GENERAL CONSTRUCTION NOTES:

SYSTEM (TPDES) REQUIREMENTS.

1. WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING ARE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF THE DOCUMENTS-"STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEM, WATER LINES, STORM DRAINAGE, AND STREET PAVING", "STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEM, WATER LINES, STORM DRAINAGE. AND STREET PAVING" AND THE "INFRASTRUCTURE DESIGN MANUAL" PUBLISHED BY THE CITY OF HOUSTON, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING.

2. ALL UTILITIES PRESENTED ON THESE DRAWINGS ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY IN THE FIELD THE EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL NOTIFY TEXAS ONE CALL AT 713-223-4567/800-245-4545 AND LONE STAR ONE AT 800-669-8344 AT LEAST 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATION.

3. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING WATER, WASTEWATER, STORM WATER LINES AND TRAFFIC CONTROL DEVICES. ALL DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH THE CITY OF HOUSTON, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING'S "STANDARD CONSTRUCTION SPECIFICATIONS" REFERENCED ABOVE, AT NO COST TO THE CITY OF HOUSTON, HARRIS COUNTY, OR BY OWNER.

4. CONTRACTOR SHALL NOTIFY THE OFFICE OF CITY ENGINEER, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING AT 713-863-1450 FOR INSPECTION AT LEAST 48 HOURS PRIOR TO COMMENCING WORK. EXISTING UTILITY INFORMATION SHOWN IS NOT GUARANTEED TO BE ACCURATE AND ALL INCLUSIVE. ALL EXISTING UTILITY LOCATIONS ARE APPROXIMATE AND SHOULD BE VERIFIED BY THE CONTRACTOR IN

ADVANCE OF CONSTRUCTION. ANY CONFLICT OR DISCREPANCY DISCOVERED MUST IMMEDIATELY BE

BROUGHT TO THE ENGINEER'S ATTENTION. 6. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. THE DRAINAGE INCLUDES SURFACE AND GROUND WATER. 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 STORM WATER MANAGEMENT HANDBOOK FOR CONSTRUCTION ACTIVITIES AS PREPARED BY HARRIS COUNTY/HCFCD,

AND THE CITY OF HOUSTON ALL IN COMPLIANCE WITH THE TEXAS POLLUTANT DISCHARGE ÉLIMINATION

7. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS. PLANTS AND TREES ALONG THE AREA OF EXCAVATION. SEE LANDSCAPE PLANS FOR PROTECTION OF EXISTING TREES DURING CONSTRUCTION.

THE CONTRACTOR SHALL COMPLY WITH THE LATEST EDITION OF OSHA REGULATIONS AND THE STATE OF TEXAS LAWS CONCERNING EXCAVATION.

9. IF THE CONSTRUCTION DOES NOT BEGIN WITHIN A YEAR AFTER THE PLANS HAVE BEEN SIGNED, NEW SIGNATURES MUST BE OBTAINED AND LETTERS OF AVAILABILITY MUST BE UPDATED.

10. CONTRACTOR SHALL PREPARE A SET OF "AS-BUILT" DRAWINGS SHOWING ANY FIELD CHANGES MADE TO THE APPROVED ENGINEERING PLANS AND SUBMIT TO THE DESIGN CONSULTANT FOR

CONTRACTOR SHALL PROVIDE TEMPORARY DRAINAGE FACILITIES TO DIRECT SURFACE DRAINAGE AWAY FROM TRENCHES AND TOWARDS OFF SITE DRAINAGE FACILITIES. PREVENT WATER FROM PONDING ON SITE AND DO NOT BLOCK DRAINAGE FROM OR DIRECT EXCESS DRAINAGE ON TO ADJACENT

12. EXISTING PAVEMENTS, CURBS, SIDEWALKS, AND DRIVEWAYS WITHIN PUBLIC RIGHTS-OF-WAY WHICH HAVE BEEN DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO THE STANDARDS OF THE APPROPRIATE REGULATORY AGENCY.

3. CONTRACTOR SHALL CONSTRUCT ALL GRAVITY SEWER LINES COMMENCING AT THE LOWEST ELEVATION AND PROCEED IN THE UPSTREAM DIRECTION. CONTRACTOR SHALL VERIFY CLEARANCES WITH ALL UNDERGROUND OBSTRUCTIONS BEFORE LAYING PIPE.

14. EXCAVATE ALL TRENCHES EVENLY TO LINE AND GRADE SHOWN.

EXISTING SITE CONDITION PRIOR TO CONSTRUCTION.

5. CONTRACTOR SHALL KEEP TRENCH DRY AT ALL TIMES AND SHALL PROVIDE AUTOMATIC OR CONTINUOUS TRENCH PUMPS, AND WELL POINTS, IF NECESSARY TO OBTAIN DRY BEDDING CONDITIONS.

16. CONTRACTOR SHALL KEEP TRENCHES, PIPE BEDDING AND BACKFILL FREE OF DEBRIS.

17. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAW CONCERNING TRENCHING AND SHORING AS SPECIFIED IN CITY OF HOUSTON STANDARD SPECIFICATION, SECTION

. INCLUDE COST OF BEDDING AND BACKFILL OF TYPE REQUIRED FOR WATERLINES, SANITARY SEWERS, AND STORM SEWERS IN UNIT PRICE BID FOR PIPE, UNLESS OTHERWISE NOTED.

19. ALL MATERIALS FOR PROPOSED CONSTRUCTION OR REPAIR OF EXISTING FACILITIES SHALL BE NEW PRODUCTS DIRECT FROM THE FACTORY AND FREE FROM DEFECTS.

20. CONTRACTOR SHALL PROVIDE ALL TESTS, PLUGS, RISERS, GAUGES, GAUGE CALIBRATION DEVICES, TEST PUMPS AND COMPRESSORS AS NECESSARY TO MAKE TESTS. (NO SEPERATE PAY).

WASTE MATERIALS INCLUDING PAVEMENT REMOVED DURING CONSTRUCTION, WASTE PIPING AND SUPPLIES, CONSTRUCTION DEBRIS AND EXCESS EXCAVATED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF PROPERLY BY THE CONTRACTOR.

22. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO STARTING CONSTRUCTION.

23. CONTRACTOR SHALL HAVE A COPY OF ALL DRIVEWAY PERMITS ON SITE AT ALL TIMES DURING CONSTRUCTION OF DRIVES AND DRIVEWAY CULVERTS.

24. CONTRACTOR SHALL GIVE NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, AND PERSONS IN CHARGE OF PUBLIC AND PRIVATE UTILITIES AFFECTED BY HIS OPERATIONS PRIOR TO

25. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT" PRIOR TO STARTING CONSTRUCTION.

26. OWNER TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING

CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN HARRIS COUNTY ROAD RIGHTS-OF-WAY. 27. ACCESS TO ALL EXISTING STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.

28. SURFACE RESTORATION: AT THE END OF ALL CONSTRUCTION PROJECTS, THE CONTRACTOR SHALL RESTORE THE EXISTING FACILITIES AND ALL SPOIL MATERIAL, VEGETATION & DEBRIS SHALL BE HAULED AND DISPOSED OF OFF SITE, I.E., THE PROPERTY, SHALL BE MADE EQUAL TO OR BETTER THAN

29. CONTRACTOR SHALL HYDROMULCH SEED ALL DISTURBED AREA UNLESS OTHERWISE SHOWN ON

ARCHITECTS/LANDSCAPE ARCHITECTS PLANS. 30. GRADING AROUND BUILDINGS INCLUDING SIDEWALKS SHALL BE COORDINATED WITH ARCHITECT AND FINAL APPROVAL OF GRADES IN GRASS AREAS AND SWALES SHALL BE APPROVED BY ARCHITECT PRIOR TO INSTALLATION OF LANDSCAPING MATERIALS TO ENSURE POSITIVE DRAINAGE.

31. IN ORDER TO COMPLY WITH TEXAS ACCESSIBILITY STANDARDS. THE CONTRACTOR SHALL ENSURE THAT THE SLOPE OF SIDEWALK AND/OR PAVING IN THE FIRST FIVE FEET OUTSIDE ANY DOOR DOES NOT EXCEED 2% IN ANY DIRECTION.

32. GUIDELINES SET FORTH IN THE TEXAS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", AS CURRENTLY AMENDED, SHALL BE OBSERVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FLAG MEN, SIGNING, STRIPING AND WARNING DEVICES, ECT., DURING CONSTRUCTION - BOTH DAY AND NIGHT.

33. THE WORK AREA SHALL BE BARRICADED AND ILLUMINATED DURING DARKNESS AND PERIODS OF INACTIVITY, WHEN IN AN AREA OF DIRECT PUBLIC ACCESS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STORAGE OF MATERIAL AND EQUIPMENT IN A SAFE AND WORKMANLIKE MANNER TO PREVENT INJURIES, DURING AND AFTER WORKING HOURS UNTIL

PROJECT COMPLETION. THERE SHALL BE NO PAYMENT MADE TO CONTRACTOR FOR STORED MATERIAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SHIPPING OF ALL MATERIALS. THE LOADING AND UNLOADING OF ALL PIPE, VALVES, HYDRANTS, MANHOLES AND OTHER ACCESSORIES SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDED PRACTICES AND SHALL BE AT ALL TIMES PERFORMED WITH CARE TO AVOID ANY DAMAGE TO THE MATERIAL. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO EXAMINE SUCH MATERIAL AT THE POINT OF DELIVERY AND TO REJECT ALL

DEFECTIVE MATERIAL. THE DEFECTIVE MATERIAL MUST BE REPLACED WITH SOUND MATERIAL. 36. CONTRACTOR SHALL NOT PERFORM ANY WORK WITHIN AREA DELINEATED AS WETLANDS UNTIL ALL NECESSARY PERMITS ARE APPROVED.

TREE AND PLANT PROTECTION-CONTRACTOR IS TO PRESERVE AND PROTECT EXISTING TREES AND PLANTS FROM FOLIAGE, BRANCH, TRUNK AND/OR ROOT DAMAGE THAT COULD RESULT FROM CONSTRUCTION OPERATIONS AS PER THE CITY OF HOUSTON STREET TREE ORDINANCE AND CITY OF HOUSTON SPECIFICATIONS 01562, INSIDE OF THE CITY'S EXISTING PAVED PUBLIC ROAD R-O-W'S AND ANY AFFECTED COMMERCIAL B.L. SETBACK AREAS.

38. ALIGNMENT, CURVE DATE, BASELINE STATIONING AND RIGHT-OF-WAY (ROW) AND EASEMENT WIDTHS SHALL BE VERIFIED FROM AN APPROVED SUBDIVISION PLAT.

39. CONTRACTOR SHALL ADJUST ALL EXISTING MANHOLES, VALVE, METER BOXES, INLETS, ETC. TO PROPOSED TOP OF PAVEMENT OR FINISHED GRADE. IF MANHOLE IS IN ROW, ADJUST TO NG. IF OUTSIDE ROW. ADJUST MH TO FG + 3". NO SEPARATE PAY FOR ADJUSTING EXISTING FACILITIES.

ALL EROSION AND SEDIMENT CONTROL MEASURES AND OTHER PROTECTIVE MEASURES IDENTIFIED IN THE SWP3 MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION. IF DURING INSPECTIONS THE PERMITEE DETERMINES THAT BMPS ARE NOT OPERATING EFFECTIVELY, MAINTENANCE MUST BE PERFORMED BEFORE THE NEXT ANTICIPATED STORM EVENT OR AS NECESSARY TO MAINTAIN THE CONTINUED EFFECTIVENESS OF STORM WATER CONTROLS. EROSION AND SEDIMENT CONTROLS THAT HAVE BEEN UNINTENTIONALLY DISABLED. RUN-OVER. REMOVED. OR OTHERWISE RENDERED INEFFECTIVE MUST BE REPLACED OR CORRECTED IMMEDIATELY UPON DISCOVERY.

PRIVATE UTILITY NOTES

THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT 713-223-4567 OR TOLL FREE 1-800-344-8377 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.

CAUTION: SBC FACILITIES

THE LOCATION OF SBC FACILITIES 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

THE CONTRACTOR SHALL CALL 1-800-344-8377 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.

WHEN EXCAVATING WITHIN EIGHTEEN (18) INCHES OF THE INDICATED LOCATION OF SBC FACILITIES. ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN BORING THE CONTRACTOR SHALL EXPOSE THE SBC FACILITIES.

WHEN SBC FACILITIES ARE EXPOSED, THE CONTRACTOR SHOULD PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.

CAUTION: UNDERGROUND GAS FACILITIES

LOCATION OF CENTERPOINT ENERGY MAIN LINES (TO INCLUDE CENTERPOINT ENERGY INTRASTATE PIPELINE, LLC. WHERE APPLICABLE) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. OUR SIGNATURE ON THESE PLANS ONLY INDICATES THAT OUR FACILITIES ARE SHOWN IN APPROXIMATE LOCATION, IT DOES NOT IMPLY THAT A CONFLICT ANALYSIS HAS BEEN MADE. 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 CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL (713) 967-8037 (7:00am to 4:30 pm) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION

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

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

THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

CAUTION: OVERHEAD ELECTRICAL FACILITIES

OVERHEAD LINES MAY EXIST ON THE PROPERTY. WE HAVE NOT ATTEMPTED TO MARI THOSE LINES SINCE THEY ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND 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 THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED, CALL CENTERPOINT ENERGY AT

CONTRACTOR TO NOTIFY THE "UNDERGROUND UTILITY COORDINATING COMMITTEE" (TELEPHONE: 713-223-4567) AND CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS (TELEPHONE: 713-863-1450) 48 HOURS BEFORE STARTING WORK IN STREET RIGHT-OF-WAY OR EASEMENTS.

SITE CLEARING AND GRADING CONSTRUCTION NOTES:

 ALL EARTHWORK TO BE DONE IN CONFORMANCE WITH REQUIREMENTS OF GEOTECHNICAL ENGINEERING REPORTS PREPARED BY TERRACON PROJECT NO. 92085242 DATED JULY 24,

2. PROJECT AREA TO BE STRIPPED OF TOP SOIL TO DEPTH AS INDICATED BY SOILS ENGINEER (APPROXIMATELY 4-6 INCHES MINIMUM). TOP SOIL, RUBBISH, DEBRIS, AND OTHER OBJECTIONABLE MATERIAL TO BE DISPOSED OF OFF PROJECT SITE.

3. CONTRACTOR TO REMOVE ALL TREES & SHRUBS INDICATED TO BE REMOVED. REMOVE STUMPS, MAIN ROOT BALL, AND ROOT SYSTEMS TO 24-INCHES (MIN.) BELOW EXISTING GRADE. APPLY HERBICIDE TO REMAINING STUMPS TO INHIBIT GROWTH.

4. CONTRACTOR TO CLEAR UNDERGROWTH & DEAD WOOD WITHOUT DISTURBING SUBSOIL. 5. PAVING SUBGRADE PREPARATIONS TO BE IN CONFORMANCE WITH THE SOILS REPORT. PROJECT SPECIFICATIONS, AND DETAILS IN PLANS (MOST STRINGENT APPLIES).

6. CONTRACTOR SHALL CUT AND FILL SITE AS REQUIRED TO OBTAIN FINISHED ELEVATIONS SHOWN ON PLANS. COMPACT SELECT BACKFILL MATERIAL TO 95% STANDARD PROCTOR DENSITY AS PER ASTM D-698 AND IN CONFORMANCE WITH SOILS REPORT REQUIREMENTS. MAXIMUM SIDE SLOPES TO BE 3:1. ALL REQUIREMENTS OF PROJECT SPECIFICATIONS FOR EARTHWORK SHALL BE MET.

7 CONTRACTOR TO PROVIDE TEMPORARY MEASURES TO CONTROL STORM WATER RUN-OFF DURING CONSTRUCTION AS REQUIRED TO MINIMIZE EROSION AND TO MEET TPDES

8. FXCESS EXCAVATION SHALL BE HAULED OFF SITE AT CONTRACTORS EXPENSE, PRIOR TO FILL, THE SURFACE AREA SHALL BE CLEARED. GRUBBED. AND STRIPPED OF TOP SOIL FILL SURFACE SHALL BE PROOF-ROLLED AND THE TOP 6-INCHES SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY PER ASTM D 698.

9. THE FILL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 8-INCHES AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698. THE MOISTURE CONTENT FOR COMPACTION OF SITE FILL SHALL BE AS DETERMINED BY THE SOILS

10. THE ON-SITE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE WILL MONITOR THE FILL OPERATION, IDENTIFY SOIL TYPES, AND MAKE RECOMMENDATIONS CONCERNING SELECTION

11. MAXIMUM CROSS SLOPES FOR SIDEWALKS AND A.D.A. ACCESS ROUTES SHALL NOT EXCEED 2.0%. RAMP SLOPES SHALL NOT EXCEED 1-INCH PER FOOT (8.33%). MAXIMUM SLOPES FOR HANDICAP PARKING SPACES AND ACCESS AISLES SHALL NOT EXCEED 2.0%

12. ALL UTILITIES UNDER PROPOSED BUILDING TO BE REMOVED AND BACK-FILLED PER THE GEOTECH REPORT.

13. CONTRACTOR TO COORDINATE WITH LANDSCAPE PLANS TO ESTABLISH FINISHED GRADE WITHIN LANDSCAPE AREAS.

WASTE WATER CONSTRUCTION NOTES

. WASTEWATER COLLECTION SYSTEMS SHALL BE CONSTRUCTED AND TESTED IN WITH THE CITY OF HOUSTON, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING'S "STANDARD CONSTRUCTION SPECIFICATIONS" DATED OCT. 2002, AND "STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING" DATED OCT 2002 UNLESS OTHERWISE NOTED AND APPROVED ON THESE PLANS. THE DESIGN IS CONSISTENT WITH THE MINIMUM STANDARDS EST. IN THE "INFRASTRUCTURE DESIGN MANUAL" DATED OCT. 2002, AND REVISED JULY 28, 2006.

2. UNLESS OTHERWISE NOTED, SANITARY SEWER GRAVITY PIPE SHALL BE ASTM D 3034 SDR 26, PVC PIPE WITH ELASTOMERIC JOINTS IN ACCORDANCE WITH ASTM D 3212 AND GASKETS PER ASTM F 477. SANITARY SEWER FITTINGS SHALL BE FACTORY MANUFACTURED TO SAME CRITERIA AS PIPE.

3. SANITARY SEWER FORCE MAINS SHALL BE GREEN, AND LABELED EVERY TWO FEET "NON-POTABLE WATER", AND SHALL BE (PVC) CLASS 150, DR 18, PER AWWA C-900.

4. WHERE A SANITARY SEWER CROSSES A WATERLINE, CENTER ONE FULL JOINT OF SANITARY SEWER PIPE (MIN. 20-FT. LENGTH) ON THE WATERLINE.

5. SEPARATION DISTANCES FOR ALL SANITARY SEWERS, INCLUDE MANHOLES, AND WATER MAIN CONSTRUCTION, INCLUDING FIRE HYDRANTS, SHALL BE GOVERNED BY SUBCHAPTER D: RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS OF CHAPTER 290 OF TEXAS NATURAL RESOURCE CONSERVATION COMMISSION (TNRCC) PERMANENT VOLUME OF RULES, LATEST EDITION.

6. MAINTAIN 12-INCH MINIMUM VERTICAL CLEARANCE AT CROSSINGS BETWEEN SANITARY SEWERS AND CULVERTS, UNLESS OTHERWISE NOTED.

7. WHERE TOP OF SANITARY SEWER IS GREATER THAN 8-FT. BELOW FINISHED GRADE, PROVIDE 8-INCH SANITARY SEWER STACK FOR DOUBLE SERVICE CONNECTIONS OR 6-INCH SANITARY SEWER STACK FOR SINGLE SERVICE CONNECTIONS.

8. CONTRACTOR SHALL KEEP RECORD OF LOCATION OF ALL STACKS, STUBS, ETC.

9. ALL DOWN STREAM MANHOLES TO BE PLUGGED PRIOR TO CONSTRUCTION.

10 ALL SANITARY SEWER MANHOLES SHALL BE STANDARD CITY OF HOUSTON PRECAST 4'-0" DIAMETER MANHOLES AS PER DWG. 02082-02 OR DWG. 02082-08, UNLESS OTHERWISE NOTED. USE ONLY

11. MANHOLE TOP OF RIM ELEVATION:

A. UNDER PAVEMENT: MATCH PAVEMENT ELEVATION AT MANHOLE.

BEYOND PAVEMENT IN R.O.W.: 3 TO 6 INCHES ABOVE FINISHED GRADE IN LANDSCAPE AREAS, WITH SLOPED BACKFILL FOR STORM SEWER DRAINAGE AWAY FROM RIM.

C. IN EASEMENTS: 3-TO 6-INCHES ABOVE FINISHED GRADE AT MANHOLE, UNLESS OTHERWISE NOTED.

12. ALL MANHOLES SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.

13. BEDDING FOR SANITARY SEWER MANHOLES SHALL BE AS PER DWG. 02317-08, UNLESS OTHERWISE NOTED. STOP GASKET AND CLAMP ASSEMBLY AT MANHOLE CONNECTIONS. SANITARY SEWER MANHOLE RIMS SHALL BE 2 INCHES ABOVE NATURAL GROUND. BACKFILL SHALL BE ADDED AND SLOPED AWAY FROM THE MANHOLE RIM FOR STORM WATER DRAINAGE.

14. BEDDING FOR SANITARY SEWERS AND FOUNDATIONS FOR SANITARY MANHOLES CONSTRUCTED IN UNSATISFACTORY SOILS SHALL BE AS PER DETAILS SHOWN ON SANITARY SEWER DETAIL SHEET.

15. ALL SANITARY SEWER BACKFILL SHALL BE AS FOLLOWS:

A. WHERE SEWER TRENCH IS UNDER, OR WITHIN 5-FT. OF THE EDGE OF, EXISTING, PROPOSED OR FUTURE PAVEMENT, BACKFILL WITH CEMENT-STABILIZED SAND (1.5 SACKS OF CEMENT PER CUBIC YARD OF SAND) TO BOTTOM OF PAVEMENT SUBGRADE IN LIFTS NOT EXCEEDING 6-INCHES AND COMPACT TO 95% MAXIMUM DRY DENSITY PER ASTM D 698.

B. FOR TRENCHES NOT UNDER PAVEMENT, BACKFILL WITH COMPACTED SELECT NATIVE MATERIAL IN LIFTS NOT EXCEEDING 8-INCHES AND COMPACT TO WITHIN 95% STANDARD PROCTOR DENSITY (ASTM D 698) WITHIN 5% OF OPTIMUM MOISTURE, UNLESS OTHERWISE NOTED IN GEOTECHNICAL REPORT.

C. IN SIDE-LOT EASEMENTS, BACKFILL TO ONE FOOT (1.0-FT) BELOW ELEVATION OF NATURAL GROUND WITH CEMENT STABILIZED SAND. BACKFILL REMAINING ONE FOOT WITH BANK SAND.

16. CEMENT STABILIZED SAND SHALL MEET OR EXCEED CURRENT CITY OF HOUSTON PERFORMANCE SPECIFICATION (100 psi COMPRESSION TEST).

17. ALL FLEXIBLE AND SEMI-RIGID SEWER PIPE TO BE TESTED FOR DEFLECTION. TESTING TO BE PERFORMED 30 DAYS AFTER BACKFILL OPERATIONS ARE COMPLETED AND PRIOR TO OTHER TESTING OF SEWER SYSTEM. TEST FOR DEFLECTION BY PULLING A HAND LINE WITH AN ATTACHED MANDREL DEVICE THROUGH PIPE (NO MECHANICAL PULLING DEVICE ALLOWED), MANDREL TO HAVE AN OUTSIDE DIAMETER EQUAL TO 95 PERCENT OF THE NOMINAL INSIDE DIAMETER OF PIPE BEING TESTED. MANDREL TO BE MANUFACTURED WITH A MINIMUM OF SEVEN (7) RUNNERS WITH EACH RUNNER BEING A MINIMUM O 5-INCHES LONG. CONTRACTOR TO PROVIDE AN APPROVED TRUEING RING FOR MANDREL DEVICE. PAYMENT FOR THIS WORK TO BE INCLUDED IN UNIT PRICE BID PER LINEAR FOOT OF SEWER PIPE II APPROPRIATE SIZE. ANY PIPE NOT MEETING TEST REQUIREMENTS TO BE REMOVED AND REPLACED AT CONTRACTORS EXPENSE.

18. ALL GRAVITY SANITARY SEWERS SHALL BE AIR TESTED PER TECHNICAL SPECIFICATIONS.

STORM WATER QUALITY PRE-CONSTRUCTION INSPECTION REQUIREMENTS

THE PROPERTY OWNER OR THE CONTRACTOR SHALL CONTACT THE HARRIS COUNTY STORM WATER QAULITY PERMITTING SECTION AT 713-956-3000 FOR A PRE-CONSTRUCTION INSPECTION PRIOR TO COMMENCING ANY CLEARING OR CONSTRUCTION ACTIVITIES ON THE SITE.

HARRIS COUNTY NOTES

1. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT" PRIOR TO STARTING CONSTRUCTION.

2. OWNER TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN HARRIS COUNTY FLOOD CONTROL DISTRICT AND HARRIS COUNTY RIGHTS-OF-WAY.

3. PAVING SHALL BE IN ACCORDANCE WITH THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR THE

APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE" AND/OR AMENDMENTS OF SAME. 4. AUTHORIZATION NOTICE ISSUED BY HARRIS COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT -ENGINEERING DIVISION - PERMIT OFFICE - REQUIRED PRIOR TO CONSTRUCTION OF UTILITIES OR LEFT TURN LANES WITHIN HARRIS COUNTY RIGHTS-OF-WAY. CONTACT HARRIS COUNTY PERMIT OFFICE (713) 956-3000.

TABLE 7.4 PROTECTION REQUIREMENTS AT WATERLINE - SANITARY SEWER CROSSINGS

PRIMARY CONDITION	PROPOSED WATER EXISTING SANITARY				PROPOSED WATER PROPOSED SANITARY OR EXISTING WATER PROPOSED SANITARY			
SECONDARY CONDITIONS	WATER OVER SANITARY		WATER UNDER SANITARY		WATER OVER SANITARY		WATER UNDER SANITARY	
IF THE CLEARANCE IS	LESS THAN 2'	GREATER THAN 2' BUT LESS THAN 9'	LESS THAN 2'	GREATER THAN 2' BUT LESS THAN 9'	LESS THAN 2'	GREATER THAN 2' BUT LESS THAN 9'	LESS THAN 2'	GREATER THAN 2' BUT LESS THAN 9'
*PROTECTION REQUIREMENT	1,2,3	2	6	4	1,3,5	2	1,3,5	5

PROTECTION REQUIREMENTS FOR SANITARY SEWER CROSSINGS (UNLESS VARIANCE IS GRANTED BY THE TCEQ) (ALL CLEARANCES SHALL BE MEASURED FROM OUTSIDE WALL TO OUTSIDE WALL)

- 1. PLACE ONE FULL SECTION OF APPROVED RESTRAINED JOINT WATER LINE CENTERED AT SANITARY SEWER. NOT APPLICABLE FOR EXISTING WATER.
- 2. IF NO EVIDENCE OF SANITARY SEWER LEAKAGE, PLACE ONE FULL SECTION OF WATER LINE CENTERED OVER SANITARY SEWER; IF THERE IS EVIDENCE OF LEAKAGE, USE NOTE 4 BELOW.
- 3. ONE FOOT MINIMUM CLEARANCE.
- 4. AUGER 9 FEET MINIMUM EACH SIDE OF SANITARY SEWER. PLACE ONE FULL SECTION OF WATER LINE, CENTERED UNDER SANITARY SEWER. FILL AUGEURED HOLE WITH BENTONITE / CLAY MIXTURE. PROVIDE A 2-FOOT MINIMUM CLEARANCE. IF THE SEWER LINE IS LEAKING, THE SEWER LINE SHALL BE REPLACED WITH 150 PSI LINED DUCTILE IRON OR PVC PIPE WITH APPROPRIATE ADAPTERS ON ALL PORTIONS OF THE SANITARY SEWER WITHIN 9 FEET OF THE WATER LINE. PROVIDE RESTRAINED JOINTS FOR BOTH WATER AND SANITARY LINES AT EACH END OF PROPOSED PIPE SECTION. WATER LINE MUST PASS A PRESSURE AND LEAKAGE TEST AS SPECIFIED IN CITY'S STANDARD SPECIFICATIONS. SEWER LINE SHALL PASS AN INFILTRATION, EX-FILTRATION LOW PRESSURE AIR TEST OR LEAKAGE TEST AS SPECIFIED IN TCEQ CHAPTER 317-2 DESIGN CRITERIA FOR SEWAGE SYSTEMS.
- 5. PLACE MINIMUM FULL SECTION OF SANITARY SEWER, 150 PSI LINED DUCTILE IRON OR PVC PIPE CENTERED AT THE WATERLINE AND PROVIDE RESTRAINED JOINTS FOR BOTH WATER AND SANITARY SEWER LINES AT EACH END OF PROPOSED PIPE SECTION. USE CEMENT-STABILIZED SAND BACKFILL FOR A LL PORTIONS OF THE SANITARY SEWER WITHIN 9 FEET OF THE WATERLINE, AS MEASURED PERPENDICULARLY FROM ANY POINT ON THE WATERLINE TO THE SANITARY SEWER (MINIMUM 2.5 SACKS CEMENT PER CUBIC YARD OF SAND). THE CEMENT-STABILIZED SAND BEDDING SHALL START AT A POINT 6 INCHES BELOW THE BOTTOM OF SANITARY SEWER TO 6 INCHES ABOVE THE TOP OF SANITARY SEWER AND ONE QUARTER OF THE PIPE DIAMETER OR 6 INCHES WHICHEVER IS GREATER, ON THE SIDE OF THE SANITARY SEWER.
- 6. NOT ALLOWED.

HARRIS COUNTY M.U.D. 191 NOTES

- POLY-VINYL-CHLORIDE PSM (PVC) PIPE SHALL CONFORM TO ASTM SPECIFICATION D3034 AND BE INSTALLED ACCORDING TO ASTM D2321.
- 2. ALL SANITARY SEWER SERVICE LINES SHALL BE CONSTRUCTED TO TRUE ALIGNMENT AND GRADE. WARPED AND SAGGING LINES WILL NOT BE PERMITTED.
- BUILDING TIE-ON CONNECTION WILL BE MADE DIRECTLY TO THE STUB-OUT FROM THE BUILDING PLUMBING AT THE FOUNDATION ON ALL WASTE OUTLETS.
- 4. WATER-TIGHT ADAPTERS OF A TYPE COMPATIBLE WITH THE MATERIALS BEING JOINED WILL BE USED AT THE POINT OF CONNECTION OF THE SERVICE LINE TO THE BUILDING PLUMBING. NO CEMENT GROUT MATERIALS ARE PERMITTED.
- 5. NO BENDS OR TURNS AT ANY POINT WILL BE GREATER THAN 45 DEGREES. 6. EACH CLEANOUT WILL BE INSTALLED SO THAT IT OPENS IN A DIRECTION OPPOSITE TO THE

FLOW OF THE WASTE AND, EXCEPT IN THE CASE OF "WYE" BRANCH AND

LINE OF THE PIPE EVERY 90 FEET. 7. CLEANOUT WILL BE MADE WITH AIRTIGHT MECHANICAL PLUG. 8. APPLICATION FOR SANITARY SEWER SERVICE MUST BE FILED PRIOR TO CONSTRUCTION OF THE

END-OF-THE-LINE CLEANOUTS, CLEANOUTS WILL BE INSTALLED VERTICALLY ABOVE THE FLOW

- SERVICE LINE AND THE CONNECTION FEE SHOULD ACCOMPANY THIS APPLICATION (APPLICATION FORMS ARE AVAILABLE FROM THE DISTRICT'S OPERATOR, SOUTHWEST WATER COMPANY SERVICES. (713) 983-3452). CONSTRUCTION MUST NOT BEGIN UNTIL AUTHORIZED
- BY THE DISTRICT. WHEN THE SERVICE LINE IS COMPLETE, AND PRIOR TO BACKFILLING THE PIPE TRENCH, THE APPLICANT FOR SEWER SERVICE SHALL REQUEST AN INSPECTION OF THE INSTALLATION. REQUESTS FOR INSPECTIONS SHALL BE MADE TO THE DISTRICT'S OPERATOR (SOUTHWEST WATER COMPANY SERVICES, (713) 983-3452) TWENTY-FOUR HOURS IN ADVANCE OF THE
- 10. THE PHYSICAL CONNECTION TO THE DISTRICT'S SEWER MAIN WILL BE MADE BY USE OF AN ADAPTER OF A TYPE COMPATIBLE WITH MATERIALS BEING JOINED. THE CONNECTION SHALL BE WATERTIGHT. NO CEMENT GROUT MATERIALS ARE PERMITTED.
- 11. BACKFILLING OF SERVICE LINES TRENCH MUST BE ACCOMPLISHED WITHIN TWENTY-FOUR (24) HOURS OF INSPECTION AND APPROVAL. NO DEBRIS WILL BE PERMITTED IN THE TRENCH.
- 12. A CONNECTION PERMIT WILL BE GRANTED AFTER INSPECTION CONFIRMS THAT ALL REQUIREMENTS OF THE DISTRICT'S RULES AND REGULATIONS HAVE BEEN MET.
- 13. THE DISTRICT OPERATOR, SOUTHWEST WATER COMPANY SERVICES, IS TO INSTALL AND CONSTRUCT ALL WATER TAPS, WATER METERS, AND FLUSH VALVE LOCATIONS.
- 14. THE DISTRICT OPERATOR IS TO INSPECT ALL SANITARY SEWER CONSTRUCTION AND ITS CONNECTION TO ANY DISTRICT FACILITIES.
- 15. HARRIS COUNTY MUNICIPAL UTILITY DISTRICT NO. 191 IS NOT RESPONSIBLE FOR MAINTAINING THE DETENTION PONDS.

16. THE USE OF PIPE OR PIPE FITTINGS THAT CONTAIN MORE THAN 8.0 PERCENT LEAD, OR

PROVIDING WATER FOR HUMAN CONSUMPTION AND CONNECTED TO THE DISTRICT'S WATER 17. CONTRACTOR MUST NOTIFY THE DISTRICT OPERATOR (H.C.M.U.D. NO.I 91; SOUTHWEST WATER COMPANY), MR. GUS GUSTAFSON, AT 832-209-5073 AND THE DISTRICT ENGINEER (JONES & CARTER; MR. JASON OZUNA) AT 281-363-4039 AT LEAST FORTY-EIGHT (48) HOURS PRIOR

TO ANY CONNECTIONS TO THE DISTRICT FACILITIES.

SOLDERS AND FLUX THAT CONTAIN MORE THAN 0.2 PERCENT LEAD, ARE PROHIBITED FOR

INSTALLATION OR REPAIR OF ANY PLUMBING IN ANY RESIDENTIAL OR COMMERCIAL FACILITY

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567. PRIVATE UTILITY LINES SHOWN / Com erPoint Energy/Electric Facilities proved only for crossing underground ductlines, unless otherwise noted.) SBC UTILITY LINES SHOWN oved for SBC underground conduit facilities only. sture yalld for one year. 1/10000 as service lines are not shown DESCRIPTION DATE APP REV.NO. olasek pe

> 96632 ON 9-10 2008

KEVIN POLASEK

HOUSTON, TEXAS ZIP 77042 PHONE: 713-993-0333 ASSOCIATES, INC. FAX: 713-993-0743 8" SANITARY SEWER CROSSING

THE SEAL APPEARING ON THIS

DOCUMENT WAS AUTHORIZED BY

KEVIN POLASEK, P.E. 96632

3000 WILCREST - SUITE 200

PROJECT No. 0280-0706

AT WILLOW CENTRE DRIVE & COCKRUM ROAD TO SERVE DISCOUNT TIRE DISTRIBUTION CENTER

CONSTRUCTION NOTES

DRAWN BY: DAB CHECKED BY: KBP DATE: AUGUST, 2008

FILE NAME: 02-NOTES.DWG PLOT SCALE: 1:1 NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY

AFTER DATE OF SIGNATURES

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING AFFIC AND TRANSPORTATION (0/23/08

FILE NO: DRAWING SCALE

HORZ : N/A VERT : N/A

SHEET No: 2 OF 45295

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