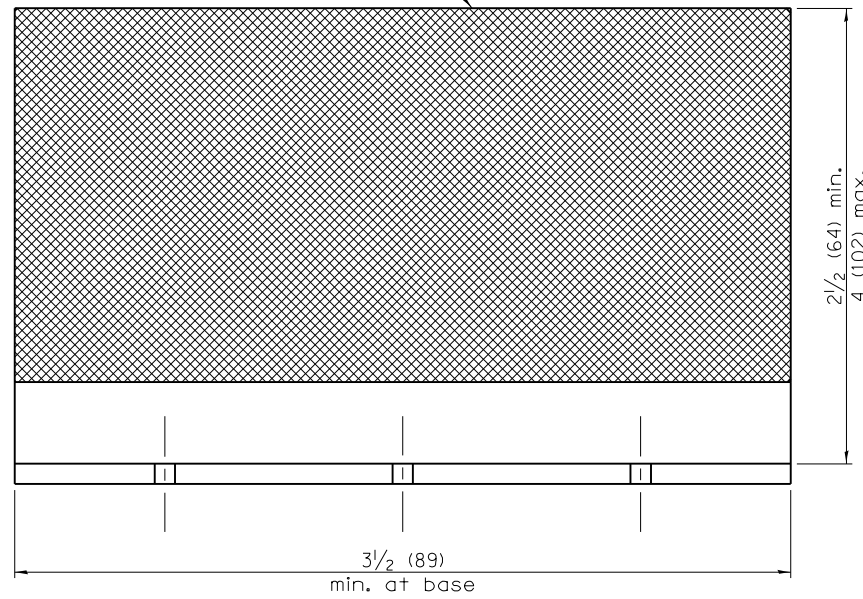
DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-01	Revised signature block.

REFLECTOR MARKER AND MOUNTING DETAILS

(Sheet 1 of 3)

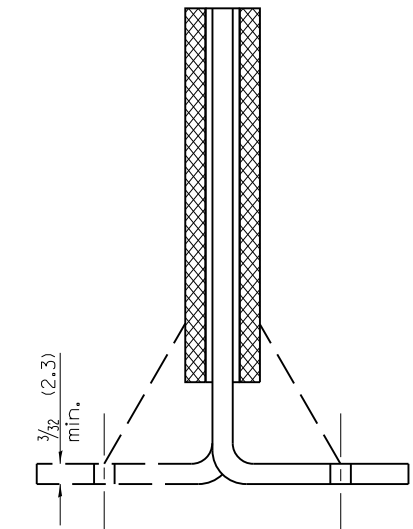
STANDARD 635011-02

Min. reflective area
 $6\frac{1}{2}$ sq. in. (4,194 mm²)
 each side. May be
 rectangular or slight
 trapezoid.



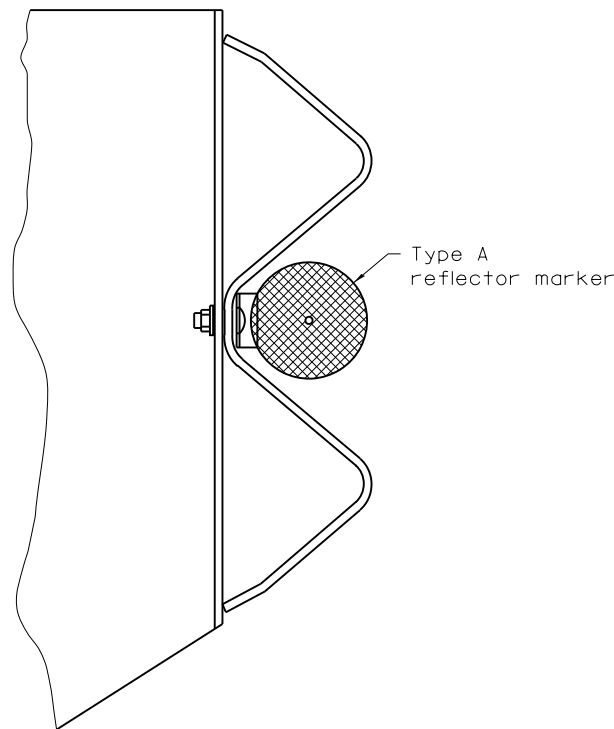
Minimum total area of
 base 7.0 sq. in. (4,516 mm²)

3 min. adhesive weep
 holes or slots each side,
 variable spacing.

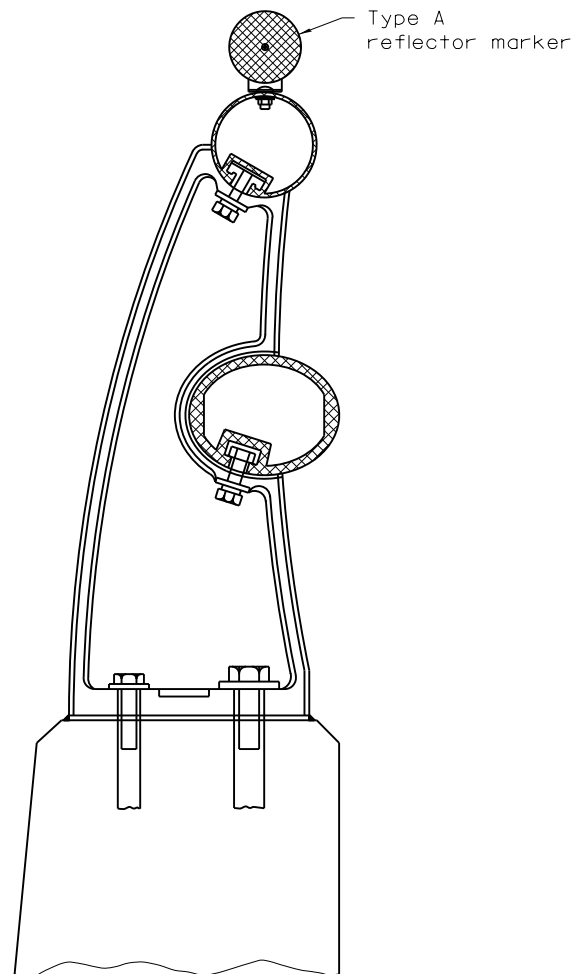


Cross section may be "T"
 or "L" shaped and may have
 side supports at ends.

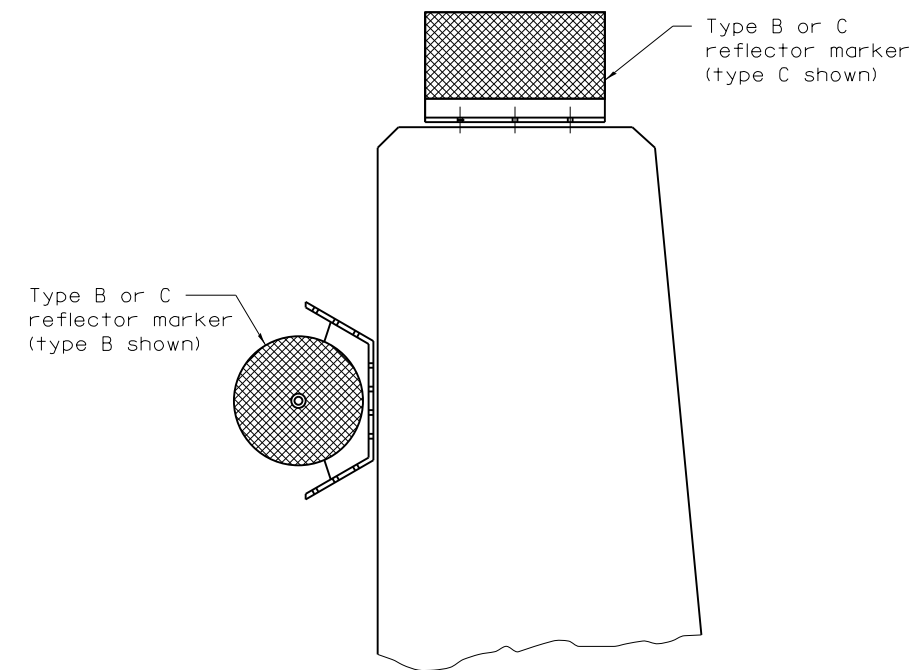
REFLECTOR MARKER TYPE C



TYPICAL MOUNTING WITH REFLECTOR



**TYPICAL MOUNTING DETAIL
 FOR BRIDGE RAIL REFLECTOR**



**TYPICAL MOUNTING DETAIL
 FOR BARRIER WALL REFLECTOR**

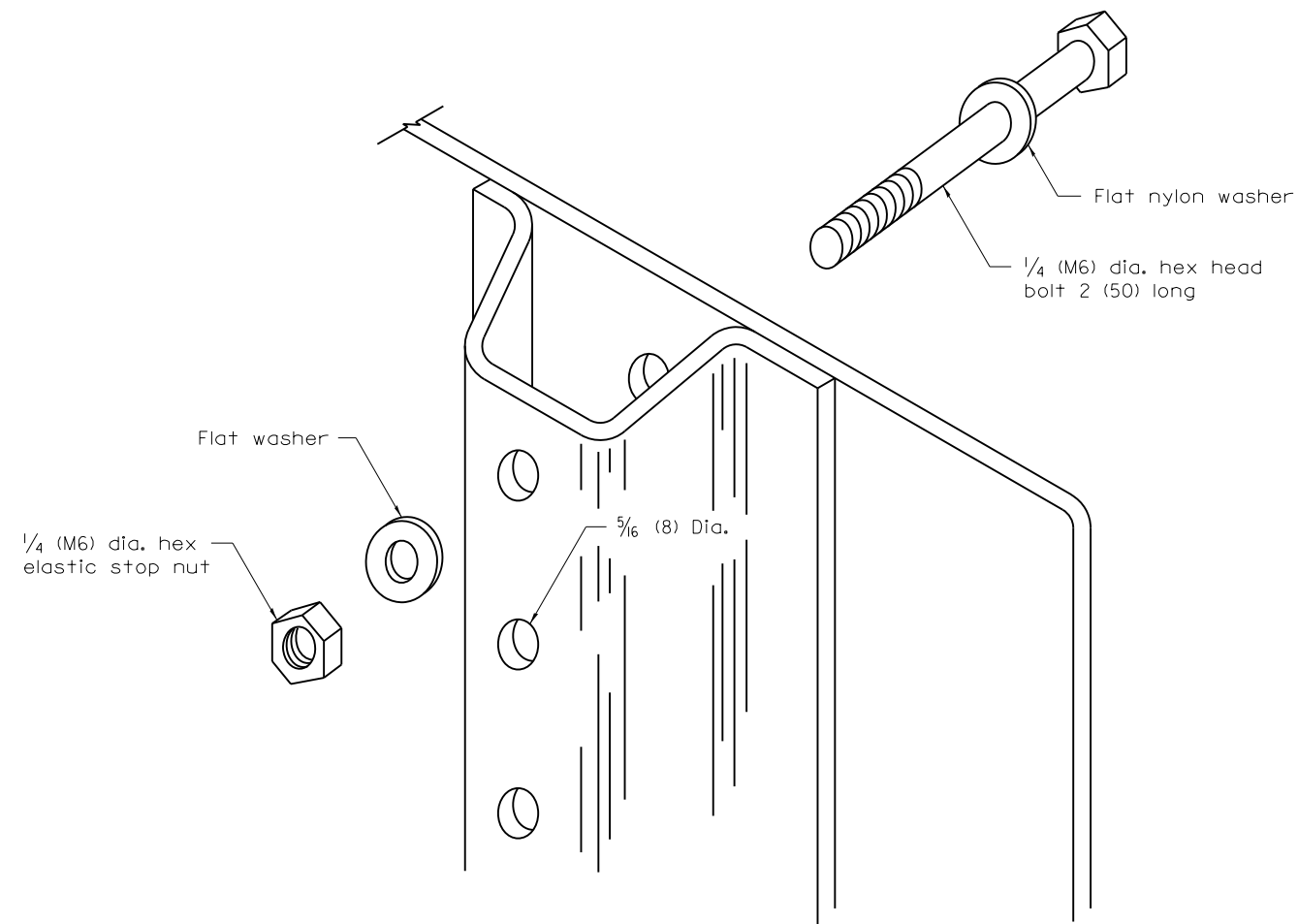
Illinois Department of Transportation
 APPROVED January 1, 2009
 ENGINEER OF OPERATIONS
 APPROVED January 1, 2009
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-2000

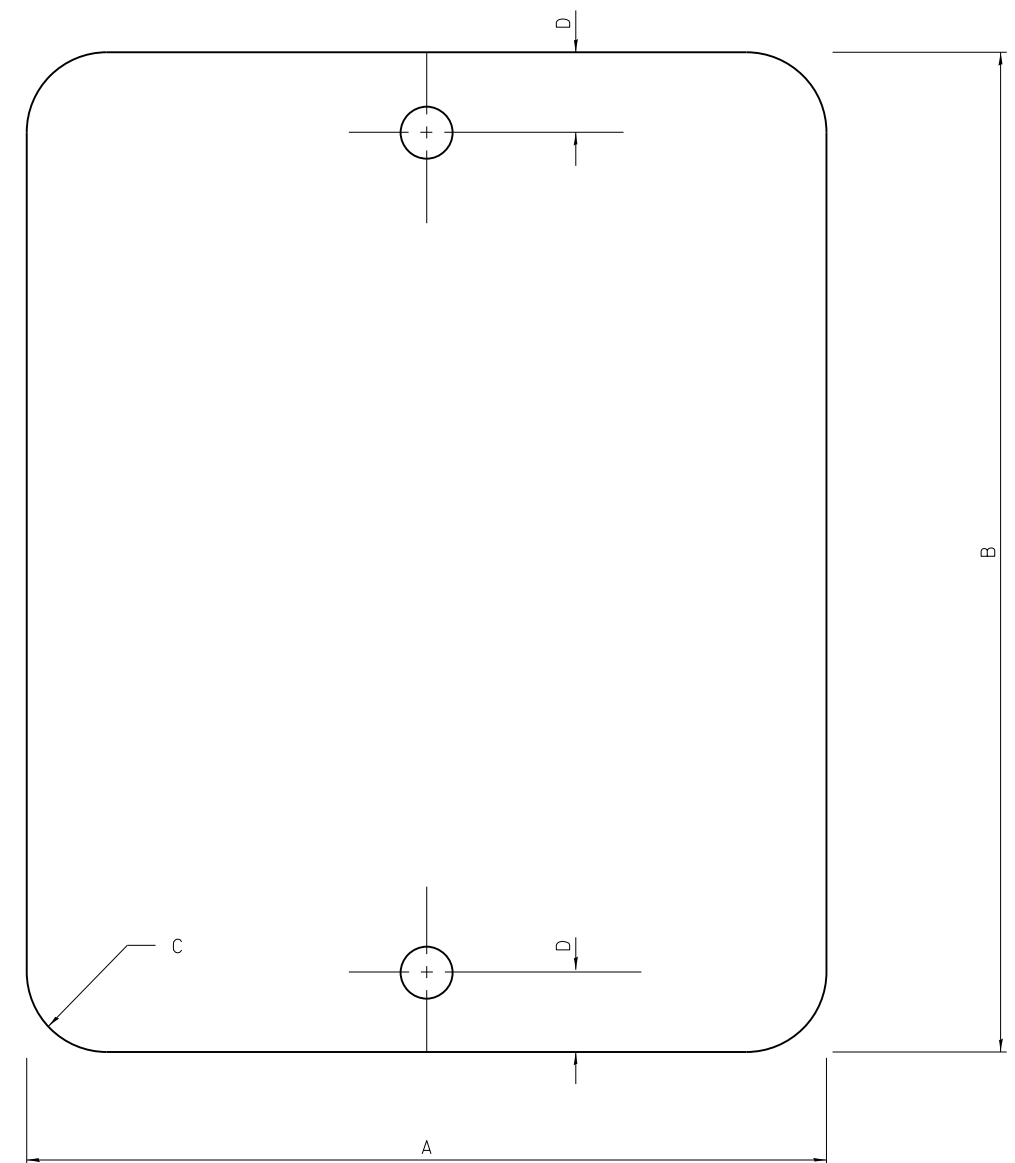
**REFLECTOR MARKER AND
 MOUNTING DETAILS**

(Sheet 2 of 3)

STANDARD 635011-02




DETAIL OF MOUNTING TERMINAL MARKER TO POST



STANDARD TERMINAL MARKER

SIGN SIZE	DIMENSIONS			
	A	B	C	D
12x16 (305x406)	12.0 (305)	16.0 (406)	1.5 (38)	2.0 (50)

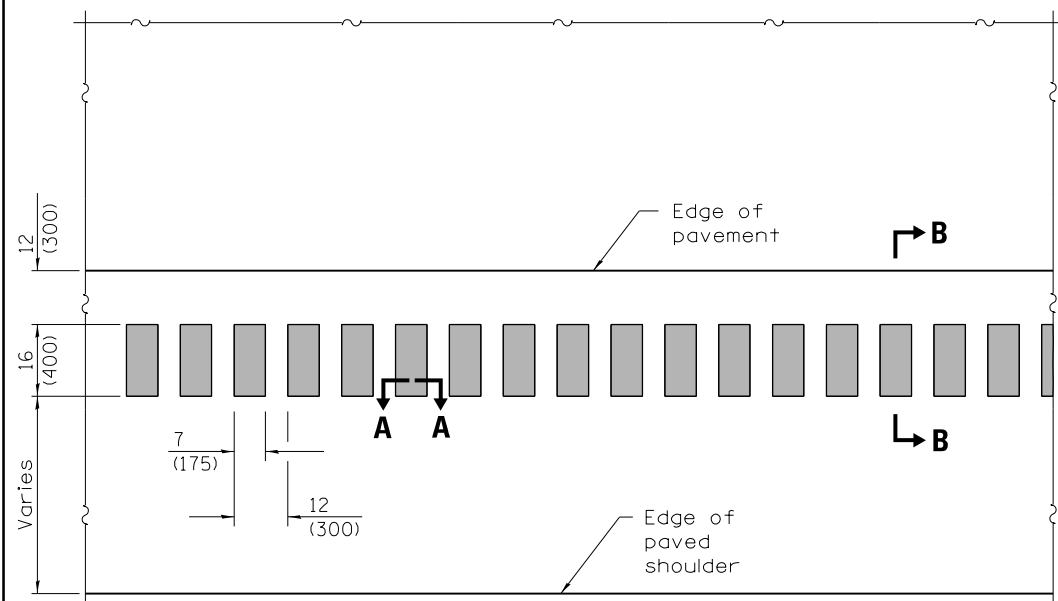
 Illinois Department of Transportation
 APPROVED January 1, 2009
 ENGINEER OF OPERATIONS
 APPROVED January 1, 2009
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-2000

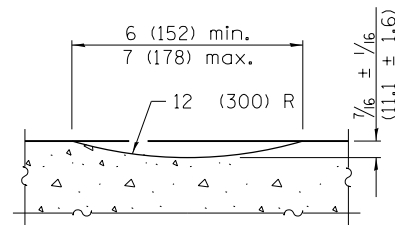
REFLECTOR MARKER AND MOUNTING DETAILS

(Sheet 3 of 3)

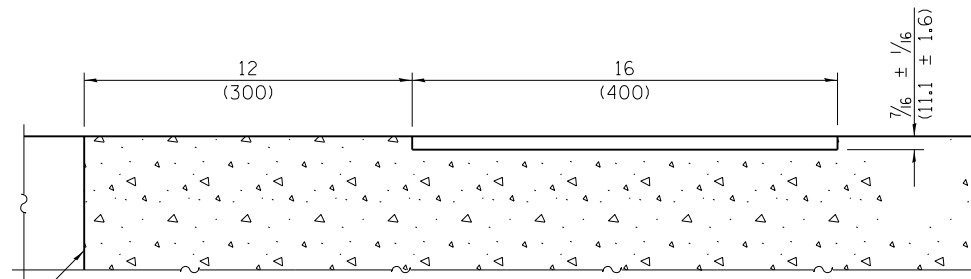
STANDARD 635011-02



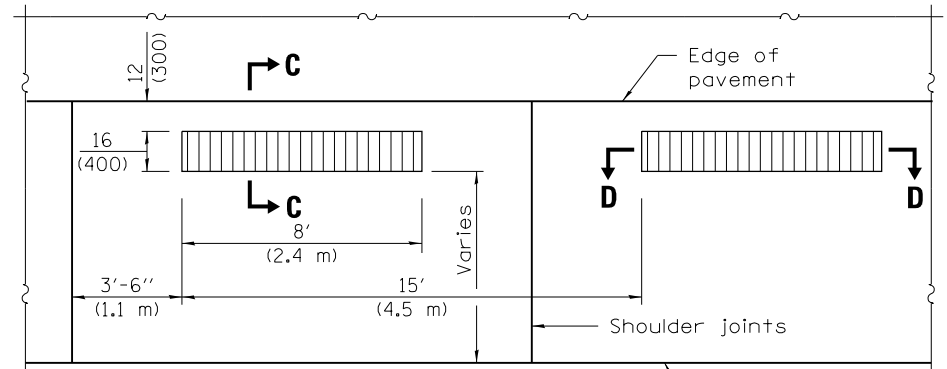
PLAN



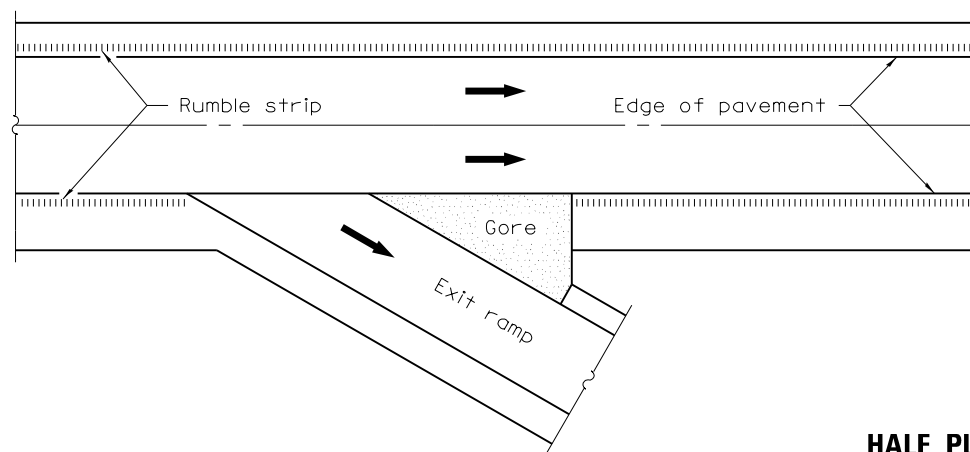
SECTION A-A



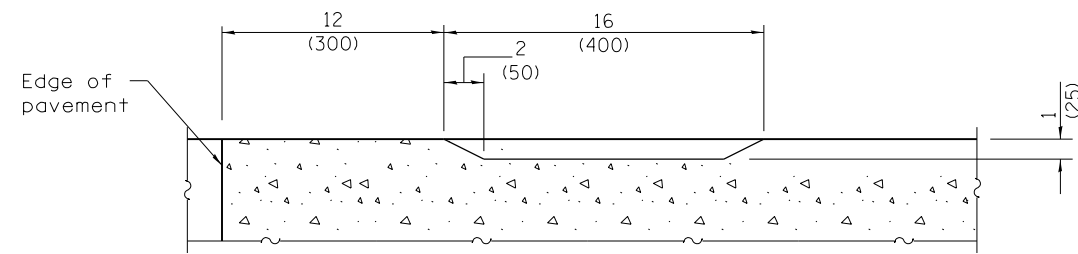
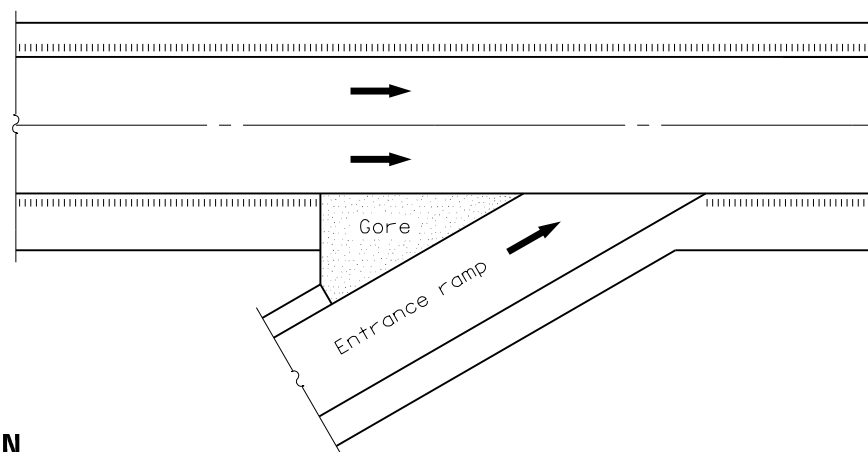
SECTION B-B



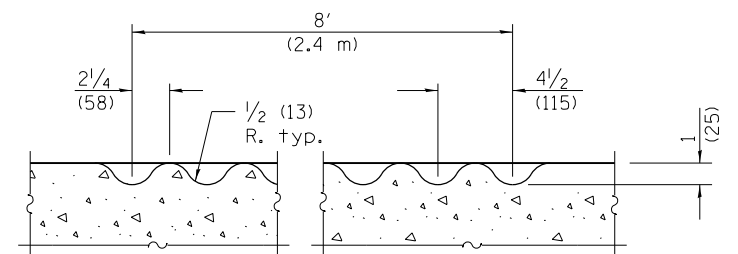
PLAN
(Formed Alternate for PCC Shoulders)



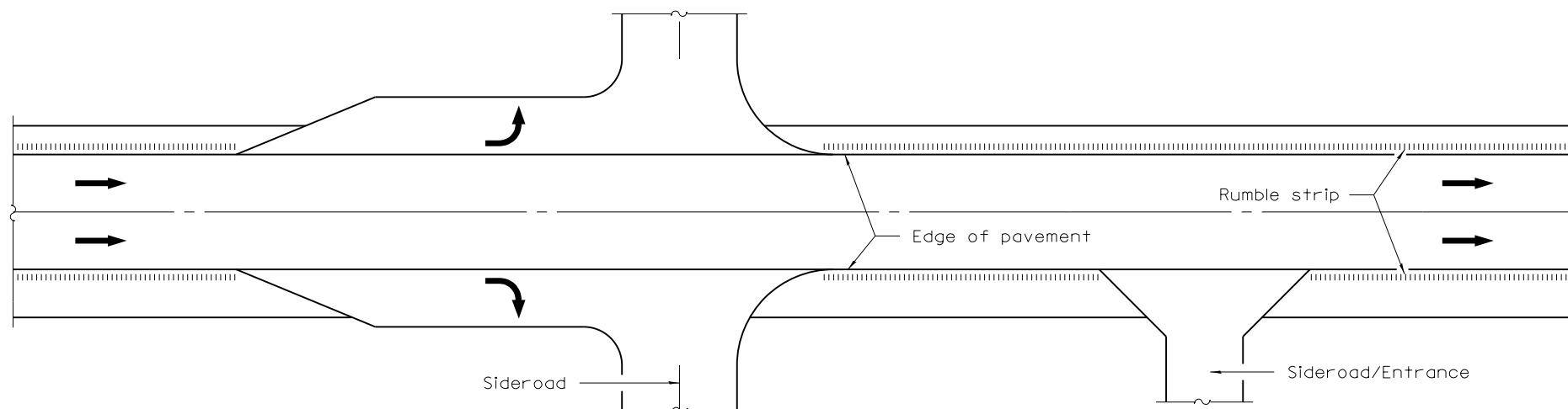
HALF PLAN
TYPICAL APPLICATION AT AN INTERCHANGE



SECTION C-C



SECTION D-D



HALF PLAN
TYPICAL APPLICATION AT AN INTERSECTION OR ENTRANCE

GENERAL NOTES

On Portland cement concrete shoulders, no shoulder rumble strip shall be located closer than 6 (150) to a transverse joint.

Omit shoulder rumble strips across structures.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-12	Changed formed rumble strip to 16 (400) wide. Rev'd milled strip. Renamed standard.
1-1-09	Switched units to English (metric).

SHOULDER RUMBLE STRIPS, 16 in.

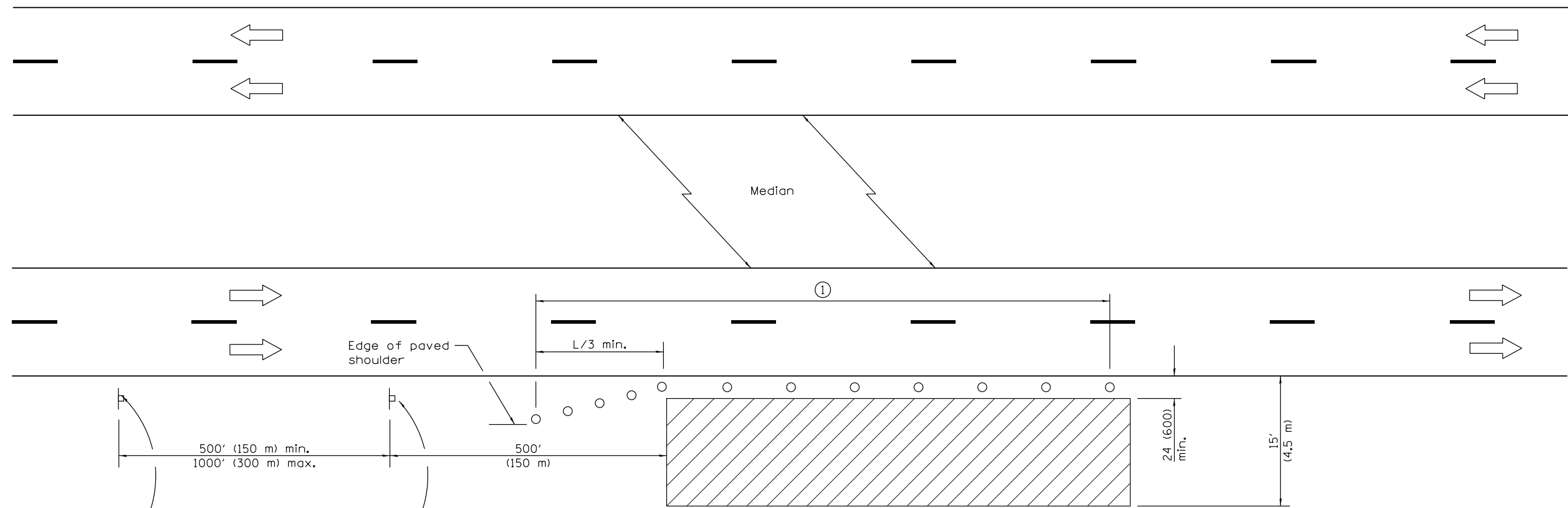
STANDARD 642001-02

Illinois Department of Transportation

PASSED January 1, 2012
Michael Beard
 ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2012
Scott Esch
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-03



For contract construction projects



W20-1103(O)-48



W21-1(O)-48

For maintenance and utility projects



W20-1(O)-48

TYPICAL APPLICATIONS

- Utility operations
- Culvert extensions
- Side slope changes
- Guardrail installation and maintenance
- Delineator installation
- Landscaping operations
- Shoulder repair
- Sign installation and maintenance

① When the work operation exceeds one hour, cones, drums or barricades shall be placed at 25' (8 m) centers for L/3 distance, and at 50' (15 m) centers through the remainder of the work area.

SYMBOLS

- Work area
- Sign
- Cone, drum or barricade

GENERAL NOTES

This Standard is used where any vehicles, equipment, workers or their activities will encroach in the area 15' (4.5 m) to 24' (600) from the edge of pavement.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	English	(Metric)
40 mph (70 km/h) or less:	$L = \frac{WS^2}{60}$	$L = \frac{WS^2}{150}$
45 mph (80 km/h) or greater:	$L = (W)(S)$	$L = 0.65(W)(S)$

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
4-1-16	Corrected typo in title.
1-1-14	Revised workers sign number to agree with current MUTCD.

**OFF-RD OPERATIONS, MULTILANE,
15' (4.5 m) TO 24" (600 mm)
FROM PAVEMENT EDGE**

STANDARD 701101-05

Illinois Department of Transportation

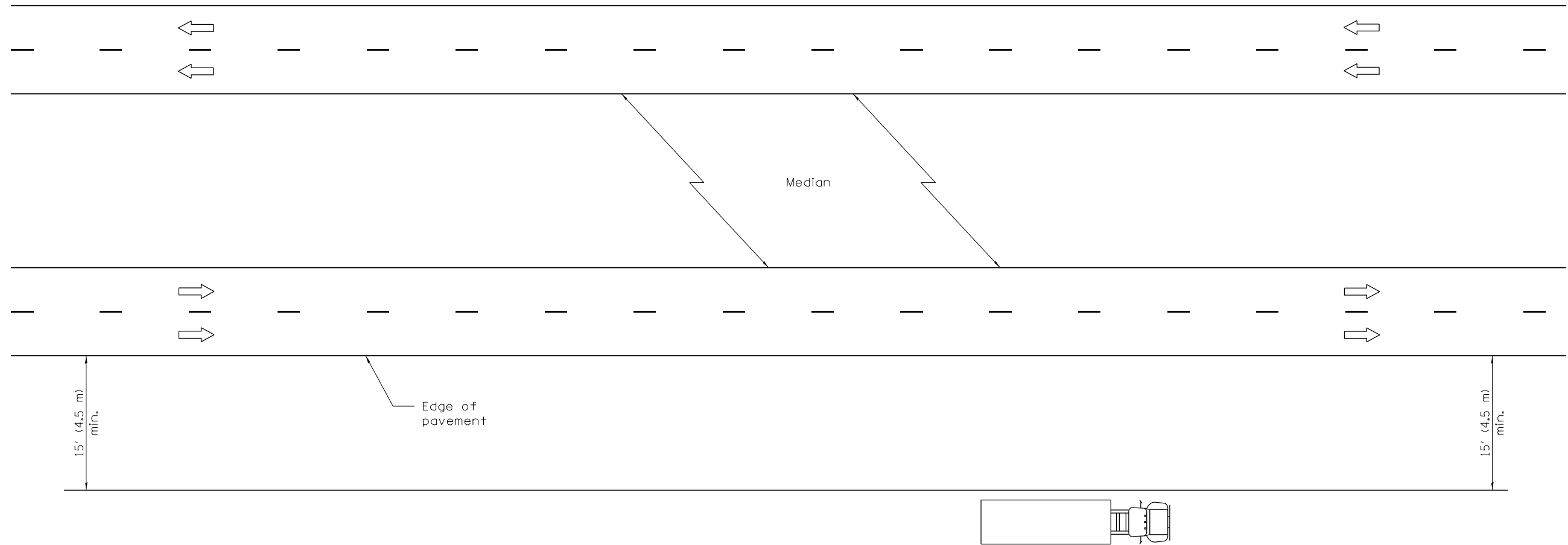
APPROVED April 1, 2016

 ENGINEER OF SAFETY ENGINEERING

APPROVED April 1, 2016

 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



TYPICAL APPLICATIONS

- Landscaping work
- Utility work
- Fencing contracts

GENERAL NOTES

This Standard is used where at all times all vehicles, equipment, workers or their activities are more than 15' (4.5 m) from the edge of pavement.

When the work operation requires that two or more work vehicles cross the 15' (4.5 m) clear zone in any one hour, traffic control shall be according to Standard 701101.

This Standard also applies to work performed in the median more than 15' (4.5 m) from either pavement.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-05	Switched units to English (metric).
1-1-05	Revised title.

**OFF-RD OPERATIONS, MULTILANE,
MORE THAN 15' (4.5 m) AWAY**

STANDARD 701106-02

Illinois Department of Transportation

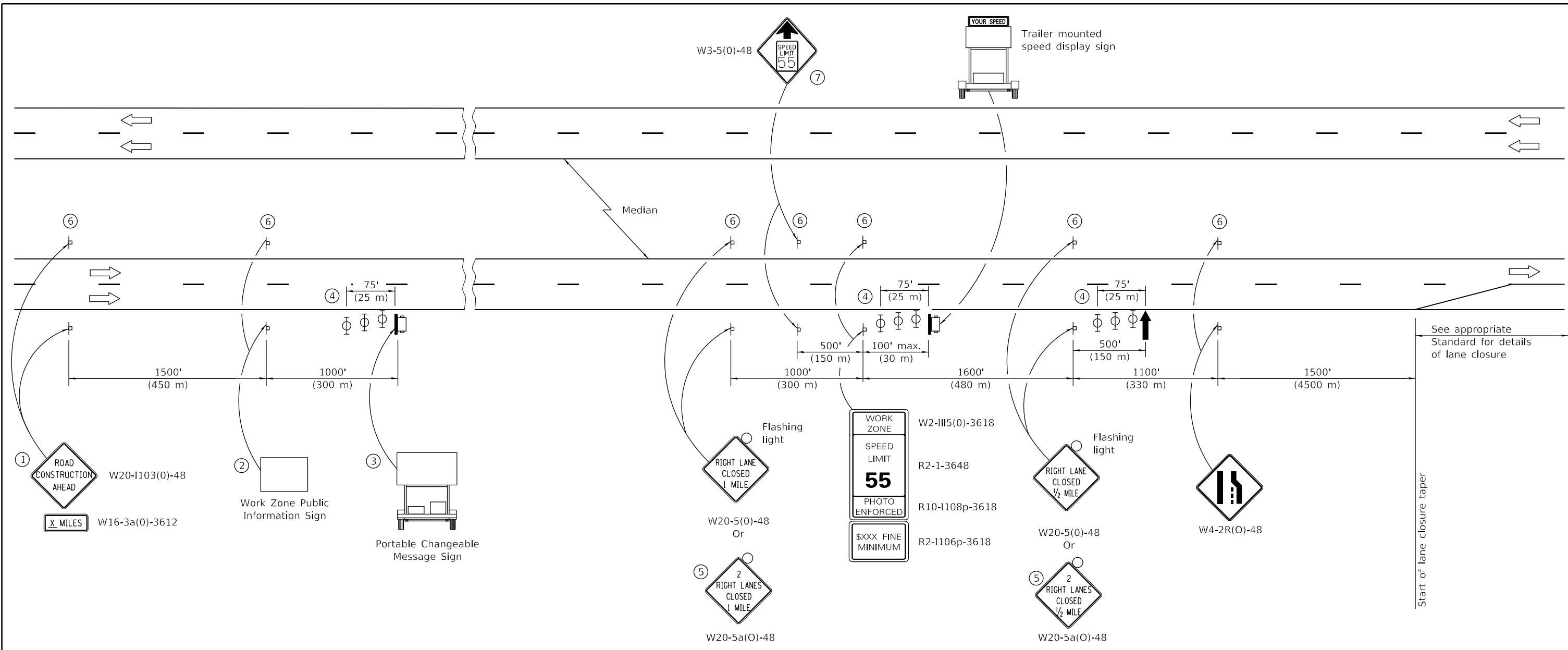
APPROVED January 1, 2009

 ENGINEER OF OPERATIONS

APPROVED January 1, 2009

 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



SYMBOLS

- ↑ Arrow board
- ☐ Trailer mounted sign
- ⊥ Sign
- ⊕ Type II barricade, drum, or vertical barricade with monodirectional flashing light

- ① The Road Construction Ahead sign shall be located 3 to 5 miles in advance of the project limits.
- ② The message and size of the Work Zone Public Information Sign shall be as specified by the Department.
- ③ The message board shall be used to display status of lanes within the project. The primary messages shall be:
 "Right Lane Closed" / " x Miles Ahead"
 "Left Lane Closed" / " x Miles Ahead"
 "All Lanes Open"
- ④ Three, Type II barricades, drums, or vertical barricades at 25' (8 m) centers.
- ⑤ This sign shall be used when 2 lanes are closed.
- ⑥ This sign shall be omitted when median width is less than 10' (3 m).
- ⑦ This sign shall only be used if the existing speed limit is greater than 65 mph.

GENERAL NOTES

This standard is used where at any time a lane is closed on a freeway/expressway. When the left lane is closed, LEFT LANE CLOSED signs shall be substituted for the RIGHT LANE CLOSED signs.

The first two signs and the message board are stationary.

The last four signs and arrow board shall be moved as necessary to maintain the required distance from the start of the lane closure taper(s).

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-17	Added trailer mounted speed display sign. Changed device spacing and note ④.
1-1-15	Revised '2 RIGHT LANES CLOSED X MILE' sign number.

APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY

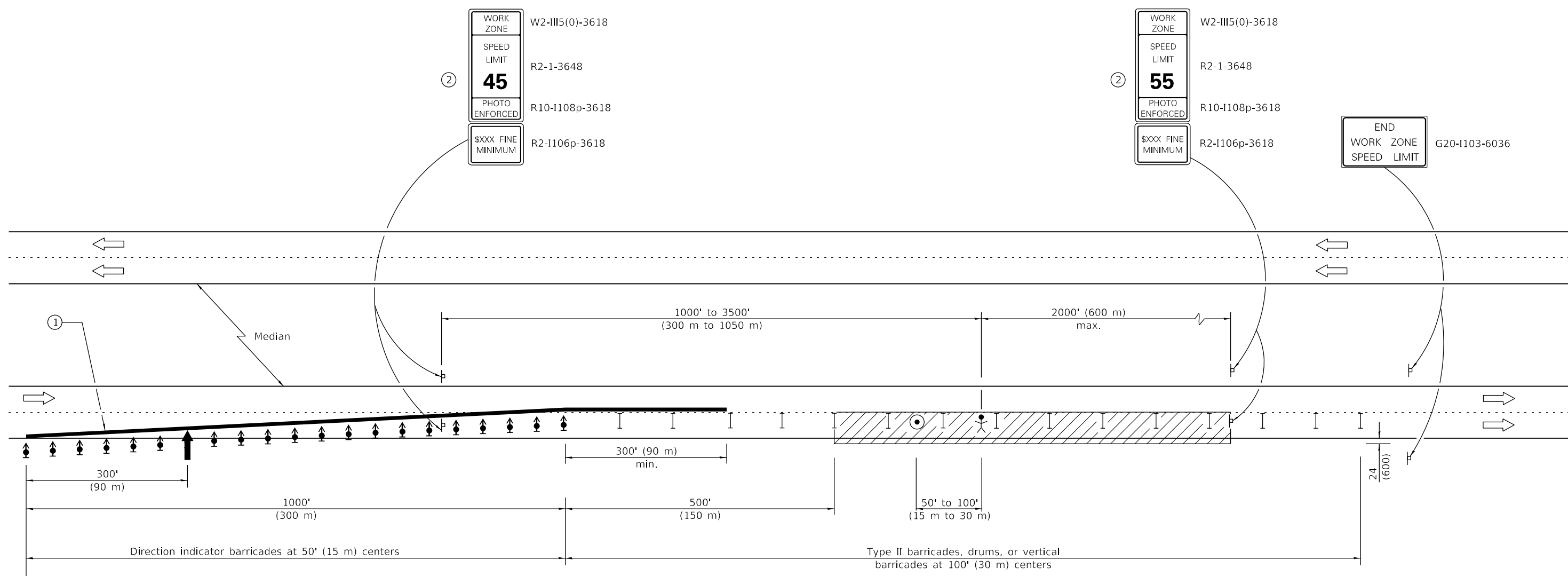
STANDARD 701400-09

Illinois Department of Transportation

PASSED January 1, 2017
Paul L. ...
 ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2017
Maureen M. ...
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 4-1-04



See Standard 701400 for approach
Start of lane closure taper

SYMBOLS

- Arrow board
- Work area
- Worker
- Sign
- Direction indicator barricade with steady burn monodirectional light
- Type II barricade, drum, or vertical barricade
- Spotter

- ① ReflectORIZED temporary pavement marking tape shall be placed throughout the taper and for 300' (90 m) along-side the work area when the closure time is greater than fourteen days. The edge line shall be white for right lane closure and yellow for left lane closures.
- ② Work Zone speed limit signs shall be moved as necessary to maintain the required spacing between the signs and the workers in each separate work activity. Work Zone Speed Limit 55 Photo Enforced sign shall be omitted when the work area dictates placement of the sign array within 500' (150 m) of the End Work Zone Speed Limit Sign.

GENERAL NOTES

This Standard is used where at any time any vehicle, equipment, workers or their activities will encroach on the lane adjacent to the shoulder, or on the shoulder within 24 (600) of the edge of pavement.

This Standard must always be used in combination with Standard 701400.

This Standard also applies when work is being performed in the left lane. Under these conditions, the setup would be a mirror image to what is shown.

A check barricade shall be placed in the middle of the closed lane and at the shoulder at 1000' (300 m) centers.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2019
Cynthia Watt
ENGINEER OF SAFETY PROG. AND ENGINEERING

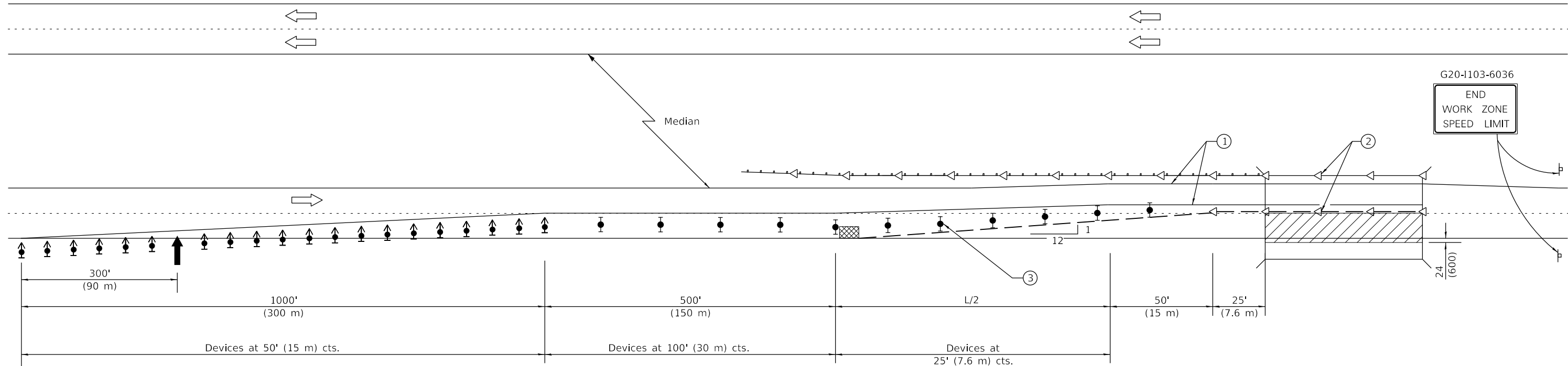
APPROVED January 1, 2019
Joe E. ...
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-19	Replaced flagger with spotter.
1-1-18	Omitted lights in tangent.









**LANE CLOSURE,
FREEWAY / EXPRESSWAY**

STANDARD 701401-12



See Standard 701400 for approach
Start of lane closure taper

SYMBOLS

-  Arrow board
-  Work area
-  Sign
-  Direction indicator barricade with steady burn monodirectional light
-  Type II barricade, drum, or vertical barricade with steady burn monodirectional light
-  Temporary concrete barrier
-  Monodirectional guardrail/barrier wall reflector
-  Impact attenuator

- ① Temporary pavement marking tape shall be placed throughout the taper and along-side the work area. The right edge line shall be white and the left edge line shall be yellow.
- ② Guardrail/barrier wall reflectors at 25' (7.6 m). Markers on right shall be crystal and markers on left shall be amber. See Standards 704001 and 782006.
- ③ Vertical barricades shall not be used in lane shift taper.

GENERAL NOTES

This standard is used where at any time any vehicle, equipment, workers or their activities will encroach on the pavement or on the shoulder within 24 (600) of the edge of pavement for daylight operation exceeding one day and where temporary concrete barrier is utilized.

This Standard must always be used in combination with Standard 701400.

When work is being performed in the left lane, the set up would be a mirror image to what is shown.

Temporary concrete barrier shall be according to Standard 704001.

Calculate L as follows:

NORMAL POSTED SPEED	FORMULAS
	English (Metric)
45 mph (80 km/h) or more	$L=(W)(S)$ $L=0.65(W)(S)$

W = Width of offset
in feet (meters).

S = Normal posted speed
in mph (km/h).

All dimensions are in inches (millimeters)
unless otherwise shown.

DATE	REVISIONS
1-1-17	Revised END WORK ZONE SPEED LIMIT sign from orange to white background.
4-1-16	Added reference to Standards 704001 and 782006 in note ②.

LANE CLOSURE, FREEWAY/EXPRESSWAY, WITH BARRIER

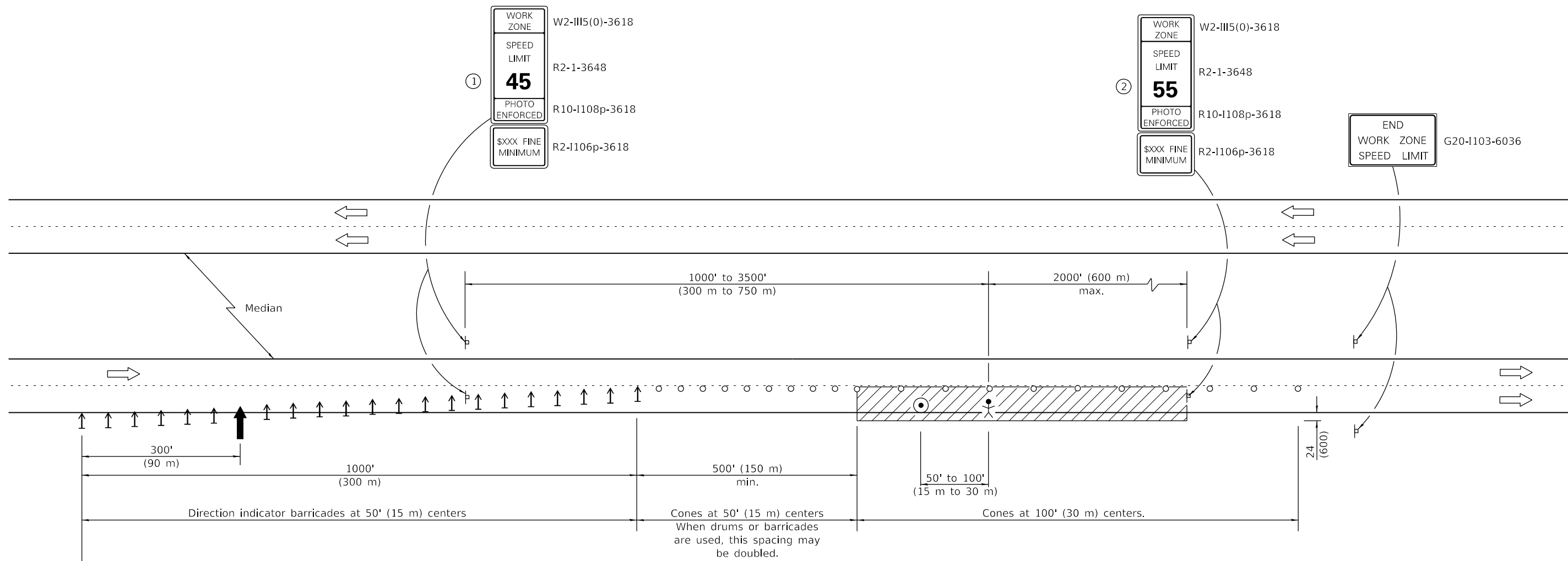
STANDARD 701402-12

Illinois Department of Transportation

PASSED January 1, 2017
Paul L. ...
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2017
Maureen M. ...
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-00



See Standard 701400 for approach
Start of lane closure taper

TYPICAL APPLICATIONS

- Pavement patch
- Utility operations
- Bituminous resurfacing

SYMBOLS

- Arrow board
- Work area
- Worker
- Sign
- Direction indicator barricade
- Cone, drum or barricade
- Spotter

- ① Work zone speed limit signs shall be moved as necessary to maintain the required spacing between the signs and the workers in each separate work activity.
- ② Work Zone Speed Limit 55 Photo Enforced sign shall be omitted when the work area dictates placement of the sign array within 500' (150 m) of the End Work Zone Speed Limit sign.

GENERAL NOTES

This Standard is used where at any time, any vehicle, equipment, workers or their activities will encroach on the lane adjacent to the shoulder, or on the shoulder within 24 (600) of the edge of pavement for daylight operation.

This Standard must always be used in combination with Standard 701400.

This Standard also applies when work is being performed in the left lane. Under these conditions, the set up would be a mirror image to what is shown.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-19	Replaced flagger with spotter.
1-1-17	Revised END WORK ZONE SPEED LIMIT sign from orange to white background.

**LANE CLOSURE,
FREEWAY/EXPRESSWAY,
DAY OPERATIONS ONLY**

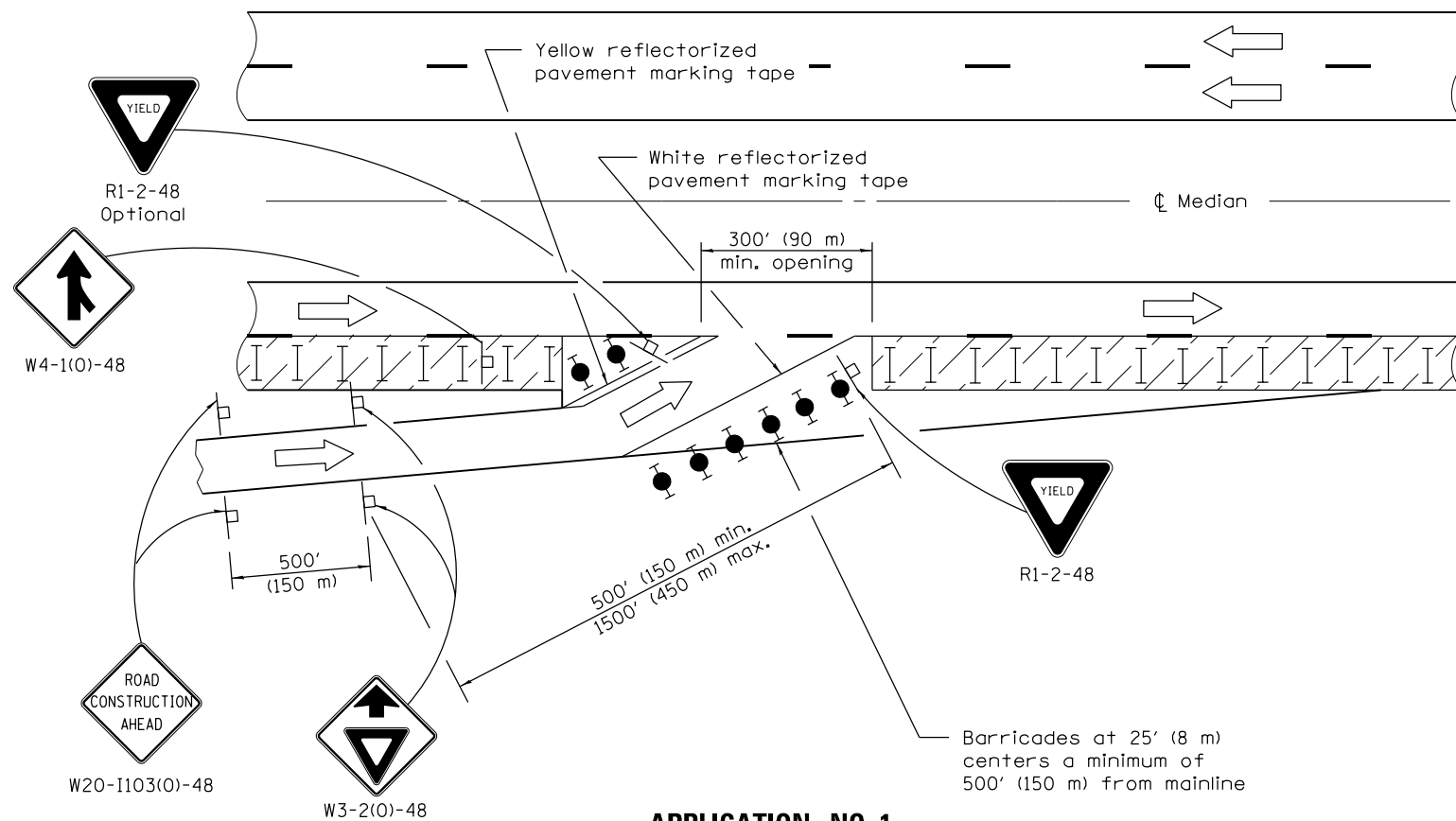
STANDARD 701406-12

Illinois Department of Transportation

APPROVED January 1, 2019
Cynthia Watt
ENGINEER OF SAFETY PROG. AND ENGINEERING

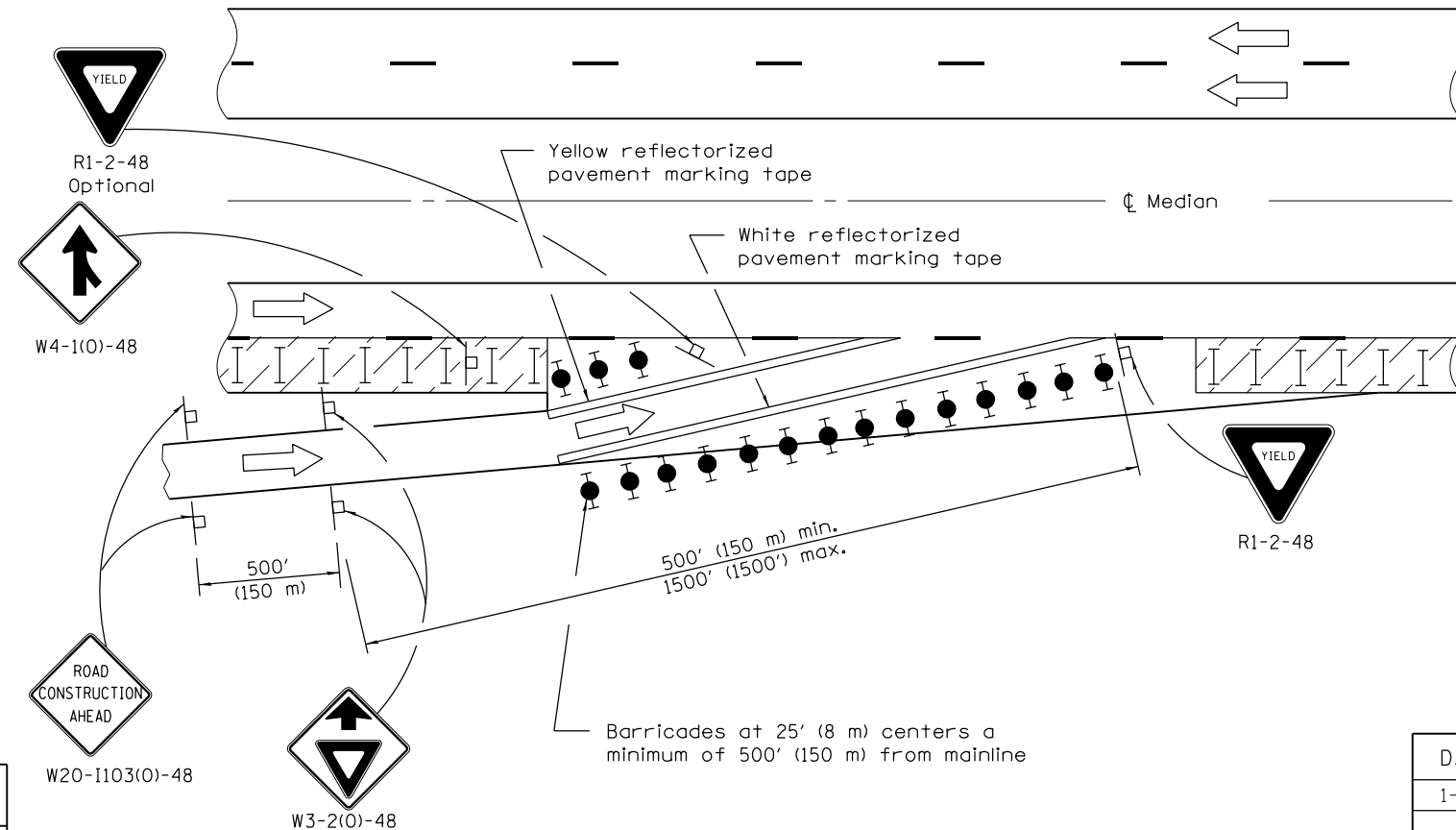
APPROVED January 1, 2019
Joe E. ...
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



APPLICATION NO. 1

Application No. 1 depicts a modified entrance ramp. This method shall be utilized whenever existing entrance tapers cannot be retained due to the close proximity of the work zone. The entrance location may be shifted, with the approval of the Engineer, to perform work in the entrance area. Application No. 2 shall be put into effect as soon as possible.



APPLICATION NO. 2

Application No. 2 depicts a shortening of the normal entrance ramp. This method shall be used whenever the existing geometrics can be retained. Consideration should be given to the entering motorists' line of sight, through, between, or over the delineation devices.

- SYMBOLS**
- Work area
 - Sign
 - Type II barricades or drums with steady burning monodirectional light
 - Type II barricades or drums
 - Drums with steady burning monodirectional light

- GENERAL NOTES**
- This Standard is used where, at any time any vehicle, equipment, workers or their activities require a lane closure in close proximity of an exit or entrance ramp and supplements other traffic control Standards for lane closures.
- These applications also apply when work is being performed in the left lanes and the ramps enter and exit on the left. Under these conditions, the Exit sign arrow and the Side road symbol sign shall be changed.
- Cones may be utilized during daylight operations, at one half the spacing of drums/barricades.
- Use of these APPLICATION NO. 1 and APPLICATION NO. 3 shall be limited to five days per location.
- When work does not exceed five days, pavement marking tape may be omitted.
- All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-15	Revised gen. notes to limit App's 1 and 3 to five days, omit pvt. tape for ≤ 5 days.
1-1-12	Revised merge sign to agree with MUTCD. Dimensioned EXIT OPEN AHEAD sign.

**LANE CLOSURE, MULTILANE,
AT ENTRANCE OR EXIT RAMP,
FOR SPEEDS ≥ 45 MPH**
(Sheet 1 of 2)

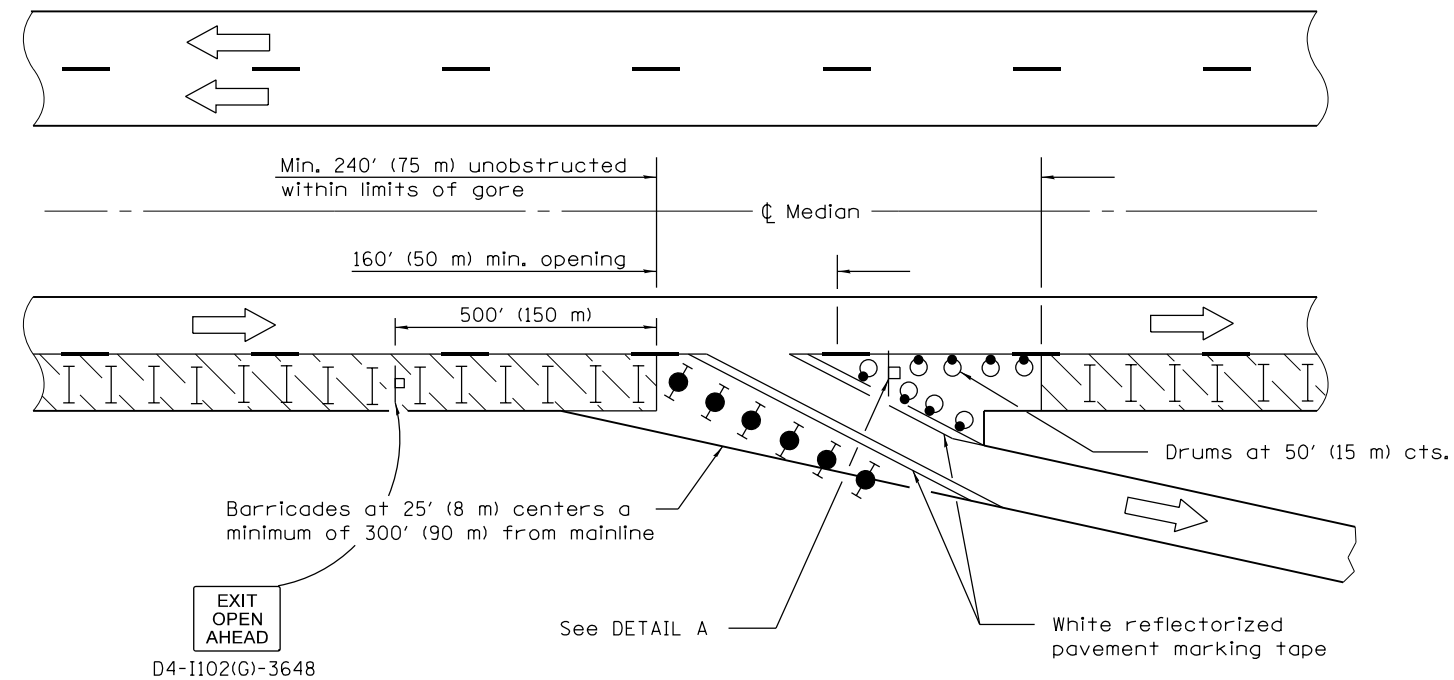
STANDARD 701411-09

Illinois Department of Transportation

APPROVED January 1, 2015
[Signature]
ENGINEER OF SAFETY ENGINEERING

APPROVED January 1, 2015
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

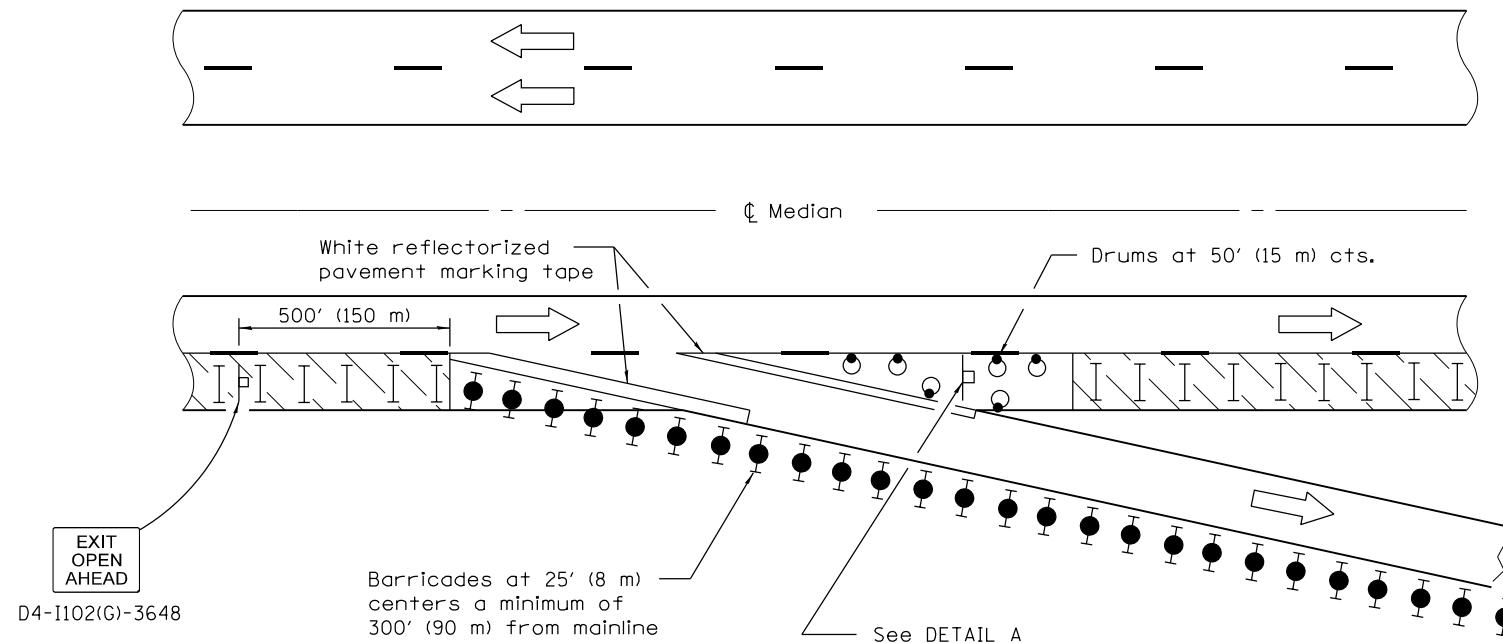
ISSUED 1-1-97



D4-I102(G)-3648

APPLICATION NO. 3

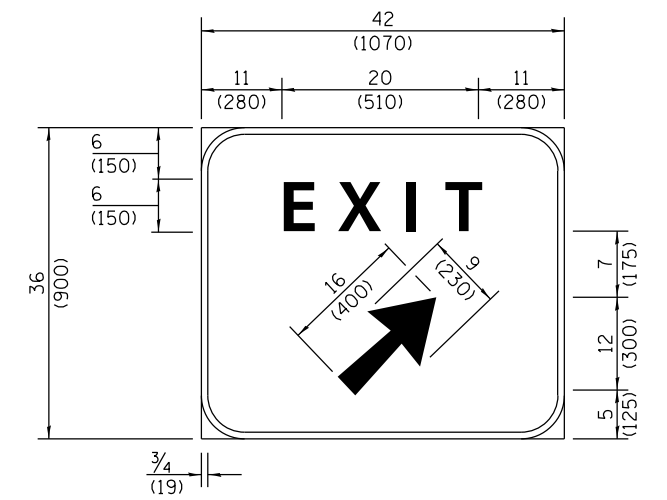
Application No. 3 depicts a modified exit ramp. The channelizing devices shall provide a clearly defined path for the exiting motorists. The minimum dimensions shown shall be increased as soon as the progress of the work will permit. The open portion of the ramp may be shifted, with the approval of the Engineer, to perform work in stages on the area adjacent to the ramp exit. Application No. 4 shall be put into effect as soon as possible.



D4-I102(G)-3648

APPLICATION NO. 4

Application No. 4 depicts an extension of the normal exit ramp. This method shall be used whenever existing geometrics can be retained. Consideration should be given to the exiting motorist's line of sight through, between or over the delineation devices.



Background - Green
Border and legend - White
"D" size letters

EXIT SIGN - SPECIAL

DETAIL A

(To be utilized where distance between the two rows of channelizing devices is 6' (1.8 m) in width.)

Illinois Department of Transportation

APPROVED January 1, 2015

ENGINEER OF SAFETY ENGINEERING

APPROVED January 1, 2015

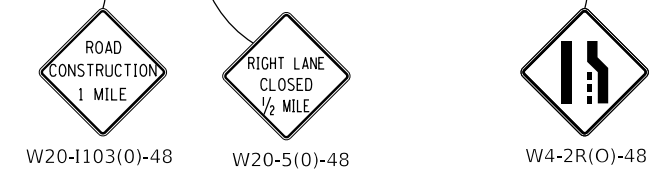
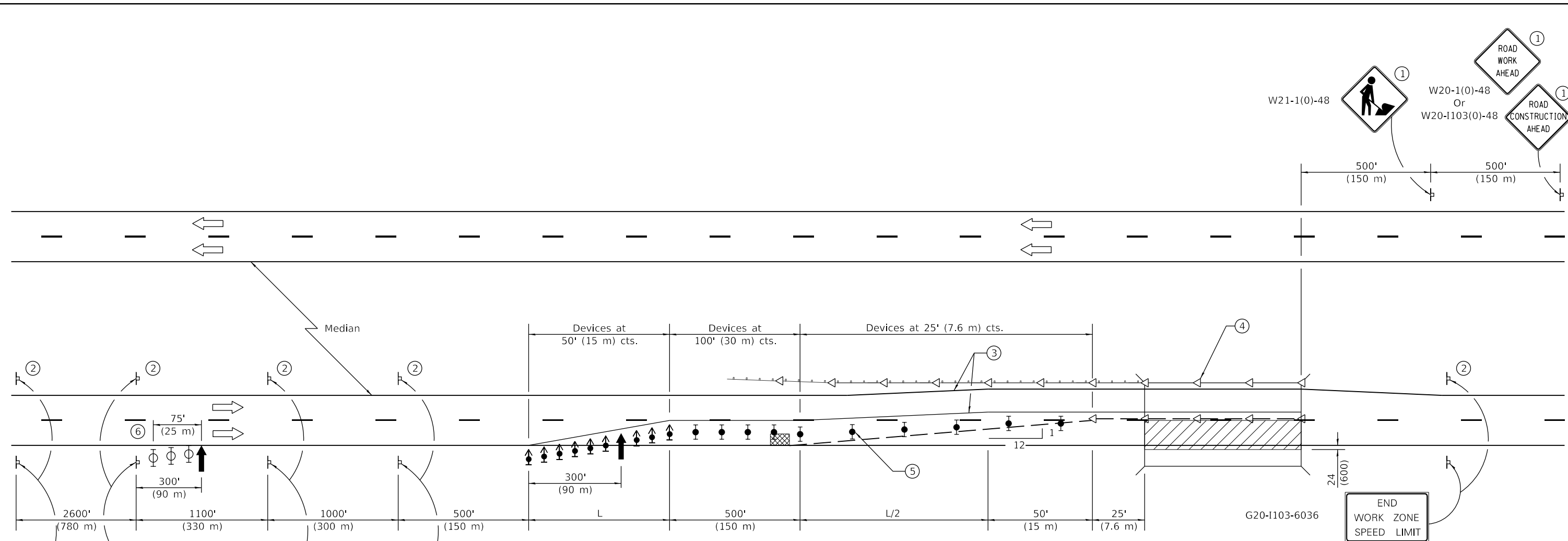
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

**LANE CLOSURE, MULTILANE,
AT ENTRANCE OR EXIT RAMP,
FOR SPEEDS ≥ 45 MPH**

(Sheet 2 of 2)

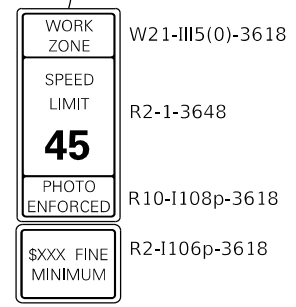
STANDARD 701411-09



For contract construction projects



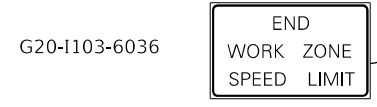
For maintenance and utility projects



SYMBOLS

- Arrow board
- Work area
- Sign
- Direction indicator barricade with steady burn monodirectional light
- Type II barricade, drum, or vertical barricade with steady burn monodirectional light
- Temporary concrete barrier
- Monodirectional guardrail/barrier wall reflector
- Impact attenuator
- Type II barricade, drum, or vertical barricade with monodirectional flashing light

- ① Undivided roadway only with left lane closure in opposite direction.
- ② Sign in median may be omitted when median is less than 10' (3 m).
- ③ Temporary pavement marking tape shall be placed throughout the taper and along-side the work area. The right edge line shall be white and the left edge line shall be yellow.
- ④ Guardrail/barrier wall reflectors at 25' (7.6 m). Markers on right shall be crystal and markers on left shall be amber. See Standards 704001 and 782006.
- ⑤ Verticle barricades shall not be used in lane shift taper.
- ⑥ Three Type II barricades, drums, or vertical barricades at 25' (8 m) centers.



GENERAL NOTES

This standard is used where at any time any vehicle, equipment, workers or their activities will encroach on the pavement or on the shoulder within 24 (600) of the edge of pavement for daylight operation exceeding one day and where temporary concrete barrier is utilized.

When work is being performed in the left lane, the set up would be a mirror image to what is shown.

Calculate L as follows:

NORMAL POSTED SPEED	FORMULAS
45 mph (80 km/h) or more	English (Metric) $L=(W)(S)$ $L=0.65(W)(S)$

W = Width of offset in feet (meters).
S = Normal posted speed in mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-17	Revised END WORK ZONE SPEED LIMIT sign. Changed device spacing at first arr. brd.
4-1-16	Corrected reference to standard in note ④.

LANE CLOSURE, MULTILANE, WITH BARRIER, FOR SPEEDS ≥ 45 MPH TO 55 MPH

STANDARD 701423-10

Illinois Department of Transportation

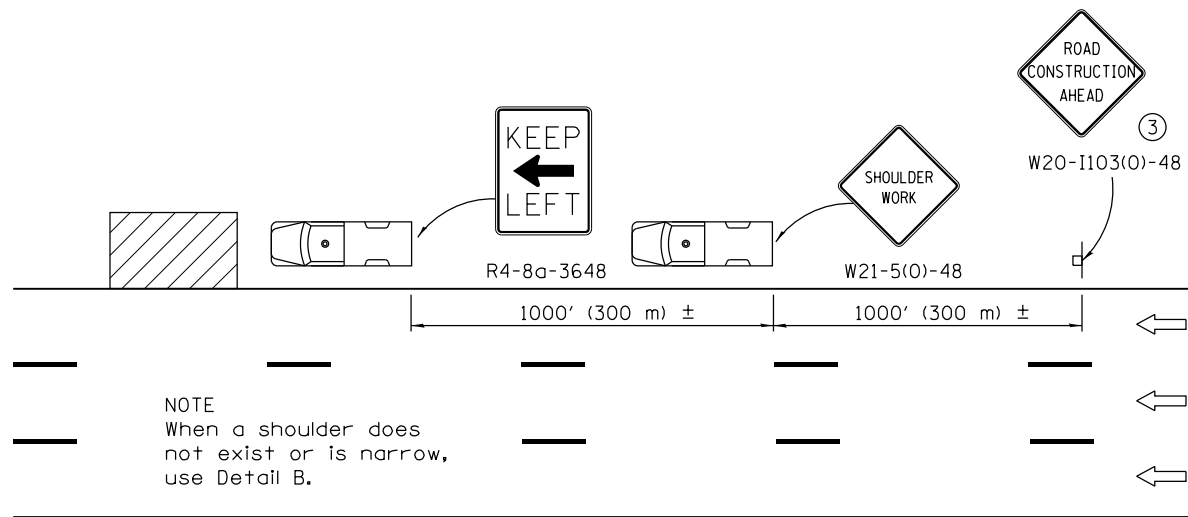
PASSED January 1, 2017

 ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2017

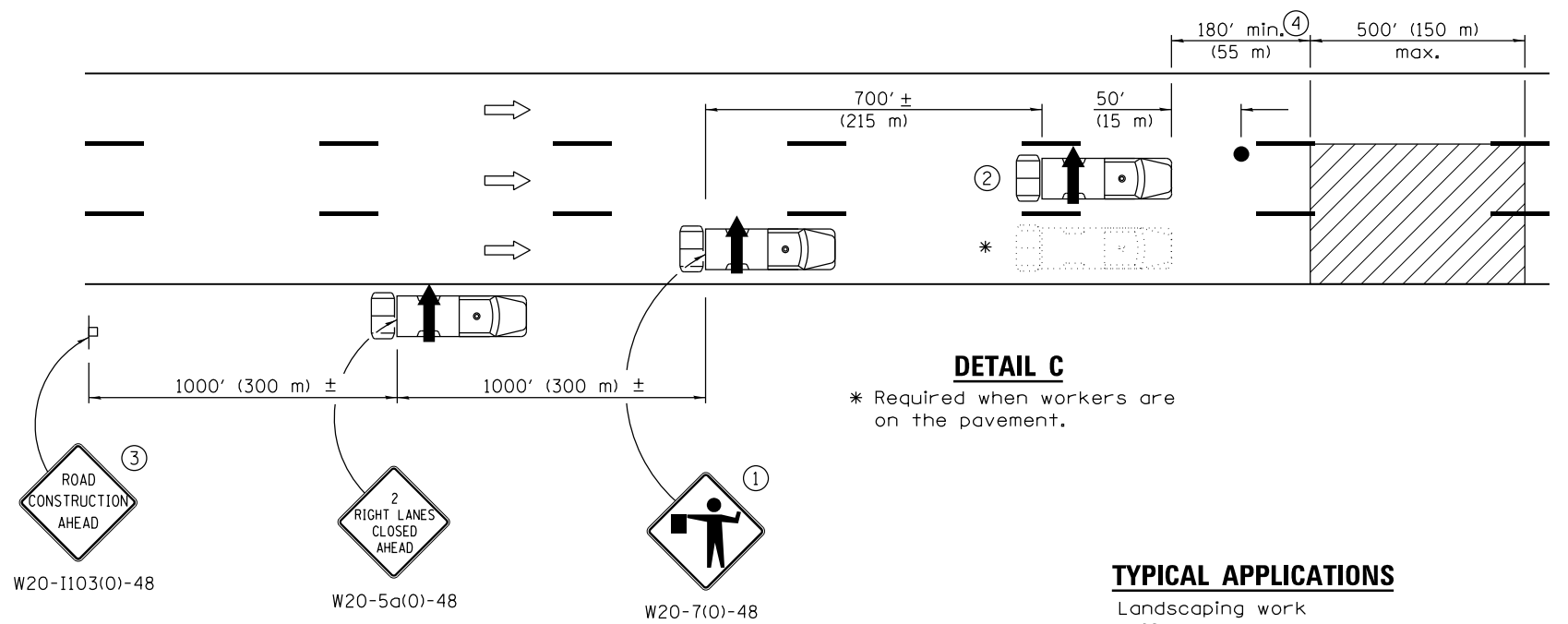
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-00



DETAIL A

NOTE
When a shoulder does not exist or is narrow, use Detail B.

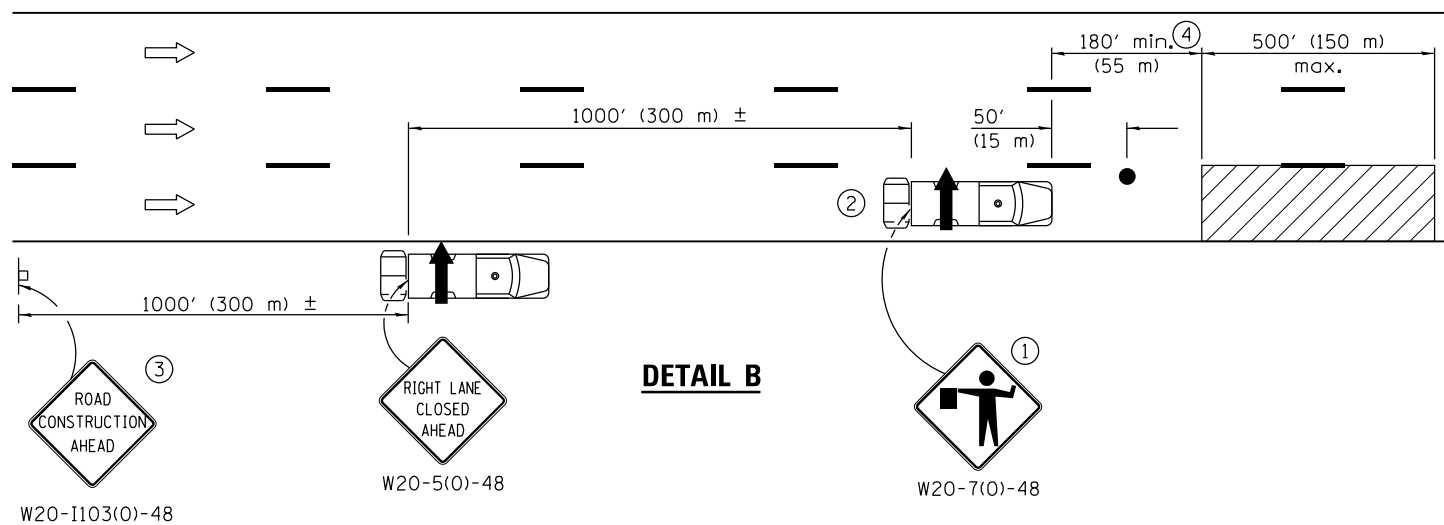


DETAIL C

* Required when workers are on the pavement.

TYPICAL APPLICATIONS

- Landscaping work
- Utility work
- Pavement marking
- Weed spraying
- Roadometer measurements
- Debris cleanup
- Crack pouring



DETAIL B

- ① Flaggers are required when workers are on the pavement.
- ② For striping operations only. See sign arrow detail on this standard.
- ③ For stationary operations which are on the roadway or shoulder, greater than 15 minutes and up to 1 hour.
- ④ The distance between the work and the lead truck may vary according to terrain or paint/crack sealing drying time.



G20-I101-2430
(appropriate arrow)
② (when striping only)

GENERAL NOTES

This Standard is used where any vehicle, equipment, workers or their activities will require: 1) stationary operations up to 1 hour, or 2) a continuous or intermittent moving operation where the average speed of movement is greater than 1 mph (2 km/h).

This Standard is also applicable when work is being performed in the left lane(s) or on the median shoulder. Under these conditions, KEEP RIGHT signs shall be substituted for KEEP LEFT signs and arrow board indications shall be directed to the right.

All dimensions are in inches (millimeter) unless otherwise shown.

SYMBOLS

- ↑ Arrow board
- ▨ Work area
- Truck with flashing amber light
- Truck/Trailer mounted attenuator
- Flagger with traffic control sign
- Sign

DATE	REVISIONS
1-1-17	Revised 'NOTE' on DETAIL A to use DETAIL B in lieu of DETAIL C.
4-1-16	Added trailer option for attenuator symbol. Added note ④. Revised gen. notes.

LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPER., FOR SPEEDS ≥ 45 MPH

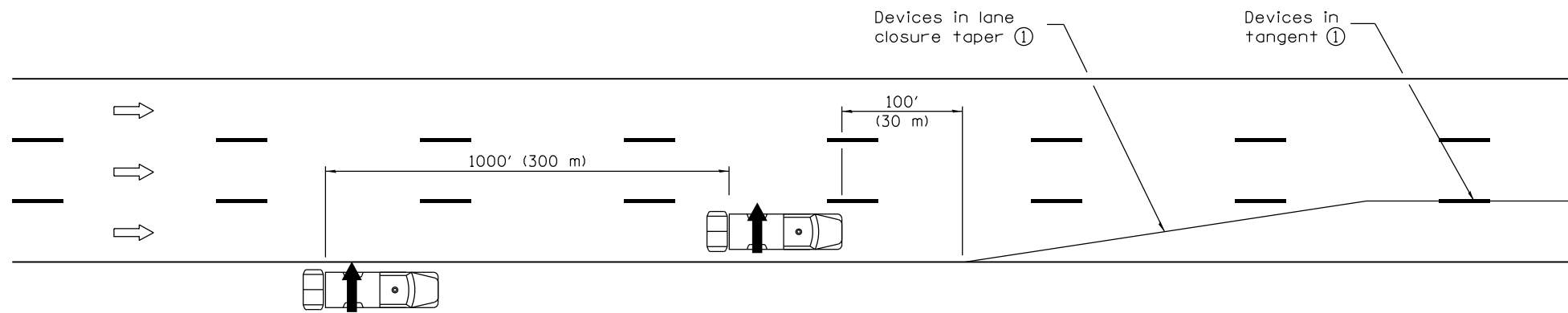
STANDARD 701426-09

Illinois Department of Transportation

APPROVED January 1, 2017
Bruce L. ...
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2017
Maureen M. ...
ENGINEER OF DESIGN AND ENVIRONMENT

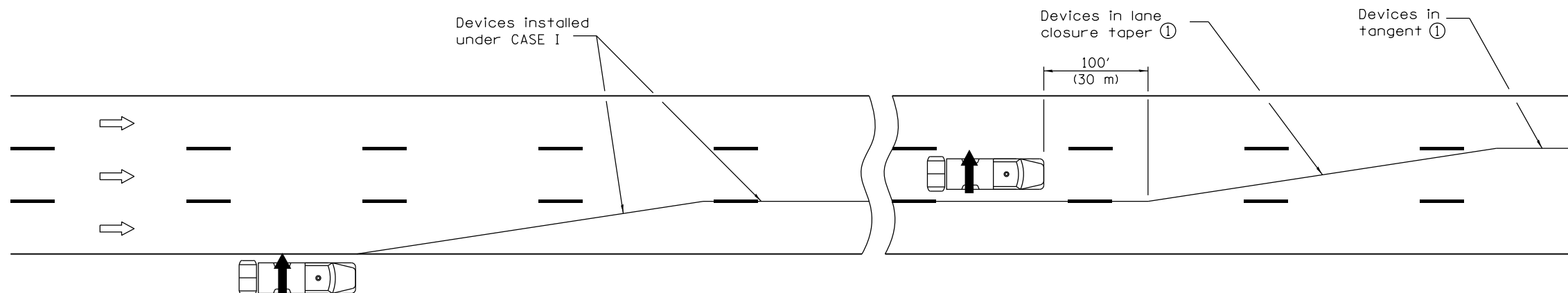
ISSUED 1-1-97



① See plans or appropriate Standard for delineating devices, spacing and length of taper/tangent.

CASE I


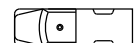

CASE I depicts the setup of delineating devices for a single outside lane closure.



CASE II

CASE II depicts the setup of delineating devices for a two lane closure. The single lane closure device setup as depicted in CASE I shall be performed prior to the setup for the second lane closure.

SYMBOLS

-  Arrow board
-  Truck with flashing amber light
-  Truck/Trailer mounted attenuator

GENERAL NOTES

This Standard is used for setup and removal of lane closures on freeways/expressways having ADT greater than 25,000.

Trucks with arrow boards and truck-mounted-attenuators shall be in place as shown for the setup and removal of the lane closure taper(s) and the first 100' (30 m) of channelizing devices in the tangent(s).

This Standard is also applicable when work is being performed in the left lane(s) or on the median shoulder. Under these conditions arrow board indications shall be directed to the right.

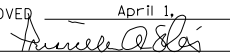
All dimensions are in inches (millimeter) unless otherwise shown.

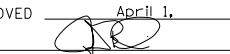
DATE	REVISIONS
4-1-16	Added trailer option for attenuator symbol.
1-1-14	New Standard.

TRAFFIC CONTROL SETUP AND REMOVAL FREEWAY/EXPRESSWAY

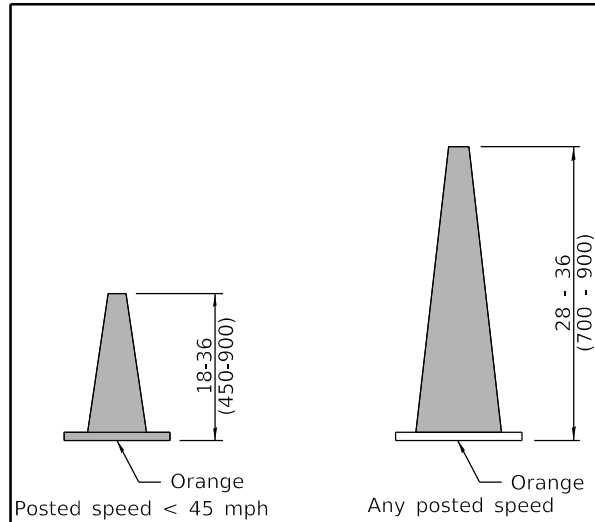
STANDARD 701428-01

Illinois Department of Transportation

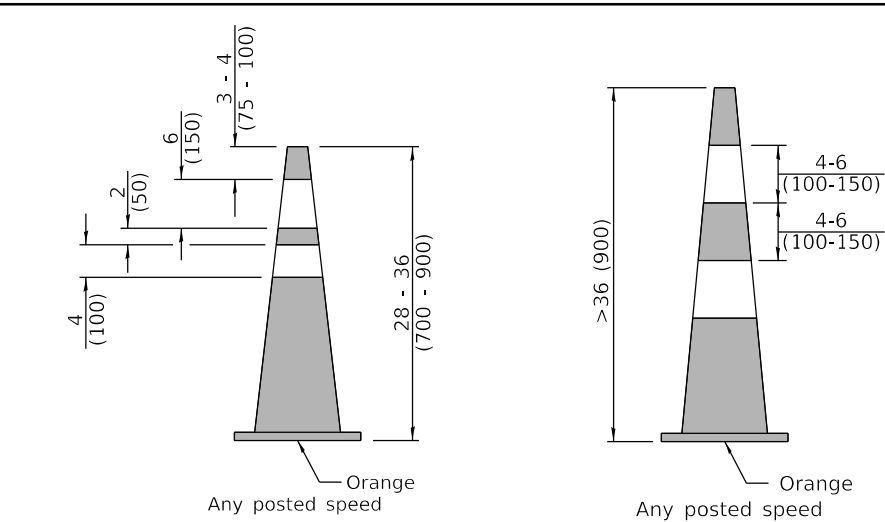
APPROVED April 1, 2016

 ENGINEER OF SAFETY ENGINEERING

APPROVED April 1, 2016

 ENGINEER OF DESIGN AND ENVIRONMENT

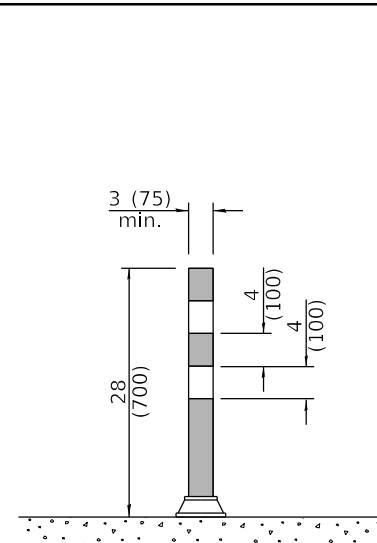
ISSUED 1-1-97



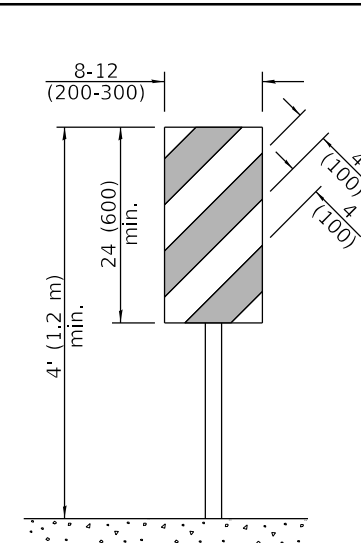
DAYTIME USE



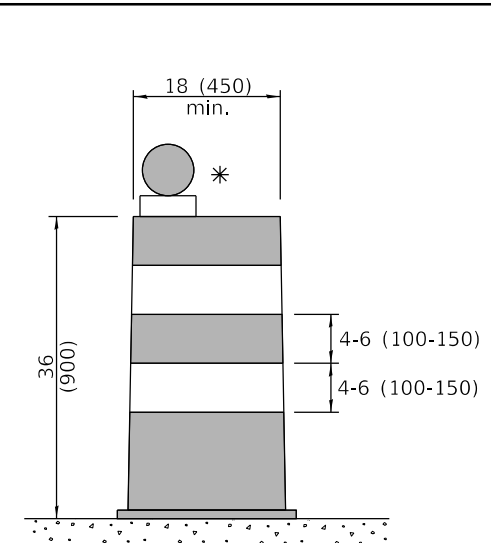
DAY OR NIGHTTIME USE



TUBULAR MARKER

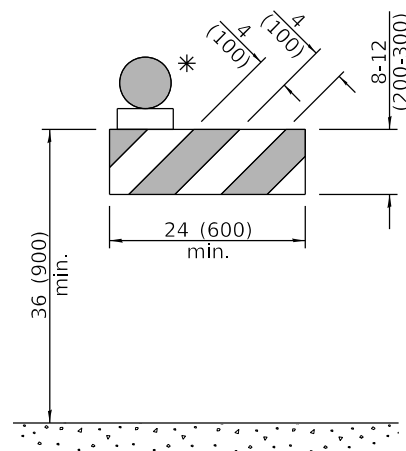


**VERTICAL PANEL
POST MOUNTED**

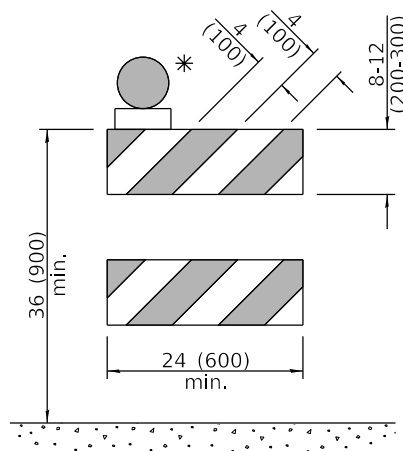


DRUM

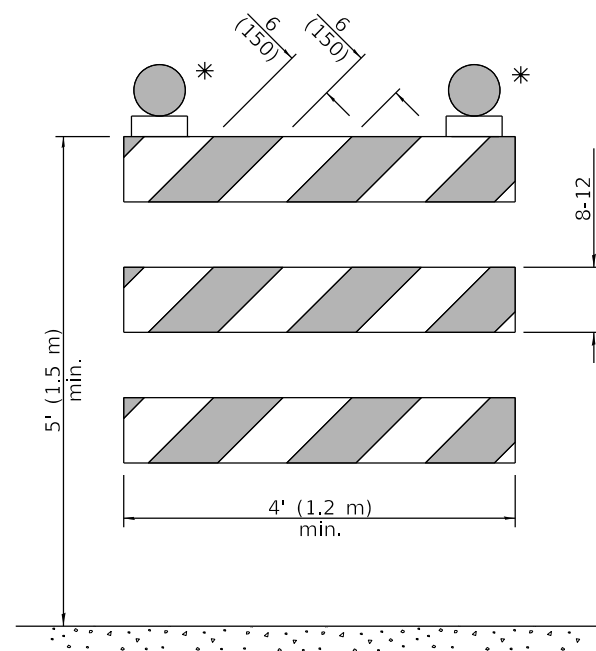
CONES



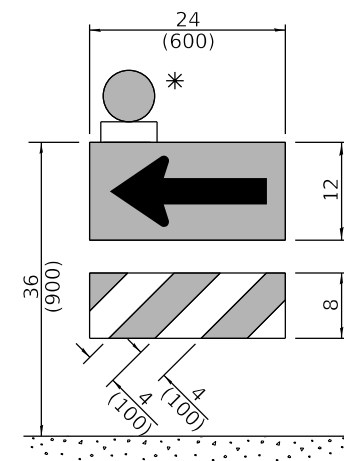
TYPE I BARRICADE



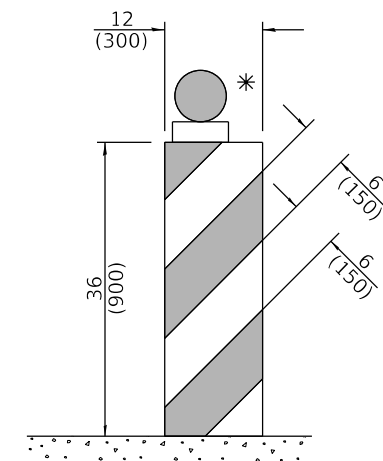
TYPE II BARRICADE



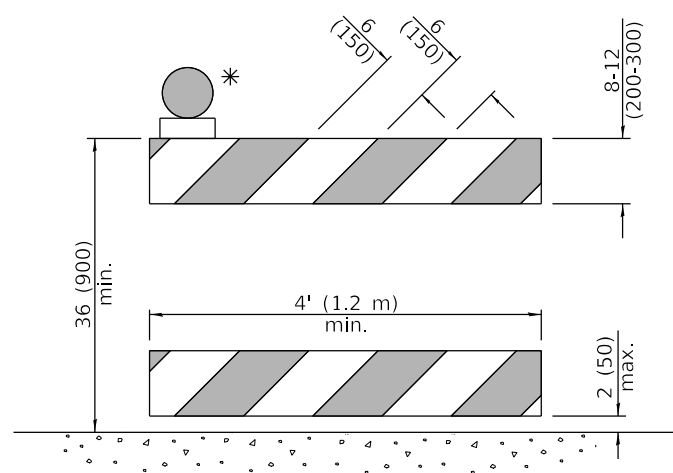
TYPE III BARRICADE



**DIRECTION INDICATOR
BARRICADE**



VERTICAL BARRICADE



**DETECTABLE PEDESTRIAN
CHANNELIZING BARRICADE**

* Warning lights (if required)

GENERAL NOTES

All heights shown shall be measured above the pavement surface.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-19	Revised cone usage and added cones >36" (900 m) height.
1-1-18	Revised END WORK ZONE SPEED LIMIT sign from orange to white background.

TRAFFIC CONTROL DEVICES

(Sheet 1 of 3)

STANDARD 701901-08

Illinois Department of Transportation

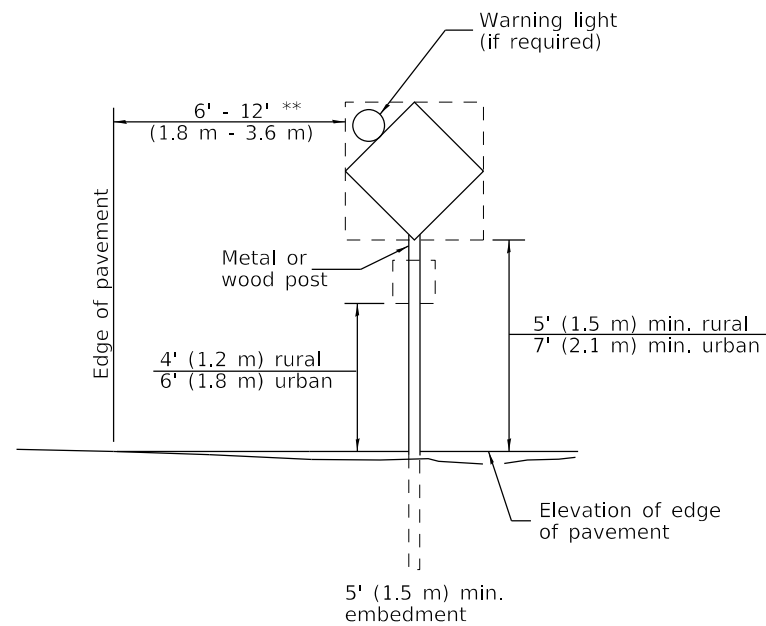
APPROVED January 1, 2019

 ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2019

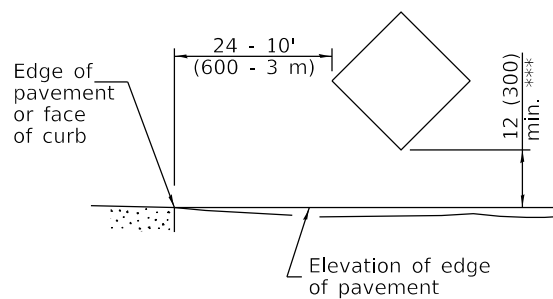
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED
 ET-1-1



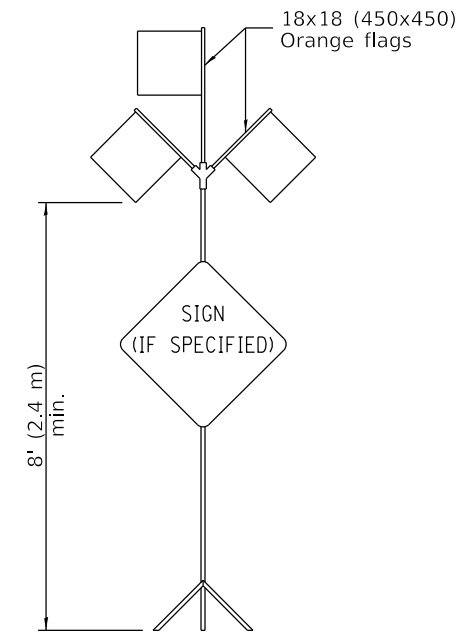
POST MOUNTED SIGNS

** When curb or paved shoulder are present this dimension shall be 24 (600) to the face of curb or 6' (1.8 m) to the outside edge of the paved shoulder.



SIGNS ON TEMPORARY SUPPORTS

*** When work operations exceed four days, this dimension shall be 5' (1.5 m) min. If located behind other devices, the height shall be sufficient to be seen completely above the devices.



HIGH LEVEL WARNING DEVICE

ROAD CONSTRUCTION NEXT X MILES

G20-I104(0)-6036

END CONSTRUCTION

G20-I105(0)-6024

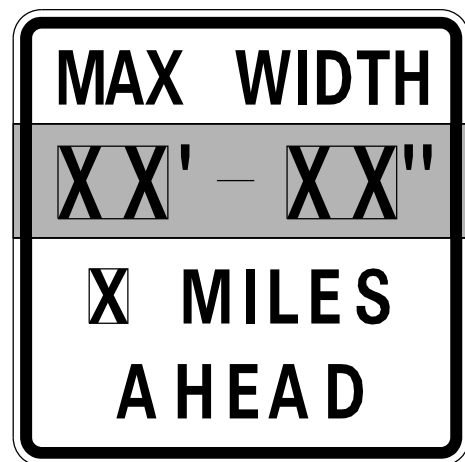
This signing is required for all projects 2 miles (3200 m) or more in length.

ROAD CONSTRUCTION NEXT X MILES sign shall be placed 500' (150 m) in advance of project limits.

END CONSTRUCTION sign shall be erected at the end of the job unless another job is within 2 miles (3200 m).

Dual sign displays shall be utilized on multi-lane highways.

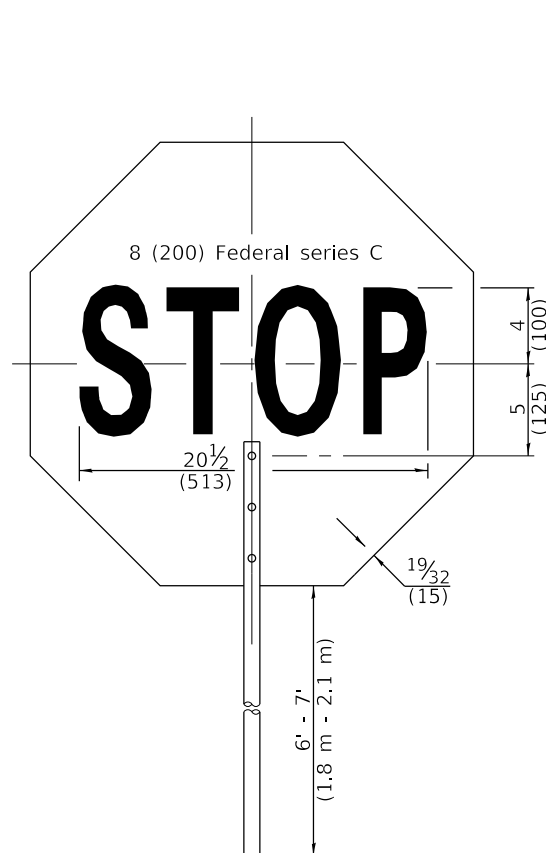
WORK LIMIT SIGNING



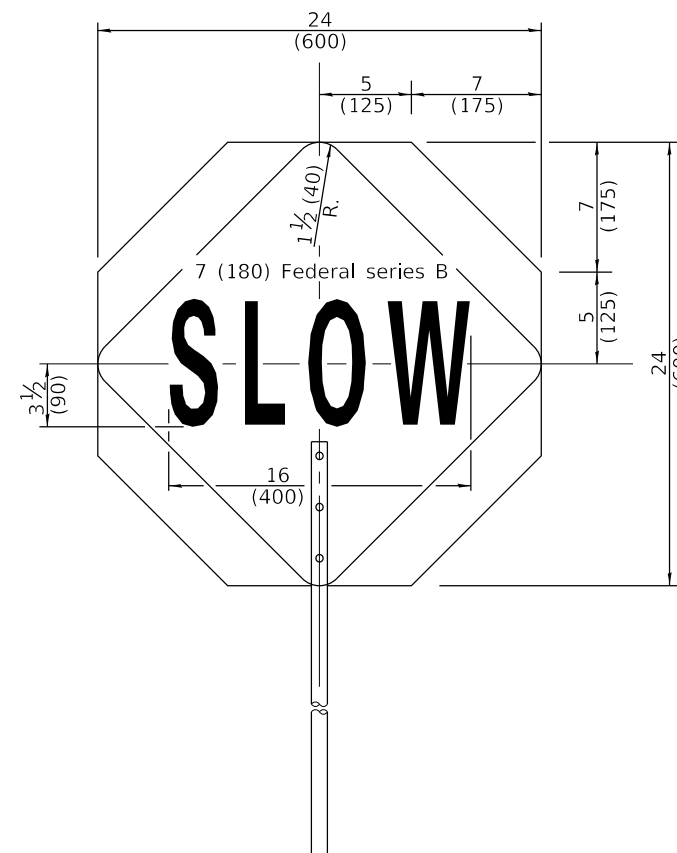
W12-I103-4848

WIDTH RESTRICTION SIGN

XX'-XX" width and X miles are variable.

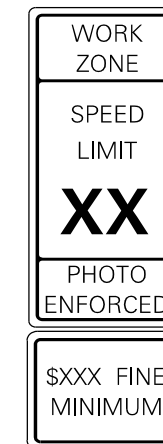


FRONT SIDE



REVERSE SIDE

FLAGGER TRAFFIC CONTROL SIGN



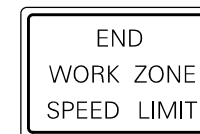
W21-III5(0)-3618

R2-1-3648

R10-I108p-3618 ****

R2-I106p-3618

Sign assembly as shown on Standards or as allowed by District Operations.



G20-I103-6036

This sign shall be used when the above sign assembly is used.

HIGHWAY CONSTRUCTION SPEED ZONE SIGNS

**** R10-I108p shall only be used along roadways under the jurisdiction of the State.

TRAFFIC CONTROL DEVICES

(Sheet 2 of 3)

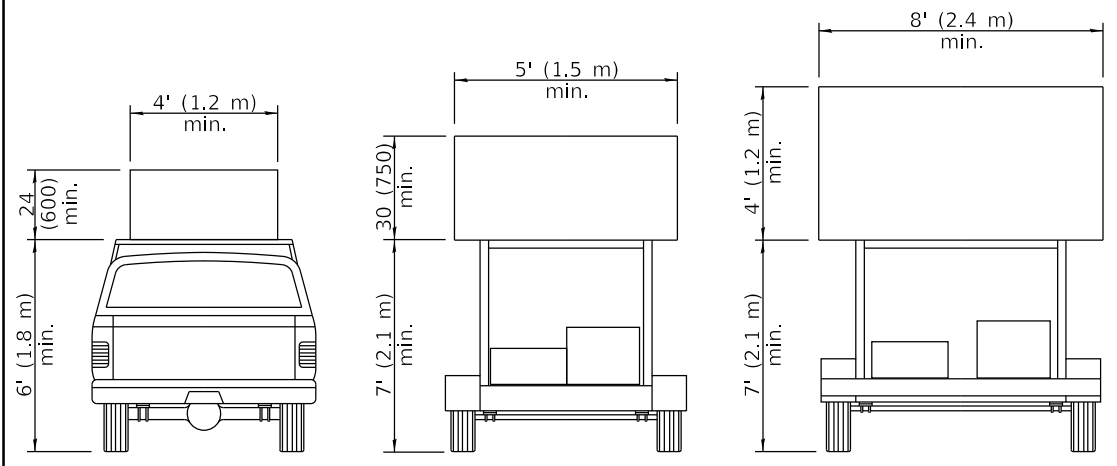
STANDARD 701901-08

Illinois Department of Transportation

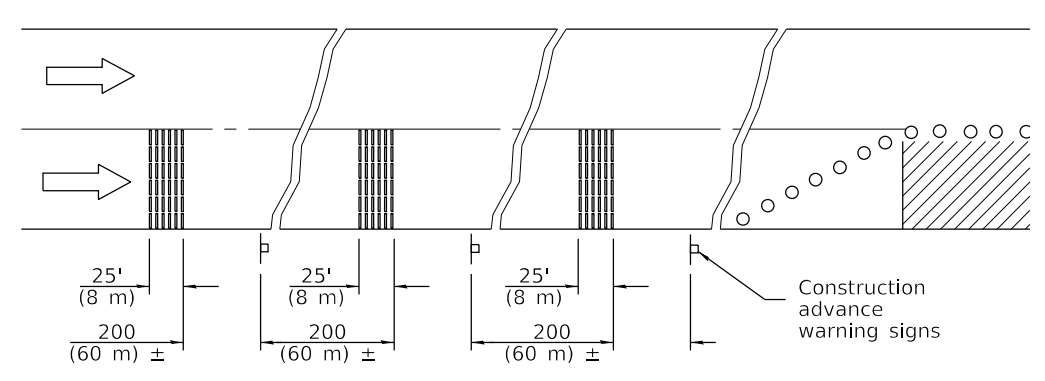
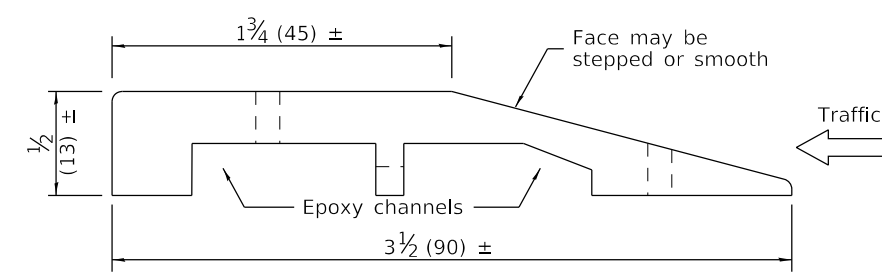
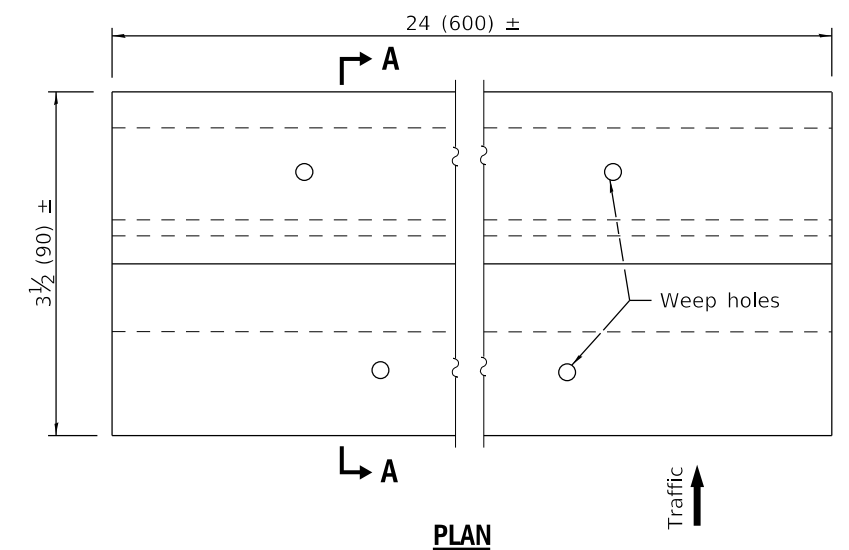
APPROVED January 1, 2019
[Signature]
 ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2019
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

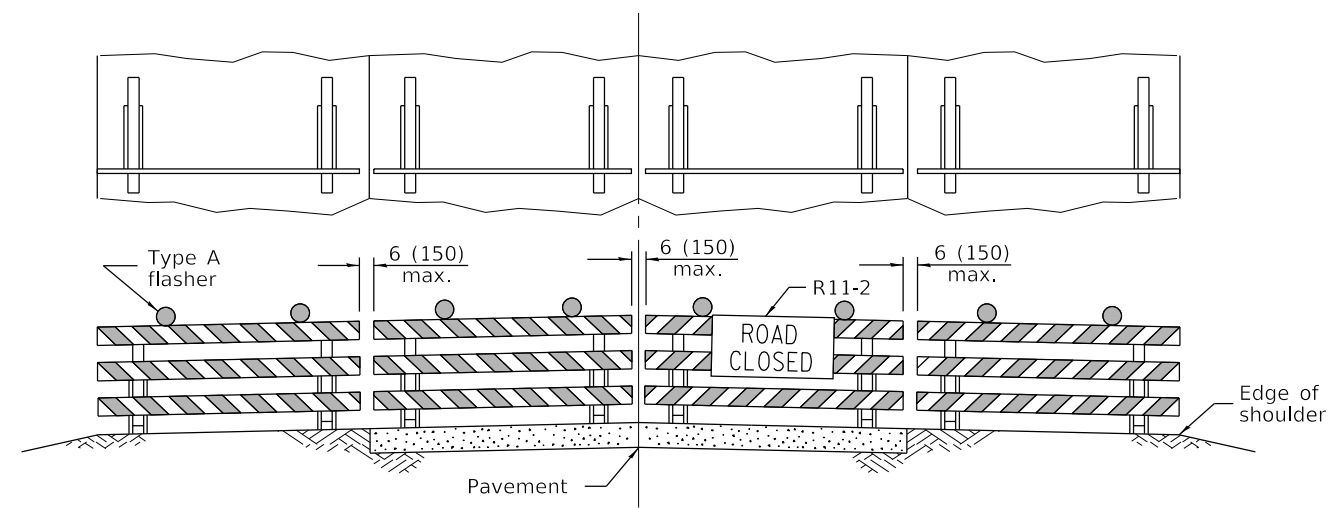
ISSUED 1-1-13



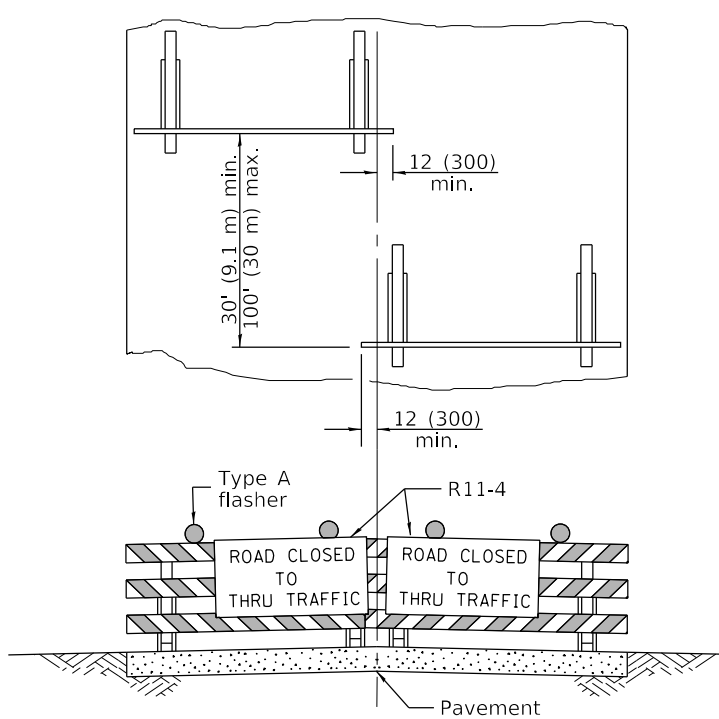
ARROW BOARDS



TEMPORARY RUMBLE STRIPS



Reflectorized striping may be omitted on the back side of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the sign may be mounted on an NCHRP 350 temporary sign support directly in front of the barricade.



Reflectorized striping shall appear on both sides of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the signs may be mounted on NCHRP 350 temporary sign supports directly in front of the barricade.

**TYPICAL APPLICATIONS OF
TYPE III BARRICADES CLOSING A ROAD**

**TRAFFIC CONTROL
DEVICES**

(Sheet 3 of 3)

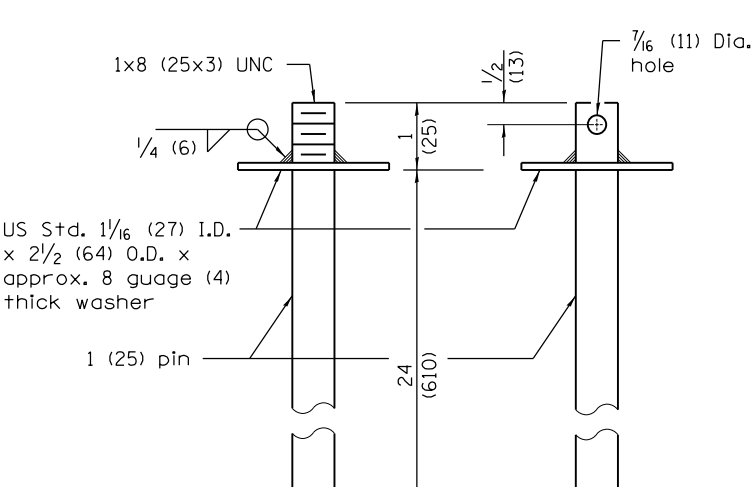
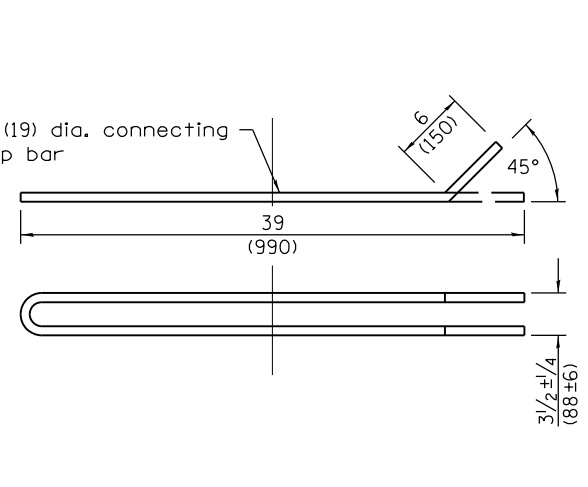
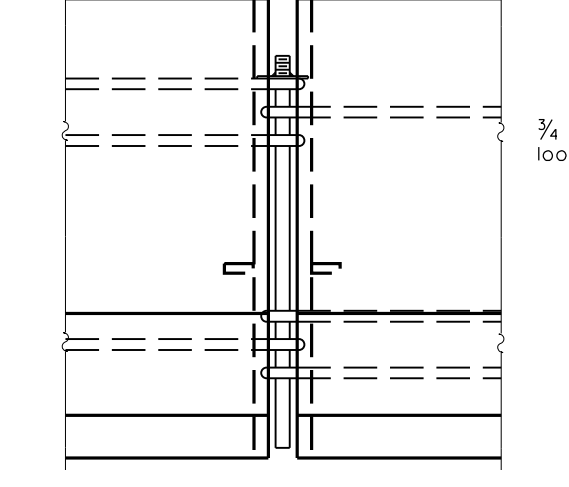
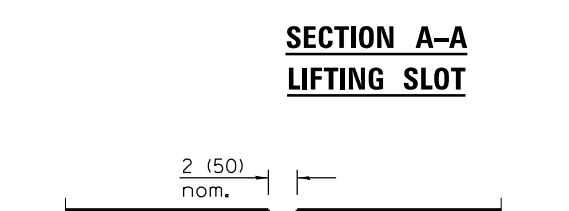
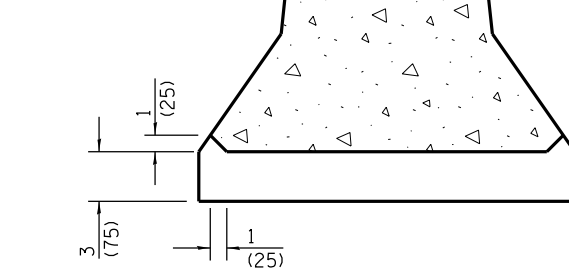
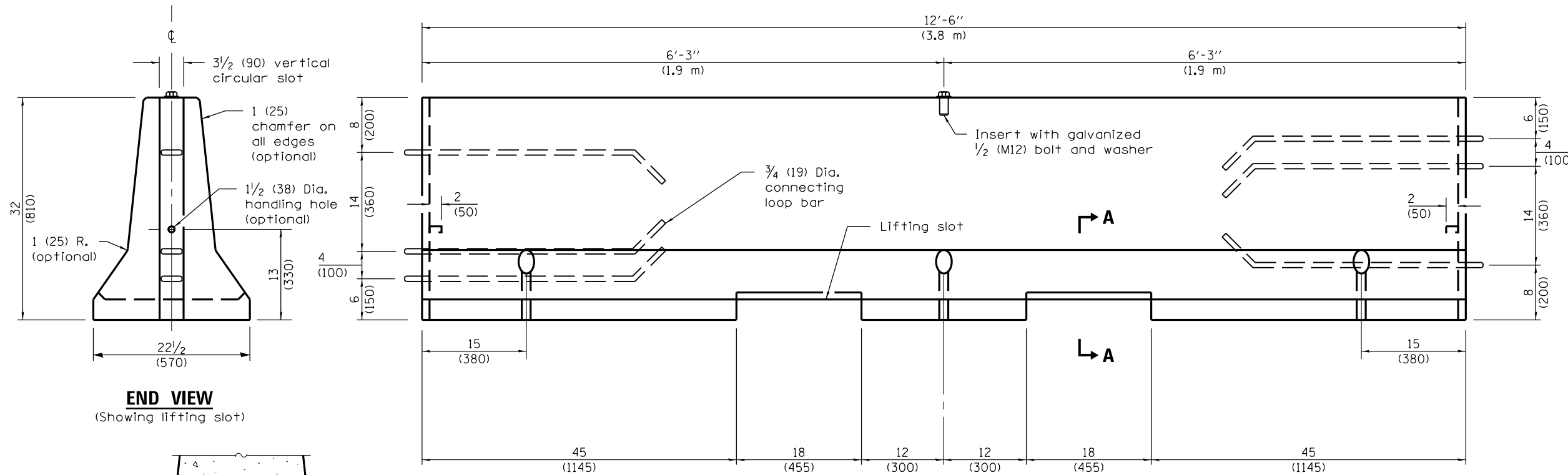
STANDARD 701901-08

Illinois Department of Transportation

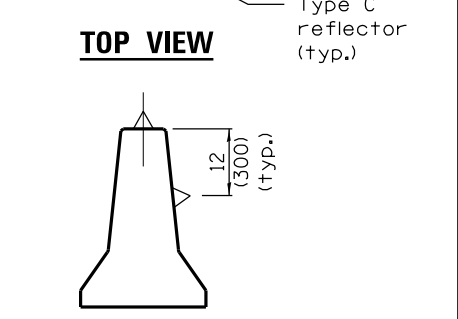
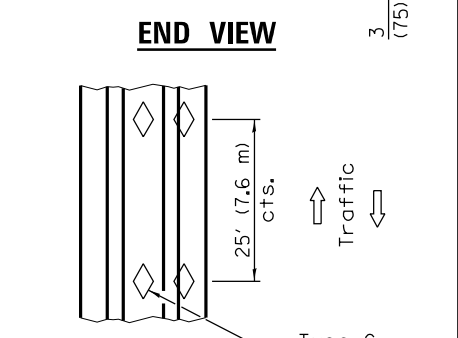
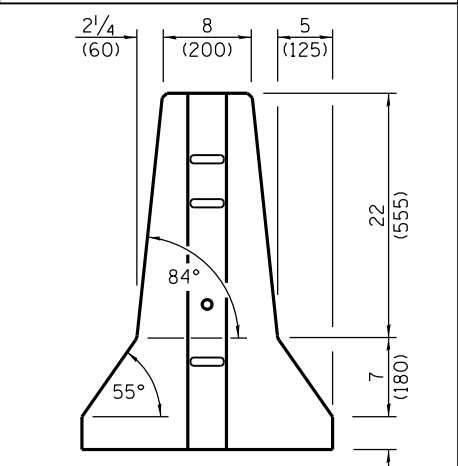
APPROVED January 1, 2019
Cynthia Watt
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2019
Joe E. ...
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUES
E1-1-1 Q3581



F SHAPE DESIGN



GENERAL NOTES

Each F shape barrier shall be clearly marked with "ILLINOIS F SHAPE", the Producer's mark and the date of manufacture. The markings shall be indented on the barrier or painted thereon with waterproof paint/ink.

The insert for the 1/2 (M12) bolt shall be capable of 3,000 lb (13 kN) pull-out strength.

When barrier separates opposing flows of traffic markers shall be on both sides of barrier.

See Standard 782006 for dimensions of Type C reflector.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
4-1-16	Rev. opt. chamfer on all edges to 1 (25). Reference to Std. 635011 now 782006.
1-1-12	Omitted 'ALTERNATE' from connecting and anchoring pins detail.

TEMPORARY CONCRETE BARRIER
(Sheet 1 of 2)

STANDARD 704001-08

Illinois Department of Transportation

PASSED April 1, 2016

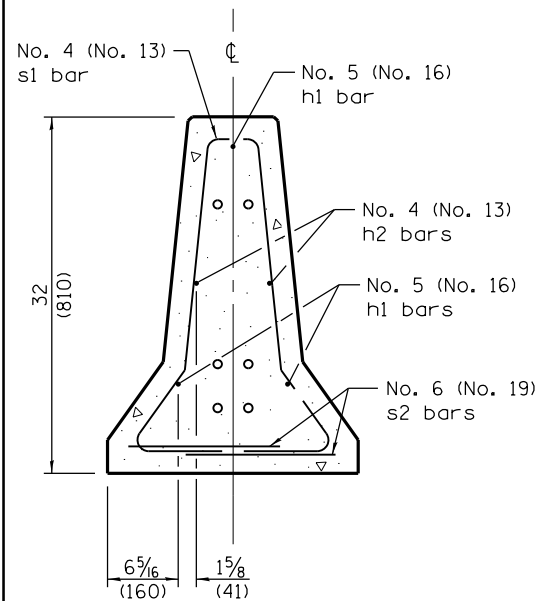
Michael Beard
ENGINEER OF POLICY AND PROCEDURES

APPROVED April 1, 2016

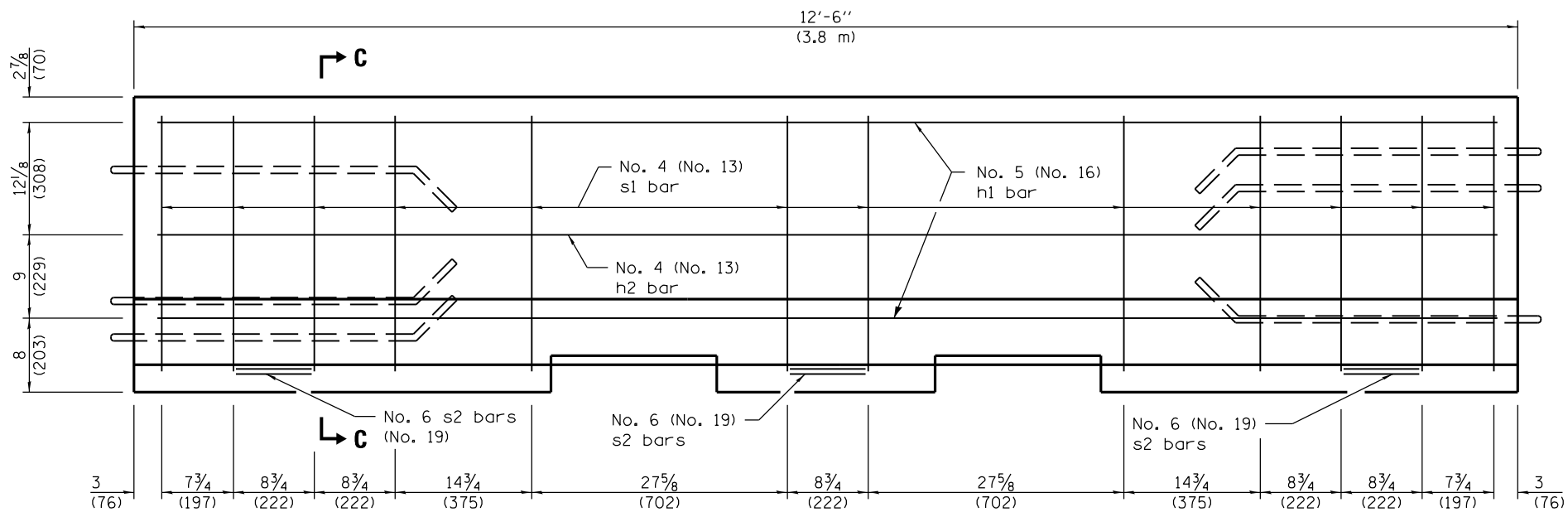
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 10-1-01

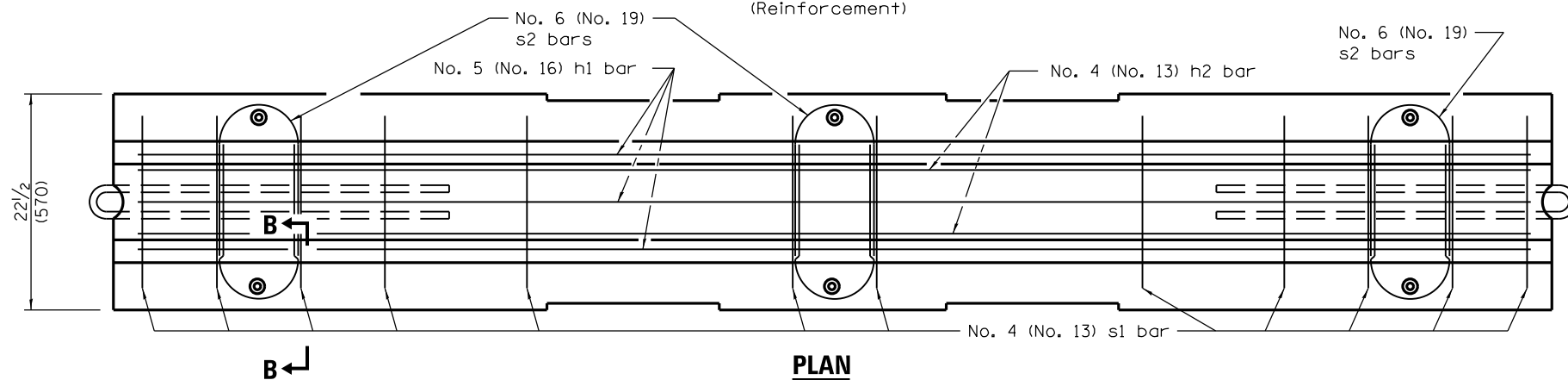
F SHAPE DESIGN



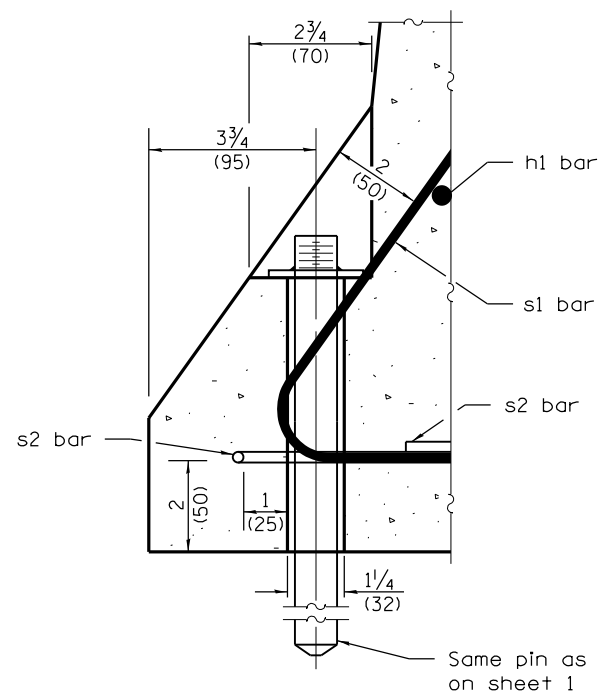
SECTION C-C



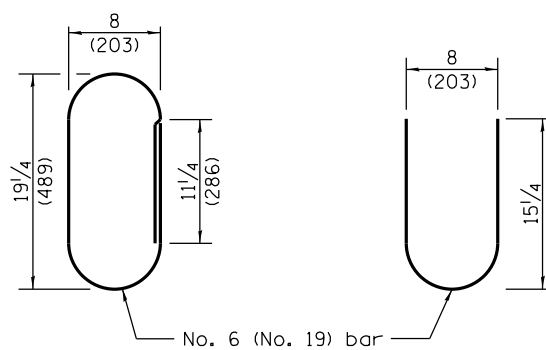
ELEVATION
(Reinforcement)



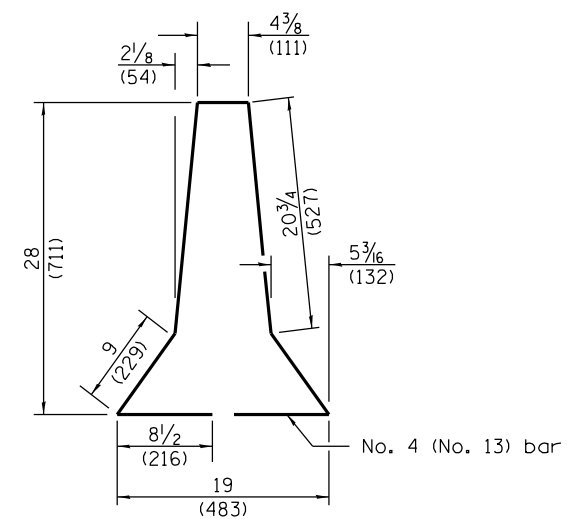
PLAN



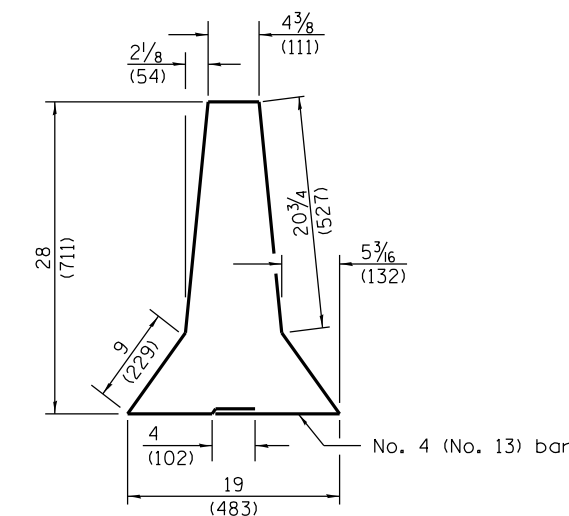
SECTION B-B
ANCHORING DETAIL



ALTERNATE s2 BARS



s1 BAR



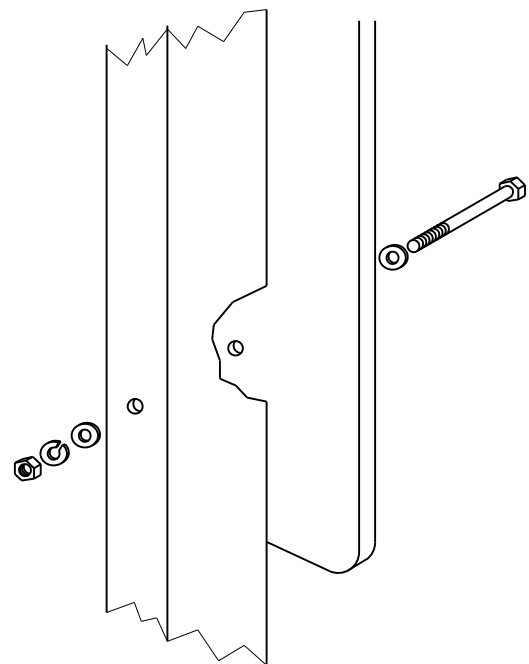
ALTERNATE s1 BAR

Illinois Department of Transportation
 PASSED April 1, 2016
 Michael Beard
 ENGINEER OF POLICY AND PROCEDURES
 APPROVED April 1, 2016
 ENGINEER OF DESIGN AND ENVIRONMENT
 ISSUED 10-1-20
 20-1-01

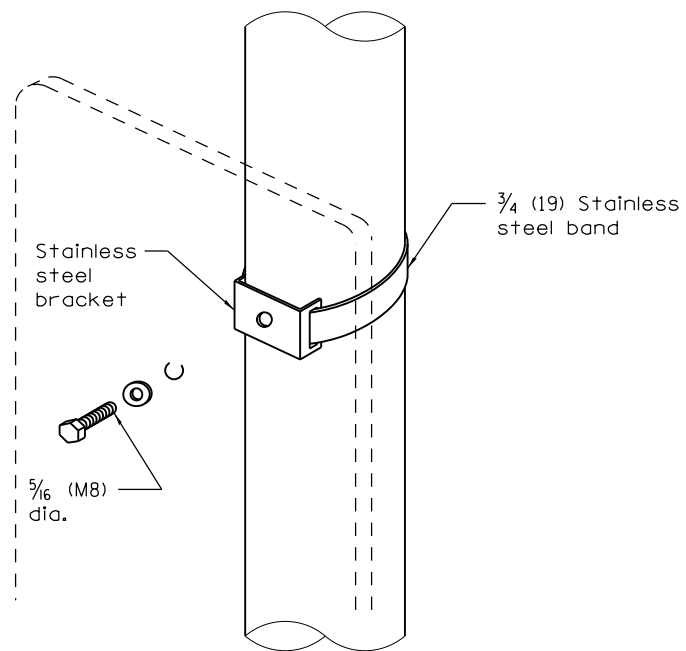
TEMPORARY CONCRETE BARRIER

(Sheet 2 of 2)

STANDARD 704001-08

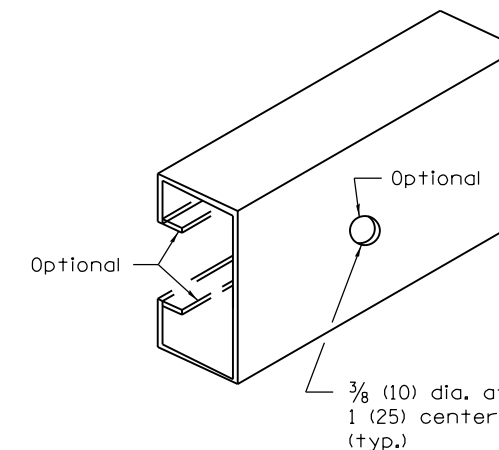
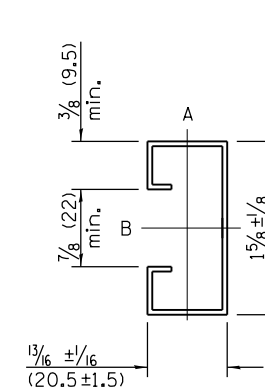


Sign panel 36 (900) wide or less

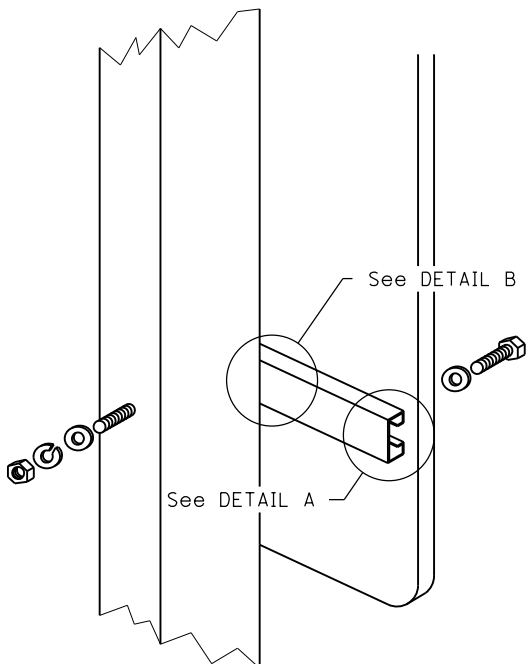


Sign panel 36 (900) wide or less

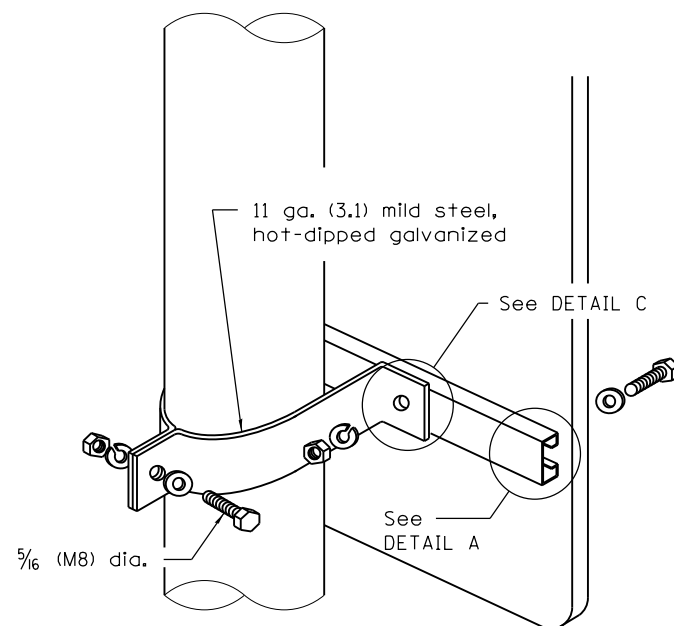
Section modulus (minimum)	Axis A	Axis B
Steel	0.050 in. ³ (819 mm ³)	0.105 in. ³ (1720 mm ³)
Aluminum	0.150 in. ³ (2458 mm ³)	0.315 in. ³ (5162 mm ³)



SUPPORTING CHANNEL DETAILS



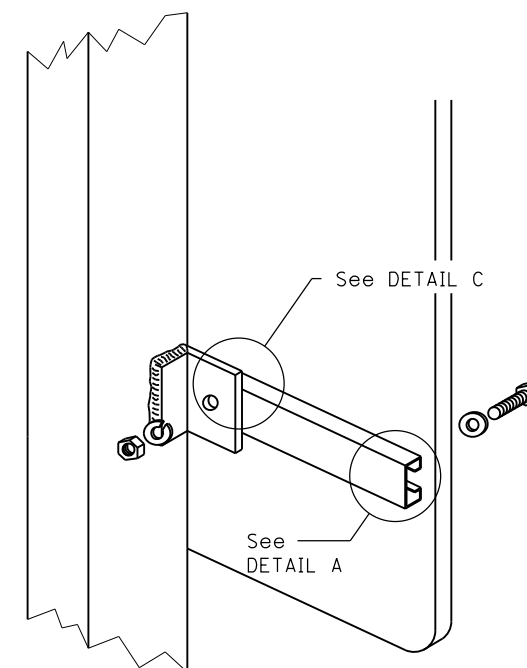
Sign panel over 36 (900) wide



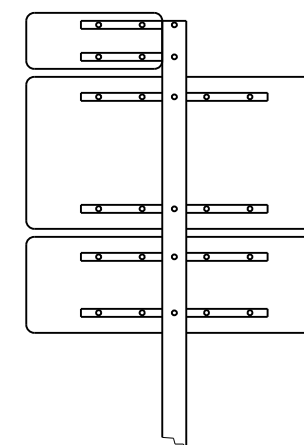
Sign panel over 36 (900) wide

WOOD OR TELESCOPING STEEL POSTS

LIGHT OR SIGNAL STANDARDS

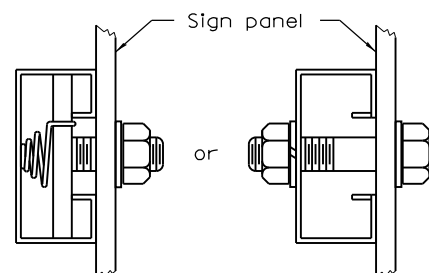


ROUTE MARKER ASSEMBLY

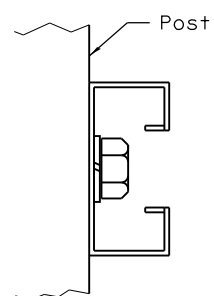


BREAKAWAY STEEL TUBING POSTS

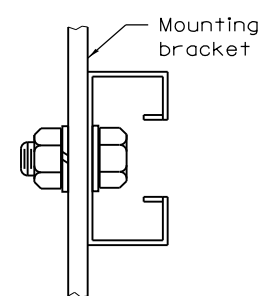
(All sign panel sizes)



DETAIL A



DETAIL B



DETAIL C

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-97	Renum. Standard 2319-6.

SIGN PANEL MOUNTING DETAILS

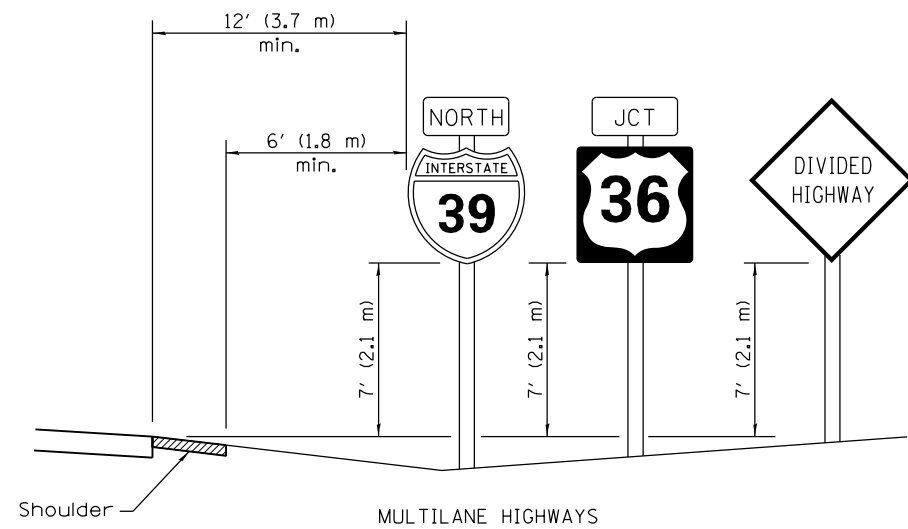
STANDARD 720001-01

Illinois Department of Transportation

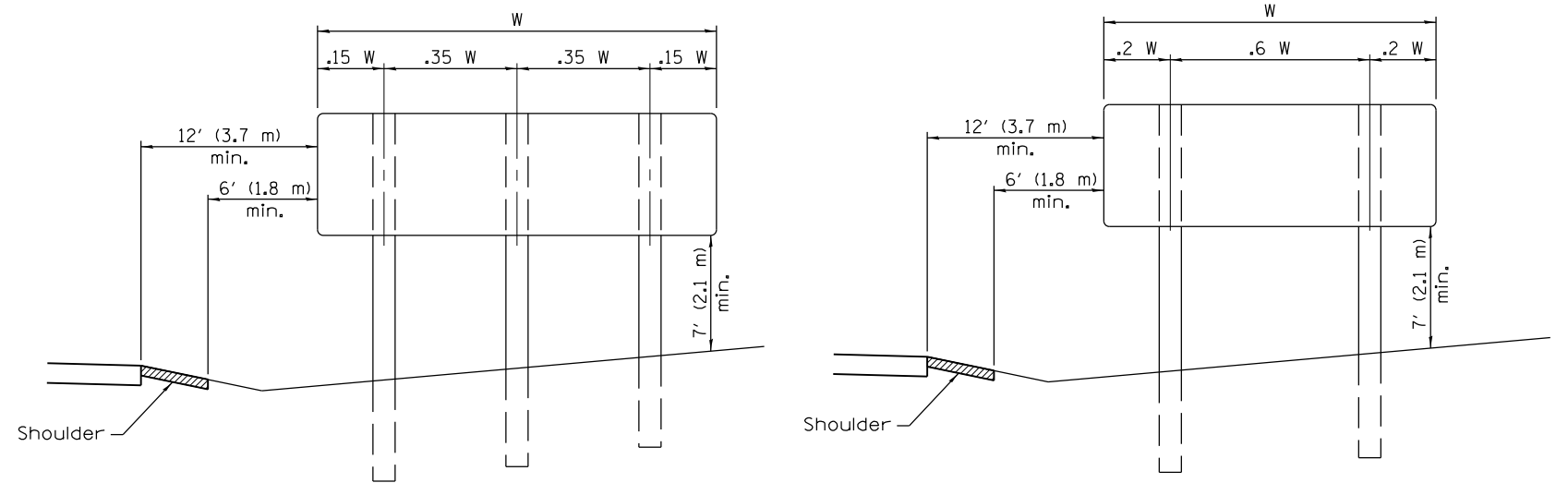
APPROVED January 1, 2009
[Signature]
 ENGINEER OF OPERATIONS

APPROVED January 1, 2009
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

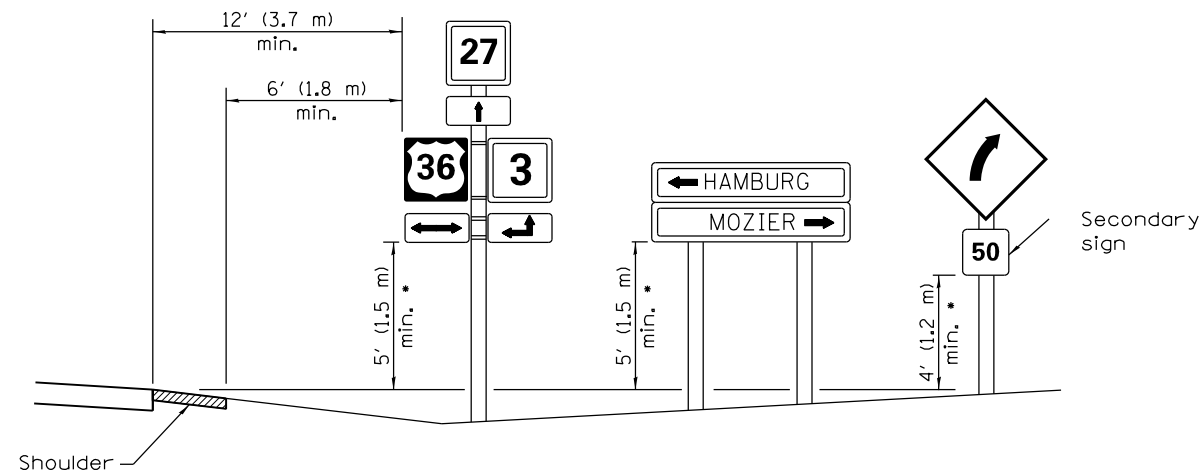
ISSUED 1-1-97



MULTILANE HIGHWAYS

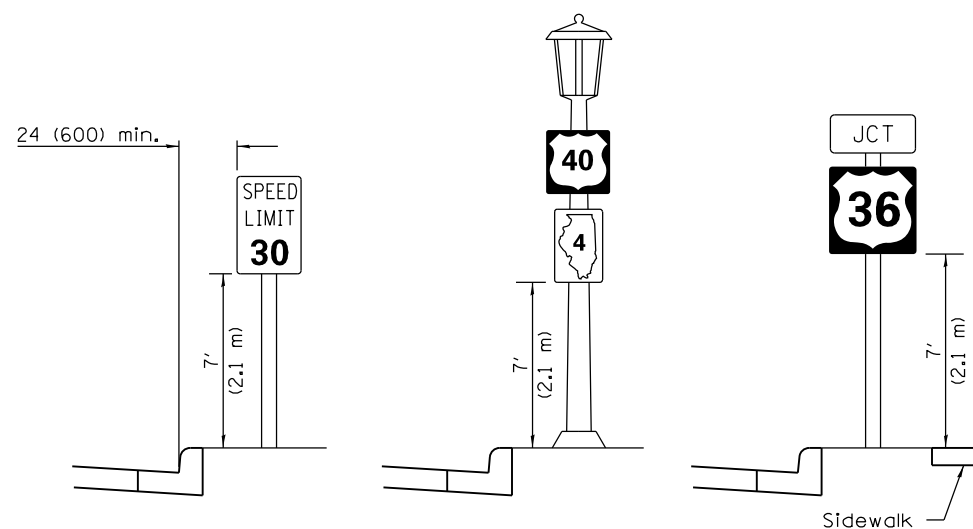


POST SPACING FOR NON-FREWAY SIGN PANELS



- In any area where parking is likely to occur or where there are obstructions to view or where signs are located over sidewalks, the height shall be at least 7' (2.1 m).

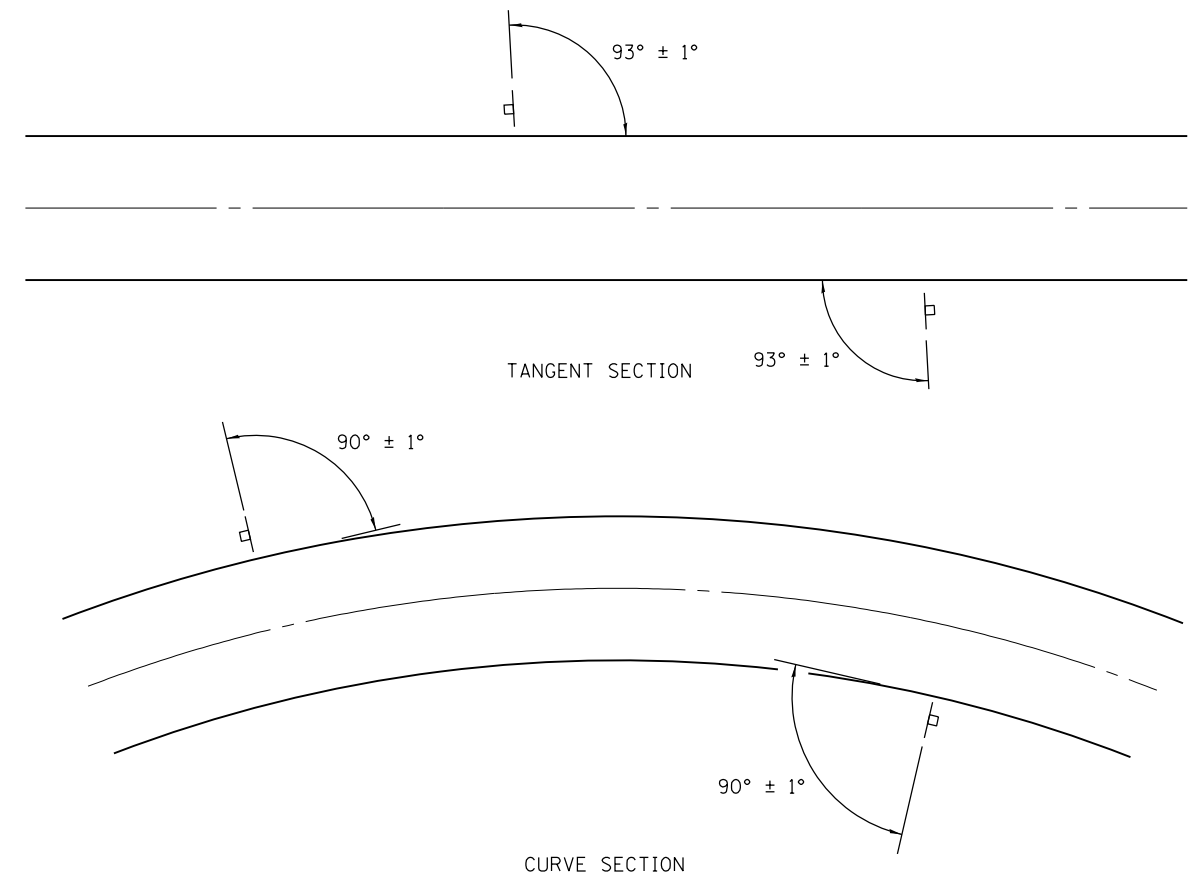
TWO LANE RURAL HIGHWAYS



URBAN LOCATIONS

TYPICAL INSTALLATIONS

Signs in any area shall be erected to a uniform height above the edge of the pavement.



GROUND MOUNT SIGN POSITIONING

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2014
Justin Mann
 ENGINEER OF OPERATIONS

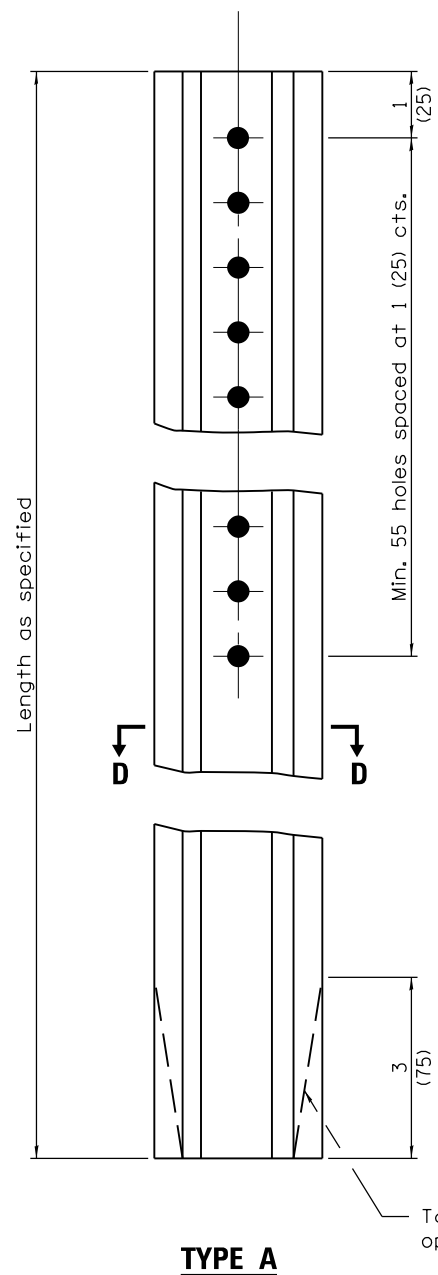
APPROVED January 1, 2014
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-14	Added shoulders and slopes. Changed sign distances from roadway and shoulder.
1-1-12	Rev. sign elev. for multilane hwy's. Revised sign elev. and dist. to curb for rural loc.

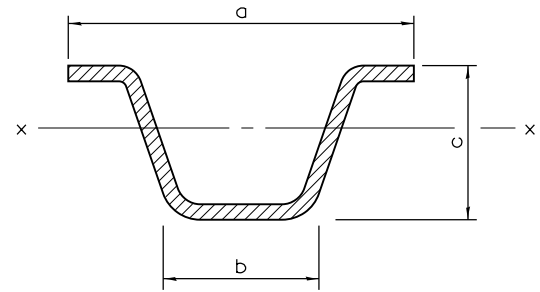
SIGN PANEL ERECTION DETAILS

STANDARD 720006-04

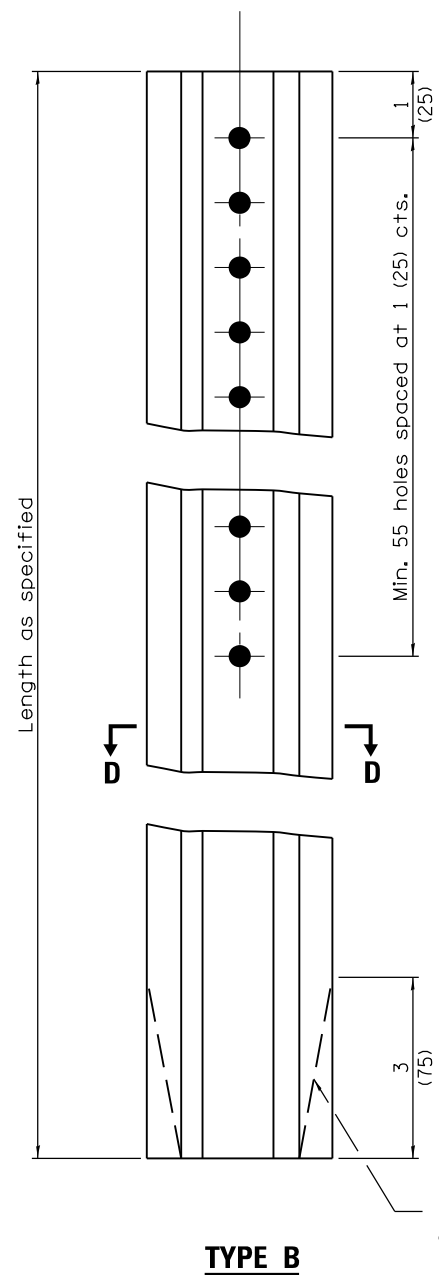


TYPE A

Taper optional

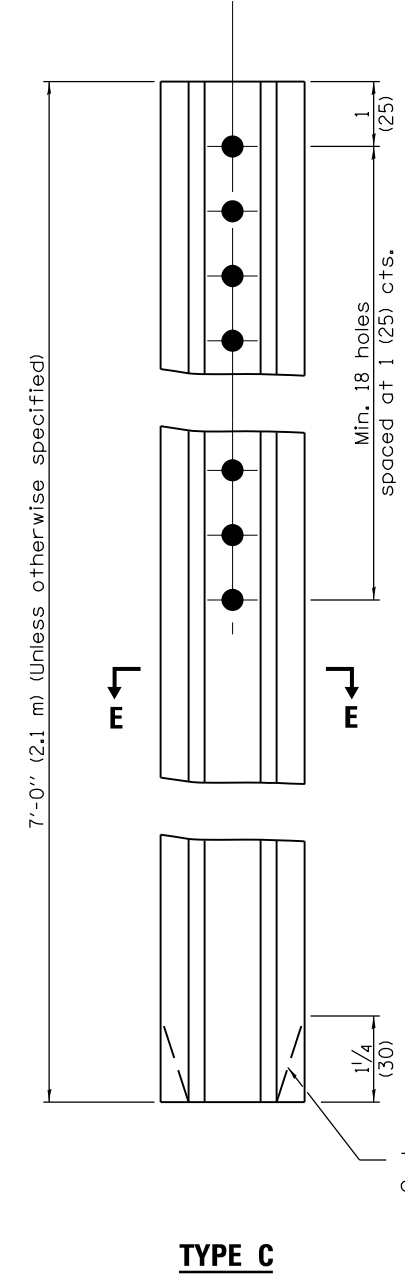


SECTION D-D



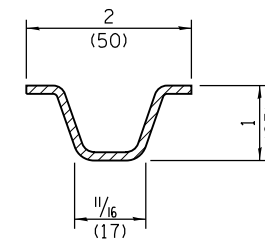
TYPE B

Taper optional



TYPE C

Taper optional



SECTION E-E

Steel - 1.12 lbs./ft. (1.67 kg/m)

		a	b	c	Sx-x in. ³ (mm ³)	lbs./ft. (kg/m)
TYPE A	Steel	3/16 (78)	1/4 (32)	1/8 (37)	0.223 (3,654)	2.00 (2.98)
	Aluminum	3/2 (89)	1 5/8 (41)	1 7/8 (48)	0.435 (7,128)	0.90 (1.34)
TYPE B	Steel	3/8 (81)	1/4 (32)	1/2 (38)	0.341 (5,588)	3.00 (4.46)
	Aluminum	4 5/8 (118)	2 1/4 (57)	2 3/8 (60)	0.888 (14,552)	1.30 (1.93)

GENERAL NOTES

Dimensions shown for cross sections are minimum.

All holes are 3/8 (10).

Sx-x is the minimum section modulus about the x-x axis of the post as shown. For posts in which holes are punched or drilled for more than half their length, Sx-x shall be computed for the net section.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-97	Renum. Standard 2350-4.

METAL POSTS FOR SIGNS, MARKERS & DELINEATORS

STANDARD 720011-01

Illinois Department of Transportation

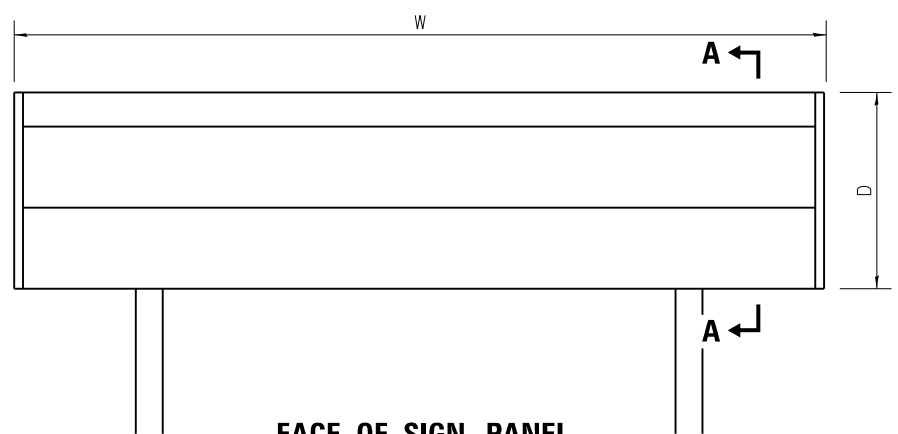
PASSED January 1, 2009

ENGINEER OF POLICY AND PROCEDURES

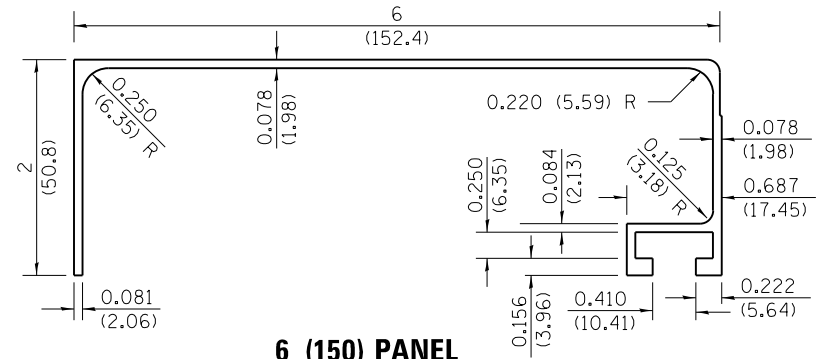
APPROVED January 1, 2009

ENGINEER OF DESIGN AND ENVIRONMENT

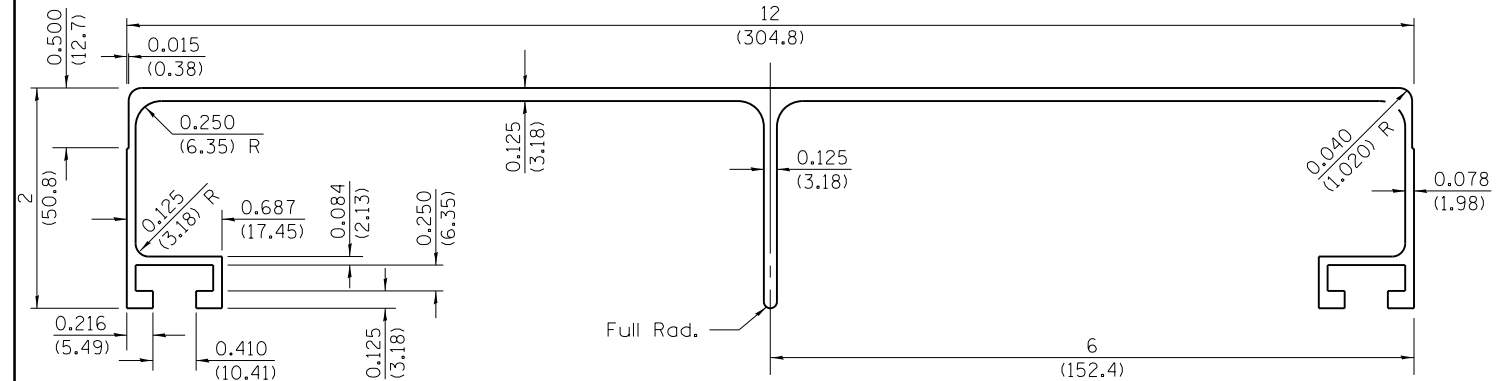
ISSUED 1-1-97



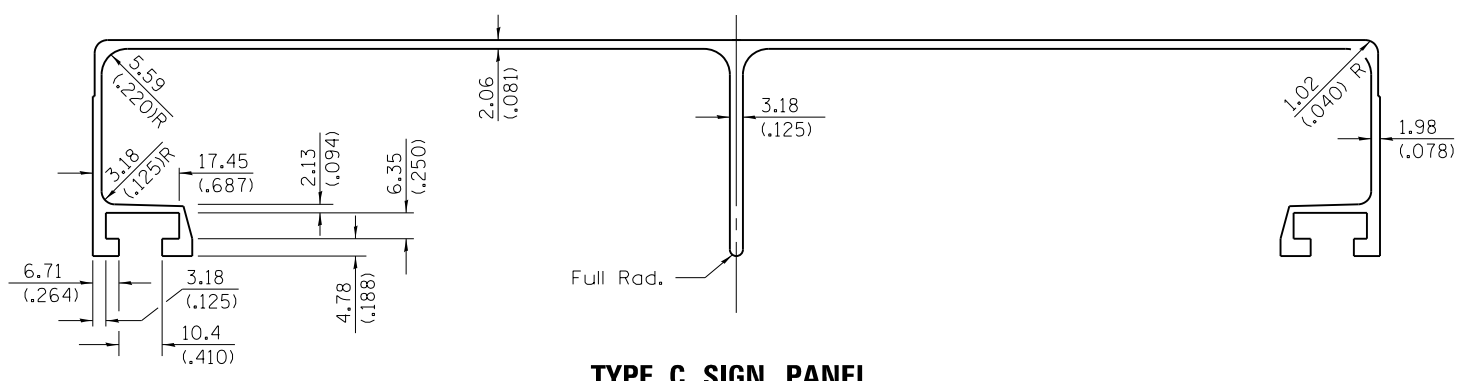
FACE OF SIGN PANEL



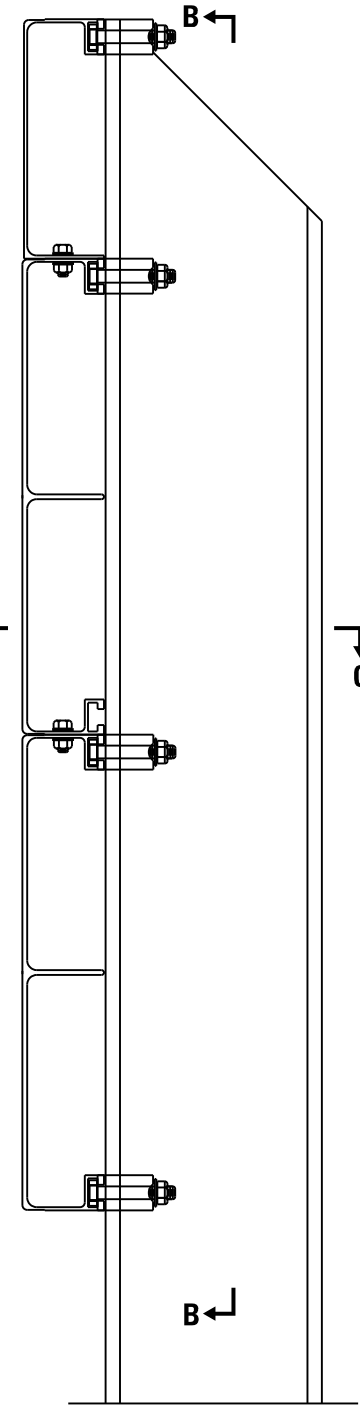
6 (150) PANEL



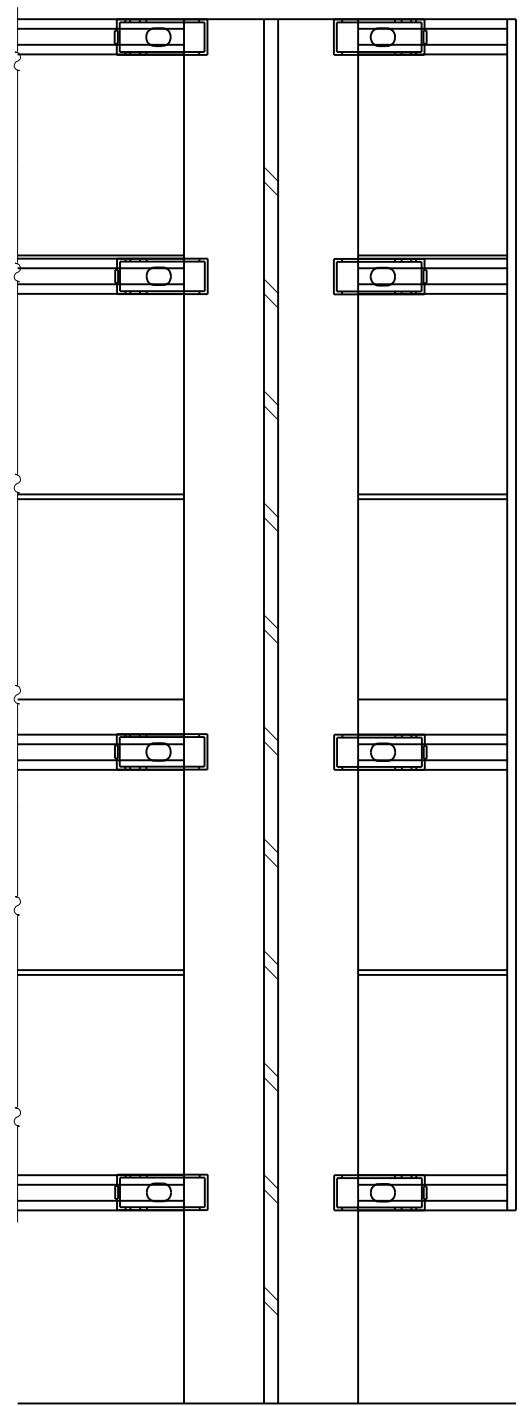
TYPE B SIGN PANEL



TYPE C SIGN PANEL

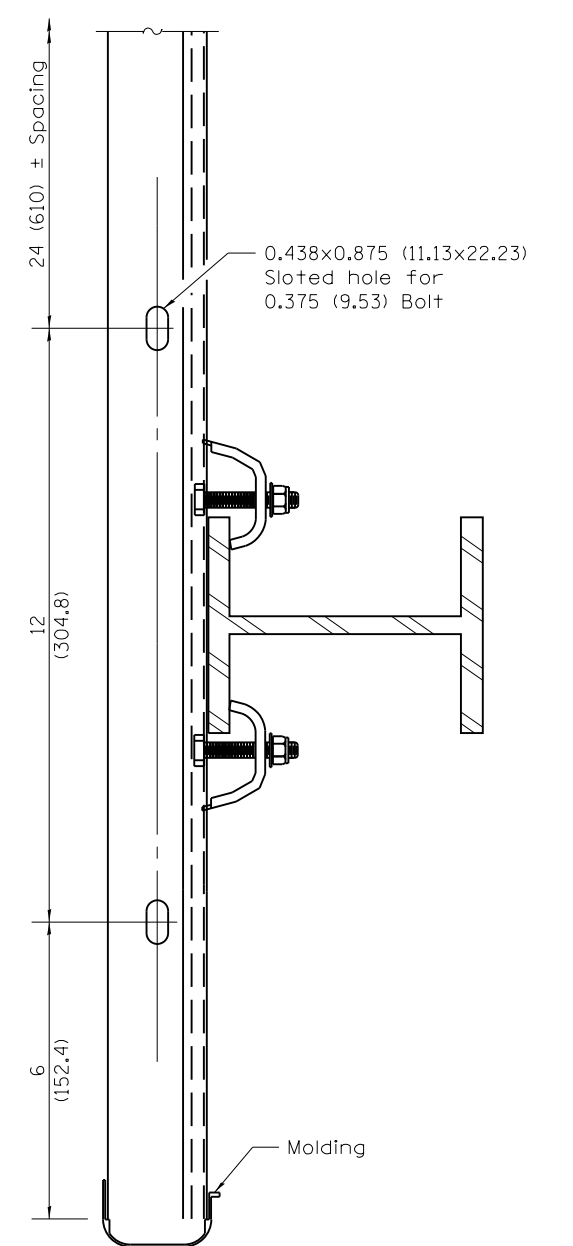


SECTION A-A

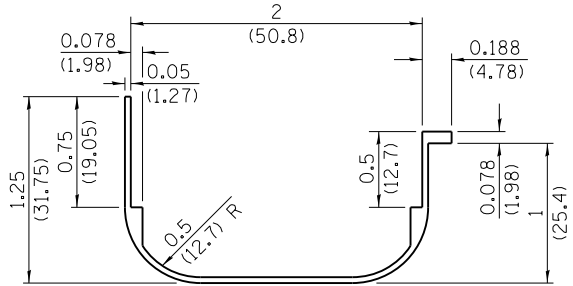


SECTION B-B

(Provide two post clips top and bottom. Alternate at interior panel joints on ground-mounted signs, and provide two clips at all panel joints on over-head mounted signs.)



SECTION C-C
(w/o panel bolts)



SIGN MOLDING

(Color shall match sign facematerial. To be riveted to sign panel at 24 (600) O.C.)

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2009

ENGINEER OF OPERATIONS

APPROVED January 1, 2009

ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-00

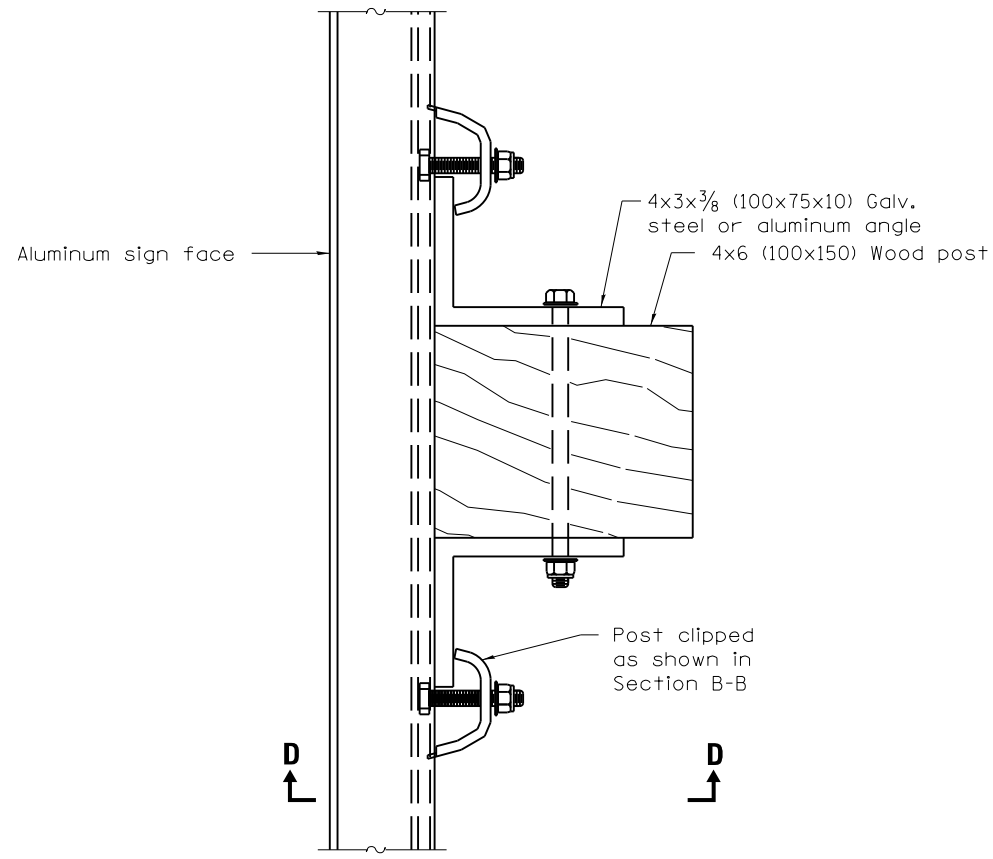
DATE	REVISIONS
1-1-09	Added aluminum clip.
	Switched units to English (metric).
1-1-03	Revised stainless steel clip design, and
	minor changes.

SIGN PANELS

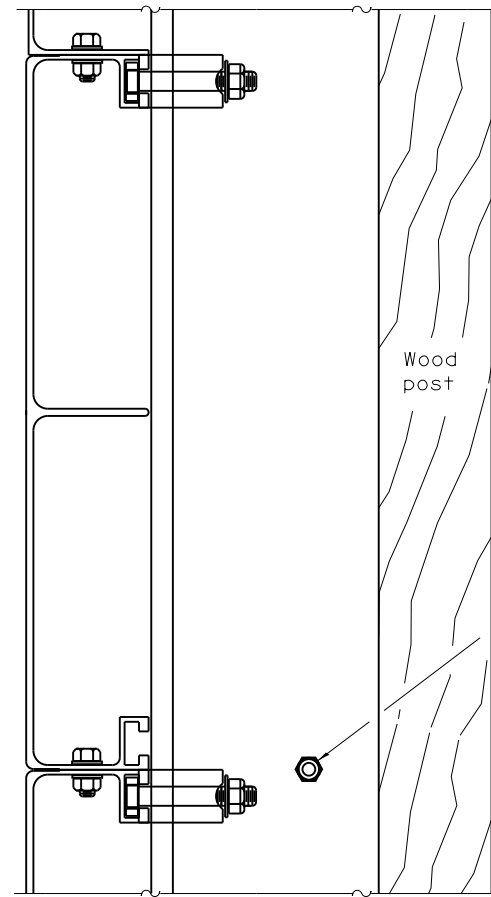
EXTRUDED ALUMINUM TYPE

(Sheet 1 of 2)

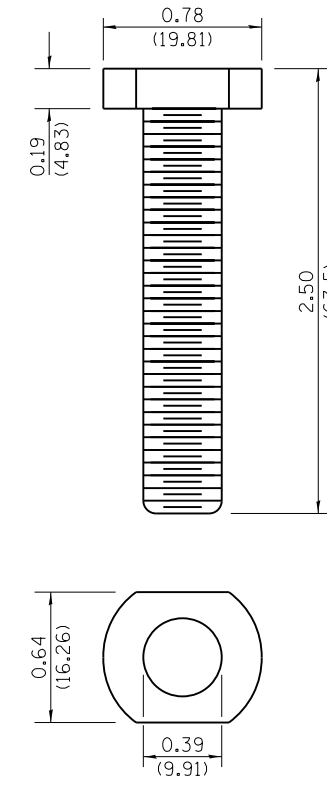
STANDARD 720021-02



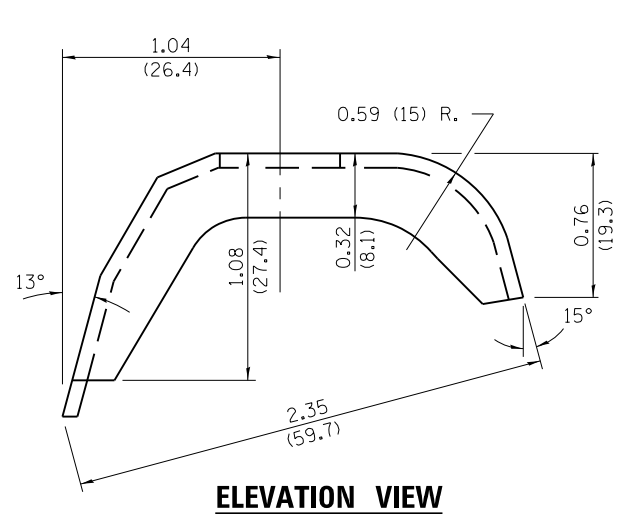
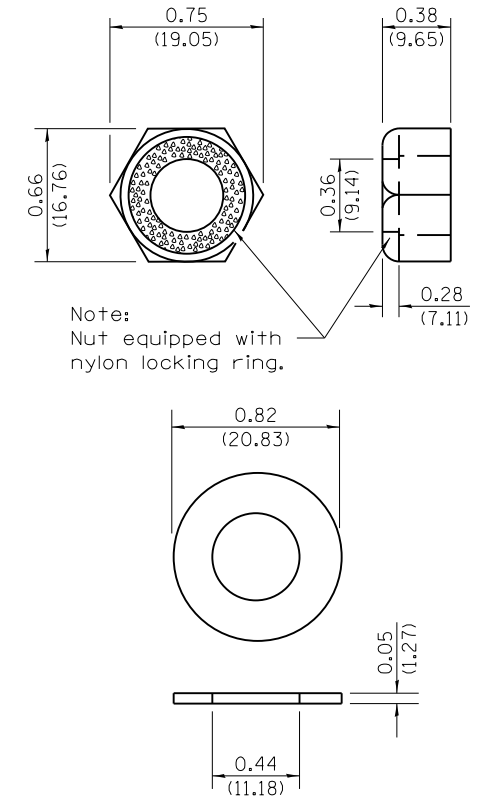
SIGN PANEL ATTACHMENT TO WOOD POST



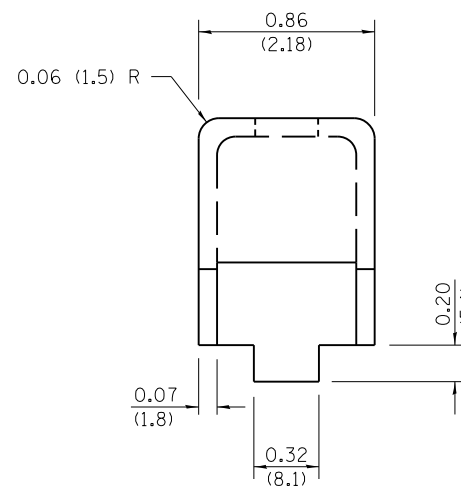
SECTION D-D



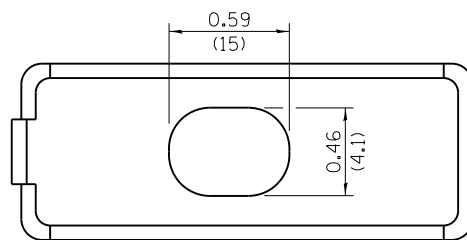
STAINLESS STEEL CLIP NUT, BOLT AND WASHER ASSEMBLY



ELEVATION VIEW

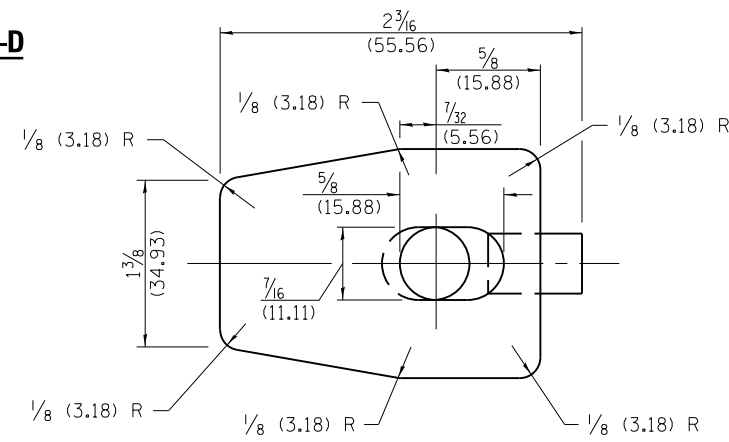


END VIEW

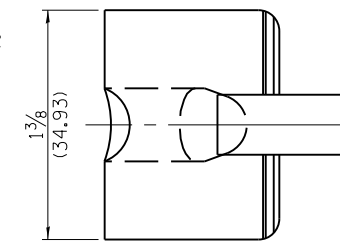


PLAN VIEW

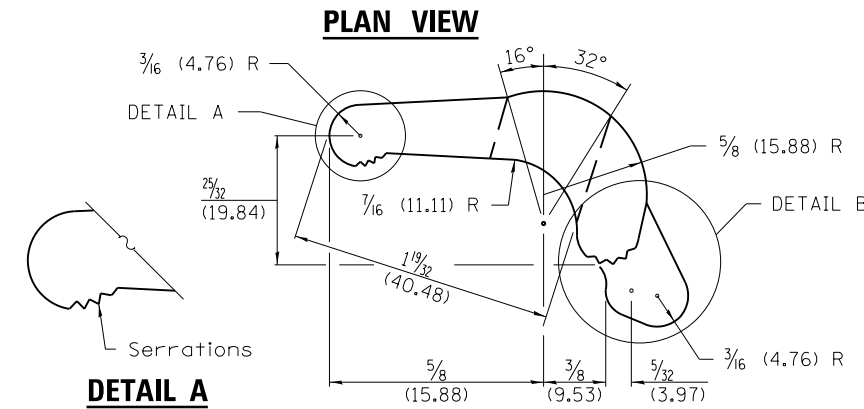
STAINLESS STEEL CLIP



PLAN VIEW



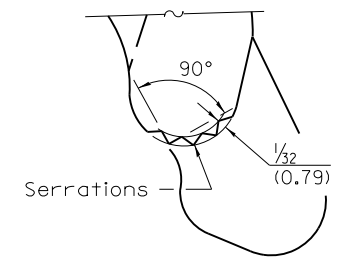
END VIEW



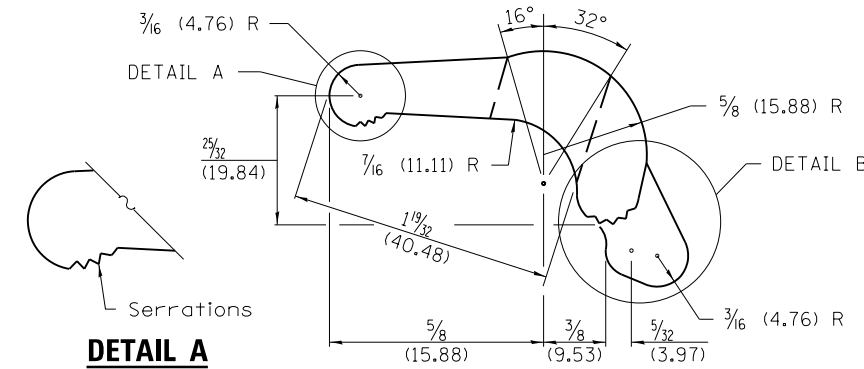
ELEVATION VIEW



DETAIL A
(Enlarged view of serrations)



DETAIL B
(Enlarged detail of serrations)



ALUMINUM CLIP

**SIGN PANELS
EXTRUDED ALUMINUM TYPE**

(Sheet 2 of 2)

STANDARD 720021-02

Illinois Department of Transportation

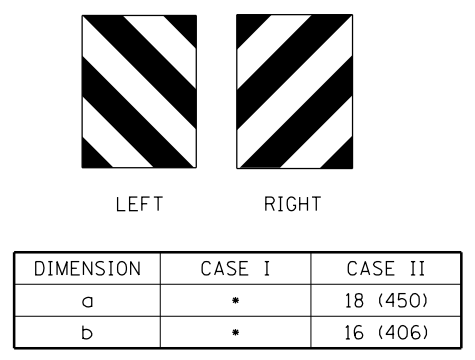
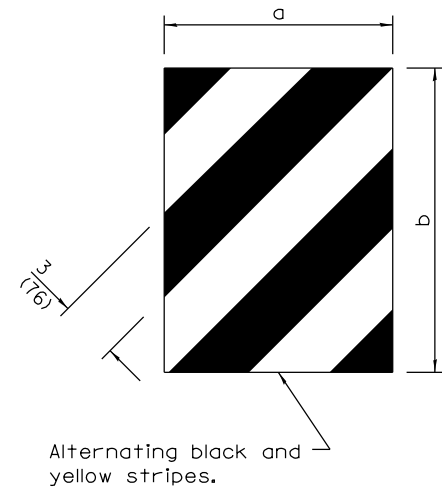
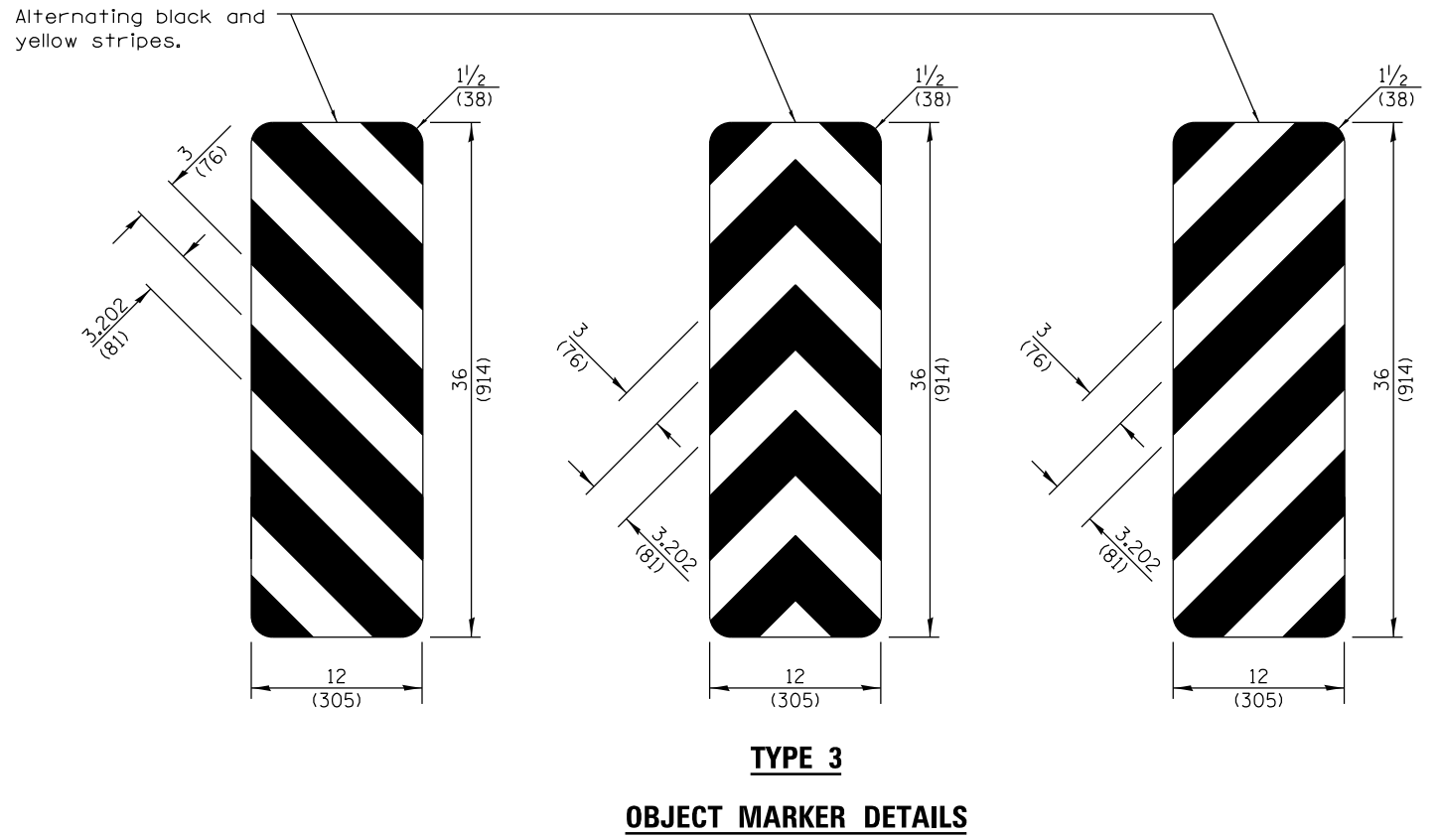
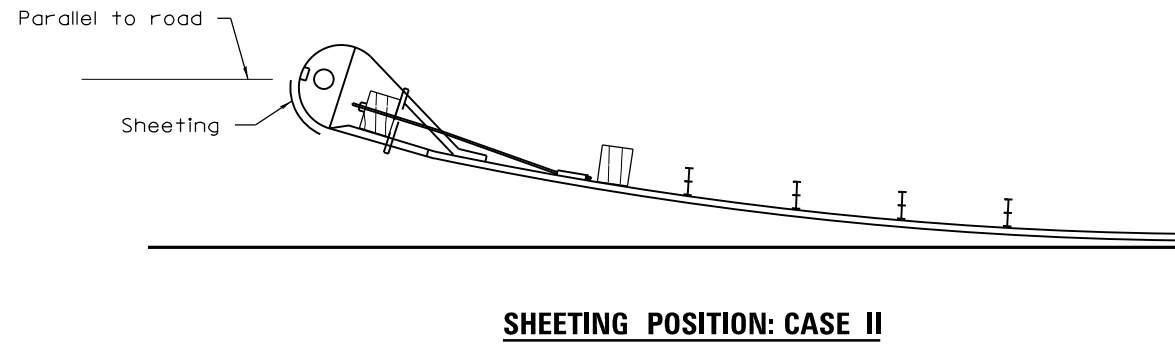
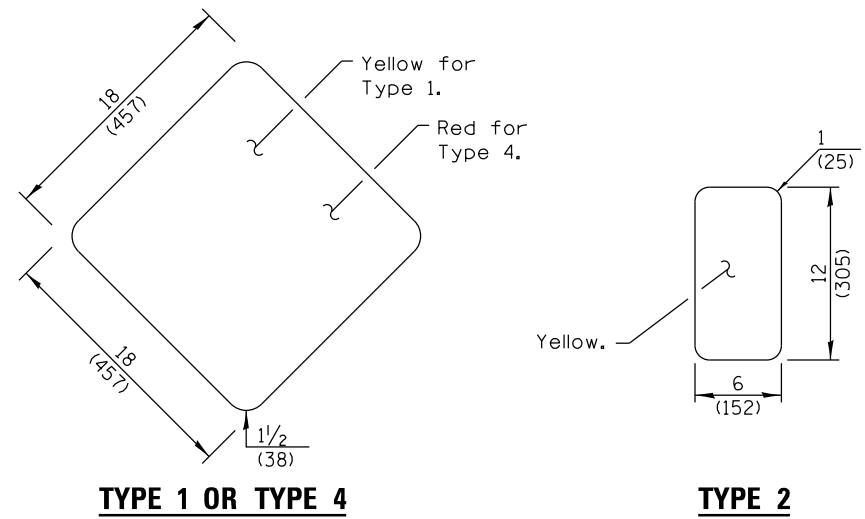
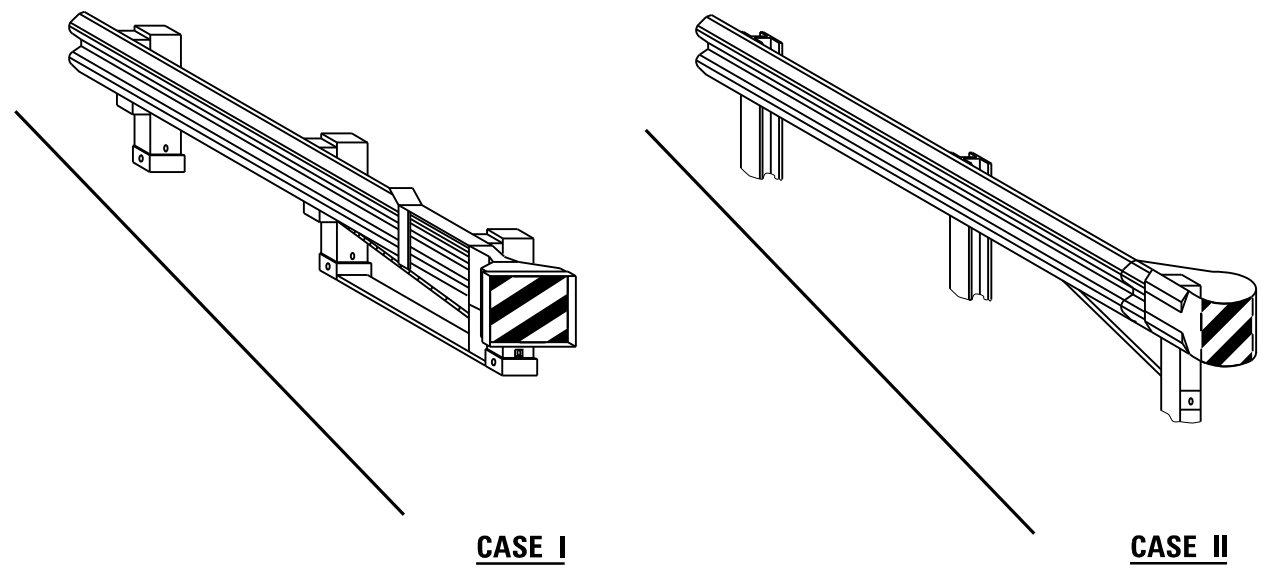
APPROVED January 1, 2009

ENGINEER OF OPERATIONS

APPROVED January 1, 2009

ENGINEER OF DESIGN AND ENVIRONMENT

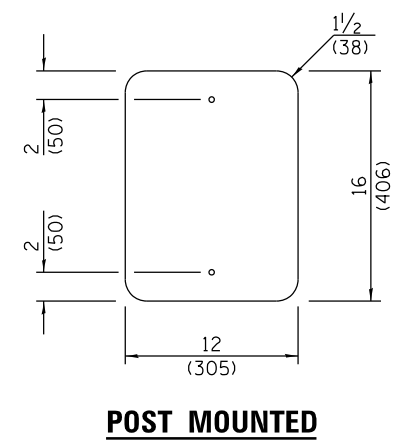
ISSUED 1-1-00



DIRECT APPLIED

TERMINAL MARKER DETAILS
Color: Black / Yellow reflectorized

- The width and height (a, b) of the terminal marker shall be within approximately 1 (25) of the outer edge of the terminal end.



GENERAL NOTES

See detail on Standard 729001 for mounting markers to posts.
All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2017

ENGINEER OF OPERATIONS

APPROVED January 1, 2017

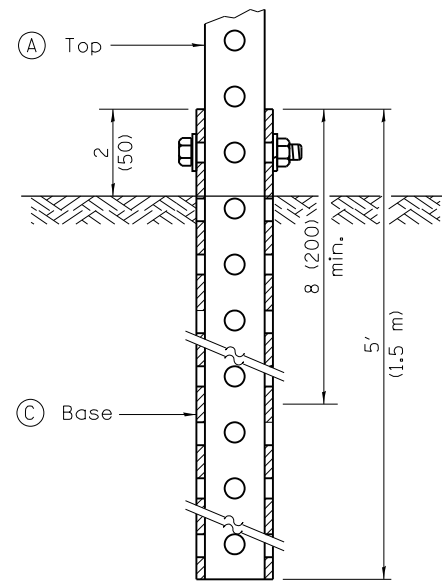
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-2016

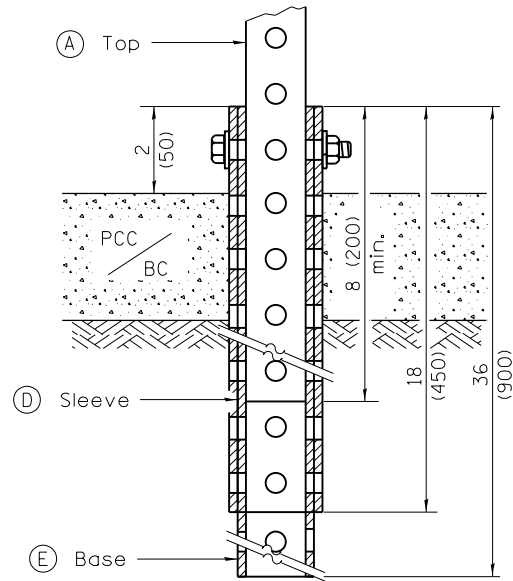
DATE	REVISIONS
1-1-17	Omitted minimum reflective area requirement for terminal marker.
4-1-16	Renumbered standard from 635006.

OBJECT AND TERMINAL MARKERS

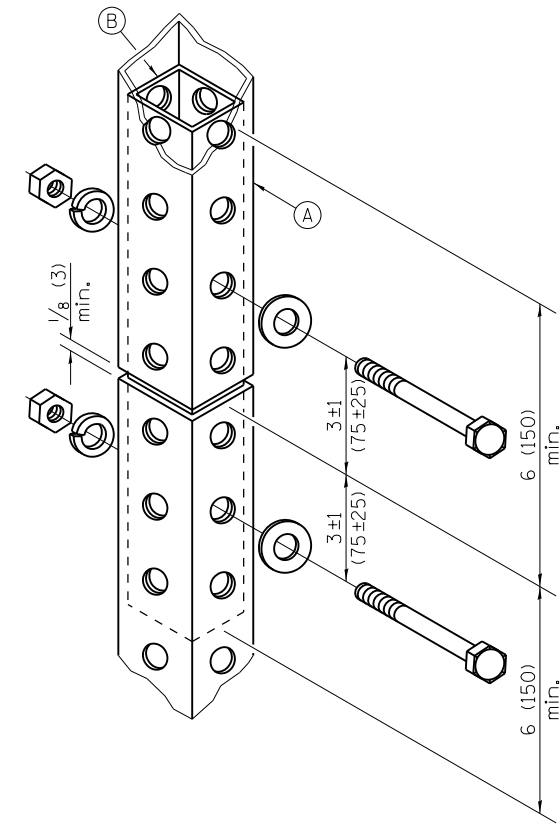
STANDARD 725001-01



GROUND MOUNT DETAIL



PAVEMENT MOUNT DETAIL



SPLICE DETAIL

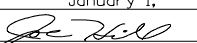
(A)	2 x 2 x var. (51 x 51 var.)
(B)	1 3/4 x 1 3/4 x 12 (44 x 44 x 300)
(C)	2 1/4 x 2 1/4 x 60 (57 x 57 x 1500)
(D)	2 1/2 x 2 1/2 x 18 (64 x 64 x 450)
(E)	2 1/4 x 2 1/4 x 36 (57 x 57 x 900)

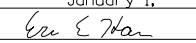
GENERAL NOTES

All bolts 3/8 (M10) hex head zinc or cadmium plated.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2009

 ENGINEER OF OPERATIONS

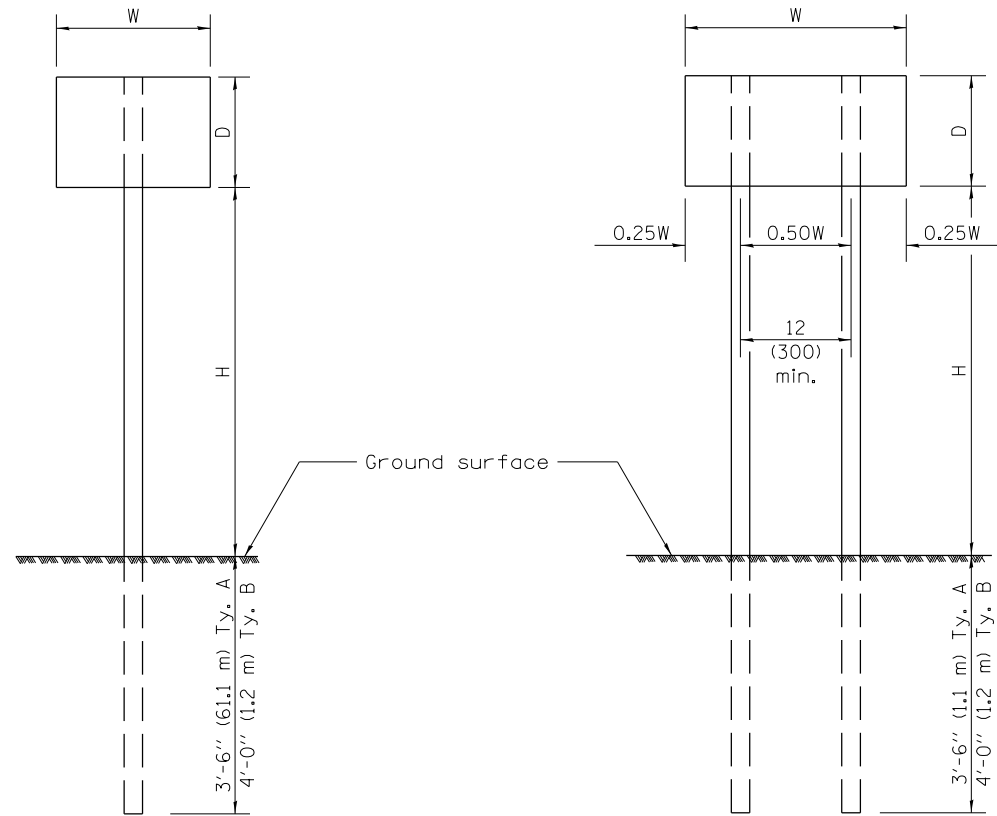
APPROVED January 1, 2009

 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-07

DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-07	New Standard. Used to be part of Standard 720006.

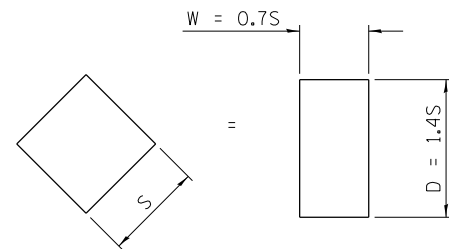
TELESCOPING STEEL SIGN SUPPORT

STANDARD 728001-01



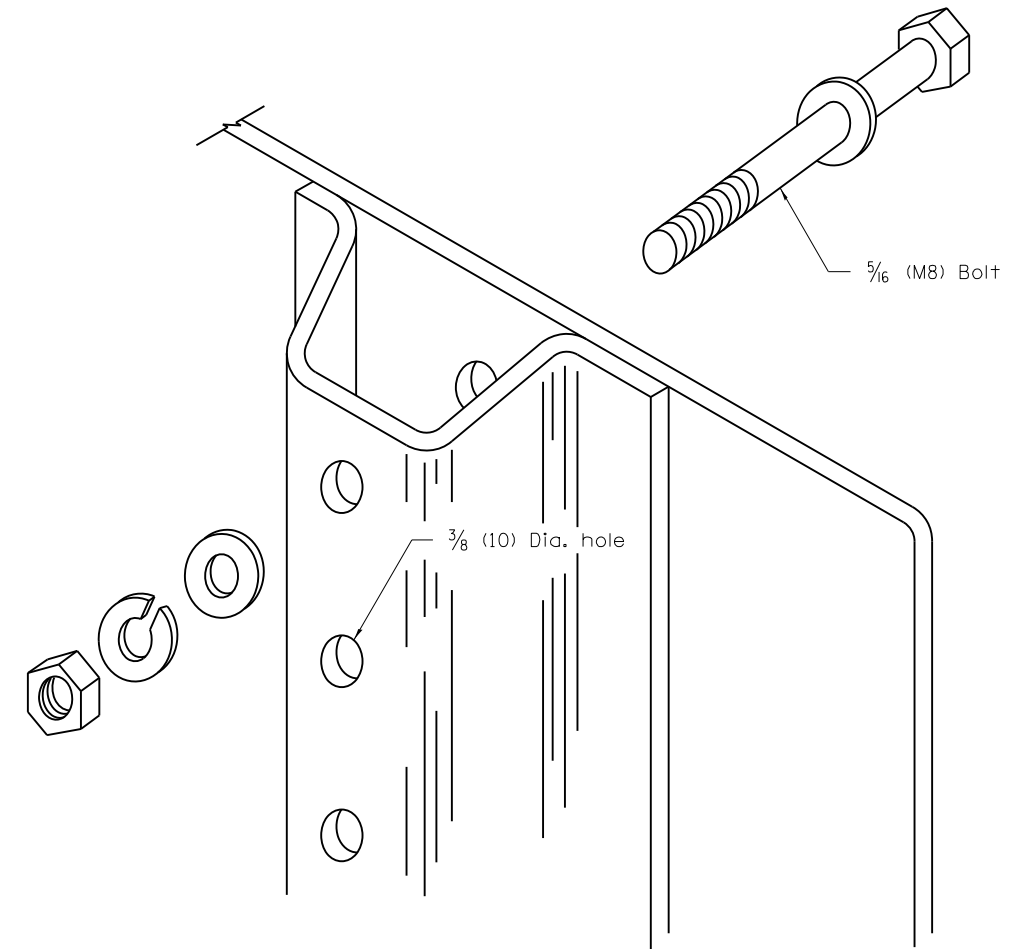
ONE POST INSTALLATION

TWO POST INSTALLATION



For diamond shaped sign with side S as shown, use required post size for a sign with $W = 0.7S$ and $D = 1.4S$.

SIGN DEPTH (D)	H	NO. AND TYPE OF POST FOR SIGN WIDTH (W)				
		12 (300)	18 (450)	24 (600)	30 (750)	36 (900)
18 (450)	5'-0" (1.5 m)	A	A	A	A	A
	5'-6" (1.7 m)	A	A	A	A	A
	6'-0" (1.8 m)	A	A	A	A	B
	6'-6" (2.0 m)	A	A	A	A	B
	7'-0" (2.1 m)	A	A	A	A	B
	7'-6" (2.3 m)	A	A	A	A	B
	8'-0" (2.4 m)	A	A	A	A	B
	8'-6" (2.6 m)	A	A	A	B	B
	9'-0" (2.7 m)	A	A	A	B	B
24 (600)	5'-0" (1.5 m)	A	A	A	A	B
	5'-6" (1.7 m)	A	A	A	A	B
	6'-0" (1.8 m)	A	A	A	B	B
	6'-6" (2.0 m)	A	A	A	B	B
	7'-0" (2.1 m)	A	A	A	B	B
	7'-6" (2.3 m)	A	A	A	B	B
	8'-0" (2.4 m)	A	A	A	B	2A
	8'-6" (2.6 m)	A	A	B	B	2A
	9'-0" (2.7 m)	A	A	B	B	2A
30 (750)	5'-0" (1.5 m)	A	A	A	B	B
	5'-6" (1.7 m)	A	A	A	B	2A
	6'-0" (1.8 m)	A	A	A	B	2A
	6'-6" (2.0 m)	A	A	A	B	2A
	7'-0" (2.1 m)	A	A	B	B	2A
	7'-6" (2.3 m)	A	A	B	B	2A
	8'-0" (2.4 m)	A	A	B	B	2A
	8'-6" (2.6 m)	A	A	B	2A	2A
	9'-0" (2.7 m)	A	A	B	2A	2A
36 (900)	5'-0" (1.5 m)	A	A	B	B	2A
	5'-6" (1.7 m)	A	A	B	B	2A
	6'-0" (1.8 m)	A	A	B	B	2A
	6'-6" (2.0 m)	A	A	B	2A	2A
	7'-0" (2.1 m)	A	A	B	2A	2A
	7'-6" (2.3 m)	A	A	B	2A	2A
	8'-0" (2.4 m)	A	B	B	2A	2A
	8'-6" (2.6 m)	A	B	B	2A	2B
	9'-0" (2.7 m)	A	B	2A	2A	2B
4'-0" (1.2 m)	5'-0" (1.5 m)	A	A	B	2A	2A
	5'-6" (1.7 m)	A	B	B	2A	2A
	6'-0" (1.8 m)	A	B	B	2A	2A
	6'-6" (2.0 m)	A	B	2A	2A	2B
	7'-0" (2.1 m)	A	B	2A	2A	2B
	7'-6" (2.3 m)	A	B	2A	2B	2B
	8'-0" (2.4 m)	A	B	2A	2B	2B
	8'-6" (2.6 m)	B	B	2B	2B	2B
	9'-0" (2.7 m)	B	2A	2B	2B	2B



DETAIL OF MOUNTING SIGN TO POST

NOTE: Minimum of 2 bolts per post required.

GENERAL NOTES

DESIGN: Current AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

LOADING: for 60 mph (95 km/h) wind velocity with 30% gust factor, normal to sign.

SOIL PRESSURE: Minimum allowable soil pressure 1.25 tsf (120 kPa).

See Standard 720011 for details of Types A and B posts.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-97	Renum. Standard 2363-2.

APPLICATIONS OF TYPES A & B METAL POSTS (FOR SIGNS & MARKERS)

STANDARD 729001-01

Illinois Department of Transportation

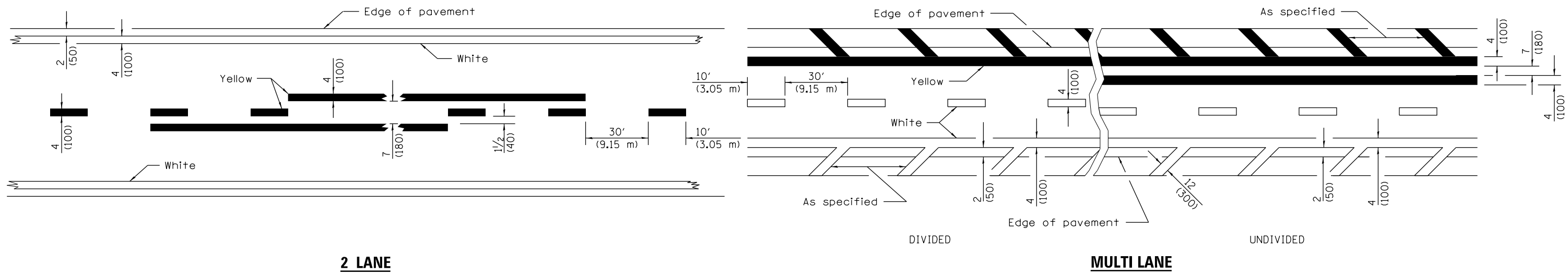
PASSED January 1, 2009

ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2009

ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



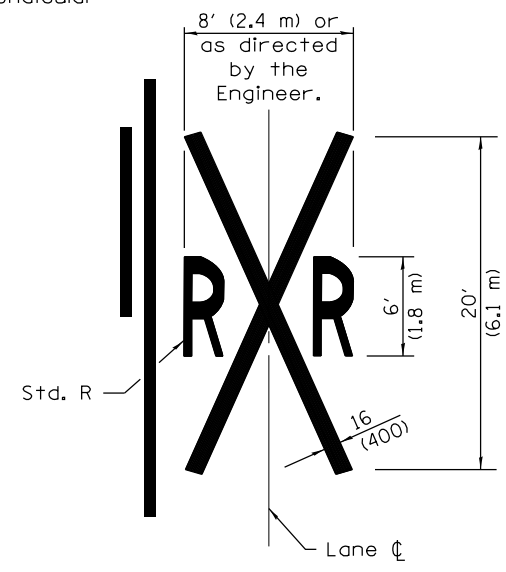
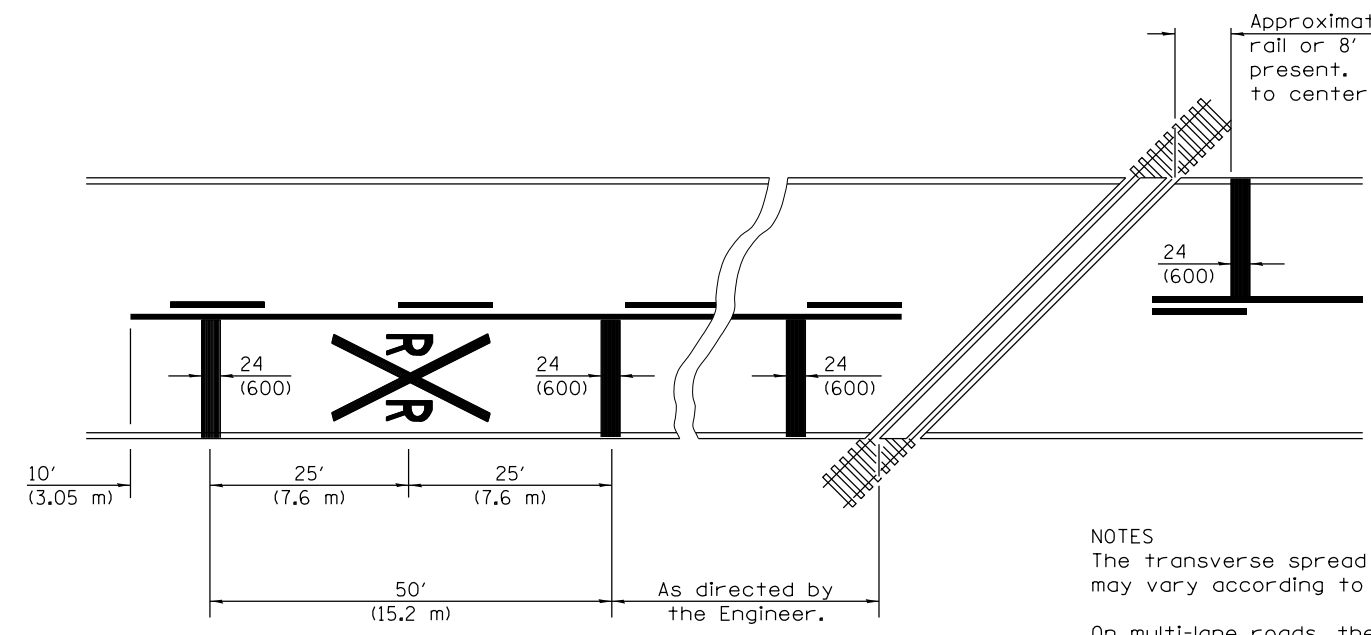
2 LANE

DIVIDED

MULTI LANE

UNDIVIDED

LANE AND EDGE LINES



NOTES

The transverse spread of the "X" may vary according to lane width.

On multi-lane roads, the stop lines shall extend across all approach lanes and separate RXR symbols shall be placed adjacent to each other in each lane.

When the pavement marking symbol is used, a portion of the symbol should be located directly adjacent to the Advance Warning Sign (W10-1) as placed by Table 2C-4, Condition B of the MUTCD.

PAVEMENT MARKINGS AT RAILROAD-HIGHWAY GRADE CROSSING

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-15	Added symbols. Revised bike symbol. Revised note for stop line at RR crossing.
1-1-14	Added bike symbol. Renamed 'LANE DROP ARROW' detail to 'LANE-REDUCTION ARROW'.

TYPICAL PAVEMENT MARKINGS

(Sheet 1 of 3)

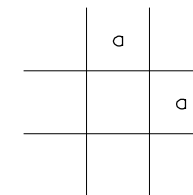
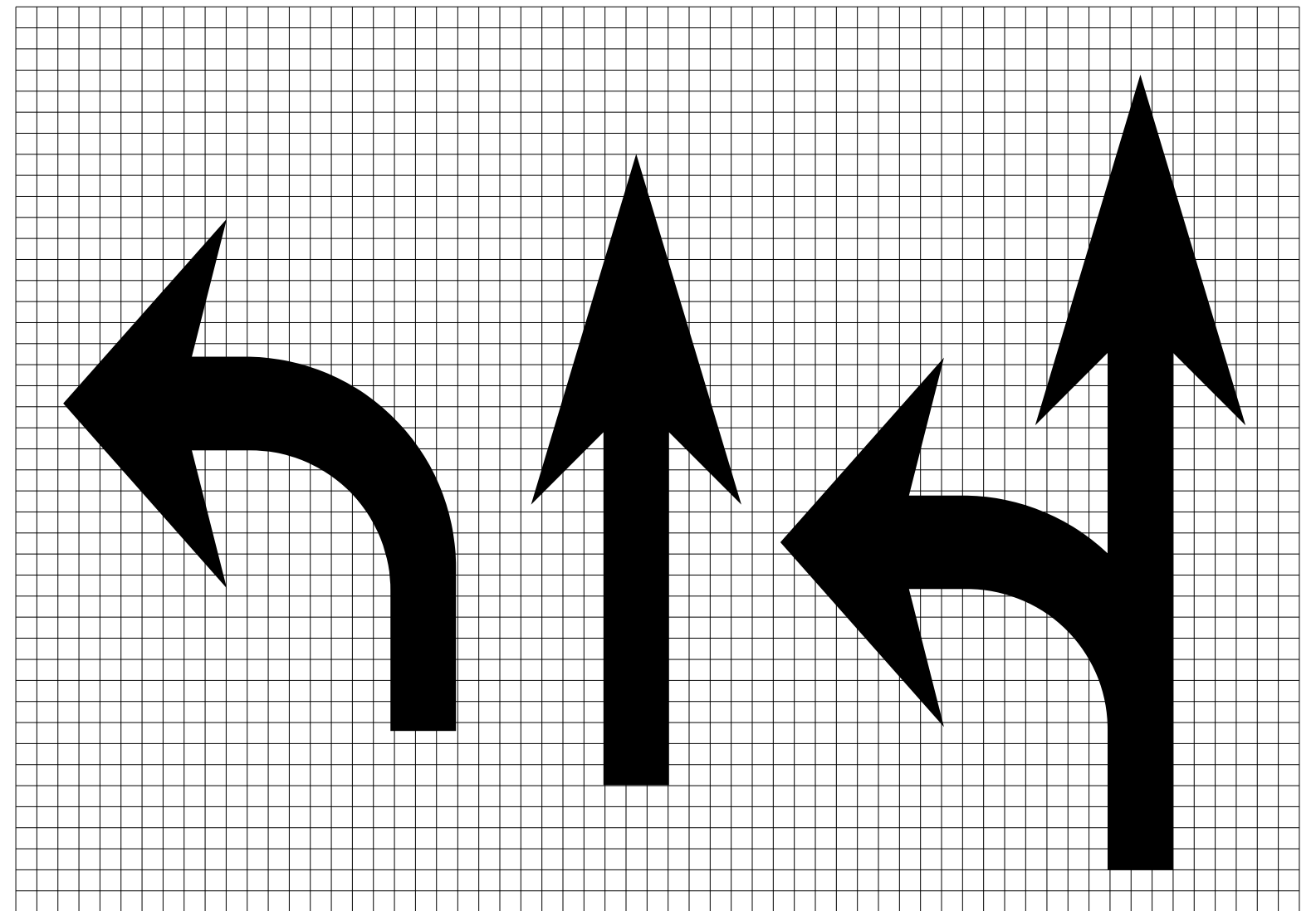
STANDARD 780001-05

Illinois Department of Transportation

APPROVED January 1, 2015
Amy Allen
 ENGINEER OF OPERATIONS

APPROVED January 1, 2015
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT


ISSUED 1-1-97



Legend Height	Arrow Size	a
6' (1.8 m)	Small	2.9 (74)
8' (2.4 m)	Large	3.8 (96)

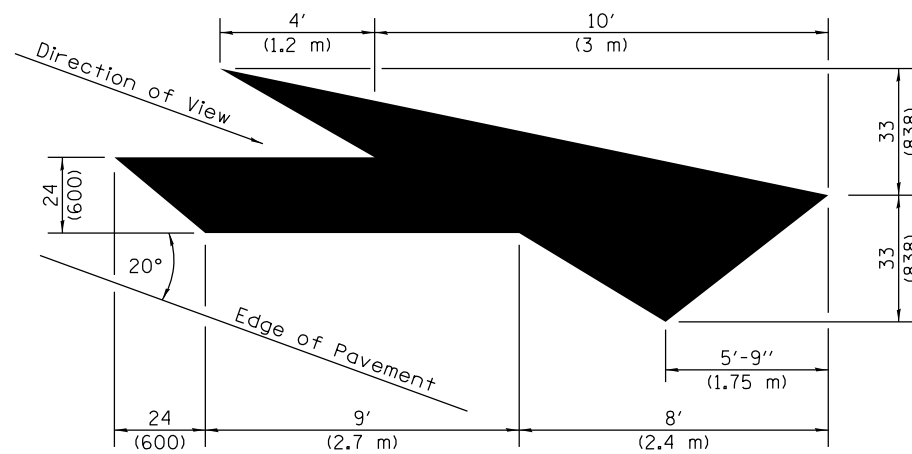
The space between adjacent letters or numerals should be approximately 3 (75) for 6' (1.8 m) legend and 4 (100) for 8' (2.4 m) legend.

LETTER AND ARROW GRID SCALE

 Illinois Department of Transportation
 APPROVED January 1, 2015
Amy Allen
 ENGINEER OF OPERATIONS
 APPROVED January 1, 2015
DR
 ENGINEER OF DESIGN AND ENVIRONMENT

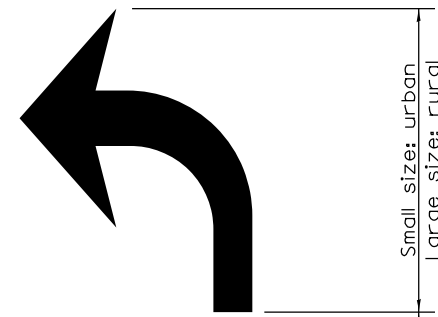
ISSUED 1-1-97

TYPICAL PAVEMENT MARKINGS
 (Sheet 2 of 3)
STANDARD 780001-05



LANE-REDUCTION ARROW

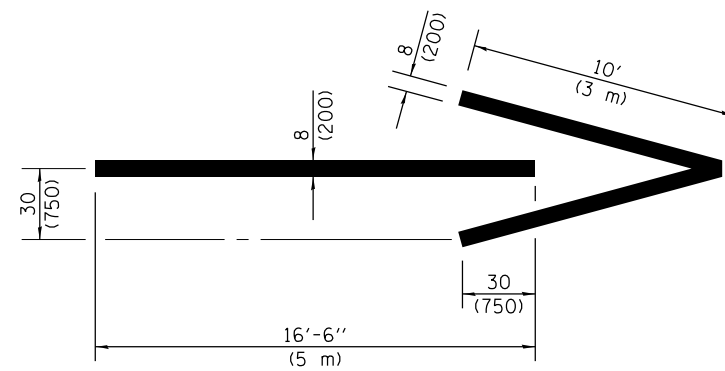
Right lane-reduction arrow shown.
Use mirror image for left lane.



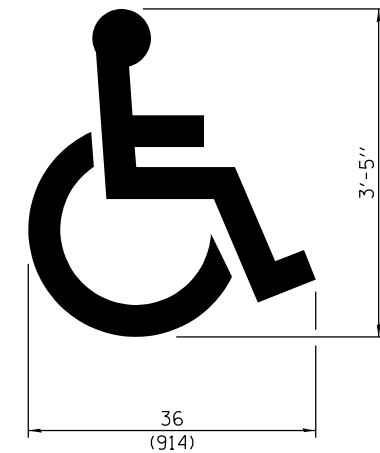
20' (6 m): urban
50' (15 m): rural
(Between arrow
and word or
between words)

ONLY

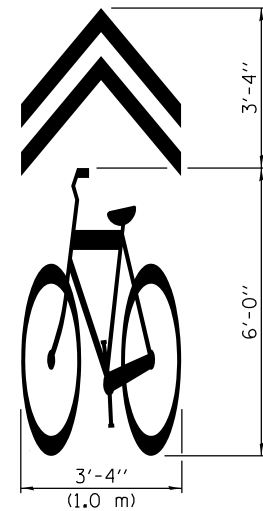
WORD AND ARROW LAYOUT



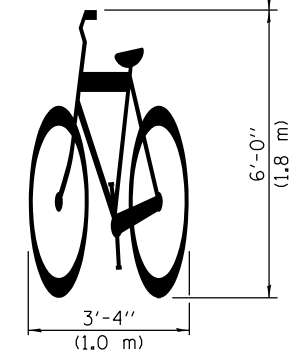
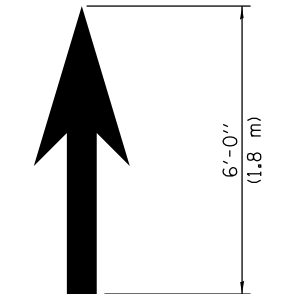
WRONG WAY ARROW



**INTERNATIONAL
SYMBOL OF
ACCESSIBILITY**



**SHARED LANE
SYMBOL**



BIKE SYMBOL
(Arrow is optional.)

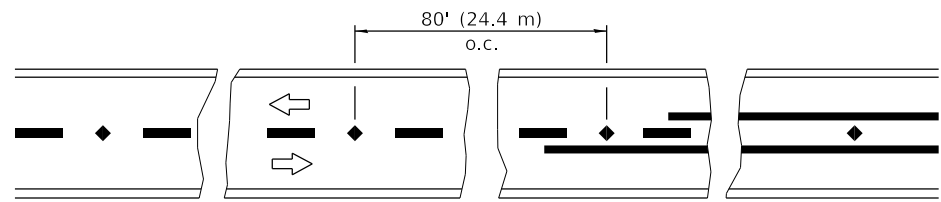
Illinois Department of Transportation
APPROVED January 1, 2015
Amy Allen
ENGINEER OF OPERATIONS
APPROVED January 1, 2015
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

**TYPICAL PAVEMENT
MARKINGS**

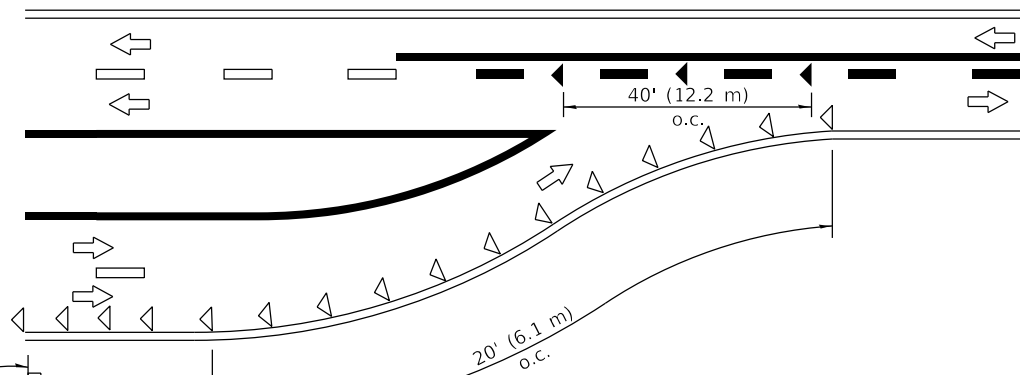
(Sheet 3 of 3)

STANDARD 780001-05



Reduce to 40' (12.2 m) o.c. on curves with posted or advisory speeds of 45 mph (70 km/h) or less.

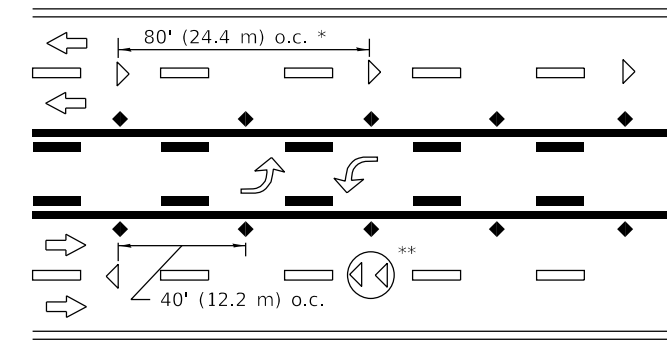
TWO-LANE / TWO-WAY



LANE REDUCTION TRANSITION

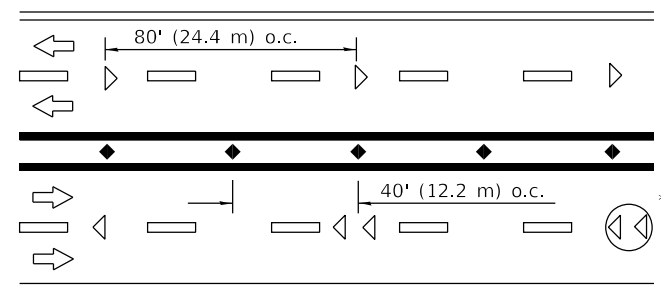


W4-2



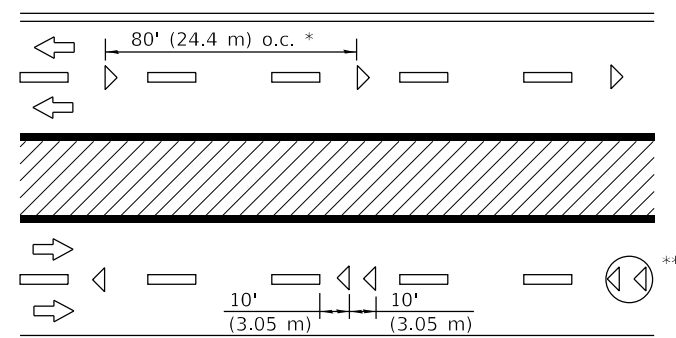
*,** See MULTI LANE DIVIDED detail for lane marker notes.

TWO-WAY LEFT TURN



*,** See MULTI LANE DIVIDED detail for lane marker notes.

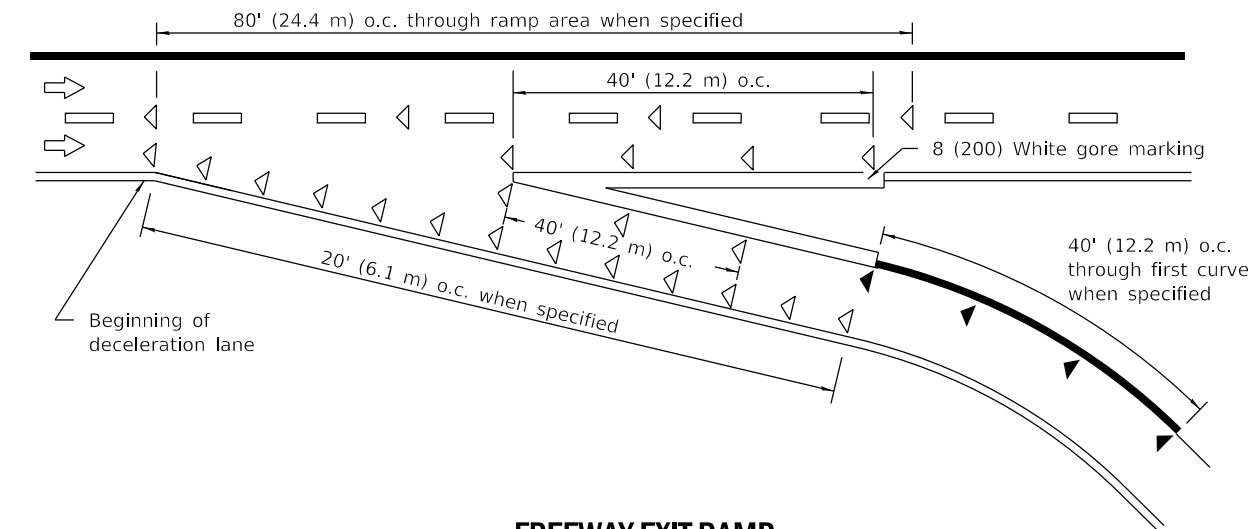
MULTI-LANE UNDIVIDED



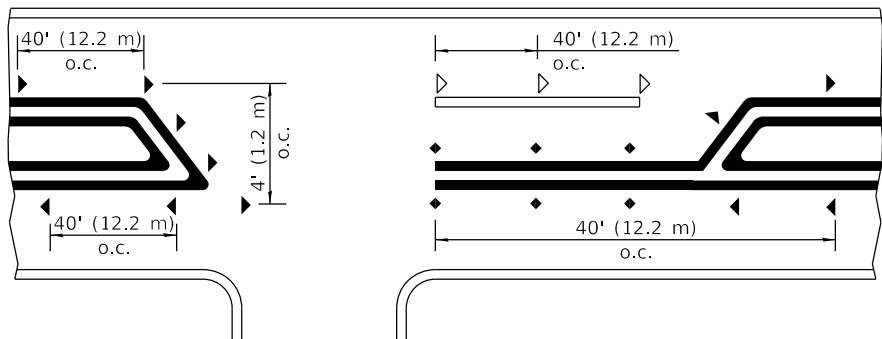
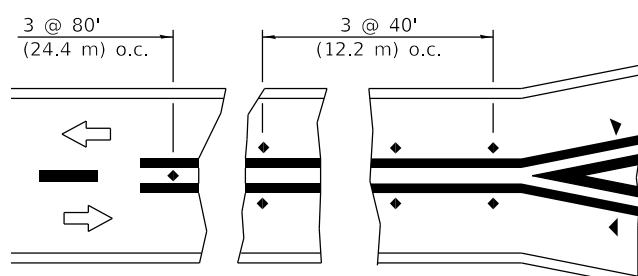
* Reduce to 40' (12.2 m) o.c. on curves where advisory speeds are 10 mph (15 km/h) lower than posted speeds.

** Where double lane line markers are specified, they shall be spaced as shown.

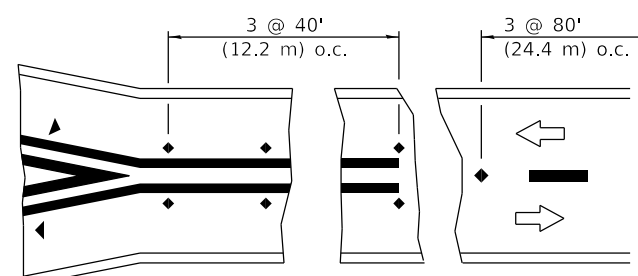
MULTI-LANE DIVIDED



FREEWAY EXIT RAMP



RURAL LEFT TURN



SYMBOLS

- Yellow stripe
- White stripe
- One-way amber marker
- One-way crystal marker
- Two-way amber marker

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED April 1, 2016
Amy Eller
 ENGINEER OF OPERATIONS

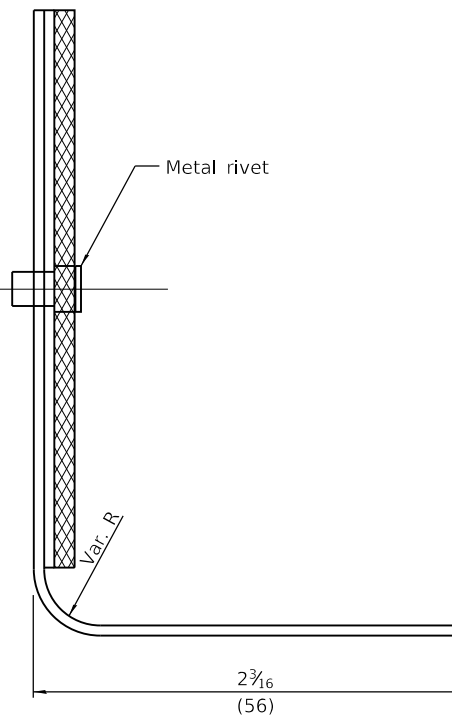
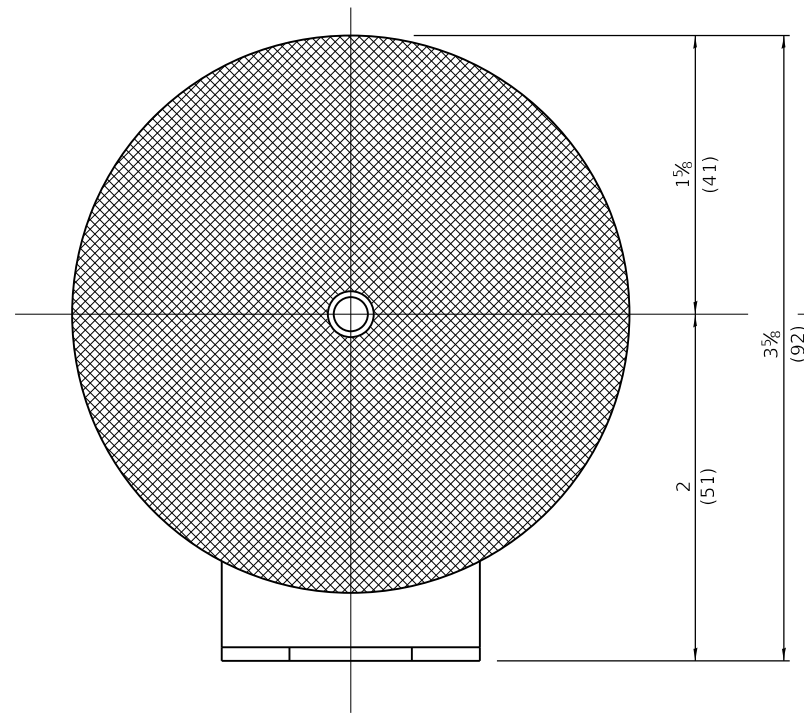
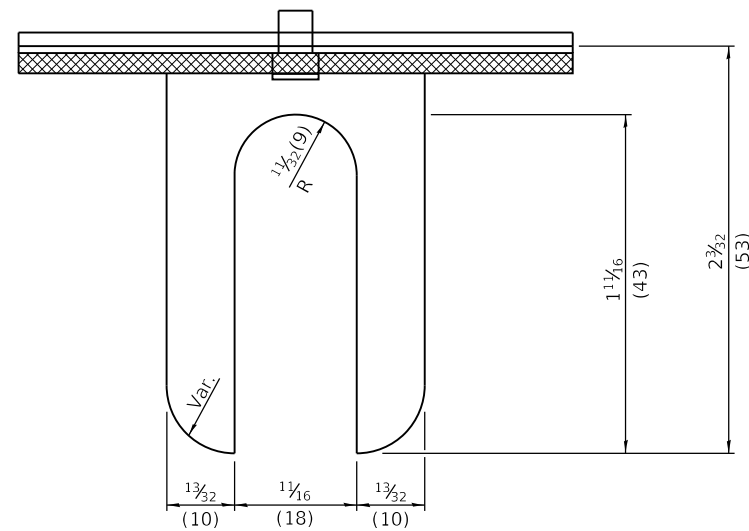
APPROVED April 1, 2016
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

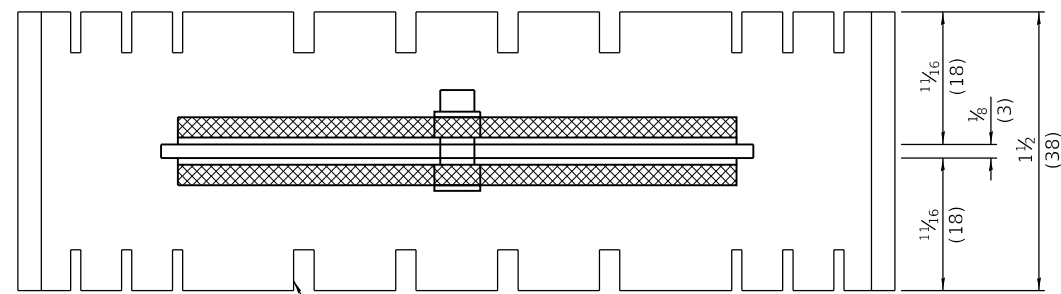
DATE	REVISIONS
4-1-16	Revised LANE ENDS sign
	W4-2 to agree with current MUTCD.
1-1-09	Switched units to English (metric).

**TYPICAL APPLICATIONS
 RAISED REFLECTIVE
 PAVEMENT MARKERS**

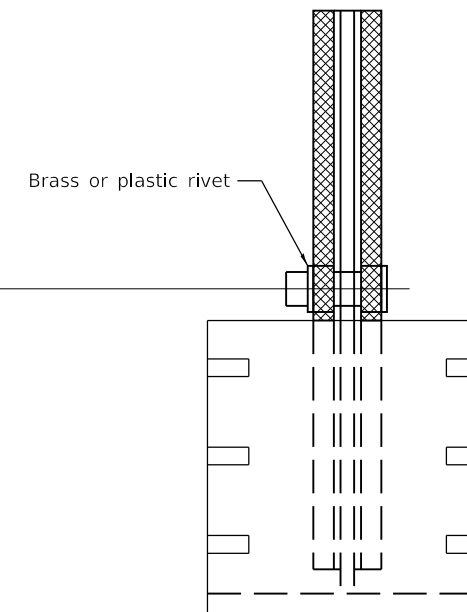
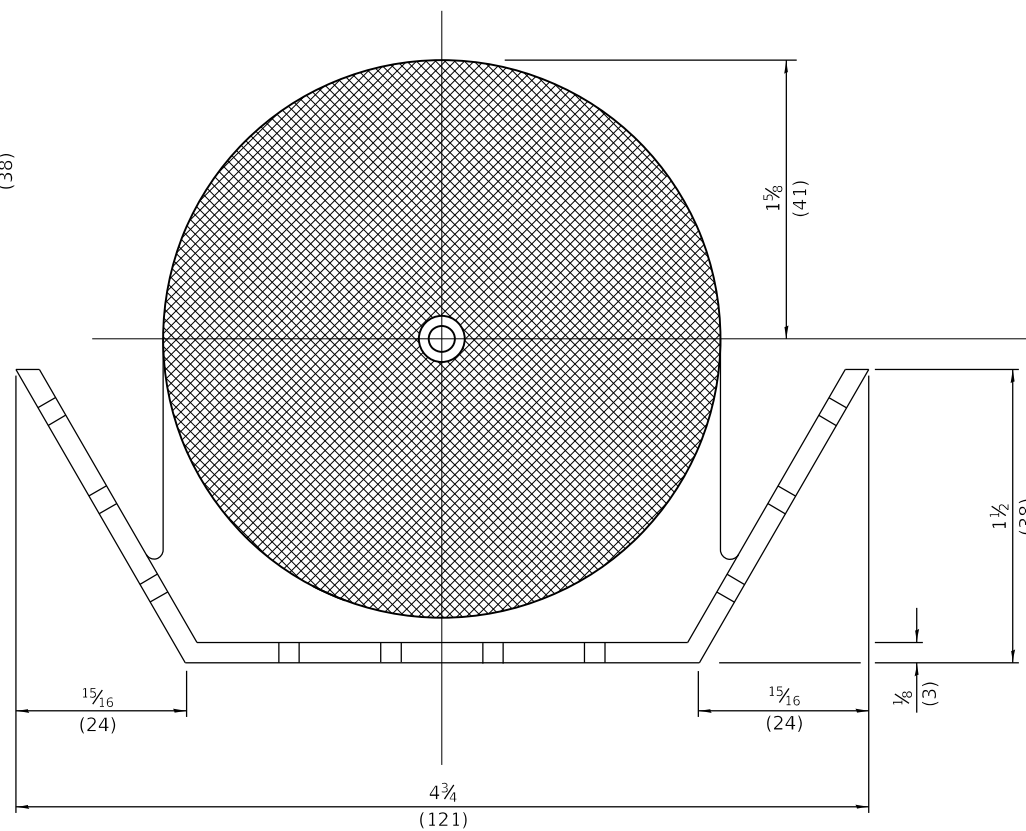
STANDARD 781001-04



REFLECTOR TYPE A
(monodirectional shown)



Adhesive weep slots or holes
equally spaced on both sides



All dimensions are in inches (millimeters)
unless otherwise shown.

REFLECTOR TYPE B
(bidirectional shown)

DATE	REVISIONS
1-1-20	Revised from F-shape to constant slope parapet, revised note 3 on sht. 3, and fixed typo.
4-1-16	Added reflector spacing detail. Moved TERMINAL MARKER to std. 725001.

**GUARDRAIL AND
BARRIER WALL REFLECTOR
MOUNTING DETAILS**

(Sheet 1 of 3)

STANDARD 782006-01

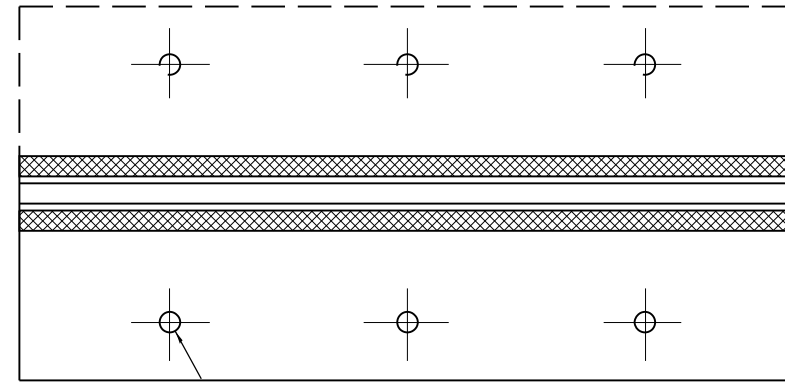
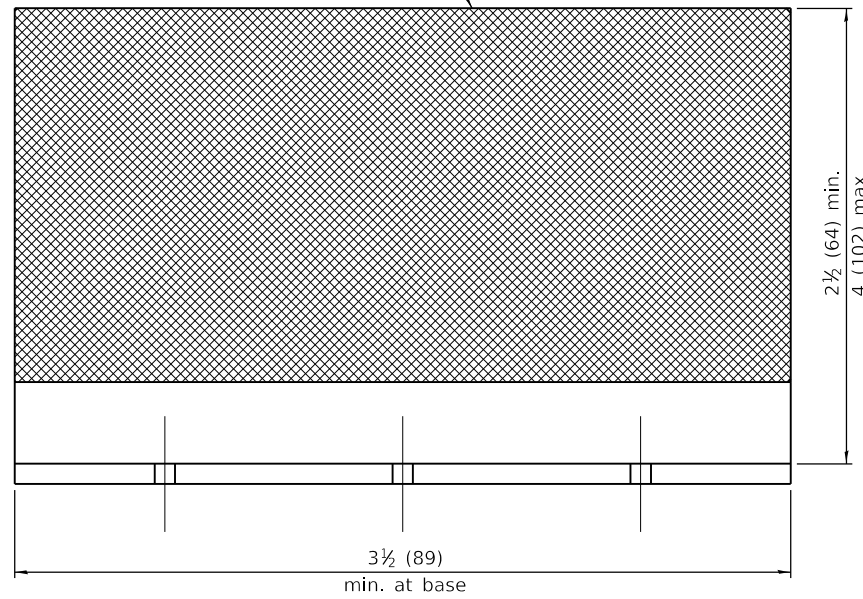
Illinois Department of Transportation

PASSED January 1, 2020
Amy Allen
ENGINEER OF OPERATIONS

APPROVED January 1, 2020
Joe E. ...
ENGINEER OF DESIGN AND ENVIRONMENT

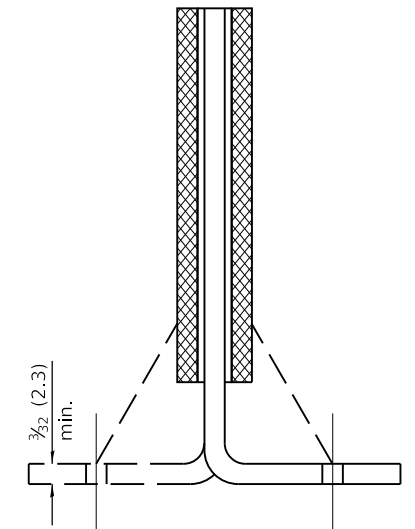
ISSUED 1-1-2000

Reflective area. May be rectangular or slight trapezoid.



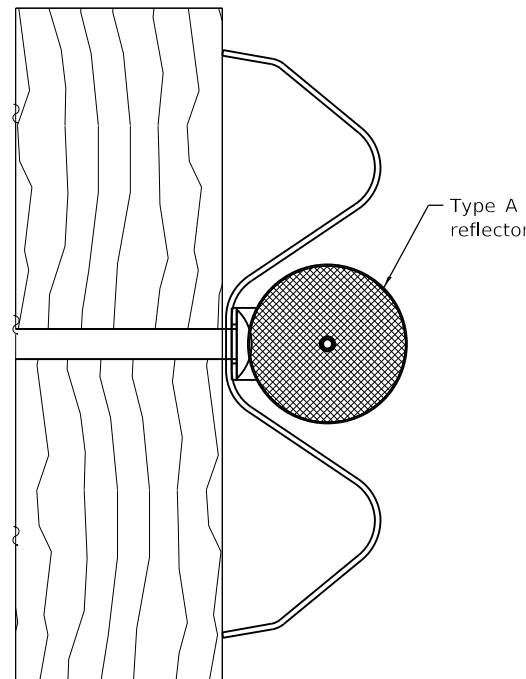
3 min. adhesive weep holes or slots each side, variable spacing.

Minimum total area of base 7.0 sq. in. (4,516 mm²)

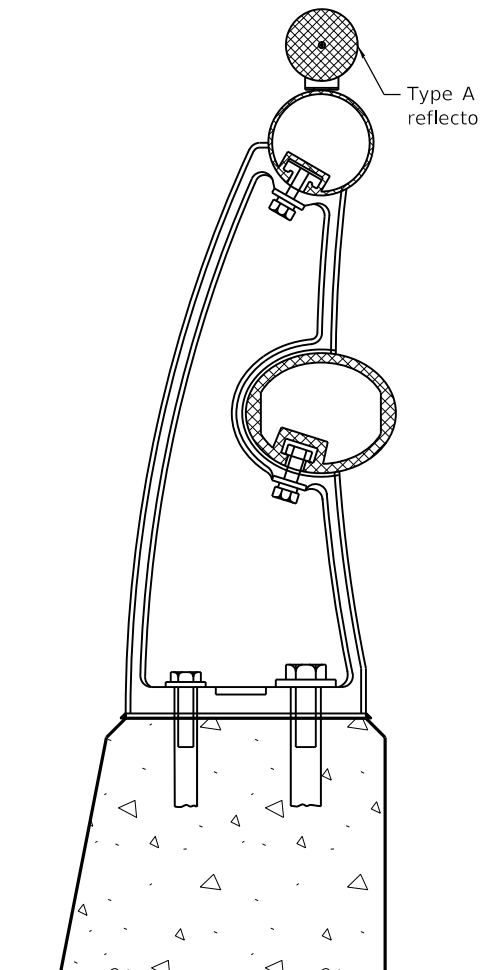
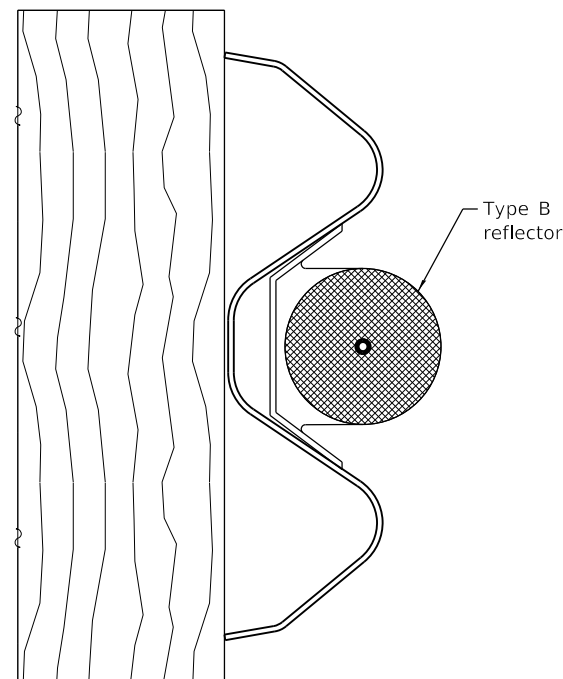


Cross section may be "T" or "L" shaped and may have side supports at ends.

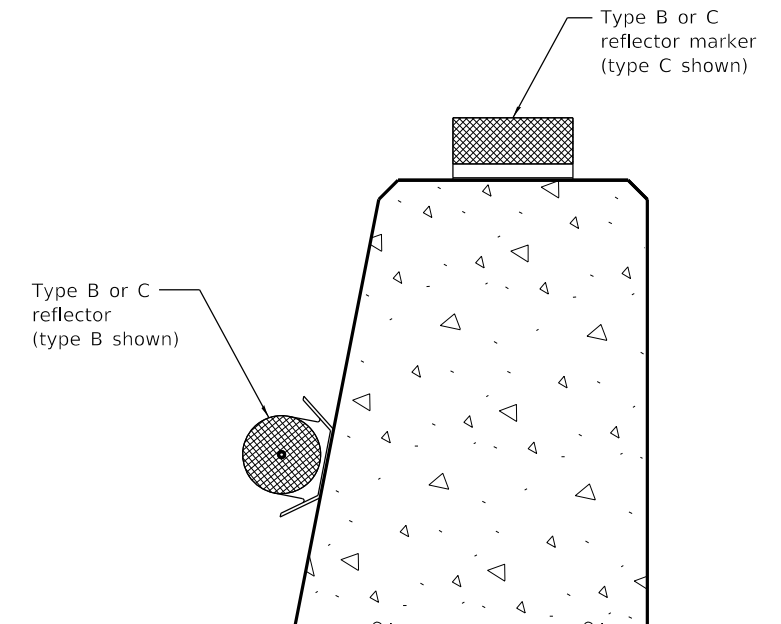
REFLECTOR TYPE C



TYPICAL MOUNTING DETAIL FOR GUARDRAIL REFLECTOR



TYPICAL MOUNTING DETAIL FOR BRIDGE RAIL REFLECTOR



TYPICAL MOUNTING DETAIL FOR BARRIER WALL REFLECTOR

Illinois Department of Transportation

PASSED January 1, 2020
Amy Allen
ENGINEER OF OPERATIONS

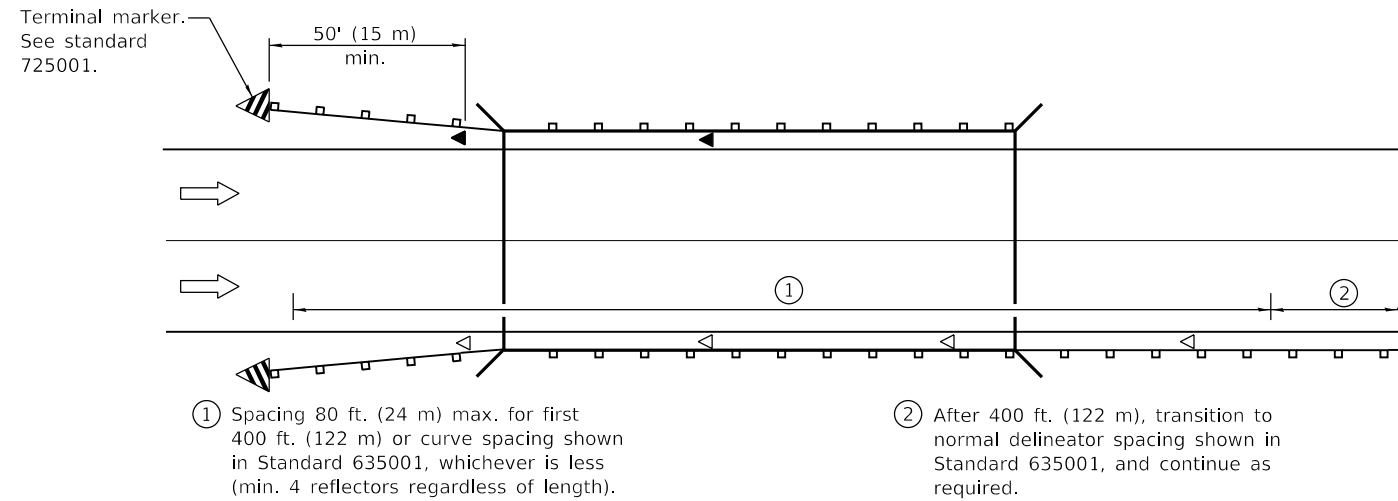
APPROVED January 1, 2020
Joe E. ...
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-2000

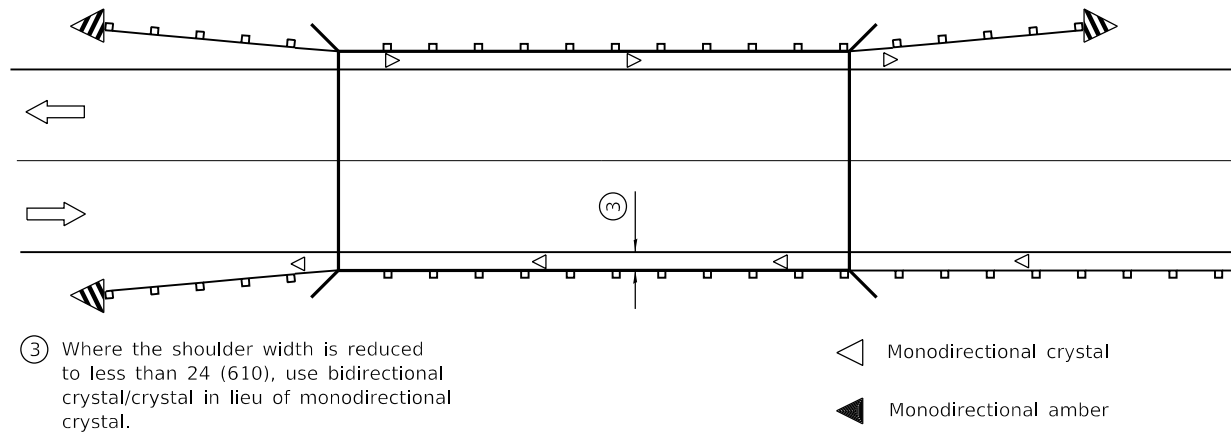
GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS

(Sheet 2 of 3)

STANDARD 782006-01



ONE-WAY TRAFFIC



TWO-WAY TRAFFIC

**GUARDRAIL / BARRIER WALL
REFLECTOR PLACEMENT DETAIL**

Illinois Department of Transportation

PASSED January 1, 2020

Amy Allen
ENGINEER OF OPERATIONS

APPROVED January 1, 2020

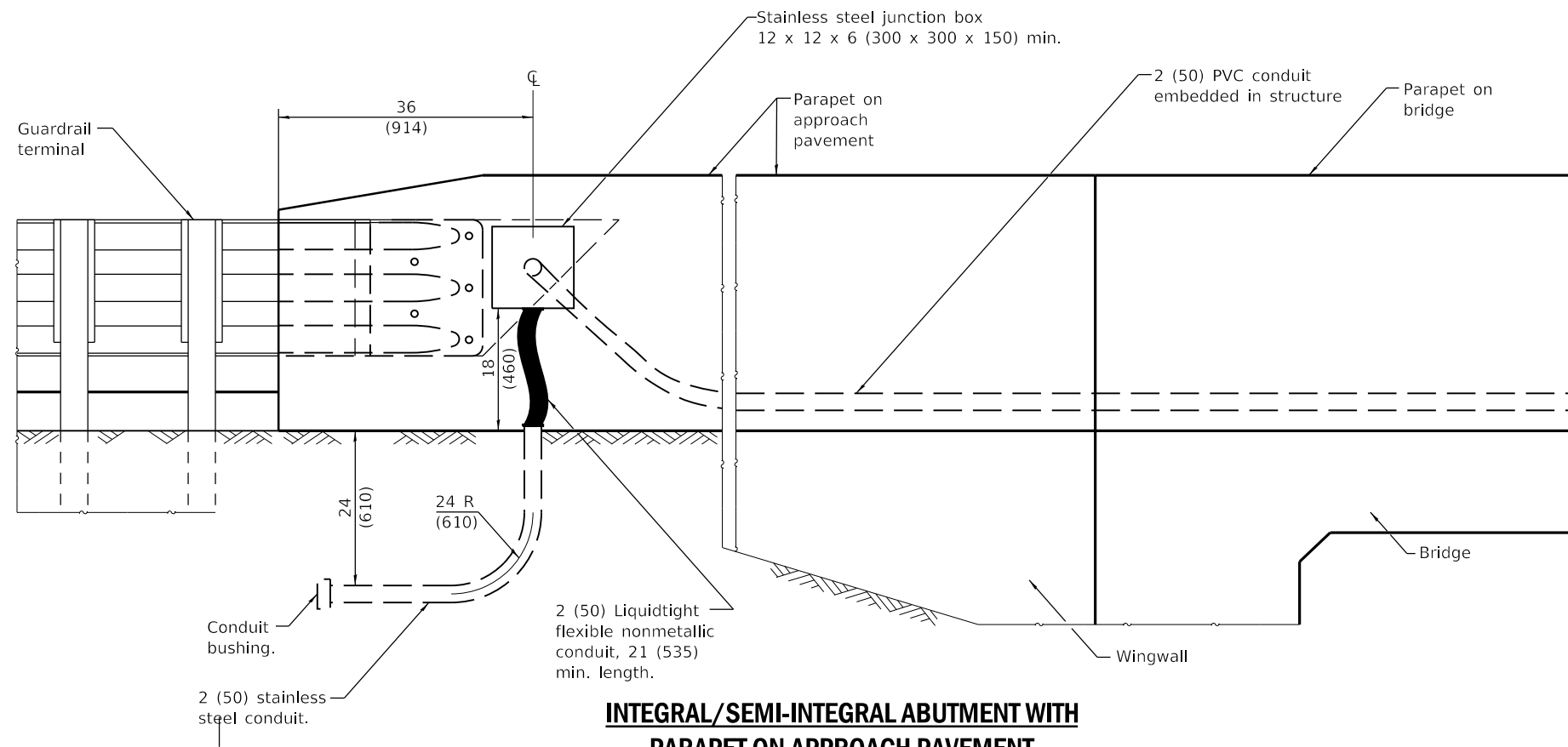
J. E. ...
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-2000

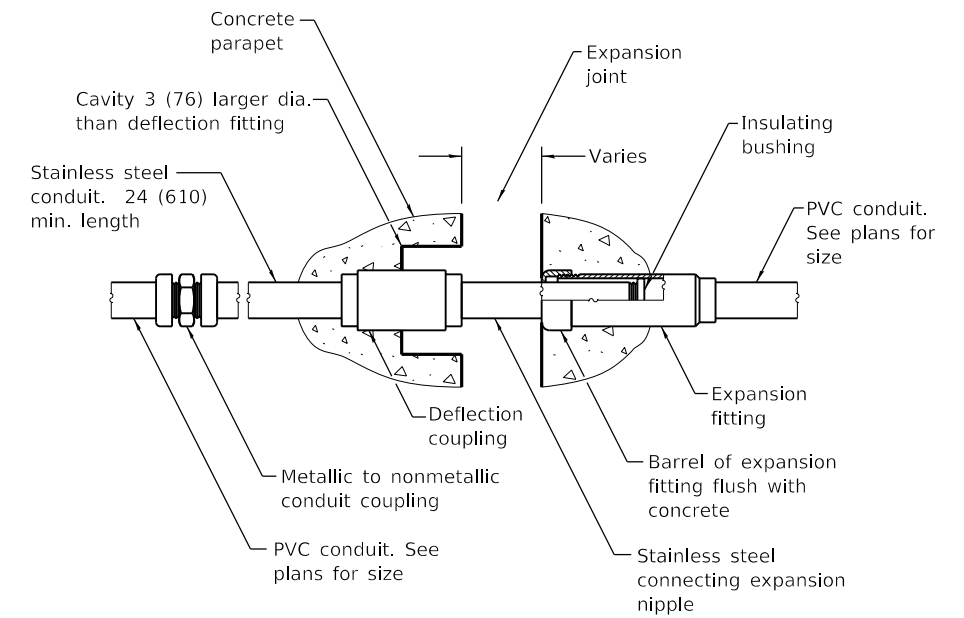
**GUARDRAIL AND
BARRIER WALL REFLECTOR
MOUNTING DETAILS**

(Sheet 3 of 3)

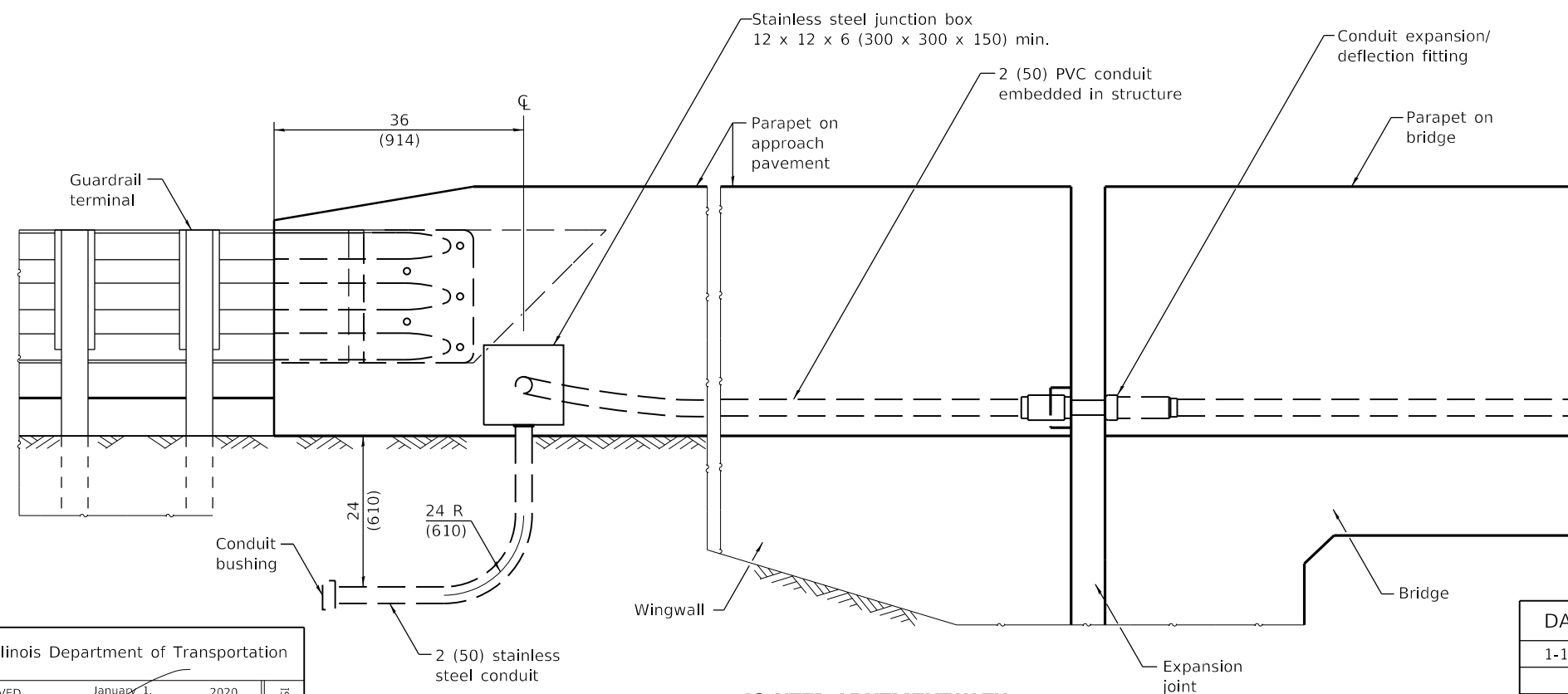
STANDARD 782006-01



**INTEGRAL/SEMI-INTEGRAL ABUTMENT WITH
PARAPET ON APPROACH PAVEMENT**



COMBINATION EXPANSION/ DEFLECTION FITTING



**JOINTED ABUTMENT WITH
PARAPET ON APPROACH PAVEMENT**

GENERAL NOTES

The barrel in the expansion fitting shall be fully embedded in the concrete on one side of the expansion joint. One half the length of the deflection fitting shall be embedded in the concrete on the other side of the expansion joint.

The Contractor shall install combination expansion deflection fittings at all bridge expansion joints.

With the approval of the Engineer, the Contractor may substitute two 12 x 12 x 6 (300 x 300 x 150) min. stainless steel junction boxes attached to back of wall and connected with liquidtight flexible nonmetallic conduit for all expansion joints.

See Standard 631031 for details of steel connector plate for constant slope parapet.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-20	Revised from F-Shape to constant slope parapet, added general note for steel connector plate, revised standard name, and fixed typo.
1-1-15	New standard.

**RACEWAYS EMBEDDED
IN STRUCTURE**

(Sheet 1 of 3)

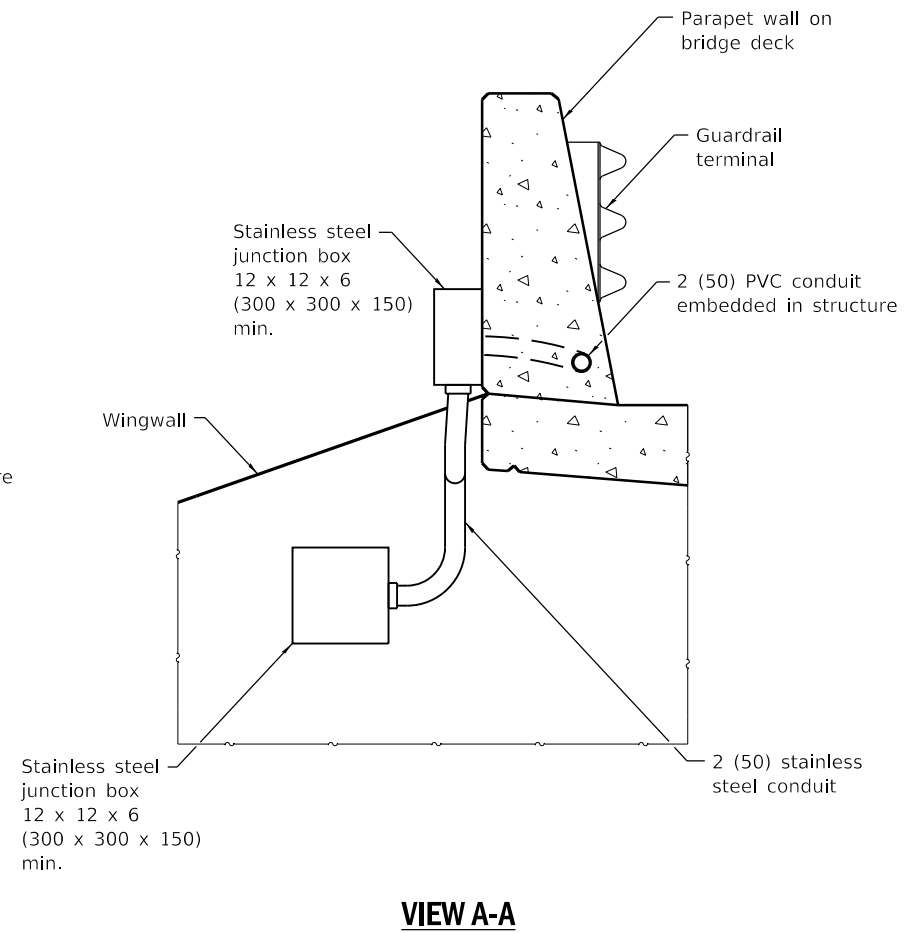
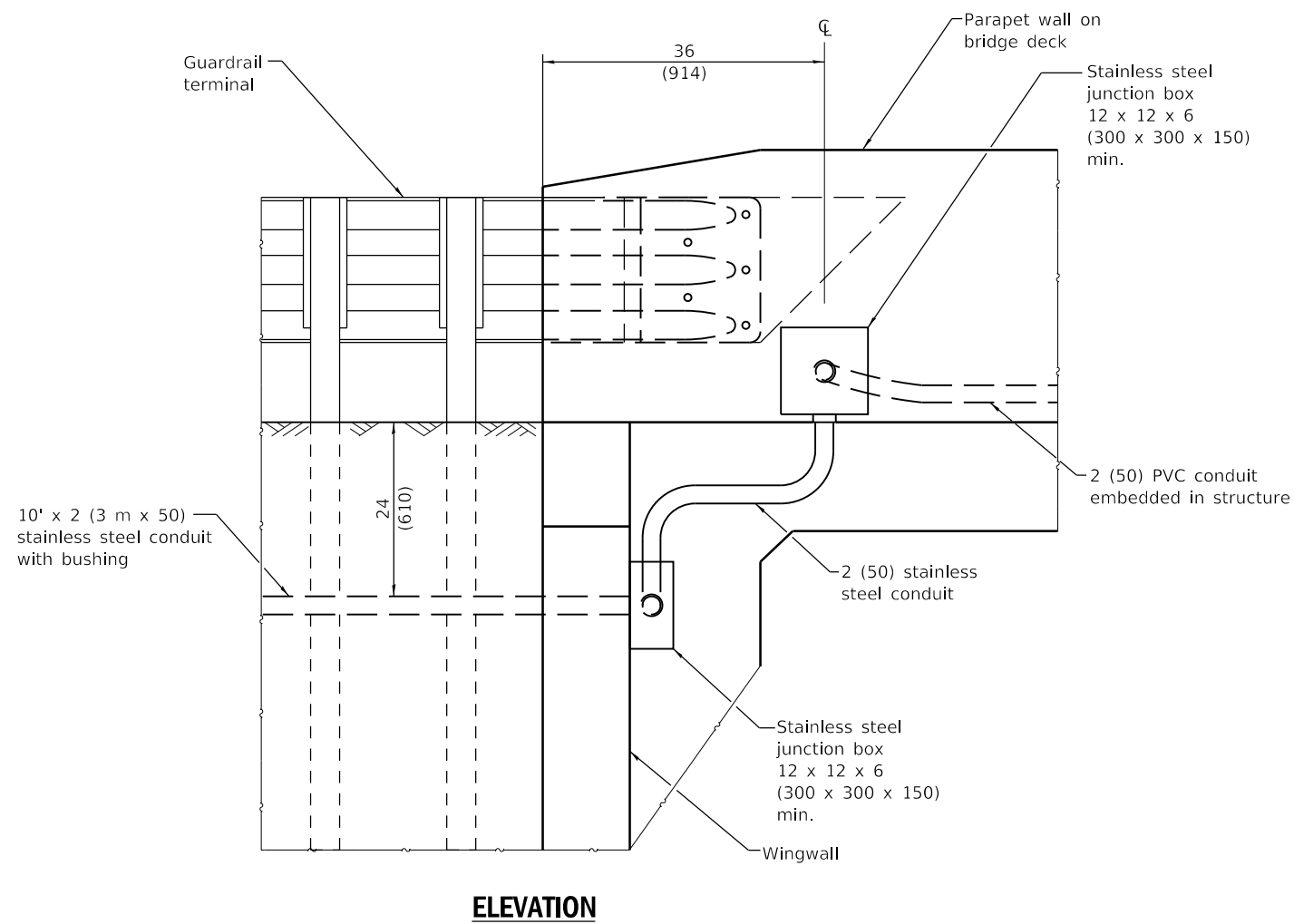
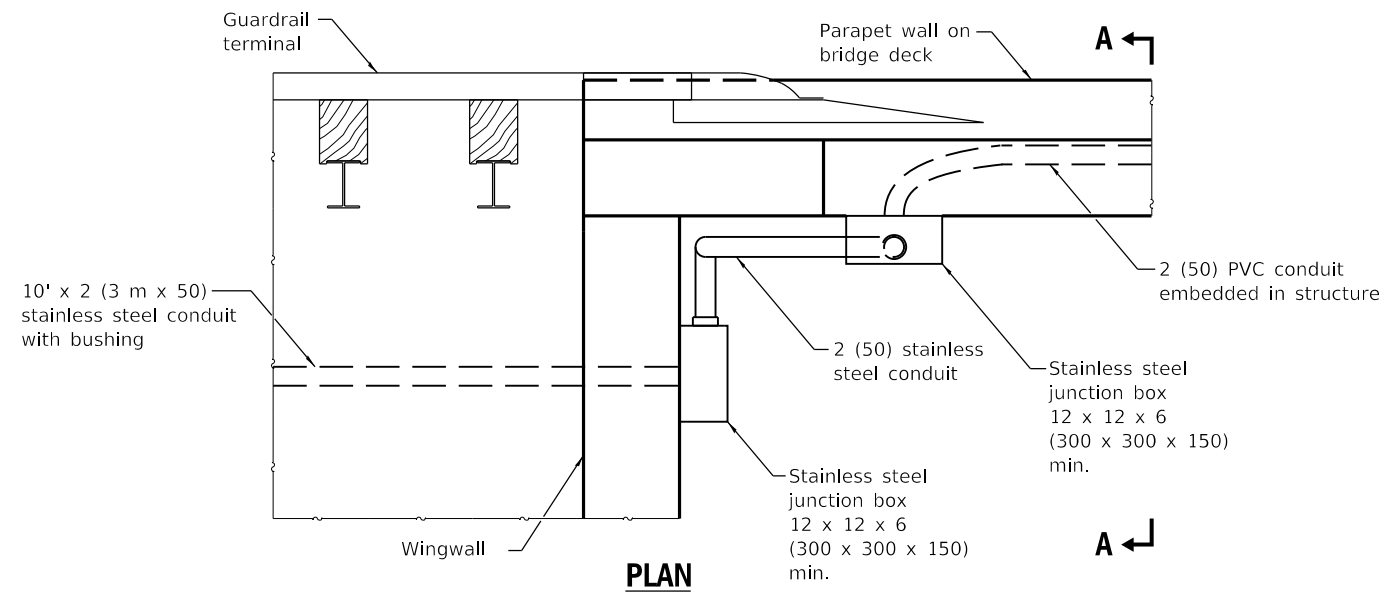
STANDARD 812001-01

Illinois Department of Transportation

APPROVED January 1, 2020
ME Reppelt
ELECTRICAL AND MECHANICAL UNIT CHIEF

APPROVED January 1, 2020
J. E. ...
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-15



**INTEGRAL/SEMI-INTEGRAL ABUTMENT WITH
PARAPET ENDING ON BRIDGE DECK**

**RACEWAYS EMBEDDED
IN STRUCTURE**

(Sheet 2 of 3)

STANDARD 812001-01

Illinois Department of Transportation

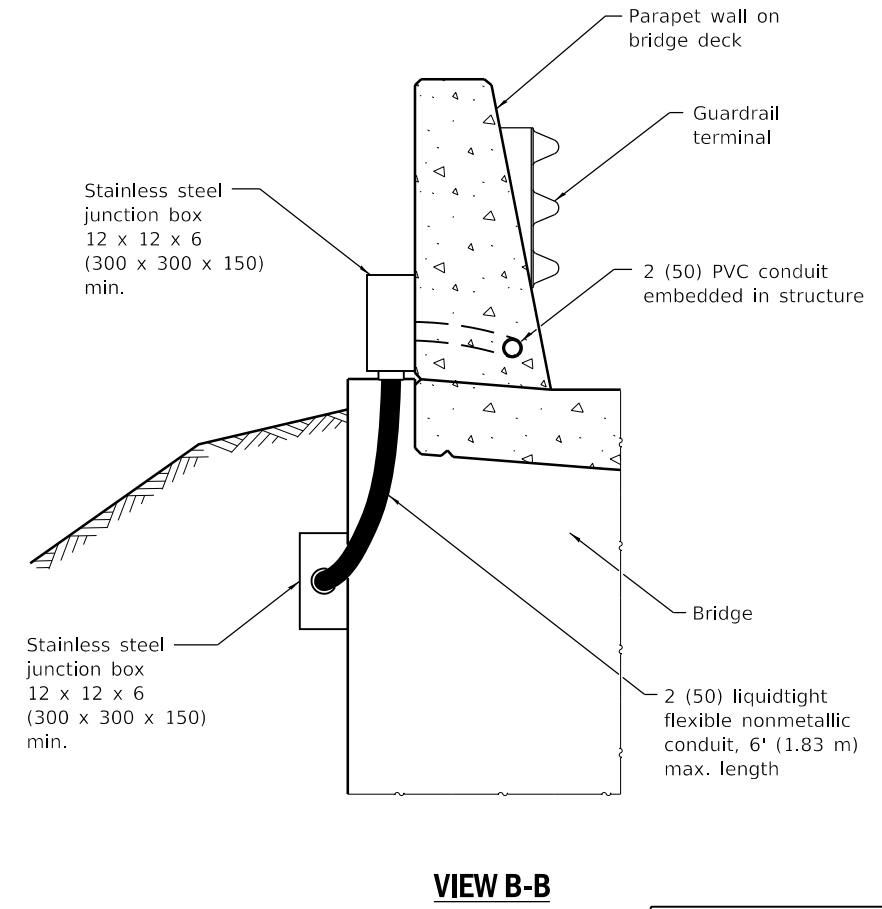
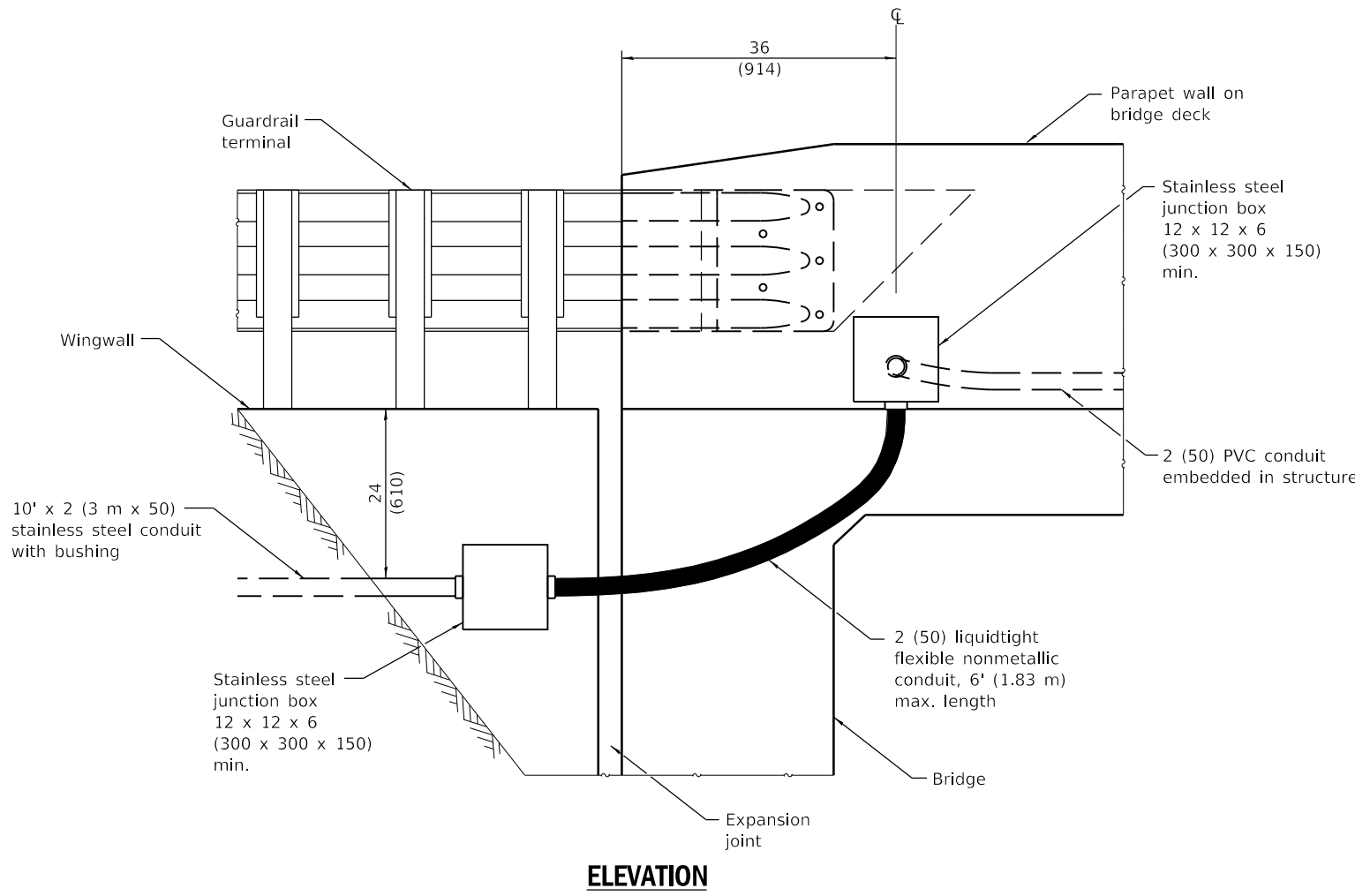
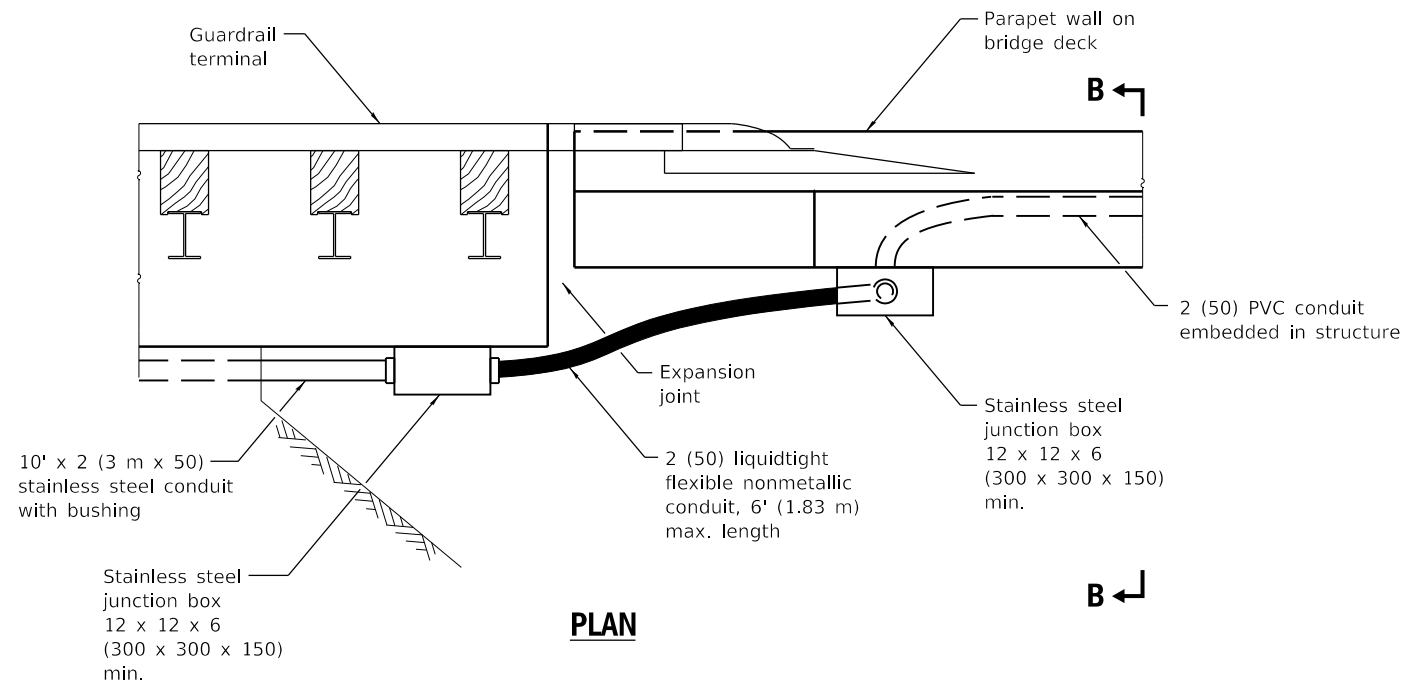
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**JOINTED ABUTMENT WITH
PARAPET ENDING ON BRIDGE DECK**

**RACEWAYS EMBEDDED
IN STRUCTURE**

(Sheet 3 of 3)

STANDARD 812001-01

Illinois Department of Transportation

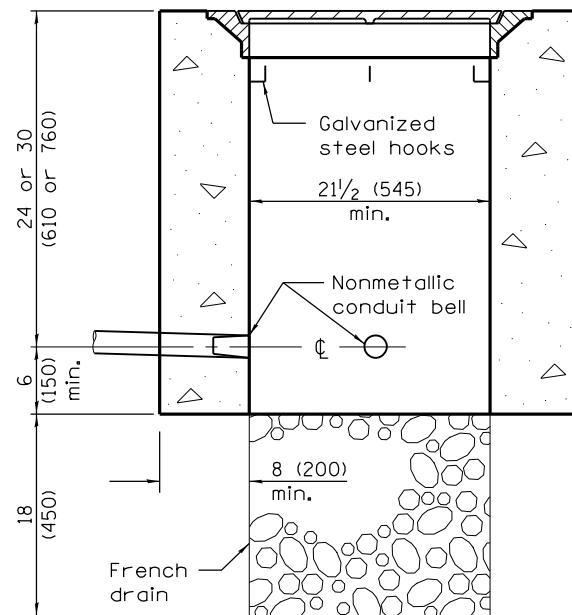
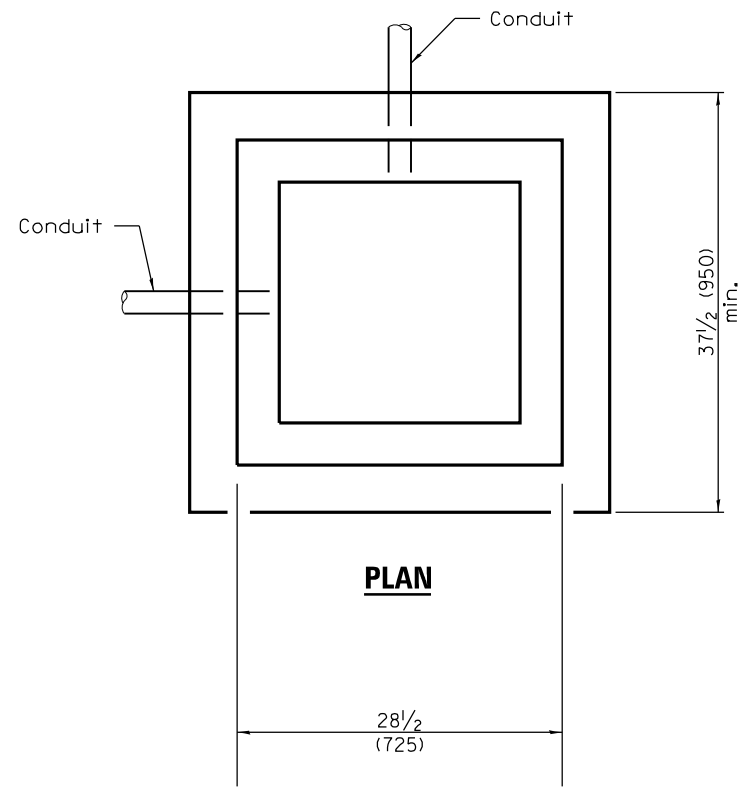
APPROVED January 1, 2020

M. E. Reppelt
ELECTRICAL AND MECHANICAL UNIT CHIEF

APPROVED January 1, 2020

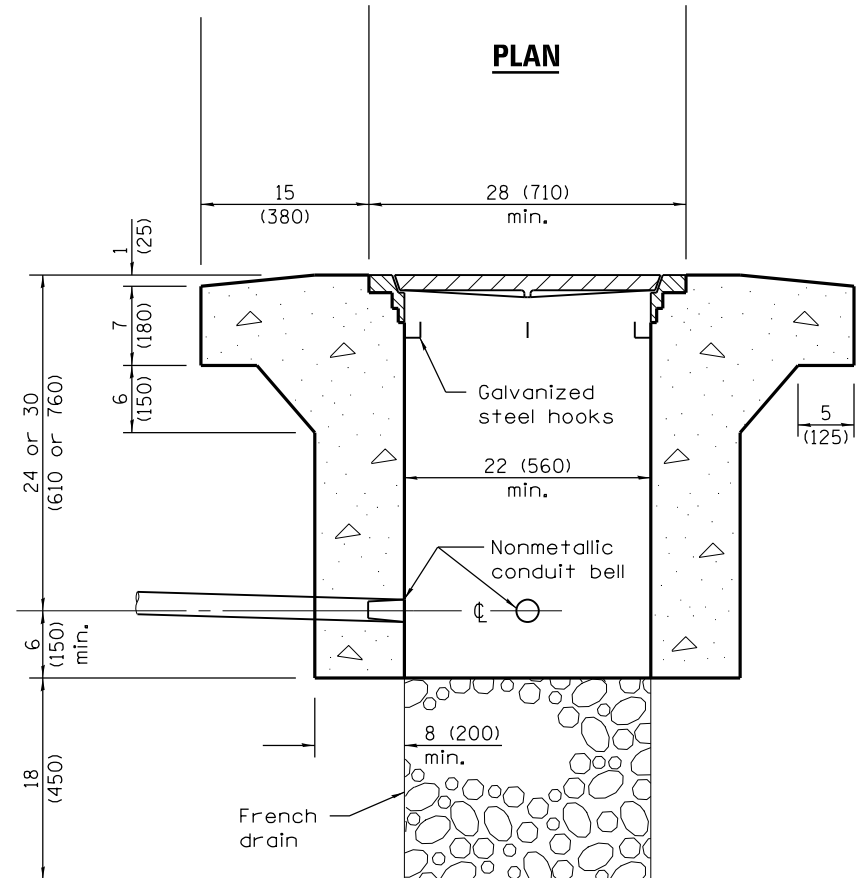
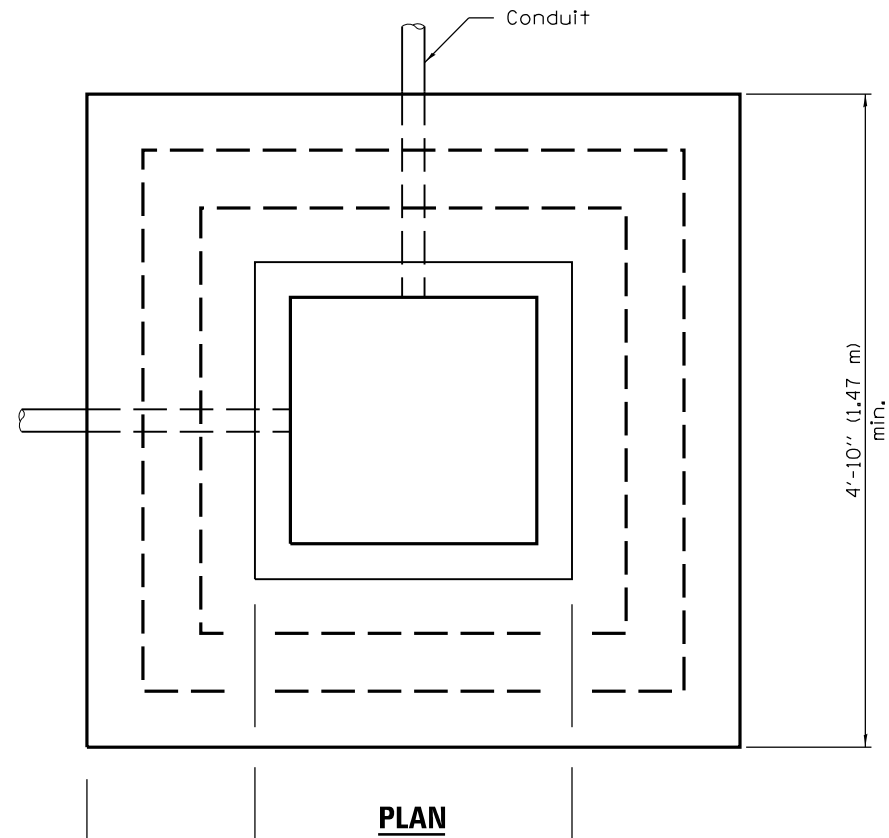
J. E. ...
ENGINEER OF DESIGN AND ENVIRONMENT

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ELEVATION

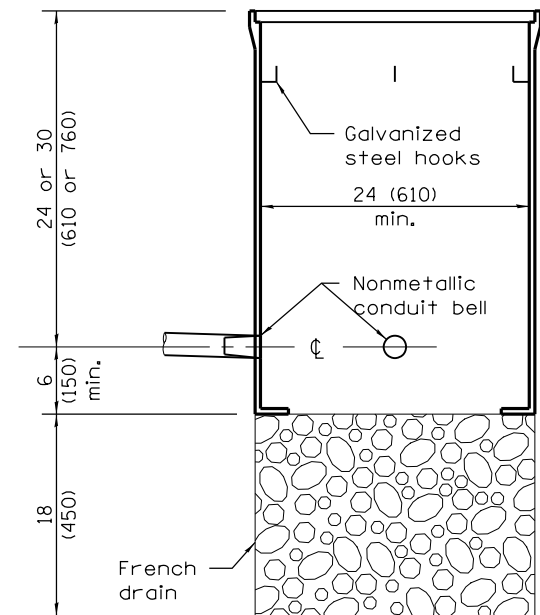
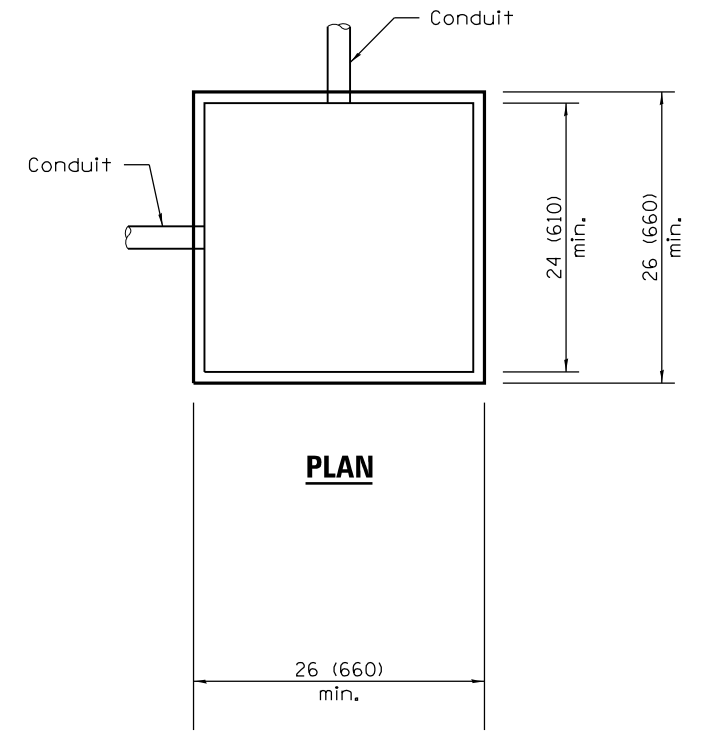
PORTLAND CEMENT CONCRETE



ELEVATION

PORTLAND CEMENT CONCRETE

HEAVY DUTY



ELEVATION

COMPOSITE CONCRETE

All dimensions are in inches (millimeters) unless otherwise shown.

QUANTITIES

Depth	Concrete yd ³ (m ³)	
	Handhole	Heavy Duty Handhole
30 (762)	0.61 (0.47)	0.98 (0.75)
36 (914)	0.73 (0.56)	1.10 (0.84)

DATE	REVISIONS
1-1-15	Corrected dimension on heavy duty handhole. Added concrete quantities table.
1-1-09	Switched units to English (metric).

HANDHOLES

STANDARD 814001-03

Illinois Department of Transportation

APPROVED January 1, 2015
Amy Allen
 ENGINEER OF OPERATIONS

APPROVED January 1, 2015
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97