

TECHNICAL SPECIFICATIONS FOR PUBLIC IMPROVEMENT PROJECTS

CITY OF GARDNER, KANSAS
JANUARY 2023

TABLE OF CONTENTS
TECHNICAL SPECIFICATIONS

	<u>Page</u>
GENERAL PROVISIONS	TS/GP 1-9
SECTION 1000 - SITE PREPARATION	
1001 SCOPE	TS/10-1
1002 DEFINITIONS	TS/10-1
1003 UTILITY COORDINATION	TS/10-1
1004 LIMITS OF CONSTRUCTION	TS/10-1
1005 PROGRESS OF CONSTRUCTION	TS/10-1
1006 PROTECTION OF TREES AND SHRUBS	TS/10-2
1007 CONSTRUCTION STAKING	TS/10-2
SECTION 1100 - GRADING	
1101 SCOPE	TS/11-1
1102 MATERIALS AND DEFINITIONS	TS/11-1
1103 CONSTRUCTION – GENERAL	TS/11-2
1104 EXCAVATION – GRADING	TS/11-2
1105 EMBANKMENT – GRADING	TS/11-2
1106 EMBANKMENT - BACKFILL AND COMPACTION	TS/11-3
1107 STRUCTURE BACKFILL	TS/11-4
1108 SHEETING AND SHORING	TS/11-4
1109 FINAL GRADING	TS/11-4
1110 CLEANUP	TS/11-4
1111 SETTLEMENT	TS/11-5
1112 TEMPORARY SURFACING	TS/11-5
SECTION 1200 - SUBGRADE PREPARATION	
1201 SCOPE	TS/12-1
1202 DEFINITIONS	TS/12-1
1203 CONSTRUCTION REQUIREMENTS	TS/12-1
1204 MOISTURE CONTENT REQUIREMENTS	TS/12-2
1205 COMPACTION REQUIREMENTS	TS/12-2
1206 PROTECTION AND MAINTENANCE OF SUBGRADE	TS/12-3
1207 COMPACTION TESTING AND PROOF ROLLING	TS/12-3
1208 FLYASH SUBGRADE TREATMENT	TS/12-3
1209 CONSTRUCTION REQUIREMENTS	TS/12-4
1210 AB-3 MODIFIED AGGREGATE BASE	TS/12-5
1211 PAVEMENT WIDENING AND CONFINED AREAS	TS/12-6

SECTION 1300 - ASPHALTIC CONCRETE PAVEMENT

1301 SCOPE..... TS/13-1
1302 GENERAL..... TS/13-1
1303 MATERIALS FOR LOCAL AND COLLECTOR STREETS,..... TS/13-1
 SIDEPATHS, TRAILS, AND PARKING AREAS
1304 MATERIALS FOR ARTERIAL STREETS TS/13-4
1305 DELIVERY TS/13-5
1306 EQUIPMENT..... TS/13-5
1307 PREPARATION TS/13-6
1308 PLACEMENT..... TS/13-7
1309 TESTING TS/13-10
1310 WEATHER LIMITATIONS TS/13-10
1311 SURFACE SMOOTHNESS TS/13-10
1312 PROTECTION..... TS/13-11

SECTION 1400 - PORTLAND CEMENT CONCRETE PAVEMENT

1401 SCOPE TS/14-1
1402 MATERIALS..... TS/14-1
1403 CONSTRUCTION DETAILS TS/14-1
1404 JOINTS TS/14-2
1405 PLACING, FINISHING, CURING, AND PROTECTION TS/14-3
1406 BACKFILL TS/14-6
1407 JOINT SEALING AND CLEAN-UP TS/14-6
1408 CONCRETE CURB..... TS/14-6
1409 CLEANUP TS/14-7
1410 SURFACE TOLERANCES TS/14-7
1411 THICKNESS TOLERANCES TS/14-7

SECTION 2000 – CONCRETE

2001 SCOPE..... TS/20-1
2002 GENERAL..... TS/20-1
2003 MATERIALS..... TS/20-1
2004 MIX DESIGNS..... TS/20-2
2005 CONCRETE MIX DESIGNATIONS..... TS/20-2
2006 LIMITING REQUIREMENTS..... TS/20-3
2007 MIXING AND DELIVERY TS/20-4
2008 PLACEMENT TS/20-5
2009 COLD WEATHER CONCRETING TS/20-5
2010 HOT WEATHER CONCRETING TS/20-6
2011 CURING AND PROTECTION..... TS/20-6
2012 FORMS..... TS/20-6
2013 FINISHING FORMED SURFACES TS/20-7
2014 REPAIRING DEFECTIVE AND DAMAGED CONCRETE..... TS/20-7
2015 REINFORCEMENTS..... TS/20-7
2016 CONSTRUCTION JOINTS TS/20-8
2017 EXPANSION AND CONTRACTION JOINTS..... TS/20-8
2018 REINFORCED CONCRETE BOX FORMING SEQUENCE..... TS/20-8

	<u>Page</u>
SECTION 2100 - CONCRETE CURB, CURB AND GUTTER, SIDEWALK, AND DRIVEWAY ENTRANCES	
2101 SCOPE.....	TS/21-1
2102 MATERIALS	TS/21-1
2103 GENERAL.....	TS/21-1
2104 GRADING AND SUBGRADE PREPARATION	TS/21-1
2105 FORMS.....	TS/21-1
2106 EXPANSION AND CONTRACTION OR CONSTRUCTION	TS/21-1
JOINTS	
2107 FINISHING.....	TS/21-1
2108 PROTECTION.....	TS/21-2
2109 OPENING TO TRAFFIC.....	TS/21-2
2110 REINFORCEMENT (CURB AND GUTTER).....	TS/21-2
2111 REINFORCEMENT (OTHER)	TS/21-2

SECTION 3000 - SANITARY SEWERS

3001 SCOPE.....	TS/30-1
3002 GENERAL.....	TS/30-1
3003 MATERIALS	TS/30-1
3004 ALIGNMENT	TS/30-3
3005 HANDLING	TS/30-5
3006 CLEANING.....	TS/30-5
3007 LAYING PIPE.....	TS/30-5
3008 JOINTING	TS/30-5
3009 TEMPORARY PLUGS	TS/30-5
3010 WYE BRANCHES AND SADDLES	TS/30-6
3011 CONCRETE ENCASEMENT	TS/30-6
3012 WATER LINE CLEARANCES.....	TS/30-6
3013 SEWER MANHOLES	TS/30-6
3014 ACCEPTANCE TEST	TS/30-6
3015 BORING WITH CASING PIPE	TS/30-11

SECTION 3100 - SANITARY SEWER MANHOLES

3101 SCOPE	TS/31-1
3102 MATERIALS	TS/31-1
3103 STANDARD MANHOLES	TS/31-1
3104 CONSTRUCTION	TS/31-2
3105 CASTINGS	TS/31-2
3106 CONNECTIONS TO EXISTING MANHOLES	TS/31-2
3107 MANHOLE STEPS.....	TS/31-2
3108 GRADE RINGS.....	TS/31-2
3109 ACCEPTANCE TESTING	TS/31-3

	<u>Page</u>
SECTION 4000 - STORM SEWERS	
4001 SCOPE	TS/40-1
4002 MATERIALS	TS/40-1
4003 INSTALLATION	TS/40-2
4004 CATCH BASINS, INLETS, AND JUNCTION BOXES.....	TS/40-3
4005 REINFORCED CONCRETE BOX CULVERTS	TS/40-3
4006 PAVED DITCHES AND RIPRAP	TS/40-3
4007 HEADWALLS, WINGWALLS, ENDWALLS, AND	TS/40-4
END SECTIONS	
4008 RESTORATION OF SURFACE CONSTRUCTION.....	TS/40-4
 SECTION 5000 - WATER LINES	
5001 SCOPE	TS/50-1
5002 PIPE FITTINGS.....	TS/50-1
5003 PVC PIPE.....	TS/50-1
5004 HDPE PIPE	TS/50-1
5005 TRACER WIRE	TS/50-2
5006 GATE VALVES.....	TS/50-2
5007 TAPPING SLEEVES AND VALVES.....	TS/50-3
5008 VALVE COATINGS	TS/50-3
5009 VALVE BOX AND EXTENSION STEM ASSEMBLY	TS/50-4
5010 FIRE HYDRANTS.....	TS/50-4
5011 FLUSHING ASSEMBLIES	TS/50-5
5012 MECHANICAL JOINT RESTRAINTS	TS/50-5
5013 FLANGED JOINTS	TS/50-5
5014 RESTRAINED JOINTS	TS/50-6
5015 RESTRAINED JOINTS	TS/50-6
5016 HANDLING.....	TS/50-6
5017 CLEANING.....	TS/50-6
5018 INSPECTION.....	TS/50-6
5019 ALIGNMENT	TS/50-6
5020 DEAD END LINE.....	TS/50-6
5021 CONNECTIONS TO EXISTING WATER MAINS	TS/50-6
5022 SANITARY SEWER LINE CROSSINGS	TS/50-7
5023 RESTORATION OF SURFACE CONSTRUCTION.....	TS/50-7

	<u>Page</u>
SECTION 5100 – WATERLINE TESTING AND DISINFECTION	
5101 GENERAL.....	TS/51-1
5102 TESTING EQUIPMENT AND FACILITIES.....	TS/51-1
5103 PRESSURE AND LEAKAGE TEST.....	TS/51-1
5104 PRESSURE AND LEAKAGE TESTING OF HDPE.....	TS/51-2
WATER MAINS	
5105 DEFECTS.....	TS/51-3
5106 TAPPING SLEEVES AND VALVES.....	TS/51-3
5107 DISINFECTION.....	TS/51-3
5108 CUTTING INTO EXISTING WATERMAINS.....	TS/51-5
 SECTION 5200 - WATER SERVICE CONNECTIONS	
5201 GENERAL.....	TS/52-1
5202 APPROVED MATERIALS FOR RECONNECTION TO.....	TS/52-1
DUCTILE IRON	
5203 APPROVED MATERIALS FOR RECONNECTION TO PVC.....	TS/52-1
5204 METER INSTALLATION.....	TS/52-1
5205 HDPE SERVICE LINES.....	TS/52-1
5206 RESIDENTIAL (5/8” THROUGH 1”) INSTALLATIONS.....	TS/52-2
5207 RESIDENTIAL AND INDUSTRIAL.....	TS/52-3
(3” AND LARGER METER) INSTALLATION	
5208 INSPECTION.....	TS/52-4
5209 TAPPING.....	TS/52-4
5210 SALVAGE MATERIALS.....	TS/52-4
 SECTION 6000 – PIPELINE EXCAVATION, TRENCHING, AND BACKFILLING	
6001 SCOPE.....	TS/60-1
6002 GENERAL REQUIREMENTS.....	TS/60-1
6003 CLASSIFICATION OF EXCAVATED MATERIALS.....	TS/60-1
6004 CLEARING.....	TS/60-1
6005 DEWATERING.....	TS/60-1
6006 SHEETING AND SHORING.....	TS/60-1
6007 ALIGNMENT AND GRADE.....	TS/60-2
6008 MINIMUM COVER (WATER MAINS AND SERVICE LINES)...	TS/60-2
6009 STABILIZATION.....	TS/60-2
6010 TRENCH EXCAVATION.....	TS/60-2
6011 LIMITING TRENCH WIDTHS.....	TS/60-2
6012 UNAUTHORIZED TRENCH WIDTHS.....	TS/60-2
6013 MECHANICAL EXCAVATION.....	TS/60-3
6014 ARTIFICIAL FOUNDATIONS IN TRENCHES.....	TS/60-3
6015 PIPE BEDDING.....	TS/60-3
6016 PIPE INSTALLATION.....	TS/60-4
6017 TRENCH BACKFILL.....	TS/60-4
6018 FLOWABLE FILL.....	TS/60-5

	<u>Page</u>
6019 STRUCTURE BACKFILL	TS/60-6
6020 DENSITY TESTING	TS/60-6
6021 TUNNEL AND CASING PIPE INSTALLATION.....	TS/60-6
6022 DRAINAGE MAINTENANCE	TS/60-8
6023 PROTECTION OF TRENCH BACKFILL IN DRAINAGE	TS/60-8
COURSES	
6024 DISPOSAL OF EXCESS EXCAVATED MATERIALS	TS/60-8
6025 SETTLEMENT.....	TS/60-8

SECTION 6100 – BLASTING

6101 GENERAL.....	TS/61-1
6102 PRE-BLASTING SURVEY	TS/61-1
6103 PUBLIC NOTIFICATION	TS/61-2
6104 WARNING SYSTEM.....	TS/61-2
6105 OVER-BLASTING.....	TS/61-2
6106 NOTIFICATION	TS/61-2
6107 TECHNICAL ASSISTANCE.....	TS/61-2
6108 BLASTING SCHEDULE	TS/61-2
6109 BLASTING SIGNS, WARNINGS, AND ACCESS CONTROL	TS/61-3
6110 CONTROL OF ADVERSE EFFECTS.....	TS/61-3
6111 RECORDS OF BLASTING OPERATIONS	TS/61-4
6112 BLASTER.....	TS/61-5

SECTION 7000 - RESTORATION OF SURFACE CONSTRUCTION

7001 SCOPE	TS/70-1
7002 GENERAL	TS/70-1
7003 REFERENCE STANDARD	TS/70-1
7004 PAVEMENT REPLACEMENT	TS/70-1
7005 CONCRETE WALKS.....	TS/70-1
7006 CONCRETE CURBS AND GUTTERS	TS/70-1
7007 GRAVEL SURFACING	TS/70-1
7008 MISCELLANEOUS REPAIR WORK.....	TS/70-2

SECTION 7100 - CHAIN LINK FENCING

7101 SCOPE	TS/71-1
7102 FENCE TYPE	TS/71-1
7103 MATERIALS.....	TS/71-1
7104 GATES.....	TS/71-2
7105 FENCE CONSTRUCTION.....	TS/71-2

SECTION 7200 - SEEDING AND SODDING

7201	SCOPE	TS/72-1
7202	GENERAL	TS/72-1
7203	MATERIAL	TS/72-1
7204	TIME OF SEEDING OR SODDING	TS/72-2
7205	APPLICATION OF FERTILIZER.....	TS/72-3
7206	PREPARATION OF SOD BED	TS/72-3
7207	PLACEMENT OF SOD	TS/72-3
7208	PREPARATION OF THE SEEDBED	TS/72-3
7209	PLACEMENT OF SEED	TS/72-4
7210	MULCHING	TS/72-4
7211	MAINTENANCE	TS/72-4
7212	GUARANTEE.....	TS/72-5
7213	RECORD KEEPING.....	TS/72-5

SECTION 7300 - EROSION CONTROL TS/73-1

SECTION 7400 – TREES, SHRUBS, AND GROWDCOVERS

7401	SCOPE	TS/74-1
7402	GENERAL	TS/74-1
7403	MATERIAL.....	TS/74-1
7404	TIME OF PLANTING.....	TS/74-3
7405	EXECUTION	TS/74-3
7406	MAINTENANCE.....	TS/74-5
7407	RECORD KEEPING.....	TS/74-5
7408	WARRANTY	TS/74-5

SECTION 8000 - MATERIALS TESTING

8001	SCOPE	TS/80-1
8002	GENERAL	TS/80-1
8003	RESPONSIBILITIES OF THE CONTRACTOR OR DEVELOPER	TS/80-1
8004	RESPONSIBILITIES OF THE TESTING AGENCY	TS/80-1
8005	ASPHALT TESTING.....	TS/80-1
8006	CONCRETE TESTING	TS/80-2
8007	SOIL TESTING	TS/80-3

SECTION 9000 – STREET LIGHTING

9001	SCOPE	TS/90-1
9002	GENERAL.....	TS/90-1
9003	GRADES.....	TS/90-1
9004	REGULATIONS AND CODE.....	TS/90-1
9005	PRELIMINARY SCHEDULE OF EQUIPMENT	TS/90-1
	AND MATERIAL	
9006	REJECTED MATERIALS	TS/90-2
9007	EXISTING UTILITIES	TS/90-2
9008	PERMITS	TS/90-2
9009	NOTIFICATION.....	TS/90-2
9010	PROTECTION OF WORK AND CLEANUP	TS/90-2
9011	TRAFFIC CONTROL	TS/90-2

9012	TURN ON AND TESTING	TS/90-2
9013	BONDING.....	TS/90-2
9014	MAINTENANCE	TS/90-3
9015	GENERAL MATERIAL SPECIFICATIONS	TS/90-3
9016	ALUMINUM STANDARDS.....	TS/90-3
9017	ILLUMINATION EQUIPMENT	TS/90-5
9018	ELECTRICAL MATERIAL	TS/90-5
9019	EXCAVATION.....	TS/90-6
9020	BACKFILLING	TS/90-6
9021	SODDING.....	TS/90-6
9022	REPLACING DAMAGED IMPROVEMENTS	TS/90-6
9023	FOUNDATION ANCHORS	TS/90-6
9024	CONCRETE FOUNDATIONS.....	TS/90-7
9025	CONDUIT	TS/90-7
9026	SERVICE AND JUNCTION BOXES	TS/90-8
9027	WIRING.....	TS/90-8
9028	GROUNDING.....	TS/90-9
9029	LOCATION	TS/90-9
9030	STREET LIGHTING COMPLETION TIME	TS/90-9

SECTION 9100 – PAVEMENT MARKINGS

9101	SCOPE	TS/91-1
9102	DEFINITIONS	TS/91-1
9103	GENERAL	TS/91-1

SECTION 9200 – TRAFFIC SIGNAL

9201	DESCRIPTION	TS/92-1
9202	GENERAL CONSTRUCTION	TS/92-1
9203	COORDINATION OF TECHNICAL SPECIFICATIONS,	TS/92-1
	PLANS, SPECIAL PROVISIONS, AND PROJECT SPECIAL PROVISIONS	
9204	CERTIFICATION OF CONTRACTOR PERSONNEL	TS/92-1
9205	TRAFFIC SIGNAL PRODUCTS & MATERIAL LIST	TS/92-2
9206	LOCATION OF UNDERGROUND UTILITIES.....	TS/92-2
9207	NOTIFICATION OF LOCAL POWER COMPANY	TS/92-2
9208	STAKING OF POLES, PEDESTALS, PULL BOXES,	TS/92-2
	CONTROLLER, AND LOOP LOCATIONS	
9209	TRAFFIC SIGNAL IMPROVEMENT POLICIES	TS/92-2
9210	SALVAGED EQUIPMENT	TS/92-3
9211	REMOVAL OF EXISTING FOUNDATIONS	TS/92-3
9212	CONDUIT INSTALLATION.....	TS/92-3
9213	PULL BOXES	TS/92-3
9214	FOUNDATIONS	TS/92-4
9215	TRAFFIC SIGNAL POLES AND PEDESTALS	TS/92-4
9216	TRAFFIC SIGNAL HEAD INSTALLATION	TS/92-5
9217	WIRE AND CABLE INSTALLATION	TS/92-6
9218	GROUDNING/BONDING	TS/92-7
9219	DETECTOR LOOP INSTALLATION.....	TS/92-7
9220	SIGNS	TS/92-8
9221	PEDESTRIAN PUSH-BUTTONS	TS/92-9

9222	TRAFFIC SIGNAL TURN-ON	TS/92-9
9223	TEST PERIOD	TS/92-9
9224	GUARANTEE.....	TS/92-9
9225	MANUALS	TS/92-9
9226	MATERIALS DESCRIPTION	TS/92-10
9227	MATERIAL REQUIREMENTS.....	TS/92-10
9228	BASIS OF ACCEPTANCE	TS/92-10