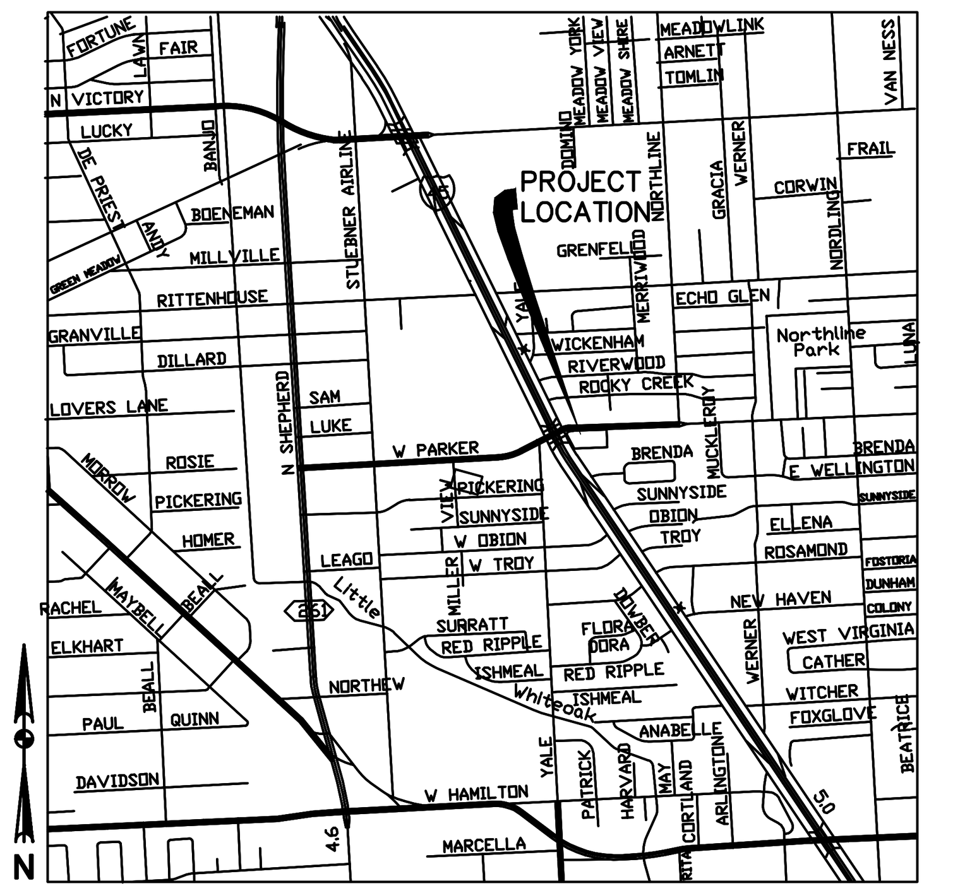


VICINITY MAP N.T.S. KEY MAP NO. 412Z

INLET DRAINAGE SCHEDULE

No.	Description	No.	Description
1	PROPOSED 24"X24" INLET TYPE A, TOP: 74.00, FL: 71.50	2	PROPOSED 24"X24" INLET TYPE A, TOP: 74.25, FL: 71.50
3	PROPOSED 24"X24" INLET TYPE A, TOP: 73.80, FL: 70.40	4	PROPOSED 36"X36" INLET TYPE D, TOP: 73.20, FL: 69.40
5	PROPOSED 30"X30" JUNCTION BOX TYPE C, TOP OF JB: 73.20, FL: 70.00	6	PROPOSED 30"X30" INLET TYPE B, TOP: 75.00, FL: 71.40
7	PROPOSED 24"X24" INLET TYPE A, TOP: 75.00, FL: 71.80	8	PROPOSED 24"X24" INLET TYPE A, TOP: 75.00, FL: 72.30
9	PROPOSED 24"X24" INLET TYPE A, TOP: 75.00, FL: 72.80	10	PROPOSED 24"X24" INLET TYPE A, TOP: 73.20, FL: 70.25
11	PROPOSED 16"X16" LANSCAPING INLET, TOP: 74.00, FL: 72.50	12	NOT USED

A	148 LF 12" HDPE AT MIN. 0.30% SLOPE	G	98 LF 15" HDPE AT MIN. 0.30% SLOPE
B	191 LF 15" HDPE AT MIN. 0.30% SLOPE	H	98 LF 12" HDPE AT MIN. 0.30% SLOPE
C	111 LF 18" HDPE AT MIN. 0.30% SLOPE	J	68 LF 8" HDPE AT MIN. 0.30% SLOPE
D	52 LF 24" HDPE AT MIN. 0.30% SLOPE	K	82 LF XX" HDPE AT MIN. 0.30% SLOPE
E	218 LF 24" HDPE AT MIN. 0.30% SLOPE	L	157 LF XX" HDPE AT MIN. 0.30% SLOPE
F	98 LF 18" HDPE AT MIN. 0.30% SLOPE	M	19 LF 24" RCP AT MIN. 0.30% SLOPE
		N	6" SCHED. 40 PVC DRAIN COLLECTOR @ MIN. 0.60% SLOPE

CONTRACTOR SHALL USE CARE TO MAKE OPENINGS IN EXISTING MANHOLES OR INLETS. OPENING SHALL NOT BE MORE THAN 3 INCHES NOR LESS THAN 1 INCH LARGER IN DIAMETER THAN PROPOSED PIPE. PLACE O-RING MORE THAN 3 INCHES PAST INSIDE FACE OF MANHOLE OR INLET WALL. FILL VOID AROUND PIPE WITH NON-SHRINK WATERPROOF GROUT. BACKFILL MANHOLE OR INLET WITH CEMENT SAND.

SITE RUNOFF CALCULATIONS:

EXISTING AND PROPOSED CONDITION:

AREA = 2.2265 ACRE
IMPERVIOUS AREA (RE: SURVEY) = 2.2265 ACRE
C = 0.6Ia + 0.2 = 1.55

$T_c = 10\ A^{0.1761} + 15$ (IN MINS.)

$T_c = 10 \times 2.2265^{0.1761} + 15$ (IN MINS.) = 26.52 MINS.

$I_{2YR} = b/(T_c + d)^e$ (USING RATIONAL FORMULA FOR CITY OF HOUSTON 2 YRS. STORM)

$I_{2YR} = 75.01/(16.2 + 26.52)^{0.8315} = 3.31$ in/hr

$Q_{2YR} = CIA = 1.55 \times 3.31 \times 2.2265 = 11.42$ CFS

THIS DEVELOPMENT WILL HAVE NO NEGATIVE EFFECT ON THE WATER SURFACE OR TO THE ADJACENT PROPERTIES.

DRAINAGE NOTES:

THIS PROJECT DOES NOT CAUSE ANY ADVERSE EFFECT TO ADJACENT PROPERTIES. THIS DRAINAGE PLAN DOES NOT INCREASE IMPACT TO TXDOT R.O.W. OR DRAIN TO TXDOT R.O.W. THIS PROJECT DRAINS TO UNDERGROUND DETENTION.

VOLUME CALCULATIONS PER INLET:

Inlet	Calculation	Volume
INLET NO. 1:	1,662 X 0.75 X 0.33 — SERVICING AREA 1 – 17,637 SQ. FT.	= 411 CU.FT.
INLET NO. 2:	1,477 X 0.75 X 0.33 — SERVICING AREA 2 – 17,835 SQ. FT.	= 366 CU.FT.
INLET NO. 3:	1,614 X 0.75 X 0.33 — SERVICING AREA 3 – 16,481 SQ. FT.	= 399 CU.FT.
INLET NO. 4:	2,022 X 0.75 X 0.33 — SERVICING AREA 4 – 16,831 SQ. FT.	= 500 CU.FT.
INLET NO. 5:	615 X 0.75 X 0.33 — SERVICING AREA 5 – 4,114 SQ. FT.	= 152 CU.FT.
INLET NO. 6:	1,950 X 0.75 X 0.33 — SERVICING AREA 6 – 10,680 SQ. FT.	= 483 CU.FT.
INLET NO. 7:	1,737 X 0.75 X 0.33 — SERVICING AREA 7 – 9,471 SQ. FT.	= 430 CU.FT.
INLET NO. 8:	1,310 X 0.75 X 0.33 — SERVICING AREA 8 – 11,020 SQ. FT.	= 324 CU.FT.
INLET NO. 9:	1,610 X 0.75 X 0.33 — SERVICING AREA 9 – 8,935 SQ. FT.	= 398 CU.FT.
INLET NO. 10:	350 X 0.75 X 0.33 — SERVICING AREA 10 – 5,648 SQ. FT.	= 87 CU.FT.

TOTAL DETENTION VOLUME PROVIDED = 3,550 CU. FT.

CONTRACTOR TO PROVIDE 8" RESTRICTOR AS PER "CITY OF HOUSTON" MINIMUM ALLOWABLE REQUIREMENTS.

CONTRACTOR TO REPLACE ALL REMOVED PAVING MATERIALS (CONCRETE & ASPHALT) WITH NEW 5" POURED IN PLACE CONCRETE. REFER TO DETAIL AND SPECIFICATIONS SOIL REPORT.

OUTFLOW ORIFICE SIZE CALCULATION

USE 8" DIA. MIN. RESTRICTOR PIPE @ OUTFALL :

$A = 8" = \frac{3.14}{} \times (4/12)^2 = 0.34889$

$Q = CA\sqrt{2gh}$

$= 0.50 \times 0.34889 \times \sqrt{2 \times 32.2 \times 2.25}$

= 2.10 CFS

SUMMARY FOR PRESENT DEVELOPMENT:

EXISTING SITE RUNOFF DISCHARGE = 11.42 CFS
PROPOSED SITE RUNOFF DISCHARGE = 11.42 CFS
(USING 8" RESTRICTOR PIPE)

PIPE/INLET BOX VOLUME CALCULATIONS:

TOTAL PIPE LENGTH = 1340 LF

TOTAL PIPE DETENTION VOLUME PROVIDED = 29,104 CU. FT.

TOTAL DETENTION VOLUME PROVIDED IN INLET BOXES = 14,347 CU. FT.

NEDU ENGINEERING SERVICES, INC
ENGINEERS, PROJECT MANAGERS, ESTIMATORS, INSPECTORS
6776 SOUTHWEST FWY., SUITE 320
HOUSTON, TEXAS, 77074
PHONE: (713) 268 - 1666
FAX: (713) 268 - 1667
TBPE NO. F-8029

PROJECT NUMBER
BKT02-SIT.DWG

PROJECT TITLE

BREAKTIME MARKET

251 WEST PARKER ROAD AT INTERSTATE 45
HOUSTON, TEXAS 77076 - (S.E.C)

A PROJECT OF:
BREAKTIME STORES, LLC.

GENERAL NOTES:

1. MONUMENTAL SIGNS AND BASE ARE BY THE SIGN CONTRACTOR. CONDUIT AND WIRING ARE BY THE GENERAL CONTRACTOR. SIGN CONTRACTOR IS RESPONSIBLE TO COMPLY AND TO CONFORM WITH THE SOILS REPORT RECOMMENDATION FOR THIS PARTICULAR SITE.

2. BASES, ANCHOR BOLTS, CONDUIT, AND WIRING FOR ALL OTHER SIGNS ARE BY THE GENERAL CONTRACTOR.

3. CONNECTIONS AND PROPOSED UTILITIES ARE SHOWN WHERE INTENDED TO BE CONSTRUCTED. ANY MOVEMENT OF THESE FACILITIES SHALL BE APPROVED BY THE DISTRICT ENGINEER PRIOR TO CONSTRUCTION.

4. THE GENERAL CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO TO DETERMINE EXACT POINTS OF SERVICE CONNECTION AT EXISTING SITE UTILITIES. REFER TO THE BUILDING ELECTRICAL AND PLUMBING SHEETS FOR UTILITY SERVICE ENTRANCE LOCATION, SIZE, AND CIRCUITING.

5. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR AT GROUNDBREAK.

6. FINISH WALK AND CURBS ELEVATIONS SHALL BE 6" ABOVE FINISH PAVEMENT ELEVATION SHOWN.

7. ALL LANDSCAPED AREAS SHALL BE ROUGH GRADED TO 3" BELOW TOP OF ALL WALKS, CURBS, AND PAVEMENT WITHOUT CURB. FINISH GRADING, LANDSCAPING AND SPRINKLER SYSTEM (IF APPLICABLE), ARE BY THE OWNER.

8. LOT LIGHTING CONCRETE FOOTINGS TO COMFORM WITH THE SOILS REPORT RECOMMENDATIONS FOR THIS PARTICULAR SITE.

9. STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION APPROVED STRIPING SHALL BE USED WHEREVER INDICATED.

10. THE GENERAL CONTRACTOR SHALL RUN A ROTO-ROOTER THROUGH SEWER LINES THAT CONNECT TO A CITY MAIN PRIOR TO OPENING DAY.

11. ALL DIMENSIONS SHOWN ARE FROM FACE TO FACE OF CURB UNLESS SHOWN OTHERWISE.

12. ALL CURBS AND WALKS ARE TO HAVE EXPANSION JOINTS EVER 20'-0" MAXIMUM.

13. CONTRACTOR TO ERECT ORANGE CONSTRUCTION FENCING AROUND ALL EXISTING LANDSCAPING AND TREES (OUT TO THE DRIP LINE). THIS FENCING MUST BE INSTALLED PRIOR TO COMMENCING CONSTRUCTION AND MUST BE MAINTAINED PRIOR TO COMMENCING CONSTRUCTION AND MUST BE FOR THE DURATION OF CONSTRUCTION.

14. CONTRACTOR TO COORDINATE ALL WORK OUTSIDE THE PROPERTY LINES WITH ADJACENT PROPERTY OWNER.

PAVING SPECIFICATIONS: TECHNICAL STANDARDS

1. 5" AS INDICATED ON PLANS, THICK REINFORCED POURED IN PLACE CONCRETE PAVING SURFACE WITH LONGITUDINAL COLD KEY JOINTS 20' O.C. MAX. W/LATERAL WET PRESSED CONTROL JOINTS 20' O.C. MAX. OVER 95% STANDARD PROCTOR COMPACTED 6" SUBSOIL BASE OR AS RECOMENDED BY SOIL ENGINEER. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 PSI MINIMUM AT 28 DAYS. ALL CONCRETE SHALL BE PRODUCED WITH A MINIMUM CEMENT CONTENT OF 520 LBS. PER CUBIC YARD (5.5 U.S. BAGS). ALL CONCRETE SHALL BE PRODUCED WITH AN ENTRAINED AIR CONTENT OF 4% BY VOLUME. ALL CONCRETE SHALL HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.53, (6.0 GAL./BAG.). THE MAXIMUM ALLOWABLE CONCRETE SLUMP SHALL BE 4 INCHES. PARKING AND DRIVE AREAS TO BE REINFORCED WITH #4 BARS AT 16" O.C. EACH DIRECTION. EXPANSION JOINTS SHALL BE PLACED AT A MAXIMUM DISTANCE OF 40'-0" O.C.. PLACE NO. 4 REBARS AT 12" O.C. FOR 8" PAVEMENT INDICATED BY PLANS. SAME FOR PAVEMENT OVER TANKS.

2. OWNER RESERVES THE RIGHT TO REQUEST A COMPACTION TEST AND/OR A CORE SAMPLE. IF TEST PROVE CORRECT, PER ABOVE REFERENCED SPECIFICATIONS, TEST WILL BE AT THE EXPENSE OF THW OWNER. OTHERWISE, CONCRETE CONTRACTOR SHALL BE CHARGED FOR TEST AND BE LIABLE FOR ANY AND/OR REPLACEMENT OF THE PAVING AREA.

3. CONCRETE WALKS TO CONSIST OF 4 INCHES OF 3000 PSI CONCRETE REINFORCED WITH 6x6 10/10 WWM OVER 2" SAND LEVELING BED (REFER TO NOTES ON SUBGRADE PREPARATION).

4. CONCRETE WALK TOOLED CONTROL JOINTS TO OCCUR AT 5'-0" O.C.

FLOOD INFORMATION:

THIS TRACT LIES IN ZONE "X" AND DOES NOT LIE WITHIN THE 100-YEAR FLOOD PLAIN, ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAP FOR HARRIS COUNTY, TEXAS, COMMUNITY PANEL NO. 48201C0665M, DATED JUNE 14, 2014. THIS STATEMENT IS FURNISHED FOR INFORMATION AND IS BASED ON GRAPHIC PLOTTING ONLY.

BENCHMARK: PUBLISHED ELEVATION-64.38'

BENCHMARK: FLOODPLAIN REFERENCE MARK NUMBER 050168 IS AN HCFCD BRASS DISC STAMPED E101 BM17, LOCATED FROM THE INTERSECTION OF I-45 (NORTH FREEWAY) WITH TIDWELL ROAD, TRAVEL WEST ON TIDWELL ROAD A DISTANCE .05 MILES, MAKE A U-TURN AND TRAVEL EAST ON TIDWELL ROAD A DISTANCE OF .02 MILES TO A HCFCD DISK LOCATED IN SIDEWALK ON DOWNSTEAM SIDE OF EAST BOUND LANES AND STREAM CENTERLINE, IN KEY MAP 452D IN THE WHITE OAK BAYOU WATERSHED NEAR STREAM NUMBER E101-00-00.
ELEVATION = 64.38 FEET NAVD 1988, 2001 ADJUSTMENT

65.45 + INDICATES EXISTING ELEVATION AS PER SURVEY

(66.30) INDICATES NEW ELEVATION OF TOP OF PAVEMENT TO BE CONSTRUCTED (TYPICAL)

((66.30)) INDICATES TOP OF TRUCK ISLAND/ OR MPD TYPICAL

[66.01] INDICATES CONTRACTOR TO MATCH EXISTING ELEVATION.

T.O.C. - INDICATES TOP OF CONCRETE CURB.

NOTE:

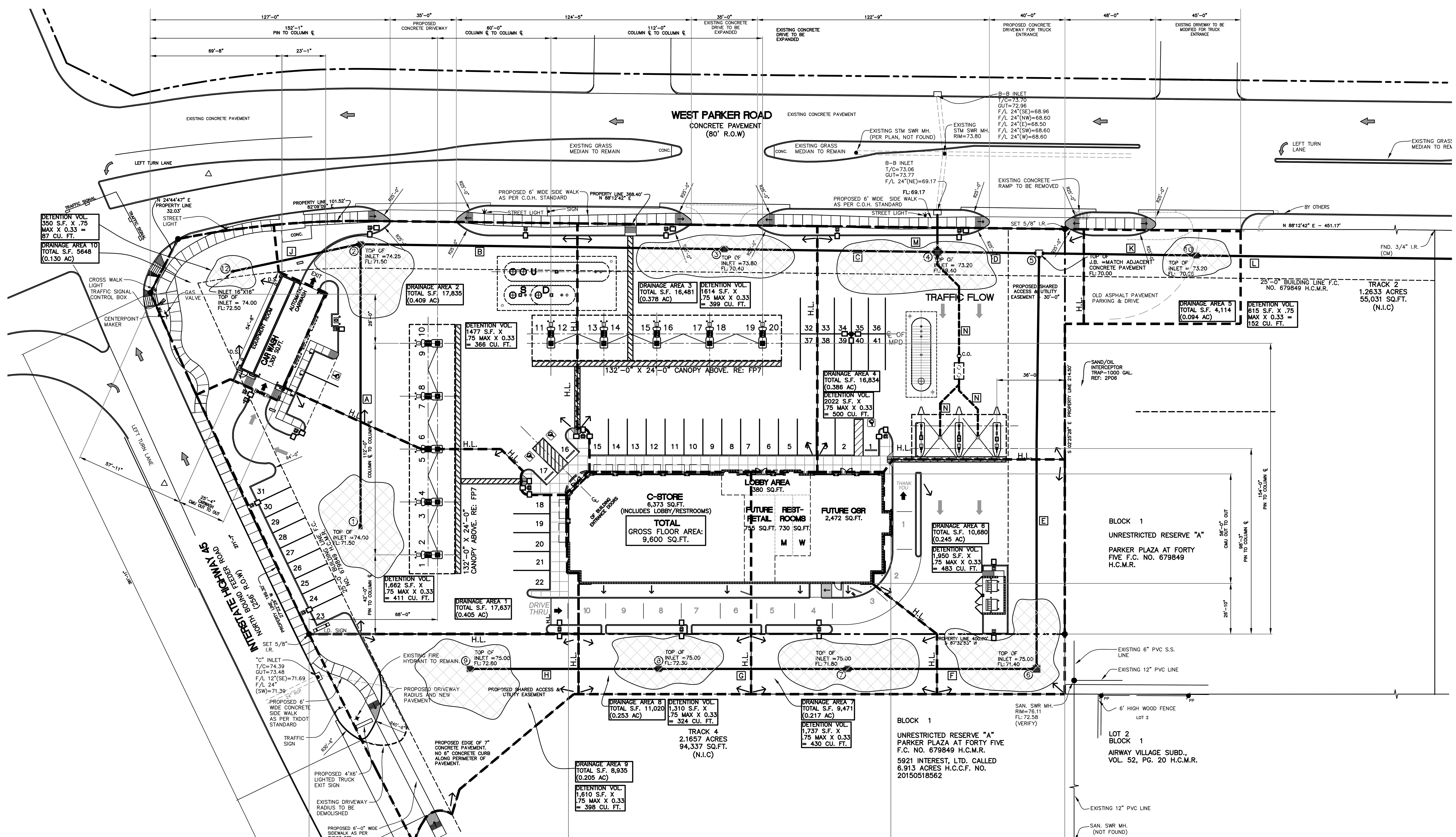
CONTRACTOR TO ROUGH GRADE ENTIRE SITE AND HAVE OWNER/ARCHITECT APPROVAL BEFORE COMMENCEMENT OF ANY PAVING WORK. REFER TO SURVEY & DEMO PLAN DOCUMENTS FOR EXISTING CONDITIONS. CONTRACTOR TO COORDINATE LOCAL UTILITY DEPARTMENTS BEFORE REMOVING OR RELOCATING ANY EXISTING CONDITIONS.

ANY PAVING INSTALLED OVER A UTILITY EASEMENT SHALL HAVE CONSTRUCTION JOINTS OR SAW CUTS ALONG THE ENTIRE EASEMENT LINE OF THE ENCROACHMENT AND TRANSVERSE THE EASEMENT AT INTERVALS EQUAL TO OR LESS THAN 10 FEET INCREMENTS.

NOTE:

1. COORDINATE EXCAVATIONS/TRENCHING TO AVOID DAMAGE TO EXISTING TREES WITHIN THE LANDSCAPE SETBACK.

2. LOCATE BACKFLOW PREVENTORS OUTSIDE THE LANDSCAPE EASEMENT SETBACK, TYPICAL.



ONE CALL NOTIFICATION SYSTEM

CALL BEFORE YOU DIG!

(713) 223-4567 (IN HOUSTON)
(NEW STATEWIDE NUMBER OUTSIDE HOUSTON)
1-800-545-6005

SITE PLAN - CIVIL STORM SEWER DRAINAGE

SCALE: 1"=30'-0"
RE: SURVEY
TOTAL LAND AREA :2.2265 ACRES (96,986 SQ. FT.)

PROFESSIONAL SEAL

STATE OF TEXAS
NKEMDI I. OHALETE
79423
LICENSED PROFESSIONAL ENGINEER

DATE SIGNED: 01-11-18

DRAWINGS ISSUED FOR:	
11-06-17	PROGRESS PRINT
11-30-17	PROGRESS PRINT
12-13-17	PROGRESS PRINT
01-11-18	ISSUED FOR C.O.H. PERMIT
	FINAL PRINT

SCOPE OF THE DOCUMENT

This drawing indicates the general scope of the project in terms of architectural design concept, the dimensions of the building, the major architectural elements and the type of structural, mechanical electrical systems. As scope documents, the drawings do not necessarily indicate or describe all work required for full performance and completion of the requirements of the Contract Documents. On the basis of the general scope indicated or described, the contractor shall furnish all items required for the proper execution and completion of the work. These drawings shall not be used for construction unless DATED and noted as ISSUED FOR CONSTRUCTION WORK.

ISSUED FOR CONSTRUCTION

REVISIONS

NO.	DATE	DESCRIPTION

DRAWN BY: CHECKED BY: DATE

SHEET TITLE

CIVIL STORM SEWER DRAINAGE SITE PLAN

DRAWING NUMBER: C01A
SHEET NO.