

**SANITARY SEWER NOTES:**

- SANITARY SEWER JOINTS (ALL TYPES PVC INCLUDED) SHALL BE RUBBER GASKET EQUIPPED BELL AND SPIGOT TYPE. CHEMICALLY WELDED SANITARY SEWER JOINTS ARE NOT ACCEPTABLE!
- ANY PIPE TYPES NOT LISTED BELOW TAKE MODIFIED CLASS "AA" BEDDING UNLESS OTHERWISE SPECIFIED IN A SPECIAL LETTER OF PERMISSION. SEE C/H DRAWING #02730-03A, EFFECTIVE 2/17/94. STANDARD BEDDING FOR DUCTILE IRON - "C" WITH POLYETHYLENE WRAP
- ALL MANHOLE RIMS SHALL BE ABOVE THE 100 YEAR FLOOD ELEVATION OR THE MANHOLE TOP SHALL BE SEALED AND VENTED WITH A DETAIL OF A VENTED MANHOLE TO BE INCLUDED IN THE PLANS.
  - CITY OF HOUSTON SIGNATURES AFFIXED TO PLANS SHALL BE VALID FOR 1 YEAR ONLY AFTER THE DATE OF SAID SIGNATURES. ANY CHANGES MADE TO THE PLANS AFTER SAID DATE WILL REQUIRE REPLACEMENT AND/OR UPDATE OF THE SIGNATURES ON THE PLANS. WHEN THE SIGNATURES ARE BEING UPDATED, DESIGN CHANGES MAY BE ORDERED FOR ANY UNBUILT ITEMS FOUND ON THE PLANS. [NOTE: THIS ITEM DOES NOT APPLY TO CITY OF HOUSTON CAPITAL PROJECTS DEPT. PLANS!]
- DEFLECTION TESTING SHALL BE PERFORMED FOR ALL NON-RIGID PIPE TYPES. DEFLECTION TESTING SHALL BE CONDUCTED AFTER THE GRAVITY SANITARY SEWER HAS BEEN IN PLACES FOR AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5%. THE DEFLECTION TEST SHALL BE CONDUCTED USING A RIGID BALL OR MANDREL HAVING AN INSIDE DIAMETER EQUAL TO 95% OF THE INTERIOR DIAMETER OF THE PIPE. THE TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES. I. & E. TEST FOR SANITARY SEWER SYSTEM SHALL BE IN ACCORDANCE WITH CITY OF HOUSTON REQUIREMENTS.
- SPECIAL BACKFILL - SEE ADDENDUM SEWER SPECIFICATION E-14-62, CITY OF HOUSTON SEWER SPECIFICATIONS FOR CEMENT STABILIZED BACKFILL OF SANITARY AND TRENCHES UNDER OR WITHIN (1) FT. OF PROPOSED OR EXISTING PAVEMENT.
- WYE BRANCHES, STACKS AND TEES FOR HOUSE SERVICE CONNECTION SHALL BE CENTERED BETWEEN SIDE LOT LINES UNLESS OTHERWISE SHOWN. CONTRACTOR SHALL PROVIDE ENGINEER WITH DRAWINGS OF ACTUAL FIELD TIES OF THE WYES, STACKS AND TEES LOCATING THEM FROM THE NEAREST DOWNSTREAM MANHOLE.
- ALL MANHOLE RIMS LOCATED OUTSIDE OF THE PROPOSED PAVING WILL BE SET 3" ABOVE TOP OF CURB ELEVATION WHEN WITHIN STREET RIGHT-OF-WAY OR 3" TO 6" ABOVE SURROUNDING LEVEL OF FINISHED GRADE ELSEWHERE WITH SLOPED FILL ADDED FOR STORM DRAINAGE AWAY FROM THE MANHOLE RIM.
- ALL SANITARY SEWER MATERIALS, CONSTRUCTION, AND TESTING WILL BE IN ACCORDANCE WITH CITY OF HOUSTON E-14-62 (1977 PRINTING AND ALL SUBSEQUENT AMENDMENTS THERETO).
- CONTRACTOR TO OBTAIN ALL CONSTRUCTION PERMITS REQUIRED BY THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT".
- FOR USE IN WET SAND CONSTRUCTION AREAS, USE DRAWING #02730-01A & 02600-12, EFFECTIVE 2/17/94
- PVC TO BE SDR-26. ASTM D-3034. PVC TO HAVE A MINIMUM CELL CLASS 12454 A OR B PER ASTM D1784. ALL PVC PIPES TO HAVE GASKETED JOINTS WITH RUBBER GASKETS PER ASTM D-3212. GASKETS TO MEET ASTM F477.
- ALL FITTINGS FOR PVC PIPE SHALL BE SDR-26 FULL BODIED FITTINGS.
- DUCTILE IRON PIPE SHALL CONFORM TO ANSI/AWWA C151/A21.51 THK 50. IT SHALL BE WRAPPED IN 8 MILLS OF POLY ETHYLENE TUBING PER ANSI A21.51 AWWA C105. THE INTERIOR OF THE DIP SHALL BE LINED WITH 45 MILLS OF POLY ETHYLENE PER ASTM D-1748. LINER TO BE POLY LINF BY US PIPE, POLY BOND BY AMERICAN LIP, OR EQUAL. DIP TO HAVE "C" BEDDING.
- A STAINLESS STEEL DISH INSERT MUST BE PROVIDED FOR ALL SANITARY MANHOLES.

**GENERAL NOTES - WATER**

- ALL WATERLINE TO HAVE A MINIMUM OF FOUR (4) FEET OF COVER TO TOP OF CURB UNLESS OTHERWISE SHOWN.
- ALL FLUSHING VALVES SHALL BE SET THREE (3) FEET BEHIND BACK OF CURB.
- STEEL WATER LINE SECTION TO EXTEND A MINIMUM OF FIVE (5) FEET BEYOND 45' BENDS.
- THE CONTRACTOR MAY USE A BACK HOE FOR TRENCH EXCAVATION IN LIEU OF A TRENCHING MACHINE.
- WHENEVER SANITARY SEWERS CROSS OVER WATER MAINS, ONE 18' JOINT OF DUCTILE PIPE SHALL BE INSTALLED IN THE SEWER LINE AND CENTERED AT THE WATER LINE CROSSING, 6" MINIMUM CLEARANCE.
- DUCTILE IRON PIPE SHALL BE MINIMUM THICKNESS CLASS 50. THE PRESSURE RATING FOR BOTH THE PIPE AND THE JOINTS SHALL BE 150 PSI OR GREATER.
- WHENEVER SANITARY SEWERS CROSS OVER WATER MAINS, AND THE OUT-TO-OUT PIPE CLEARANCE IS LESS THAN 24", A CENTERED 18' JOINT OF DUCTILE IRON PIPE SHALL BE USED.
- WHENEVER SANITARY SEWERS CROSS OVER WATER MAINS AND THE MINIMUM PIPE CLEARANCE IS 24" OR GREATER, A CENTERED 20' SECTION OF CEMENT STABILIZED SAND (2 SACKS OF CEMENT PER CUBIC YARD) SHALL BE INSTALLED FROM THE LOWER 1/4 POINT OF THE SEWER PIPE TO A LEVEL OF 1 PIPE DIAMETER ABOVE THE SEWER PIPE, BUT IN NO CASE SHALL THE DEPTH OF SAND ABOVE THE SEWER PIPE BE LESS THAN 12".
- ALL P.V.C. WATER MAINS SHALL BE F C-900, DR 18, CLASS 150; DISTRICT WILL INSTALL.
- ALL WATER METERS MUST HAVE INDIVIDUAL SERVICE LEADS AS PER CITY OF HOUSTON STANDARDS.

**GENERAL NOTES FOR WATER MAIN PROJECTS IN THE CITY'S I.U.**

- ALL WATER MAINS UNDER STREET PAVEMENT - 4 INCHES THRU 12 INCHES IN DIAMETER, IF NOT SPECIFIED OTHERWISE, SHALL BE AWWA C-900 PVC PIPE.
- CONTRACTOR SHALL PROVIDE ADEQUATE THRUST BLOCKING TO WITHSTAND TEST PRESSURE SPECIFIED IN SPECIFICATION FOR WATER MAIN CONSTRUCTION AND MATERIALS WITH LATEST ADDENDA AND AMENDMENTS THERETO.
- DISTRICT WILL INSTALL LEADS, TAPS, AND METERS.

**GENERAL NOTES - PAVING**

- PAVING SHALL BE IN ACCORDANCE WITH HARRIS COUNTY "RULES, REGULATIONS AND REQUIREMENTS RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS OR RE-SUBDIVISIONS" AND THE LATEST REVISIONS AND/OR AMENDMENTS OF SAME.
- GUIDELINES SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES SHALL BE OBSERVED.
- ALL RADII AT CURB RETURNS TO BE 25.0' TO BACK OF CURB UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL NOTIFY HARRIS COUNTY ENGINEERING DEPARTMENT 24 HOURS IN ADVANCE OF COMMENCING CONSTRUCTION. (713-755-5504). AND WRITTEN NOTIFICATION 48 HOURS IN ADVANCE.
- STOP SIGN (R1 - 1A) TO BE PLACED AT ALL INTERSECTIONS.
- OWNER TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY FOR CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN COUNTY ROAD R.O.W.

**NOTE:**

NOTIFY DISTRICT OPERATOR, AQUASOURCE (MUNISERVICE CORPORATION) AT (713) 849-6660, 48 HOURS PRIOR TO BEGINNING CONSTRUCTION. ALL WATER TAPS AND METERS TO BE INSTALLED BY DISTRICT OPERATOR.

**PRIVATE UTILITY COMPANY NOTES**

**HOUSTON LIGHTING AND POWER COMPANY**

**CAUTION: OVERHEAD ELECTRICAL FACILITIES**

OVERHEAD LINES MAY EXIST ON THE PROPERTY. WE HAVE NOT ATTEMPTED TO MARK THOSE LINES SINCE THEY ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE, FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES. PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS ARE LEGALLY RESPONSIBLE FOR SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL HL&P AT 713-207-7777.

**ENTEX**

**CAUTION: UNDERGROUND GAS FACILITIES**

LOCATION OF ENTEX MAIN LINES (TO INCLUDE UNITED GAS TRANSMISSION, AND/OR INDUSTRIAL GAS SUPPLY CORPORATION WHERE APPLICABLE) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT (713) 223-4567 OR 1-800-669-8344 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

WHEN ENTEX PIPE LINE MARKINGS ARE NOT VISIBLE, CALL (713) 967-8037 (7:00 A.M. TO 4:30 P.M.) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.

WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF ENTEX FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.

WHEN ENTEX FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.

THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK AND AGREE TO BE FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

**SOUTHWESTERN BELL TELEPHONE COMPANY**

THE LOCATIONS OF SOUTHWESTERN BELL TELEPHONE CO. UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.

**GENERAL NOTES - CONSTRUCTION**

CONSTRUCTION SHALL CONFORM TO DESIGN MANUAL 1996, AND STANDARD SPECS AND STANDARD DETAILS NOV. 1997. CONTRACTOR SHALL OBTAIN AND USE A COPY OF LATEST EDITION OF SAME. OBTAIN AT CITY FILE ROOM.

**GENERAL UTILITY NOTES**

WATER LINES, WASTEWATER COLLECTION SYSTEMS, AND DRAINAGE SYSTEMS SHALL BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH THE CITY OF HOUSTON, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING'S "STANDARD CONSTRUCTION SPECIFICATIONS" DATED SEPTEMBER 1997, AND "STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING" DATED JULY 1997 UNLESS OTHERWISE NOTED AND APPROVED ON THESE PLANS. THE DESIGN IS CONSISTENT WITH THE MINIMUM STANDARDS ESTABLISHED IN THE "DESIGN MANUAL FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING", DATED SEPTEMBER 1996.

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE EXISTING PUBLIC OR PRIVATE UTILITY LINES, INCLUDING BUT NOT LIMITED TO WATER LINES, WASTEWATER COLLECTION SYSTEMS AND STORM SEWERS, DURING CONSTRUCTION. ALL DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH CITY OF HOUSTON, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING "STANDARD CONSTRUCTION SPECIFICATIONS" WITH LATEST ADDENDA AND AMENDMENTS THERETO, WITH NO COST TO THE PUBLIC.

**HARRIS COUNTY CONSTRUCTION NOTES**

- STORM SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF HOUSTON DESIGN MANUAL AND STANDARD CONSTRUCTION DETAILS, AS CURRENTLY AMENDED.
- REINFORCED CONCRETE PIPE (C76 CLASS III) STORM SEWERS SHALL BE INSTALLED, BEDDED AND BACK FILLED IN ACCORDANCE WITH CITY OF HOUSTON DRAWINGS 02317-04, 02317-05, 02317-06, 02317-07 AND 02317-09.
- ALL SEWERS CONSTRUCTED INSIDE LOT EASEMENTS SHALL BE R.C.P. MINIMUM TWENTY (20) FOOT WIDE EASEMENTS SHALL BE PROVIDED.
- ALL SEWERS UNDER ONE (1) FOOT OF PROPOSED OR FUTURE PAVEMENT SHALL BE BACK FILLED WITH 1-1/2 SACK CEMENT STABILIZED TO WITHIN ONE (1) FOOT OF SUBGRADE.
- ALTERNATIVE TO CEMENT STABILIZED SAND BACKFILL FOR PIPES 54-INCH AND LARGER, FROM 1-FOOT ABOVE THE TOP OF THE PIPE TO THE BOTTOM OF THE SUBGRADE, CONTRACTOR MAY BACKFILL WITH SUITABLE MATERIAL, PROVIDED THE BACKFILL MATERIAL IS PLACED IN 8-INCH LIFTS AND MECHANICALLY COMPACTED TO 95% STANDARD PROCTOR DENSITY. TESTS SHALL BE TAKEN AT 100-FOOT INTERVALS ON EACH LIFT. BEDDING AND BACKFILL TO 1-FOOT ABOVE THE TOP OF THE PIPE SHALL BE CEMENT STABILIZED SAND.
- ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 8" BRICK WALLS.
- THE CONTRACTOR SHALL NOTIFY THE HARRIS COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT DEVELOPMENT PROJECTS SECTION, TWENTY-FOUR (24) HOURS IN ADVANCE OF COMMENCING CONSTRUCTION (713)-(956-3071) AND WRITTEN NOTIFICATION FORTY-EIGHT HOURS IN ADVANCE OF COMMENCING CONSTRUCTION.
- PAVING SHALL BE IN ACCORDANCE WITH HARRIS COUNTY "RULES, REGULATIONS AND REQUIREMENTS RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS OR RE-SUBDIVISIONS" AND/OR AMENDMENTS OF SAME. OF COMMENCING CONSTRUCTION.
- GUIDELINES SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE OBSERVED.
- ALL STORM SEWER MANHOLE RIMS LOCATED OUTSIDE THE PROPOSED PAVING SHALL BE SET TO PROPOSED FINISH GRADE ELEVATION.

**GENERAL NOTES - STORM SEWER**

EXISTING PAVEMENTS, CURBS, SIDEWALKS, AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO HARRIS COUNTY STANDARDS.

CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY, UPON COMPLETION OF JOB, SHALL BE AS GOOD AS OR BETTER THAN THE CONDITION PRIOR TO STARTING WORK.

ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY.

**BENCHMARK:**  
RM192 Bronze disk set in top of concrete post, approx. 8.7 miles Southeast on Missouri Kansas-Texas Railroad from station at Farnhall, approx. 41 feet Northeast of Northeast rail, approx. 2 feet Northeast of fence, and approx level with rail. 1973 adjustment. Elev. 130.16

NO.	DATE	REVISIONS	APP.

CONSTRUCTION PLANS FOR HARRIS COUNTY M.U.D. No. 191  
**PRESTONWOOD PARK SECTION 1**  
HARRIS COUNTY, TEXAS

**CONSTRUCTION GENERAL NOTES**

PRIVATE UTILITY LINES SHOWN

*Call Waterwall* 1/4/00  
ENTEX, INC. DATE

*Mike Bolin* 1/4/00  
SOUTHWESTERN BELL TELEPHONE CO. DATE  
VALID FOR ONE YEAR ONLY

*Call Waterwall* 1/4/00  
HOUSTON LIGHTING & POWER CO. DATE  
APPROVAL ONLY FOR CROSSING UNDERGROUND DUCT LINES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY

**HARRIS COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT**

APPROVED: \_\_\_\_\_  
for Assistant County Engineer

Date  
Approval implied for paving and drainage facilities within Harris County R.O.W. and/or jurisdiction. All other improvements in H.C.R.O.W. and/or jurisdiction are approved as to location only.

The above authorization is valid for one (1) year only.

**CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING**

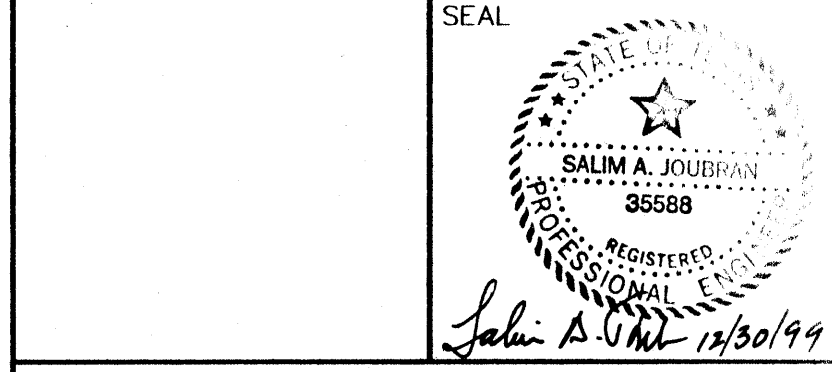
REVIEWED BY	CITY FUNDED PUBLIC WORKS
<i>Waterwall</i>	PROJECT MANAGER
<i>Mike Bolin</i>	CONSTRUCTION
<i>Waterwall</i>	CHIEF ENGINEER

**OTHER APPROVAL**

TRAFFIC AND TRANSPORTATION	SPONSOR DEPARTMENT
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CITY ENGINEER DATE  
*W. J. ...* 1-11-2000  
DIRECTOR OF PUBLIC WORKS AND ENGINEERING DATE

SUBMITTED: SCALE: HORIZ. 1" = 100' VERT. DATE: DECEMBER, 1999 SURVEY BY: JOHN THOMAS F B NO. DESIGNED BY: S.A.J. DRAWN BY: T.B.M. SHEET NO. 9 OF 28 SHEETS CITY DWG NO.



**PEPE ENGINEERING**  
9950 CYPRESSWOOD, SUITE 300 HOUSTON, TEXAS 77070-3412 TELEPHONE: (281)897-0590 pepeinc@pepe-engineering.com

CADD DWG. FILE: 115\_885\_ JOB NO.: 9815 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS