

BENCH MARK: NGS STAMPED Y1216 1973
BRASS DISK AT CENTERLINE OF H.L.&P. TOWER
1ST TOWER NORTH OF F.M. 1960
ELEVATION 123.99 1973 ADJ.

SANITARY SEWER NOTES:

1. If PVC (ALL TYPES) or any other type sanitary sewer pipe or manhole type not mentioned in the E-14-62 is chosen, then a letter of permission must be obtained from the Wastewater Design Section Capital Projects Dept.
2. Sanitary sewer joints (ALL TYPES PVC INCLUDED) shall be rubber gasket equipped ball and spigot type. Chemically welded sanitary sewer joints are acceptable only on ARMO TRUSS PIPE.
3. Any Pipe types not listed below take modified class "AA" bedding unless otherwise specified in a special letter of permission. Standard bedding for sanitary sewers:
Concrete Pipe - "A" or Modified "AA"
ES. Clay - "A" or Modified "AA"
PVC - Modified "AA"
Truss - Modified "AA"
Hobas - Modified "AA"
Spiralite - Modified Class "AA"
Ductile Iron - "C" With Polyethylene Wrap
4. Design and construction of sanitary sewer shall conform to City of Houston publication E-14-62 with all amendments thereto, and city publication General Design Requirements for Sanitary Sewers, Storm Sewers, Water Lines, and Paving, Revision 1.
5. 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.
6. 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 unbuild items found on the plans. [Note: this item does not apply to City of Houston Capital Projects Dept. Plans]
7. Deflection Testing shall be performed for all non-rigid pipe types. Deflection testing shall be conducted after the gravity sanitary sewer has been in place 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.
8. 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.
9. 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.
10. 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.
11. 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).
12. Contractor to obtain all construction permits required by the "Regulations of Harris County, Texas for Flood Plain Management".
13. For use in wet sand construction areas, use C/H Spec. Sec. No. 5, DWG No. 485-s (E-14-62) (1977 printing and all subsequent amendments thereto).
14. PVC to be SDR-26.

GENERAL NOTES - STORM SEWERS

1. STORM SEWER SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF HOUSTON E-14-62 AS CURRENTLY AMENDED.
2. REINFORCED CONCRETE PIPE (C-76 CLASS III) STORM SEWER SHALL BE INSTALLED BEDDED AND BACKFILLED IN ACCORDANCE WITH CITY OF HOUSTON DRAWINGS 529-S-1, 530-S-1 and 530-S-2 AS APPLICABLE.
3. ALL SEWERS UNDER OR WITHIN ONE (1) FT. OF PROPOSED OR FUTURE PAVEMENT SHALL BE BACKFILLED WITH 1 SACK CEMENT STABILIZED SAND TO WITHIN ONE (1) FT. OF SUBGRADE.
4. ALL STORM SEWERS CONSTRUCTED IN SLOTEL EASEMENTS SHALL BE R.C.P. (C-76 CLASS III) AND SHALL BE BEDDED IN ACCORDANCE WITH CITY OF HOUSTON DRAWINGS 529-S-1, 530-S-1 and 530-S-2 AS APPLICABLE. TWENTY (20) FT. WIDE EASEMENT SHALL BE PROVIDED.
5. ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 6" BRICK WALLS UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR SHALL NOTIFY HARRIS COUNTY ENGINEERING DEPARTMENT 24 HOURS IN ADVANCE OF COMMENCING CONSTRUCTION, (755-8210), AND WRITTEN NOTIFICATION 48 HOURS IN ADVANCE.
7. CONTRACTOR TO OBTAIN ALL CONSTRUCTION PERMITS REQUIRED BY THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT."
8. ALL MANHOLE RIMS LOCATED OUTSIDE OF THE PROPOSED PAVING WILL BE SET 3" TO 6" ABOVE SURROUNDING LEVEL OF FINISHED GRADE WITH SLOPED FILL ADDED FOR STORM WATER DRAINAGE AWAY FROM THE MANHOLE RIM.
9. BEFORE UTILITY CONSTRUCTION BEGINS, ADEQUATE DRAINAGE MUST BE PROVIDED SO THAT NO SHEET FLOW FLOODING OF ROADWAY OR ADJOINING PROPERTIES OCCURS.
10. THE CONTRACTOR MAY USE A BACKHOE FOR TRENCH EXCAVATION IN LIEU OF A TRENCHING MACHINE.
11. 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. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE FINAL DRAFT OF STORMWATER MANAGEMENT HANDBOOK FOR CONSTRUCTION ACTIVITIES AS PREPARED BY HARRIS COUNTY/HCFCD, AND THE CITY OF HOUSTON ALL IN COMPLIANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS.
12. EXISTING PAVEMENTS, CURBS, SIDEWALKS, AND DRIVEWAY DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO CITY OF HOUSTON STANDARDS.
13. 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.

GENERAL NOTES - WATER

1. ALL WATER LINES TO HAVE A MINIMUM OF FOUR (4) FEET OF COVER TO TOP OF CURB.
2. WATER MAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF HOUSTON SPECIFICATIONS (SEE GENERAL NOTES FOR WATER MAIN PROJECTS IN THE CITY'S ETJ)
3. ALL FLUSHING VALVES SHALL BE SET THREE (3) FEET BEHIND BACK OF CURB.
4. STEEL WATER LINE SECTION TO EXTEND A MINIMUM OF FIVE (5) FEET MINIMUM BEYOND 45° BENDS.
5. THE CONTRACTOR MAY USE A BACKHOE FOR TRENCH EXCAVATION IN LIEU OF A TRENCHING MACHINE.
6. WHENEVER SANITARY SEWERS CROSS UNDER WATER MAINS, A 6" MINIMUM CLEARANCE IS REQUIRED. WHENEVER SANITARY SEWERS CROSS OVER WATER MAINS, A 2' MINIMUM CLEARANCE IS REQUIRED. ONE 18' JOINT OF DUCTILE PIPE SHALL BE INSTALLED IN THE SEWER LINE AND CENTERED AT THE WATER LINE CROSSING.
7. 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.
8. 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.
9. WHENEVER WATER MAINS CROSS UNDER SANITARY SEWERS, AND THE MINIMUM PIPE CLEARANCE IS 2' OR GREATER, BUT LESS THAN 9', A CENTERED 20' OF CEMENT STABILIZED SAND BACKFILL (2 SACKS OF CEMENT PER CUBIC YARD OF SAND) STARTING AT A POINT 1/4 OF THE PIPE DIAMETER ABOVE THE BOTTOM OF SANITARY SEWER TO 1-FOOT ABOVE THE TOP OF SANITARY SEWER, OR ONE SANITARY DIAMETER, WHICHEVER IS LARGER. CENTER ONE JOINT OF SANITARY SEWER PIPE ABOUT THE WATER MAIN.
10. ALL P.V.C. WATER MAINS SHALL BE F C-900, DR 18, CLASS 150.
11. ALL WATER METERS MUST HAVE INDIVIDUAL SERVICE LEADS AS PER CITY OF HOUSTON STANDARDS. W.D.-6 (EFFECTIVE 6-28-87).

GENERAL NOTES FOR WATER MAIN PROJECTS IN THE CITY'S ETJ

1. Water main/meter construction shall be in accordance with City of Houston Specifications for Water Main Construction and Materials and Specifications for Water Taps and Service Lines, 3/4" through 2", and for Large Meter and Sprinkler Connections with latest addenda and amendments thereto.
2. All A.C. water mains used in this project ranging in size from 6 inches thru 16 inches shall be AWWA C-400-80 class 200 or latest revision with maximum pipe length of 6 feet 6 inches.
3. All water mains under street pavement - 4 inches thru 12 inches in diameter, if not specified otherwise, shall be AWWA C-900 PVC pipe.
4. All water meters sized from 3/4" to 2" must have individual service leads and meter boxes as per City of Houston Specification for Water Taps and Service Lines, 3/4" through 2", and for Large Meter and Sprinkler Connections with latest addenda and amendments thereto.
5. All water meters sized 3" or larger shall have approved plan and profile drawings to be installed in a 10' x 20' Water Meter Easement adjacent to public street R.O.W. as per City of Houston Specifications for Water Taps and Service Lines, 3/4" through 2", and for Large Meter and Sprinkler Connections with latest addenda and amendments thereto.
6. All fire lines (loop) shall have approved plan and profile drawings to be installed in an 10' Water Line Easement inside private property as per City of Houston Specification for Water Taps and Service Lines, 3/4" through 2", and for Large Meter and Sprinkler Connections with latest addenda and amendments thereto.
7. 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.

GENERAL NOTES - PAVING

1. 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.
2. GUIDELINES SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES SHALL BE OBSERVED.
3. ALL RADI AT CURB RETURNS TO BE 25.0' TO BACK OF CURB UNLESS OTHERWISE NOTED.
4. THE CONTRACTOR SHALL NOTIFY HARRIS COUNTY ENGINEERING DEPARTMENT 24 HOURS IN ADVANCE OF COMMENCING CONSTRUCTION, (713-755-8210), AND WRITTEN NOTIFICATION 48 HOURS IN ADVANCE.
5. STOP SIGN (R1 - 1A) TO BE PLACED AT ALL INTERSECTIONS.
6. OWNER TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY FOR CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN COUNTY ROAD R.O.W.
7. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY REGULATION OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT. PRIOR TO STARTING CONSTRUCTION.
8. OWNER TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITY AND/OR CULVERTS WITHIN COUNTY ROAD RIGHTS OF WAY.

NOTE:
FORMAL "NOTIFICATION" APPROVED BY COMMISSIONERS COURT REQUIRED PRIOR TO CONSTRUCTION OF UTILITIES WITHIN HARRIS COUNTY R.O.W. CONTACT HARRIS COUNTY PERMIT OFFICE AT 958-3000. CONSTRUCTION TO BE IN ACCORDANCE WITH SPECIFICATIONS DETAILED IN THE APPLICABLE HARRIS COUNTY COMMISSIONERS COURT ORDER.

PRIVATE UTILITY COMPANY NOTES

Houston Lighting and Power Company

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. Contractors and owners 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 228-7400.

Entex

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 223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction to have main and service lines field located. 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.

| Rev. | Date | Description | App. |
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PRIVATE UTILITY LINES SHOWN

Calvin H. Walswell 6/18/96
ENTEX, INC.

[Signature] 6-18-96
SOUTHWESTERN BELL TELEPHONE CO.
Valid for One Year Only

[Signature] 10-16-95
HOUSTON LIGHTING & POWER CO.
Approval Only for Crossing Underground
Facilities Unless Noted. Valid at Time of Review Only.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS & ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE GROUP

| SECTION APPROVALS | |
|--|--|
| <i>[Signature]</i> 4-10-96 WATER DESIGN | TRAFFIC AND SIGNAL DESIGN |
| <i>[Signature]</i> WASTEWATER DESIGN | STREET, BRIDGE AND RIGHT-OF-WAY DESIGN |
| <i>[Signature]</i> 5-21-96 STORM SEWER DESIGN | CONSTRUCTION |

| OTHER DEPARTMENTS | |
|--|--------------------|
| <i>[Signature]</i> 5-22-96 PLANNING AND DEVELOPMENT | SPONSOR DEPARTMENT |
| <i>[Signature]</i> CITY ENGINEER | DATE 5/20/96 |
| <i>[Signature]</i> DIRECTOR OF PUBLIC WORKS AND ENGINEERING | DATE 5/20/96 |

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|------------------|--------------------------|
| SUBMITTED: | DESIGNED BY: TIM |
| SCALE: | DRAWN BY: TIM |
| DATE: MARCH 1996 | SHEET NO. 5 OF 16 SHEETS |
| SURVEY BY: | CITY NOTE DWG |
| JOB NO: 430-U | NOTE DWG |

H.C.M.U.D. NO. 191

NOTES

