CITY OF LEMOORE



IMPROVEMENT STANDARDS

December 2019





CITY OF LEMOORE

STANDARD CONSTRUCTION DRAWINGS

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GENERAL CONCRETE NOTES

- 1. ALL CONCRETE SHALL BE CLASS 3 CONCRETE UNLESS OTHERWISE SPECIFIED.
- 2. CLASS 2 CONCRETE SHALL CONTAIN NOT LESS THAN 590 POUNDS OF PORTLAND CEMENT PER CUBIC YARD WITH 1 INCH AGGREGATE. 5 INCH MAXIMUM SLUMP. 3200 P.S.I. AT 28 DAYS.
- 3. CLASS 3 CONCRETE SHALL CONTAIN NOT LESS THAN 505 POUNDS OF PORTLAND CEMENT PER CUBIC YARD WITH 1 INCH AGGREGATE. 5 INCH MAXIMUM SLUMP. 2500 P.S.I. AT 28 DAYS.
- 4. CLASS 4 CONCRETE SHALL CONTAIN NOT LESS THAN 420 POUNDS OF PORTLAND CEMENT PER CUBIC YARD WITH 1 INCH AGGREGATE. 5 INCH MAXIMUM SLUMP. 2500 P.S.I. AT 28 DAYS.
- 5. WHEN MAXIMUM DAYTIME TEMPERATURE EXCEEDS 50° F. ALL NEWLY PLACED CONCRETE SHALL BE SPRAYED UNIFORMLY WITH A WHITE PIGMENTED CURING COMPOUND. CURING COMPOUND SHALL BE APPLIED AT A NOMINAL RATE OF ONE GALLON PER 150 SQUARE FEET, UNLESS OTHERWISE SPECIFIED.
- 6. ALL WORK CONSTRUCTED BY THESE STANDARDS SHALL BE IN COMPLIANCE WITH ALL CURRENT ADA REGULATIONS.
- 7. WHEN REBAR IS USED, CONTRACTOR SHALL INSTALL WIRE TIRES SECURELY AT ALL REBAR CROSSINGS. CONCRETE CLOCK OR CHAIRS AS APPROVED BY THE CITY ENGINEER SHALL BE INSTALLED PRIOR TO CONCRETE INSTALLATION TO KEEP REBAR IN THE PROPER LOCATION.

CURBS AND GUTTERS

- 1. ALL CURB AND GUTTER, VEE GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL BE CLASS 3 CONCRETE.
- 2. BARRIER TYPE CURB AND GUTTER SHALL HAVE A MINIMUM GRADIENT OF 0.20 FEET PER 100 FEET OR AS APPROVED BY THE CITY ENGINEER.
- 3. BARRIER TYPE CURB AND GUTTER ON THE CURVE OF CUL-DE-SACS AND STREET BULBS SHALL HAVE A MINIMUM GRADIENT OF 0.35 FEET PER 100 FEET OR AS APPROVED BY THE CITY ENGINEER.
- 4. ROLLED CURB AND GUTTER SHALL HAVE A MINIMUM GRADIENT OF 0.20 FEET PER 100 FEET OR AS APPROVED BY THE CITY ENGINEER.
- 5. ALLEY VALLEY GUTTER SHALL HAVE A MINIMUM GRADIENT OF 0.25 FEET PER 100 FEET OR AS APPROVED BY THE CITY ENGINEER.
- 6. INTERSECTION VALLEY GUTTER SHALL HAVE A MINIMUM GRADIENT OF 0.50 FEET PER 100 FEET OR AS APPROVED BY THE CITY ENGINEER.
- 7. ALL CURB AND GUTTER, VALLEY GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL BE PLACED ON 4 INCH MOIST AND COMPACTED CLASS II BASE MATERIALS. 95% MINIMUM RELATIVE COMPACTION.
- 8. ALL CURB AND GUTTER, VALLEY GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL HAVE A LIGHT BROOM FINISH.
- 9. ALL CURB AND GUTTER, VALLEY GUTTER, AND ROLLED CURB AND GUTTER SHALL HAVE WEAKENED PLANE JOINTS CONSTRUCTED AT 15 FOOT CENTERS. MEDIAN CURB AND LANDSCAPE CURB SHALL HAVE WEAKENED PLANE JOINTS CONSTRUCTED AT 20 FOOT CENTERS. WEAKENED PLANE JOINTS SHALL BE A MINIMUM OF 1-1/2 INCHES IN DEPTH AND SHALL BE FINISHED WITH A SCORING TOOL LEAVING THE EDGES ROUNDED.
- 10. ALL EXPOSED SURFACES OF CURB AND GUTTER, VALLEY GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL NOT VARY IN EXCESS OF 0.02 FEET WHEN A 10 FOOT STRAIGHT EDGE IS PLACED ON THE SURFACE, EXCEPT AT GRADE CHANGES OR CURVES.
- 11. ALL CURB AND GUTTER AND VALLEY GUTTER SHALL BE WATER TESTED FOR FLOW.
- 12. ALL CURB AND GUTTER, VALLEY GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL BE CURED IN ACCORDANCE WITH THE PROVISIONS IN THE GENERAL CONCRETE NOTES IN THESE IMPROVEMENT STANDARDS.

		FILE:	C-1.DWG
CONCRETE SPECIFICATIONS	Rev.	Date: 12/17/19	STD. NO. C-1

SIDEWALKS AND RAMPS

- 1. ALL SIDEWALKS AND RAMPS SHALL BE CLASS 3 CONCRETE.
- 2. SIDEWALKS AND RAMPS SHALL BE PLACED ON 4 INCH MOIST AND COMPACTED CLASS II BASE MATERIALS. 90% RELATIVE COMPACTION UNDER SIDEWALKS. 95% RELATIVE COMPACTION UNDER RAMPS AND SIDEWALKS AT CURB RETURNS.
- 3. SIDEWALKS AND RAMPS SHALL BE STEEL TROWELED AND HAVE A LIGHT BROOM FINISH UNLESS OTHERWISE NOTED. RAMPS SHALL HAVE A HEAVY BROOM FINISH ACROSS THE SLOPE OF THE RAMP.
- 4. SIDEWALKS AND RAMPS SHALL HAVE WEAKENED PLANE JOINTS CONSTRUCTED AT 15 FOOT CENTERS AND WHERE SHOWN IN THESE IMPROVEMENT STANDARDS. WEAKENED PLANE JOINTS SHALL BE A MINIMUM OF 1 INCH IN DEPTH AND SHALL BE FINISHED WITH A SCORING TOOL LEAVING THE EDGES ROUNDED.
- 5. ESTABLISHED SIDEWALK PATTERN IN BLOCK SHALL BE MATCHED.
- 6. SPECIAL SIDEWALK DESIGNS AND MATERIALS SHALL BE SUBJECT TO APPROVAL BY THE CITY ENGINEER.
- 7. SIDEWALK INSTALLED IN INFILL OR EXISTING AREAS SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.
- 8. ALL SIDEWALKS AND RAMPS SHALL BE CURED IN ACCORDANCE WITH THE PROVISIONS IN THE GENERAL CONCRETE NOTES OF THESE IMPROVEMENT STANDARDS.
- 9. DETECTABLE WARNING SURFACES SHALL BE INSTALLED PER THESE IMPROVEMENT STANDARDS AND AS REQUIRED BY THE CITY ENGINEER.
- 10. ALL SIDEWALK JOINTS SHALL NOT EXCEED 1/2 INCH WIDTHS.

DRIVE APPROACHES

- 1. ALL DRIVE APPROACHES SHALL BE CLASS 3 CONCRETE UNLESS OTHERWISE NOTED.
- 2. SINGLE FAMILY RESIDENTIAL DRIVE APPROACHES SHALL BE PLACED ON 6 INCH MOIST AND COMPACTED BASE MATERIALS. 95% RELATIVE COMPACTION.
- 3. MULTI-FAMILY RESIDENTIAL, OFFICE AND COMMERCIAL DRIVE APPROACHES SHALL BE PLACED ON 6 INCH MOIST AND COMPACTED CLASS II BASE MATERIALS. 95% RELATIVE COMPACTION.
- 4. DRIVE APPROACHES SHALL BE STEEL TROWELED AND HAVE A LIGHT BROOM FINISH.
- 5. DRIVE APPROACHES SHALL HAVE A WEAKENED PLANE JOINT CONSTRUCTED AT EACH EDGE AND AT THE CENTERLINE. WEAKENED PLANE JOINTS SHALL BE A MINIMUM OF 1-1/2 INCH IN DEPTH AND SHALL BE FINISHED WITH A SCORING TOOL LEAVING THE EDGES ROUNDED.
- 6. NOT MORE THAN 60% OF PROPERTY FRONTAGE SHALL BE USED AS DRIVE APPROACH.
- 7. DRIVE APPROACHES ON STATE ROUTES ARE SUBJECT TO APPROVAL BY CALTRANS.
- 8. ALL DRIVE APPROACHES SHALL BE CURED IN ACCORDANCE WITH THE PROVISIONS IN THE GENERAL CONCRETE NOTES OF THESE IMPROVEMENT STANDARDS.
- 9. ALL EXPOSED SURFACES OF DRIVE APPROACHES AND FLOW LINES SHALL NOT VARY IN EXCESS OF 0.02 FEET WHEN A 10 FOOT STRAIGHT EDGE IS PLACED ON THE SURFACE, EXCEPT AT GRADE CHANGES OR CURVES.

		FILE:	C-1A.DWG
CONCRETE SPECIFICATIONS	Rev.	Date: 12/17/19	STD. NO. C-1A





CURB AND GUTTER DETAIL N.T.S.

- 1. CONCRETE SHALL BE CLASS 2, 3200 PSI, IN ACCORDANCE WITH SECTION 16 OF THE CITY STANDARD SPECIFICATIONS.
- 2. CURB AND GUTTER SHALL BE PLACED TO THE GRADES SHOWN ON THE PLANS, AND SHALL NOT VARY MORE THAN THE TOLERANCE STATED IN THE STANDARD SPECIFICATIONS FOR PORTLAND CEMENT CONCRETE IMPROVEMENTS.
- 3. CURB SHALL BE GIVEN A LIGHT BROOM FINISH. GUTTER PAN SHALL BE GIVEN A ROUGH BROOM FINISH.
- 4. FINISHED EDGE OF ASPHALT PAVEMENT SHALL BE 1/8 INCH TO 1/4 INCH ABOVE LIP OF GUTTER.
- 5. COMPACTION UNDER CURB AND GUTTER SHALL BE 95% FOR AGGREGATE BASE AND SUBGRADE.
- 6. MINIMUM SLOPE SHALL BE 0.0020.

		FILE:	C-3.DWG
		Date: 12/17/19	STD.
CURB AND GUTTER		1110	NO.
	Rev.	City Engineer	C-3



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Rev.

Ćity Engineer

C-3A



- 1. CONCRETE SHALL BE CLASS 2, 3200 PSI, IN ACCORDANCE WITH SECTION 16 OF THE CITY STANDARD SPECIFICATIONS.
- 2. CURB AND GUTTER SHALL BE PLACED TO THE GRADES SHOWN ON THE PLANS, AND SHALL NOT VARY MORE THAN THE TOLERANCE STATED IN SECTION 16 OF THE CITY STANDARD SPECIFICATIONS.
- 3. CURB SHALL BE GIVEN A LIGHT BROOM FINISH. GUTTER PAN SHALL BE GIVEN A ROUGH BROOM FINISH.
- 4. FINISHED EDGE OF ASPHALT PAVEMENT SHALL BE FLUSHED WITH OR UP 1/4 INCH ABOVE LIP OF GUTTER.
- 5. MINIMUM GRADIENT OF 0.20 FEET PER 100 FEET.
- 6. WHERE ADA ACCESSIBLE PATH CROSSES GUTTER PAN, SLOPE IN THE DIRECTION OF TRAVEL SHALL BE 4% MINIMUM AND 5% MAXIMUM.
- 7. COMPACTION UNDER THE CURB AND GUTTER SHALL BE 95% FOR CLASS II AGGREGATE BASE AND SUBGRADE.

		FILE:	C-3B.DWG
ROLLED CURB AND GUTTER	Rev.	Date: 12/17/19	STD. NO. C-3B



		FILE:	C-4.DWG
ACCESSIBLE RAMP	Rev.	Date:	STD. NO. C-4



Rev.



Rev.

Ćity Engineer





- 1. DETECTABLE WARNING SURFACE SHALL BE INSTALLED AT THE BOTTOM OF ALL CURB RAMPS.
- 2. DETECTABLE WARNING SURFACE SHALL BE THE FULL WIDTH OF RAMP AND SHALL BE A MINIMUM OF 36 INCH IN DEPTH.
- 3. DETECTABLE WARNING SURFACE SHALL BE PREMIXED "FEDERAL YELLOW" COLORED POLYMER COMPOSITE MATERIAL.
- 4. ALL DETECTABLE WARNING PANELS INSTALLED WITH NEW IMPROVEMENTS SHALL BE WET SET TYPE/CAST IN PLACE TYPE PANELS.
- 5. IN RETROFIT TYPE SITUATIONS ON EXISTING SURFACES THE CITY WILL ALLOW RETROFIT TYPE WARNING PANELS. PANELS SHALL BE GLUED AND BOLTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. BOTTOM OF PANELS SHALL BE FLUSH AGAINST THE ADJACENT CONCRETE SURFACE.

		FILE	: C-4D.DWG
DETECTABLE WARNING SURFACE DETAIL	Rev.	Date: 12/17/19	STD. NO. C-4D



Rev.





		FILE	: C-5B.DWG
SIDEWALK - RESIDENTIAL ADJACENT TO CURB	Rev.	Date: 12/17/19	STD. NO. C-5B







- 1. 60% MAXIMUM OF CURB FACE MAY BE USED FOR DRIVE APPROACH THROAT WIDTH.
- 2. CONSTRUCTION OF DRIVE APPROACHES SHALL BE IN ACCORDANCE WITH THE STD. NO. C-7.
- 3. RESIDENTIAL DRIVE APPROACH THROAT WIDTH SHALL BE 8 FEET MINIMUM AND 28 FEET MAXIMUM.
- 4. MATERIAL SHALL BE CLASS 2 CONCRETE IN ACCORDANCE WITH SECTION 16 OF THE CITY STANDARD SPECIFICATIONS.
- 5. COMPACT 4 INCHES OF MOIST, CLASS II AGGREGATE BASE TO 95% RELATIVE COMPOSITION.

		FILE	C-8.DWG
RESIDENTIAL DRIVE APPROACH PLACEMENT	Rev.	Date: 12/17/19	STD. NO. C-8



OFFICE - COMMERCIAL DRIVE
APPROACH (ALTERNATIVE - WITH CURB
RETURNS) CONTIGUOUS SIDEWALK

	Date: 12/17/19	STD.
	1111	NO.
Rev.	City Engineer	C-8A



DRIVE APPROACH LOCATIONS OFFICE / COMMERCIAL / MULTI-FAMILY ZONES

- 1. ON COLLECTOR AND ARTERIAL STREETS, THE MINIMUM DRIVE APPROACH WIDTH SHALL BE 21 FEET FOR ONE-WAY DRIVE APPROACHES AND 36 FEET FOR TWO-WAY DRIVE APPROACHES.
- 2. NOT MORE THAN 50% OF PROPERTY FRONTAGE SHALL BE USED AS DRIVE APPROACH.
- 3. DRIVEWAYS SHOULD BE CONSOLIDATED WHENEVER POSSIBLE TO PROVIDE THE MINIMUM DISTANCE BETWEEN DRIVEWAYS AS SHOWN IN 'B' ABOVE.
- 4. WIDTH AND LOCATION OF DRIVE APPROACHES ON STATE ROUTES IS SUBJECT TO CALTRANS APPROVAL.
- 5. NO VEHICULAR TRAFFIC SHALL CROSS CURB, GUTTER, OR SIDEWALK WITHOUT AN APPROVED DRIVE APPROACH.

		FILE	C-9.DWG
DRIVE APPROACH LOCATIONS OFFICE, COMMERCIAL, AND MULTI-FAMILY	Rev.	Date: 12/17/19	STD. NO. C-9













1. WHEN MATCHING AN EXISTING COBBLESTONE MEDIAN, USE "RIVER ROCK" PATTERN WITH "COBBLESTONE GRAY" COLOR. A LIQUID RELEASE AGENT SHALL BE USED.

FILE: C-13A.DWG			
MEDIAN DETAILS	Rev.	Date: <u>12/17/19</u>	STD. NO. C-13A













<u>PLAN</u>

NOTES:

- 1. ALL STORM DRAIN INLETS SHALL BE MARKED "NO DUMPING DRAINS TO WATERWAY".
- 2. STORM MARKERS AND ADHESIVE MUST BE PURCHASED FROM THE CITY OF LEMOORE.
- 3. ALTERNATE MARKERS MUST BE APPROVED BY THE DIRECTOR OF PUBLIC WORKS.

INSTALLATION:

- 1. READ THE ADHESIVE'S CAUTIONARY STATEMENT AND FIRST AID PROCEDURES BEFORE BEGINNING INSTALLATION, AS IT IS EXTREMELY FLAMMABLE.
- 2. MARKERS SHALL BE INSTALLED ON THE CURB AND CENTERED ON THE GRATE AS SHOWN ABOVE.
- 3. APPLICATION SURFACE MUST BE FLAT.
- 4. CLEAN APPLICATION SURFACE WITH WIRE BRUSH. SURFACE MUST BE CLEAN, DRY, AND FREE OF ANY LOOSE DEBRIS.
- 5. APPLY ADHESIVE TO THE BACK OF THE MARKER. START 1/8" IN FROM THE OUTSIDE EDGE APPLYING AN EVEN BEAD AROUND THE ENTIRE EDGE, AND THEN SPIRAL INWARD TOWARD THE CENTER AS SHOWN ABOVE.
- 6. PLACE MARKER ON APPLICATION SURFACE. PUSH IT DOWN HARD WITH A TWISTING MOTION, FORCING ADHESIVE OUT FROM THE EDGE. IT IS IMPORTANT THAT ADHESIVE SEALS THE ENTIRE OUTER EDGE OF THE MARKER.

		FILE	SD-5.DWG
STORM DRAIN INLET MARKER		Date: <u>12/17/19</u>	STD. NO.
	Rev.	City Engineer	SD-5

- 1. LIFT STATION SHALL INCLUDE VALVE BOX AND CONTROL PANEL AS SHOWN IN STD. NOS. SS-10 AND SS-11 RESPECTIVELY.
- 2. DRAWINGS SHOW TYPICAL ARRANGEMENT OF EQUIPMENT. DETAILED DIMENSIONS SHALL BE PER MANUFACTURERS RECOMMENDATION AND AS APPROVED BY THE ENGINEER. DETAILED SHOP DRAWINGS ARE REQUIRED. SEE STANDARD SPECIFICATION FOR WET WELL LIFT STATIONS.
- 3. ALL ANCHOR BOLTS, NUTS, BOLTS AND OTHER HARDWARE USED ON OR WITHIN WET WELL SHALL BE STAINLESS STEEL.
- 4. FOR COATINGS REQUIREMENTS, SEE STANDARD SPECIFICATION SECTION 31, PAINTING.




















NOTES:

- 1. LIFT STATION SHALL INCLUDE VALVE BOX AND CONTROL PANEL AS SHOWN IN STD. NOS. SS-10 AND SS-11 RESPECTIVELY.
- 2. DRAWINGS SHOW TYPICAL ARRANGEMENT OF EQUIPMENT. DETAILED DIMENSIONS SHALL BE PER MANUFACTURERS RECOMMENDATION AND AS APPROVED BY THE ENGINEER. DETAILED SHOP DRAWINGS ARE REQUIRED. SEE STANDARD SPECIFICATION FOR WET WELL LIFT STATIONS.
- 3. ALL ANCHOR BOLTS, NUTS, BOLTS AND OTHER HARDWARE USED ON OR WITHIN WET WELL SHALL BE STAINLESS STEEL.
- 4. FOR COATINGS REQUIREMENTS, SEE STANDARD SPECIFICATION SECTION 31, PAINTING.
- 5. SEE LIFT STATION LAYOUT STD. NO. SS-12. NO. ITEM



RESERVED FOR FUTURE DETAIL

FILE:	SS-9	.DWG



NOTES:

- 1. VALVE BOX FOR 8" FITTINGS SHALL BE A NOMINAL 5'-0"X 8'-0" PRECAST CONCRETE VAULT, QUICKSET SERIES 450 OR APPROVED EQUAL, WITH LOCKABLE HINGED ALUMINUM DOORS (ALL JOINTS WATERTIGHT). VALVE BOX FOR 10" FITTINGS SHALL BE A NOMINAL 6'-0"X 9'-0" PRECAST CONCRETE VAULT, QUICKSET OR APPROVED EQUAL, WITH LOCKABLE HINGED ALUMINUM DOORS (ALL JOINTS WATERTIGHT). VALVE BOX FOR 12" FITTINGS SHALL BE A NOMINAL 7'-0" PRECAST CONCRETE VAULT, QUICKSET OR APPROVED EQUAL, WITH LOCKABLE HINGED ALUMINUM DOORS (ALL JOINTS WATERTIGHT).
- 2. RAWINGS SHOW TYPICAL ARRANGEMENT OF EQUIPMENT. DETAILED DIMENSIONS SHALL BE PER MANUFACTURER'S RECOMMENDATION AND AS APPROVED BY THE ENGINEER. DETAILED SHOP DRAWINGS ARE REQUIRED.
- 3. SEE SECTION 31 OF THE STANDARD SPECIFICATIONS FOR PAINTING AND FOR REQUIRED COATINGS.
- ALL FITTINGS WITHIN VAULT TO BE FLANGED CONNECTIONS, SIZE AS REQUIRED, WITH CEMENT MORTAR 4. LINING.
- SEE LIET STATION LAYOUT STD. NO. SS-12

			: SS-10.DWG
LIFT STATION VALVE BOX	Rev.	Date: 12/17/19	STD. NO. SS-10

ITEM

- VALVE BOX ACCESS DOOR. ALUMINUM DOUBLE DOOR SPRING ASSISTED
- 2. DRAIN PIPE TO WET WELL
- 3. PIPE SUPPORT
- 4. PRECAST CONCRETE VALVE BOX
- 5. POLYPROPOLYNE STEPS
- 6. FLANGED ADAPTOR
- 7. 125# FLANGED (FF) PLUG VALVE
- 8. 125# FLANGED SWING CHECK VALVE W/ OUTSIDE LEVER & WEIGHT (ONE RIGHT & ONE LEFT)
- 9. DUCTILE IRON SPOOL
- 10. 45° DUCTILE IRON ELL W/ BLIND FLANGE
- 11. 90° DUCTILE IRON FLANGED ELBOW
- 12. DUCTILE IRON FLANGED CROSS
- 13. DIP FLEXIBLE JOINT WITHIN 6-INCHES OF WET WELL OR VALVE VAULT





















SECTION

TEES N.T.S.







90°BEND N.T.S.



PLUG N.T.S.



PLAN



SECTION

CROSSES N.T.S.



- CAST ALL THRUST BLOCKS AGAINST UNDISTURBED SOIL. 1. THE MINIMUM THICKNESS BETWEEN FITTING AND SOIL SHALL BE 12".
- 2. ALL THRUST BLOCK DIMENSIONS SHOWN ARE FOR AN 8" PIPE OR SMALLER. SEE W-4A AND W-4B FOR 10" AND 12" PIPE. LARGER DIAMETERS OF PIPE REQUIRE DESIGN OF THRUST BLOCKS AND SUBMITTAL TO CITY ENGINEER FOR APPROVAL ASSUMING SOIL BEARING =1000 PSF & PRESSURE=100 PSI.
- 3. CONCRETE SHALL BE CLASS "3" PER SECTION 7 OF THE STANDARD SPECIFICATIONS.
- INDICATES THRUST DIRECTION. WHERE THRUST 4. DIRECTION DIFFERS, ALTERNATE THRUST BLOCK DESIGN WILL BE REQUIRED.
- 5. PROJECT ENGINEER MAY SUBMIT SOILS REPORT AND CALCULATIONS TO JUSTIFY LESSER THRUST BLOCKS. USE 150 PSI FOR DESIGN.
- RESTRAINED JOINTS MAY BE USED IN LIEU OF THRUST 6. BLOCKS. SUBMIT TO CITY PRIOR TO CONSTRUCTION.
- 7. NTS=NOT TO SCALE

		FILE	: W-4.DWG
THRUST BLOCKS FOR 8" PIPE	Rev.	Date: 12/17/19	STD. NO. W-4











SECTION

TEES N.T.S.







90°BEND N.T.S.

SECTION







PLAN



SECTION

CROSSES N.T.S.

NOTES:

- 1. CAST ALL THRUST BLOCKS AGAINST UNDISTURBED SOIL. THE MINIMUM THICKNESS BETWEEN FITTING AND SOIL SHALL BE 12".
- 2. ALL THRUST BLOCK DIMENSIONS SHOWN ARE FOR AN 10" PIPE. SEE W-4 AND W-4B FOR 8" AND 12" PIPE. LARGER DIAMETERS OF PIPE REQUIRE DESIGN OF THRUST BLOCKS AND SUBMITTAL TO CITY ENGINEER FOR APPROVAL ASSUMING SOIL BEARING =1000 PSF & PRESSURE=100 PSI.
- 3. CONCRETE SHALL BE CLASS "3" PER SECTION 7 OF THE STANDARD SPECIFICATIONS.
- 4. DIRECTION DIFFERS, ALTERNATE THRUST BLOCK DESIGN WILL BE REQUIRED.
- 5. PROJECT ENGINEER MAY SUBMIT SOILS REPORT AND CALCULATIONS TO JUSTIFY LESSER THRUST BLOCKS. USE 150 PSI FOR DESIGN.
- 6. RESTRAINED JOINTS MAY BE USED IN LIEU OF THRUST BLOCKS. SUBMIT TO CITY PRIOR TO CONSTRUCTION.
- 7. NTS=NOT TO SCALE

		FILE	: W-4A.DWG
THRUST BLOCKS FOR 10" PIPE	Rev.	Date: <u>12/17/19</u> <u>Ćity Engineer</u>	STD. NO. W-4A











48" 18"

36" 18" 🗕



SECTION

TEES N.T.S.











N.T.S.

Δ 40" 4 - 24"





SECTION

CROSSES N.T.S.

1. CAST ALL THRUST BLOCKS AGAINST UNDISTURBED SOIL. THE MINIMUM THICKNESS BETWEEN FITTING AND SOIL SHALL BE 12".

N.T.S.

- 2. ALL THRUST BLOCK DIMENSIONS SHOWN ARE FOR AN 12" PIPE OR SMALLER. SEE W-4 AND W-4A FOR 8" AND 10" PIPE. LARGER DIAMETERS OF PIPE REQUIRE DESIGN OF THRUST BLOCKS AND SUBMITTAL TO CITY ENGINEER FOR APPROVAL ASSUMING SOIL BEARING =1000 PSF & PRESSURE=100 PSI.
- 3. CONCRETE SHALL BE CLASS "3" PER SECTION 7 OF THE STANDARD SPECIFICATIONS.
- INDICATES THRUST DIRECTION. WHERE THRUST 4. DIRECTION DIFFERS, ALTERNATE THRUST BLOCK DESIGN WILL BE REQUIRED.
- PROJECT ENGINEER MAY SUBMIT SOILS REPORT AND 5. CALCULATIONS TO JUSTIFY LESSER THRUST BLOCKS. USE 150 PSI FOR DESIGN.
- 6. RESTRAINED JOINTS MAY BE USED IN LIEU OF THRUST BLOCKS. SUBMIT TO CITY PRIOR TO CONSTRUCTION.
- 7. NTS=NOT TO SCALE

		FILE	: W-4B.DWG
THRUST BLOCKS FOR 12" PIPE	Rev.	Date: 12/17/19	STD. NO. W-4B













SECTION

TEES N.T.S.



SECTION





90°BEND N.T.S.

NOTES:

45°BENI	ר
SECTION	
- 33"	<u>-</u>

N.T.S.

22.5°BEND N.T.S.

SECTION

- - 1. PLACE CONCRETE AGAINST UNDISTURBED SOIL.
- 2. §" × 2" STRAPS WITH §" ANCHOR BOLTS. ANCHORS TO EXTEND DEPTH OF BLOCK. ANCHORS TO BE STAINLESS STEEL OR EPOXY COATED REBAR.
- 3. SPECIAL DESIGN MAY BE REQUIRED IN FIELD.
- 4. DO NOT COVER NUTS AND BOLTS WITH CONCRETE.
- 5. NTS=NOT TO SCALE



- 2. ALL THRUST BLOCK DIMENSIONS SHOWN ARE FOR AN 18". SEE W-4, W-4A, AND W-4B FOR 8", 10", AND 12" PIPE. LARGER DIAMETERS OF PIPE REQUIRE DESIGN OF THRUST BLOCKS AND SUBMITTAL TO CITY ENGINEER FOR APPROVAL ASSUMING SOIL BEARING =1000 PSF & PRESSURE=100 PSI.
- 3. CONCRETE SHALL BE CLASS "3" PER SECTION 7 OF THE STANDARD SPECIFICATIONS.
- INDICATES THRUST DIRECTION. WHERE THRUST 4. DIRECTION DIFFERS, ALTERNATE THRUST BLOCK DESIGN WILL BE REQUIRED.
- 5. PROJECT ENGINEER MAY SUBMIT SOILS REPORT AND CALCULATIONS TO JUSTIFY LESSER THRUST BLOCKS. USE 150 PSI FOR DESIGN.
- 6. RESTRAINED JOINTS MAY BE USED IN LIEU OF THRUST BLOCKS. SUBMIT TO CITY PRIOR TO CONSTRUCTION.
- 7. NTS=NOT TO SCALE

VERTICAL BENDS ONLY N.T.S.		FILE	: W-4C.DWG
THRUST BLOCKS FOR 18" PIPE	Rev.	Date: 12/17/19	STD. NO. W-4C







NOTES:

- 1. METER TO BE EITHER SENSUS OMNI T/R METER OR BADGER METER WITH SENSUS PROTOCOL TOUCHREAD TECHNOLOGY, OR EQUAL WITH REMOTE READ TOUCH PAD.
- 2. VALVES SHALL BE PER "STANDARD SPECIFICATIONS FOR GATE VALVE ASSEMBLIES" AND SHALL HAVE A RESILIENT SEAT OR WEDGE.
- 3. ALL TEES AND ELBOWS WITHIN THE LIMITS SHOWN SHALL BE CAST OR DUCTILE IRON WITH THREADED OR BOLTED FLANGE CONNECTIONS. WRAP FITTING PER NOTE 4.
- 4. ALL PIPING WITHIN THE LIMITS SHOWN SHALL BE DUCTILE IRON AND CI/DI FITTINGS SHALL BE WRAPPED
- PER "STD. SPECS. FOR PLASTIC FILM WRAP OF VALVES, BOLTED FLANGES AND OTHER BOLTED FITTINGS." 5. IN CASES WHERE SIDEWALK AND CURB ARE ADJACENT, ASSUME THE BACK OF SIDEWALK TO BE BACK OF CURB AS SHOWN ON DRAWING.
- 6. METER SPECS MUST BE APPROVED BY CITY REP. BEFORE INSTALLATION.

		FILE	W-7.DWG
SERVICE CONNECTION		Date: 12/17/19	STD.
1" AND 2" METER BOX		1110	NO.
INSTALLATION	Rev.	City Engineer	W-7













- 2. LOCATION TO BE APPROVED BY THE FIRE DEPARTMENT.
- 3. ALL ABOVE GROUND VALVES AND POST INDICATOR VALVES SHALL BE EQUIPPED WITH TAMPER SWITCH DEVICES AS APPROVED BY THE FIRE DEPARTMENT.
- 4. COMPLETE INSTALLATION SHALL BE PLUMB AND LEVEL.
- 5. U.S.C. APPROVED DOUBLE DETECTOR CHECK VALVE ASSEMBLY- W/O.S. & Y. GATE VALVE CHAINED IN OPEN POSITION. BYPASS PIPING TO INCLUDE DOUBLE CHECK VALVE AND METER.
- 6. BACKFLOW MUST BE CERTIFIED AFTER INSTALLATION AND A COPY OF THE CERTIFICATE GIVEN TO THE CITY REPRESENTATIVE PRIOR TO ACCEPTANCE BY THE CITY OF LEMOORE.
- 7. VALVES TO BE CHAINED AND LOCK TOGETHER.
- 8. FIRE DEPARTMENT PUMPER CONNECTION SHALL BE MAXIMUM 50' TO FIRE HYDRANT.
- 9. POST INDICATOR VALVE SHALL BE CONNECTED TO AN APPROVED DETECTOR CONNECTED TO A FIRE ALARM SYSTEM.
- 10. BACKFLOW DEVICE SHALL BE COVERED WITH AN INSULATION BLANKET TO PREVENT FREEZING.
- 11. UNDER GROUND PIPING FOR FIRE LINES SHALL BE TESTED HYDROSTATICALLY AT 200 PSI FOR 2 HOURS AS PER NFPA 13.

		FILE	W-12.DWG
(FIRE PROTECTION)		Date: 12/17/19	STD.
DOUBLE CHECK		111/1	NO.
DETECTOR ASSEMBLY	Rev.	City Engineer	W-12












<u>CLASSIFICATION</u>	<u>T.I.</u>
RURAL STREET	5.0
FRONTAGE OR ACCESS ROAD	5.5
CUL-DE-SAC OR DEAD END STREET	5.5
LOCAL RESIDENTIAL STREET	5.5
COLLECTOR STREET	8.0
DOWNTOWN STREET	8.0
ARTERIAL STREET	11.0
PARKWAY	11.0

STREETS SHALL BE DESIGNED FOR THE T.I. REQUIRED FOR THE STREET'S CLASSIFICATION AS SHOWN ON THE CURRENT GENERAL PLAN, EXCEPT WHERE STUDIES INDICATE A HIGHER T.I. MAY BE JUSTÍFIED BY THE CITY.

NOTES:

- 1. STRUCTURAL SECTIONS SHALL BE DETERMINED BASED ON T.I. AND R-VALUES AS TABULATED IN THE STREET SECTIONS REQUIREMENTS STANDARD DRAWING.
- ASPHALT CONCRETE SHALL BE TYPE A, WITH 3/4" AGGREGATE GRADATION AND PG 64-10 LIQUID ASPHALT BINDER PER CITY OF LEMOORE STANDARD SPECIFICATIONS.
 TACK COAT IS REQUIRED AND SHALL BE APPLIED PER CITY STANDARD SPECIFICATIONS.
- 4. ASPHALT CONCRETE REQUIREMENTS SHALL BE AS STATED IN THE CITY OF LEMOORE STANDARD SPECIFICATIONS.
- 5. ASPHALT CONCRETE SHALL BE PLACED ONLY WHEN THE ATMOSPHERIC TEMPERATURE IS 50° F AND RISING.
- 6. STREET TREES ARE REQUIRED IN ADDITION TO THE ON-SITE LANDSCAPE REQUIREMENT.
- 7. SOIL ADJACENT TO CONCRETE CURB AND SIDEWALK SHALL BE GRADED 3" BELOW TOP OF CURVE TO ALLOW ROOM FOR MULCH.

		FILE	ST-1.DWG
TRAFFIC INDEX		Date: 12/17/19	STD.
CHART AND STREET		1111	NO.
SECTION NOTES	Rev.	City Engineer	ST-1









NOTES:

- A. IF THE TWO CONDITIONS BELOW CAN BE MET, THE DEVELOPER WILL BE REQUIRED TO CONSTRUCT ALL IMPROVEMENTS FOR THE WIDTH W1.
- B. IF THE FIRST CONDITION CANNOT BE MET USING THE EXISTING PAVEMENT EDGE, BUT COULD BE MET BY RECONSTRUCTING THE WIDTH W2, THAT SHALL BE THE REQUIREMENT.
- C. IF THE SECOND CONDITION IS NOT MET, OR IF THE FIRST CONDITION CANNOT BE MET BY THE METHODS OUTLINED IN A OR B ABOVE, THE DEVELOPER SHALL RECONSTRUCT ALL IMPROVEMENTS FOR THE WIDTH W3.
 - CONDITION 1: THE CROSS SLOPE FROM THE EXISTING EDGE OF PAVEMENT TO THE PROPOSED LIP OF GUTTER, AND THE OVERALL CROSS SLOPE FROM THE CENTERLINE OF THE ROAD TO THE PROPOSED LIP OF GUTTER, SHALL BE WITHIN THE LIMITS SHOWN ON STD. NO. ST-1A OR ST-1B.
 - CONDITION 2: THE STRUCTURAL SECTION OF THE EXISTING PAVEMENT MUST BE ADEQUATE FOR THE TRAFFIC INDEX SHOWN ON STD. NO. ST-1 FOR THE STREET'S OFFICIAL DESIGNATION AS DETERMINED BY THE COMMUNITY DEVELOPMENT DIRECTOR OR SUCH GREATER T.I. AS INDICATED BY A TRAFFIC STUDY.

		FILE	SI-3.DWG
IMPROVEMENTS REQUIRED		Date: 12/17/19	STD.
ON EXISTING CITY		1110	NO.
MAINTAINED STREETS	Rev.	City Engineer	ST-3









*AGGREGATE BASE IS SHOWN AT MIN. REQUIRED DEPTHS

DEFINITION:

FIRE APPARATUS ACCESS ROADS:

ALL WEATHER FIRE APPARATUS ACCESS ROADS SHALL HAVE AN UNOBSTRUCTED WIDTH OF NOT LESS THAN 20 FEET AND AN UNOBSTRUCTED VERTICAL CLEARANCE OF NOT LESS THAN 13 FEET 6 INCHES. MORE THAN ONE FIRE ACCESS ROAD MAY BE REQUIRED WHEN IT IS DETERMINED BY THE FIRE CHIEF. CFC 2019 ARTICLE 33 SECTION 3310.

TIMING OF INSTALLATION:

WHEN FIRE PROTECTION, INCLUDING FIRE ACCESS ROADS, WATER SUPPLIES AND FIRE HYDRANTS FOR FIRE PROTECTION, ARE REQUIRED TO BE INSTALLED, SUCH PROTECTION SHALL BE INSTALLED AND MADE SERVICEABLE <u>PRIOR TO</u> AND <u>DURING</u> THE TIME OF CONSTRUCTION. CFC 2019 ARTICLE 33 SECTION 3310 AND 3312.

CFC= CALIFORNIA FIRE CODE

		FILE:	ST-5.DWG
FIRE DEPARTMENT ACCESS ROADS	Rev.	Date: 12/17/19	STD. NO. ST-5





Rev.



- 1. PIPE CONCRETE BACKFILL SHALL BE REQUIRED FOR ALL PIPE INSTALLED WITH LESS THAN 24 INCHES OF COVER OR AS DIRECTED BY THE CITY ENGINEER.
- 2. ALL CONCRETE BACKFILL SHALL BE 2-SACK SAND CEMENT SLURRY.
- 3. CONCRETE BACKFILL SHALL BE PLACED IN THE TRENCH AGAINST UNDISTURBED SOIL AND SHALL BE PLACED IN A MANNER THAT WILL PREVENT FLOATING OR SHIFTING OF THE PIPE.
- 4. FOREIGN MATERIAL WHICH FALLS INTO THE TRENCH DURING PLACEMENT OF THE CONCRETE SHALL BE IMMEDIATELY REMOVED.
- 5. NO MATERIAL SHALL BE PLACED ON TOP OF THE CONCRETE BACKFILL UNTIL 8 HOURS AFTER PLACING THE CONCRETE BACKFILL, AS DIRECTED BY THE CITY ENGINEER.
- 6. TRENCH SHALL BE RESURFACED PER STD. NO. ST-8, SURFACE REPLACEMENT.

		FILE	: ST-7A.DWG
PIPE CONCRETE BACKFILL	Rev.	Date: 12/17/19	STD. NO. ST-7A





С EXISTING BITUMINOUS

NOTES:

- 1.
- TEMPORARY RESURFACING MAY BE REQUIRED IN ALL STREETS AS DIRECTED BY THE CITY ENGINEER. "A.C." SHALL MEAN TYPE "B" ASPHALT CONCRETE IN ACCORDANCE WITH THE STANDARD SPECIFICATION 2. FOR ASPHALT CONCRETE.
- "A.B." SHALL MEAN CLASS 2 AGGREGATE BASE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. 3. 4. PAVEMENT SECTIONS SHOWN ABOVE ARE MINIMUMS. IF THE EXISTING STRUCTURAL SECTION IS GREATER,
- THICK-NESS OF TRENCH RESURFACING SHALL MATCH EXISTING.
- 5. BACKFILL SHALL BE COMPACTED TO 95% RELATIVE COMPACTION FOR SUBGRADE AND AGGREGATE BASE TO A DEPTH OF 1 FOOT ABOVE PIPE.
- 6.
- CONTRACTOR SHALL PAY FOR ALL REQUIRED COMPACTION TESTING. PAVEMENT SURFACE LESS THAN FIVE YEARS OLD SHALL REQUIRE HEATER REMIXING OR TRENCH EDGES 7. TO PROVIDE A SEAMLESS TRENCH PATCH.
- 8. FOR TRENCH WIDTH, SEE STD. NO. ST-7.

		FILE	: ST-8.DWG
SURFACE REPLACEMENT	Rev.	Date: 12/17/19	STD. NO. ST-8



Rev.



























RESERVED FOR FUTURE DETAIL

 RESERVED
 Date: ______
 STD.

 Rev.
 City Engineer
 ST-15

FIL E	ST-15	
	31-14	

RESERVED FOR FUTURE DETAIL

RESERVED
Rev.
Date: _____ STD.
NO.
ST-16

FILE:	ST-16.DW0	3



STANDARD CROSSWALK MARKING

NOT TO SCALE



- 1. DOUBLE YELLOW CENTERLINE, RAISED MARKERS, WHITE CENTERLINE AND LANE LINES SHALL STOP AT CROSSWALK.
- 2. WIDTH OF CROSSWALK LINES SHALL BE 12 INCHES.
- 3. WIDTH OF CROSSWALK SHALL BE 10 FEET, INSIDE EDGE TO INSIDE EDGE.
- 4. ALL SIGNS AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE CURRENT CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

		FILE	ST-17.DWG
STANDARD CROSSWALK MARKING	Rev.	Date: <u>12/17/19</u> City Engineer	STD. NO. ST-17



HIGH-VISIBILITY CROSSWALK MARKING

NOT TO SCALE









Rev.



*MINIMUM WIDTH MAY BE REDUCED TO 1" ONLY ON 48" BLADES TO FIT STREET NAME

NOTES:

- 1. ALL SIGN MATERIAL SHALL CONFORM TO THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS. SIGN BLANKS SHALL BE 0.08 INCHES MINIMUM IN THICKNESS AND SHALL BE ALUMINUM ALLOY #5052-H38.
- 2. ALL SHEETING SHALL BE 3M BRAND SCOTCHLITE REFLECTIVE MATERIAL. NO SUBSTITUTIONS WILL BE ACCEPTED.
- 3. BACKGROUND SHEETING SHALL BE WHITE #4090 (DIAMOND GRADE). OVERLAY SHEETING SHALL BE GREEN #1177C ELECTRONIC CUTTABLE FILM.
- 4. STREET NAME LETTERS SHALL BE 6 INCHES IN SIZE, "ROAD GEEK" OR "HIGHWAY GOTHIC" FONT, SERIES 'C' WITH AN UPPER CASE INITIAL FOLLOWED BY LOWER CASE LETTERS.
- 5. ROAD DESIGNATION, BLOCK NUMBER AND DIRECTION LETTERS SHALL BE 3 INCHES UPPER CASE, SERIES 'C' (DIECUT).
- 6. WHEN STREET NAME LENGTH DOES NOT FIT ON 48 INCH BLADE, LETTERS MAY BE REDUCED TO SERIES 'B'. SERIES 'A' IS NOT ALLOWED.
- 7. WHEN STREET NAME LENGTH IS SHORT, USE SERIES 'D'.

		FILE	: ST-18C.DWG
STREET NAME SIGN STREET INTERSECTIONS	Rev.	Date: 12/17/19	STD. NO. ST-18C










- 5. WEAKENED PLANE JOINTS SHALL BE PLACED IN THE BUS PAD AT 10'-15' CENTERS, MINIMUM DEPTH OF 2". JOINTS IN CURB AND GUTTER SHALL ALIGN WITH JOINTS IN BUS PAD WHERE POSSIBLE.
- * 40' MINIMUM FOR SPEED LIMIT 30 MPH AND UNDER. 60' DESIRABLE FOR SPEED LIMIT ABOVE 30 MPH.
- ** FOR EACH ADDITIONAL PASS THROUGH BUS BERTH, ADD 50'. FOR EACH ADDITIONAL LAYOVER BUS BERTH, ADD 80'.

		FILE	: ST-20C.DWG
		Date: 12/17/19	STD.
BUS PAD		1110	NO.
	Rev.	City Engineer	ST-20C



Rev.

Ćity Engineer









4-9 3/4" Ø LIGHT PORTS LOCATED 23 3/4" FROM CENTER Ф Ο Ο Ο CAST IN QUARTER SECTIONS



BREAKOUT RINGS @ 16 1/2", 18 1/2", 20 1/2", 22 1/2" & 34 1/2" INSIDE DIAMETERS

ORDERING:

• ALSO AVAILABLE IN 4' & 6' SQUARE SIZES

• WHEN ORDERING SPECIFY: MODEL SBR-60

• CUSTOM SIZES AVAILABLE.

PLAN & ELEVATION VIEWS N.T.S.

SPECIFICATIONS:

MATERIALS:

- CAST ALUMINUM (IRON & BRONZE AVAILABLE).
- 1/2" NOMINAL THICKNESS WITH REINFORCING RIBS AS SHOWN.
- ALL OPENINGS THRU AS SHOWN.OPENING 1/4" MINIMUM TO 3/8" MAXIMUM.

NOTES:

- 1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
- 2. DO NOT SCALE DRAWINGS.
- CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info 3. REFERENCE NUMBER 382-093B.



Rev.







DETAIL 'B' N.T.S.

FOUNDATION	SCHE	DULE			WALL		
<u> </u>	A	В		D	VERT.	HORZ.	
0'—8" TO LESS THAN 1'—0"	1'-4"	12"	4"	4"	#4 @ 32"O.C.	#4 @ 32"O.C.	(MAX.)
1'-0" TO LESS THAN 2'-0"	2'-0"	12"	4"	12"	#4 @ 32"O.C.	#4 @ 32" O.C.	(MAX.)
2'-0" TO LESS THAN 3'-0"	3'-0"	12"	4"	24"	#4 @ 32"O.C.	#4 @ 32"O.C.	(MAX.)

NOTE: USE CITY OF LEMOORE STANDARD WOOD RETAINING WALL FOR 'H' LESS THAN 8 INCH.

			FILE	E:M−2A.DWG
RETAINING WALL DETAIL 'B'	RETAINING WALL DETAIL 'B'	Rev.	Date: <u>12/17/19</u> <u>City Engineer</u>	STD. NO. M-2A



RESERVED FOR FUTURE DETAIL

FILE M-4	DWC









