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ADDENDUM NO. 3

To:	All Plan Holders of Record and Interested Parties
	City of Galena, Illinois
Project:	East Side Utility System Improvements
IIW Project No.:	17054
Issue Date:	March 30, 2020

The following additions, revisions, corrections, and clarifications contained herein shall become part of the Construction Contract Documents for the Project, and shall be included in the Scope of Work and Bid Proposals to be submitted. References made below to Specifications and Construction Drawings shall be used as a general guide only. Bidders shall determine for themselves the full scope of work affected by the Addendum items.

The following Addendum is part of the Construction Contract Documents.

This Addendum consists of the following:
- Addendum No. 3 – 1 page
- Revised Bid Schedule – 1 page
- Jo Daviess Wage Rates 03/3/2020 - 7 pages
- Technical Specifications dated 12/16/2019 - 76 pages

CHANGES TO CONTRACT DOCUMENTS:

1. WAGE DETERMINATION: Replace the wage determinization included in the Contract Documents with the attached updated Jo Daviess County Wage Rates for the Project.

2. BID SCHEDULE: Replace the bid schedule with the attached revised bid schedule included in this Addendum. The quantity for bid item number 20 is reduced to 510 LF. Also, a new bid item, Item 21, for sanitary sewer spot repairs is created. The new bid item shall be used to pay for the pipe replacement required for sanitary sewer spot repairs that are specified on page SPR 1 of 4 in the Contract Documents. The Contractor shall be paid for the additional respective bid items identified under the Sanitary Sewer Spot Repairs on SPR 1 of 4.

CHANGES TO TECHNICAL SPECIFICATIONS:

1. TECHNICAL SPECIFICATIONS: Replace the Technical Specifications certified on 2-5-2019 included in the Contract Documents in their entirety with the Technical Specification certified on 12-16-2019 included in this Addendum.

It is required to acknowledge this addendum on the Bid Proposal Form.

GEOFFRY T. BLANDIN 62-057265 LICENSED PROFESSIONAL ENGINEER EXP. 11/2021 ILLINOIS	**FOR IIW, P.C.** 3/30/2020 Date
	Geoffry T. Blandin, P.E. License Number 062-057265 Licensed Professional Engineer of Illinois My license renewal date is 11/30/2021 Pages or sheets covered by this seal: Addendum No. 3

END OF ADDENDUM NO. 3

BIDDER agrees to perform all the work described in the CONTRACT DOCUMENTS for the following unit prices or indicated sums:

CITY OF GALENA, ILLINOIS
EAST SIDE UTILITY SYSTEM IMPROVEMENTS

BID SCHEDULE

REVISED PER ADDENDUM NO. 3

NO.	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL PRICE
	MISCELLANEOUS			
1	Mobilization & Miscellaneous	1 LS		
2	Traffic Control	1 LS		
3	Erosion Control	1 LS		
4	Topsoil: Strip, Salvage & Respread (4" Thickness)	1 LS		
5	Seed, Fertilize & Mulch	1 LS		
6	Exploratory Excavation	50 HRS		
7	Remove Hydrant	10 EA		
			Miscellaneous Subtotal	
	PAVING			
8	3" HMA Driveway Pavement, Remove and Replace	20 SY		
9	HMA Pavement (4" Thickness)	2420 TON		
10	PCC Pavment (7" Thickness)	205 SY		
11	PCC Sidewalk (4" Thickness, Remove and Replace)	330 SY		
12	Stone Base (HMA Pavement & PCC Curb & Gutter)	6610 TON		
13	Remove and Replace PCC Curb & Gutter	1685 LF		
14	Pavement Removal	10320 SY		
15	Full-Depth Sawcut	780 LF		
16	PCC Sidewalk (6" Thickness)	12 SY		
17	PCC Sidewalk (4" Thickness)	125 SY		
18	ADA Sidewalk Detectalble Warning	100 SF		
			Paving Subtotal	
	SANITARY SEWER			
19	4" PVC SDR 26 Sanitary Sewer Service Laterals	200 LF		
20	8" PVC SDR 26 Sanitary Sewer	510 LF		
21	8" PVC SDR 26 Sanitary Sewer, Spot Repairs	300 LF		
22	48" I.D. Manhole	16 VF		
23	48" Manhole Base	2 EA		
24	Connect to Existing Sanitary Sewer Pipe	30 EA		
25	Connect to Existing Sanitary Sewer Manhole	2 EA		
26	Adjustment to Existing Sanitary Manhole	2 EA		
27	Select Trench Backfill - Sanitary Sewer	960 LF		
			Sanitary Sewer Subtotal	
	WATER MAIN			
28	4" PVC C900 DR18 Water Main w/ Tracer Wire	20 LF		
29	6" PVC C900 DR18 Water Main w/ Tracer Wire	950 LF		
30	8" PVC C900 DR18 Water Main w/ Tracer Wire	500 LF		
31	10" PVC C900 DR18 Water Main w/ Tracer Wire	2600 LF		
32	6" DIP Hydrant Lead CL 50 w/ Tracer Wire	250 LF		
33	16" PVC Casing (Trenched Inc. Spacers, End Seals, etc.)	80 LF		
34	18" PVC Casing (Trenched Inc. Spacers, End Seals, etc.)	200 LF		
35	20" PVC Casing (Trenched Inc. Spacers, End Seals, etc.)	70 LF		
36	16" Steel Casing (Bored and Jacked - Inc. Spacers, End Seals, etc.)	78 LF		
37	Boring Set-Up (for 16" Steel Casing)	1 LS		
38	Fire Hydrant, Complete	12 EA		
39	6" MJ RS Gate Valve	17 EA		
40	8" MJ RS Gate Valve	1 EA		
41	10" MJ RS Gate Valve	15 EA		
42	Water Main Fittings, Compact DI	4920 LBS		
43	Connect To Existing Water Main	14 EA		
44	1" Water Service Line	1840 LF		
45	1" Water Service Line (Directionally Drilled)	100 LF		
46	Insulate Pipe at Catch Basin	1 EA		
47	1" Curb Stop	63 EA		
48	Select Trench Backfill, Water Main	4740 LF		
49	1" Corporation Stop with Saddle	63 EA		
50	Tracer Wire Access Box	12 EA		
			Water Main Subtotal	
	TOTAL OF BID			

This bid schedule accompanies the bid proposal of _____

Jo Daviess County Prevailing Wage Rates posted on 3/3/2020

						Overtime								
Trade Title	**Rg**	**Type**	**C**	**Base**	**Foreman**	**M-F**	**Sa**	**Su**	**Hol**	**H/W**	**Pension**	**Vac**	**Trng**	**Other Ins**
ASBESTOS ABT-GEN	All	BLD		42.11	43.11	1.5	1.5	2.0	2.0	9.12	20.25	0.00	0.80	
ASBESTOS ABT-MEC	All	BLD		25.25	26.25	1.5	1.5	2.0	2.0	8.00	6.25	2.00	0.55	
BOILERMAKER	All	BLD		41.00	44.00	2.0	2.0	2.0	2.0	7.07	20.57	1.50	1.24	
BRICK MASON	All	BLD		42.30	45.05	1.5	1.5	2.0	2.0	11.88	14.40	0.00	0.95	
CARPENTER	All	BLD		36.37	40.37	1.5	1.5	2.0	2.0	11.70	18.05	0.00	0.73	
CARPENTER	All	HWY		42.70	44.45	1.5	1.5	2.0	2.0	11.70	18.05	0.00	0.73	
CEMENT MASON	All	ALL		35.55	38.30	1.5	1.5	2.0	2.0	10.85	20.81	0.00	0.50	
CERAMIC TILE FINISHER	All	BLD		35.69	35.69	1.5	1.5	2.0	2.0	10.60	8.24	0.00	0.81	
COMMUNICATION TECHNICIAN	All	BLD		41.00	45.10	1.5	1.5	2.0	2.0	13.74	15.02	0.00	0.82	
ELECTRIC PWR EQMT OP	All	ALL		43.71	59.52	1.5	1.5	2.0	2.0	6.00	13.55	0.00	0.77	1.31
ELECTRIC PWR EQMT OP	All	HWY		41.45	56.38	1.5	1.5	2.0	2.0	5.50	12.87	0.00	0.73	
ELECTRIC PWR GRNDMAN	All	ALL		33.69	59.52	1.5	1.5	2.0	2.0	6.00	10.44	0.00	0.59	1.01
ELECTRIC PWR GRNDMAN	All	HWY		32.00	56.38	1.5	1.5	2.0	2.0	5.50	9.92	0.00	0.66	
ELECTRIC PWR LINEMAN	All	ALL		52.44	59.52	1.5	1.5	2.0	2.0	6.00	16.27	0.00	0.93	1.58
ELECTRIC PWR LINEMAN	All	HWY		49.67	56.38	1.5	1.5	2.0	2.0	5.50	15.40	0.00	0.88	
ELECTRIC PWR TRK DRV	All	ALL		34.90	59.52	1.5	1.5	2.0	2.0	6.00	10.83	0.00	0.62	1.05
ELECTRIC PWR TRK DRV	All	HWY		33.14	56.38	1.5	1.5	2.0	2.0	5.50	10.29	0.00	0.59	
ELECTRICIAN	E	BLD		47.89	52.68	1.5	1.5	2.0	2.0	13.74	20.44	0.00	0.96	
ELECTRICIAN	W	BLD		30.32	32.44	1.5	1.5	2.0	2.0	9.48	7.91	0.00	0.31	
ELEVATOR CONSTRUCTOR	All	BLD		52.09	58.60	2.0	2.0	2.0	2.0	15.57	9.96	4.17	0.62	
GLAZIER	All	BLD		26.57	28.70	1.5	1.5	2.0	2.0	6.94	10.37	0.00	0.55	
HEAT/FROST INSULATOR	All	BLD		29.91	31.11	1.5	1.5	2.0	2.0	7.40	13.15	0.00	1.10	
IRON WORKER	E	ALL		39.39	45.30	2.0	2.0	2.0	2.0	12.27	25.42	0.00	1.20	
IRON WORKER	W	ALL		31.75	34.29	1.5	1.5	2.0	2.0	11.06	13.74	0.00	0.72	
LABORER	All	BLD		33.81	34.81	1.5	1.5	2.0	2.0	9.12	20.25	0.00	0.80	
LABORER	All	HWY		39.16	39.91	1.5	1.5	2.0	2.0	9.12	20.25	0.00	0.80	
LABORER, SKILLED	All	HWY		42.11	42.86	1.5	1.5	2.0	2.0	9.12	20.25	0.00	0.80	
LATHER	All	BLD		36.37	40.37	1.5	1.5	2.0	2.0	11.70	18.05	0.00	0.73	
MACHINIST	All	BLD		48.93	51.43	1.5	1.5	2.0	2.0	7.68	8.95	1.85	1.32	
MARBLE FINISHER	All	BLD		35.69	35.69	1.5	1.5	2.0	2.0	10.60	8.24	0.00	0.81	
MARBLE MASON	All	BLD		38.52	41.02	1.5	1.5	2.0	2.0	10.60	10.40	0.00	0.86	

MILLWRIGHT	All	BLD		41.42	45.56	1.5	1.5	2.0	2.0	10.60	16.45	0.00	0.75	0.20
OPERATING ENGINEER	All	BLD	1	46.80	50.80	2.0	2.0	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	BLD	2	46.10	50.80	2.0	2.0	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	BLD	3	43.65	50.80	2.0	2.0	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	BLD	4	41.65	50.80	2.0	2.0	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	BLD	5	50.55	50.80	2.0	2.0	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	BLD	6	49.80	50.80	2.0	2.0	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	BLD	7	46.80	50.80	2.0	2.0	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	HWY	1	46.65	50.65	1.5	1.5	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	HWY	2	46.10	50.65	1.5	1.5	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	HWY	3	44.80	50.65	1.5	1.5	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	HWY	4	43.35	50.65	1.5	1.5	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	HWY	5	41.90	50.65	1.5	1.5	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	HWY	6	49.65	50.65	1.5	1.5	2.0	2.0	20.50	15.80	2.35	1.55	
OPERATING ENGINEER	All	HWY	7	47.65	50.65	1.5	1.5	2.0	2.0	20.50	15.80	2.35	1.55	
PAINTER	All	ALL		40.65	42.65	1.5	1.5	1.5	2.0	12.43	9.88	0.00	1.35	
PILEDRIVER	All	BLD		36.54	40.56	1.5	1.5	2.0	2.0	11.50	17.05	0.00	0.73	
PILEDRIVER	All	HWY		43.70	45.45	1.5	1.5	2.0	2.0	11.70	18.05	0.00	0.73	
PIPEFITTER	All	BLD		50.00	53.50	1.5	1.5	2.0	2.0	9.25	12.40	0.00	1.95	
PLASTERER	All	BLD		35.83	39.42	1.5	1.5	2.0	2.0	11.55	18.14	0.00	0.50	
PLUMBER	All	BLD		50.00	53.50	1.5	1.5	2.0	2.0	9.25	12.40	0.00	1.95	
ROOFER	All	BLD		44.60	48.60	1.5	1.5	2.0	2.0	10.58	13.31	0.00	0.70	
SHEETMETAL WORKER	All	BLD		42.89	46.32	1.5	1.5	2.0	2.0	8.38	20.28	0.00	0.50	
SPRINKLER FITTER	All	BLD		41.97	44.72	1.5	1.5	2.0	2.0	10.23	12.59	0.00	0.52	
STONE MASON	All	BLD		42.30	45.05	1.5	1.5	2.0	2.0	11.88	14.40	0.00	0.95	
TERRAZZO FINISHER	All	BLD		35.69	35.69	1.5	1.5	2.0	2.0	10.60	8.24	0.00	0.81	
TERRAZZO MASON	All	BLD		38.52	41.02	1.5	1.5	2.0	2.0	10.60	10.40	0.00	0.86	
TILE LAYER	All	BLD		38.00	40.50	1.5	1.5	2.0	2.0	10.35	9.14	0.00	0.84	
TILE MASON	All	BLD		38.52	41.02	1.5	1.5	2.0	2.0	10.60	10.40	0.00	0.86	
TRUCK DRIVER	All	O&C	1	30.45	33.74	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	O&C	2	30.89	33.74	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	O&C	3	31.10	33.74	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	O&C	4	31.38	33.74	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	O&C	5	32.22	33.74	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	E	ALL	1	32.96	33.42	1.5	1.5	2.0	2.0	6.90	8.22	0.00	0.00	
TRUCK DRIVER	E	ALL	2	33.11	33.42	1.5	1.5	2.0	2.0	6.90	8.22	0.00	0.00	

TRUCK DRIVER	E	ALL	3	33.31	33.42	1.5	1.5	2.0	2.0	6.90	8.22	0.00	0.00	
TRUCK DRIVER	E	ALL	4	33.42	33.42	1.5	1.5	2.0	2.0	6.90	8.22	0.00	0.00	
TRUCK DRIVER	W	ALL	1	38.06	42.18	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	W	ALL	2	38.61	42.18	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	W	ALL	3	38.87	42.18	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	W	ALL	4	39.23	42.18	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	W	ALL	5	40.27	42.18	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TUCKPOINTER	All	BLD		42.30	45.05	1.5	1.5	2.0	2.0	11.88	14.40	0.00	0.95	

Legend
Rg Region
Type Trade Type - All,Highway,Building,Floating,Oil & Chip,Rivers
C Class
Base Base Wage Rate
OT M-F Unless otherwise noted, OT pay is required for any hour greater than 8 worked each day, Mon through Fri. The number listed is the multiple of the base wage.
OT Sa Overtime pay required for every hour worked on Saturdays
OT Su Overtime pay required for every hour worked on Sundays
OT Hol Overtime pay required for every hour worked on Holidays
H/W Health/Welfare benefit
Vac Vacation
Trng Training
Other Ins Employer hourly cost for any other type(s) of insurance provided for benefit of worker.

Explanations JO DAVIESS COUNTY

ELECTRICIANS (EAST) - Townships of Warren, Rush, Nora, Stockton, Wards Grove, Pleasant Valley and Berrenman.

IRONWORKERS (EAST) - That part of the county East of a North-South line from the North county line through Elizabeth, and East of a diagonal line from Elizabeth through Derinda Center to the South county line.

TRUCK DRIVERS (WEST) - That part of the county West of Rt. 78 including Stockton.

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

Oil and chip resealing (O&C) means the application of road oils and liquid asphalt to coat an existing road surface, followed by application of aggregate chips or gravel to coated surface, and subsequent rolling of material to seal the surface.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including

mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date. ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER, MARBLE FINISHER, TERRAZZO FINISHER

Assisting, helping or supporting the tile, marble and terrazzo mechanic by performing their historic and traditional work assignments required to complete the proper installation of the work covered by said crafts. The term "Ceramic" is used for naming the classification only and is in no way a limitation of the product handled. Ceramic takes into consideration most hard tiles.

COMMUNICATIONS TECHNICIAN

Installing, manufacturing, assembling and maintaining sound and intercom, protection alarm (security), fire alarm, master antenna television, closed circuit television, low voltage control for computers and/or door monitoring, school communications systems, telephones and servicing of nurse and emergency calls, and the installation and maintenance of transmit and receive antennas, transmitters, receivers, and associated apparatus which operates in conjunction with above systems. All work associated with these system installations will be included EXCEPT the installation of protective metallic conduit in new construction projects (excluding less than ten-foot runs strictly for protection of cable) and 120 volt AC (or higher) power wiring and associated hardware.

LABORER, SKILLED - HIGHWAY

Individuals engaged in the following types of work, irrespective of the site of the work: asbestos abatement worker, handling of any materials with any foreign matter harmful to skin or clothing, track laborer, cement handlers, chloride handlers, the unloading and loading with steel workers and re-bars, concrete workers wet, tunnel helpers in free air, batch dumpers, mason tenders, kettle and tar men, tank cleaners, plastic installers, scaffold workers, motorized buggies or motorized unit used for wet concrete or handling of building materials, laborers with de-watering systems, sewer workers plus depth, rod and chainmen with technical engineers, rod and chainmen with land surveyors, rod and chainmen with surveyors, vibrator operators, cement silica, clay, fly ash, lime and plasters, handlers (bulk or bag), cofferdam workers plus depth, on concrete paving, placing, cutting and tying of reinforcing, deck hand, dredge hand, and shore laborers, bankmen on floating plant, grade checker, power tools, front end man on chip spreaders, cassion workers plus depth, gunnite nozzle men, lead man on sewer work, welders, cutters, burners and torchmen, chainsaw operators, jackhammer and drill operators, layout man and/or drainage tile layer, steel form setter - street and highway, air tamping hammermen, signal man on crane, concrete saw operator, screedman on asphalt pavers, laborers tending masons with hot material or where foreign materials are used, mortar mixer operators, multiple concrete duct - leadsman, lumen, asphalt raker, curb asphalt machine operator, ready mix scalemen (permanent, portable or temporary plant), laborers handling masterplate or similar materials, laser beam operator, concrete burning machine operator, coring machine operator, plaster tender, underpinning and shoring of buildings, pump men, manhole and catch basin, dirt and stone tamper, hose men on concrete pumps, hazardous waste worker, lead base paint abatement worker, lining of pipe, refusing machine, assisting on direct boring machine, the work of laying watermain, fire hydrants, all mechanical joints to watermain work, sewer worker, and tapping water service and forced lift station mechanical worker.

OPERATING ENGINEERS - BUILDING

Class 1. Asphalt Plant; Asphalt Spreader; Autograde; Backhoes with Caisson Attachment; Batch Plant; Benoto (requires Two Engineers); Boiler and Throttle Valve; Caisson Rigs; Central Redi-Mix Plant; Combination Back Hoe Front End-loader Machine; Compressor and Throttle Valve; Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver (over 27E cu. ft.): Concrete Paver (27 cu. ft. and under); Concrete Placer; Concrete Pump (Truck Mounted); Concrete Conveyor (Truck Mounted); Concrete Tower; Cranes, All; GCI and similar types (required two operators only); Cranes, Hammerhead; Creter Crane; Crusher, Stone, etc.;

Derricks, All; Derricks, Traveling; Formless Curb and Gutter Machine; Grader, Elevating; Grouting Machines; Highlift Shovels or Front Endloader 2-1/4 yd. and over; Hoists, Elevators, outside type rack and pinion and similar machines; Hoists, one, two and three Drum; Hoists, Two Tugger One Floor; Hydraulic Backhoes; Hydraulic Boom Trucks; Hydro Vac (and similar equipment - excluding hose work and any sewer work); Locomotives, All; Lubrication Technician; Manipulators; Motor Patrol; Pile Drivers and Skid Rig; Post Hole Digger; Pre-Stress Machine; Pump Cretes Dual Ram; Pump Cretes: Squeeze Cretes - Screw Type Pumps, Gypsum Bulker and Pump; Raised and Blind Hole Drill; Rock Drill (self-propelled); Rock Drill - Truck Mounted; Roto Mill Grinder; Scoops - Tractor Drawn; Slipform Paver; Scrapers Prime Movers; Straddle Buggies; Tie Back Machine; Tractor with Boom and Side Boom; Trenching Machines.

Class 2. Bobcat (over 3/4 cu. yd.); Boilers; Brick Forklift; Broom, All Power Propelled; Bulldozers; Concrete Mixer (Two Bag and Over); Conveyor, Portable; Forklift Trucks; Highlift Shovels or Front Endloaders under 2-1/4 yd.; Hoists, Automatic; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum; Laser Screed; Rollers, All; Steam Generators; Tractors, All; Tractor Drawn Vibratory Roller; Winch Trucks with "A" Frame.

Class 3. Air Compressor; Asphalt Spreader; Combination - Small Equipment Operator; Generators; Heaters, Mechanical; Hoists, Inside Elevators - (Rheostat Manual Controlled); Hydraulic Power Units (Pile Driving, Extracting, or Drilling - with a seat); Lowboys; Pumps, Over 3" (1 to 3 not to exceed total of 300 ft.); Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches; Bobcat (up to and including 3/4 cu. yd.).

Class 4. Elevator push button with automatic doors; Hoists, Inside; Oilers; Brick Forklift.

Class 5. Assistant Craft Foreman

Class 6. Mechanics; Welders.

Class 7. Gradall

OPERATING ENGINEERS - HIGHWAY CONSTRUCTION

Class 1. Asphalt Plant; Asphalt Heater and Planer Combination; Asphalt Heater Scarfire; Asphalt Silo Tender; Asphalt Spreader; Autograder; ABG Paver; Backhoes with Caisson Attachment; Ballast Regulator; Belt Loader; Caisson Rigs; Car Dumper; Central Redi-Mix Plant; Backhoe w/shear attachments; Combination Backhoe Front Endloader Machine, (1 cu. yd. Backhoe Bucket or over or with attachments); Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver over 27E cu. ft.; Concrete Placer; Concrete Tube Float; Cranes, all attachments; Cranes, Tower of all types; Creter Crane; Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Directional Boring Machine over 12"; Dredges; Formless Curb and Gutter Machine; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Mounted; Hoists, One, Two and Three Drum; Hydraulic Backhoes; Hydro Vac, Self Propelled, Truck Mounted (excluding hose work and any sewer work); Lubrication Technician; Manipulators; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Rock/Track Tamper; Roto Mill Grinder; Slip-Form Paver; Snow Melters; Soil Test Drill Rig (Truck Mounted); Straddle Buggies; GCI Crane; Hydraulic Telescoping Form (Tunnel); Tie Back Machine; Tractor Drawn Belt Loader; Tractor Drawn Belt Loader with attached pusher; Tractor with Boom; Tractaire with Attachments; Traffic Barrier Conveyor Machine; Raised or Blind Hole Drills; Trenching Machine (over 12"); Truck Mounted Concrete Pump with Boom; Truck Mounted Concrete Conveyor; Work Boat (no license required - 90 h.p. or above); Underground Boring and/or Mining Machines; Wheel Excavator; Widener (APSCO).

Class 2. Batch Plant; Bituminous Mixer; Boiler and Throttle Valve; Bulldozers; Car Loader Trailing Conveyors; Combination Backhoe Front Endloader Machine (less than 1 cu. yd. Backhoe Bucket or over or with attachments); Compressor and Throttle Valve; Compressor, Common Receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S Series to and including 27 cu. ft.; Concrete Spreader; Concrete Curing Machine, Burlap Machine, Belting Machine and Sealing Machine; Concrete Wheel Saw (large self-propelled - excluding walk-behinds and hand-held); Conveyor Muck Cars (Haglund or

Similar Type); Drills, all; Finishing Machine - Concrete; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro Blaster; All Locomotives, Dinky; Off-Road Hauling Units; Non-Self Loading Dump; Ejection Dump; Pump Cretes: Squeeze Cretes - Screw Type Pumps, Gypsum Bulker and Pump; Roller, Asphalt; Rotary Snow Plows; Rototiller, Seaman, etc., self-propelled; Scoops - Tractor Drawn; Self-Propelled Compactor; Spreader - Chip - Stone, etc.; Scraper; Scraper - Prime Mover in Tandem (Regardless of Size); Tank Car Heater; Tractors, Push, Pulling Sheeps Foot, Disc, Compactor, etc.; Tug Boats.

Class 3. Boilers; Brooms, All Power Propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer (Two Bag and Over); Conveyor, Portable; Farm-Type Tractors Used for Mowing, Seeding, etc.; Fireman on Boilers; Forklift Trucks; Grouting Machine; Hoists, Automatic; Hoists, All Elevators; Hoists, Tugger Single Drum; Jeep Diggers; Low Boys; Pipe Jacking Machines; Post-Hole Digger; Power Saw, Concrete Power Driven; Pug Mills; Rollers, other than asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with "A" Frame; Work Boats; Tamper - Form - Motor Driven.

Class 4. Air Compressor - Small and Large; Asphalt Spreader, Backend Man; Bobcat (Skid Steer) all; Brick Forklift; Combination - Small Equipment Operator; Directional Boring Machine up to 12"; Generators; Heaters, Mechanical; Hydraulic Power Unit (Pile Driving, Extracting, or Drilling); Hydro-Blaster; Light Plants, All (1 through 5); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Tractaire; Trencher 12" and under; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 5. Oilers and Directional Boring Machine Locator.

Class 6. Field Mechanics and Field Welders

Class 7. Gradall and machines of like nature.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION - WEST

Class 1. Drivers on 2 axle trucks hauling less than 9 ton. Air compressor and welding machines and brooms, including those pulled by separate units, truck driver helpers, warehouse employees, mechanic helpers, greasers and tiremen, pickup trucks when hauling materials, tools, or workers to and from and on-the-job site, and fork lifts up to 6,000 lb. capacity.

Class 2. Two or three axle trucks hauling more than 9 ton but hauling less than 16 ton. A-frame winch trucks, hydrolift trucks, vactor trucks or similar equipment when used for transportation purposes. Fork lifts over 6,000 lb. capacity, winch trucks, four axle combination units, and ticket writers.

Class 3. Two, three or four axle trucks hauling 16 ton or more. Drivers on water pulls, articulated dump trucks, mechanics and working forepersons, and dispatchers. Five axle or more combination units.

Class 4. Low Boy and Oil Distributors.

Class 5. Drivers who require special protective clothing while employed on hazardous waste work.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION - EAST

Class 1. Two or three Axle Trucks. A-frame Truck when used for transportation purposes; Air Compressors and Welding Machines, including those pulled by cars, pick-up trucks and tractors; Ambulances; Batch Gate Lockers; Batch Hopperman; Car and Truck Washers; Carry-alls; Fork Lifts and Hoisters; Helpers; Mechanics Helpers and Greasers; Oil Distributors 2-man operation; Pavement Breakers; Pole Trailer, up to 40 feet; Power Mower Tractors; Self-propelled Chip Spreader; Skipman; Slurry Trucks, 2-man operation; Slurry Truck Conveyor Operation, 2 or 3 man; Teamsters; Unskilled dumpman; and Truck Drivers hauling warning lights, barricades, and portable toilets on the job site.

Class 2. Four axle trucks; Dump Crets and Adgetors under 7 yards; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump

Turnapulls or Turnatrailers when pulling other than self-loading equipment or similar equipment under 16 cubic yards; Mixer Trucks under 7 yards; Ready-mix Plant Hopper Operator, and Winch Trucks, 2 Axles.

Class 3. Five axle trucks; Dump Crets and Adgetors 7 yards and over; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnatrailers or turnapulls when pulling other than self-loading equipment or similar equipment over 16 cubic yards; Explosives and/or Fission Material Trucks; Mixer Trucks 7 yards or over; Mobile Cranes while in transit; Oil Distributors, 1-man operation; Pole Trailer, over 40 feet; Pole and Expandable Trailers hauling material over 50 feet long; Slurry trucks, 1-man operation; Winch trucks, 3 axles or more; Mechanic--Truck Welder and Truck Painter.

Class 4. Six axle trucks; Dual-purpose vehicles, such as mounted crane trucks with hoist and accessories; Foreman; Master Mechanic; Self-loading equipment like P.B. and trucks with scoops on the front.

TRUCK DRIVER - OIL AND CHIP RESEALING ONLY.

This shall encompass laborers, workers and mechanics who drive contractor or subcontractor owned, leased, or hired pickup, dump, service, or oil distributor trucks. The work includes transporting materials and equipment (including but not limited to, oils, aggregate supplies, parts, machinery and tools) to or from the job site; distributing oil or liquid asphalt and aggregate; stock piling material when in connection with the actual oil and chip contract. The Truck Driver (Oil & Chip Resealing) wage classification does not include supplier delivered materials.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

MATERIAL TESTER & MATERIAL TESTER/INSPECTOR I AND II

Notwithstanding the difference in the classification title, the classification entitled "Material Tester I" involves the same job duties as the classification entitled "Material Tester/Inspector I". Likewise, the classification entitled "Material Tester II" involves the same job duties as the classification entitled "Material Tester/Inspector II".

TECHNICAL SPECIFICATIONS

CITY OF GALENA, ILLINOIS

EAST SIDE UTILITY SYSTEM IMPROVEMENTS

IIW, P.C. ◆ ENGINEERS. ARCHITECTS. SURVEYORS.

IIW, P.C.
4155 Pennsylvania Avenue
Dubuque, IA 52002-2628

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IIW Project No. 17054

TECHNICAL SPECIFICATIONS FOR
CITY OF GALENA, ILLINOIS
EAST SIDE UTILITY SYSTEM IMPROVEMENTS

PREPARED FOR: City of Galena
101 Green St.
Galena, Illinois 61036
Phone: 815-777-1050

PREPARED BY: IIW, P.C.
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Phone: 563-556-2464
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IIW PROJECT NO: 17054

GEOFFRY T. BLANDIN 062-057265 LICENSED PROFESSIONAL ENGINEER EXP. 11/2021 ILLINOIS	**FOR IIW, P.C.** 12/16/19 Geoffry T. Blandin, P.E. Date License Number 062-057265 Licensed Professional Engineer of Illinois My license renewal date is 11/30/2021 Pages or sheets covered by this seal: Division 2 Special Project Requirements to the Standard Specifications for Water and Sewer Main Construction in Illinois

CITY OF GALENA, ILLINOIS
EAST SIDE UTILITY SYSTEM IMPROVEMENTS

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STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS
7th Edition/2014 (Available from Associated General Contractors (AGC) of Illinois, the Illinois Municipal League (IML) or the Illinois Society of Professional Engineers)

Special Project Requirements (prepared by IIW) to the Standard Specifications for Water and Sewer Main Construction in Illinois ..... SPR 1-4

ILLINOIS DEPARTMENT OF TRANSPORTATION DETAILS FOR REFERENCE

Perpendicular Curb Ramps For Sidewalks 424001-11
Diagonal Curb Ramps For Sidewalks 424006-04
Corner Parallel Curb Ramps For Sidewalks..... 424011-04
Mid-Block Curb Ramps For Sidewalks..... 424016-05
Depressed Corner For Sidewalks 424021-05
Entrance / Alley Pedestrain Crossings..... 424026-03
Class A Patches..... 442001-04
Lane Closure, 2L, 2W, Work Areas In Series, For Speeds ≥ 45 MPH..... 701336-07
Urban Lane Closure, 2L, 2W, Undivided..... 701501-06
Traffic Control Devices..... 701901-08

DIVISION 2 - SITE WORK

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STANDARD SPECIFICATION FOR SECTION 02052 SELECTIVE DEMOLITION

PART I GENERAL

GENERAL REQUIREMENTS

Applicable portions of Division 1 apply to the work of this section. This is a nonspecific project standard specification. See Special Project Requirements at the end of this specification section for specific requirements pertaining to this project.

SCOPE

The work covered by this section consists of furnishing all labor, equipment, tools, transportation, materials, accessories, services, operations and coordination in connection with demolition as shown on the drawings, as indicated in Division 1, and as indicated in the Special Project Requirements. The work shall include demolition of existing structures, utilities, and protection of existing service lines, utilities and structures to remain.

PART II PRODUCTS

See Part IV Special Project Requirements

PART III EXECUTION

CLEARING AND GRUBBING

In the event any structure, utility, tree, shrub or other vegetation designated to be preserved, is damaged by the Contractor, such item shall be repaired or replaced immediately as required by the Engineer. Damage to structures, utilities and plants shall be repaired or replaced in accordance with standard building and horticultural practice at the expense of the Contractor and at no expense to the Owner or the Engineer.

Burning of debris on site is not permitted unless authorized in writing by the Engineer and Owner. Burning of debris is also subject to state and local regulations and ordinances.

PROTECTION OF UTILITIES, STRUCTURES AND DRAINAGE FACILITIES

The Contractor shall notify all utility companies, pipeline owners or other parties affected, and will have all necessary adjustments of the public or private utility fixtures, pipelines and other appurtenances within or adjacent to the limits of demolition made as soon as practicable.

Water lines, phone lines, gas lines, electric lines, sewer, cable television, etc.; any service connections, water and gas meter boxes, water and gas valve boxes, light stands, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted are to be moved at the Owner's expense, except as otherwise provided for in the Special Project Requirements.

Existing utility lines, service and structures which are to be retained as well as newly constructed utility lines shall be protected from damage during all phases of demolition. All gas, water, sewer, and other service lines shall be temporarily shut off or otherwise controlled outside the demolition area before work is commenced. In each case, the Owner, the service company, local building official, and Engineer shall be notified in advance and their approval obtained by the Contractor in compliance with applicable codes and requirements. The cost of any such protection or temporary shut off shall be incidental to the contract price for work being performed. The Contractor shall be liable for all damages which may result from his operations.

If it is necessary during construction to interrupt or obstruct natural drainage of the surrounding surface, or the flow of artificial drains, the Contractor shall provide temporary drainage and erosion control facilities during construction at the Contractor's expense. The Contractor at his expense will prevent damage to public or private interests and shall restore the original drains and drainage ways. The Contractor shall be liable for all damages which may result from his operations.

When an interior wall is exposed because of demolition of adjoining or surrounding structure, said wall shall be provided with a weather resistive barrier. Dampproofing, waterproofing, or special finishes shall be as indicated in Part IV Special Project Requirements.

Demolition of structure(s) shall proceed in a manner so as any remaining structure is stable and safe from collapse. Floors and roofs shall be removed only in such a sequence that walls are not dependent on floor and roof support for stability. Excavation adjacent to existing structures shall not be performed in such a manner to remove support to walls or undermine footings. Water shall be used to minimize dust during demolition. As ordered by the Engineer, buildings shall be washed down frequently to keep dust at a minimum.

Explosives shall not be used unless their use is approved in writing by the Engineer, Owner, local building official, and Police Department.

REMOVAL OF EXISTING STRUCTURES AND OBSTRUCTIONS

All obstructions, such as fences, walls, foundations, buildings, flumes, concrete walls, etc. which are visible or designated on the plans and in any way interferes with the new construction shall be removed at the Contractor's expense. If such obstructions are not visible, not shown, or indicated in Part IV Special Project Requirements, compensation for removal will be paid for as extra work.

Prior to beginning of demolition, the Contractor shall make such rodent extermination procedures to effectively eliminate rodents in the resulting basements and debris. Extermination shall be performed in a manner prescribed by law and as approved by local and state health departments.

Asbestos removal and disposal shall be in accordance with the requirements of all federal, state, and local ordinances. Inspection of the work area and removal of all asbestos materials shall be completed prior to beginning demolition work.

Any hazardous materials encountered during demolition shall be brought to the attention of the Owner and the Engineer. All operations shall cease until the hazardous materials are properly disposed of and required testing and/or monitoring completed. Resumption of operations may continue only after authorization of the proper regulatory agency.

Existing structures, buildings, walls and foundations shall be removed completely as designated on the plans, indicated in Part IV Special Project Requirements, or Division 1. The Engineer shall be notified and allowed ample time to examine the site before backfilling operations begin.

All pieces, parts, scraps, debris, obstructions, and rubbish will become property of the Contractor and shall be disposed of in a legal manner conforming to local and state ordinances, laws and regulations. Disposal on site must have approval of the Engineer. Removal from the premises and cleanup shall be done at least weekly, except for streets and public property which shall be cleaned up daily. See Part IV Special Project Requirements.

DISCONNECTING UTILITY SERVICES

The power in all electric service lines shall be shut off and all such lines cut or disconnected at or outside the demolition area before work is commenced. Gas, water, sanitary sewer service lines, etc. shall be capped at the main, or at the property line as indicated by the utility company, using materials and procedures as required by the utility company and local governing codes.

SEE NEXT PAGE FOR SPECIAL PROJECT REQUIREMENT

PART IV SPECIAL PROJECT REQUIREMENTS

Application: The requirements of this section shall govern the removal and disposal of all existing trees, shrubs, manholes, pavement, poles and bases, and other structures and obstructions as necessary for construction of the project. Contractor shall coordinate any and all work involving private property with the owners of the property prior to any disturbance of said property.

Pavement Removal: The existing pavement structure, in the streets, driveways, sidewalks, parking areas and transition pavements to be removed as indicated in the plan set, shall be completely removed and disposed of at a location provided by the Contractor to the extent necessary for the construction of the project. The cost for removal and disposal of all pavements shall be included in the price for the SY item, Pavement Removal. In order to minimize disruption to businesses and residences, and to minimize erosion and sedimentation problems, complete demolition of existing pavement and structures to be removed shall take place only within the currently staged work zone.

Sawcutting: The extents of the removals are indicated by areas shown to have new surfaces installed on the plan sheets. Where existing pavement is to abut new pavement, a clean, even, full-depth sawcut shall be made in the existing pavement prior to removal. Unless authorized by the Engineer, any pavement removal beyond the limits of removal shown in the plans shall be replaced at the contractor's expense. Sawcutting, as detailed in the plan drawings, shall be paid by the lineal foot under the bid item, Full-Depth Sawcut.

Water Main Abandonment: Water main pipes that do not interfere with the Contractor's operations that are to be removed from service are to be abandoned in place. Each end of the abandoned mains are to be filled full diameter (2 feet in length) with grout or concrete (plugged) to create a water tight seal. Valves Boxes shall be cut off 2 feet below the surface and filled with an engineered material. Hydrants to be abandoned shall be cut off 2 feet below the surface and filled with concrete. The cost for utility pipe abandonment is incidental to the installation of the new utility pipe and/or fittings/structures.

Pipe Removal: The Contractor shall remove existing pipes as shown on the drawings and as needed to complete the project. Where existing pipe will be within 5 feet of existing utilities that are to be disturbed or replaced during the construction of the new facility, the cost shall be considered incidental to the facility being constructed. Where existing pipe is to be removed in other locations, the pipe shall be removed, properly disposed of, and the excavation backfilled with select granular backfill in 8-inch lifts compacted to 95% maximum standard Proctor density. Other cases may be considered extra work.

Salvage: The City has salvage rights to any of the utility castings encountered at this site. Before disposing of or removing any valves, hydrants, lids, frames, etc. from the site, the Contractor shall contact the City to determine if any of the materials are to be delivered to the City.

*** END ***

STANDARD SPECIFICATION FOR SECTION 02221 EXCAVATION AND BACKFILLING FOR UTILITIES

PART I GENERAL

GENERAL REQUIREMENTS

Applicable portions of Division 1 govern all work under this section. This is a nonspecific project standard specification. See Special Project Requirements at the end of this specification section for specific requirements pertaining to this project.

Reference to materials or systems herein by name, make or catalog number is intended to establish a standard of quality and not to limit competition; the words "or equal" are implied following each brand name. See Division 1.

SCOPE

Provide labor, materials, equipment, operations, facilities and administration necessary to furnish and complete all work covered by this section in accordance with the best present day installation and construction techniques.

PART II PRODUCTS

GRANULAR MATERIAL

Granular material used to bring overexcavated trenches to the proper grade for pipe installation and for bedding in rock excavation shall be a relatively clean (less than 10% passing 200 sieve) crushed stone material with a maximum size of one inch. Alternate materials will be considered.

STABILIZATION MATERIAL

Material used to stabilize the excavation in poor soil shall be a crushed stone material with a maximum three inch size unless otherwise required due to trench conditions. A cushion of granular material may be required for proper pipe bedding between the stabilization material and the pipe. Alternate materials will be considered.

SELECT BACKFILL

Select backfill material, used when strict density and compaction control is required, shall be a relatively clean crushed stone, coarse sand or gravel mixture as approved by the Engineer. At the time of use, select granular backfill material shall be free from frozen lumps and foreign materials.

PART III EXECUTION

EXISTING UTILITIES AND CONDITIONS

The Contractor shall verify the location of all utilities. Omission or inclusion of utilities on plans is for engineering purposes. Plan indications are not to be considered as nonexistence of other utilities or definite locations of those shown.

The Contractor shall protect existing utilities. Any damage shall be repaired at no increase in payment except as specifically provided in these specifications. The cost of any such protection shall be incidental to the contract price for the work being performed.

All excavation of every description and of whatever substance shall be performed in an orderly manner to depths indicated.

Excavated material shall be placed a sufficient distance from the banks of the trench to avoid overloading and to prevent slides or cave-ins. All excavated materials not required or suitable for backfill shall be removed and disposed of as indicated or as approved.

LINES AND GRADES

The trench shall be excavated to the line and grade shown on the contract drawings. Line and grade stakes will be provided to the Contractor by the Engineer when required unless stated otherwise elsewhere. It shall be the Contractor's responsibility to protect the original line and grade stakes set by the Engineer. Any stakes destroyed or damaged shall be replaced by the Engineer at the Contractor's expense.

Whenever obstructions are encountered during the progress of the work, and interfere to such an extent that an alteration in the plans is required, the Engineer shall have the authority to change the plans and order a deviation from the line and grade or arrange

for the removal, relocation, or reconstruction of the obstructions. Such changes in plans will be paid at the contract amount for the work performed. Removal or modification of obstructions shall be paid as indicated or, if not indicated, as extra work.

TREE REMOVAL

Approval of the Engineer must be obtained prior to removing any trees. The Contractor shall be responsible for removing such approved trees from the work area and grubbing of stumps and roots.

PAVEMENT REMOVAL

General - Pavement shall be removed to a minimum of one foot from the edge of the trench. Absolutely no undercutting of pavement will be permitted. The pavement removal shall be conducted along straight lines approximately parallel to the centerline of the trench or existing joint patterns.

Concrete Pavement and Drives - Concrete pavement and drives shall be cut with a concrete saw utilizing a minimum vertical cut of two inches. The remainder of the concrete slab shall be broken out utilizing a method approved by the Engineer.

Asphalt Pavement - Asphalt pavement shall be removed by cutting with neat square edges.

Sidewalk - Sidewalk shall be removed to the nearest joint beyond the minimum distance of one foot from the edge of the trench.

Other Surfaces - Other types of surfaces may be removed by the machine utilized for excavating the trench.

Disposal - The Contractor shall be responsible for disposal of removed pavement as required for surplus excavated material.

EXCAVATION

The ground shall be excavated by the open trench method so that pipe can be laid to the alignment and grade shown on the Contract drawings. Tunneling to avoid obstacles will be allowed for up to ten (10) feet in length, unless specifically indicated otherwise on the contract drawings and/or approved by the Engineer.

The trench shall be no wider than to allow ample room within the limits of the excavation for installation of the utility. The width of the trench at the top of the utility shall not exceed four-thirds (4/3) of the external diameter of the utility plus twelve inches (12") unless sheeting and bracing is required. At least four inches (4") clear space is required on each side of the utility to permit tamping. The width of the trench at the ground grade shall not exceed the distance of a 1:1 slope, plus the distance at the top of the utility, consistent with safety requirements. In any trench that the maximum allowable width is exceeded, the pipe shall be adequately reinforced or an alternate material used, at the expense of the Contractor, when required by the Engineer.

EXTENT OF OPEN TRENCH

The trench excavation shall not advance more than 200 feet beyond the completed installation for sewer or for water main construction. For installations other than sewer and water main, the extent of open trench shall not be more than approved by the Engineer.

ACCESS DURING CONSTRUCTION

A suitable means of access to property which abuts easements, streets and highways involved in the construction of the project shall be maintained. Suitable access shall mean a roadway of sufficient width, free from ruts, potholes, and mudholes, and capable of carrying a passenger car without damage to the car. All adjoining property owners shall be notified at least 24 hours in advance of a street closure. Whenever access must be denied due to construction operations, a suitable access shall be provided within 24 hours after that portion of the construction responsible for the access denial is completed. Whenever construction is halted due to inclement weather, weekends, holidays or any other reason, a suitable access shall be provided for all adjoining property owners.

BOTTOM OF EXCAVATION

In clay soils the bottom of the excavation shall have, as closely as possible, the shape and dimensions of the outside of the lower one-quarter of the utility. In sand and gravel excavation, the bottom of the excavation shall be slightly rounded to provide as much bearing area as possible for the lower one-quarter of the utility. Bell holes of sufficient depth shall be provided to insure an even bearing of the main body of the utility pipe. If the character of the ground encountered in excavating is such that the external form of the utility pipe cannot be preserved, the excavation shall be made to conform as nearly as possible to the external shape and dimensions of the pipe, and the space between the external dimensions of the pipe and the bottom and sides of the excavation shall be filled by the Contractor with compacted granular material. Rock, boulders and large stones shall be removed to provide a clearance of at least 6 inches (6") below all parts of the pipe and appurtenances and to clear a width of 6 inches (6") on each side of all parts of the pipe and pipe appurtenances.

EXCAVATION BELOW GRADE

Whenever excavation is made to below the grade shown on the Contract drawings, the Contractor shall backfill the trench to grade with compacted granular material at no extra cost.

EXCAVATION IN POOR SOIL

Where the bottom of the trench at subgrade is found to be unstable or to include ashes, cinders, refuse, vegetable or other organic material, or large pieces or fragments of inorganic material that in the judgment of the Engineer should be removed, the Contractor shall excavate and remove such unsuitable material to the width and depth ordered by the Engineer. The area from which the unsuitable material was removed shall be brought to grade with compacted stabilization material.

ROCK EXCAVATION

Wherever the word "rock" appears in these specifications, it shall be interpreted to mean any solid material mass geologically in place and of a hardness, when first exposed of three or greater in the scale of mineral hardness which corresponds to the hardness of the transparent variety of calcite. Other material shall not be classed as rock, although it may be more economical to remove the same by blasting. Boulders shall not be classified as rock unless larger than one-half cubic yards.

Should rock be encountered in the excavation, it shall be removed by blasting or otherwise. Compliance with all local, state and federal safety codes and requirement shall govern the methods and use of blasting. The Contractor shall secure all permits required by law for blasting operations and any additional hazard insurance required. The cost of such permits and insurance is to be borne by the Contractor. All rock excavation shall be at least one hundred feet (100') ahead of the pipe laying operation.

No blasting shall be done by the Contractor until he has notified the Engineer, and until the necessary cross-sections of the top of the rock have been taken, if required. As an alternate to stripping overburden and taking cross-sections, the rock cuts may be measured after blasting and excavation when deemed appropriate by the Engineer.

Rock excavation for structural work will be measured from the top of the rock to the bottom of the structural foundation of the rock encountered and for a distance of three feet (3') outside the horizontal limiting dimensions of the foundation. For pipe excavations, the measurements for rock will be an arbitrary width equal to 12 inches (12") more than the outside diameter of the pipe barrel installed.

Measurements for depth in rock excavation for pipe will be from the top of the rock to six inches (6") below the flow line of the pipe. Before the pipe is laid, all irregularities of the rock are to be filled with compacted granular material, the bottom of the trench brought to the proper grade, all at the expense of the Contractor. No allowance will be made for rock excavation in excess of the limits above described.

Payment for rock excavation will be made on the basis of the unit price per cubic yard as stated in the contract for the number of cubic yards removed as determined from the measurements herein described. If the contract specification and/or the bid proposal do not contain a bid or payment item for rock excavation, it shall be included in the installed price of the utility or structure. This includes rock, earth, and unclassified material and the foregoing basis for payment of rock will be deleted. Measurements for rock shall be made in the presence of the Engineer or the Inspector. The measurements taken shall be signed by the Contractor indicating agreement, if required by the Engineer, and no claim for rock in excess of those measurements will be allowed.

SHEETING AND BRACING

The Contractor shall provide, as required by state or federal regulations and as may be necessary, adequate sheeting and bracing to prevent earth from caving or washing and to protect life and property related to the work. The sheeting and bracing shall remain in place until backfilling progresses to the point at which no damage or accident will result from its removal. The cost of all sheeting and bracing shall be considered incidental to the price bid for installation of the utility.

DEWATERING

The Contractor shall, at all times during the progress of the work, keep trenches and excavations free from water which would in any way, in the opinion of the Engineer or Inspector, impair the construction work. The method of disposal of water shall be subject to the approval of the Engineer. The cost of all dewatering shall be considered as incidental to the price bid for installation of the utility.

TUNNELING OR BORING

Tunnel Construction: Tunnels shall be constructed only of sufficient width and height to provide free working space where maintaining correct vertical and horizontal alignment. All tunnels shall be backfilled with compacted granular material as rapidly as conditions will allow. The backfill material shall be placed in the tunnel in such a manner so as not to damage or disturb the pipe. Special care shall be taken to compact the backfill under the haunches of the pipe. The remainder of the tunnel should be backfilled by depositing the backfill material in uniform layers not to exceed 12 inches (loose) and each such layer compacted.

Bored Sections: Steel casing pipe less than 36 inches in diameter shall be bored. Proper line and grade shall be maintained at all times. Excavation shall not precede the boring operation by a distance more than is deemed necessary. When a casing pipe is utilized, the space between it and the main utility line shall be backfilled with sand. Skids shall be required for PVC carrier pipe. The ends of the casing pipe shall be sealed.

BACKFILLING

General: The trench shall not be backfilled until the pipe elevations, gradient, alignment and joints have been checked and any necessary tests required have been performed. The pipe bedding, haunching and initial backfill to 12 inches above the top of the pipe shall be as required to provide pipe support and load carrying capacity. The space between the utility pipe and the bottom and the sides of the trench shall be backfilled by hand with required/approved materials available from the trench excavation or bedding material as may be required in other parts of these specifications. These materials shall be thoroughly compacted for the full width of the trench to a depth of one foot above the top of the pipe. The backfill material shall contain no rocks or boulders and shall be free from cinders, ashes, roots, refuse or organic material.

Consistent with pipe protection requirements, the remainder of the backfilling operation shall proceed by mechanical means in layers not to exceed 12 inches (loose) to a height slightly above the original ground elevation. This backfill material shall contain no rock or stones greater than six inches in their greatest dimension for a distance of three feet above the top of the pipe. No rock or rock excavation debris shall be placed within the upper 18 inches of the surface. Rock or rock excavation debris may be utilized in the remainder of the trench provided that it is separated and arranged so that no interference with proper backfill and no excessive settlement will result.

All backfill material shall be carefully placed in the trench to avoid movement, damage, or injury of the utility pipe. The Contractor shall be fully responsible for any backfill settlement which occurs. Jetting and flooding of backfill materials shall be utilized only when approved by the Engineer.

Tunnels: All voids existing between the outside of the pipe and the limits of the tunnel excavation and lining shall be filled with compacted granular material.

Select Backfill: Select backfill shall be placed and compacted to 95% standard proctor density in those locations designated on the plans, and where the utility is constructed under pavement, sidewalk, driveways, and other utilities and structures.

SURFACE REPLACEMENT

General - No permanent pavement may be restored unless the condition of the backfill will properly support the pavement, without settlement. The Engineer's approval to replace pavement will not relieve the Contractor of responsibility for settlement.

Replacement - The Contractor shall restore/replace all pavement sidewalks, curbing and gutters (as well as other site features) removed or disturbed as a part of the work; to a condition equal to that before the work began (or better), unless approved otherwise, in writing, by the Engineer.

CLEANUP

All surplus materials furnished by the Contractor and all tools and temporary structures shall be removed from the site by the Contractor. All dirt, rubbish, and excess earth from the excavation shall be disposed of by the Contractor. The construction site shall be left clean to the satisfaction of the Engineer.

SEE NEXT PAGE FOR SPECIAL PROJECT REQUIREMENTS

PART IV SPECIAL PROJECT REQUIREMENTS

Application: The requirements of this section shall govern the excavation and backfilling for the Sanitary Sewer, Water Main and associated connections along with Select Trench Backfill (Final Backfill) of all trenches constructed as part of this project. See Special Project Requirements and "Standard Specifications for Water and Sewer Main Construction in Illinois" (7th Edition) and requirements for water mains and services.

Traffic Control: The Contractor shall provide traffic control, advance warning signs, barricades, etc. in accordance with the requirements shown in the plans and specifications as well as MUTCD requirements. Traffic Control shall be paid for by the lump sum.

Payment (Water Main): All costs for water main items, including furnishing and installing pipe, specified pipe bedding materials, compaction and related work, shall be included in the unit price bid per lineal foot for the respective water main bid item. In areas within 5 feet of existing or proposed pavement or granular surfacing, select trench backfill will be paid for by the lineal foot.

Rock Excavation: Rock excavation is not anticipated. Any rock excavation that might be required for utility installation will be considered extra work. Measurement shall be from 6 inches below the pipe barrel to the top of the rock excavation and 12 inches on each side of the pipe barrel unless otherwise approved. Compensation for rock excavation shall be paid for at a unit price per cubic yard agreed upon by the Owner and Contractor. Rock shall be defined as material having the mineral hardness of 3 (i.e. transparent calcite). Rock masses less than one-half cubic yard shall not be considered for extra payment.

Excavated Material: All excess excavated material shall be disposed of at the Contractor's expense.

PVC Sewer Bedding, Haunching and Backfill: All PVC sewer main shall be installed on a minimum of 6 inches of select granular backfill below the pipe (bedding). Haunching and initial backfill to 6 inches above the top of the PVC pipe shall be select granular backfill. Backfill above the embedment material shall be imported select granular backfill compacted to 95% standard Proctor density if under or within 5 feet of an existing or proposed roadway or driveway. Otherwise trench excavation material compacted to 90% standard Proctor Density may be used as backfill.

Haunching Fill: The required haunching material shall completely fill the void under the pipe and shall be compacted as indicated.

Trench Bottom Stabilization: If any areas of the trench bottom are found to be unstable, they shall be stabilized with an appropriately sized crushed stone material. Payment for trench bottom stabilization stone will be made for only that material in excess of bedding, haunching and initial and select backfill stone as authorized by the Engineer or inspector. Crushed stone for pipe bedding/embedment will not be considered stabilization stone.

Select Trench Backfill Material: Select granular backfill material shall be Illinois gradation CA17. Select granular backfill material shall be utilized as final backfill for utilities that are under or within 5 feet of existing or proposed pavement areas or granular surfacing Material shall be used to backfill the trench to the bottom of the base stone.

Existing Utilities: Contractor shall call "Julie" 800-892-0123 for utility locations.

Exploratory Excavation: This bid item is to be used to allow the Contractor to verify and refine the locations of utilities within the project site and adjacent to proposed underground utility work, in advance of excavation, subject to the inspector/engineer's approval. This bid item shall include all manpower and equipment time necessary to expose the utility line(s) in question, i.e. the bid item is by the hour, and this work may require multiple machines and/or personnel for one hour paid.

Topsoil: Contractor shall remove, stockpile and replace topsoil in all grass and forest areas.

Topsoil: Contractor shall remove and stockpile suitable topsoil and utilize it for the top 4 inches of backfill outside of the paved areas. Quantities for topsoil stripping, stockpiling and respreading are included in the Topsoil: Strip, Salvage and Spread (4" Thickness) bid item and will be paid for by the lump sum for the project.

Surface Restoration: Seed disturbed areas per Section 02485.

*** END ***

STANDARD SPECIFICATION FOR SECTION 02230 ROADWAY EXCAVATION, BACKFILL AND COMPACTION

PART I GENERAL

GENERAL REQUIREMENTS

Applicable portions of Division I apply to the work of this section. This is a nonspecific project standard specification. See Special Project Requirements at the end of this specification section for specific requirements pertaining to this project.

SCOPE

The work in this section consists of furnishing all labor, equipment, tools, transportation, materials, accessories, services and performing all operations in connection with roadway and street excavation and filing and grading in accordance with the lines, elevations, cross sections and notes as shown on the drawings and specified herein. Work includes earth excavation and embankment construction necessary for construction of the road surface and the shaping, trimming and finishing thereof; removal of existing obstructions; removal and disposal of surplus, unstable and unsuitable material; topsoil removal and conservation; borrow; protection of existing service lines, utilities, structures and drainage facilities; shoulder construction; placing topsoil and protection of graded areas.

Not included in this section are excavation, backfill and grading for sewers, manholes, sidewalks and catch basins.

TESTING

Moisture density analysis and field density testing shall be performed in accordance with these specifications when indicated in the Special Project Requirements section of this specification.

PART II PRODUCTS

SUBGRADE

On-site material shall be moved from cut areas to fill areas as approved by the Engineer. Borrow material shall be obtained from designated areas as needed.

CRUSHED STONE

Crushed stone for subgrade stabilization shall conform to Illinois Department of Transportation Section 301.

LIME

Lime used for stabilization shall be high calcium hydrated lime with a minimum available lime (CaO) content of 90% as determined by ASTM C25. The gradation shall be a minimum 85% passing the No. 200 sieve as determined by ASTM C110 for wet sieving.

PORTLAND CEMENT

Cement used for soil cement subbase shall be Portland cement conforming to ASTM C150 Type I unless otherwise approved.

PART III EXECUTION

SITE PREPARATION

Clearing shall consist of felling and cutting of trees, trimming of trees left standing and the satisfactory removal and disposal of all trees, branches, logs, downed timber, hedge, shrubs, brush, growing corn, weeds, grass, cornstalks, other herbaceous vegetation and all decayed vegetable matter, rubbish and similar unsuitable materials.

Grubbing shall consist of the removal and disposal of stumps and roots.

Clearing and grubbing shall be performed in areas within the slope limits of embankments, in areas to be excavated, and in other areas as designated on the drawings or as designated by the Engineer.

The cleared and grubbed material shall in general be disposed away from the site in a legal manner conforming to local and state ordinances, laws and regulations.

PROTECTION OF SITE UTILITIES

Existing utility lines and services which are to be retained, as well as utility lines constructed during this project, shall be protected, supported and maintained from damage during construction and if damaged, shall be repaired by the Contractor as soon as possible at his expense, at no increase in payment except as specifically provided in these specifications. When utilities lines that are to be removed or relocated are encountered, the Contractor shall notify the Engineer in ample time so that necessary measures can be taken to prevent interruption of service.

If it is necessary during construction to interrupt or obstruct natural drainage of the surface, or the flow of artificial drains, the Contractor shall provide temporary drainage facilities during the progress of the work at his expense that will prevent damage to public or private interests and shall restore the original drains at his own expense as the work will permit. The Contractor shall be liable for all damages which may result from his negligence to provide for either natural or artificial drainage which the work may have interrupted.

EXCAVATION

All excavation, embankment construction and grading required shall be performed in accordance with the drawings, these specifications and specification for surfacing.

Topsoil shall be stripped, salvaged and stockpiled in sufficient quantity to allow a uniform 6 inch lift over all disturbed areas not otherwise surfaced.

Suitable excavated materials shall be moved to areas requiring fill and shall be placed in accordance with these specifications. Determination of unsuitable material shall be made by the Engineer. Unstable soils encountered during grading operations shall be removed and replaced with suitable material.

Existing culvert pipe shall be removed, replaced, salvaged or deleted as shown on the drawings or indicated in the Special Project Conditions. Operations regarding existing culvert pipe shall be incidental to unclassified excavation unless indicated otherwise in the Special Project Requirements.

Cut or fill sections shall be sloped uniformly from curb line to sidewalk or other controlling features. Finished banks shall present a neat finished appearance.

BACKFILL AND COMPACTION

Fill material shall be placed in lifts not exceeding six inches in thickness after compaction. Moisture control shall be maintained throughout backfilling operations to ensure that specified densities are achieved. Fill shall be compacted to a density of 90% of maximum dry density (standard Proctor) unless otherwise indicated in the Special Project Requirements.

Subgrade shall be shaped to the line and cross section grade shown on the drawings.

Alternate compaction methods and equipment shall be subject to the approval of the Engineer.

SUBGRADE PREPARATION

Additional subgrade preparation shall be provided as necessary to ensure uniformity of undisturbed material and new embankment across the subgrade.

When specifically required in the Special Project Requirements, the top 6 inches of material below the proposed finished subgrade elevation shall be scarified for the full width of the paving plus one foot on each side. Subgrade material shall be pulverized by discing or other approved methods.

The scarified subgrade material shall be mixed with water to optimum moisture content and recompacted to 90% of maximum dry density (standard Proctor).

UNSTABLE OR SOFT SUBGRADE

Unstable subgrade shall be excavated to at least two feet below grade. The material shall be replaced with suitable stable material compacted to uniform density in 6 inch lifts. The density of compacted subgrade shall be equal to or greater than adjacent undisturbed grade.

SUBGRADE STABILIZATION WITH CRUSHED ROCK

Soils of certain types or with certain moisture conditions which, in the judgment of the Engineer, cannot be manipulated such that the required densities can be obtained shall, if not specified otherwise, be stabilized with compacted crushed rock in an amount and to the extent determined by the Engineer to provide a stable subgrade to support the concrete paving.

LIME STABILIZATION

When indicated in the Special Project Requirements or on the drawings the subgrade shall be stabilized with lime. The subgrade shall be scarified to a depth of 6 inches below finish grade.

Hydrated lime shall be added at a rate of 25 pounds per square yard unless otherwise indicated. The lime shall be uniformly and thoroughly mixed with the subgrade soil with a rotary mixer or heavy disc. Maximum finished soil particle size allowable shall be 2 inches. Water shall be added if necessary to bring the moisture content to 5% above optimum. The mixture shall be compacted to 95% Standard Proctor density.

The stabilized base grade shall be cured until hardened by moist or membrane curing. Moist curing shall be accomplished by sprinkling with water as necessary to maintain a moist surface. Membrane curing shall be accomplished by sealing the base with a bituminous prime coat at a rate of 0.3 gallon per square yard.

SOIL CEMENT BASE

When indicated in the Special Project Requirements or on the drawings the subgrade shall be stabilized with a soil cement base. The subgrade shall be scarified to a depth of 6 inches.

Portland cement shall be added at a rate of 50 pounds per square yard unless otherwise indicated.

Cement may be delivered to the site in bags or bulk. The soil and cement shall be uniformly and thoroughly mixed by rotary mixer or heavy disc. The soil shall be pulverized to a maximum particle size of 2 inches. The mixture shall be compacted to 95% Standard Proctor Density.

The subbase shall be moisture or membrane cured until the base hardens. Moist curing shall be by means of sprinkling to maintain a moist surface. Membrane curing shall be accomplished by sealing the base with a bituminous prime coat at a rate of 0.3 gallons per square yard.

FINE GRADING

Fine grading shall consist of smoothing and shaping the entire subgrade surface in accordance with line, grade and cross section shown on the drawings. The Contractor shall maintain the finished subgrade in satisfactory condition until subsequent operations are performed.

FINISH WORK AND CLEANUP

Finish work and cleanup shall include removing excess material from behind curbs and adjacent to slabs and structures. Topsoil shall be replaced to a 6 inch depth in these areas.

Disturbed areas shall be dressed and raked. Lumps, stones, limbs and other debris shall be removed from the work site.

TESTING

Immediately prior to placing the base and/or pavement, the subgrade shall be tested for conformity with the cross section shown on the plans by means of an approved template. If necessary, material shall be removed or added, as required, to bring all portions of the subgrade to the correct elevation. The subgrade shall be then thoroughly compacted and again tested with the template. Pavement and/or base shall not be placed on any portion of the subgrade which has not been tested for correct elevation. The subgrade should also be cleared of any loose material which may have fallen upon it.

The subgrade shall be "proof rolled" with a loaded truck, excavation equipment with rubber tires or other suitable equipment. If unsuitable areas are revealed, the Engineer reserves the right to order subgrade stabilization. If subgrade stabilization is not part of the contract work it shall be considered extra work and a work order and/or change order issued. If subgrade stabilization is part of the contract and the proof rolling reveals unstable areas, the Engineer may order additional stabilization. The additional stabilization will be paid as indicated in the contract unless, in the opinion of the Engineer, the contractor's work was performed improperly or incorrectly.

SEE NEXT PAGE FOR SPECIAL PROJECT REQUIREMENTS

PART IV SPECIAL PROJECT REQUIREMENTS

Applicability: The requirements of this section shall govern excavation and backfill for roadway (street) construction.

Pavement Removal: The existing pavement shall be removed to the extents identified on the plans unless otherwise approved. Pavement removal shall consist of the removal of the existing pavement structure including existing stone base or subgrade to the elevations necessary for the proposed pavement structure, including the stone base. Pavement removal shall be paid for by the square yard. Pavement removal shall be unclassified and could include soil, crushed stone, seal coating, asphalt pavement, PCC pavement, curb and gutter, retaining walls, brick, PCC foundations, manholes, pipes, etc. Only suitable excavated material shall be utilized for embankment construction where required. All excess excavated material shall be disposed of at locations provided by the Contractor. Topsoil shall be salvaged, stockpiled and reused prior to seeding, fertilizing and mulching.

Subgrade: The subgrade shall be prepared by excavating to the required elevations/depths, and scarifying and recompacting the top 6 inches. No soil moisture/density testing for street excavation is anticipated. Contractor shall proofroll subgrade prior to placing the crushed stone base. A representative of the Engineer must be present to witness proofrolling.

Tree Protection: Trees shall be protected from damage to the greatest practical extent.

*** END ***

STANDARD SPECIFICATION FOR SECTION 02485 SODDING AND SEEDING

PART I GENERAL

GENERAL REQUIREMENTS
Applicable portions of Division 1 govern all work under this section. This is a nonspecific project standard specification. See Special Project Requirements at the end of this specification section for specific requirements pertaining to this project.

SCOPE
Provide labor, material, facilities, and administration which is required to furnish and complete all work covered by this section.

SUBMITTALS
Submit product data for review by the Engineer. Submittals shall include information to determine compliance with these specifications.

PART II PRODUCTS

MATERIALS
Seed Quality: All seed shall be labeled in accordance with the U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act in effect on the date of invitation for bids. All seed shall be furnished in sealed standard containers unless exception is granted in writing by the Engineer.

Seed which has become wet, moldy, or otherwise damaged in transit or in storage will not be acceptable. Seed containing noxious weeds will not be acceptable.

The purity and germination of the seed used shall conform to these specifications. Seed bag tags will be used to determine the quality and testing information.

Permanent Grasses:

Grasses	Minimum Seed Purity (%)	Minimum Germination (%)
Kentucky Bluegrass	85	80
Redtop	90	85
Tall Fescue	98	85
Creeping Red Fescue		85

Temporary Grasses:

Grasses	Minimum Seed Purity (%)	Minimum Germination (%)
Rye	97	90
Sudangrass (Non hybrids)	98	85

All seed used shall have been tested within the nine (9) months immediately preceding the date of sowing.

Mulch Materials: Mulch shall consist of clean cereal grain straw, grass hay, or wood chips.

Mulch material shall be in such physical condition to permit uniform application. Mulch material that is in such an advanced stage of decomposition as to smother or retard the growth of grass will not be acceptable.

Mulch material shall not contain an excessive quantity of matured seed or noxious weeds.

Sod: Sod shall be obtained from a commercial nursery or sod farm. The sod shall be started from bluegrass seed for the purpose of selling sod, and shall be from stands seeded not less than twelve months previous to cutting the sod.

The sod shall consist of strips or blocks of Kentucky Bluegrass. All sod material used shall be free of noxious weeds and shall be taken from good, solid, thick-growing stands. Sod grown in peat will not be acceptable.

Bluegrass sod shall be cut in uniform width strips with a uniform thickness of not less than one (1) inch and the strips shall not be less than thirty (30) inches in length. Sod strips shall be cut with smooth, clean edges and square ends to facilitate laying and fitting. The sod shall be mowed to a height not shorter than three (3") inches prior to cutting. Precaution shall be taken to prevent the sod from drying out and to prevent unnecessary exposure of the sod roots to the direct rays from the sun. All sod shall be laid within 18 hours after cutting.

Fertilizer: Fertilizer shall be of uniform composition, free-flowing and suitable for application with approved equipment, delivered to the site in bags or other convenient containers, each fully labeled, conforming to applicable fertilizer laws. Each container shall bear the name, trade-name or trademark and warranty of the producer, unless otherwise approved.

For temporary seedings, fertilizer shall be 10-10-10 grade commercial fertilizer.

For permanent grass seedings, fertilizer shall be 12-12-12 grade commercial fertilizer.

For sodding, fertilizer shall be 12-12-12 grade commercial fertilizer.

The grade of fertilizer shall be identified according to the percent nitrogen (N), percent available phosphoric acid (P_2O_5) and percent water soluble potassium (K_20), in that order.

Water - Water shall be free from oil, acid, alkali, salt and other substances harmful to growth of grass.

PART III EXECUTION

PREPARATION OF SITE

General: Equipment necessary for the proper preparation of the ground surface and for handling and placing all required materials shall be on hand, in good condition, and shall be approved by the Engineer before work is started.

Clearing: Prior to grading and tillage operations, all heavy growth of vegetation of the site which might interfere seriously with grading, tillage, or seeding or sodding operations shall be mowed, grubbed and raked and burned or removed from the site.

Tillage: After the areas have been brought to the grades shown on the drawings, the areas shall be thoroughly tilled to a depth of at least 3 inches by plowing, discing, harrowing, or other approved methods until the condition of the soil is acceptable to the Engineer. Work only during periods when beneficial results are likely to be obtained. When conditions are such, by reason of drought, excessive moisture, and other factors, that satisfactory results are not likely to be obtained, work shall be stopped.

SEEDING - GENERAL

A method of sowing seed satisfactory to the Engineer shall be employed, making use of approved hydraulic, gravity, endgate-cyclone, or hand-cyclone seeders.

The equipment shall have a suitable capacity and working pressure and a nozzle adapted to the type of work. Supply tanks shall have a means of agitation. Tanks shall be calibrated and provided with a calibration stick or other approved device to indicate the volume used or remaining in the tank.

Gravity seeders shall be pulled by a mechanical means, shall provide agitation of the seed, shall have an adjustable gate opening, and shall uniformly distribute seed on the prepared seedbed. The seed hopper shall be equipped with baffle plates spaced not more than 2 feet apart. The baffle plates shall extend from the agitator shaft to within approximately 2 inches of the top of the seed hopper. Wind guards will be required to facilitate seeding when moderate wind conditions exist and when so ordered by the Engineer. Wind guards shall be placed in front or in back (or both) of the seed outlet and shall extend to near the ground line.

The gravity seeder may be used for application of fertilizer.

Endgate-Cyclone seeders shall be suitably mounted. Movement shall be provided by mechanical means. The seed shall drop through an adjustable-flow regulator onto a rotating, power-driven, horizontal disk or fan.

Hand-Cyclone Seeders shall be carried by the person dispensing seed. The seed shall drop through an adjustable-flow regulator onto a rotating, hand-driven, horizontal disk or fan.

When delays in operations carry the work beyond the most favorable planting season for the species designated, or when the conditions are such, by reason of drought, high winds, excessive moisture, or other factors, that satisfactory results are not likely to be obtained, the work shall be stopped. The work shall be resumed only when conditions are favorable again, as determined by the Engineer.

Unless otherwise specified, immediately after the seeding operations, the entire area shall be compacted by means of a cultipacker, roller, or other approved equipment weighing 60 to 90 pounds per linear foot of roller. If the soil is of such type that a smooth or corrugated roller cannot be operated satisfactorily, pneumatic roller (not wobble wheel) will be required. The pneumatic roller shall have tires of sufficient size so that complete coverage of the soil surface is obtained. When a cultipacker or similar equipment is used, the final rolling shall be at right angles to the existing slopes to prevent water erosion or at right angles to the prevailing wind to prevent dust.

The area shall be protected against traffic or other use by erecting the barricades immediately after seeding is completed or by placing warning signs.

The seeded areas shall be watered and the soil kept moist (no cracking) until project acceptance, transfer of watering responsibility, or sufficient grass growth and rain.

TEMPORARY GRASS SEEDING

Temporary grass seedings are required to protect areas from erosion for short periods when it may not be feasible to apply a surface mulch. For temporary seedings, fertilizer shall be applied at the rate of 600 lbs./ac. or 15 lbs./1000 sq. ft., using 10-10-10 grade.

Seedbed Preparation: All rills and erosion damages shall be repaired before seedbed preparations begin. All rocks, tree roots, and other undesirable materials that would interfere with seeding operations shall be removed.

A friable seedbed free of clods shall be prepared to a depth of three inches on all areas where field machinery can be used. All weeds and/or previously sown temporary seeding shall be killed. Areas not accessible to field machinery shall be prepared by hand to a depth of one and one-half inches.

Seeding: Temporary seedings must be made during seasons when the seed will grow and provide the expected cover. All seeding times shall be approved by the Engineer.

Rye shall be used between March 1 and May 20 and between July 21 and October 1 at a seeding rate of 2 1/2 bu. per acre or 3.0 lbs./1000 sq. ft. at a planting depth of 1 to 2 inches.

Sudangrass shall be used between May 21 and July 20 at a seeding rate of 40 lbs. per acre or 1.0 lbs./1000 sq. ft. at a planting depth of 1 to 2 inches.

Apply seed uniformly with a cyclone seeder or hydroseeder (slurry includes seed and fertilizer.)

PERMANENT GRASS SEEDINGS

All final grading and sloping with required surface drainage shall be completed before seeding operations are commenced.

For grass seedings, fertilizer shall be applied at the rate of 800 lbs. per acre or 20 lbs. per 1000 sq. ft., using 12-12-12 grade.

Seedbed Preparation: The area to be seeded shall be relatively smooth, and all washes and gullies shall be filled.

Areas accessible to field machinery shall be thoroughly worked to a depth of not less than 3 inches while incorporating fertilizer.

Areas inaccessible to field machinery shall be prepared by hand to a depth of not less than 2 inches. After seedbed preparation has been completed, the Contractor shall pick up and dispose of all debris, including stones, boulders, logs, stumps, cable, or other foreign material that will interfere with the seeding operation.

Seeding: Permanent grass seedings must be made during seasons when the seed will grow and provide expected cover. Avoid midsummer seeding unless the areas can be mulched and irrigated. All seeding times shall be approved by the Engineer.

Seed early in Spring, March through May, and early in Fall, August through September.

For soils that are somewhat poorly drained with high moisture holding capacity and may not be tiled but surface drainage prevents standing water, then use a seed mixture of 80% (by weight) of Kentucky Bluegrass and 20% Redtop. The seeding rate shall be 2.5 lbs. per 1000 sq. ft. For soils that are sandy or shallow to sand or bedrock, excessively drained or droughty soils, use a seed mixture of 30% Kentucky Bluegrass and 70% Creeping Red Fescue. The seeding rate shall be 2.5 lbs. per 1000 sq. ft.

For soils that are moderately deep to deep, moderate to well drained, medium textured soils, use 60% Kentucky Bluegrass and 40% Creeping Red Fescue. The seeding rate shall be 2.5 lbs. per 1000 sq. ft.

Annual rye grass at the rate of 10 lbs. per acre may be seeded with permanent grass seed only during the spring seeding period and on those areas where a quick cover to reduce erosion is needed with approval of the Engineer.

All seed shall be applied uniformly using approved methods.

MULCHING

Mulch shall be applied and anchored when protection is needed during construction periods for erosion protection when the area is not finished to a final grade.

Mulch shall be applied and anchored to seeded areas to prevent potential erosion immediately after the area is seeded in areas required and areas designated in the Special Project Requirements or on the drawings.

Mulch material shall be in such physical condition to permit uniform application.

All areas to be mulched shall be reasonably smooth, and free of rills and gullies.

Rate of Mulch: Straw or hay shall be applied at a rate of 2 tons per acre or 90 to 100 lbs. per 1000 sq. ft.

Wood chips shall be applied at a rate of 10 to 15 tons per acre or 500 to 600 lbs. per 1000 sq. ft.

Anchoring the Mulch: Light chaffy material, including hay and straw, shall be anchored immediately after application.

Hay and straw shall be anchored using an anchoring tool that has a serrated straight disk that punches mulch into the ground to a depth of approximately 2 inches.

Heavy materials including wood chips shall be disced in lightly before firming and seeding.
Mulching is required on all slopes greater than 5 to 1. The mulch shall be spread uniformly in a continuous blanket. The mulching material, if too long and brittle for proper securing to the surface soil, shall be cut by an ensilage cutter or other equipment to lengths of not more than 8 inches and watered as needed before spreading to assure proper securing of mulch into the soil.

The mulch shall be spread by hand or by use of a manure spreader or other approved suitable equipment. Mulching shall be started at the windward side of relatively flat areas or at the upper part of a steep slope and shall continue uniformly until the area is completely covered. Bunching of mulch shall be avoided to prevent destruction of young plants by excluding light and air.

SODDING

Sodding shall be done in areas as indicated in the Special Project Requirements or shown on the contract drawings.

Sodding shall be done during April 1 to June 30 and August 1 to November 15.

Fertilizer shall be mixed into the surface soil of the sodbed at a rate of 15 lbs. per 1000 sq. ft. using 12-12-12 grade commercial fertilizer.

Sod shall be carefully placed in rows or strips at right angles to the centerline of any channel (i.e., at right angles to the direction of flow.) The sod strips shall be placed together tightly so that no open joints are left between strips or between the ends of strips. Joints between the ends of strips shall be staggered at least one foot on adjacent rows of sod.

The edges of the sod at the top of slopes shall be turned slightly under and a layer of soil compacted over the edge so as to conduct surface water over and onto the top of the sod. The soil shall be firmed along the edge of the sodbed area. The adjacent disturbed area shall be shaped and smoothed to allow surface water to flow into any sodded flume or valley. The sod shall be well tamped and shall remain firmly in place.

Wire stakes shall be placed across each horizontal joint at a spacing interval of not more than 2.0 feet. Wire stakes shall be in the form of staples and shall have a 6 inch (6") flat spread on the top of the sod. The legs shall be at least 6 inches (6") in length. The minimum diameter of the wire shall be 0.145 inches. Staples should be removed before mowing operations commence.

Sodding shall begin on the downstream end of each section and shall proceed upstream, or at the bottom of the slope and laying the sod to the top of the slope.

Watering Sod: In the absence of adequate rainfall the sod shall be watered according to the following schedule. Six waterings shall be required after the sod is laid. The first watering shall be within one hour after laying the sod. The second, third and fourth

watering shall be at 4-day intervals following the first watering. The fifth and sixth watering shall be a weekly interval following the fourth watering.

All water shall be applied as a spray or dispersion to prevent runoff or damage to the sod and will allow soaking the sod and sodbed to a depth of 4 inches. Newly seeded areas of soil disturbed while sodding will be watered in the same manner as the sodded area.

MAINTENANCE

The seeded and sodded areas shall be maintained until all work on the entire contract has been completed and accepted. Maintenance shall consist of providing protection against traffic by erecting barricades and placing approved warning signs on the various areas, mowing all tall grass and weeds that tend to smother the desired grass species, and repairing the areas damaged as a result of these operations.

If at any time before completion and acceptance of the entire work covered by this contract, any portion of the surface becomes gullied or otherwise damaged after any part of the area has been sodded or seeded, the affected portion shall be repaired to reestablish the condition and grade of the soil prior to sodding or seeding and shall then be resodded or reseeded as specified.

SEE NEXT PAGE FOR SPECIAL PROJECT REQUIREMENTS

PART IV SPECIAL PROJECT REQUIREMENTS

Application: The requirements of this section shall govern seeding, fertilizing and mulching associated with construction of the project.

Locations: All areas disturbed by construction activities that are not proposed to be granular surfacing, pavement or structures shall be restored and seeded.

Topsoil: Contractor shall strip, stockpile and respread topsoil in all areas to be seeded. Quantities for topsoil stripping, stockpiling and respreading are included in the Topsoil: Strip, Salvage and Spread (4" Thickness) bid item and will be paid for by the lump sum.

Seeding, Fertilizing, and Mulching: All permanent seeding, fertilizing and mulching shall be done according to Illinois Department of Transportation Standard Specifications for Highway and Bridge Construction, Section 250. Seed shall be Class 1A, mulch shall be Method 3, and no agricultural ground limestone is required for fertilizer.

Watering: The Contractor shall be responsible for watering the seeded areas as necessary for the full establishment of the grass as determined by the Engineer. Watering is to be incidental to seeding, fertilizing and mulching.

Payment: All costs for Seed, Fertilize & Mulch shall be paid for by the lump sum.

*** END ***

DIVISION 2 - SITE WORK

STANDARD SPECIFICATION FOR
SECTION 02486
EROSION AND SEDIMENTATION CONTROL
NPDES STORM WATER POLLUTION PREVENTION PLAN

PART I GENERAL

GENERAL REQUIREMENTS

Applicable portions of Division 1 govern all works under this section. This is a nonspecific project standard specification. See Special Project Requirements at the end of this specification section for specific requirements pertaining to this project.

Reference to materials or systems herein by name, make or catalog number is intended to establish a standard of quality and not to limit competition; the words "or equal" are implied following each brand name. See Division 1.

SCOPE

Provide all labor, materials, equipment, operations, facilities and administration necessary to furnish and complete all work covered by this section.

NPDES POLLUTION PREVENTION PLAN

This specification section is intended to provide the basis for a NPDES Pollution Prevention Plan. Site specific requirements for each project are found in Part IV Special Project Requirements. The Contractor shall provide supplemental information as required by permit requirements for each project.

A site description of the project is included in Part IV Special Project Requirements.

The erosion and sedimentation controls for this project will be structural and non-structural controls as specified in this specification and the Project Erosion and Sedimentation Control Plan.

The potential sources of pollution for this project are silts and sediments generated on site by construction activity and various building materials which may be transported as a result of a storm event. However this project may provide conveyance for other non-project related operations which may potentially contain various pollutants related to site specific land uses such as runoff from agricultural land use possibly containing herbicides, pesticides, fungicides, and fertilizers containing nitrogen, phosphate, potash and various trace elements; runoff from commercial and industrial land use possibly containing constituents associated with the specific operation such as potential leaks and spills of materials which are not readily available since they are typically proprietary. The runoff of this off site water sources could commingle with runoff from this project.

The Contractor shall dispose of unused construction materials demolition and construction material wastes according to requirements of local and state waste disposal regulations. All materials to be disposed shall be subject to the requirements of this specification until they are removed from the site.

The Contractor is to maintain all erosion control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract and maintenance period.

The Contractor shall inspect all erosion control measures weekly and immediately following every rainfall of 1/2 inch or more. A written report of all inspections shall be maintained by the Contractor on site throughout the duration of the project and maintained as required by applicable regulations.

Non-storm discharges may occur from subsurface drains incorporated into the project. These discharges will be controlled by stabilized outlets or discharged into storm sewers.

The Contractor shall maintain the following records: Dates when major grading activities occur; dates when construction activity temporarily or permanently cease on a portion of the site; dates when stabilization measures are initiated. Inspection reports shall include the name of the inspector, qualifications of the inspector, measures/areas inspected, observed conditions, changes to the SWPPP, and dates of inspection.

Report releases of reportable quantities of oil or hazardous materials if they occur.

Prepare final inspection report when all soil disturbing activities are complete, including removal of all temporary erosion control measures, or when they will be removed, and when the areas of the construction site not covered by permanent pavement or buildings have been stabilized with a uniform perennial vegetative cover with of density of 70% of final density. This will effectively be the end of the permit requirements and the Contractor shall notify the Owner, Engineer and appropriate regulatory authority.

PART II PRODUCTS

SOIL FILTER SAND

Soil filtering material shall be clean concrete sand meeting the gradation requirements of ASTM C-33 fine aggregate. This material to be placed as interface between natural soil and CPE drain tile.

GRAVEL AND FILTER STONE

Gravel filter stone shall be clean stone, nominal 1/2 inch to 3/4 inch size with 90% passing #16 sieve. All gravel filters are to be supported by 1/2 inch galvanized wire mesh or macadam stone.

Macadam stone shall be clean stone with 100% passing the 3 inch screen and 100% retained on the 3/4 inch screen.

Erosion stone shall be clean stone with 100% passing the 9 inch screen and 100% retained on the 3 inch screen. Approximately 50% of the stone shall be smaller than 6 inch nominal size, and 50% larger than 6 inch.

RIPRAP

Riprap shall be broken limestone, dolomite or quartzite.

The stone shall not materially disintegrate under action of air or water. To determine this characteristic, the Engineer may consider the percentage of wear as determined in accordance with AASHTO T96 or may consider visually a weathered quarry face or other aggregate weathering.

The material may be taken from blasted rock with no additional processing necessary, but the method of loading shall be such that assures reasonable compliance with the requirements for each load. After visual inspection and prior to loading, if the Engineer designates material as too fine or too coarse, the Engineer may require material to be loaded from another area.

Riprap shall be a uniformly graded material. Unless otherwise approved, riprap shall have a nominal maximum size of 12 inches and no more than 5% passing the 1/2 inch sieve. The following gradation shall be followed:

Percent by weight	Size
100	less than 12"
50 - 80	less than 8"
25 - 50	less than 5"
10 - 30	less than 2"

Riprap filter stone for beneath the riprap stone shall have the following gradation:

Percent by weight	Size
100	less than 2"
40 - 60	less than 1/2"
0 - 5	No. 100 sieve

ENGINEERING FABRIC AND SILT FENCE

Engineering fabric, filter fabric or geotextiles used for embankment erosion control under riprap or silt fencing shall be a woven or nonwoven synthetic material formed into a stable network such that the filaments or yarns retain their relative position to each other. The material shall be made of polypropylene, UV stabilized, be mildew, rot, insect, and rodent resistant, and be inert to commonly encountered chemicals found in soil. During all periods of shipment and storage, the fabric shall remain wrapped in a heavy-duty protective covering to protect the fabric from direct sunlight, ultraviolet rays, mud, dirt, dust and debris. The fabric shall be free of defects, or flaws which significantly affect its physical properties. A competent laboratory must be maintained by the producer of the fabric at the point of manufacture to insure quality control. Each roll of fabric in the shipment shall be labeled with a number or

symbol to identify that production run. Silt fence fabric shall contain or be treated with ultraviolet stabilizers sufficient to prevent damaging deterioration for two years of outdoor exposure. The fabric shall also meet the following requirements:

Property	Value	Test Method
Embankment Erosion Control		
Grab strength, wet, lb.	115 lb. minimum	ASTM D 1682
Elongation, wet, %	20 lb. minimum	ASTM D 1682
Equivalent Opening Size,	50-140 mesh	C.O.E. W-02215
Light Duty Construction Entrance Underliner		
Grab strength, wet, lb.	200 lb. minimum	ASTM D 1682
Elongation at failure, %	50 lb. minimum	ASTM D 1682
Mullen Burst Strength, lbs	190 lb. minimum	ASTM D 3786
Puncture Strength, lbs.	40 lb. minimum	ASTM D 751 (modified)
Equivalent Opening Size,	40-80 mesh	C.O.E. W-02215
Heavy Duty Construction Entrance Underliner		
Grab strength, wet, lb	220 lb. minimum	ASTM D 1682
Elongation at failure, %	220 lb. minimum	ASTM D 1682
Mullen Burst Strength, lbs	430 lb. minimum	ASTM D 3786
Puncture Strength, lbs.	125 lb. minimum	ASTM D 751 (modified)
Equivalent Opening Size,	40-80 mesh	C.O.E. W-02215
Silt Fence		
Grab strength, wet, lb.	100 lb. minimum	ASTM D 1682
Mullen Burst strength, psi	200 psi minimum	ASTM D-3786
Grab strength, lb.	100 lb. minimum	ASTM D 1682
Grab strength, lb. after 500 hrs. in a Q-U-V weatherometer with a cycle of 16 hrs. ultraviolet @ 55 C and 8 hrs. condensation @ 45 C	35 lb. minimum	ASTM D 1682
Minimum width	36 inches	

Steel fence posts for the silt fence shall be of a T cross section and weigh a minimum of 1.3 pounds per foot exclusive of the anchor plate. Posts shall be painted and be a minimum 5 foot length.

Cord for securing the top of the silt fence shall be of a material compatible with the silt fence and shall not stretch under loads created by the silt fence. Normal woven wire fencing may be used in lieu of cord for supporting silt fence.

CORRUGATED POLYETHYLENE PIPE AND FITTINGS

Perforated and solid wall pipe (tubing) and fittings shall be corrugated polyethylene (CPE) manufactured in accordance with ASTM F405 in sizes 3 to 6 inch (3 to 10 inch AASHTO M252) or ASTM F667 in sizes 8 to 24 inch (12 to 26 inch AASHTO M294). Perforated CPE pipe surrounded by natural soils or sand shall be enclosed in a geotextile filter fabric (sock filter) of a type recommended by the pipe and/or geotextile material manufacturer.

FERTILIZER

Fertilizer shall be uniform composition, free-flowing and suitable for application with approved equipment, delivered to the site in bags or other convenient containers, each fully labeled or with written certification, conforming to applicable fertilizer laws. Each bag or certification shall bear the name, tradename or trademark and warranty of the producer.

Fertilizer shall be 15-15-15 grade commercial fertilizer. The grade of fertilizer shall be identified according to the percent nitrogen (N), phosphoric acid (P_20_5) and potassium (K_20).

SEED

The seed shall have the following purity and germination.

Seed	Purity	Germination
Rye (Cereal)	97%	90%
Ryegrass	97%	85%
Sudangrass	97%	85%
Oats	97%	90%
Brome Grass	90%	85%
Reed Canarygrass	98%	70%
Kentucky Bluegrass	85%	80%
Kentucky Fescue	98%	85%

Seed shall be clean and relatively free of all other weed seed. Seed of lesser purity and/or germination will be considered for use by the Engineer; however, planting rates will be adjusted.

MULCH

Mulch shall be clean oat straw free of noxious weeds unless other materials are approved.

DITCH CONTROL MATERIAL

Ditch erosion control material shall be of jute mesh, wood excelsior mat, or geotextiles conforming to Illinois DOT specifications, or as indicated on the drawings or Part IV Special Project Requirements.

PART III EXECUTION

Earthwork shall be as required in Section 02210, General Earthwork. All permanent erosion control features shall be incorporated in the project at the earliest practicable time. Temporary sedimentation control features shall be constructed at locations as shown on the plans or as directed by the Engineer. Temporary sedimentation control features shall be removed only after permanent features are in place and all vegetative and structural stabilization completed. Sediment trapped by control features shall be uniformly spread and stabilized or removed from the site as directed by the Owner or the Engineer. Place silt fence downstream of soil stockpiled materials before beginning grading.

Surface runoff shall be diverted by diversion dikes and channels. Dikes and channels shall be adequately protected against erosion by use of ditch checks and check dams. Diversion dikes and channels shall be located as indicated on the plans and at the top of all slopes draining more than 50 feet from the top of the slope.

All areas which are disturbed, including stockpiles, where construction activity temporarily ceases for at least 21 days will be stabilized with seed, mulch, stone, geotextiles, no later than 14 days from the last construction activity in that area. Areas which are to be paved shall be stabilized by placement of the paving base course. All stockpiled materials, such as topsoil, shall be stabilized with temporary seeding as soon as stockpiling is complete.

CONSTRUCTION ENTRANCE: Refer to Figure 1

Installation

All construction traffic shall ingress and egress from the construction site at an approved construction entrance location in order to reduce the amount of mud tracked onto paved public roads by vehicles. The area of the entrance shall be excavated a minimum of 3 inches and cleared of all vegetation, roots and other unsuitable material. Filter fabric shall then be placed the full width and length of the construction entrance. The construction entrance shall be a minimum of 50 feet long for light duty entrances (mostly single axle vehicles or occasional multi-axle truck) or a minimum of 70 feet for heavy duty entrances. Place 6 inches of 3 inch macadam stone over the entire length and width of the construction entrance.

Maintenance

The entrance shall be maintained in a condition which will prevent tracking or flow of mud onto public pavements. This may require periodic top dressing with additional stone or washing and reworking of existing stone to maintain its effectiveness. The use of water to remove materials dropped, washed or tracked onto roadways will not be permitted.

STRAW BALE BARRIER: Refer to Figure 2

Installation

A straw bale barrier is a row of entrenched anchored straw bales to intercept and detail small amounts of sediment and decrease the velocity of sheet flows. Straw bales shall not be used in areas of concentrated flow.

Bales shall be placed in a single row, lengthwise on a contour of constant elevation with the ends of adjacent bales tightly abutting one another. All bales shall be either wire-bound or string-tied. Straw bales shall be set on the sides so that the bindings are oriented around the sides to prevent deterioration of the bindings.

The barrier shall be entrenched and backfilled. A trench shall be excavated the width of the bale and the length of the barrier to a minimum depth of 4 inches. Each bale shall be secured in the trench with at least two stakes (wood 2x2's or steel T posts weighing at least 1.33 pounds per foot) driven through each bale and 18 inches into the ground. The first stake in each bale shall be driven toward the previously laid bale to force the bales together. Gaps between bales shall be chinked with straw to prevent water from escaping between bales. Loose straw scattered above the barrier tends to increase efficiency. After bales are staked and chinked, the excavated soil shall be backfilled against the barrier and built up 4 inches against the uphill side of the barrier.

Maintenance

Inspection shall be frequent and repair of barrier shall be made promptly. Close attention shall be paid to water end runs and undercutting beneath bales. Sediment shall be removed when the level of deposit reaches approximately one-half the bale height.

SILT FENCE: Refer to Figure 3

Installation

Installation shall, unless otherwise approved, conform to Illinois DOT Standards.

Steel T posts shall be driven in straight or gently curving lines at a maximum spacing of 8 feet. Post spacing in ditch checks and around drainage structures shall not exceed 5 feet. Engineering fabric shall be placed on the upstream side of the support posts supported by top cord or woven wire fence and terminated on the bottom in a minimum 8 inch trench. The trench shall be backfilled with compacted native soil after the installation and stretching of the fabric. The fabric shall be attached to each post at the top of the fabric in such a manner to resist wind and water pressures during the life of the fabric material. Fabric used for ditch checks shall extend across the full width of the ditch and the ends of the ditch check shall be 2 inches higher than the rest of the fabric at the ditch check to prevent water from running around the end of the check.

Maintenance

Inspection shall be frequent and repair of barrier shall be made promptly. Close attention shall be paid to water end runs and undercutting beneath the fence. Sediment shall be removed when the level of deposit reaches approximately one-half the barrier height. If the fabric should decompose or become ineffective prior to completion of permanent stabilization, the fabric shall be replaced promptly.

INLET PROTECTION

Installation

Silt Fence Drop Inlet Protection Refer to Figure 4

Silt fence shall be cut from continuous rolls to avoid joints. Construct a wood frame with a continuous top member fastened to the silt fence with staples or wire. This will provide a weir for overflow into the inlet without collapse of the silt fence. Stake frame with 2x4's driven 18 inches into the ground at a maximum spacing of 3 feet. Set wood frame level at approximately 18 inches above grade around inlet to be protected. Place fabric in a 12 inch deep trench around the frame and backfill with compacted native materials. If joints are necessary, fabric must be lapped the full distance to the next stake. It may be necessary to build a temporary dike on the downstream side of the inlet to prevent bypass flow.

Gravel and Wire Mesh Inlet Sediment Filter Refer to Figure 5 and Figure 6

Wire mesh shall be a lid over the inlet so that the wire extends a minimum of 1 foot beyond each side of the opening. Place gravel filter stone over the wire mesh so that it is approximately 12 inches thick and extends 18 inches beyond the edges of the opening. Clean or replace stone as necessary to prevent long term ponding.

1. If the inlet structure is in place such that the water cannot drain because structure top is above the temporary grade, provide an inlet protection by one of three methods:

2. Place small hole (1 inch to 3 inches) in outlet structure a minimum of 6 inches below grade, cover with wire mesh and backfill with gravel filter stone.

3. Place 4 inches perforated CPE drain tile (with sock filter) vertically along side of structure backfilled with concrete sand. Terminate bottom of drain tile inside the inlet structure near lowest flowline elevation of the structure outlet. Terminate the top of the drain tile with a manufactured cap near the elevation of the upper level of the base course.

4. Place 4 inches perforated CPE drain tile (with sock filter) bleeder drains extending 10 feet out horizontally from the outlet structure, placed at .5% grade to drain into the outlet, starting 6 inches below bottom of paving base course. Place 4 drains at right angles to each other in structures in open parking areas, 3 drains in structures in curb and gutter sections (2 under gutter in opposite directions and 1 out into paving area).

BLOCK AND GRAVEL CURB INLET FILTER Refer to Figure 7 and Figure 8

Place concrete masonry units lengthwise on their sides, such that water can flow through the open cells, in a single row around the perimeter of the inlet with the ends of adjacent blocks abutting. The block barrier should be a minimum of 12 inches high, but no more than 24 inches high. Place 1/2 inch wire mesh over the outside vertical face of the concrete blocks and backfill with gravel filter stone to the top of the barrier.

Maintenance

Sediment shall be removed and the filter restored to its original dimensions when sediment has accumulated to one-half of the height of the barrier. Removed sediment shall be removed from the area and disposed of such that it will not erode. Structures shall be removed when the area is stabilized.

CULVERT INLET PROTECTION: Refer to Figure 9 and Figure 10

Installation

Place a sediment filter at inlets to drainage culverts and detention basin outlet structures to protect storm sewer and culvert pipes. Silt fence may be used for drainage areas up to 1 acre, areas larger than 1 acre require a stone combination inlet. Inlet protection shall be placed approximately 6 feet from the end of the culvert in a "horseshoe" shape. The stone option shall be constructed of a 2.5 foot high berm of macadam stone (3 inch) faced with a 12 inch minimum of gravel filter stone on the face away from the culvert.

Where indicated on the plans, construct a culvert inlet sediment trap. The inlet protection shall be constructed of a minimum 3 foot to a maximum of 5 foot high berm of erosion stone (6 inch) faced with a 12 inch minimum of gravel filter stone on the face away from the culvert. Place the toe of the stone berm a minimum of 2 feet from the end of the structure to allow flow over the berm in the case of a large storm event. Excavate or allow a combination of wet and dry storage area of 3600 cubic feet per acre of drainage area below the top of the stone berm for sediment storage. Wet detention (storage volume below bottom of stone berm and culvert flowline) should be a minimum of 1.5 feet deep to allow for long term settling, and should be 1/4 to 1/2 of the total required detention.

Maintenance

Inspect and replace dislocated or sediment clogged stone or fabric. Clean out sediment and restore to original dimensions when trap becomes 1/3 full.

DIVERSION DIKE AND DIVERSION CHANNEL Refer to Figure 11

Construct a compacted earth berm at least 18 inches high next to adjacent grade or channel which will carry surface water diverted by the channel/berm combination. Diversions may be permanent or temporary, depending on their location and intent to either divert sediment laden water into control facilities or divert uncontaminated water from coming onto the disturbed area. Diversion dikes must be installed as one of the first steps in erosion control of land disturbing activities. The berm shall be compacted thoroughly to prevent failure during storm events and immediately stabilized by temporary seeding or stone over filter fabric. Stone may be either macadam or erosion stone depending on the drainage area and longitudinal slope of the channel and the water velocity.

Diversions to divert water running onto the side must be constructed first and directed as shown on the plans. Temporary diversions must be constructed and reconstructed continuously at the tops of fill slopes to divert water from running over the surface of the slope during the placement of fill. Permanent diversions to reduce slope length and provide permanent diversions should be constructed as necessary during the development of the site and should be stabilized as soon as finished.

TEMPORARY SLOPE DRAIN: Refer to Figure 12

Installation

Place temporary slope drains from the top to the bottom of cut of fill slopes to safely conduct water down the face of the slope without causing erosion on or below the slope. The slope drain shall consist of a corrugated metal standard flared end section and a short length of pipe to extend through the diversion dike embankment. A watertight transition coupling shall be installed to connect the corrugated metal pipe to a flexible tubing running down the slope. The flexible tubing can be corrugated metal, corrugated CPE, or collapsible tubing designed for this purpose. If collapsible tubing is used, reinforce holddown grommets shall be spaced at 10 foot centers.

The flared end section and metal pipe through the berm shall be compacted in 8 inch lifts to prevent failure from ponding, saturating alongside the pipe and seepage alongside the pipe. The entrance section shall be set to slope toward the outlet at the rate of 1/2 inch per foot. All connections shall be securely fastened and have watertight fittings. For temporary slope drains which are not going to be moved for the duration of the project, install check dams or other inlet protection just upstream of the slope drain. Outlet protection shall be installed at the bottom end of the slope drain.

Slope drains shall sized according to the following unless indicated otherwise: .5 acres and smaller: 12 inches; .5 to 1.0 acres: 15 inches; 1.0 to 1.5 acres: 18 inches; 1.5 to 2.5 acres: 21 inches; 2.5 to 3.5 acres: 24 inches, no drainage areas larger than 3.5 acres.

Maintenance

The slope drain structures must be inspected regularly and repaired as necessary. Inlet and outlet protection must be cleaned restored regularly.

SEDIMENT TRAP: Refer to Figure 13

Installation

Sediment traps shall be installed where indicated on the plans. The embankment should be constructed of compacted fill with a stone outlet, using acceptable fill materials. The stone outlet section shall be constructed of a minimum 3 foot to a maximum of 5 foot high berm of erosion stone (6 inch) faced with a 12 inch minimum of gravel filter stone on the face which will accumulate sediment. Place the toe of the stone berm a minimum of 2 feet from the end of the structure to allow flow over the berm in the case of a large storm event. Excavate or allow a combination of wet and dry storage area of 3600 cubic feet per acre of drainage area below the top of the stone berm for sediment storage. Wet detention (storage volume below bottom of stone berm and culvert flowline) should be a minimum of 1.5 feet deep to allow for long term settling, and should be 1/4 to 1/2 of the total required detention. The earthen embankment shall be stabilized with temporary or permanent vegetation immediately after installation.

Maintenance

Inspect and replace dislocated or sediment clogged stone or fabric. Clean out sediment and restore to original dimensions when trap becomes 1/3 full.

DRAINAGE MANHOLE SEDIMENT TRAP: Refer to Figure 14

Installation

A drainage manhole sediment trap is to be located as indicated on the plans. The intent of this design is to use the permanent manhole structure as a temporary sediment trap in a sequential construction of the manhole as the fill is brought up. The lower section of storm sewer to the manhole base is to be constructed just after the fill section is beginning to be placed so the pipe can installed in a trench condition with the trench at least 1.5 times the pipe diameter above the top of the pipe. The manhole must be set with a 6 inch CPE drain tile outletting into the base of the manhole. The CPE drain tile should be long enough to reach to the top of the finish grade of the manhole, installed vertically alongside the manhole. The CPE drain tile should be placed alongside the manhole and backfilled with gravel filter stone to the top of the manhole as each section is placed.

The fill must be placed such as the drainage off the site at the top of the fill section is directed to the manhole, including diversion dikes at the top of the slope as necessary. The top of the manhole at each stage should be no less than 18 inches above the adjacent grade and no more than 6 feet above adjacent grade. The edge of the fill at the top of the slope should be no less than 2 feet above the top of the manhole (except near finish grade), and no more than 8 feet above the manhole until another section of manhole is added and the 6 inch CPE drain tile backfilled upward alongside the manhole.

As the fill is placed and the manhole section extends one section at a time while the fill is brought up, the 6 inch CPE drain tile may be coiled and dropped inside the manhole until the next section is ready to be placed. The backfill of gravel filter material need only be placed immediately beside the pipe as each section is placed. At the top, the CPE drain tile must be capped with a manufactured fitting. After the manhole has been constructed to full height, stabilize the fill area contributing to the manhole and employ inlet protection as specified previously.

Maintenance

Clean sediment as necessary to continue fill placement on suitable material. Wet, unstable or similar material which does not meet compaction requirements of the fill shall be removed and stabilized or disposed of, even if it did pass compaction requirements prior to becoming unstable. Plugged gravel filter stone shall be removed prior to the placement of the next lift of fill material, which generally should only be the surface of the stone after hard rains.

OUTLET PROTECTION: Refer to Figure 15

Installation

Outlet protection shall be installed where indicated on the plans. Unless indicated otherwise on the plans or in Part IV Special Project Requirements, the outlet protection shall be 18 inches of riprap placed over suitable filter fabric (type as recommended by the manufacturer for use under riprap) or a 12 inch bed of 1 inch clean stone. The riprap area shall have a width of 3 times the outside diameter of the pipe at the outlet end of the pipe and widen with a taper of 1 foot of extra width on each side for each 2 feet of run away from the end of the pipe. The length of the riprap shall be as indicated on the plans.

Maintenance

Inspect riprap and bedding after each rain to determine if installation is stable. If minor movement of riprap is observed, replace and continue observation. If substantial movement or continuous replacement is required, contact Engineer for corrective measures.

CHECK DAMS

Install check dams where indicated on the plan, or as directed by the Owner or Engineer. Check dams shall be of the type as indicated on the plan. Where the type of check dam is not specified, provide either a silt fence or rock check dam.

Installation

ROCK CHECK DAMS: Refer to Figure 16. When the drainage swale at the location of the check dam is draining 2 acres or less, construct the rock check dam out of 3 inch macadam stone, 3 feet high (or the height of the ditch, whichever is lower) with a sideslopes of 2:1 and the center 6 inches lower than the ends. For areas where the drainage area is larger than 2 acres, place downstream part of dam with erosion stone and face with 3 inch macadam. If sedimentation control is required as indicated on the plans or as directed by the Owner or Engineer, face the check dam with 12 inches of gravel filter material and excavate an 18 inch deep by 20 foot long pit area upstream of the check dam for sediment storage. Excavate the area to receive stone a minimum of 6 inches below the adjacent grade to key in the rock and minimize undercutting by flowing water. Hand or mechanically tamp stone to settle into place.

SILT FENCE CHECK DAMS: Refer to Figure 3. Use only when area drained is less than 1 acre. Place the check dam the full width of the channel with the ends of the check dam terminated in the sides of the channel. The top of the silt fence at the ends shall be 2 inches above the top of the silt fence at the center. Anchor the bottom of the silt fence in a 12 inch deep trench along the full length of the check dam.

SOD DITCH CHECK: Refer to Figure 17. Install sod ditch checks where indicated on the plans. Prepare ditch subgrade to receive sod such that the flowline of the ditch is near the top of the sod to prevent undercutting of the sod by flowing water. Sod strips shall be laid transverse to the direction of water flow and joints between adjacent rows of sod shall be staggered.

Maintenance

Clean accumulated sediment from ditch checks when sediment is 1/3 the barrier height or when the effectiveness of the sod filter is reduced, or sediment chokes the growth of the sod. Water sod as necessary during dry periods until sod is firmly established. Remove silt fence check dams after area is stabilized.

LEVEL SPREADER: Refer to Figure 18 and Figure 19.

Installation

Install level spreaders where indicated on the plans to convert concentrated flow to sheet flow onto areas stabilized by existing vegetation. Level spreaders must be constructed on undisturbed soil. A 20 foot transition section should be formed in the diversion channel upstream of the level spreader to insure more uniform outflow. The entrance to the level spreader must be shaped in such a manner to insure runoff enters directly onto the 0% channel. The level lip of the spreader shall be constructed at 0% grade to insure uniform spreading of the storm water runoff. Plans shall indicate either a vegetated or rigid lip for the level spreader. Protective covering for a vegetated lip shall be 4 feet wide extending 6 feet over the lip and buried 6 inches deep in a vertical trench on the lower edge. The upper edge should but against smoothly cut existing sod and securely held with heavy duty staples. A rigid level lip shall be entrenched at least 2 inches below existing ground and securely anchored to prevent displacement. An apron of gravel filter material shall be placed extending 3 feet downstream of the rigid lip and level with the top of the lip. Place filter fabric under the gravel and wrap with wire mesh if necessary to hold the stone securely in place. Immediately after installation, seed and mulch the entire disturbed area of the spreader.

Maintenance

Do not place any material on and prevent construction traffic across the structure. Inspect after every rainfall to verify integrity of the installation, repair as necessary.

SURFACE ROUGHENING

Provide a rough soil surface with horizontal depressions created by tillage or other suitable equipment on the contour, or by leaving slopes in a rough condition by not fine grading. This rough surface will aid in the establishment of vegetative cover, reduce surface velocity, increase infiltration, reduce erosion and increase sediment trapping. Roughening with tracked machinery is not recommended unless no other alternatives are available. For areas not to be mowed, grooves shall be cut perpendicular to the slope (on the contour). Grooves should be approximately 3 inches deep spaced 12 inches to 15 inches on center. Suggested implements include discs, tillers, spring harrows, or the teeth of a loader bucket. Slopes to be mowed shall be roughened with shallow grooves such as remain after tilling, discing, harrowing, raking, or use of a cultipacker-seeder. The final pass of such tillage equipment shall be perpendicular to the slope (along the contour).

RIPRAP PLACEMENT

Riprap stone shall be placed on the slopes, in drainageways, at inlets or outlets of culverts and at other locations, all as indicated on the plans. Riprap shall be placed after final grading has been completed.

All riprap materials shall be placed over engineering fabric materials unless bedding stone is required in Part IV Special Project Requirements or on the plans. Fabric shall be placed directly on the prepared subgrade in a manner to prevent ripping of the fabric when riprap is placed. The edges of all filter fabric shall be terminated in a 1 foot deep trench at the limits of the riprap placement. All splices in the fabric surface shall be lapped a minimum of 2 feet with the upstream fabric laid over the downstream fabric and securely staked to the subgrade to prevent movement of the fabric during placement of the riprap.

Stone for riprap shall be placed directly on the prepared slope and filter fabric in a manner which will produce a reasonably well-graded mass of stone with a minimum practicable percentage of voids.

Stone for riprap shall be placed approximately 12 inches deep with some roughness on the surface to break up wave action or resist water velocity pressure, but the stone should be reasonably compact.

If specified, the riprap shall be grouted on steep slopes. Grouting will be indicated on the plans or in Part IV Special Project Requirements.

Surface runoff shall be diverted by intercepting ditches. Ditches shall be adequately protected against erosion. Ditches shall be located as indicated on the plans and at the top of all cuts draining more than 50 feet from the top of the cut.

SEEDING AND FERTILIZATION

Seeding and fertilization will be done on the construction site (including any borrow areas) except where soil has been sterilized, buildings or pavements are to be placed in subsequent construction as part of the project or rock applied. Temporary seeding may be used as stabilization on areas in which construction activity is discontinued for 21 days or more.

TEMPORARY SEEDING

Smooth and shape areas to permit the use of conventional equipment for seedbed preparation and seeding where practical. Shape areas to provide surface water drainage and control runoff. On areas where the soil surface is compacted or crusted, prepare the seedbed a minimum of 4 inches deep with disc, field cultivator or chisel plow. Perform cultural operations as close as possible following contours. On exposed subsoils and other naturally infertile soils that have not been topsoiled where temporary seeding will be maintained for longer than 3 months apply 15-15-15 chemically combined fertilizer at the rate of 7 lbs per acre. On sites where the soil pH is lower than 5.5, apply ground limestone at the rate of 3 tons per acre. Apply seed uniformly across the area by drilling, broadcasting, or hydroseeding. Mulching temporary seeding is optional but may be desirable on highly erosive or droughty sites. Mulching without temporary seeding is also an acceptable stabilization method, however it would have to be maintained and replaced continuously until permanent stabilization is installed.

Temporary seeding shall be according to the following:

Species	Lbs.(bu.)/Acre	Lbs./1000 Sq. Ft.	Seeding Depth	Seeding Dates
Perennial Ryegrass	10	0.25	1/2 inch	4/1 to 9/30
Annual Ryegrass	0	0.25	1/2 inch	4/1 to 9/30
Oats	96 (3 Bu.)	2.2	1-1/2 inch	4/1 to 7/1
Rye (Cereal)	85 (1.5 Bu.)	2.6	1-1/2 inch	8/15 to 10/15
Sudangrass	40 (1 Bu.)	0	1 inch	6/1 to 8/15

PERMANENT SEEDING

Organic earth (topsoil) stockpiled from the stripping operation shall be placed so that finished grades are met as indicated on the plans. The remainder of the strippings, if any, shall be placed evenly over borrow areas or in areas approved by the Engineer and shall be machine and/or hand raked as needed. No stockpile of any earth shall remain after construction of the project is completed.

At least forty-eight (48) hours before the sowing of seed, 15-15-15 chemically combined fertilizer applied at a rate of 650 pounds per acre shall be uniformly spread over the topsoil by a mechanical spreader and mixed into the soil for a depth of approximately two inches (2"). The areas shall then be lightly raked or harrowed until the surface of the finished grade is smooth, loose and pulverized.

Seed shall be sown by a mechanical seeder operating in two directions, and lightly raked into the surface. Sowing shall be followed by not less than one complete rolling with a cultipacker. The Contractor shall use care in raking not to destroy the finished grade, nor to disturb uniform distribution of the seed.
The seeded area shall be thoroughly watered with a fine spray in a manner that does not wash out the seed.

Sowing of seed shall be done only within the seasons extending from April 1 to May 31 and from August 15 to September 30, provided weather, soil and moisture conditions are satisfactory for seed germination and growth, unless otherwise approved by the Engineer.

Seed shall be sown on the following dates:

Spring - April 1 to May 31

Winter Rye or Oats	3 bu. per acre
Brome Grass	20 lb. per acre
Fescue	20 lb. per acre
Kentucky Bluegrass	6 lb. per acre

Fall - August 15 to September 30

Winter Rye	2.5 bu. per acre
Brome Grass	20 lb. per acre
Fescue	20 lb. per acre
Kentucky Bluegrass	6 lb. per acre

In ditches, waterways, and areas subject to erosion, Reed Canarygrass shall be added at 10 pounds per acre. Alternate commercial and/or ASCS mixtures may be used if predominately shallow root varieties, as approved by the Engineer.

All seeded areas of slopes shall be mulched as soon as seed is sown and final rolling completed. Mulch shall be evenly and uniformly distributed and anchored into the soil. Oat straw used as mulch shall be applied at a rate of approximately two (2) tons of straw per acre. All accessible mulched areas shall be consolidated by tilling with a mulch stabilizer and slope areas shall be tilled on the contour. Equipment shall be operated in a manner to minimize displacement of the soil and disturbance of the design cross-section.

All seeded areas shall be watered, maintained and patched as necessary until the seeding provides the necessary stabilization and/or as approved by the Engineer. With consideration to weather and rainfall, the Contractor shall be responsible for the seeding through the project guarantee period.

Jute matting, when used shall be installed in accordance with the manufacturer's recommendations. One-half of the specified amounts of seed shall be sown prior to installation of the jute and the remaining seed after installation of the matting. Jute matting shall be applied only on smooth, loose surfaces. After laying, stapling or fastening, and seeding, roll the jute matting to provide proper contact between the soil and the jute.

Excelsior retention blankets and nettings shall be applied in accordance with manufacturer's recommendations. Fertilizer and seed shall be applied before blankets are placed, and mulching applied before nettings are placed. Securely fasten or staple blankets and nettings with a minimum 4 inch lap.

SEE NEXT PAGE FOR SPECIAL PROJECT REQUIREMENTS

PART IV SPECIAL PROJECT REQUIREMENTS

The following information is for this project and supplements the general requirements of the Pollution Prevention Plan:

Application: The requirements of this section shall govern work associated with the pollution prevention plan implementation according to all state and federal regulations for the construction of the project.

1. SITE DESCRIPTION

This pollution prevention plan (PPP) is for the City of Galena Utility Systems Improvements 2019 project.

This PPP covers approximately 2.3 acres being disturbed.

The PPP is located within the Medary and Dorchester soil series. The estimated average runoff coefficient before construction is 0.7. The estimated average runoff coefficient after construction is 0.7.

Runoff from this work will flow into the storm sewer to the Galena River.

POTENTIAL SOURCES OF POLLUTION:
Site sources of pollution generated as a result of this work relates to silts and sediment which may be transported as a result of a storm event. However, this PPP provides conveyances for other (non-project related) operations. These other operations have storm water runoff, the regulation of which is beyond the control of this PPP. Potentially this runoff can contain various pollutants related to site specific land uses. Examples are:

Commercial and Industrial Activities:
Runoff from commercial and industrial land use may contain constituents associated with specific operations. Such operations are subject to potential leaks and spills which could be commingled with runoff from the facility. Pollutants associated with commercial and industrial activities are not readily identifiable since they are typically proprietary.

2. CONTROLS

At locations where runoff can move offsite, erosion control shall be placed along the perimeter of the areas to be distributed prior to beginning grading, excavation or clearing and grubbing operations. Vegetation in areas not needed for construction shall be preserved. As areas reach their final grade, additional silt fences, silt basins, intercepting ditches, sod flumes, letdowns, bridge end drains, and earth dikes shall be installed as specified in the plans and/or as required by the project engineer. This will include using silt fence as ditch checks and to protect intakes. Temporary stabilizing seeding shall be completed as the disturbed areas are constructed. If construction activity is not planned to occur in a disturbed area for at least 21 days, the area shall be stabilized by temporary seeding or mulching within 14 days. Other stabilizing methods shall be used outside the seeding time period. All pollution prevention measures must be implemented as quickly as possible.

This work shall be done in accordance with details in the plan set, or by Section 2602 of the IDOT Standard Specifications when not covered by the details in the plan set. If the work involved is not applicable to any contract items, the work shall be paid for according to Article 1109.03 paragraph B of the IDOT Standard Specifications.

As the work progresses, additional erosion control items may be required as determined by the engineer after field investigation. These items shall be installed by contractor, as directed by the engineer. The contractor will complete the construction with the establishment of permanent perennial vegetation of all disturbed areas.

3. OTHER CONTROLS

Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.

APPROVED STATE OR LOCAL PLANS:
During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

4. MAINTENANCE

The contractor is required to maintain all temporary erosion control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. Cleaning of erosion control devices shall begin when the features have lost 50% of their capacity.

5. INSPECTIONS

Contractor shall note requirement for weekly inspection reports and inspection reports within 24 hours after each rainfall in excess of 0.5 inches. In addition, a final report is necessary. All corrective actions shall be completed within 3 calendar days of the inspection. If seeding is delayed and/or the contractor leaves the site, the contractor may request that the Owner perform inspections until the final stabilization report is completed by the Contractor. Weekly inspection reports must contain the following items: (1) Date, time, and location of inspection; (2) Name and association of individual(s) performing inspection; (3) An assessment of the condition of erosion and sediment controls; (4) A description of any erosion and sediment control implementation and maintenance performed; (5) A description of the site's present phase of construction; (6) Other items pertaining to sedimentation and erosion control as pertinent.

Erosion Control: Erosion control shall conform to the applicable requirements of this section and applicable plan sheets. Erosion control shall consist of temporary mulching of those areas disturbed during grading, and any additional measures necessary to contain sediment within the grading limits. Additional erosion control is identified in the plan drawings. It should be noted that the erosion control identified on the plan drawings are the minimum anticipated measures identified during design. As erosion control is dependent on Contractor practices, the Contractor shall be responsible for determining those additional measures necessary to ensure that erosion and runoff do not adversely affect properties outside the limits of the project. Waste site must also adhere to the Erosion Control requirements as provided in this specification.

Temporary Concrete Washout: Shall be by detail shown in plan drawings. Measurement will be lump sum; no measurement made. Lump sum price includes, but is not limited to, providing concrete wash water containment, collection, and disposal. Location of temporary concrete washout within project limits to be determined by Contractor.

Temporary Construction Entrance: Shall be by detail shown in plan drawings. Measurement will be for each temporary construction entrance installed. Bid item includes removal of construction entrance and restoring area to original condition.

Inlet Protection: Inlet protection shall be by the detail shown in the plan drawings. Engineering fabric placed under the catch basin grate shall not be used.

Erosion Control Inspection: This bid item encompasses the effort the Contractor is required to provide for weekly inspections of the erosion control measures and reporting on those inspections.

Maintenance of Erosion Control Measures: A specific bid item has been provided for the maintenance of each of the erosion control measures. Maintenance shall be required when the particular erosion control installation has lost 50% of its capacity.

EROSION CONTROL INSPECTION REPORT FOLLOWS

*** END ***

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EROSION CONTROL INSPECTION REPORT

Date of Inspection:			Project:
Name of Inspector:			City:
Type of Inspection:	Weekly		State:
	>0.5 Precip.		Project No.
Contractor:			Report No.
Subs:			NPDES Permit

Are all of the temporary and permanent controls contained in the pollution prevention (erosion control) plan or as directed by the engineer in place? ☐ Yes ☐ No If no, why not?

Are temporary and permanent erosion and sediment controls which have been installed operating correctly?
☐ Yes ☐ No If no, what additional controls or adjustments is the contractor hereby directed to install or perform?

Are the erosion and sediment controls being properly maintained? ☐ Yes ☐ No If no, what maintenance is the contractor hereby directed to perform?

Is there tracking of sediment from locations where vehicles enter and leave the project? ☐ Yes ☐ No If yes, describe the location (s) and the actions the contractor is hereby directed to perform.

Have the additional controls adjustments or maintenance directed as result of the last inspection been implemented within seven calendar days? ☐ Yes ☐ No ☐ N/A If no, the contractor is hereby notified that no further work activity will be permitted to take place until the needed corrective measures have been taken.

Location, date and type of corrective action taken for deficiencies listed above.

Other comments:

Inspector

Orig: Project File
Copy: Owner
IIW

STANDARD SPECIFICATION FOR SECTION 02513 HOT MIX ASPHALT PAVEMENT

PART I GENERAL

GENERAL REQUIREMENTS

Applicable portions of Division 1 apply to the work of this section. This is a nonspecific project standard specification. See Special Project Requirements at the end of this specification section for specific requirements pertaining to this project.

Reference to materials or systems herein by name, make, or catalog number is intended to establish a standard of quality, and not to limit competition; the words "or approved equal" are implied following each brand name. See Division 1.

SCOPE

This work shall consist of mixture design, production, placement, and compaction of hot mix asphalt (HMA) mixture using proper quality control practices for the construction of surface, intermediate and/or base course on a prepared sub base, base, or pavement, to the proper dimensions specified in the contract documents. This work shall be performed in accordance with the installation and construction practices generally accepted at this time, at the project location.

The contractor shall be responsible for all aspects of the project, including selection of the Job Mix Formula (JMF), and shall demonstrate quality control by providing quality control management and testing, and by being responsible to maintain the quality characteristics specified. The Engineer shall be responsible for providing quality assurance management, including additional testing when deemed appropriate.

PART II PRODUCTS

MATERIALS

The materials used in preparing the mixture shall meet the following requirements:

a. Asphalt binder shall be performance graded asphalt binder PG 58-28 for base course and PG 64-22 for surface course unless specified otherwise, in the special provisions or in writing by the Engineer, and shall comply with the applicable requirements of AASHTO MP 1.

b. Aggregates for surface course shall meet the requirements of Section 189 and aggregates for intermediate and/or base courses shall meet or exceed the requirements of Section 355 of the “Standard Specifications for Road and Bridge Construction,” Series 2016, Illinois Department of Transportation.

c. Tack coat may be SS-1, SS-1H, CSS-1, CSS-1H or approved emulsified asphalt diluted with water, complying with AASHTO M82 or AASHTO M141. Mixing of CSS and SS grades will not be permitted. RC 70, and MC 70 complying with AASHTO M82, may also be used after October 1, at the contractor’s option.

d. Sand cover for tack coats shall be reasonably well graded sand with 100% passing the 3/8 inch sieve, and not more than 4% passing the No. 200 sieve. It shall be reasonably free of lumps.

ASPHALT AGGREGATE MIXTURE

The Hot Mix Asphalt proportions shall be according to the "Standard Specifications for Road and Bridge Construction", Sections 406-408, Illinois Department of Transportation. The design classification of the roadway will be provided in the Special Project Requirements found in this document. In the absence of the design classification, the JMF shall be proportioned for a minimum of 100,000 ESALS, and the surface, intermediate, and/or base courses shall meet the minimum requirements set forth in Section 1030 for 1/2 inch mixes unless otherwise stated in the Special Project Requirements or in writing by the Engineer.

All materials shall be tested in accordance with standard AASHTO methods or equivalent ASTM methods.

PART III EXECUTION

EQUIPMENT

All equipment used shall be subject to the approval of the Engineer and shall be maintained in satisfactory working condition. All equipment shall be serviced away from the paving site to prevent contamination of the mixture. Units that drip fuel, oil and/or grease shall be removed from the project until leakage is corrected. At the close of each working day, the road bed shall be free of any work equipment.

The equipment shall include, but not be limited to, the following:

1. One or more asphalt mixing plants designed to produce a uniform mixture within the job-mix tolerance.

2. One or more self powered pavers that are capable of spreading the mixture to the thickness and width specified, true to the line, grade and crown shown on the contract drawings and/or stated in these specifications.

3. Enough smooth metal-bed haul trucks, with covers, to ensure orderly and continuous paving operations.

4. A pressure distributor that is capable of applying tack coat and prime material uniformly without atomization.

5. One or more steel-wheeled, pneumatic-tired, or vibratory rollers capable of attaining the required density and smoothness.

6. A power broom or a power blower, or both.

7. Hand tools necessary to complete the job.

8. Other equipment may be used in addition to, or in lieu of, the specified equipment when approved by the Engineer.

All equipment shall conform to the "Standard Specifications for Road and Bridge Construction", Series 2016, Illinois Department of Transportation.

Section 1102 – Hot-Mix Asphalt Equipment
Section 1101 – General Equipment

Calibration: When the plant is completely assembled and before any asphaltic concrete is produced, each cold aggregate feed shall be calibrated throughout a range wide enough to more than cover the proportion of that material required in the job-mix formula. For continuous type plants, the metering pump shall be calibrated at the operating temperature and with the outlet under pressure equal to that occurring in normal operations. Each plant scale and metering system shall be calibrated before work on a project begins. The Engineer may require any scale or metering system to be calibrated before work on a project begins. The Engineer may require any scale or metering system to be recalibrated as operations may indicate it necessary. Each gate of the hot proportioning unit of a continuous type plant shall be calibrated for each size aggregate in pounds per revolution of counter for a range of contemplated gate openings. Calibration curves shall be drawn and posted at the plant laboratory. Calibration will be done by the Engineer unless adequate calibration can be furnished by the Contractor. Mixture samples shall be taken each day to determine whether the materials are proportioned properly. The mixing rate for batch type mixes shall not exceed the rated capacity of the mixer and shall provide uniform coating. The dry mixing time shall not be less than 5 seconds and the wet mixing time shall not be less than 25 seconds. The total mixing time shall not be less than 30 seconds.

PLANT OPERATION

Aggregate Storage: The different sizes of aggregates shall be kept in a separate pile and adequate provisions shall be made to keep them from becoming mixed or contaminated with foreign materials. Stockpiles shall be built as layers and every effort made to prevent them from becoming intermingled. Material shall be so handled as to minimize segregation.

Preparation of Asphalt Binder: The asphalt binder shall be brought to a temperature of 260-330 degrees F. before being measured for mixing with the aggregates. The exact temperature may be regulated by the Engineer based on the mixture, proportion and viscosity of the asphalt cement.

The various aggregates shall be fed separately by feeders to the cold elevator in their proper proportions and at a rate to permit uniform temperature control of heating and drying operations. The dry materials shall be delivered to the mixer at substantially the same temperature as the asphalt cement.

The exact proportions of the various materials shall be regulated within the limits specified so as to produce a satisfactory coating and mixture. The mixer shall be so operated that the mixture is of consistently uniform temperature and as discharged from the mixer, will not vary more than 20 degrees F. from the temperature set by the Engineer.

The temperature of the mix shall range between 260 degrees and 330 degrees F.

APPLICATION OF TACK COAT AND SAND COVER

Actual samples of all materials must be made available to the Engineer in time to permit laboratory tests before the material is used. Materials shall not be used until approval of the Engineer has been given.

Immediately before the tack coat is placed and before placing the HMA, the entire existing surface shall be thoroughly swept and cleaned of all loose or foreign material. Tack coat shall be applied only when the surface on which the coat is to be applied is clean

and free from moisture. Should the tack-coated surface become dirty from weather or traffic, the surface shall be thoroughly cleaned, and if necessary, retacked before any asphaltic concrete is placed upon it at the direction of the Engineer.

Tack coats shall be applied when the entire surface area on which the coat is to be applied is free of moisture. They shall not be applied when the temperature on the surface being covered is less than 25º F (-4ºC).

The Contractor shall place a tack coat on the area to be covered, and unless otherwise directed, the tack coat shall be spread at an undiluted rate of 0.02 to 0.05 gallon per square yare (0.1 to 0.2 L/m²). The tack coat emulsion may be diluted with water to improve application. A light application of sand cover may also be required, but this is anticipated only for excessive application rates, breakdowns, and short sections remaining at the end of the day's run.

The tack coat shall be applied in a very thin but uniform coating. Pneumatic-tired rolling of spotty tack coats will be required in areas of non uniform tack. Under no circumstances should free tack be allowed to run off of the application area.

The Contractor shall carefully paint the face of the curbing, manhole rims, abandoned tracks, and edges of any other utility housing with a tack coat to the elevation of the finished surface. Spot dabbing or excess pouring will not be permitted. The surfaces of all appurtenances will be protected from spattering with any of the materials used in the construction. Tack coats shall be allowed to cure properly before any further operations are permitted on the area.

Not more than a one day run shall be tacked ahead of the laydown machine, unless progress of work warrants more according to the Engineer.

When traffic is to be maintained through the project, the tack coat shall be covered with sand cover at a rate of two to five pounds per square yard. All loose sand should be swept from the base prior to placing additional HMA courses. Contractor shall insure that all necessary traffic control devices are in place in accordance with the traffic control plan. It is the contractor's responsibility to protect the public and his work from damage.

The Engineer may also require the tack coat to be applied less than full width at a time. Care shall be used to avoid excessive application of tack or sand cover at the juncture of adjacent strips.

PLACING THE MIX

Placing, leveling and strengthening courses: The plans will show the thickness of base, intermediate and surface courses to be placed. Any depressions or low areas more than one inch below the bottom of the intended elevation of the bottom of the base course by placement of preliminary leveling courses of asphaltic concrete. Strengthening courses will be placed as indicated on the plans or as directed by the Engineer. These courses shall be of the same mixture specified for base or intermediate courses.

When the depth of leveling or strengthening course is more than three inches, the desired depth shall be placed in approximately equal layers not exceeding three inches of thickness, unless otherwise permitted either in the special provisions or with written permission from the engineer. In placing multiple layers, the layer of the shortest length should be placed first (the lowest part of the depression), with successive layer(s) covering the short ones.

Where the width of any strengthening or leveling layer is eight feet or more, the layer shall be spread by a finishing machine. Other widths and irregular areas may be spread by hand methods. Where leveling or strengthening courses must be featheredged, the coarser aggregate shall be raked out and discarded. Strengthening and leveling courses shall be compacted.

Succeeding layers may be placed as soon as final rolling or tamping on the previous layer is completed.

Succeeding layers of leveling, strengthening, base, intermediate or surface course shall not be placed until the previously placed layer is completed for the full width of pavement.

Placing binder and surface courses: The plans and/or special provisions will show the thickness intermediate and surface courses to be placed. After the base has been prepared and any asphaltic strengthening or leveling courses have been placed and compacted, the succeeding intermediate and surface courses may be placed.

On areas of uniform width, intermediate and surface courses shall be spread with a finishing machine. When placing the mixture, the forward speed of the finishing machine shall be slowed as necessary to provide the least amount of stopping. Where traffic is to be maintained through the work, spreading shall be done in strips approximately one traffic lane in width with one pass of the finished machine. Spreading to the intermediate and surface courses shall be at such a rate that, when compacted, the layer will be substantially of the thickness and dimensions specified on the plans. A string line shall be used as a guide for the finishing machine to maintain edge alignment unless otherwise directed by the Engineer.

Edge alignment irregularities shall be corrected by hand methods immediately after they occur. When the edges of intermediate or surface courses are required to be sloped 45 degrees from the vertical, this edge shall be smoothed and compressed by the finishing machine.

The mixture temperature shall be sufficient to allow for the specified compaction and density to be attained. HMA shall not be discharged into the paver hopper when its temperature is less than 245ºF (120ºC) for a nominal layer thickness of 1 ½ inches (40 mm) or less and 225ºF (110ºC) for a nominal layer thickness of more than 1-1/2" (40 mm).

When the depth of the surface course is more than two and one-half inches (2-1/2"), the desired depth shall be placed in equal layers not exceeding one and one-half inches (1-1/2").

Except for an unavoidable delay or breakdown, delivery of hot asphaltic concrete to any individual spreading unit shall be at a rate sufficient to provide as nearly continuous an operation of the spreading unit as possible.

While operating on the road surface, the use of kerosene, distillate, or other petroleum fractions for cleaning hand tools or for spraying the spreader hopper will not be permitted. No container of such cleaning solution shall be carried on or near the spreader. While the spreader is off the road surface, kerosene or any desired solvent for cleaning the spreader may be used. The spreader shall not be used for at least five hours after such cleaning. Hand tools shall be kept clean.

When the basis of payment is in square yards, the Contractor shall be responsible for obtaining the designated thickness and width and for his application rates. A lift or course determined by the Contractor to be deficient in thickness may be corrected by an increased thickness of a subsequent lift or course; however, the thickness of a course of 1/2 or 3/8 inch mixture size shall not be increased by more than 1/4 inch to correct a deficiency. All lower courses which are a part of the contract shall be constructed to the tolerances required and the Engineer will furnish staking and inspection on that basis.

For irregular areas where use of a finishing machine is not practical, intermediate and surface mixture may be spread by hand methods. The hot mixture shall be spread uniformly to the desired depth with hot shovels and rakes. After spreading, the hot mixture shall be carefully smoothed to remove all segregated coarse aggregate and rake marks. Rakes and lutes used for hand spreading and smoothing shall be of the type designed for use on asphalt mixture.

Loads shall not be dumped faster than they can be spread properly. The workers shall not stand on the loose mixture while spreading, except as necessary.

Manholes and water valves may be raised before the surfacing is laid if existing conditions warrant so and under written permission of the Engineer, otherwise they shall be raised after the completion of the surface course and an 8 inch ring of 4000 psi concrete shall be placed around the casting to the depth of the casting in both cases. Adjustments shall be made with concrete, bricks, concrete rings or other stable material approved by the Engineer.

Longitudinal joints for surface courses less than one inch (1") in thickness may be constructed directly above the longitudinal joint in the next course below. The offset distance between all other longitudinal joints in succeeding courses shall be no more than three inches (3"). Transverse construction joints shall be separated by not less than six feet (6'). Spreading of the hot mixture along longitudinal joints shall be adjusted to secure complete closure of the joint and full compression of the mixture with a smooth surface after compaction. At transverse joints, the cold mixture of the layer shall be sawn to a straight line at right angles to the centerline so that a full thickness, a true surface, and a vertical edge will be provided.

The Contractor shall provide a ten foot (10') wood straightedge for checking intermediate and surface transverse joints for smoothness. Variations in the surface at transverse joints as indicated by the straightedge shall be corrected by hand methods before compaction.

Suitable paper or burlap shall be used under the ramp at day's run transverse joints to prevent adhesion. Sand, dirt or wood shall not be used for this purpose. Use of wood or metal headers to form the edge of the joint during rolling of the fresh mixture will not be permitted.

After the final rolling the binder and surface courses shall be checked with a 10-foot straightedge placed parallel to the centerline, and any variation greater than 1/4 inch in the surface shall be corrected. Any surface correction shall be accomplished by diamond grinding, by overlaying the area, by replacing the area, or by inlaying the area.

If the surface is corrected by diamond grinding, the ground surface shall be covered with a tack coat as described in Illinois DOT Specification Section 406.05.

Grinding and texturing equipment shall meet the requirements of Section 406.03, except the cutting head shall have a minimum width of 24 inches (600 mm). Surface correction shall be performed parallel to lane lines or edge lines as directed by the Engineer and each pass shall be parallel to the previous passes. The ground surface shall be of uniform texture.

Adjacent passes shall not overlap more than 1 inch (25 mm) and they shall not have a vertical difference of more than 1/8 inch (3 mm) as measured from bottom of groove to bottom of groove. Smoothness correction shall begin and end at lines normal to the pavement lane lines or edge lines within any one corrected area. The grinding shall proceed from the center line or lane line toward the pavement edge to maintain pavement cross slope.

If the surface is corrected by overlay, replacement or inlay, the surface correction shall begin and end with a transverse saw cut normal to the pavement lane lines or edge lines within any one area. Profile of surface must be smooth with no bumps or dips at beginning or end of correction. Overlay correction must be for the entire pavement width. Pavement cross slope must be maintained through the corrected areas.

The mixing and placing of hot mix asphalt shall be performed only when weather conditions are suitable. When the moisture of the aggregate interferes with the uniformity of temperature, or with continuous plant operation, or when pools of water are observed on the base, mixing and placing of hot mix asphalt shall not be permitted. The temperature of the surface on which the hot mix asphalt is placed shall not be less than 40 degrees F and rising. When the surface temperature on which the material is to be placed falls below 50 degrees F precautions shall be taken in controlling the temperature of the delivered material and compacting the mix. Under all circumstances specified density requirements shall be fulfilled.

COMPACTION AND SAMPLING

Each layer shall be promptly and thoroughly compacted. For all rollers, the initial contact with the hot mixture shall be made by the compaction roller.

The longitudinal joints shall be rolled smooth and even at the time of construction.

Mechanical tampers shall be used for areas inaccessible to the rollers.

Steel-tired finish rollers shall be used to smooth out all marks and roughness in the surface.

The overall rolling procedure shall produce a surface free of ridges, marks or bumps and shall be subject to the approval or disapproval of the Engineer.

Each layer shall be compacted to not less than ninety-five percent (95%) of the density as specified on the approved mix design. Average air void level of the density specimens shall not exceed 8.0%.

At the direction of the Engineer, the Contractor shall cut samples from any course or from finished pavement for tests of density and composition. These samples shall be taken at points designed by the Engineer by drilling with a four inch (4") diameter core drill. The surfaces from which samples have been taken shall be restored by the Contractor not later than the next succeeding day of plant operation. The Contractor will not receive any extra compensation for sampling.

The Engineer shall have free access at all times to all parts of work. All test results will be available to the Contractor.

A test section may be required if problems are encountered with the compaction procedure and test results. Test sections shall be the responsibility of the contractor, unless otherwise stated in the special provisions.

SEE NEXT PAGE FOR SPECIAL PROJECT REQUIREMENTS

PART IV SPECIAL PROJECT REQUIREMENTS

Applicability: This section along with Illinois DOT specifications shall govern Asphaltic Concrete Pavement, also referred to as Hot Mix Asphalt (HMA) paving.

Thickness: Pavement thickness shall be as follows:

HMA Surface Course, 1/2-Inch	2”
HMA Base Course, 3/4-Inch	2”
Stone Base	10"

Mix Design: The Contractor shall submit DOT mix design information for the base and surface courses a minimum of 2 weeks prior to patching, to the Engineer for approval. Mix design shall use either PG 52-28 or PG 64-22. Asphalt binder shall be incidental to the cost of the HMA. Asphalt binder and aggregate gradation shall be per Illinois DOT Section 406 and current supplemental specification. Mix size shall be 3/4 inch with design ESAL of 300,000 for the base course and 1/2 inch with design ESAL of 300,000 for the surface course.

Prime: The Contractor shall clean and prime vertical surfaces to abut HMA pavement prior to paving.

Tack: Tack between lifts only if subsequent lifts does not immediately follow the lower lift and/or the surface of the lower lift becomes dirty.

Payment: All HMA Pavements (including asphalt binder) will be paid for by the ton utilizing separate bid items for the HMA Pavement. No separate measurement or payment will be made for the asphalt binder. The stone base will be paid for by the ton under the bid item Stone Base.

Stone Base: The crushed Stone Base material to be used under the HMA pavement shall be 10” Crushed Stone Base and shall conform to CA6 or CA10 of the Illinois DOT Concrete Aggregate Gradation Table.

Testing: Engineer may test asphalt content and gradation and in place density as determined appropriate by the Engineer.

Paint Pavement Marking: Pavement markings shall be in conformance with the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction 2016, Section 780. Pavement Markings will be paid for by the lump sum.

*** END ***

STANDARD SPECIFICATION FOR SECTION 02528 PORTLAND CEMENT CONCRETE CURB AND GUTTER

PART I GENERAL

GENERAL REQUIREMENTS

Applicable portions of Division 1 govern all work under this section. This is a nonspecific project standard specification. See Special Project Requirements at the end of this specification section for specific requirements pertaining to this project.

SCOPE

Provide labor, materials, equipment, operations, facilities and administration necessary to furnish and complete all work covered by this section in accordance with the best present day installation and construction techniques.

REFERENCE

Standard Specification for Road and Bridge Construction, Illinois Department of Transportation, Series 2016, and Section 606.

PART II PRODUCTS

DESCRIPTION

All materials shall conform to the requirements of Division 1000 of the Standard Specifications for Road and Bridge Construction of the Illinois Department of Transportation.

CONCRETE

Concrete used in this work shall be proportioned, mixed, placed and cured in accordance with Section 606 and Section 1020 of the DOT Standard Specification and the following paragraphs.

Composition of the concrete unless otherwise required or approved shall be DOT Class C concrete or one of the following proportions (Class A concrete):

BASIC ABSOLUTE VOLUMES OF MATERIALS PER UNIT VOLUME OF CONCRETE

Mix No.	Cement Minimum	Water	Entr. Air	Fine Agg.	Coarse Agg.
A-4	.107556	.160830	.06	.335807	.335807
A-5	.111336	.166835	.06	.364006	.297823
A-6	.115306	.173139	.06	.390933	.260622

APPROXIMATE QUANTITY OF DRY MATERIAL PER CUBIC YARD OF CONCRETE

Mix No.	Cement Pounds	Fine Agg. (Tons)	Coarse Agg. (Tons)
A-4	569	.7496	.7496
A-5	589	.8126	.6648
A-6	610	.8727	.5818

These quantities are based on the following assumptions: specific gravity cement, 3.14; specific gravity of aggregate, 2.65; water-cement ratio, 0.474 pounds of water per pound of cement; air voids, 6%; weight of water, 62.4 pounds per cubic foot.

The total quantity of free water in the concrete, including free water in the aggregate, shall not exceed 0.5324 pounds of water per pound of cement.

Compression tests made from the mix design shall report a 28-day compressive strength of 4000 psi. A seven (7) strength shall be approximately 60% of the 28-day strength. Air entrainment shall be in the range of 5-7%.

Consistency shall show a maximum three inch slump. It shall be the Contractor's responsibility to determine the proper consistency required for the method of curb and gutter construction.

Admixtures: Air entrainment admixtures to be added to the concrete shall conform to ASTM Specifications designation C-260, and C-150 for air entraining Portland cement. Admixtures for the purpose of improving workability or for retardation shall be approved by the Engineer and used as approved by the Engineer and in accordance with manufacturer's recommendations.

No fly ash will be permitted in concrete unless so approved by the Engineer, in writing.

PART III EXECUTION

PREPARATION OF THE SUBGRADE

The subgrade shall be excavated or filled to the required grade line in accordance with the proposed cross section, and shall be compacted thoroughly and finished to a firm, smooth surface. Suitable earth shall be used for fill and compacted to 95% optimum density. When the curb and gutter is to be constructed on a filled section, the compacted fill shall extend a minimum of one foot outside the curb line. Prior to placement on concrete, the subgrade shall be thoroughly moistened or covered with a layer of plastic film.

EQUIPMENT

Equipment for mixing, transporting and placing concrete shall meet the requirements of the Illinois Department of Transportation Standard Specifications Division 1100 and/or Section 606.

Slip form equipment can be used if the final product conforms with the prepared cross section as shown on the plans or existing and has a satisfactory finish, as approved by the Engineer.

Forms to be used shall be metal and to the full depth of the concrete. Wood forms may be used on curving sections. All sections shall be straight, free from warp and of sufficient strength. They shall be staked, braced and held firmly to line and grade until the concrete has set. All forms shall be kept clean and oiled prior to placing concrete. The Engineer may reject any form that is not in proper condition.

PLACING CONCRETE

Concrete shall be deposited so as to provide for construction of the curb and gutter as an integral unit. Concrete of the gutter shall be consolidated as rapidly as it is placed by use of an internal vibrator operating at not less than 3,500 vibrations per minute. Concrete of the curb shall be consolidated by vibration or by tamping while maintaining a sufficient head of concrete to produce a dense, smooth surface.

FINISHING

After concrete has been consolidated and face forms have been removed, the surface shall be finished with a wood float to a uniform granular texture and groomed with a fine hair broom or dragged with burlap. Edges adjacent to all forms and expansion joints shall be edged with a suitable edging tool.

The finished surface shall conform to the lines and grades shown on the plans and shall have no depressions which trap water.

All concrete shall be placed within one hour after the cement comes in contact with the water and aggregate.

PROTECTION AND CURING

Concrete shall be cured by protecting it against loss of moisture, rapid temperature changes, and from rain, flowing water, and mechanical injury for a period of not less than 72 hours from the beginning of the curing operation. Moist curing, waterproof paper, white polyethylene sheeting, white pigmented liquid membrane compound or a combination thereof may be used for curing. The method of curing shall conform to Section 420.09 and Section 1020 of DOT Standard Specifications. The method selected must be approved by the Engineer prior to commencement of operations. All surfaces of the newly laid concrete shall be covered by the curing medium immediately following finishing procedures. Areas exposed by the removal of forms shall be covered within thirty (30) minutes after removal. White-pigmented liquid curing compound shall be applied at the rate of no more than 15 square yards per gallon.

When concrete is placed in cold weather and temperatures may be expected to drop to 32 to 35 degrees, the curb and gutter shall be covered with one layer of burlap or insulated blankets. If the forecast low temperature is to be between 25 and 31 degrees F. two layers of burlap or a layer of burlap and a layer of plastic shall be utilized. If the temperature is expected to drop below 25 degrees F., six inches (6") of straw, in addition to the regular cure, shall be placed on the finished concrete. Concrete shall be protected from

freezing conditions until it is at least 36 hours old (five days after Oct. 1). Any covering shall be removed and disposed of by the Contractor.

Concrete operation shall be discontinued when the air temperature reaches 25 degrees F and not resumed until the temperature reaches 40 degrees F. Subgrade shall be protected from freezing and no concrete shall be placed on frozen earth.

In cold weather, the concrete materials shall be heated to produce a temperature range of 70-90 degrees for the concrete at time of placement.

The Contractor shall be responsible for all damages due to freezing.

JOINTS

Expansion joints shall be formed by installing a 3/4 inch bituminous fiber joint shaped to the full width and depth of cross section of the curb and gutter and perpendicular to line. Expansion joints shall be placed at intervals not to exceed 150 feet and at all junctions of curved sections of curb and gutter with straight sections.

Contraction joints shall be formed at intervals of 15 feet by a metal insert, by inserting into the concrete a plane of weakness or by sawing not less than one-half the depth.

At points where sidewalk or driveways abut the curb and gutter, a 1/2 inch bituminous fiber expansion joint shall be placed, extending the depth of the abutting concrete. See Illinois DOT Standard Specification Section 606.

BACKFILL

After the concrete curb and gutter have sufficiently set, the area behind the curb and gutter shall be backfilled to the required elevation with suitable material that shall contain no pieces of concrete or rocks within the top foot of backfill. The area shall then be covered with three inches (3") of select topsoil and shall be graded and raked to meet existing conditions and property elevations at the direction of the Engineer. The select topsoil may be obtained from the construction site if available and approved by the Engineer, or the Contractor may be required to supply this material at his expense from another source which the Contractor shall secure.

TESTING

Engineer's Authority: The Engineer may, at his discretion, during the progress of construction, take samples and make tests to assure that the material is in accordance with these specifications. The Contractor shall cooperate in the making of such tests to the extent of allowing free access to the work for the selection of samples.

Methods: Samples shall be obtained and tests shall be made to determine compliance with these specifications in accordance with the latest ASTM Methods of Testing.

Strength Test Specimens: The Engineer (or Contractor if so required by the Engineer) will make three cylinders or beams for each 50 cubic yards of concrete placed in any day. Testing is to be done by a laboratory approved by the Engineer. The cost of transporting test specimens and of testing shall be borne by the Contractor unless otherwise indicated in the Special Project Requirements. Test reports shall provide complete information regarding the project, specimens and test results.

SEE NEXT PAGE FOR SPECIAL PROJECT REQUIREMENTS

PART IV SPECIAL PROJECT REQUIREMENTS

Application: The requirements of this section shall govern installation of the combination curb and gutter as needed.

Curb and Gutter Section: The curb and gutter cross-section shall conform to that as detailed in the plans.

Stone Base Materials: The stone base material to be used under proposed paving shall conform to Gradation CA6 of the Illinois DOT aggregate gradation table.

Concrete Mix: The concrete shall be Illinois DOT Class PV with the Contractor's option on the use of fly ash and ground granulated blast furnace slag (GGBFS). The maximum cement substitution shall be 15% fly ash, 35% GGBFS or 35% combined. Fly ash use limited from March 16th to October 15th only.

Testing: Air and slump testing may be performed by the Engineer.

*** END ***

STANDARD SPECIFICATION FOR SECTION 02720 CONNECTIONS TO SANITARY SEWERS

PART I GENERAL

GENERAL REQUIREMENTS

Applicable portions of Division 1 govern all work under this section. This is a nonspecific project standard specification. See Special Project Requirements at the end of this specification section for specific requirements pertaining to this project.

Reference to materials or systems herein by name, make or catalog number is intended to establish a standard of quality and not to limit competition; the words "or equal" are implied following each brand name. See Division 1.

SCOPE

Provide all labor, materials, equipment, operations, facilities and administration necessary to furnish and complete all work covered by this section.

PART II PRODUCTS

SANITARY SEWER BRANCH FITTINGS (WYES OR TEES)

VCP Branches: Branch fittings in VCP sewer shall conform to the requirements for VCP pipe, ASTM C700, with PVC sleeve joints conforming to ASTM C425.

RCP Branches: Branch fittings in RCP shall be factory fabricated hybrid tees meeting the requirements of ASTM C76, or shall be saddles. Joints shall be rubber gasket type conforming to ASTM C443.

PVC Sewer Pipe Branches: Branch fittings in PVC sewer pipe shall conform to the requirements of ASTM D3034, with load carrying capacity as required for connected PVC sewer pipe. The joints on PVC sewer pipe branch fittings shall be elastomeric gasket type and conform to ASTM D3212 with gasket material conforming to ASTM F477. No solvent cement joints will be allowed.

DIP Branches: Branch fittings in DIP sewers shall be cast iron fittings conforming to AWWA C110 or compact ductile iron fittings conforming to AWWA C153, with mechanical joints conforming to AWWA C111. Fittings shall be cement mortar lined and coated in accordance with AWWA C104.

FLEXIBLE COUPLINGS

Flexible couplings used for installing a branch fitting in the main sewer, for making connections between dissimilar types and/or sizes of building sewers/drains, for making tie-ins and where required, shall be Fernco, Mission Band Seal or approved equal. Flexible couplings shall conform to the performance requirements of ASTM C564 and have 300 Series stainless steel bands. Stainless steel shear rings shall be installed only when specifically required.

SEWER PIPE SADDLES

Sewer pipe saddles shall be of cast iron or PVC correctly contoured for the size and kind of pipe on which it is to be installed. Saddle shall have a rubber gasket to seal against the pipe on which it is installed, gasket to be secured to prevent misalignment. The inlet connection of the saddle shall be a spigot or bell suitable for acceptance of the kind and size of lateral pipe to be connected. A plain end saddle may be used and the connection may be made by use of a flexible coupling/reducer coupling. The saddle shall be secured to the sewer by means of stainless steel strap(s). The saddle shall produce a leak free connection and be Sealtite as manufactured by The General Engineering Company, or a GPK Products, Inc. saddle.

BUILDING SEWER PIPE (LATERALS) AND FITTINGS

VCP: All vitrified clay pipe and fittings shall be extra strength and conform to ASTM C700 with joints conforming to ASTM C425.

PVC Pipe: All polyvinyl chloride pipe and fittings shall be SDR 26 or 35 and conform to ASTM D3034 with elastomeric gasket joints conforming to ASTM D3212. Gaskets shall conform to ASTM F477. No solvent cement joints will be allowed.

DIP: All ductile iron pipe shall conform to AWWA C151 or ASTM A746 and fittings shall conform to AWWA C110 or C153. Both pipe and fittings shall be mortar lined and seal coated per AWWA C104.

Cast Iron Soil Pipe (CISP): Cast iron soil pipe and fittings shall be hubless conforming to CISP Designation 301 or hub and spigot conforming to ASTM A74. Joints for soil pipe and fittings shall be flexible couplings for hubless pipe and elastomeric compression type gaskets for hub and spigot pipe conforming to ASTM C564. Couplings for CISP shall have stainless steel shields.

Embedment Materials: Granular embedment materials shall be either coarse sand with essentially 95% passing the 3/8 inch sieve, up to 30% passing the 50 sieve and no more than 5% passing the 200 sieve, or shall be clean crushed stone with approximately 95% to 100% passing the one inch sieve, no more than 25% passing the 100 sieve and not more than 10% passing the 200 sieve.

PART III EXECUTION

SANITARY SEWER BRANCH FITTING INSTALLATION

General: Branch fittings of the same material as specified or approved for the main sewer shall be installed when the main sewer is constructed or subsequently using flexible couplings. Sewer service must be maintained when a fitting is "cut-into" an existing sewer.

Location: A branch fitting shall be installed in the main sewer at a location shown on the drawings and/or where necessary to serve all existing and proposed buildings. The location of each branch connection shall be accurately recorded.

Installation: The installation of main sewer branch fittings including proper embedment shall meet the same requirements for sanitary sewer construction. Each fitting shall be encased in a minimum of six inches of embedment material.

Cut-In Branch Fittings: For cut-in branch fittings the sewer shall be cut with a saw or special cutter to form a straight end. A hammer and chisel shall not be used. Any pipe cracked or broken in the process of installing a fitting shall be replaced by the Contractor. Fittings installed in the main sewer shall be of the same material as used for sanitary sewer construction. Flexible couplings of the correct size shall be utilized to install the cut-in branch fitting.

Temporary Plug: A temporary airtight and watertight plug shall be installed in branch connections on VCP, RCP and PVC pipe sewers. For branch fitting connections on DIP a 12 inch long building sewer stub with a Fernco Qwik Cap, Mission or equal, shall be installed.

SANITARY SEWER PIPE SADDLE INSTALLATION

General: When a branch fitting in the sewer main does not exist, and when a branch fitting cannot subsequently be installed with a flexible coupling (or at the Contractor's option) a sewer pipe saddle may be installed.

Installation: Installation of a sewer pipe saddle shall be in accordance with the recommendations of the manufacturer. The hole in a VCP sewer main must be drilled or sawed, using a hammer and chisel is not acceptable. Holes in PVC pipe shall be drilled or accurately cut to a template furnished with the saddle using a keyhole or sabre saw. A hole in DIP shall be made by sawing or by flame cutting and grinding the edges smooth. No part of the saddle or building sewer may protrude into the main sewer. The "coupon" cut from the main pipe must be removed.

Maintain Service: The installation of a saddle shall be done without interrupting sewage service in existing lines.

Records: The location of all sewer pipe saddles shall be recorded by the Contractor and this information shall be given to the Engineer.

RISER INSTALLATION

General: Risers in the building sewer shall be installed at locations shown on the drawings or where necessary to raise the building sewer from a connection to a deep main sewer to an elevation approximately nine feet (9') below the surface or some other elevation deemed appropriate.

Installation: Risers shall be connected to branch fittings in the main sewer or to saddles installed in the sewer main. Riser pipe shall be constructed of the same pipe and fittings as approved for building sewer pipes (laterals). A flexible coupling shall be installed within 12 inches of the branch fitting or saddle. The riser shall be installed with the same embedment as required for building sewers and/or main sewers and shall be properly supported. A minimum of six inches of embedment stone shall be placed around the branch fitting. The upper end of the riser shall have a suitable fitting to provide proper orientation for the building sewer connections.

Temporary Cap or Plug: A temporary airtight and watertight plug shall be placed at the end of the riser. The plug must be secured to withstand air test pressures.

Location: The plugged end of the riser shall be marked with a 2x2 or 2x4 stake, extending from the end of the riser to above the ground surface. The Contractor shall locate the end of the riser by recording measurements to at least three permanent above grade features, and these measurements shall be given to the Engineer.

BUILDING SEWER INSTALLATION

General: All excavations required for the installation of a building sewer shall be open trench work unless otherwise approved by the Engineer. All excavations shall be adequately guarded with sufficient barricades, warning signs and lights to protect the public from risk or damages.

Standards: Building sewer installation shall be performed in accordance with applicable portions of the Water Pollution Control Federation "Manual of Practice No. FD-5." VCP and CISP installation shall conform to ASTM C12. PVC pipe installation shall conform to ASTM D2321. DIP installation shall conform to applicable portions of AWWA C600. The installation of building sewers shall also be governed by the manufacturer's recommendations.

Water Service/Sewer Separation: Water service lines and building sewers shall be separated ten feet (10') horizontally throughout their length. Where conditions render such separation unfeasible, sewer and water pipe may be laid in the same trench provided that the water pipe shall be laid in a bench or on solidly tamped backfill at least eighteen inches (18") above the top of and to the side of the building sewer throughout its entire length.

Size and Slope: The size and slope of the building sewer shall be as shown on the drawings, or if not indicated, shall meet the approval of the Engineer and in no event shall the diameter be less than four inches (4") and the slope less than one-eighth inch (1/8") per foot (1.0%). For six-inch (6") building sewer, the slope shall not be less than one-sixteenth inch (1/16") per foot (0.5%)

Depth and Alignment: Wherever possible the building sewer shall be brought to the building at an elevation below the basement floor. No building sewer shall be laid parallel to, or within three feet (3') of any bearing wall, which might thereby be weakened. The depth shall be sufficient to afford protection from freezing. The building sewer shall be laid at uniform grade and in straight alignment insofar as possible. Changes in grade or alignment shall be made with proper fittings.

Cleanouts: Cleanouts shall be installed in building sewers (or building drain) near the point of connection to the building drain, at intervals not to exceed 100 feet (100') and at each bend or combination of bends exceeding forty-five degrees (45°). Cleanouts shall be extended up to existing or proposed grades. Cleanouts constructed in areas subject to vehicle loads shall be constructed in such a manner that no load is transferred to the building sewer (i.e. lamphole cover or valve box over the cleanout riser). The Contractor shall record the location of all cleanouts accurately.

The installation of VCP, PVC, CISP, and DIP building sewers shall be in accordance with the sewer line Installation Details drawing included in this section. The Contractor shall record all locations of building sewers and provide this information to the Engineer.

Temporary Cap or Plug: A temporary airtight and watertight plug or cap shall be placed at the end of a lateral if installed at the same time as the public sewer or if not immediately connected to a building.

Location: The plugged end of the lateral shall be marked with a 2x2 or 2x4 stake extending from the end of the lateral to above the ground surface. The Contractor shall locate the end of the lateral by recording measurements to at least three permanent above grade features.

INSPECTION

Each and every part of the building sewer including lateral, riser, branch fitting or saddle shall be inspected and must meet the approval of the Engineer before being concealed or backfilled. The Contractor shall notify the Engineer when the building sewer is complete and ready for inspection.

SEE NEXT PAGE FOR SPECIAL PROJECT REQUIREMENTS

PART IV SPECIAL PROJECT REQUIREMENTS

All construction and materials shall be in accordance with Standard Specifications for Water and Sewer Main Construction in Illinois, 7th Edition. Contact the Associated General Contractors (AGC) of Illinois, the Illinois Municipal League (IML) or the Illinois Society of Professional Engineers to obtain copies. The AGC can be contacted at 217-789-2650. The IML can be contacted at 217-525-1220.

*** END ***

STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS
7th Edition

(Available from Associated General Contractors (AGC) of Illinois, the Illinois Municipal League (IML) or the Illinois Society of Professional Engineers)

Special Project Requirements (prepared by IIW) to the Standard Specifications for Water and Sewer Main Construction in Illinois ..... SPR 1-4

STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS
(7th Edition)

SPECIAL PROJECT REQUIREMENTS (PREPARED BY IIW, P.C.)

Following are applicable Special Project Requirements (prepared by IIW, P.C.) to the Standard Specifications for Water and Sewer Main Construction in Illinois (7th Edition)

SANITARY SEWER

All construction and materials shall be in accordance with Standard Specifications for Water and Sewer Main Construction in Illinois, 7th Edition. Contact the Associated General Contractors (AGC) of Illinois, the Illinois Municipal League (IML) or the Illinois Society of Professional Engineers to obtain copies. The AGC can be contacted at 217-789-2650. The IML can be contacted at 217-525-1220.

Sanitary Sewer: PVC sanitary sewer shall be SDR 26 per ASTM D3034. Pipe joints shall be flexible elastomeric seals per ASTM D3212.

Deflection Testing: The sanitary sewer main shall be tested for excess deflection by pulling a “Go-No Go” mandrel through the pipe from manhole to manhole. The mandrel shall be sized in accordance with the Standard Specification for Water and Sewer Main Construction in Illinois.

Pressure Testing: The sanitary sewer main shall be air tested by procedure described in Section 31 of the Standard Specification for Water and Sewer Main Construction in Illinois for testing by low pressure air test method.

Sanitary Sewer Spot Repairs: The City is televising the existing sanitary sewer in the areas of the proposed water main improvements. The City intends to identify certain areas that will require spot repairs. Spot repairs will consist of an estimated 20 foot segment of sanitary sewer replaced at each location. The quantities assume 300 feet total of required spot repairs for the project. Connections to the existing sanitary sewer at spot repairs shall consist of appropriately sized flexible couplings a stainless steel shear band. The Contractor will be paid for the respective bid items including length of sanitary sewer spot repair length of pipe installed, connections to existing sanitary sewer, select trench backfill, stone base and HMA pavement replacement.

WATER MAIN

Water main and culvert installations are to be constructed in accordance with the technical provisions of the "Standard Specifications for Water and Sewer Main Construction in Illinois" (July 2009), except as modified by the following Special Project Requirements. A copy of the current Standard Specifications may be obtained from the Illinois Society of Professional Engineers (217-544-7424).

Measurement and Payment: Except for possible extra work, disregard measurement and payment provisions of the "Standard Specifications".

These specifications will supersede all other specifications listed in the contract documents.

Section 20

Foundation Stone: Foundation stone, if needed, for water main shall be crushed stone only, of an appropriate size. Foundation stone payment will only be made if the contractor obtains prior authorization from the Owner for use of foundation stone. Foundation stone shall be Illinois DOT gradation CA2 or CA4 or alternate gradation (3 inch maximum) as approved by the engineer.

Water Main Bedding, Haunching, and Backfill: See Section 02221.

Surface removal work shall be as necessary for safe trenching and shall be incidental to other work. Contractor shall salvage, store and replace topsoil in all existing grass areas.

Final backfill shall be compacted per method 1 (ramming and tamping for Type 4 and 90% for Type 5).

Rock Excavation: Rock excavation, if encountered, will be paid at the bid cubic foot price including extra embedment stone. Foundation/stabilization stone is paid at the bid unit price. Bedding stone is the base price. Embedment stone is part of the select backfill. Select backfill is paid at the lineal foot bid price. Topsoil removal and replacement is incidental.

Section 40

Water Distribution Pipe: Water main shall be PVC per AWWA C900, DR 18. Hydrant leads shall be 6-inch DIP only, per AWWA C151, Class 350 or thicker. Water main shall have elastomeric gaskets only, joints shall be push-on type.

Water Distribution Pipe in Casings: If the PVC casing falls within the required restrained joint length indicated on the plans then the water main to be installed in the PVC casings shall be AWWA C900, DR18 Certa Lok or EagleLoc, or alternate approved restrained joint pipe. The restrained joint pipe shall have elastomeric gasket only. The restrained joint water main within the casing shall not count towards restrained joint length requirements as noted on the plans.

Water Main Casings: Plastic water main casings shall be PVC per AWWA C905 DR25. Plastic water main casings shall have elastomeric gaskets only, joints shall be push-on joints. Steel water main casings shall comply with ASTM A252 (Standard Specification for Welded and Seamless Steel Pipe Pipes). The Steel Casing shall have a wall thickness of 0.25 inch. The proposed water main through the plastic and steel casings shall be placed on stainless steel casing spacers with polymeric runners at a maximum of 6 foot intervals. The ends of the casing shall be sealed with a rubber end seal. Casing spacers shall be Cascade Waterworks Manufacturing CCS Stainless Steel Casing Spacer or approved alternate. The water main casings shall be paid for by the lineal foot and shall include the cost of the casing, installation, spacers, end seals and installing the water main in the proposed casing. The water main through the casing will be paid for by the lineal foot under the respective water main size.

Restraining Water Main to Steel Casing: The water main shall be restrained to the casing on each end of the steel casing. The water main shall be restrained to the ends of the casing using the tee immediately south of the steel casing and installing a joint restraint harness on the 8 inch water main on the north side of the steel casing. To restrain the spicket end of the pipe, install the restraint ring with individual actuating wedges or to restrain the bell end of the pipe install the backup ring that fits behind the pipe bell. Restraint shall be performed using 3/4 inch corten all-thread rods. The rods shall be connected to the tee or restraint ring by the use of eye bolts and shall be welded to the steel casing. The number of corten rods required for the thrust restrain two (2) for each end of the steel casing. The rods shall be connected to the casing at the 3 and 9 o'clock position or as close as possible.

Fittings: All fittings shall be compact ductile iron conforming to AWWA C153, with mechanical joints and cement mortar lining.

Water Service Lines: Water service lines shall be 1 inch, from corporation to curb stop and sized to match existing from curb stop to structure, unless otherwise specified on the drawings; Type K copper per ASTM B88. Bedding to be 4-inch depth sand or fine gravel with same material to cover pipe to 10 inches thick. Underground soldered joints, pak joints, and insert joints (stab-in) are not permitted.

Corporation Stops: Corporation stops shall be Mueller H-15008N or AY McDonald Q fitting or equal, all per AWWA C800. Install corporation stop into tapping saddle for PVC water rain.

Tapping Saddles: Tapping saddles for 1-inch service lines shall be Smith Blair 317 with nylon coating for larger sizes, or equal. Saddles shall have AWWA threaded outlets. No services shall be connected to hydrant leads.

Curb Stops: Curb stops shall be Mueller H-15155N or AY McDonald Q fitting or equal, all per AWWA C800.

Curb Box: Curb boxes shall be Mueller H-10300 or equal.

Depth: All water main and service connections are to be installed with a minimum of 5.5 feet of cover.

Indicator/Tracer Wire: Indicator wire shall be insulated 12 gauge stranded copper wire with polyethylene insulation (30 mil minimum), by Kris-Tech Wire Company, or approved alternate, installed on top of the water main for indication of location. A 10 to 12-foot coil of wire shall be placed in the valve boxes. Splices shall be avoided if possible, otherwise waterproof connections are required.

Access Box: Tracer wire access boxes shall be Valvco TWAB, or approved equal, installed adjacent to the fire hydrant. Access boxes shall have a 2-inch PVC extension riser from the top of the water main. Supply and placement of access boxes shall be incidental to cost of the water main unless otherwise indicated.

Section 41

Connection to Existing: Connections to existing mains will require a mechanical joint tee and Smith-Blair 441 coupling. See plans for these locations. The water main at these locations can be isolated by shut off valves at the time of making the connection. Contractor shall depressurize main prior to installation of the tee. Contractor shall assist City of Galena in notifying affected residents when water is to be shut off. All labor and materials associated with connection to existing water mains shall be considered incidental to the bid item "Connection to Existing Water Main".

Testing: New main shall be pressure/leakage and bacteria tested prior to connection of service lines. The duration of each pressure test shall be not less than 2 hours.

Construction Records: Contractor shall be responsible for maintaining construction records including measurements between fittings, between fittings and valves, between valves and hydrants, corporations, and curb stops, etc.

Measurements between existing surface features and valves (gates and curb) and fittings shall also be taken. Copies of construction records shall be provided to the engineer.

Tracer Wire: Tracer wire shall be 12 gauge (minimum) stranded copper wire with polyethylene insulation (30 mil minimum), by Kris-Tech Wire Company, or approved alternate. Tracer wire shall be installed on top of the water main for indication of location. Splices shall be avoided if possible, otherwise waterproof connections are required. Supply and placement of the wire shall be incidental to cost of the water main.

Access Box: Tracer wire access boxes shall be Valvco TWAB, or approved equal, installed adjacent to the fire hydrant. Access boxes shall have a 2-inch PVC extension riser from the top of the water main. Supply and placement of access boxes shall be incidental to cost of the water main unless otherwise indicated.

Joint Restraint (Thrust Restraint): Joint restraint for DIP mechanical joints shall be EBAA MegaLug Series 1100 or approved equal. Joint restraint for mechanical joints to PVC shall be EBAA Series 2000PV or approved equal. PVC push-on joints shall be restrained using Eagle Loc 900 joints or EBAA Series 1500 or Series 1600 bell restraint harness or approved equal. Split ring assembly bolts for restraint harnesses shall be stainless steel and tie rods and bolts shall be HSLA steel. Joint restraint shall be considered incidental to the water main installation. The maximum working pressure for the water main is 120 psi at the lowest locations with a test pressure of 180 psi. Consult the Engineer for test pressures at other locations throughout the project.

Tap water mains for service connections at 3 o'clock and 9 o'clock positions. Do not form vertical gooseneck. Top of service line shall not be higher than top of water main. Install horizontal offset in service line. Drill hole in PVC water main only with a bit approved by the PVC pipe manufacturer. Install service lines with 5.5 feet of cover.

Section 42

Valves**:** Valves shall be resilient seated gate valves per AWWA C509 or AWWA C515 with mechanical joints per AWWA C111. Valves shall be NRS and open counterclockwise. Gate valves will be Mueller or equivalent per AWWA standard. Valve body may be ductile iron. Double disc valves are not acceptable. Valves shall have nut operator and open counterclockwise (left). All machine bolts (nut, bonnet, packing) shall be stainless steel.

Section 44

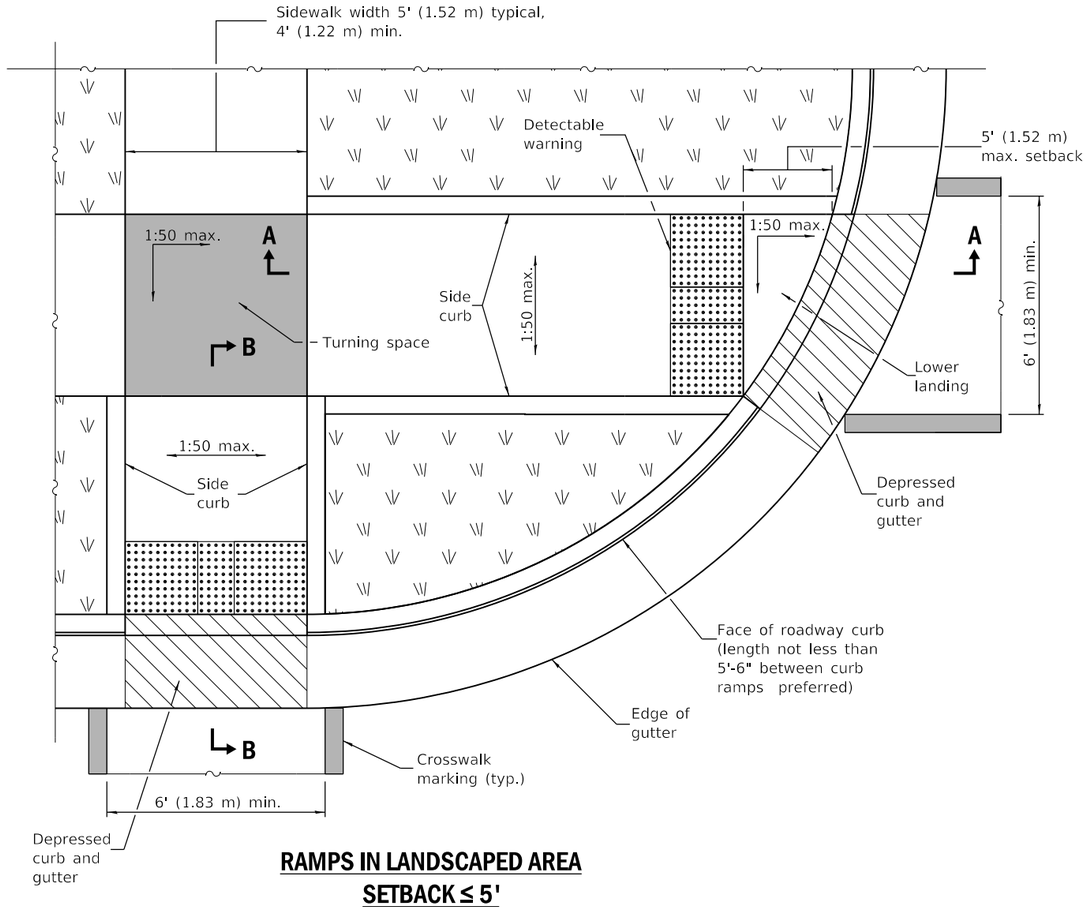
Valve Boxes: The valve boxes shall be Mueller or equivalent per AWWA standard. Valve box shall include a Valve Box Adaptor II centering device by Adaptor Inc., sized to suit selected manufactured valve.

Section 45

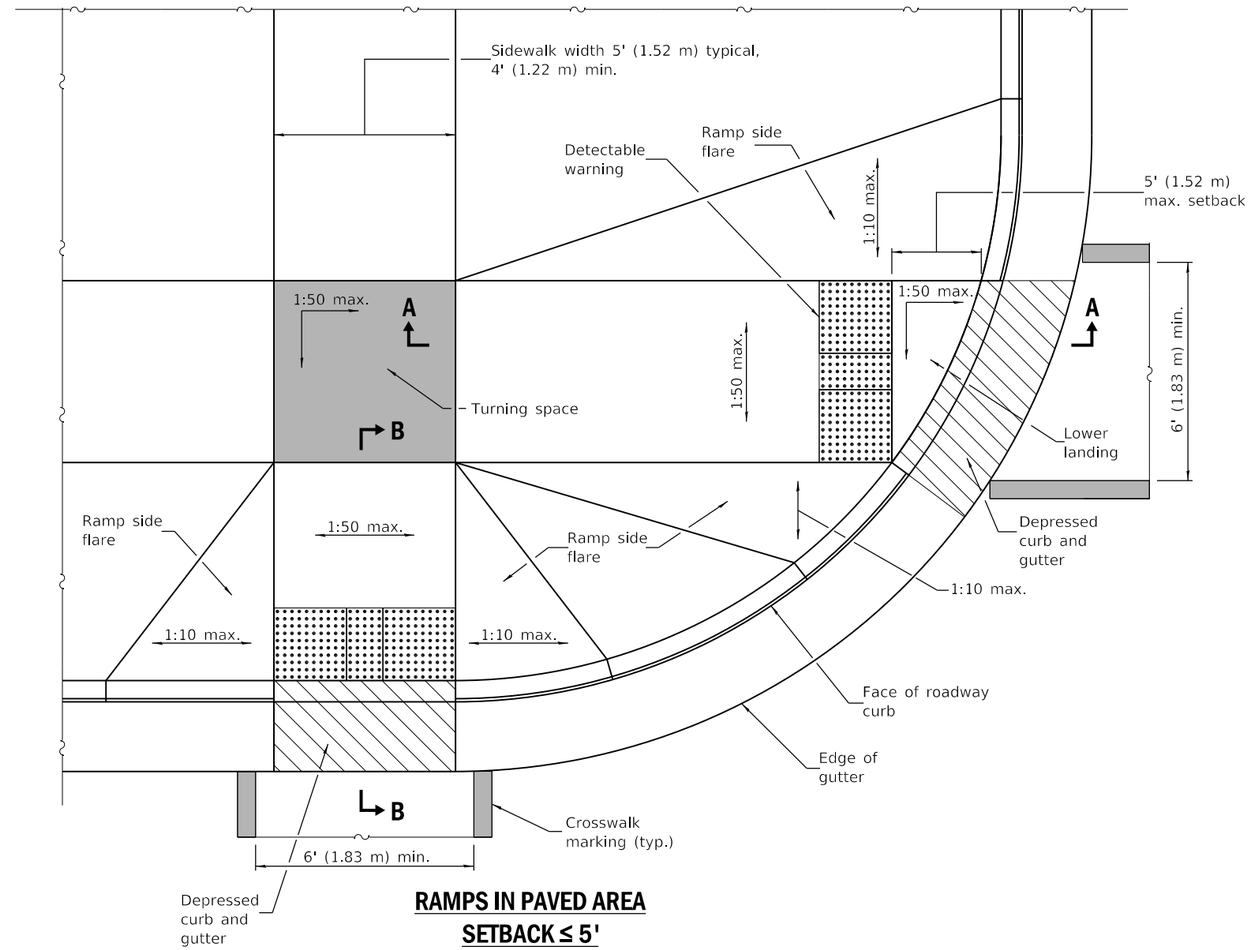
Fire Hydrants: Hydrants shall be Mueller Centurion or Kennedy K-81A Guardian oil-lubricated with six foot bury depth. Pumper nozzle shall be Storz-style. Contractor to contact City to determine color of paint for hydrant.

ILLINOIS DEPARTMENT OF TRANSPORTATION DETAILS FOR REFERENCE

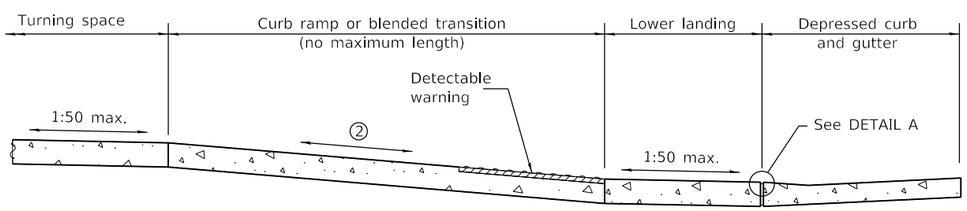
Perpendicular Curb Ramps For Sidewalks	424001-11
Diagonal Curb Ramps For Sidewalks	424006-04
Corner Parallel Curb Ramps For Sidewalks	424011-04
Mid-Block Curb Ramps For Sidewalks	424016-05
Depressed Corner For Sidewalks	424021-05
Entrance / Alley Pedestrain Crossings	424026-03
Class A Patches	442001-04
Lane Closure, 2L, 2W, Work Areas In Series, For Speeds ≥ 45 MPH	701336-07
Urban Lane Closure, 2L, 2W, Undivided	701501-06
Traffic Control Devices	701901-08



RAMPS IN LANDSCAPED AREA
SETBACK ≤ 5'

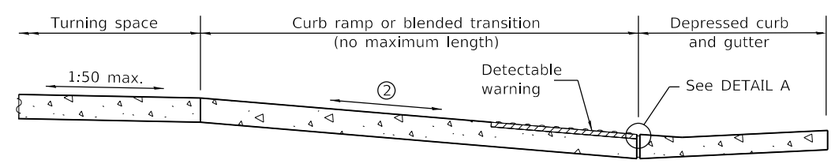


RAMPS IN PAVED AREA
SETBACK ≤ 5'



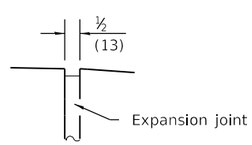
SECTION A-A

② The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.

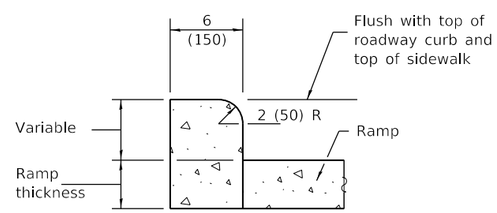


SECTION B-B

② The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.



DETAIL A



SIDE CURB DETAIL

See Sheet 2 for GENERAL NOTES.

DATE	REVISIONS
1-1-19	Removed "15-foot rule", added
	"Blended transitions" and placement
	tolerances for detectable warnings.
1-1-18	Omitted diagonal slope at
	turning spaces and lower
	landings.

PERPENDICULAR CURB RAMPS FOR SIDEWALKS

(Sheet 1 of 2)

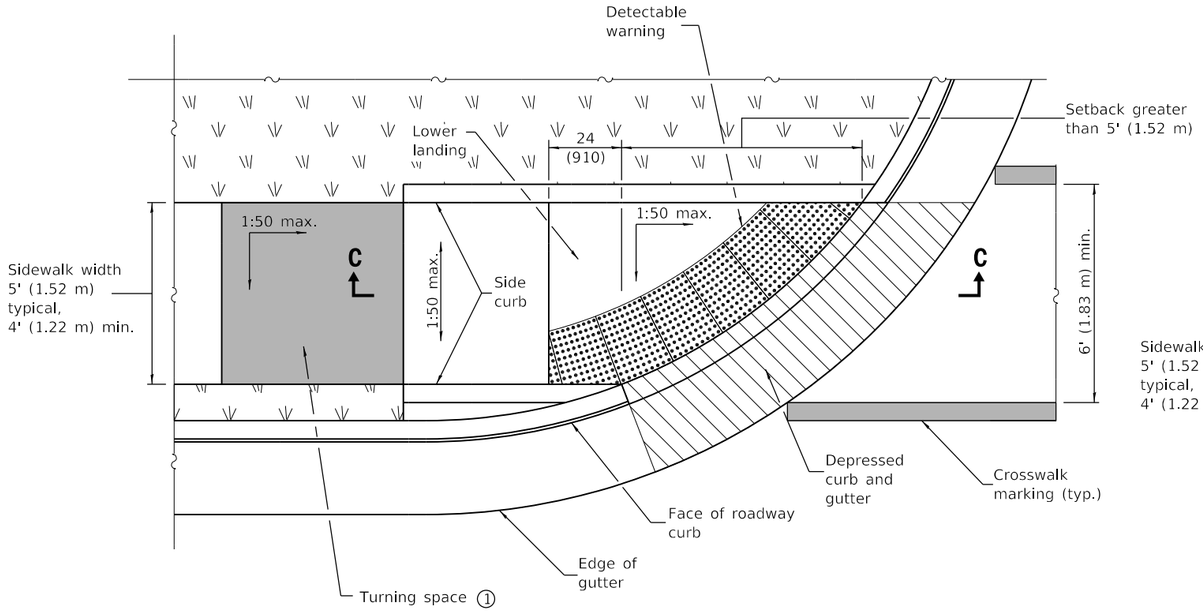
STANDARD 424001-11

Illinois Department of Transportation

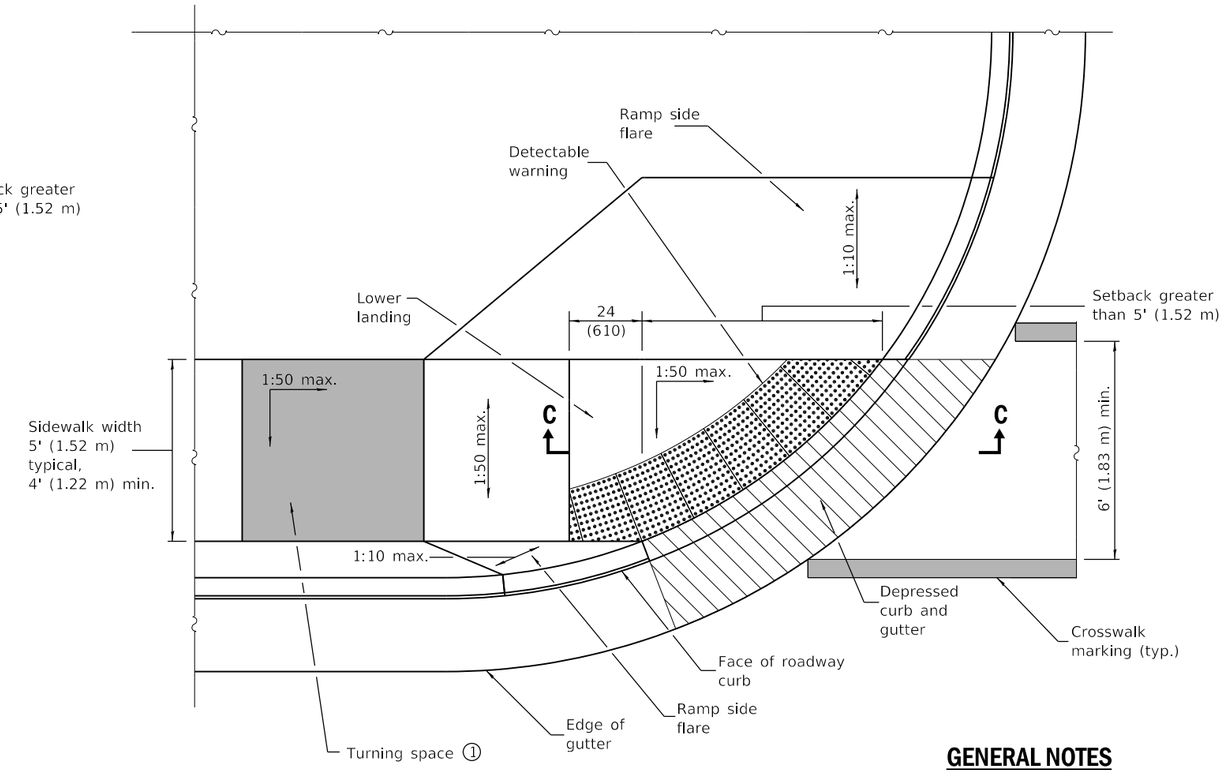
PASSED January 1, 2019
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

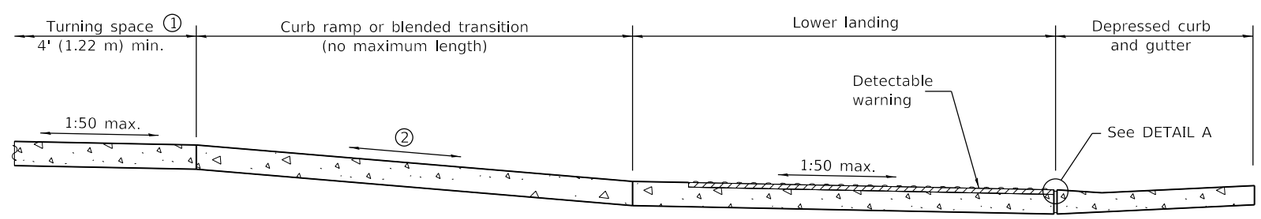
ISSUED 1-1-97



RAMP IN LANDSCAPED AREA SETBACK > 5'



RAMP IN PAVED AREA SETBACK > 5'



SECTION C-C

① This turning space not required for blended transitions.

② The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

Where the turning space is constrained on a side opposite a ramp, the minimum length of the turning space in the direction of the ramp-run shall be 5' (1.52 m).

Where 1:50 maximum slope is shown, 1:64 is preferred.

Detectable warnings are shown in their ideal locations but the following placement tolerances are allowed.

Side Border - Detectable warnings should extend the full width of the walking surface (excluding flared sides) but a border along each side up to 2 in. (50 mm) in width is allowed.

Curb Set-Back - Detectable warnings located at the back of curb should closely align with the curb but a gap up to 6 in. (150 mm) behind the curb is allowed.

See Standard 606001 for details of depressed curb adjacent to curb ramp.

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

Illinois Department of Transportation

PASSED January 1, 2019
ENGINEER OF POLICY AND PROCEDURES

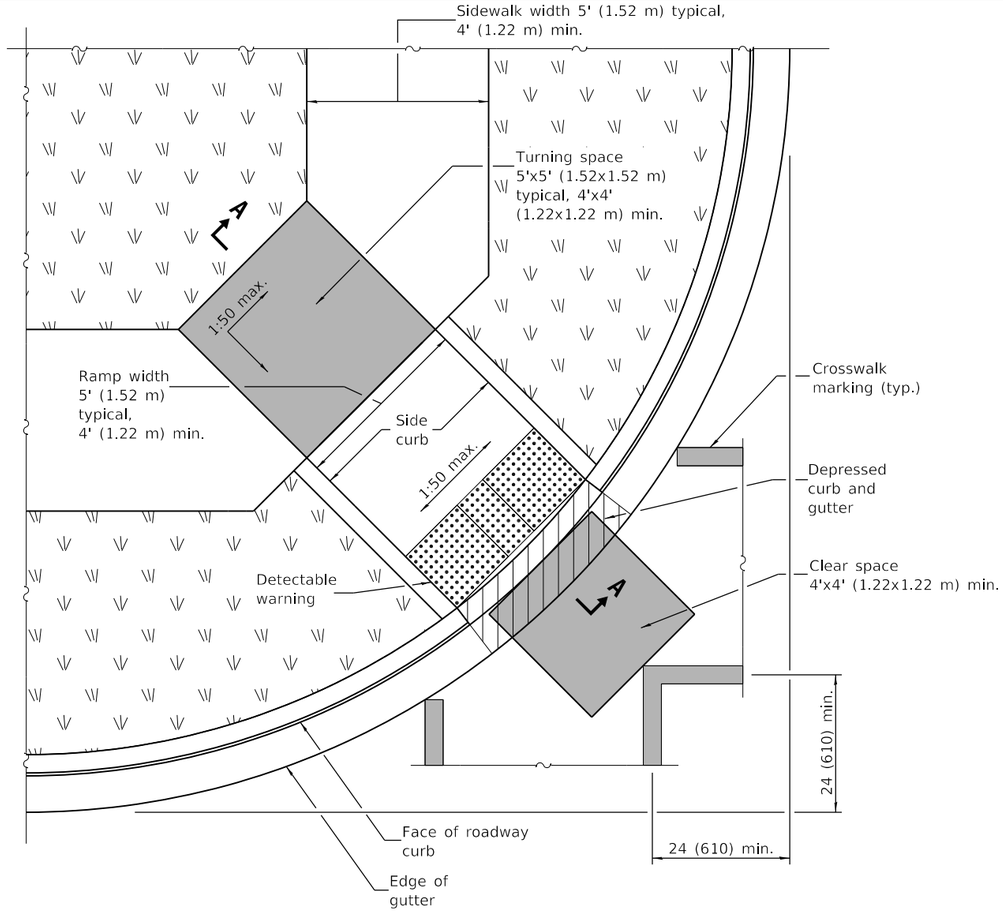
APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

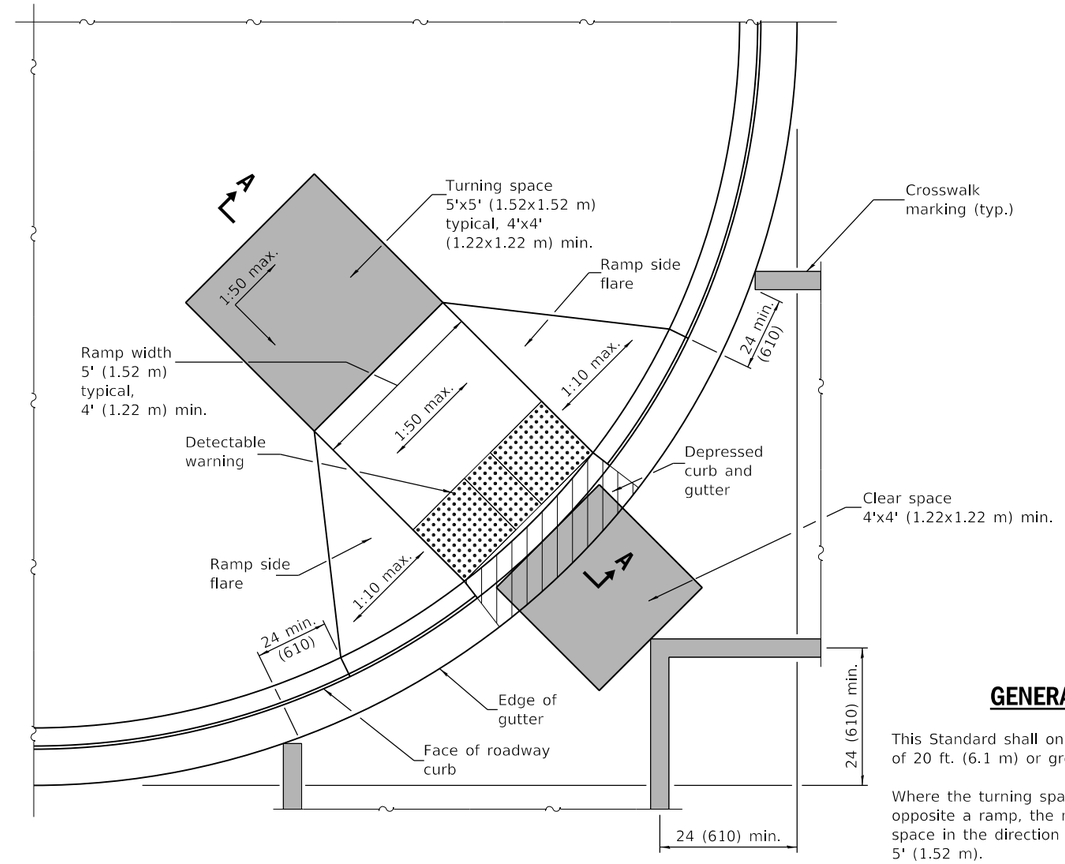
PERPENDICULAR CURB RAMPS FOR SIDEWALKS

(Sheet 2 of 2)

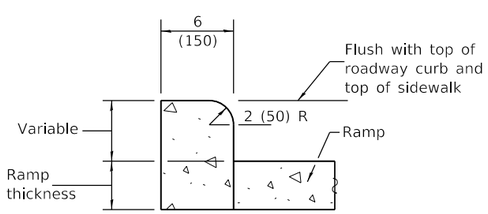
STANDARD 424001-11



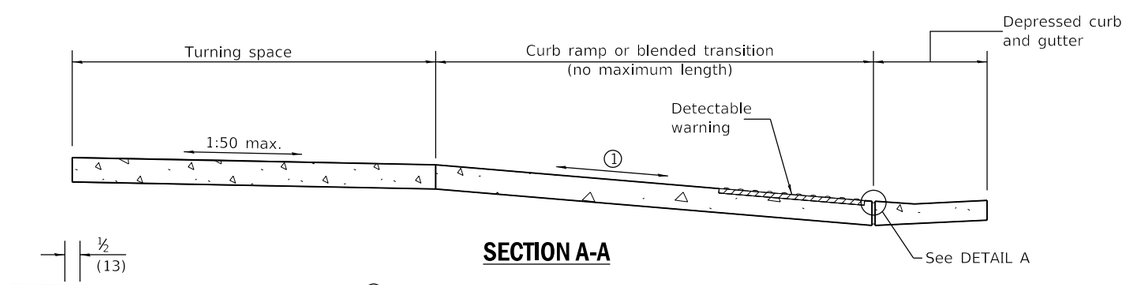
RAMP IN LANDSCAPED AREA



RAMP IN PAVED AREA

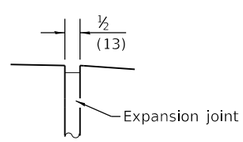


SIDE CURB DETAIL



SECTION A-A

① The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.



DETAIL A

GENERAL NOTES

This Standard shall only be used for curb radii of 20 ft. (6.1 m) or greater.

Where the turning space is constrained on a side opposite a ramp, the minimum length of the turning space in the direction of the ramp-run shall be 5' (1.52 m).

Where 1:50 maximum slope is shown, 1:64 is preferred.

Detectable warnings are shown in their ideal locations but the following placement tolerances are allowed.

Side Border - Detectable warnings should extend the full width of the walking surface (excluding flared sides) but a border along each side up to 2 in. (50 mm) in width is allowed.

Curb Set-Back - Detectable warnings located at the back of curb should closely align with the curb but a gap up to 6 in. (150 mm) behind the curb is allowed.

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

See Standard 606001 for details of depressed curb adjacent to curb ramp.

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

Illinois Department of Transportation

PASSED January 1, 2019
ENGINEER OF POLICY AND PROCEDURES

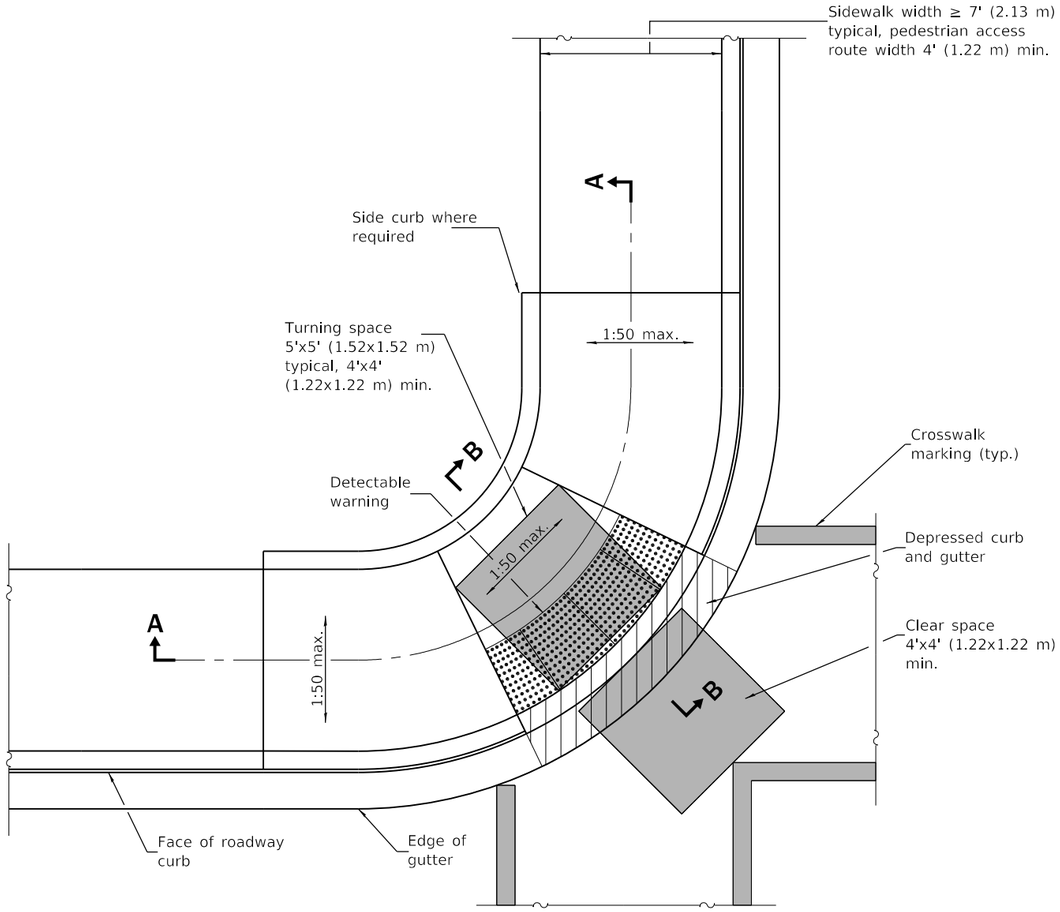
APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-12

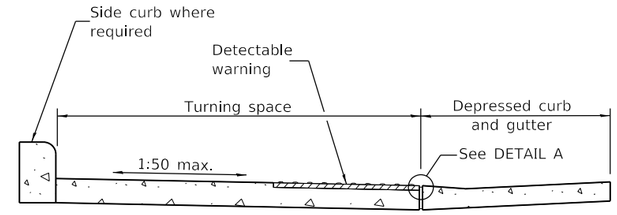
DATE	REVISIONS
1-1-19	Removed "15-foot rule", added
	"blended transitions" and placement
	tolerances for detectable warnings.
1-1-18	Omitted diagonal slope at
	turning spaces.

DIAGONAL CURB RAMPS FOR SIDEWALKS

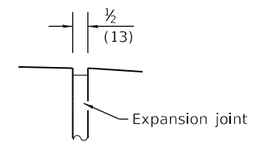
STANDARD 424006-04



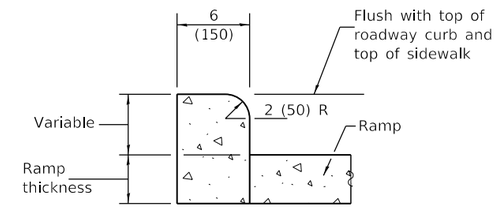
CORNER PARALLEL CURB RAMP



SECTION B-B



DETAIL A



SIDE CURB DETAIL

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

Where the turning space is constrained on a side opposite a ramp, the minimum length of the turning space in the direction of the ramp-run shall be 5' (1.52 m).

Where 1:50 maximum slope is shown, 1:64 is preferred.

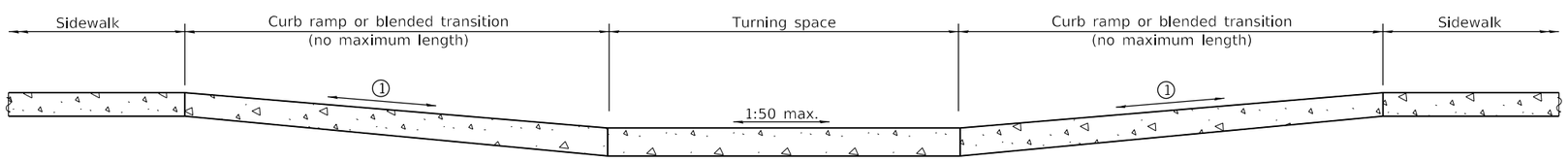
Detectable warnings are shown in their ideal locations but the following placement tolerances are allowed.

Side Border - Detectable warnings should extend the full width of the walking surface (excluding flared sides) but a border along each side up to 2 in. (50 mm) in width is allowed.

Curb Set-Back - Detectable warnings located at the back of curb should closely align with the curb but a gap up to 6 in. (150 mm) behind the curb is allowed.

See Standard 606001 for details of depressed curb adjacent to curb ramp.

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



SECTION A-A

① The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.

Illinois Department of Transportation

PASSED January 1, 2019
ENGINEER OF POLICY AND PROCEDURES

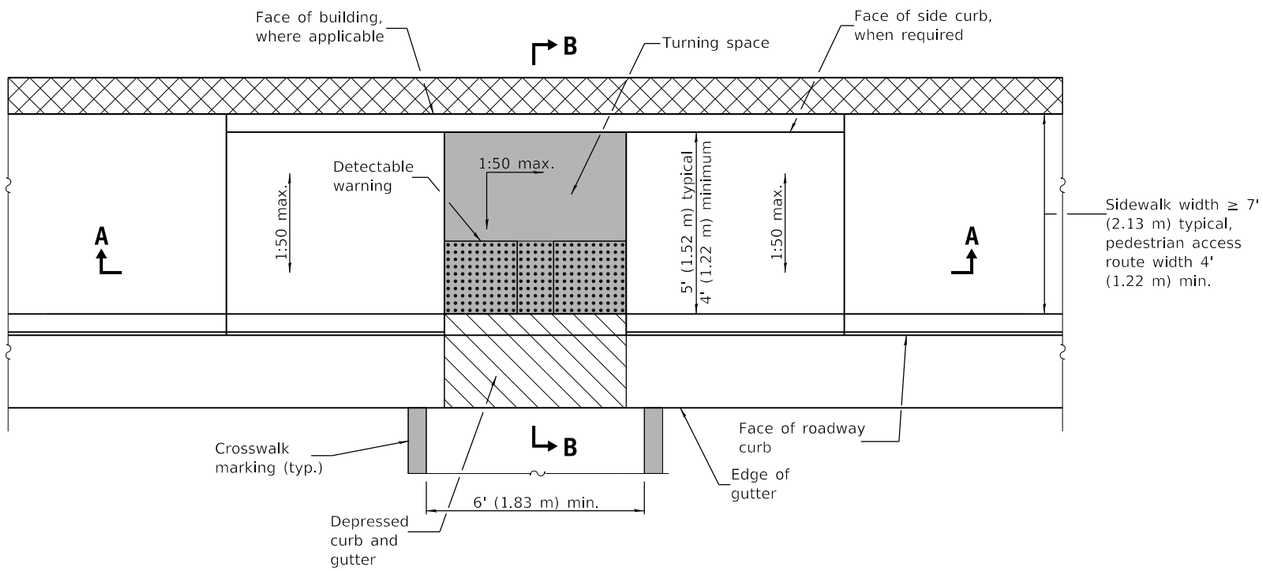
APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-12

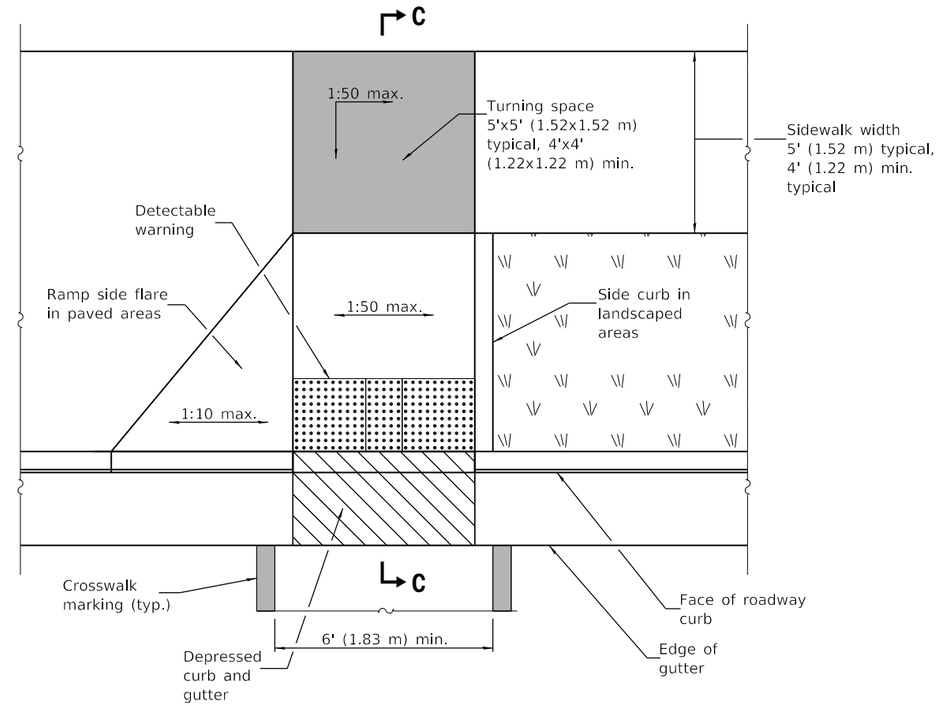
DATE	REVISIONS
1-1-19	Removed upper landing, added
	blended transition and detectable
	warning tolerances.
1-1-17	Revised sidewalk width to
	include 24 (610) buffer
	behind curb.

CORNER PARALLEL CURB RAMPS FOR SIDEWALKS

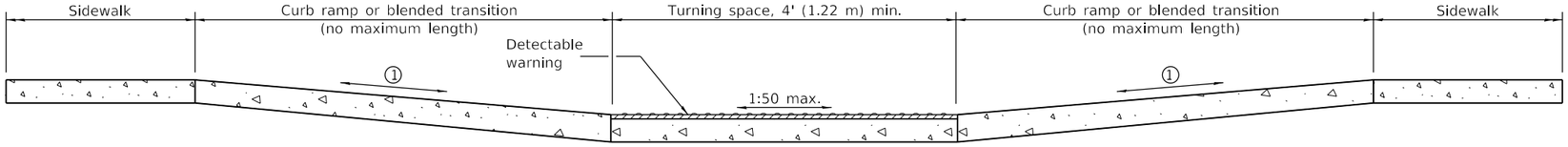
STANDARD 424011-04



PARALLEL MID-BLOCK CURB RAMP

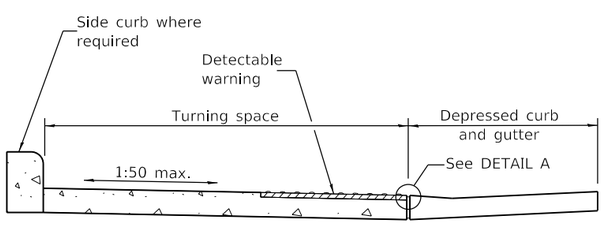


PERPENDICULAR MID-BLOCK CURB RAMP

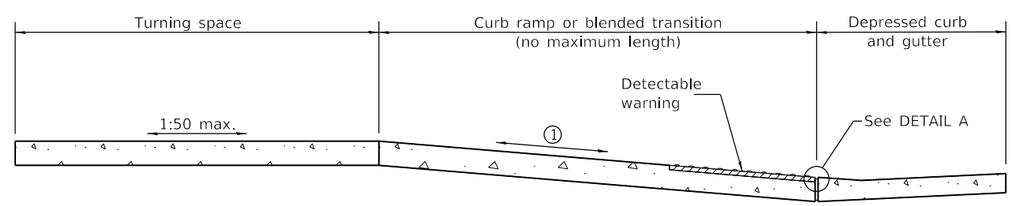


SECTION A-A

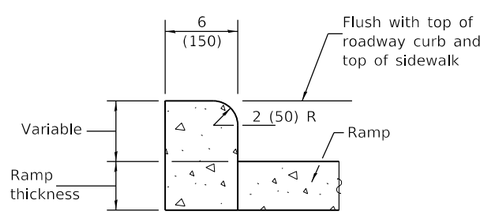
1 The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.



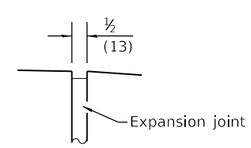
SECTION B-B



SECTION C-C



SIDE CURB DETAIL



DETAIL A

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

Where the turning space is constrained on a side opposite a ramp, the minimum length of the turning space in the direction of the ramp-run shall be 5' (1.52 m).

Where 1:50 maximum slope is shown, 1:64 is preferred.

Detectable warnings are shown in their ideal locations but the following placement tolerances are allowed.

Side Border - Detectable warnings should extend the full width of the walking surface (excluding flared sides) but a border along each side up to 2 in. (50 mm) in. width is allowed.

Curb Set-Back - Detectable warnings located at the back of curb should closely align with the curb but a gap up to 6 in. (150 mm) behind the curb is allowed.

See Standard 606001 for details of depressed curb adjacent to curb ramp.

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

Illinois Department of Transportation

PASSED January 1, 2019
ENGINEER OF POLICY AND PROCEDURES

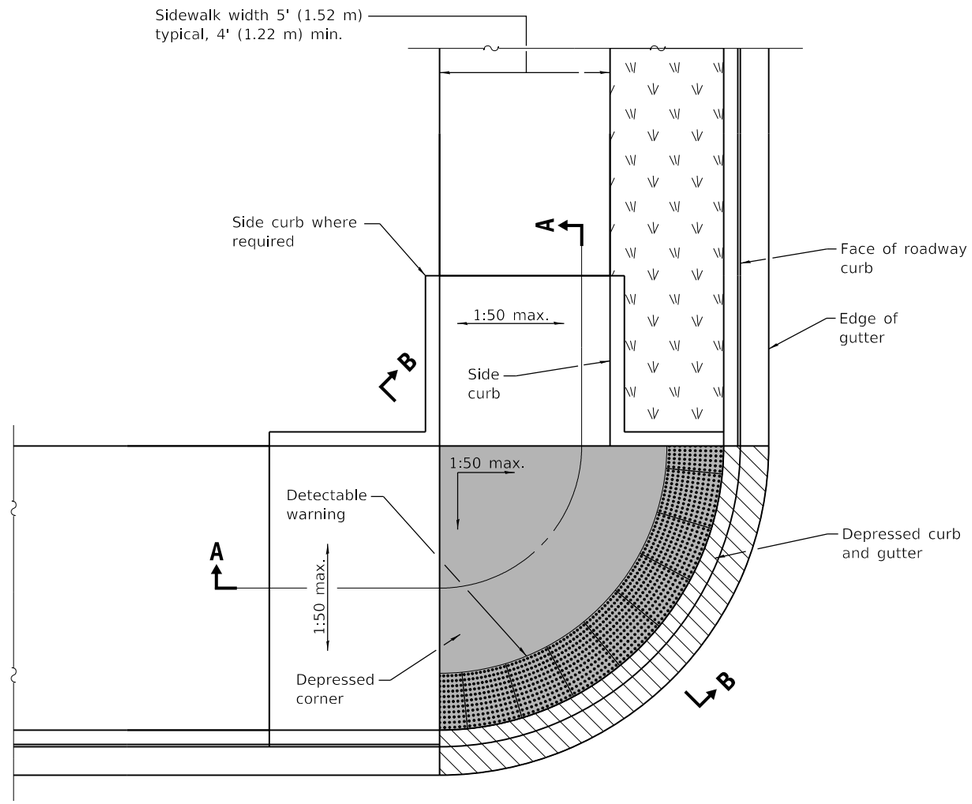
APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-12

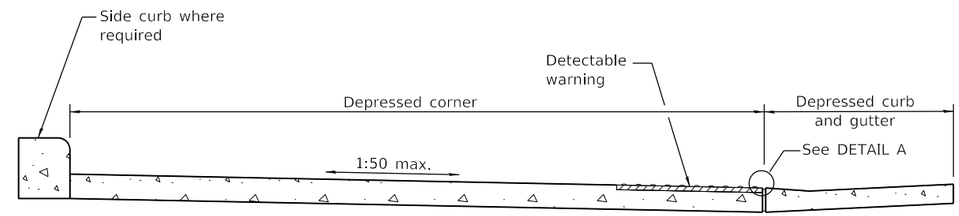
DATE	REVISIONS
1-1-19	Removed upper landing, added
	blended transitions and detectable
	warning tolerances.
1-1-18	Omitted diagonal slope at
	turning spaces and upper
	landings.

MID-BLOCK CURB RAMPS FOR SIDEWALKS

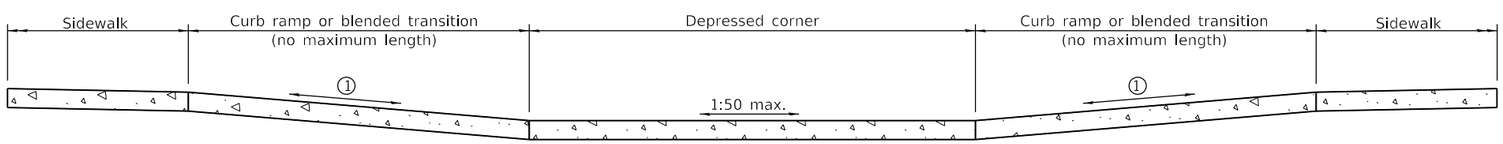
STANDARD 424016-05



DEPRESSED CORNER

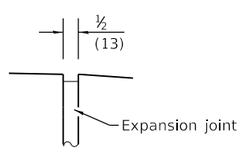


SECTION B-B

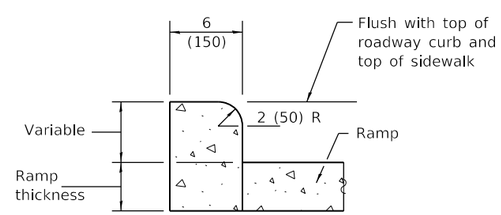


SECTION A-A

1 The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.



DETAIL A



SIDE CURB DETAIL

GENERAL NOTES

This standard shall only be used for curb radii of 6 ft. (1.83 m) or greater.

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

Where 1:50 maximum slope is shown, 1:64 is preferred.

Detectable warnings are shown in their ideal tolerances but the following placement tolerances are allowed.

Side Border - Detectable warnings should extend the full width of the walking surface (excluding flared sides) but a border along each side up to 2 in. (50 mm) in. width is allowed.

Curb Set-Back - Detectable warnings located at the back of curb should closely align with the curb but a gap up to 6 in. (150 mm) behind the curb is allowed.

See Standard 606001 for details of depressed curb adjacent to curb ramp.

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

Illinois Department of Transportation

PASSED January 1, 2019
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-12

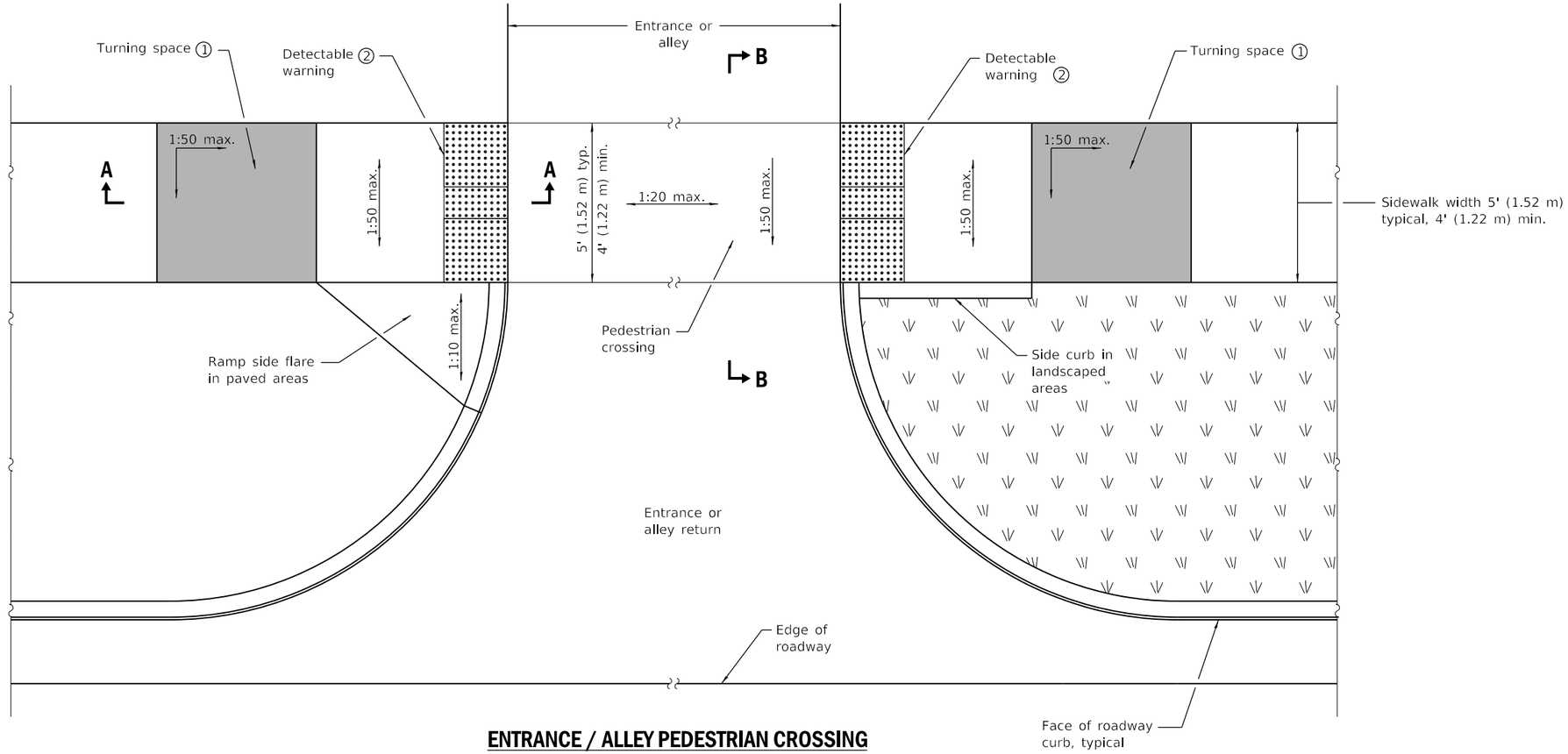
DATE	REVISIONS
1-1-19	Removed upper landings, added
	blended transition and detectable
	warning tolerances.
1-1-18	Omitted diagonal slope at
	turning spaces and upper
	landings.

DEPRESSED CORNER FOR SIDEWALKS

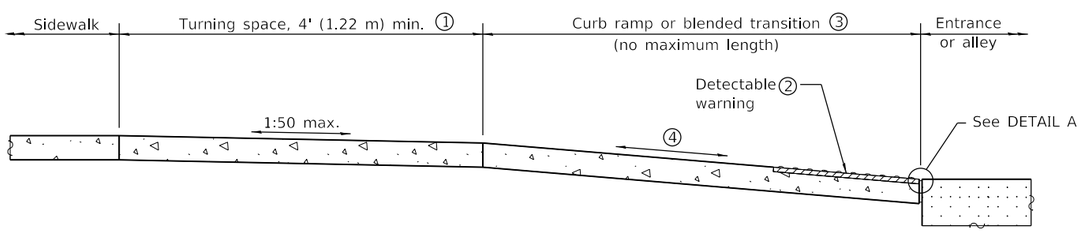
STANDARD 424021-05

② Detectable warning shall only be installed at entrances/alleys with permanent traffic control devices (i.e. stop signs, signals).

③ Where possible, maintain the grade of the sidewalk across the entrance/alley to avoid the need for ramps and turning spaces.



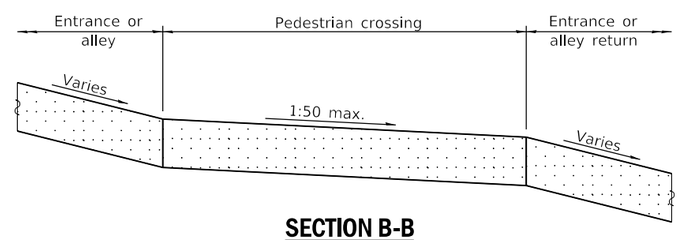
ENTRANCE / ALLEY PEDESTRIAN CROSSING



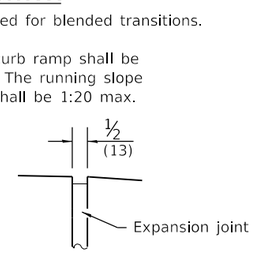
SECTION A-A

① Turning space not required for blended transitions.

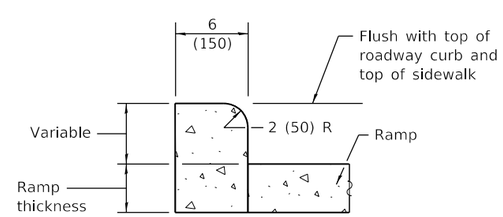
④ The running slope of a curb ramp shall be 1:20 min and 1:12 max. The running slope of a blended transition shall be 1:20 max.



SECTION B-B



DETAIL A



SIDE CURB DETAIL

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

Where 1:50 maximum slope is shown, 1:64 is preferred.

Detectable warnings are shown in their ideal locations but the following placement tolerances are allowed.

Side Border - Detectable warnings should extend the full width of the walking surface (excluding flared sides) but a border along each side up to 2 in. (50 mm) in width is allowed.

Curb Set-Back - Detectable warnings located at the back of curb should closely align with the curb but a gap up to 6 in. (150 mm) behind the curb is allowed.

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

Illinois Department of Transportation

PASSED January 1, 2019
ENGINEER OF POLICY AND PROCEDURES

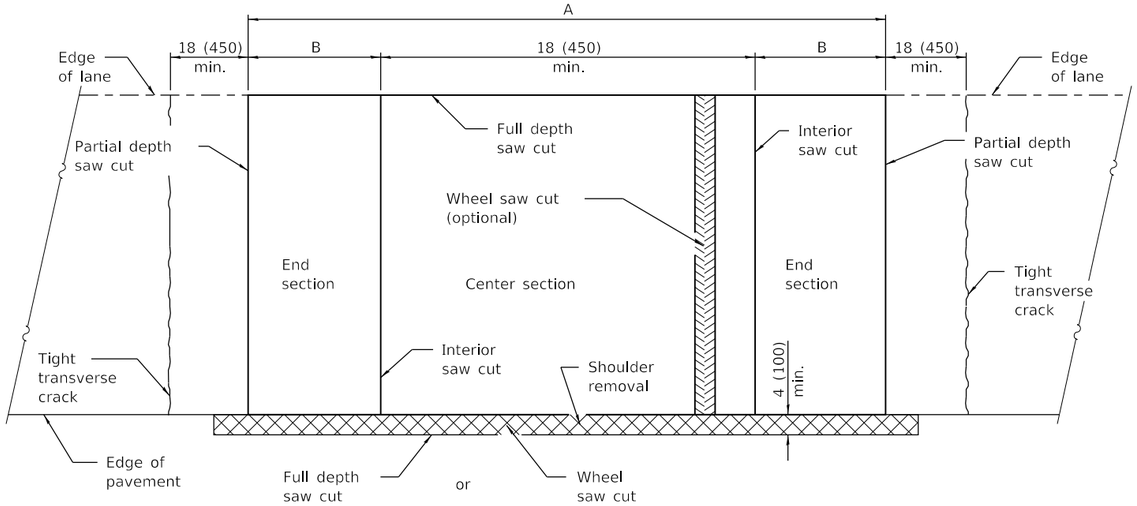
APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-12

DATE	REVISIONS
1-1-19	Added blended transitions and
	placement tolerances for
	detectable warnings.
1-1-18	Omitted diagonal slope at
	upper landings.

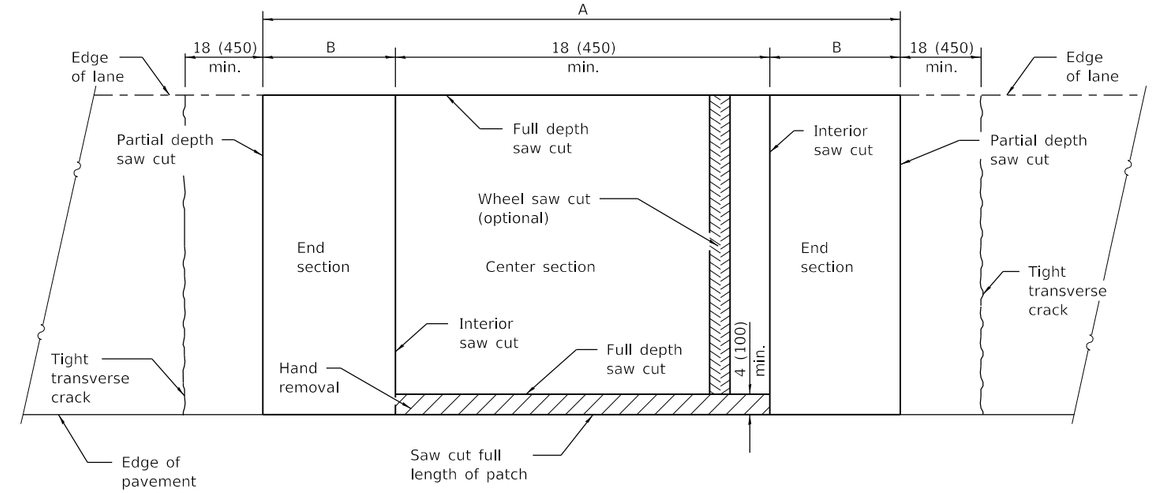
ENTRANCE / ALLEY PEDESTRIAN CROSSINGS

STANDARD 424026-03



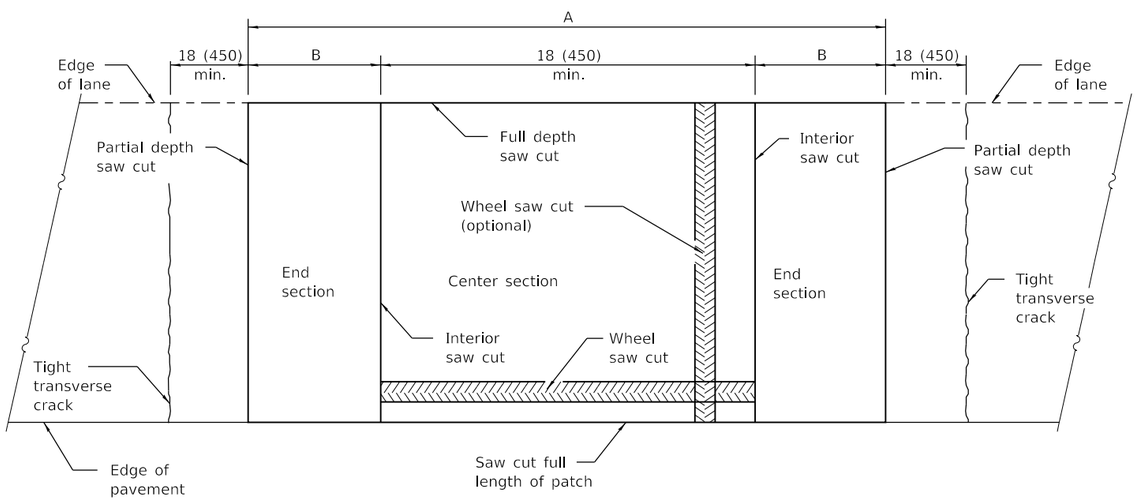
PAVEMENT SAWING DETAIL

(HMA SHOULDER)



PAVEMENT SAWING DETAIL

(PCC SHOULDER)



ALTERNATE SAWING DETAIL

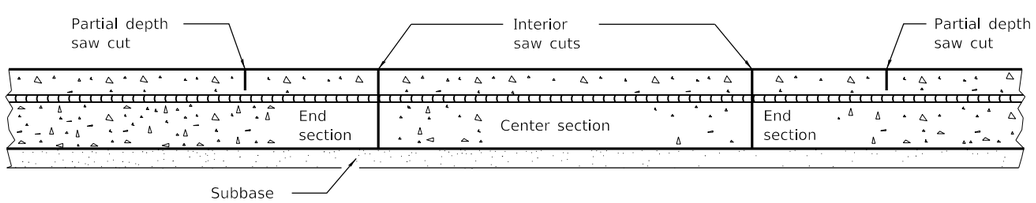
(PCC SHOULDER)

EXISTING REINFORCEMENT BARS	A (min.)	B (min.)	C (min.)
No. 5 (No. 16)	4'-6" (1.4 m)	18 (450)	16 (400)
No. 6 (No. 19)	5'-0" (1.5 m)	21 (525)	19 (475)
No. 7 (No. 22)	5'-6" (1.7 m)	24 (600)	22 (550)
Fabric	5'-0" (1.5 m)	21 (525)	18 (450)

GENERAL NOTES

When patching two adjacent lanes in one operation, the longitudinal joint shall be a longitudinal sawed joint as detailed on Standard 420001; however, the groove may be either preformed or sawed.

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



SAW CUT DETAIL

Illinois Department of Transportation

PASSED January 1, 2008
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2008
ENGINEER OF DESIGN AND ENVIRONMENT

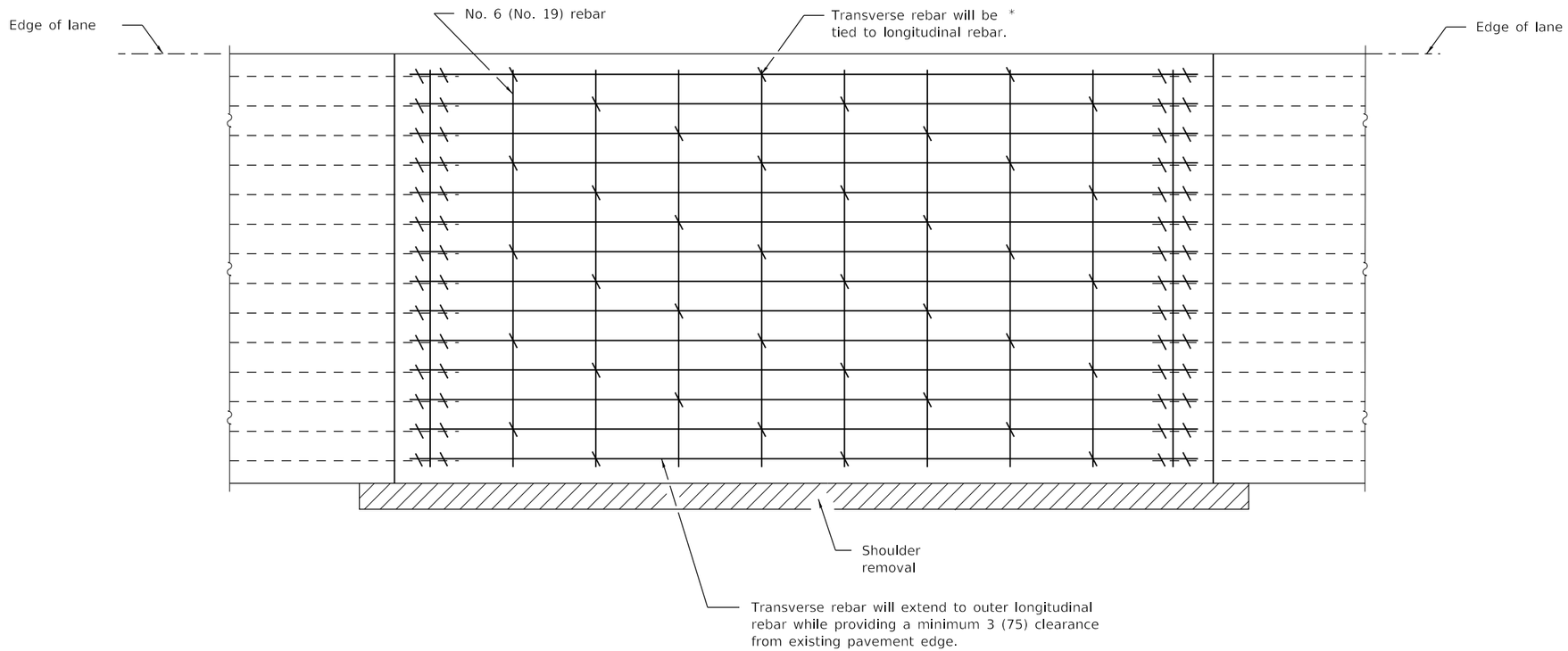
ISSUED 1-1-97

DATE	REVISIONS
1-1-08	Switched units to
	English (metric).
1-1-07	Revised General Notes.

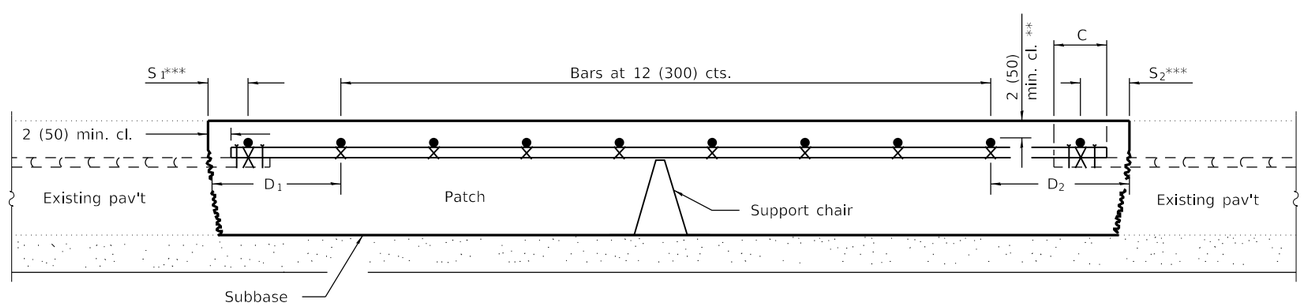
CLASS A PATCHES

(Sheet 1 of 2)

STANDARD 442001-04



PAVEMENT REINFORCEMENT DETAIL



PATCHING DETAIL

* Every 3rd intersection must be tied.

** When the minimum clearance cannot be obtained with the transverse bar on top then the transverse rebar shall be tied to the bottom of the longitudinal rebar.

*** Variable: Where S_1 and S_2 are 2½ (65) min. and 12 (300) max. $D_1 = 2(S_1)$ and $D_2 = 2(S_2)$.

Illinois Department of Transportation

PASSED January 1, 2008
ENGINEER OF POLICY AND PROCEDURES

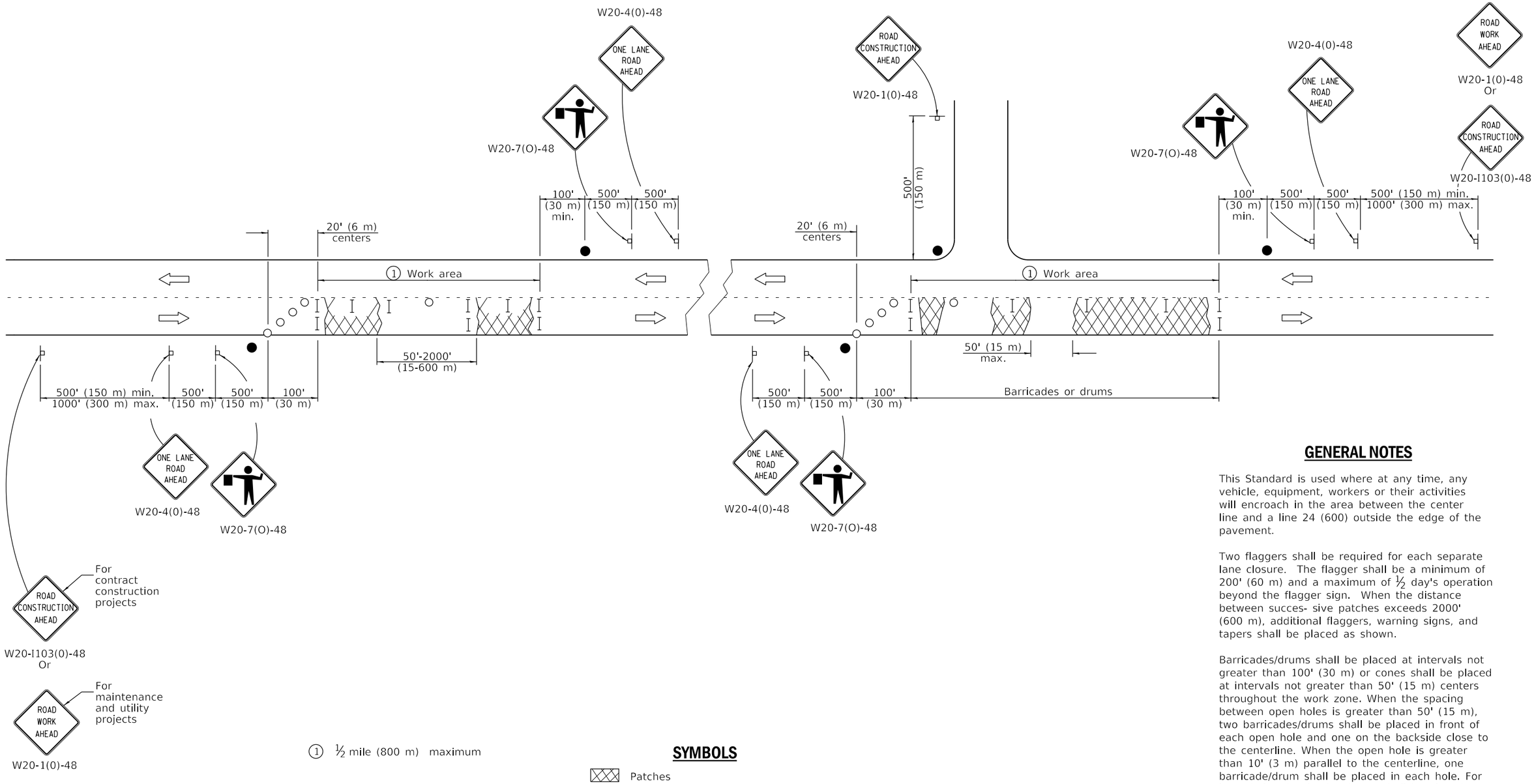
APPROVED January 1, 2008
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

CLASS A PATCHES

(Sheet 2 of 2)

STANDARD 442001-04



1 ½ mile (800 m) maximum

SYMBOLS

- Patches
- Sign
- Flagger with traffic control sign
- Barricade or drum
- Cone, barricade or drum

TYPICAL APPLICATIONS

Patching

GENERAL NOTES

This Standard is used where at any time, any vehicle, equipment, workers or their activities will encroach in the area between the center line and a line 24 (600) outside the edge of the pavement.

Two flaggers shall be required for each separate lane closure. The flagger shall be a minimum of 200' (60 m) and a maximum of ½ day's operation beyond the flagger sign. When the distance between succes- sive patches exceeds 2000' (600 m), additional flaggers, warning signs, and tapers shall be placed as shown.

Barricades/drums shall be placed at intervals not greater than 100' (30 m) or cones shall be placed at intervals not greater than 50' (15 m) centers throughout the work zone. When the spacing between open holes is greater than 50' (15 m), two barricades/drums shall be placed in front of each open hole and one on the backside close to the centerline. When the open hole is greater than 10' (3 m) parallel to the centerline, one barricade/drum shall be placed in each hole. For large holes, barricades/drums shall be placed at 50' (16 m) centers.

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

Illinois Department of Transportation

APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

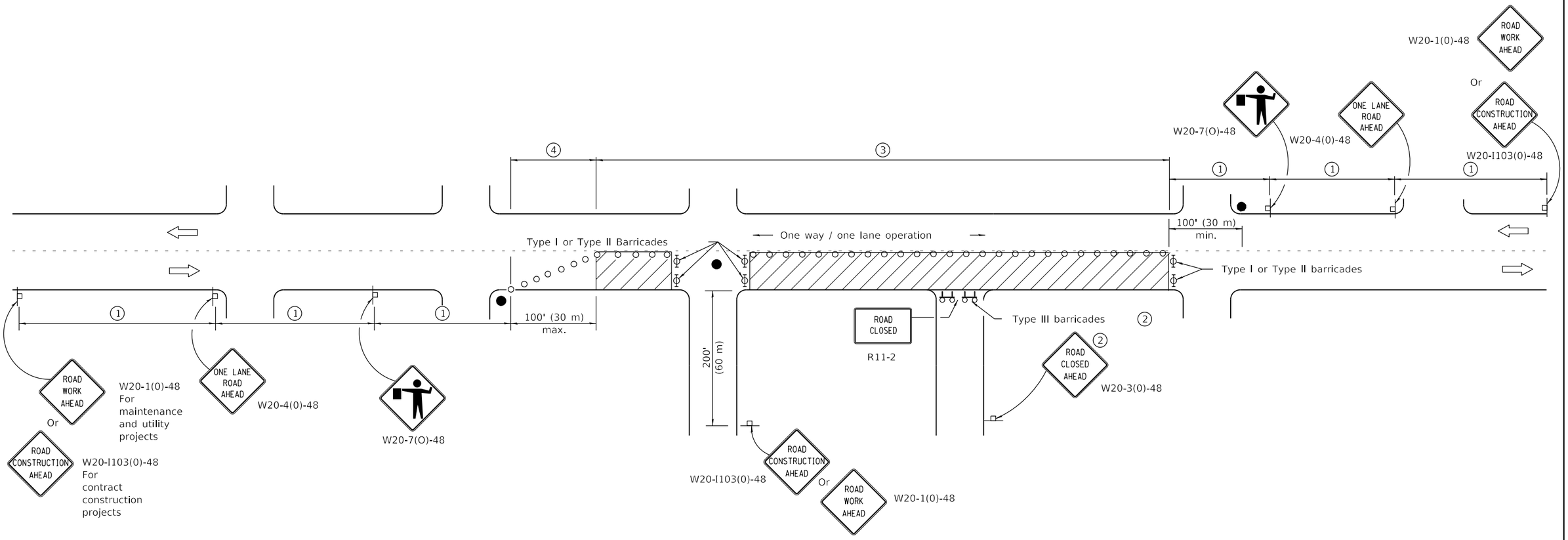
APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-19	Revised device spacing in taper.
1-1-11	Revised flagger sign.

LANE CLOSURE, 2L, 2W, WORK AREAS IN SERIES, FOR SPEEDS ≥ 45 MPH

STANDARD 701336-07



SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

SYMBOLS

- Work area
- Cone, drum or barricade (not required for moving operations)
- Sign on portable or permanent support
- Flagger with traffic control sign
- Barricade or drum with flashing light
- Type III barricade with flashing lights

1. Refer to SIGN SPACING TABLE for distances.
2. For approved sideroad closures.
3. Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 50' (15 m) centers. When drums or Type I or Type II barricades are used. the interval between devices may be doubled.
4. Cones, drums or barricades at 20' (6 m) centers.

GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities
encroach on the pavement requiring the closure of one traffic lane in an urban area.

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

Illinois Department of Transportation

PASSED January 1, 2011
ENGINEER OF SAFETY ENGINEERING

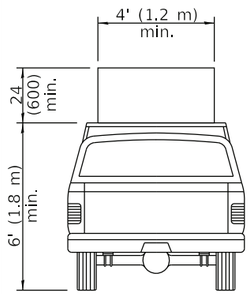
APPROVED January 1, 2011
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

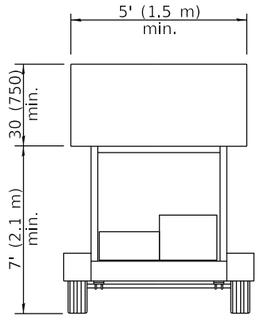
DATE	REVISIONS
1-1-11	Revised flagger sign.
1-1-09	Switched units to
	English (metric).
	Corrected sign No.'s.

URBAN LANE CLOSURE, 2L, 2W, UNDIVIDED

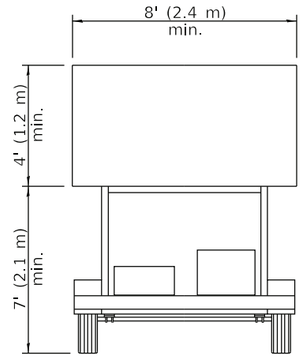
STANDARD 701501-06



TYPE A
ROOF
MOUNTED

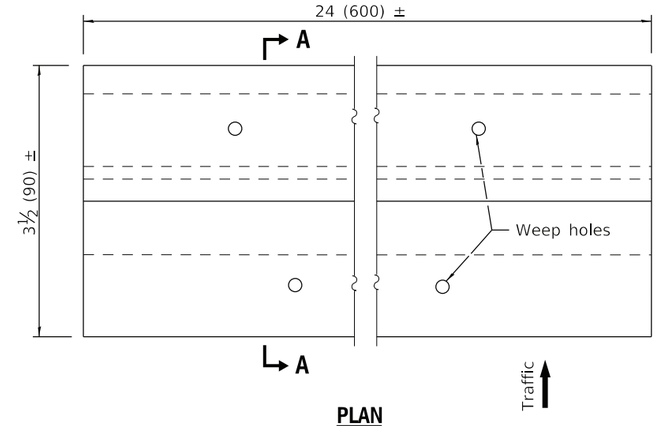


TYPE B
ROOF OR TRAILER
MOUNTED

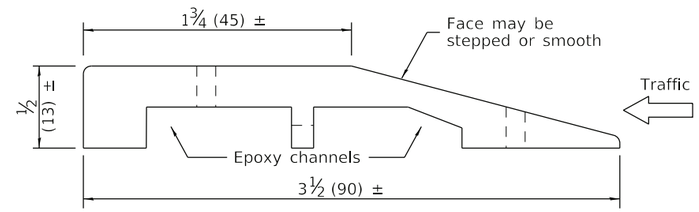


TYPE C
TRAILER
MOUNTED

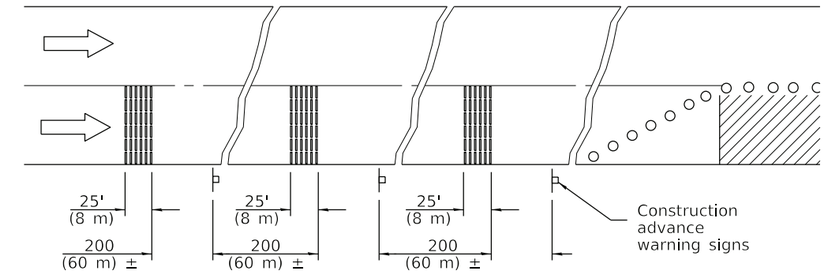
ARROW BOARDS

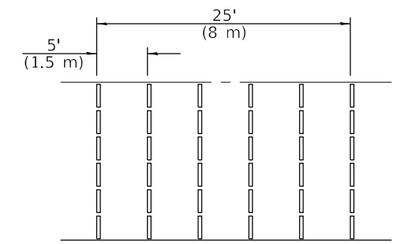


PLAN



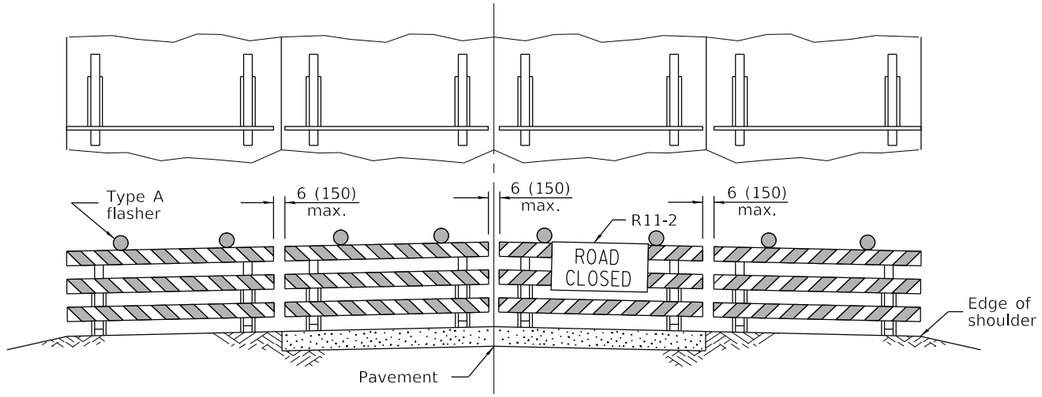
SECTION A-A





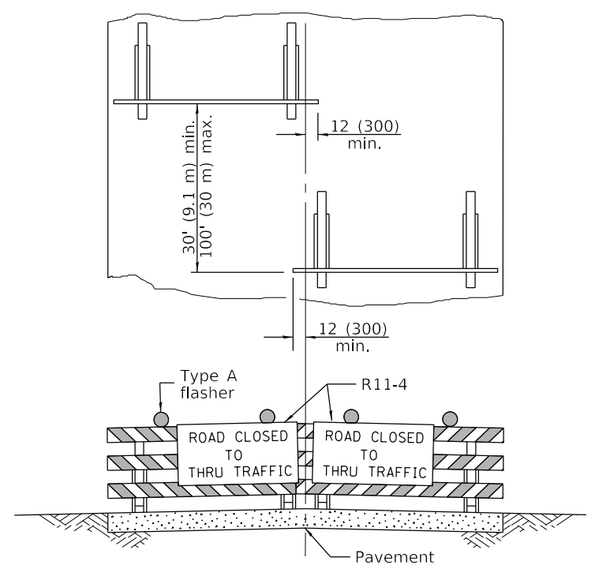
TYPICAL INSTALLATION

TEMPORARY RUMBLE STRIPS



ROAD CLOSED TO ALL TRAFFIC

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.



ROAD CLOSED TO THRU TRAFFIC

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

Illinois Department of Transportation

APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-13

TRAFFIC CONTROL DEVICES

(Sheet 3 of 3)

STANDARD 701901-08