



Underground Fire Service Installations

The following requirements shall be followed for every underground fire service installation. Please note: Water purveyors may have more stringent requirements, it is the contractor's responsibility to contact the respective water company for any additional requirements.

Plans

- A minimum of four (4) sets of wet stamped, signed drawings shall be submitted.
- Plans shall indicate:
 - Size and type of material for underground service line.
 - Location and a detail (i.e. specific measurements) for thrust blocks.
 - Size, type and location of backflow prevention device or check valve.
- A minimum of a single detector check valve is required. The device shall be listed and approved for its intended use with a minimum class 150 listing. **The Water purveyor requirements may be more stringent. See City Standard 36**
- California Water Service Company does not allow more than one point of connection into their system for all fire service on site. Check with Alco Water Company for their requirements.
- Underground fire mains to comply with currently adopted NFPA 24 and AWWA standards.
- Fire hydrants shall be installed per City Standard 33 & 34.
- Valve Box: The Christy box or vault to be sized to accommodate the five-year test and inspection of the check valve. The Fire Inspector will evaluate Christy box/vault size on a case-by-case basis.
- One Fire Department approved copy of plans shall be submitted, by applicant, to the respective water company.

Inspections

- A minimum of 24 hours is required when requesting an inspection/test. Call 831.758.7902; be specific in your requested inspection or test.
- The plan set with the original wet stamp and signature of AHJ shall be on site for the Fire Inspector. Copies or other facsimile will not be accepted in place of the original for inspections.
- It is the contractor's responsibility to know the requirements and install all underground fire services per Salinas Fire Department requirements.

Thrust Block Forms

- Thrust blocks to be sized as shown on approved plan, per currently adopted NFPA 24 requirements.
- Forms are required on all thrust blocks.
- Thrust blocks shall be poured against undisturbed soil.
- All fittings to be wrapped with polyethylene prior to pouring thrust blocks.
- Keep all concrete clear of the joints on all fittings.

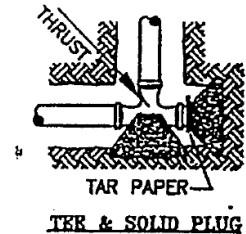
Pressure Test

- Pipes may be center loaded.
- Pipes shall be marked at bell prior to pressurizing the pipe.
- Pipe identification shall be visible from the top of the trench.
- Thrust blocks and strapping, or other approved assembly shall be installed.
- Thrust blocks and strapping shall remain exposed for test/inspection.
- Mastic shall be applied to all bolts and nuts at joints. Minimum of 10-mil tape shall be applied to galvanized steel.
- Pressure in the pipe shall be 200 psi for 2 hours, pump shall be disconnected.
- First inspection shall be made to check all the above items.
- Subject to second inspection 2 hours later to ensure that pressure has been maintained.
- Install tracer wire on pipe, risers and fittings.

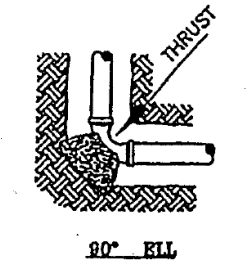
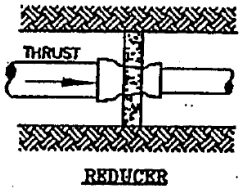
Flush Test

- Contractor shall provide all necessary equipment to perform flush test, including a suitable collection sack and a minimum 4" pipe for flow.
- Flush test will be conducted until Fire Inspector determines and is satisfied that the line is clear of debris.
- No connection shall be made to the sprinkler system prior to the flush test being witnessed and passed by a Fire Inspector. If the system is hooked up prior to the underground flush test, each branch line and main line will be required to be back flushed.

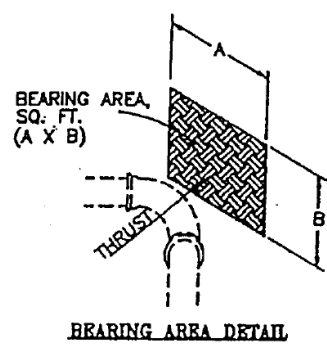
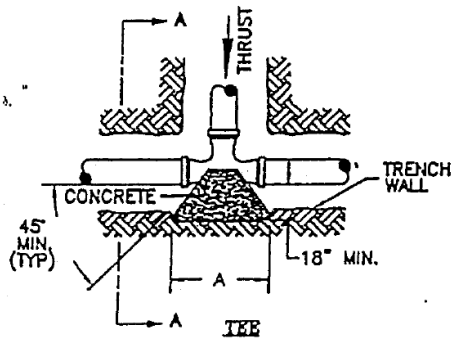
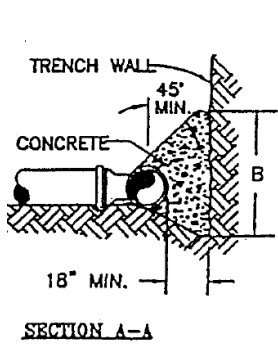
THRUST BLOCK SCHEDULE										
PIPE SIZE	FITTING	TYPE OF SOIL								
		SOFT CLAY (1000 P.S.F.)			SAND (2000 P.S.F.)			ROCK (3000 P.S.F.)		
		DIMENSION (FEET)			DIMENSION (FEET)			DIMENSION (FEET)		
		MIN. BEARING AREA (SQ. FT.)	A	B	MIN. BEARING AREA (SQ. FT.)	A	B	MIN. BEARING AREA (SQ. FT.)	A	B
6"	PLUG, CAP	6	3	2	3	2	1.5	2	2	1
	90° ELL	8	3.2	2.5	4.1	2.7	1.5	3	2	1.5
	45° ELL	4.4	2.2	2	2.3	1.5	1.5	1.5	1.5	1
	22 1/2° ELL	2.3	1.5	1.5	1	1	1	1	1	1
	TEE W/ 6" OUTLET	8	3	2	3	2	1.5	2	2	1
8"	PLUG, CAP	10	4	2.5	5	2.5	2	3.3	2.2	1.5
	90° ELL	14	4	3.5	7	2.8	2.5	5	2.5	2
	45° ELL	7.5	3	2.5	3.8	2	1.9	2.6	1.7	1.5
	22 1/2° ELL	4	2	2	2	2	1	1.5	1.5	1
	TEE W/ 8" OUTLET	10	4	2.5	5	2.5	2	3.3	2.2	1.5
12"	PLUG, CAP	24	6	4	12	4	3	7.5	3	2.5
	90° ELL	32.5	6.5	5	16.1	4.6	3.5	10.8	3.6	3
	45° ELL	17.5	5	3.5	8.8	3.5	2.5	6	3	2
	22 1/2° ELL	9	3.6	2.5	4.8	2.3	2	3	2	1.5
	TEE W/ 12" OUTLET	24	6	4	12	4	3	7.5	3	2.5
14"	PLUG, CAP	31.5	6.3	5	15.8	4.5	3.5	10.5	3.5	3
	90° ELL	44.4	7.4	6	22	5.5	4	14.7	4.2	3.5
	45° ELL	24	6	4	12	4	3	8.1	3	2.7
	22 1/2° ELL	12	4	3	6	3	2	4	2	2
	TEE W/ 14" OUTLET	31.5	6.3	5	15.8	4.5	3.5	10.5	3.5	3
16"	PLUG, CAP	40.7	7.4	5.5	20	5	4	13.5	4.5	3
	90° ELL	56	8	7	28.8	6.4	4.5	20	5	4
	45° ELL	31	6.2	5	15.8	4.5	3.5	10.5	3.5	3
	22 1/2° ELL	15.8	4.5	3.5	7.8	3	2.8	5.2	2.6	2
	TEE W/ 16" OUTLET	40.7	7.4	5.5	20	5	4	13.5	4.5	3
18"	PLUG, CAP	52	8	6.5	26.4	6.6	4	17.5	5	3.5
	90° ELL	75	10	7.5	37	7.4	5	24.8	6.2	4
	45° ELL	40.7	7.4	5.5	20	5	4	14	4	3.5
	22 1/2° ELL	20	5	4	10.5	3.5	3	8.9	3	2.3
	TEE W/ 18" OUTLET	52	8	6.5	26.4	6.6	4	17.5	5	3.5

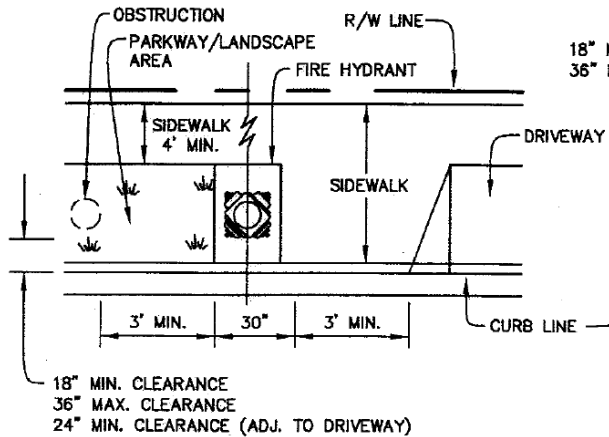


NOTE:
SEE PLANS FOR SIZE & DETAIL OF CONCRETE BLOCK WHEN REQUIRED FOR REDUCER.



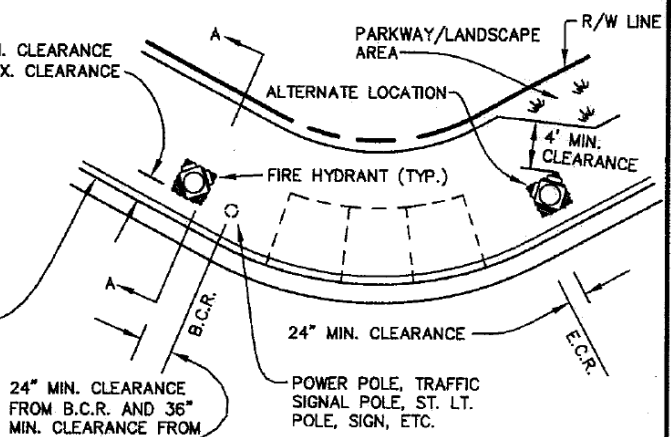
- NOTE:
1. THRUST BLOCKS DESIGNED FOR A MAXIMUM OF 150 PSI WATER PRESSURE
 2. ALL CONCRETE SHALL CONTAIN 6 SACKS OF CEMENT PER CUBIC YARD.
 3. THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED SOIL.
 4. KEEP ALL CONCRETE CLEAR OF THE JOINTS ON ALL FITTINGS.
 5. FORMS ARE REQUIRED ON ALL THRUST BLOCKS AND TO BE SUPPLIED BY CONTRACTOR. ALL FITTINGS TO BE WRAPPED WITH POLYETHYLENE PRIOR TO POURING THRUST BLOCKS.





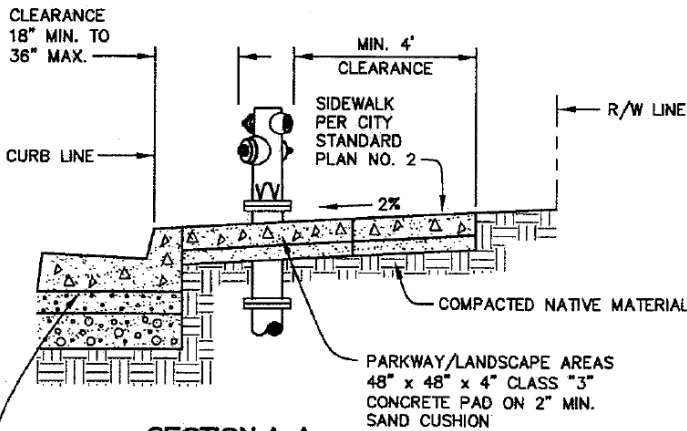
CASE A:

IN PARKWAY STRIP OR SIDEWALK



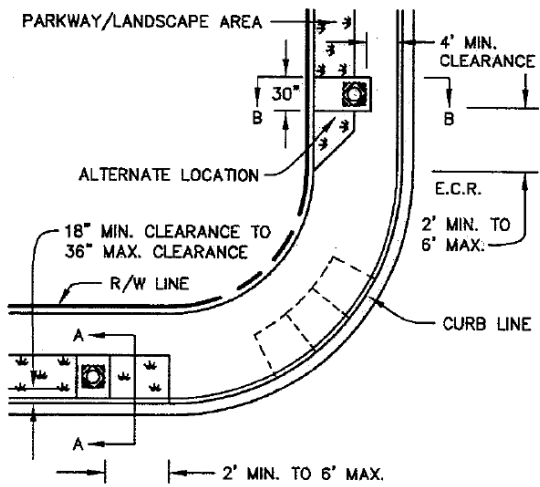
CASE B:

IN SIDEWALK AT CURB RETURN



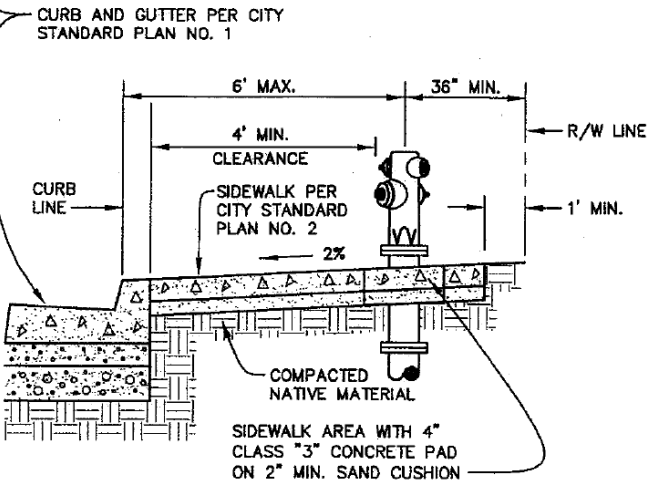
SECTION A-A

AT CURB RETURN AND MID BLOCK



CASE C:

IN PARKWAY/PLANTER AT CURB RETURN



SECTION B-B

ALTERNATE LOCATION

GENERAL NOTES

1. DRAWING NOT TO SCALE.
2. SIDEWALKS ADJACENT TO FIRE HYDRANT LOCATIONS SHALL BE A MINIMUM 4' WIDE (CLEARANCE) FOR PEDESTRIAN TRAFFIC.
3. DETAILS SHOW PREFERRED HYDRANT LOCATIONS. NO DIMENSIONS OR DETAIL HEREON SHALL PRECLUDE THE FINAL LOCATION OF FIRE HYDRANT IN THE FIELD BY THE SALINAS FIRE DEPARTMENT.
4. SEE CITY STANDARD PLAN NO. 34 FOR FIRE HYDRANT CONSTRUCTION AND OUTLET POSITION.
5. LOCATION AND QUANTITY OF BLUE RAISED PAVEMENT MARKERS (TYPE BB RPM) SHALL BE PER CITY STANDARD PLAN NO. 38 AND AS REQUIRED BY THE SALINAS FIRE DEPARTMENT.

DEVELOPMENT & ENGINEERING SERVICES DEPARTMENT

ENGINEERING SERVICES DIVISION

CITY OF SALINAS

TITLE: **FIRE HYDRANT LOCATION**

STANDARD PLAN

DESIGNED BY:
STAFF

DATE 10/21/2008

REVIEWED BY:

CADD BY:
STAFF

Robert C. Russell



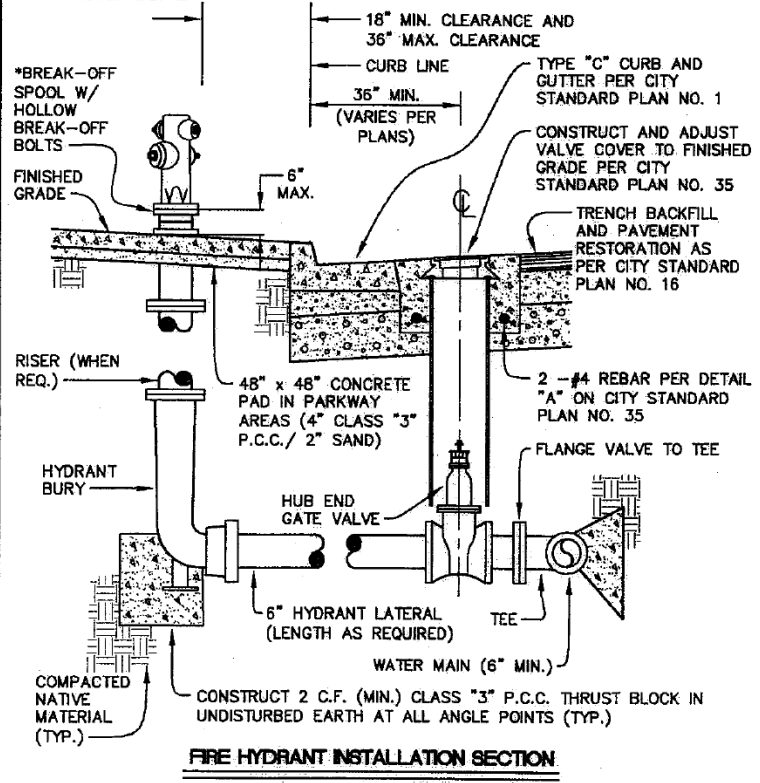
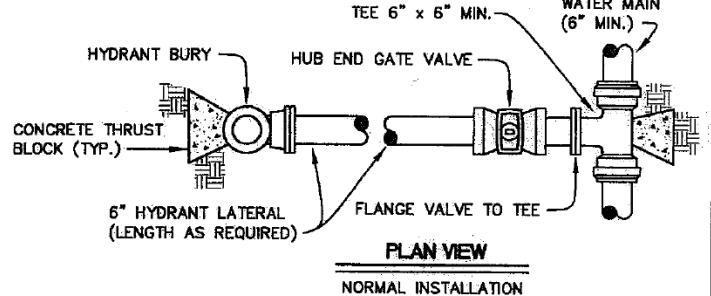
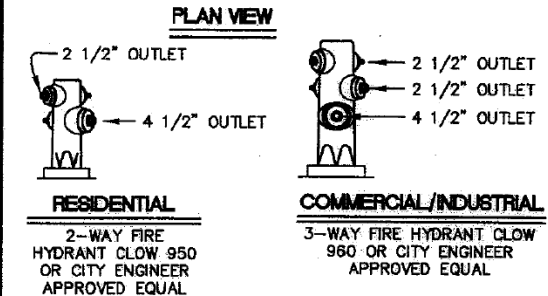
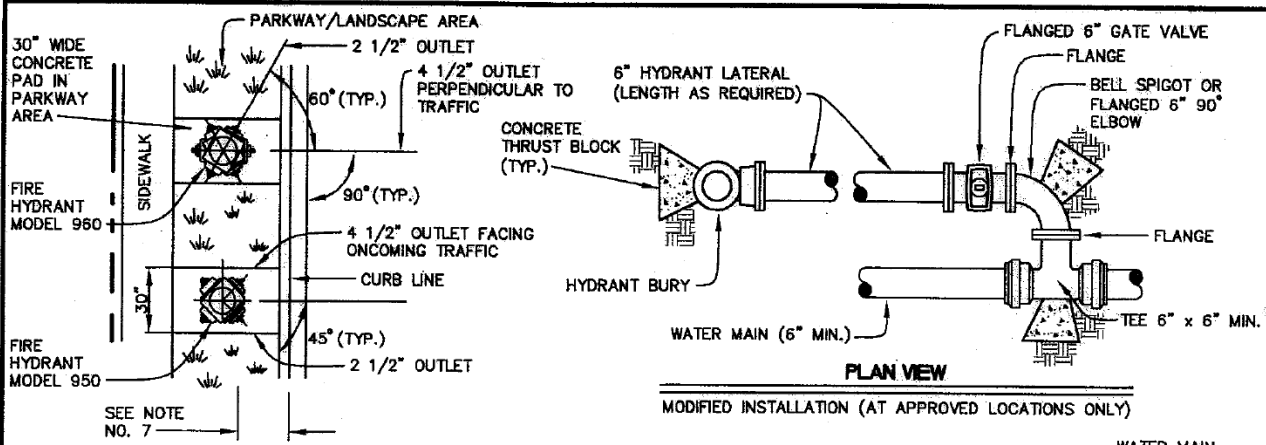
M. Fatham

PROJECT MANAGER:
FRANK A. AGUAYO, P.E.

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2010

FIRE CHIEF
SALINAS FIRE
DEPT.

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- GENERAL NOTES**
- DRAWING NOT TO SCALE.
 - ALL WORK SHALL BE DONE IN ACCORDANCE WITH REQUIREMENTS OF THE APPROVED CITY ENCROACHMENT PERMIT AND THE STANDARD SPECIFICATIONS.
 - DUCTILE IRON PIPE SHALL CONFORM WITH THE LATEST AWWA SPECIFICATIONS C151 AND SHALL BE CEMENT MORTAR LINED PER AWWA STANDARD C105.
 - DUCTILE IRON FITTINGS SHALL CONFORM WITH THE LATEST AWWA SPECIFICATIONS C153 AND SHALL BE CEMENT LINED PER AWWA STANDARD C104.
 - INSTALL FIRE HYDRANT CLOW 950 FOR RESIDENTIAL AREAS AND CLOW 960 FOR HEAVY INDUSTRIAL AND LARGE COMMERCIAL AREAS OR APPROVED EQUAL BY THE FIRE DEPARTMENT.
 - NO OTHER SERVICE CONNECTIONS SHALL BE MADE TO THE FIRE HYDRANT LATERAL.
 - DETAILS SHOW NORMAL FIRE HYDRANT INSTALLATION. ALTERNATE CONSTRUCTION METHODS MAY BE USED SUBJECT TO APPROVAL BY THE SALINAS FIRE DEPARTMENT.
 - SEE CITY STANDARD PLAN NO. 33 FOR FIRE HYDRANT LOCATION. OUTLET CAPS SHALL BE CHAINED.
 - FINAL INSPECTION BY THE CITY ENGINEER SHALL BE REQUIRED PRIOR TO BACKFILL.
 - HYDRANTS SHALL BE PAINTED (BOTH CAPS AND BODY) WITH SAFETY YELLOW, KELLY MOORE KEL-GUARD ENAMEL OR APPROVED EQUAL BY THE FIRE DEPARTMENT.
 - FOR PRIVATE PROPERTY A DOUBLE CHECK VALVE BACKFLOW PREVENTION DEVICE IS REQUIRED PER CITY OF SALINAS STANDARD PLAN NO. 36.

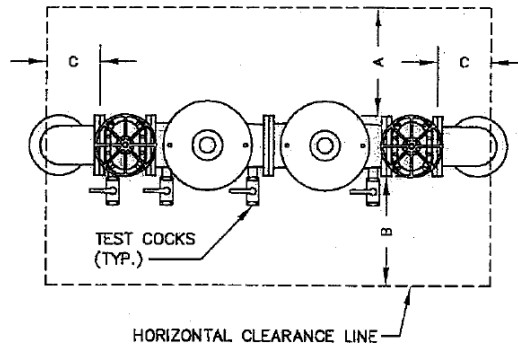
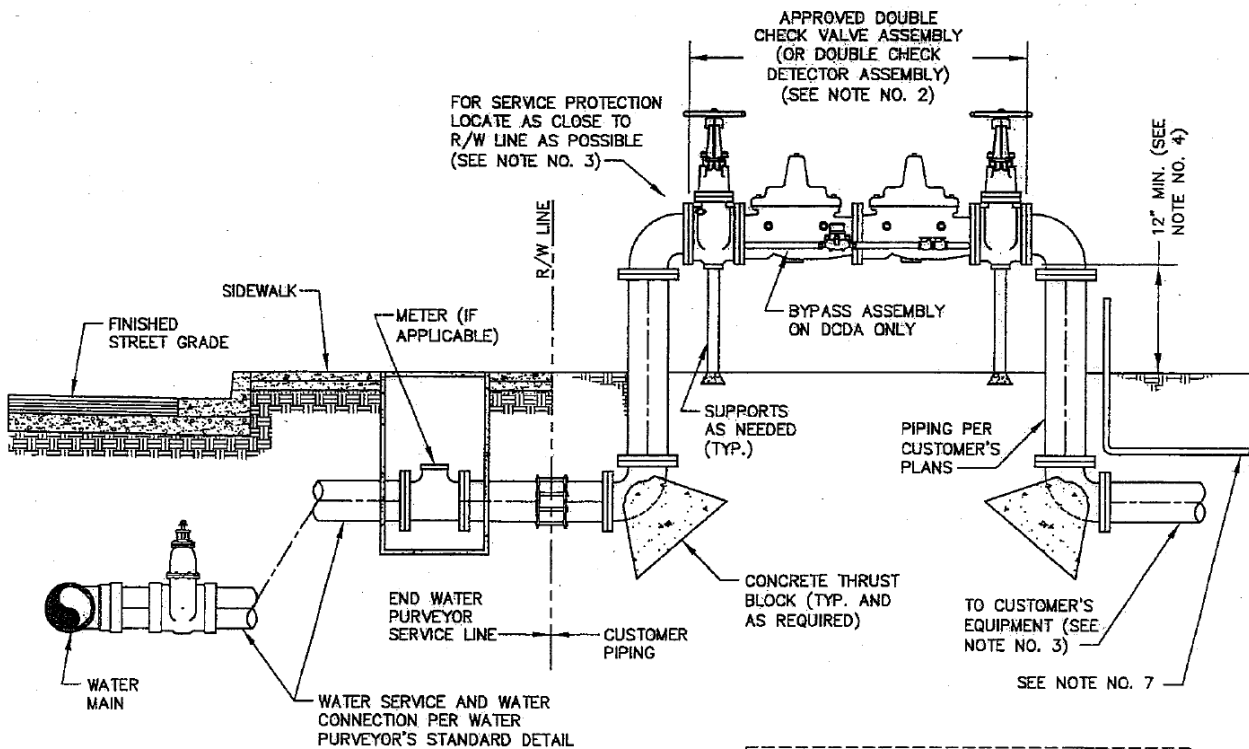
DEVELOPMENT & ENGINEERING SERVICES DEPARTMENT

ENGINEERING SERVICES DIVISION CITY OF SALINAS

TITLE: FIRE HYDRANT CONSTRUCTION **STANDARD PLAN**

DESIGNED BY: STAFF	DATE: 10/21/2008		REVIEWED BY: <i>Mr. Fathon</i> for
CADD BY: STAFF			FIRE CHIEF SALINAS FIRE DEPT.
PROJECT MANAGER: FRANK A. AGUIYO, P.E.	ROBERT C. RUSSELL, CITY ENGINEER R.C.E. 42871, EXPIRES 3-31-2010		

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CLEARANCE DIMENSIONS			
SIZE	A	B	C
1" - 3"	12"	18"	12"
4" & UP	24"	24"	12"

GENERAL NOTES

1. DRAWING NOT TO SCALE.
2. SEE CALIFORNIA STATE DEPARTMENT OF HEALTH SERVICES LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. THE LOCATION AND INSTALLATION OF THE APPROVED ASSEMBLY SHALL BE SUBJECT TO THE APPROVAL OF THE WATER PURVEYOR CROSS-CONNECTION CONTROL SUPERVISOR.
4. INSTALL UNIT A MINIMUM OF 12" AND A MAXIMUM OF 36" ABOVE FINISHED GRADE AND NOT SUBJECT TO FLOODING.
5. PRESSURE/TEMPERATURE RELIEF VALVE INSTALLATION AND/OR THERMAL EXPANSION CONTROL EQUIPMENT SHOULD BE PROVIDED (AS NEEDED).
6. APPROVED PROTECTIVE ENCLOSURES MAY BE INSTALLED IN ACCORDANCE WITH WATER PURVEYOR AND/OR CITY REQUIREMENTS.
7. 1" PVC CONDUIT FOR FIRE ALARM SUPERVISION OF ABOVE GROUND WATER CONTROL VALVES.

DEVELOPMENT & ENGINEERING SERVICES DEPARTMENT

ENGINEERING SERVICES DIVISION

CITY OF SALINAS

TITLE: **DOUBLE CHECK VALVE - BACK FLOW PREVENTER ASSEMBLY AND INSTALLATION**

STANDARD PLAN

DESIGNED BY:
STAFF

DATE: 10/21/2008

CADD BY:
STAFF

Robert C. Russell



REVIEWED BY:
M. Latham

FIRE CHIEF
SALINAS FIRE
DEPT.

PROJECT MANAGER:
FRANK A. AGUAYO, P.E.

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2010

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