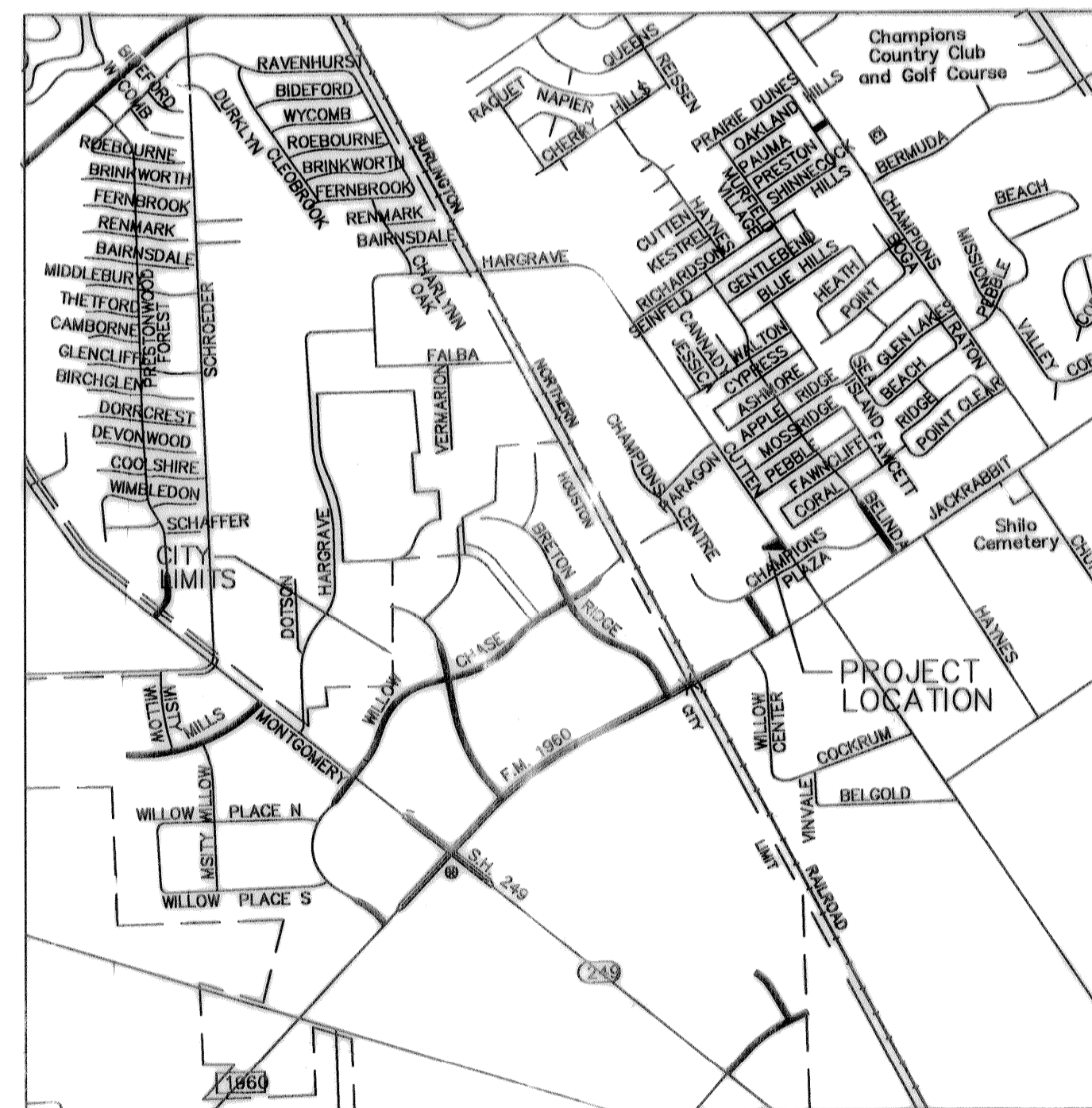


CONSTRUCTION PLANS
 for
 FM 1960 ANIMAL CLINIC
 8" SANITARY SEWER EXTENSION
 and
 SITE WORK
 in
 HARRIS COUNTY MUNICIPAL UTILITY DISTRICT No.191
 HARRIS COUNTY, TEXAS



TITLE	DRAWING INDEX	SHEET NO.
COVER SHEET		1
GENERAL NOTES		2
SITE PLAN		3
PLAN & PROFILE		4
PAVING PLAN & DETAILS		5
SANITARY SEWER DETAILS		6



LOCATION MAP
 HARRIS COUNTY, TEXAS
 MAP REFERENCE
 KEY MAP NO. 370F
 LAMBERT MAP NO. 966(639)-B-1

APPROVED
 CITY OF HOUSTON

Jon Vandenberg
 DIRECTOR OF PUBLIC WORKS AND ENGINEERING
 JON VANDENBERG, P.E.

18 Mar 2002
 DATE

CITY DWG. NO.
 SHEET NO. 1 OF 6 SHEETS

"CONTRACTOR SHALL NOTIFY THE CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING, ENGINEERING CONSTRUCTION AND REAL ESTATES GROUP (TELEPHONE NO. (713)863-1450) 48 HOURS BEFORE STARTING WORK ON THIS PROJECT."

"PRIOR TO THE CONSTRUCTION OF THESE FACILITIES WITHIN OR BY THE DISTRICT, THE DISTRICT OR ITS ENGINEER WILL GIVE WRITTEN NOTICE BY THE REGISTERED OR CERTIFIED MAIL TO THE DIRECTOR OF PUBLIC WORKS AND ENGINEERING STATING THE DATE SUCH CONSTRUCTION WILL BE COMMENCED."

DEVELOPER:
 McLAUGHLIN-SIMPSON, INC.

JOB NO. 470U
 DATE: FEBRUARY 2002

PCI PROVIDENT CONSULTING, INC.
 12 WEST 11TH ST.
 HOUSTON, TEXAS 77008
 (713) 602-1019

SANITARY SEWER NOTES:

1. WATER LINES, WASTEWATER COLLECTION SYSTEMS, AND DRAINAGE SYSTEMS SHALL BE CONSTRUCTED 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 OCTOBER 1999. CONTRACTOR SHALL OBTAIN COPY OF SAME AND USE IT. OBTAIN FROM 611 WALKER FILE ROOM.

2. 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 CITY OF HOUSTON.

3. ALL SANITARY SEWERS SHALL BE INSTALLED BEDDED AND BACKFILLED IN ACCORDANCE WITH CITY OF HOUSTON DRAWINGS 02601-02C, 02227-01C, AND 02227-08B AS APPLICABLE.

GENERAL NOTES - STORM SEWERS

1. STORM SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF HOUSTON DESIGN MANUAL (SEPT. 1996) AND CONSTRUCTION STANDARD SPECIFICATIONS AND DETAILS (SEPTEMBER, 1997) 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 02317-04, 02317-05 AND 02317-09 AS APPLICABLE.
3. ALL SEWERS CONSTRUCTED INSIDE LOT EASEMENTS SHALL BE R.C.P. TWENTY (20) FOOT WIDE EASEMENTS SHALL BE PROVIDED.
4. 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.
5. ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 8" BRICK WALLS UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR SHALL NOTIFY HARRIS COUNTY ENGINEERING DEPARTMENT 24 HOURS IN ADVANCE OF COMMENCING CONSTRUCTION, (713-316 3565), 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 STORM SEWER MANHOLE RIMS LOCATED OUTSIDE THE PROPOSED PAVING SHALL BE SET TO PROPOSED FINISH GRADE ELEVATION.
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. 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, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING "STANDARD SPECIFICATIONS AND STANDARD CONSTRUCTION DETAILS FOR WASTE WATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING" SEPTEMBER 1997.
3. 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.
4. ALL WATER MAINS UNDER STREET PAVEMENT - 4 INCHES THRU 12 INCHES IN DIAMETER, IF NOT SPECIFIED OTHERWISE, SHALL BE AWWA C-900 PVC PIPE.
3. ALL FLUSHING VALVES SHALL BE SET THREE (3) FEET BEHIND BACK OF CURB.
6. STEEL WATER LINE SECTION TO EXTEND A OF FIVE (5) FEET MINIMUM BEYOND 45° BENDS.
7. THE CONTRACTOR MAY USE A BACKHOE FOR TRENCH EXCAVATION IN LIEU OF A TRENCHING MACHINE.
8. 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.
9. 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.
10. 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.
11. 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.
12. ALL P.V.C. WATER MAINS SHALL BE F C-900, DR 18, CLASS 150.
13. ALL WATER METERS MUST HAVE INDIVIDUAL SERVICE LEADS AS PER CITY OF HOUSTON STANDARDS.

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 RADII 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, (713-316-3565), AND WRITTEN NOTIFICATION 48 HOURS IN ADVANCE.
5. STOP SIGN (R1 - 1A) TO BE PLACED AT 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:

"AUTHORIZATION NOTICE ISSUED BY HARRIS COUNTY PUBLIC INFRASTRUCTURE ENGINEERING DEPARTMENT PERMIT OFFICE REQUIRED PRIOR TO CONSTRUCTION OF UTILITIES OR LEFT TURN LANES WITHIN HARRIS COUNTY RIGHT-OF-WAY." CONTACT HARRIS COUNTY PERMIT OFFICE (713-956-3000)

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. THE CONTRACTOR SHALL CALL 1-800-344-9377 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.

△			
△			
△			
Rev.	Date	Description	App.

PRIVATE UTILITY LINES SHOWN

RELIANT ENERGY, INC./ENTEX

RELIANT ENERGY, INC./ILL&P CO.
Approval Only for Crossing Underground
Ductlines Unless Noted. Valid at Time of Review Only.

SOUTHWESTERN BELL TELEPHONE CO.
Valid for One Year Only

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

REVIEWED BY	
PRIVATELY FUNDED PUBLIC WORKS	CITY FUNDED PUBLIC WORKS
WATER	PROJECT MANAGER
WASTEWATER	CONSTRUCTION
STORM WATER	CHIEF ENGINEER
STREET AND BRIDGE	

OTHER APPROVAL

TRAFFIC AND TRANSPORTATION	SPONSOR DEPARTMENT
----------------------------	--------------------

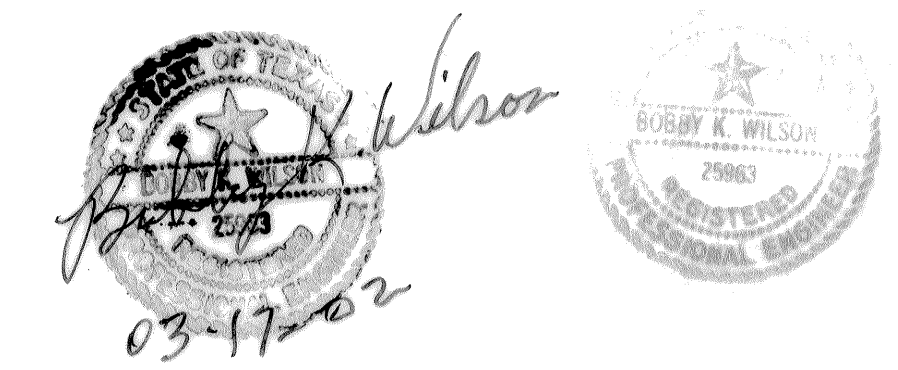
CITY ENGINEER	DATE
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DIRECTOR OF PUBLIC WORKS AND ENGINEERING	DATE
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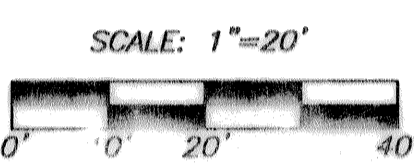
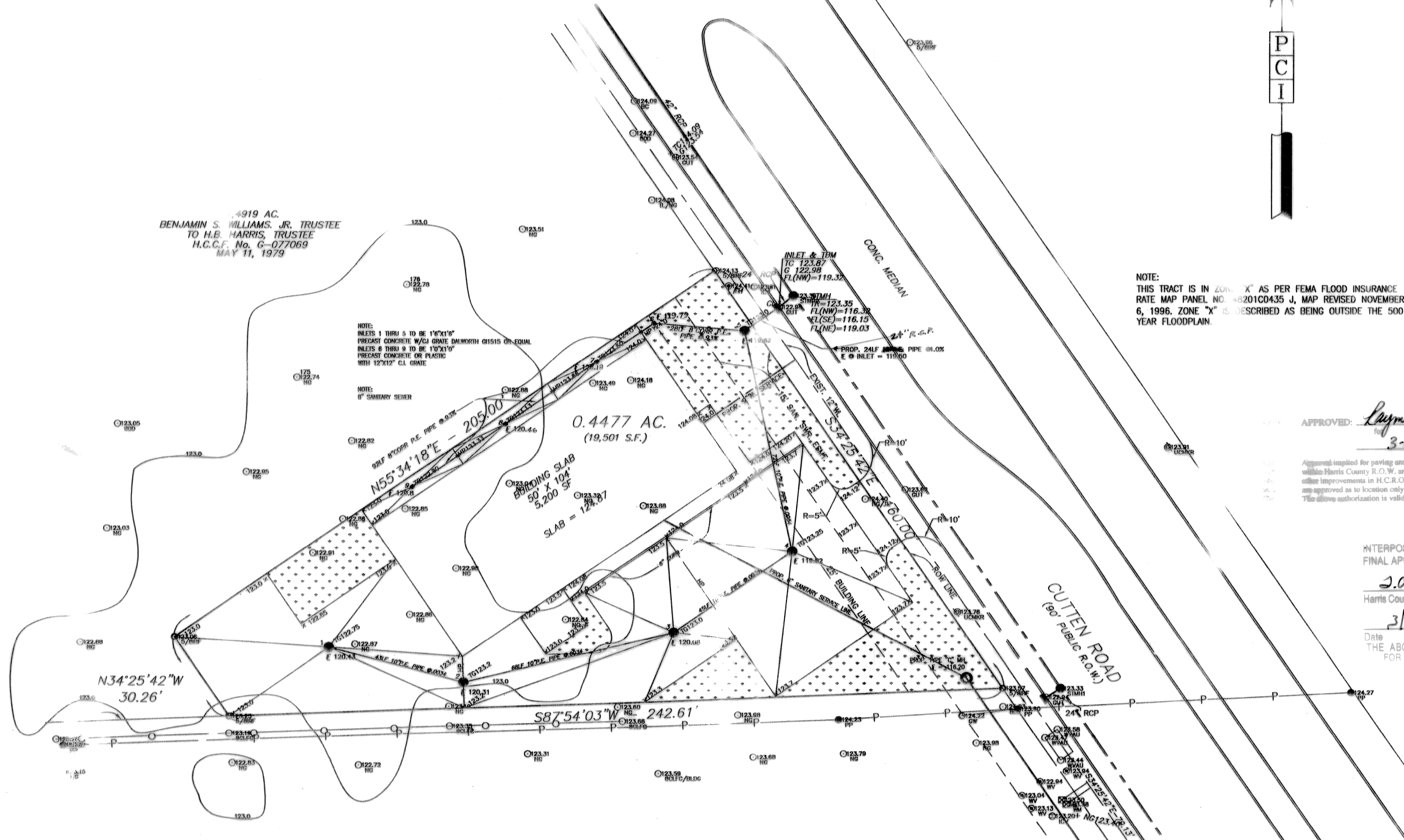
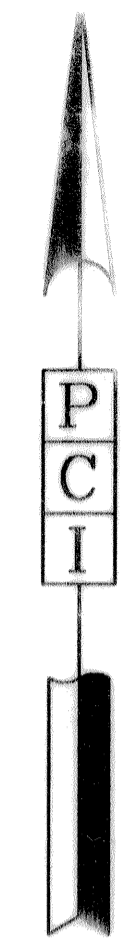
SUBMITTED:	DESIGNED BY: BOBBY WILSON
SCALE: N/A	DRAWN BY: BILL DORRIS
DATE: FEBRUARY 2002	SHEET NO. 2 OF 6 SHEETS
SURVEY BY:	CITY DWG. NO. NOTES/DWG
JOB No.: 470U	

GENERAL NOTES

PCI PROVIDENT CONSULTING, INC.
1200 WEST 11TH ST.
HOUSTON, TEXAS 77008
(713)802-1019



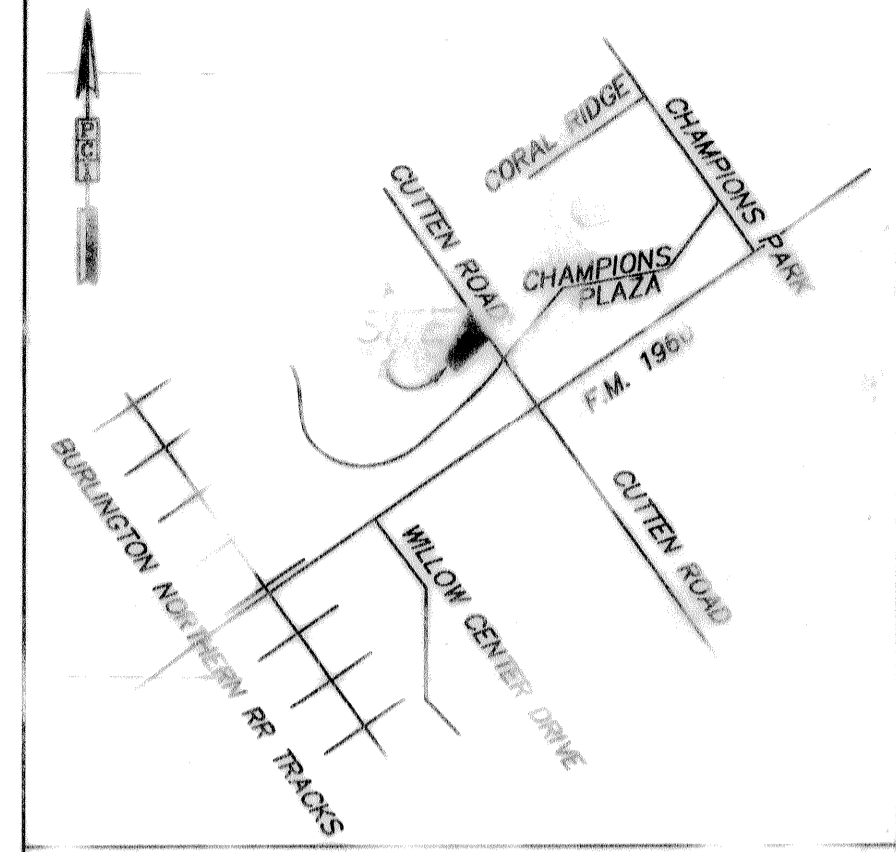
HARRIS COUNTY TEXAS
LORENZO DE ZAVALLA SURVEY, A-950



APPROVED: *Raymond Under*
County Engineer
3-26-2002

Approval implied for parking 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. This approval is valid for one (1) year only.

INTERPOSE NO OBJECTION
FINAL APPROVAL BY OTHERS *2AP*
S.A. Parker
Harris County Flood Control District
3/25/02
Date THE ABOVE SIGNATURE VALID FOR ONE (1) YEAR ONLY



VICINITY MAP
N.T.S.
BENCH MARK

- Benchmark - About 0.85 miles southeast along Burlington-Rock Island Railroad from the station at Tomball, set in the center under a 4-leg steel power line tower, 87.6 feet northeast of the northeast roll of the main track, 72.6 feet northeast of the northeast roll of a side track, 0.8 feet southwest of a metal witness post, 3 feet below the level of the roll, and is a disk set on top of a 5/8-inch copper coated steel rod, and protected by a 6-inch metal pipe which projects 0.3 feet. Elevation = 123.59 (1973 ADA to 1929 NGVD)
- Temporary Benchmark - Top of curb at inlet near northeast corner of property. Elevation = 123.86 feet (1973 ADA to 1929 NGVD). See note 5.
- The line shown hereon was not located in the field. It is shown at its approximate location based on City of Houston Construction plans and utility plans.

Rev.	Date	Description

PRIVATE UTILITY LINES SHOWN

Rayson 2-01-02
RELIENT ENERGIES, INC./ENTEX

W. J. ...
SOUTHWESTERN BELL TELEPHONE CO.
Valid for One Year Only

Rayson 3-02
RELIENT ENERGIES, INC./H.L.P. CO.
Approval Only for Crossing Underground
Ductlines Unless Noted. Valid at Time of Review

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

REVIEWED BY	CITY FUNDED PUBLIC WORKS
<p>WATER</p> <p><i>W. J. ...</i></p> <p>PROJECT MANAGER</p> <p>WASTEWATER</p> <p><i>W. J. ...</i></p> <p>CONSTRUCTION</p> <p>STORM WATER</p> <p><i>W. J. ...</i></p>	<p>CHIEF ENGINEER</p>

OTHER APPROVAL

TRAFFIC AND TRANSPORTATION	SPONSOR DEPARTMENT
CITY ENGINEER	DATE
DIRECTOR OF PUBLIC WORKS AND ENGINEERING	DATE

SUBMITTED: _____ DESIGNED BY: BOBBY WILSON
SCALE: 1" = 20' DRAWN BY: BILL DORRIS
DATE: FEBRUARY 2002 SHEET NO. 3 OF 6 SHEETS
JOB No.: 470U CITY DWG. NO. SITEPLAN.DWG

H.C.M.U.D. No.191
FM 1960 ANIMAL CLINIC
SITE PLAN & DRAINAGE PLAN

PCI PROVIDENT CONSULTING, INC.
1200 WEST 11TH ST.
HOUSTON, TEXAS 77008
(713)802-1019

- LEGEND
- AE AERIAL EASEMENT
 - ASPH ASPHALT
 - BL BUILDING LINE
 - BM BENCHMARK
 - CL CENTER LINE
 - CO CONCRETE
 - CLF CHAIN LINK FENCE
 - FF FINISHED FLOOR
 - FH FIRE HYDRANT
 - FL FLOW LINE
 - FND FOUND
 - G GUTTER
 - GM GAS METER
 - GL GROUND LIGHT
 - GW GUIDE WIRE
 - HB HIGH BANK
 - HC HANDICAP
 - HDW HEADWALL
 - LS LANDSCAPE
 - LNSC LIGHT STANDARD
 - MH MANNHOLE
 - MW MONITORING WELL
 - NG NATURAL GROUND
 - OV OVERHANG
 - OL OVERHEAD LINES
 - P POWER POLE
 - PP PAVEMENT
 - SAN SANITARY
 - SDWK SIDEWALK
 - STM STORM SEWER
 - TB TOE OF BANK
 - TBM TEMPORARY BENCHMARK
 - TC TOE OF CURB
 - TG TOP OF GRATE
 - TOS TOP OF SIDEWALK
 - TP TOP OF PAVEMENT
 - TR TOP OF RIM
 - UE UTILITY EASEMENT
 - UG UNDERGROUND UTILITY
 - UM UNDERGROUND UTILITY MARKER
 - WF WOOD FENCE
 - WL WATER LINE
 - WM WATER METER
 - WS WHEEL STOP
 - WV WATER VALVE

City of Houston Storm Sewer Calculation Form

Project: *FM 1960 Animal Clinic* HGL starting elevation: *120.15*
 Job No: _____ Design Storm: *2yr*
 System: *Storm - Hanger Pipe* b: *75.01*
 By: *BKW* Date: _____ d: *16.2*
 Checked by: _____ Date: _____ c: *8.315*

Sta	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15	120.15

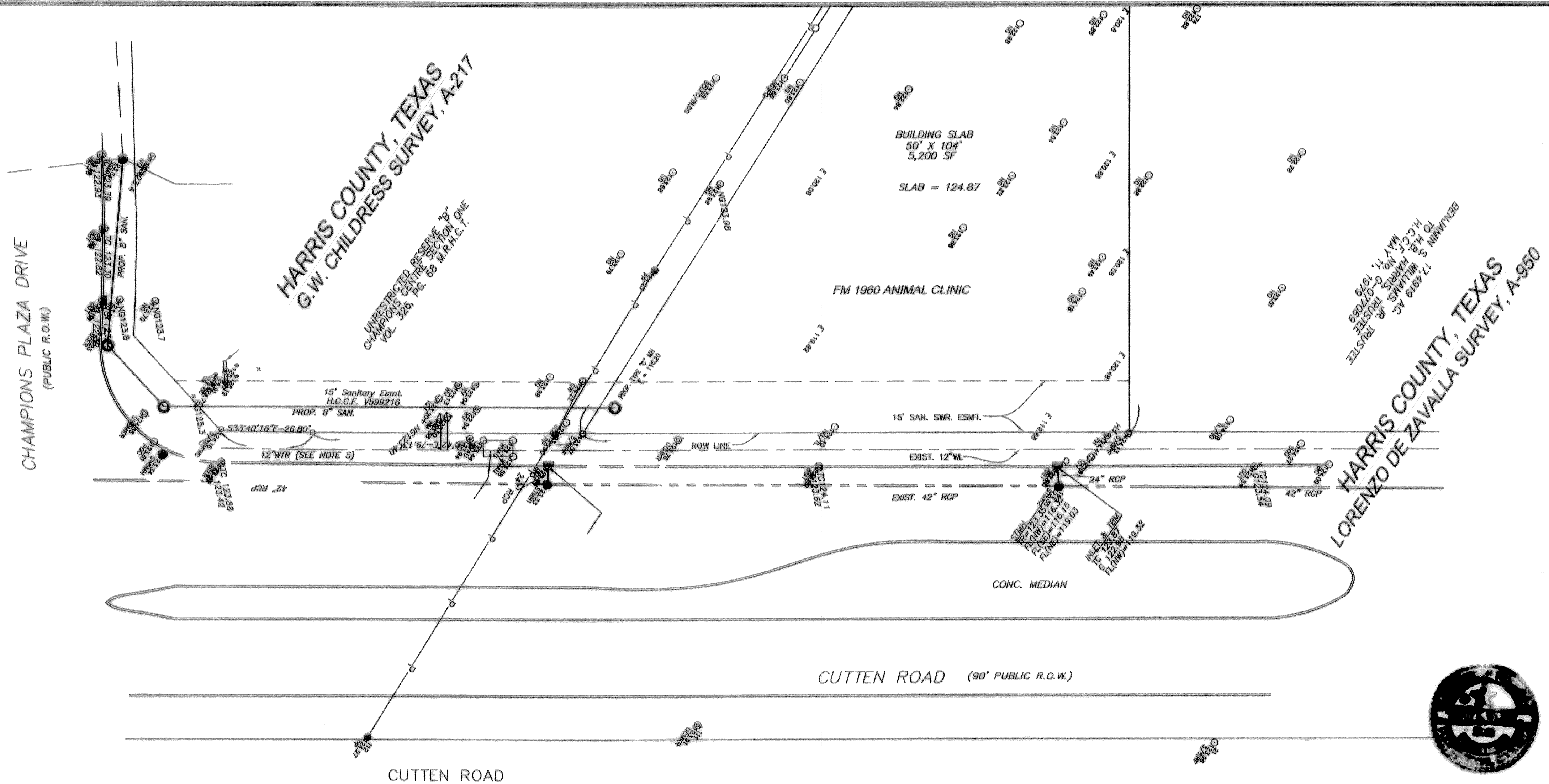
UNRESTRICTED RESERVE "B"
CHAMPIONS CENTRE SECTION ONE
VOL. 326, PG. 63 M.R.H.C.T.

HARRIS COUNTY, TEXAS
G.W. CHILDRESS SURVEY, A-217

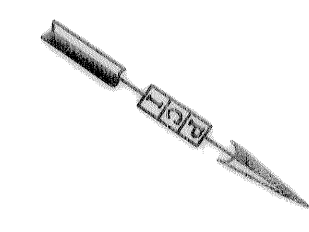
NOTE:
FIBER OPTIC CABLE & OTHER UTILITIES ARE BELIEVED
TO EXIST, ALONG CUTTEN RD. CALL TEXAS ONE CALL
(1-800-245-4545) BEFORE BEGINNING WORK.

CONTACT: B. K. WILSON, P.E.
1200 W 11th St.
HOUSTON, TEXAS 77008
(TEL) 713-802-1019
(FAX) 713-802-1024

NOTE:
FIBER OPTIC CABLE & OTHER UTILITIES ARE BELIEVED
TO EXIST ALONG CUTTEN RD.. CALL TEXAS ONE CALL
(1-800-245-4545) BEFORE BEGINNING WORK.



- BENCH MARK**
- Benchmark - About 0.85 miles southeast along Burlington-Rock Island Railroad from the station at Tomball, set in the center and under a 4-leg steel power line tower, 87.8 feet northeast of the northeast rail of the main track, 72.6 feet northeast of the northeast rail of a side track, 0.8 feet southwest of a metal witness post, 3 feet below the level of the rail, and is a disk set on top of a 5/8-inch copper coated steel rod, and protected by a 6-inch metal pipe which projects 0.3 feet.
Elevation = 125.99 (1973 ADJ. to 1929 NGVD)
See note 5.
 - Temporary Benchmark - Top of Curb at Inlet near northeast corner of property. Elevation = 123.86 feet (1973 ADJ. to 1929 NGVD)
See note 5.
 - The line shown hereon was not located in the field, but is shown at its approximate location based on City of Houston Construction plans and utility plans.



Rev.	Date	Description	App.

PRIVATE UTILITY LINES SHOWN

Reliant Energy, Inc./ENTEX	3-1-02
Reliant Energy, Inc./HLL&P CO.	3-1-02
Southwestern Bell Telephone Co.	3-5-02

Approval Only for Crossing Underground
Ductlines Unless Noted. Valid at Time of Review Only.

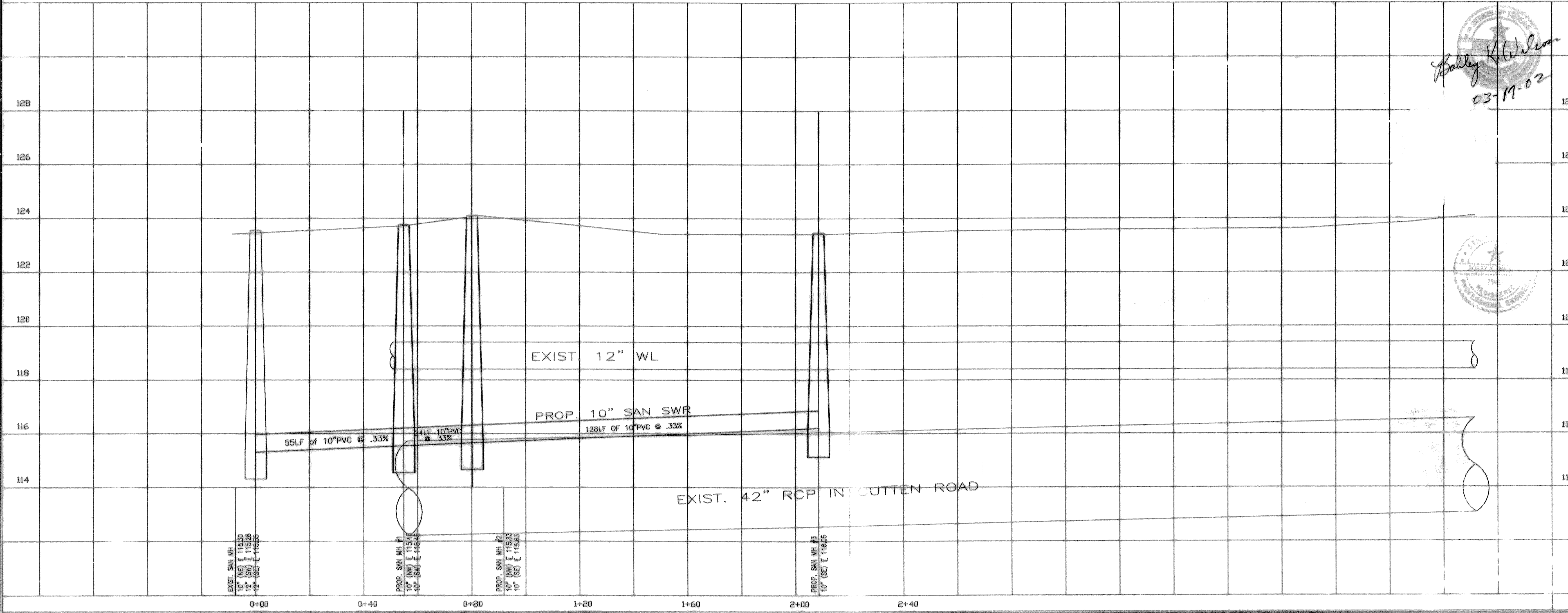
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

REVIEWED BY	DATE
PRIVATELY FUNDED PUBLIC WORKS	CITY FUNDED PUBLIC WORKS
WATER	PROJECT MANAGER
WASTEWATER	CONSTRUCTION
STORM WATER	CHIEF ENGINEER

OTHER APPROVAL

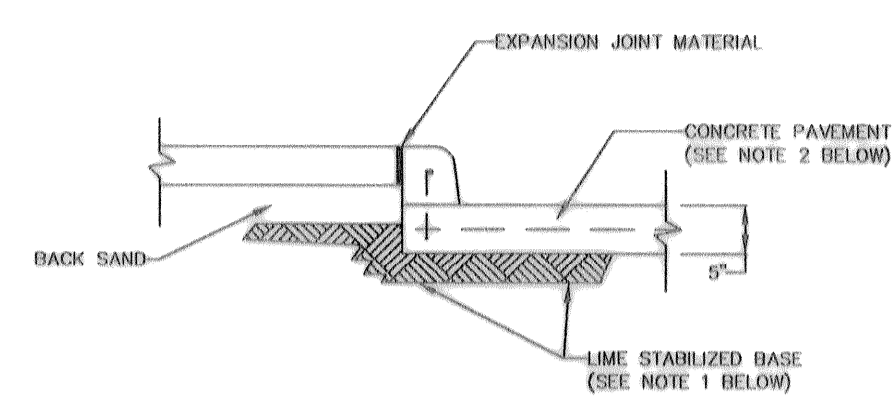
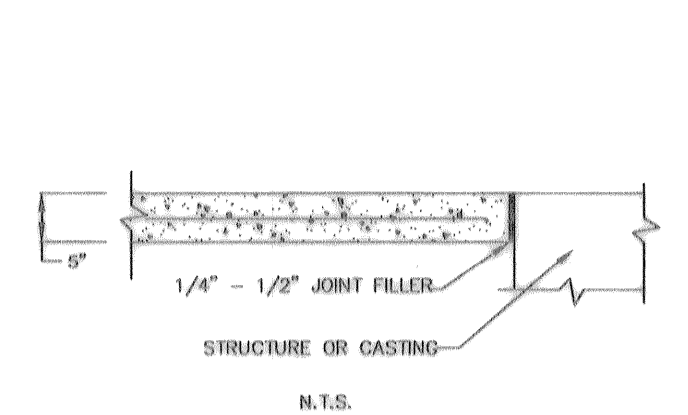
TRAFFIC AND TRANSPORTATION	SPONSOR DEPARTMENT
CITY ENGINEER	DATE
DIRECTOR OF PUBLIC WORKS AND ENGINEERING	DATE

DESIGNED BY: BOBBY WILSON
DRAWN BY: BILL DORRIS
DATE: FEBRUARY 2002
SHEET NO. 4 OF 6 SHEETS
JOB No: 470U
CITY Dwg. No. PNPFSAN.DWG



H.C.M.U.D. No.191
FM 1960 ANIMAL CLINIC
PLAN & PROFILE
STA. 0+00 to STA. 2+08.50

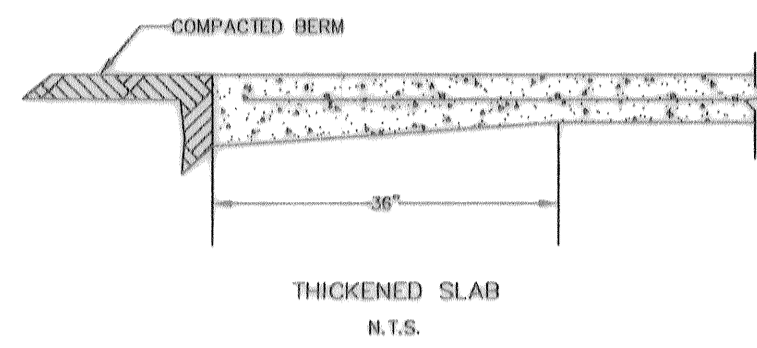
PCI PROVIDENT CONSULTING, INC.
1200 WEST 11TH ST.
HOUSTON, TEXAS 77008
(713)802-1019



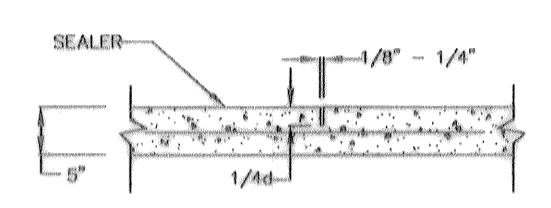
TYPICAL CURB AT RAISED WALKS
N.T.S.

NOTES:

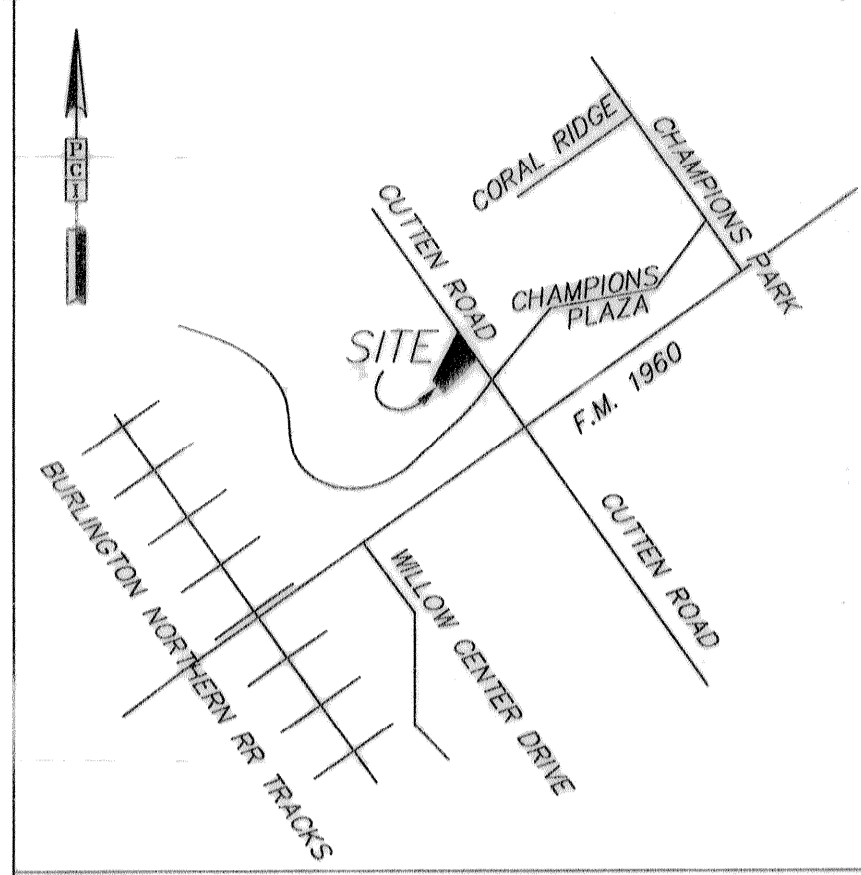
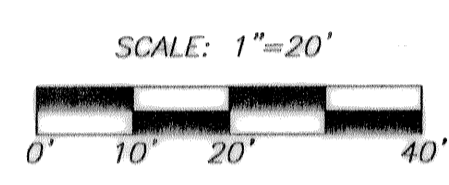
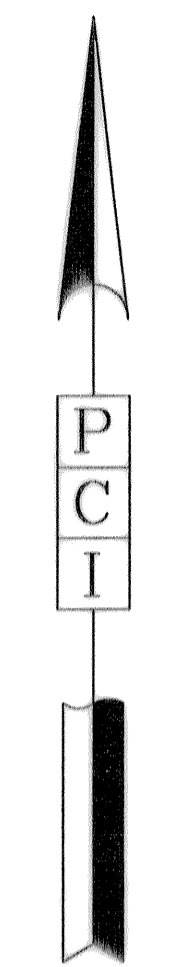
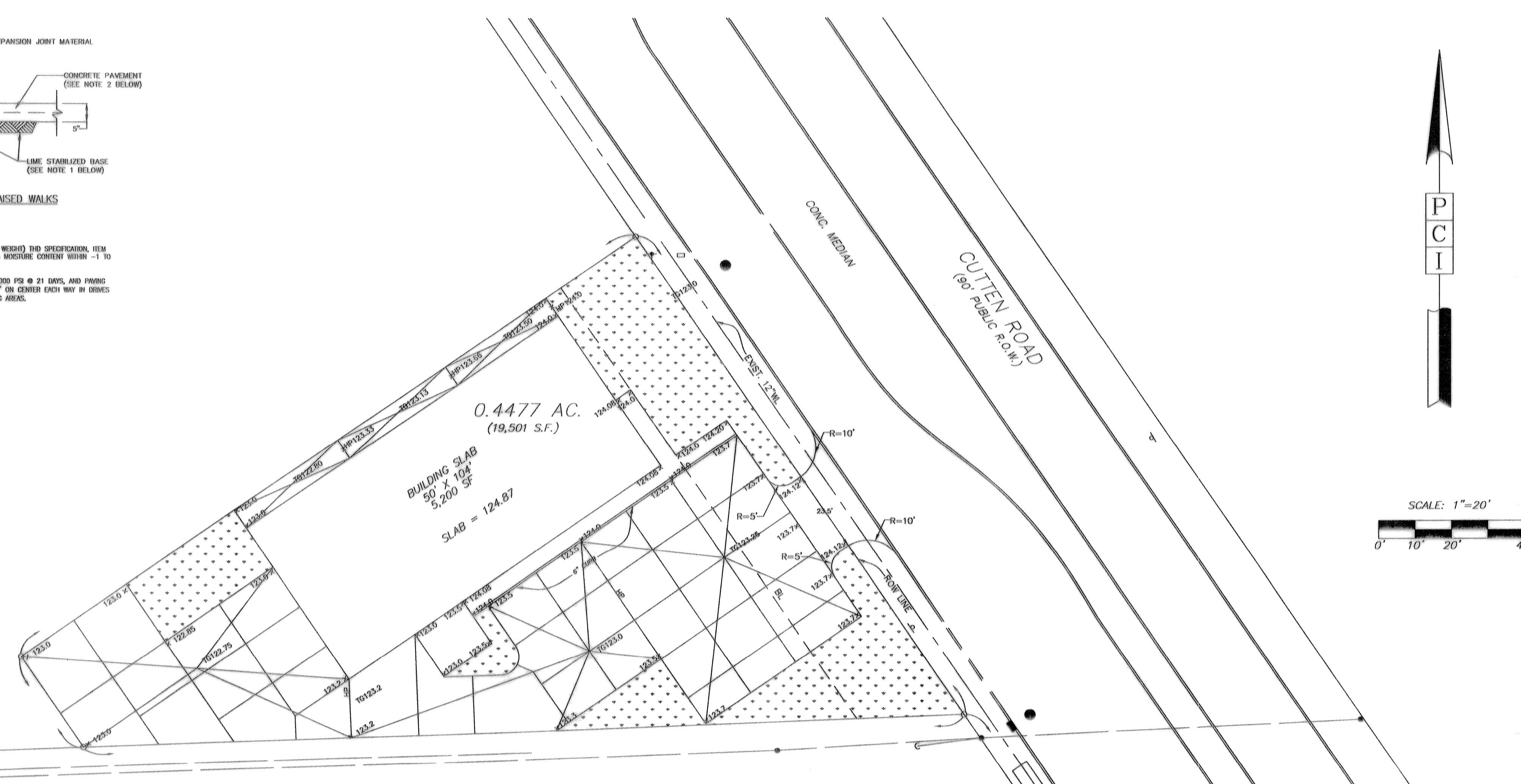
- 1) SUBGRADE - LIME-STABILIZED SUBGRADE (OR LIME BY DRY WEIGHT) TO SPECIFICATION, ITEM 262 COMPACT TO 95% MAXIMUM DENSITY AT A MOISTURE CONTENT WITHIN -1 TO +3% OF OPTIMUM MOISTURE.
- 2) CONCRETE STRENGTH SHOULD BE AT LEAST 3,000 PSI @ 21 DAYS, AND PAVING SHOULD BE REINFORCED WITH #4 BARS @ 24" ON CENTER EACH WAY IN DRIVES 6 X 6 - 6/8 WELDED WIRE MESH IN PARKING AREAS.



THICKENED SLAB
N.T.S.



SAWED JOINT
LONGITUDINAL OR TRANSVERSE
N.T.S.



VICINITY MAP
N.T.S.

BENCH MARK

1. Benchmark - About 9.85 miles southeast along Burlington-Rock Island Railroad from the station at Tomball, set in center and under a 4-leg steel power line tower, 57.6 feet northeast of the northeast rail of the main track, 72.6 feet northeast of the northeast rail of a side track, 0.8 feet southwest of a metal witness post, 3 feet below the level of the rail, and in a disk set on top of a 5/8-inch copper coated steel rod, and protected by a 6-inch metal pipe which projects 0.3 feet.
Elevation = 125.99 (1973 Adj. to 1929 NGVD)
2. Temporary Benchmark - Top of curb at inlet near northeast corner of property. Elevation = 123.66 feet (1973 Adj. to 1929 NGVD)
See note 5.
3. The line shown hereon was not located in the field, but is shown at its approximate location based on City of Houston Construction plans and utility plans.

Rev.	Date	Description	App.

PRIVATE UTILITY LINES SHOWN

RELIANT ENERGIES, INC./ENTEX	3-1-02
SOUTHWESTERN BELL TELEPHONE CO.	7-5-02
RELIANT ENERGIES, INC./H&P CO.	3-1-02

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

REVIEWED BY	
PRIVATELY FUNDED PUBLIC WORKS	CITY FUNDED PUBLIC WORKS
WATER	PROJECT MANAGER
WASTEWATER	CONSTRUCTION
STORM WATER	CHIEF ENGINEER

OTHER APPROVAL

TRAFFIC AND TRANSPORTATION	SPONSOR DEPARTMENT
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CITY ENGINEER	DATE
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DIRECTOR OF PUBLIC WORKS AND ENGINEERING	DATE
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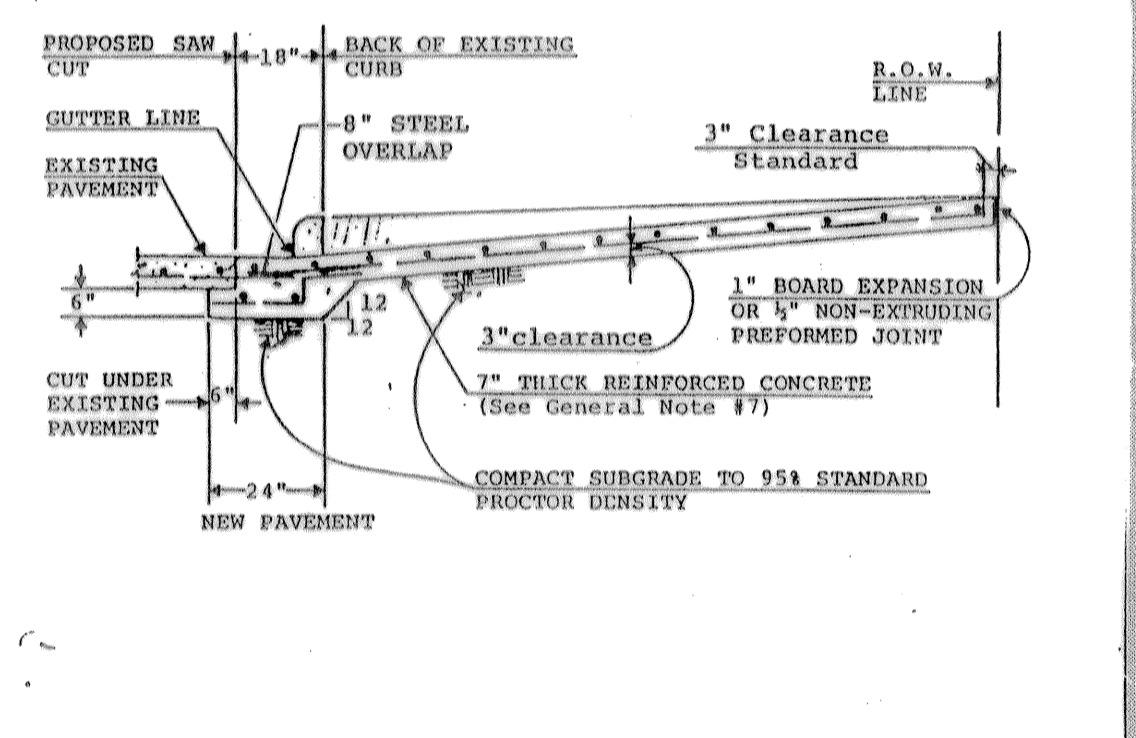
SUBMITTED:	DESIGNED BY: BOBBY WILSON
SCALE: 1" = 20'	DRAWN BY: BILL DORRIS
DATE: FEBRUARY 2002	SHEET NO. 5 OF 6 SHEETS
SURVEY BY:	CITY DWG. NO. PAVING.DWG
JOB No.: 470U	

H.C.M.U.D. No.191
FM 1960 ANIMAL CLINIC
PAVING PLAN & DETAILS

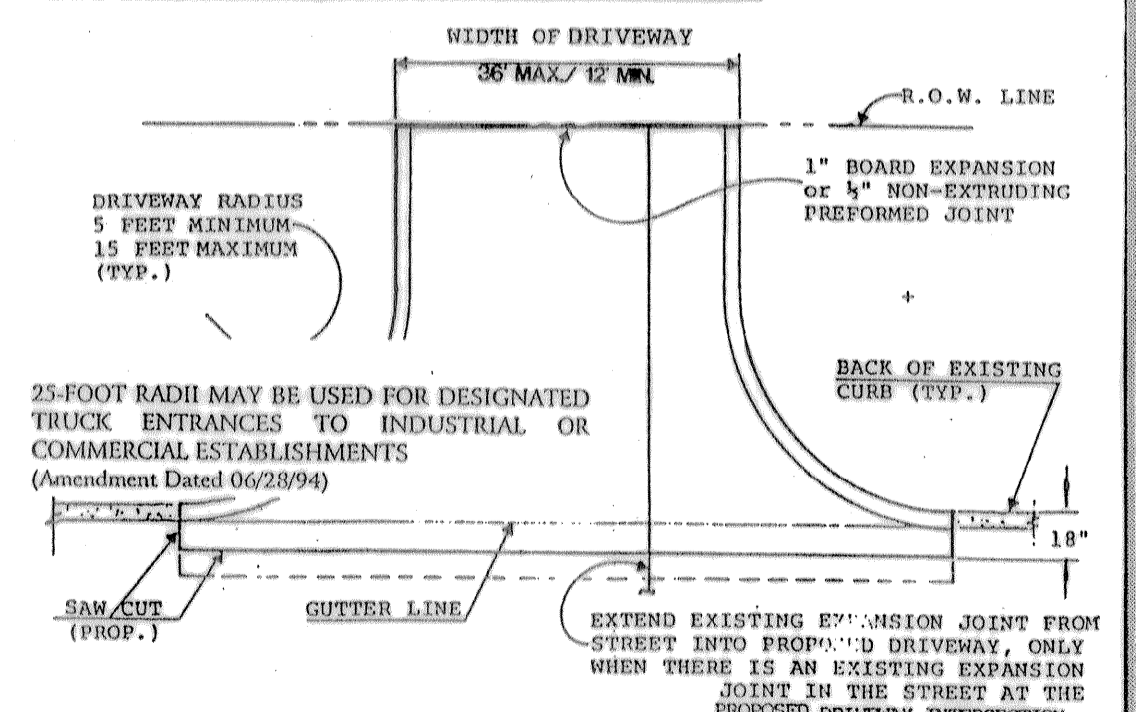
PCI PROVIDENT CONSULTING, INC.
1200 WEST 11TH ST.
HOUSTON, TEXAS 77008
(713)802-1019

When a Commercial driveway, or curb & gutter is constructed, reconstructed, repaired or graded on County Right of Way use the following:

A - Use for all proposed drives on curbed type streets:



B - Use for all proposed existing curb removal:



SIDEWALKS & DRIVEWAYS ON CURBED TYPE STREETS	Approved:	Drawn By:
COMMERCIAL AREA	Date:	Drawing No: 3

HARRIS COUNTY ENGINEERING DEPARTMENT
REVISED 3/6/02

GENERAL NOTES:

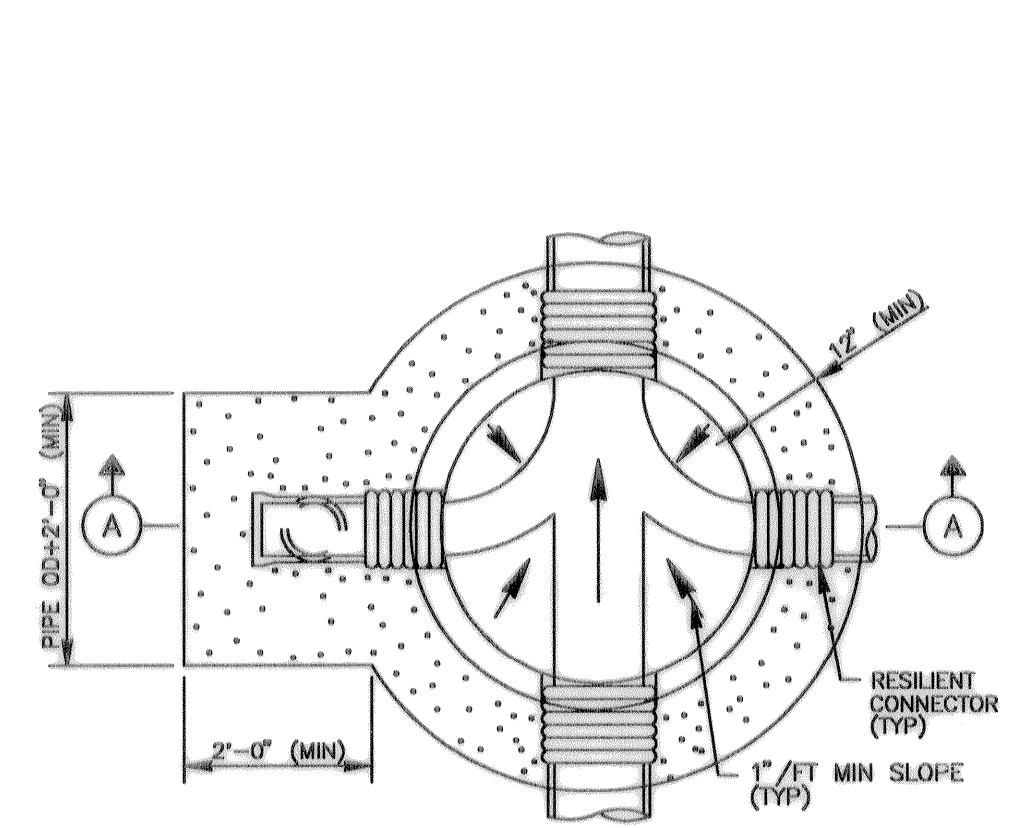
1. PROPOSED DRIVEWAY, SIDEWALK, CURB, GUTTER LINE AND GRADE SHALL MATCH EXISTING STREET.
2. PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE, 4-1/2 SACK CEMENT PER CUBIC YARD, 4-1/2 INCHES THICK AND 4 FEET MINIMUM WIDTH. SEE DRAWING NO. 3 FOR ADDITIONAL INFORMATION AND DETAILS.
3. PROPOSED DRIVEWAY SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE, 5 SACK CEMENT PER CUBIC YARD, 7 INCHES THICK, FROM PROPOSED SAW CUT TO RIGHT-OF-WAY LINE (PROPERTY LINE).
4. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE #4 DEFORMED REINFORCING BARS (ASTM A615 GRADE 60, UNLESS NOTED) SPACED AT 24 INCHES C.C., EACH WAY, WITH 10 INCHES MINIMUM LAP (6" X 12" W5 X W4 AS ALTERNATE) FROM PROPOSED SAW CUT TO RIGHT-OF-WAY LINE.
5. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE TIED TO EXISTING ROADWAY REINFORCING STEEL WITH A MINIMUM LAP OF 8 INCHES.
6. PROPOSED GUTTER LINE IS TO BE MAINTAINED AT FACE OF EXISTING CURB.
7. SAW CUT EXISTING CURB AT EACH END AND KNOCK OUT CURB FROM BEGINNING TO END OF PROPOSED DRIVEWAY.
8. SAW CUT EXISTING PAVEMENT A MINIMUM OF 12 INCHES AWAY FROM FACE OF CURB (GUTTER LINE) AND BREAK OUT TO EXPOSE EXISTING REINFORCEMENT STEEL.
9. COMPACT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO RIGHT-OF-WAY LINE, COMPACT TO 95% OF STANDARD PROCTOR DENSITY (± 2% OPT. MOISTURE). THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TESTS TO BE CONDUCTED.
10. IF MORE THAN ONE PROPOSED DRIVEWAY IS BUILT ON THE SAME PROPERTY, SAID DRIVEWAYS SHALL BE SEPARATED BY A MINIMUM DISTANCE OF 20 FEET (ROADWAYS WITH CURBS AND SIDEWALKS).
11. REINFORCING STEEL TO BE ELEVATED A MINIMUM OF 3" ABOVE SUBGRADE. (3 INCH MANUFACTURED CHAIRS ARE REQUIRED WITH MAXIMUM SPACING OF 72 INCHES C/C EACH WAY).

25-FOOT RADII MAY BE USED FOR DESIGNATED TRUCK ENTRANCES TO INDUSTRIAL OR COMMERCIAL ESTABLISHMENTS
(Amendment Dated 09/28/94)

INSTRUCTION NOTES FOR SIDEWALKS & DRIVEWAYS ON CURBED TYPE STREETS,	Approved By:	Drawn By:
COMMERCIAL AREA	Date:	Drawing No: 4

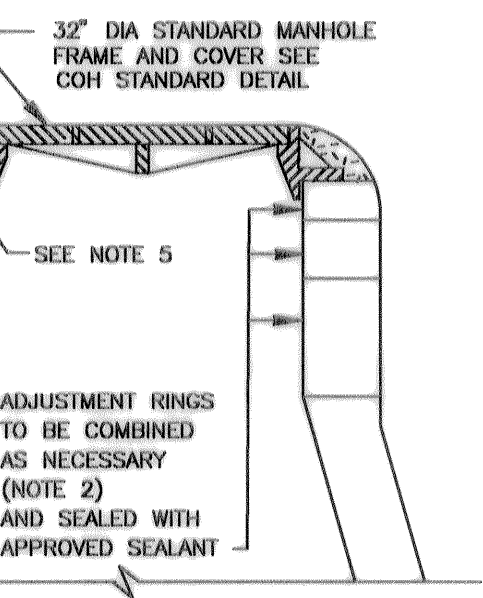
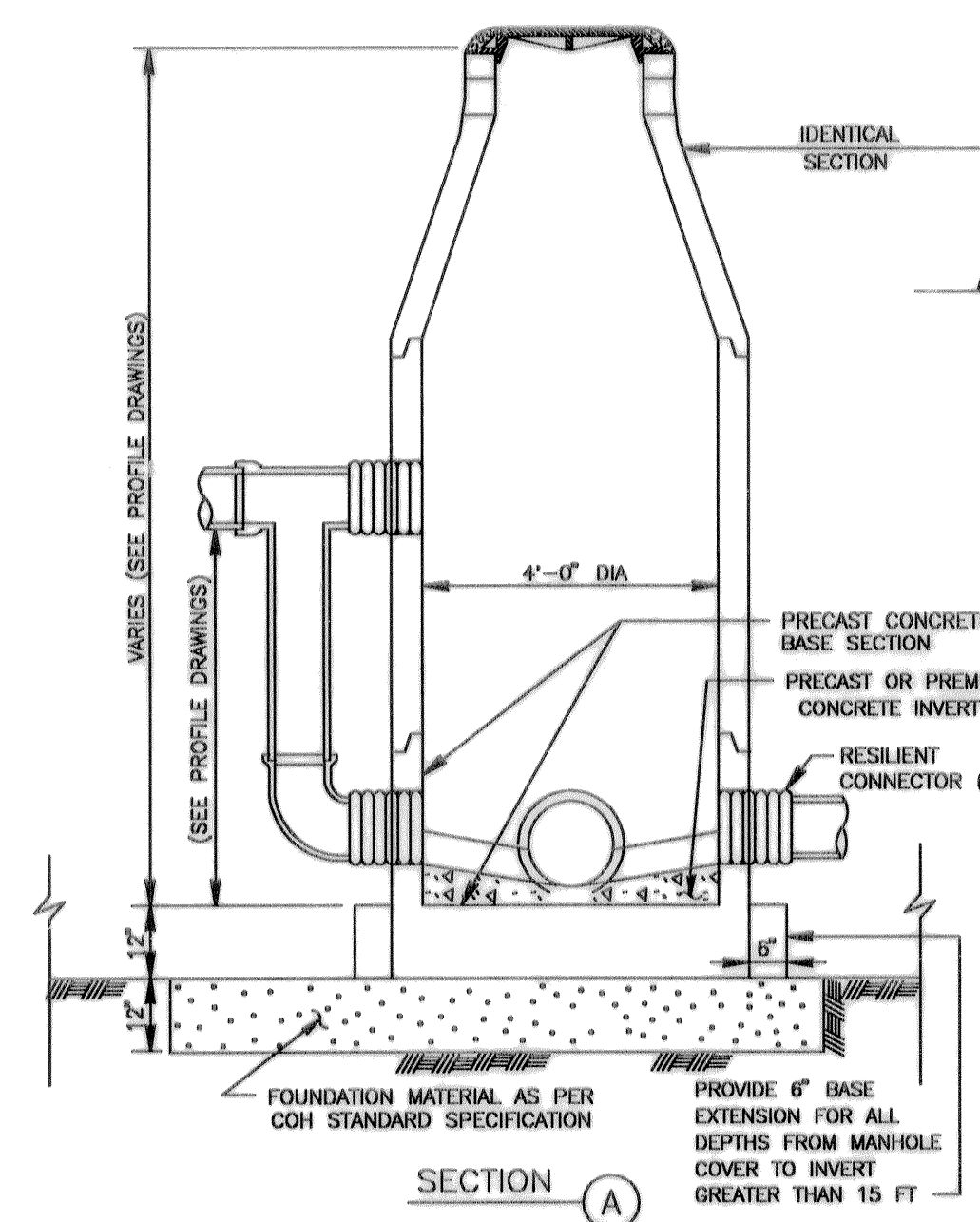
HARRIS COUNTY ENGINEERING DEPARTMENT
REVISED 3/6/02

CONTACT: JOHN ENGLISH
5301 HOLLISTER SUITE 190
HOUSTON, TEXAS 77040
TEL: 713-895-8080
(713) 895-7686



FOUNDATION PLAN

- NOTES:
1. DEPTH OF MANHOLE DETERMINES SECTIONS REQUIRED.
 2. PRECAST CONCRETE RINGS SHALL BE PROVIDED FOR A COMBINED ADJUSTMENT HEIGHT OF AT LEAST 12". THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 1'-6".
 3. MANHOLE WALL THICKNESS FOR DEPTH EXCEEDING 12'-0" SHALL BE DETERMINED TO MEET LOADING CONDITIONS. MIN THICKNESS 5".
 4. MANHOLE DROP AND INTERSECTING PIPES SHALL BE INSTALLED ONLY WHEN CALLED FOR IN PLAN AND PROFILE DRAWING.
 5. SEAT MANHOLE FRAME IN SEALANT PER COH STANDARD SPECIFICATION.
 6. ECCENTRIC PRECAST CONCRETE MANHOLE MAY BE USED.
 7. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREAS.
 8. MIN REINFORCING IN THE PRECAST CONCRETE BASE SHALL BE # 5 @ 8 EW.
 9. PROVIDE BACKFILL TO MATCH ADJACENT PIPE TRENCH BACKFILL PER COH STANDARD SPECIFICATION.



ADJUSTMENT RINGS TO BE COMBINED AS NECESSARY (NOTE 2) AND SEALED WITH APPROVED SEALANT.

32" DIA STANDARD MANHOLE FRAME AND COVER SEE COH STANDARD DETAIL.

CEMENT MORTAR (NOTE 7)

SEE NOTE 5

IDENTICAL SECTION

PRECAST CONCRETE BASE SECTION

PRECAST OR PREMIX CONCRETE INVERT

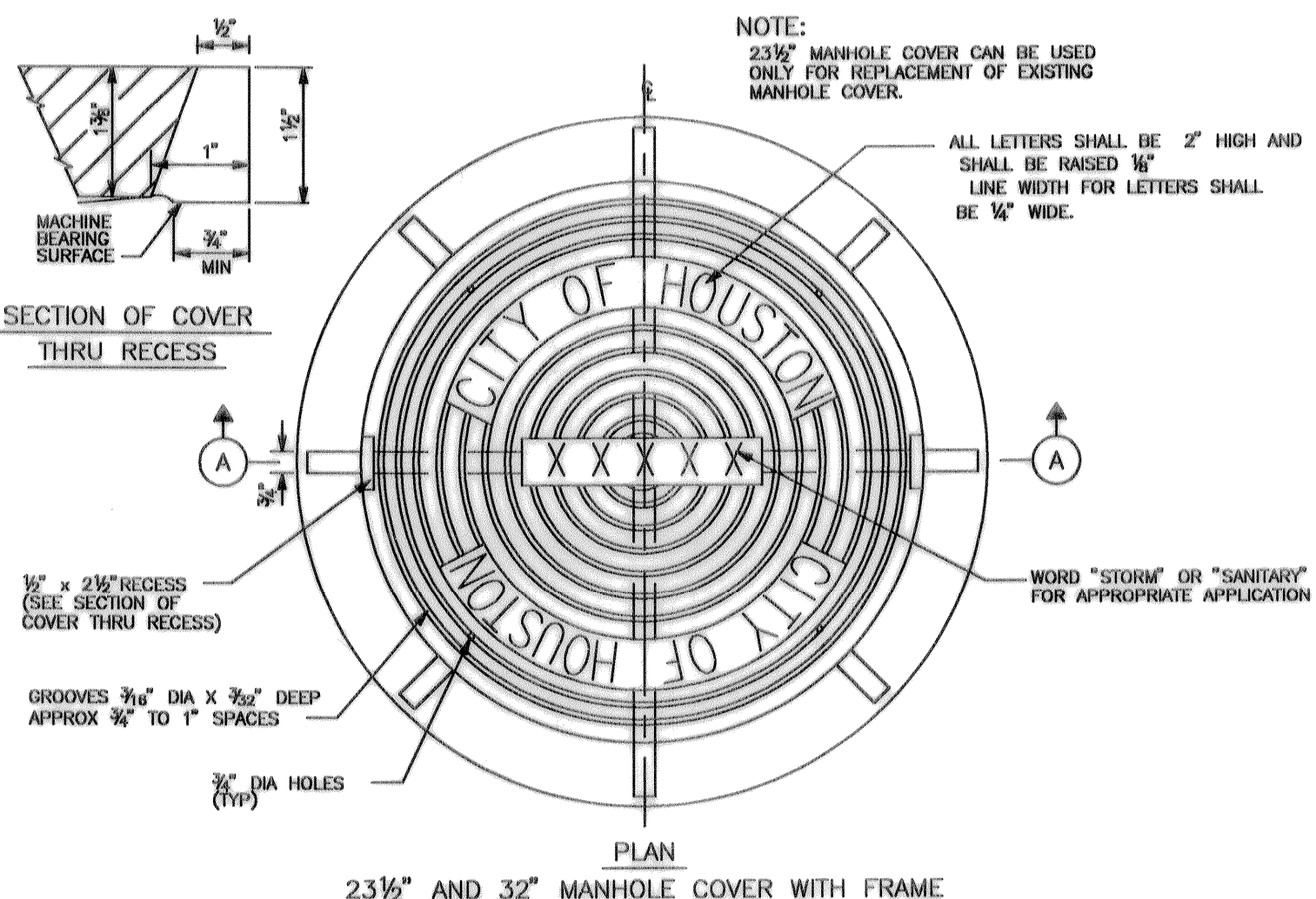
RESILIENT CONNECTOR (TYP)

FOUNDATION MATERIAL AS PER COH STANDARD SPECIFICATION

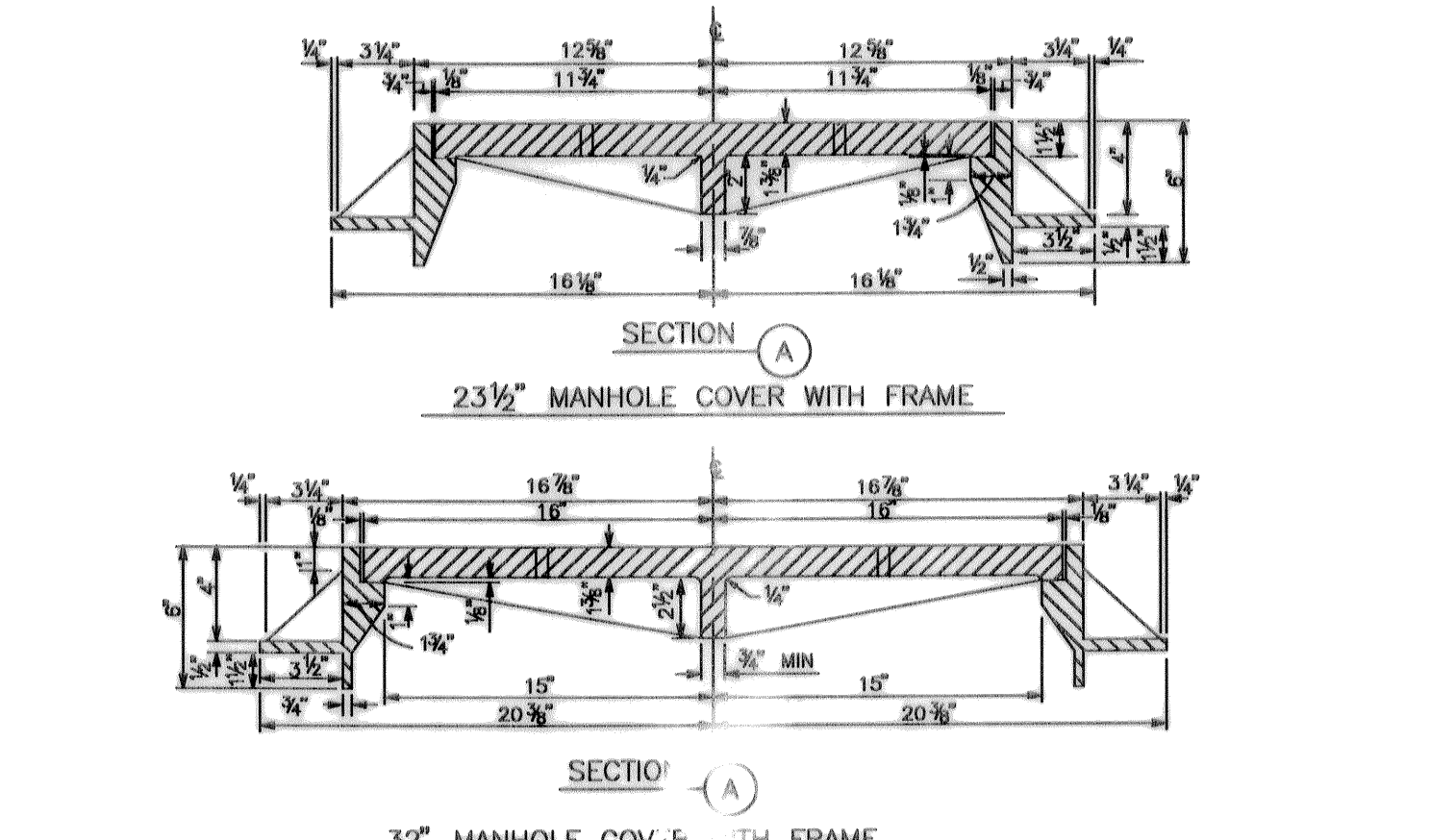
PROVIDE 6" BASE EXTENSION FOR ALL DEPTHS FROM MANHOLE COVER TO INVERT GREATER THAN 15 FT

SANITARY SEWER 4'-0" DIAMETER PRECAST CONCRETE MANHOLE (NOT TO SCALE)

EFF DATE: JUL-01-97 DWG NO: 02082-02



23 1/2" AND 32" MANHOLE COVER WITH FRAME

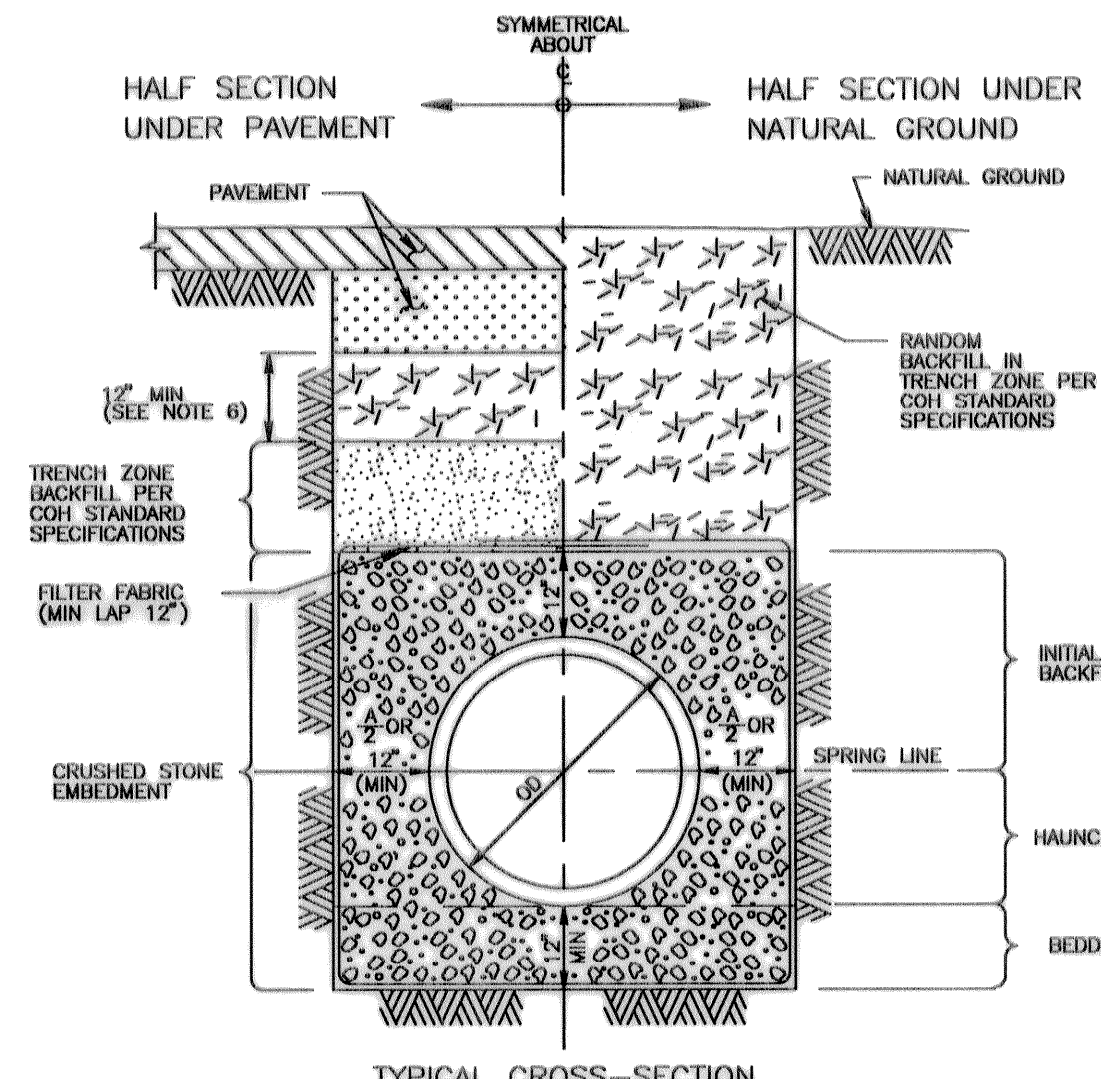


23 1/2" MANHOLE COVER WITH FRAME

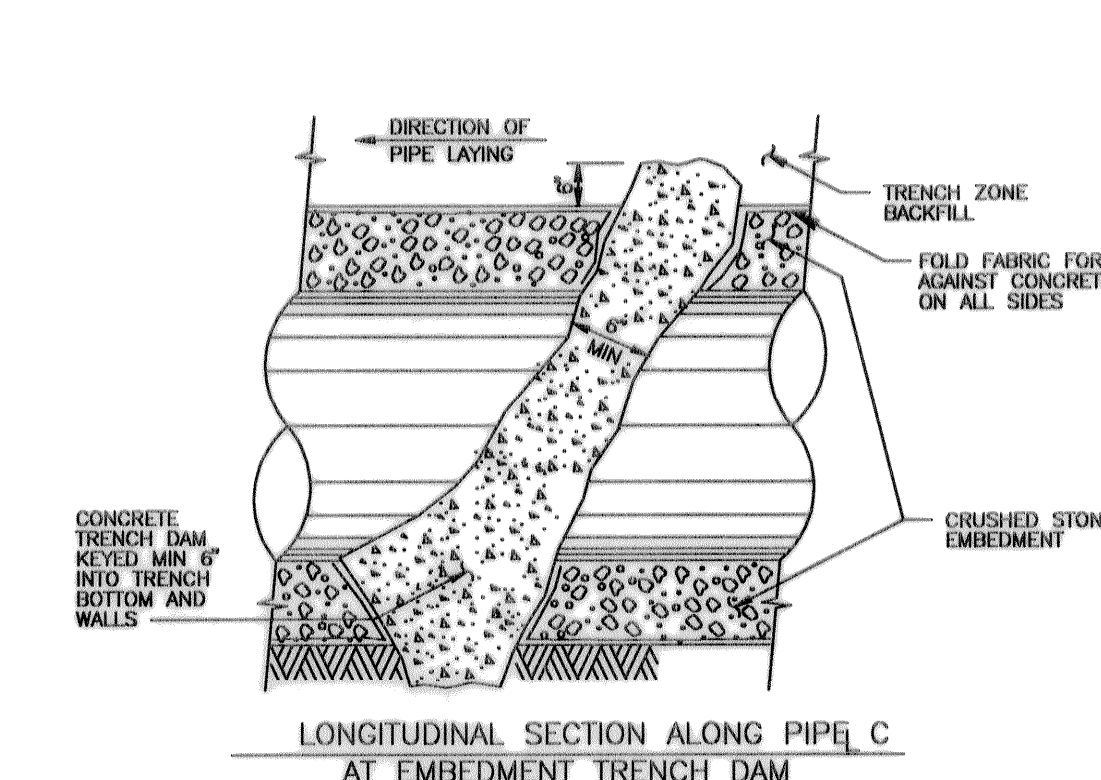
32" MANHOLE COVER WITH FRAME

MANHOLE FRAME AND COVER (NOT TO SCALE)

EFF DATE: JUL-01-97 DWG NO: 02084-01



TYPICAL CROSS-SECTION

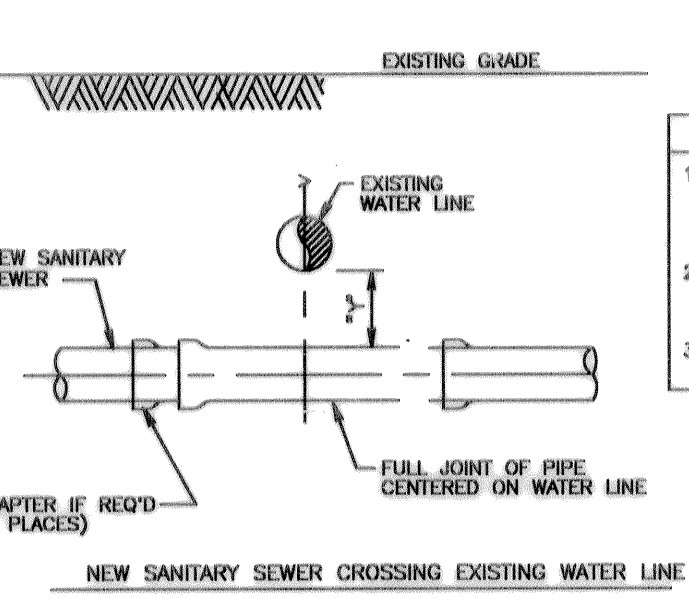


LONGITUDINAL SECTION ALONG PIPE C AT EMBEDMENT TRENCH DAM

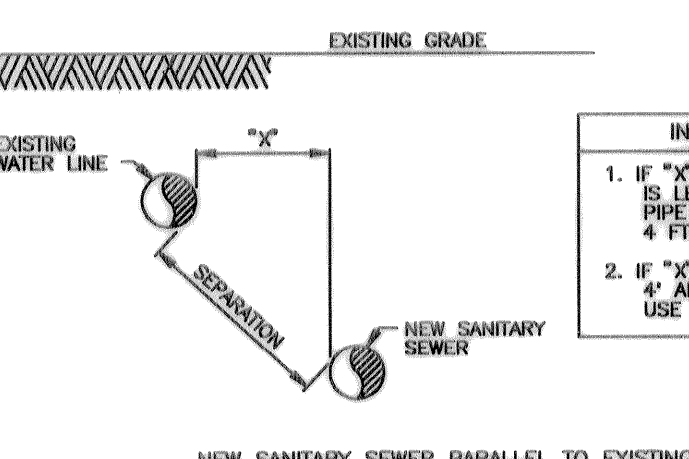
SANITARY SEWER EMBEDMENT AND TRENCH ZONE BACKFILL FOR DRY OR WET STABLE TRENCH (NOT TO SCALE)

EFF DATE: JUL-01-97 DWG NO: 02317-01

- NOTES:
1. MIN TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR THE NOMINAL PIPE SIZE:
 2. MAX TRENCH WIDTH SHALL BE NOT GREATER THAN MIN TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
 3. TRENCH DAM MAY BE FORMED OR UNIFORM ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING MINIMUM THICKNESS AND KEY DEPTH REQUIREMENTS.
 4. TRENCH DAM SHALL BE PLACED AT LEAST 5 FT AWAY FROM ANY PIPELINE STRUCTURE. SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.
 5. PLACE TRENCH DAMS IN CLASS I EMBEDMENTS AT THE MIDPOINT OF LINE SEGMENTS LONGER THAN 100 FEET BETWEEN MANHOLES.
 6. SELECT BACKFILL FOR RIGID PAVEMENT; FLEXIBLE BASE MATERIAL FOR ASPHALT PAVEMENT.



- INSTALLATION REQUIREMENTS
1. IF "X" IS GREATER THAN 6" AND "Y" IS LESS THAN 2", USE MINIMUM 18 FT JOINT OF PRESSURE-RATED PIPE PER COH STANDARD DRAWING.
 2. IF "X" IS GREATER THAN 2" AND "Y" IS LESS THAN 6", USE GRAVITY SEWER PIPE IN CEMENT-STABILIZED SAND EMBEDMENT.
 3. IF "Y" IS GREATER THAN 6", USE STANDARD EMBEDMENT AND NORMAL JOINT SPACING.

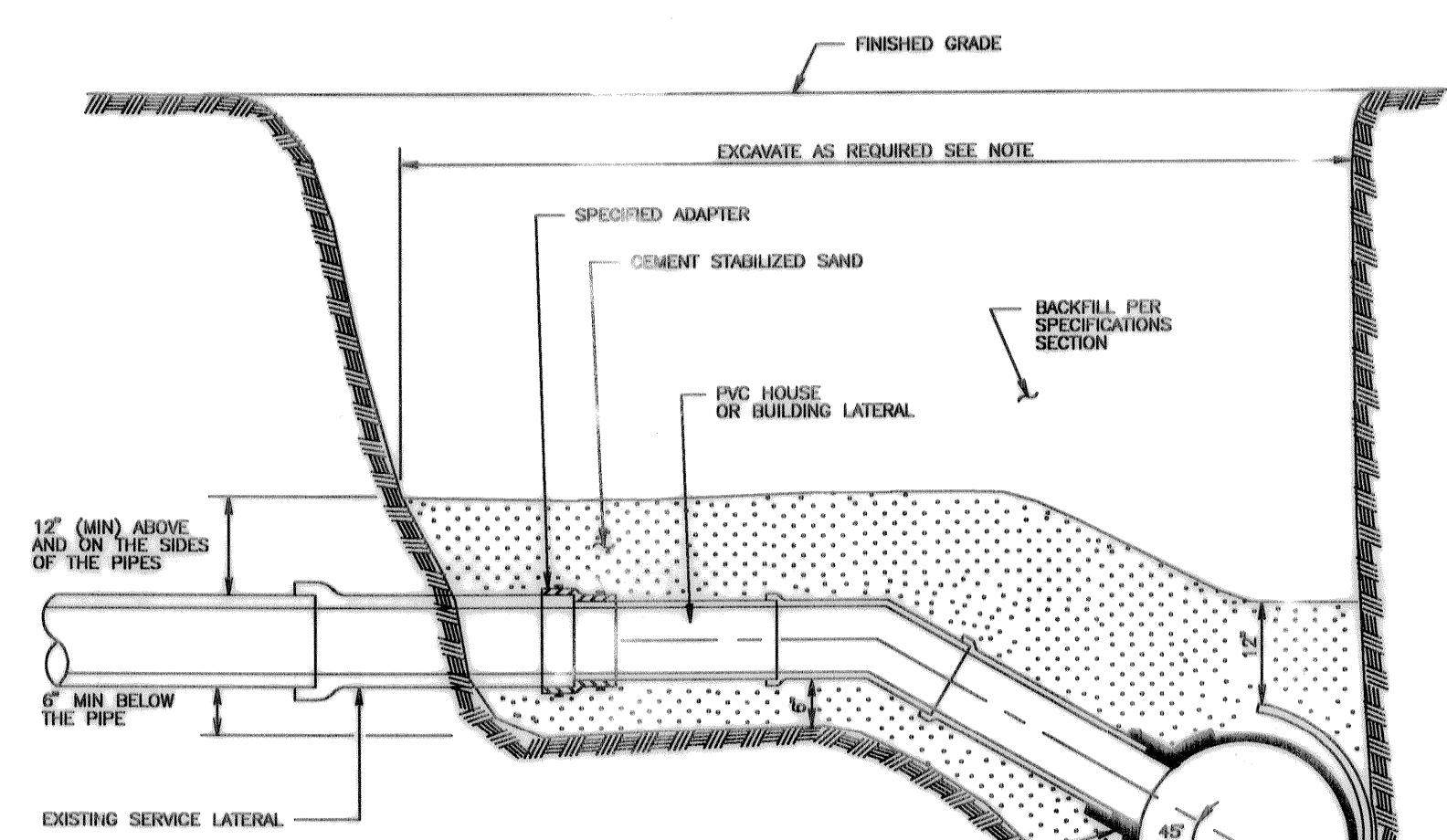


- INSTALLATION REQUIREMENTS
1. IF "X" IS LESS THAN 9" AND SEPARATION IS LESS THAN 9", USE PRESSURE-RATED PIPE MIN TO MAX "X" MUST BE AT LEAST 4 FT.
 2. IF "X" IS GREATER THAN OR EQUAL TO 4" AND SEPARATION IS 9" OR GREATER, USE STANDARD PIPE AND EMBEDMENT.

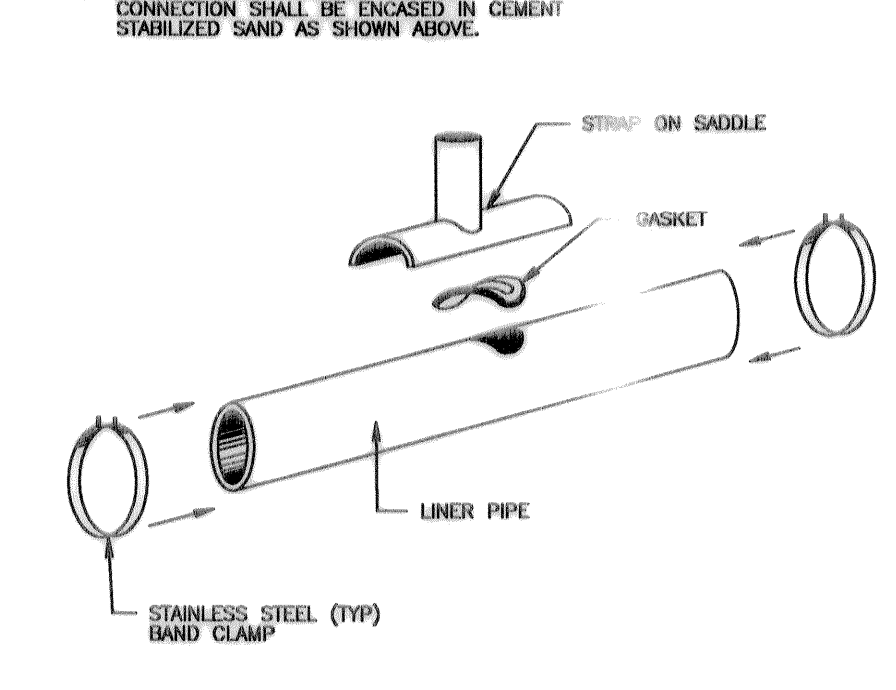
- NOTES:
1. SANITARY SEWER MUST BE BELOW WATER LINE WHEREVER POSSIBLE. WHEN WATERLINE IS BELOW THE SANITARY SEWER PROVIDE MINIMUM 2 FT SEPARATION AND INSTALL PIPE SAME AS FOR SEWER BELOW WATER.
 2. WHEN PRESSURE-RATED PIPE IS REQUIRED, PROVIDE PIPE WITH MINIMUM 150 PSI PRESSURE RATING.
 3. ADAPTERS MUST BE FACTORY MOLDED OR FABRICATED, WITH RING STIFFENERS AT LEAST EQUAL TO THE ADJOINING SANITARY SEWER PIPE, AND USING RESILIENT GASKET OR SEAL MATERIAL. FLEXIBLE RUBBER "BOOT" TYPE ADAPTERS WILL NOT BE ACCEPTED.
 4. INSTALL FORCE MAINS SAME AS FOR GRAVITY SEWER, USING SPECIFIED PRESSURE PIPE.
 5. "Y" MUST ALWAYS BE GREATER THAN OR EQUAL 6".
 6. "X" MUST BE GREATER THAN OR EQUAL TO 4 FT.
 7. ALTERNATIVES MAY BE SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS.
 8. SEPARATION REQUIREMENTS SHOWN HERE DO NOT APPLY TO SERVICE CONNECTIONS - REFER TO PLUMBING CODE FOR APPLICABLE REQUIREMENTS.

TABLE 02730-04
SEWER LINE CROSSING BELOW WATER LINE WITHIN 2 FT SEPARATION

GRAVITY SANITARY SEWER PIPE SIZE	PRESSURE-RATED PIPE SIZE & TYPE (NOTE 2)	ADAPTERS REQUIRED
6" TO 12" (ASTM D3034)	SAME SIZE ASTM D2241, SDR 26	ASTM D3034 TO D2665 (SEWER TO D.W.) ADAPTER COUPLING
15" (ASTM D3034)	1 1/2" LINED DUCTILE IRON OR ANVA C905, DUCD	NONE REQUIRED
18" AND 24"	SAME SIZE ANVA C905, PRESSURE-RATED FRP, OR LINED DUCTILE IRON, MANHOLE TO MANHOLE	NONE REQUIRED
21" AND 27"	PRESSURE PIPE NOT AVAILABLE, SEE CASING ALTERNATIVE	NOT APPLICABLE
30" AND LARGER	SAME SIZE PRESSURE-RATED FRP OR LINED DUCTILE IRON, MANHOLE TO MANHOLE	NOT APPLICABLE
CASING ALTERNATIVE:	INSTALL AS CASING PIPE MIN 18 FT JOINT OF PRESSURE PIPE AT LEAST 2 NOMINAL SIZES LARGER THAN SAN SEWER CARRIER PIPE. GROUT ANNUAL SPACE WITH TUNNEL GROUT	NOT APPLICABLE
ANY SIZE AND TYPE		



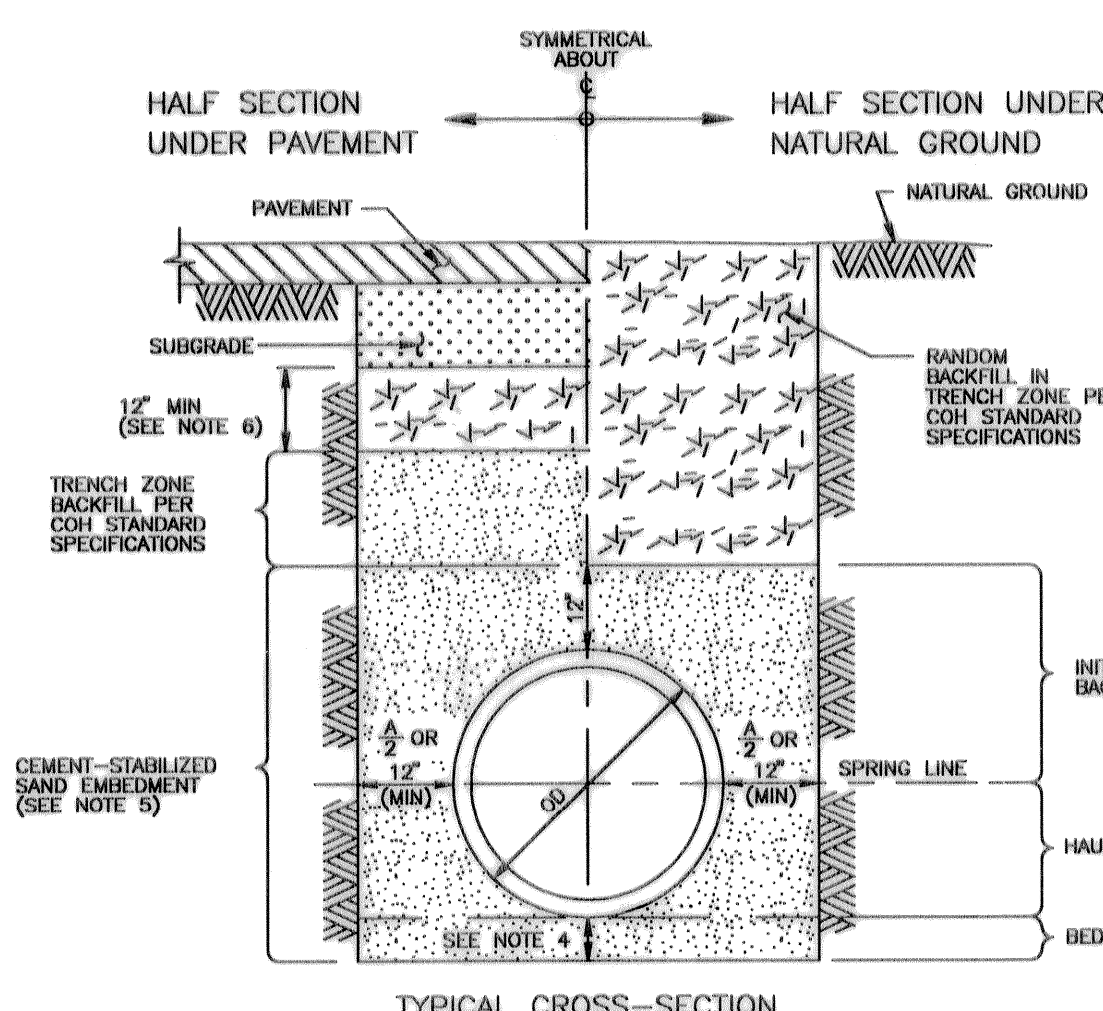
- NOTES:
1. THE ENTIRE EXPOSED SERVICE CONNECTION SHALL BE ENCASED IN CEMENT STABILIZED SAND AS SHOWN ABOVE.
 2. EXCAVATE ENTIRE EXPOSED SERVICE CONNECTION SHALL BE ENCASED IN CEMENT STABILIZED SAND AS SHOWN ABOVE.



LATERAL STRAP-ON SADDLE

SANITARY SEWER SERVICE RECONNECTION FOR LINER PIPE (NOT TO SCALE)

EFF DATE: JUL-01-97 DWG NO: 02531-01



TYPICAL CROSS-SECTION

SANITARY SEWER BEDDING AND BACKFILL FOR DRY STABLE TRENCH (NOT TO SCALE)

EFF DATE: JUL-01-97 DWG NO: 02317-08



Rev.	Date	Description	App.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

REVIEWED BY

PRIVATELY FUNDED PUBLIC WORKS	CITY FUNDED PUBLIC WORKS
WATER	PROJECT MANAGER
WASTEWATER	CONSTRUCTION
STORM WATER	CHIEF ENGINEER
STREET AND BRIDGE	OTHER APPROVAL
TRAFFIC AND TRANSPORTATION	SPONSOR DEPARTMENT
CITY ENGINEER	DATE
DIRECTOR OF PUBLIC WORKS AND ENGINEERING	DATE
SUBMITTED: _____	DESIGNED BY: BOBBY WILSON
SCALE: N/A	DRAWN BY: BILL DORRIS
DATE: FEBRUARY 2002	SHEET NO. 6 OF 6 SHEETS
SURVEY BY: _____	CITY DWG. NO. WASTE.DWG
JOB No.: 470J	

SANITARY SEWER DETAILS

PCI PROVIDENT CONSULTING, INC.
1200 WEST 11TH ST.
HOUSTON, TEXAS 77008
(713)802-1019