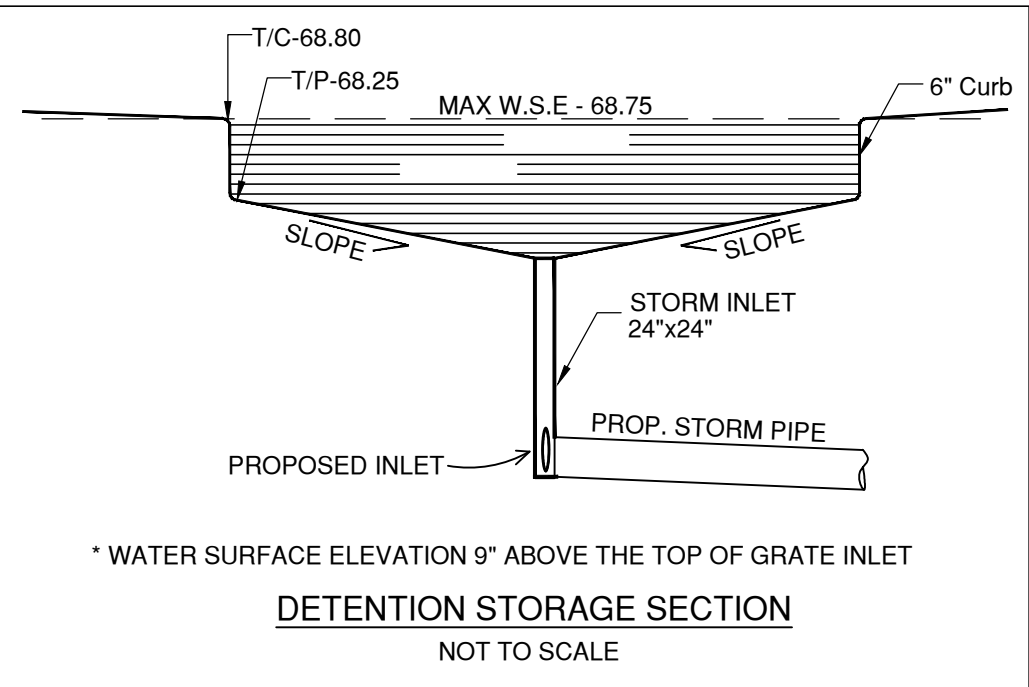
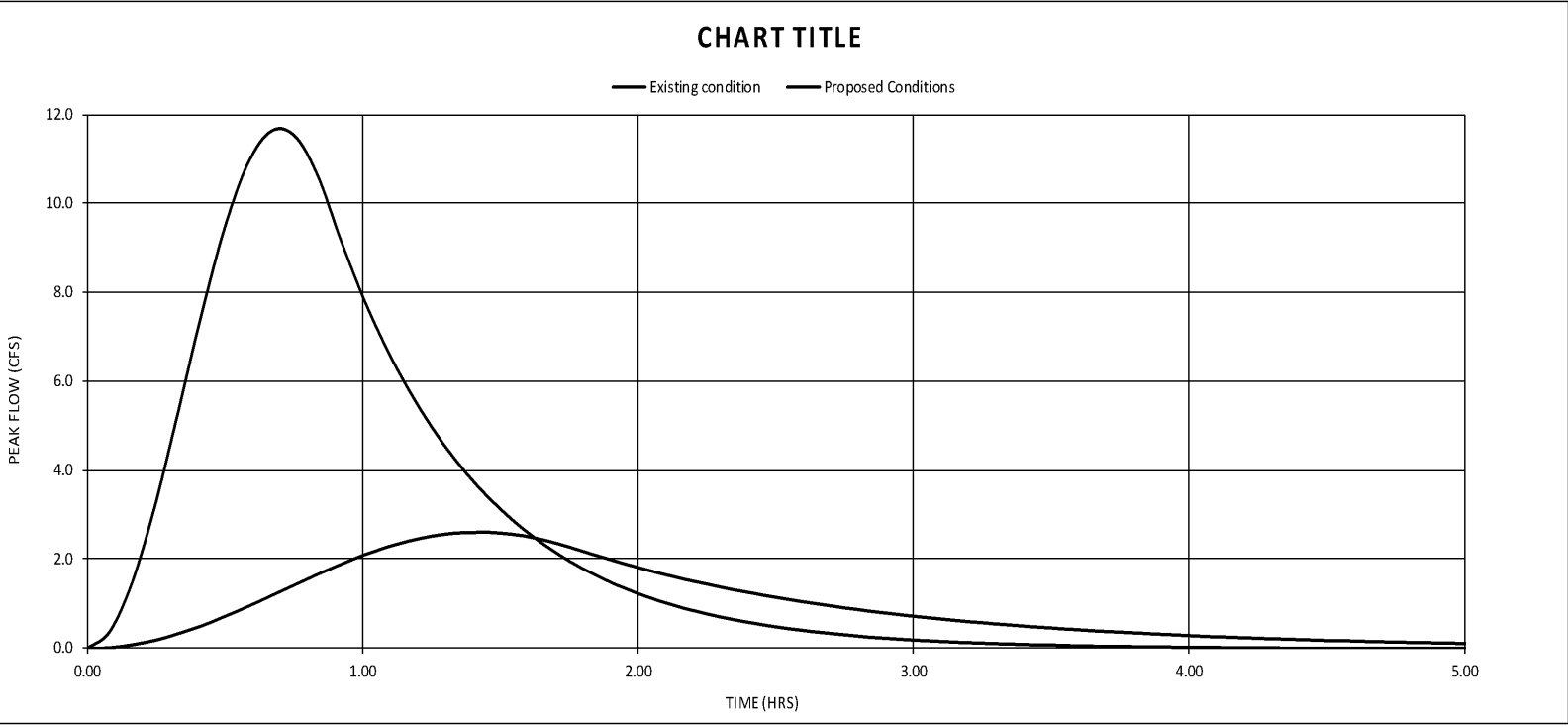
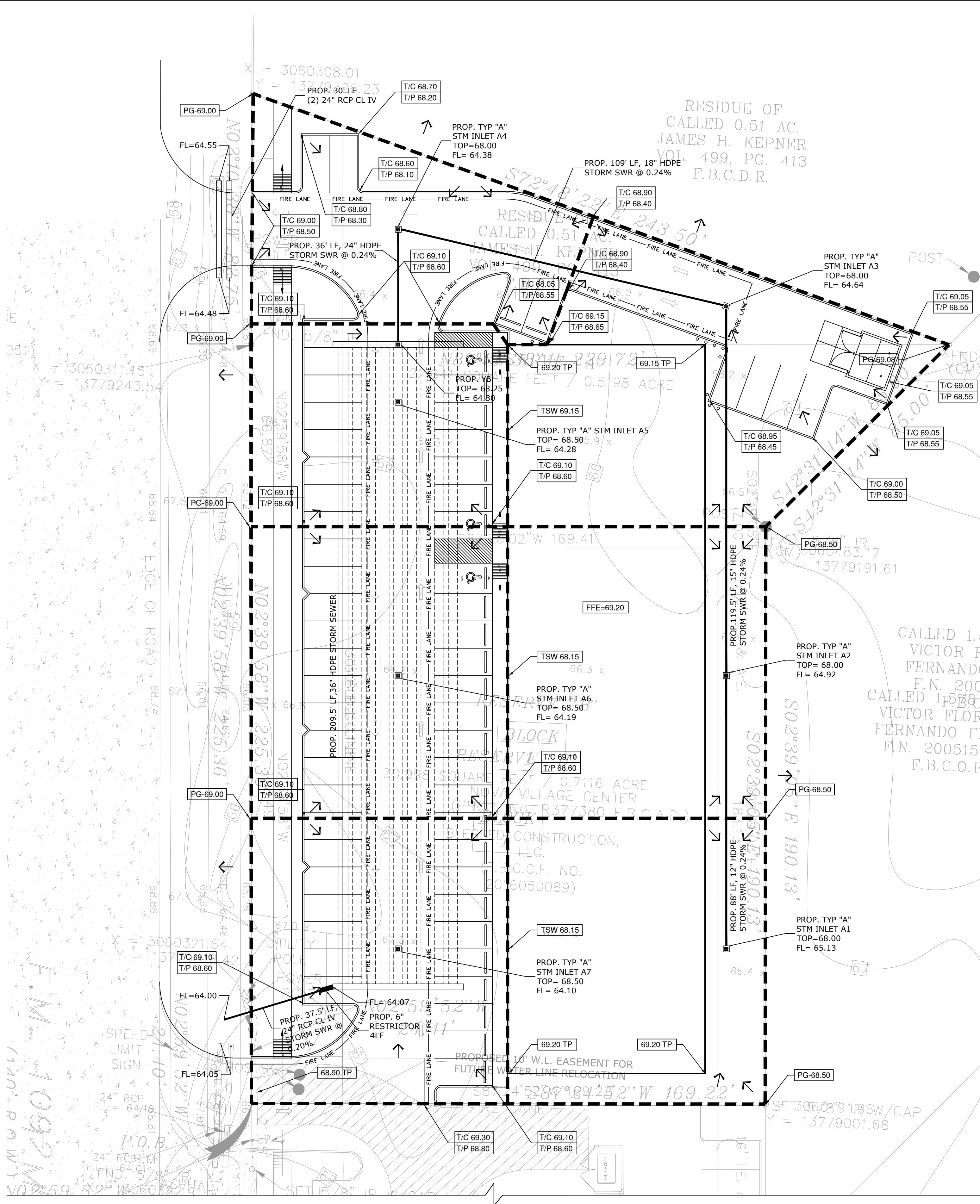


10/03/2023

NOTE: This table will be completed by the site engineer after all previous comments have been addressed and the plan is ready to be signed off by the Houston district Hydraulic Section. **Please Copy and paste the completed table onto the drainage sheet.**

ENGINEER'S SIGNATURE & SEAL, DATED:	10/16/2023
TR #:	23040318
HIGHWAY:	FM 1092
TxDOT frontage (ft.):	308.11
TxDOT area (acres):	1.2314
Total area (ac):	1.2314
Developed area (ac):	0.9703
Increased Impervious (ac):	0.9447
Allowable Q (cfs):	2.5195
Actual Q (cfs):	2.54
Required Detention (ac-ft):	0.6400
Provided Detention (ac-ft):	0.6415
Restrictor tie in:	6"
Pump ?:	NO

NOTE: TxDOT area denotes the strip of site within 150-ft frontage

CONSTRUCTION NOTE
THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE. THE GENERAL CONTRACTOR SHALL ACCEPT THE RESPONSIBILITY TO NOTIFY ALL UTILITY, CITY AND COMMUNICATION COMPANIES TO PROVIDE DEPTH AND LOCATIONS OF ALL UNDERGROUND PIPE. CONTRACTOR SHALL INFORM ENGINEER OF ANY DISCREPANCIES THAT MAY IMPACT WORK DESCRIBED HEREIN.

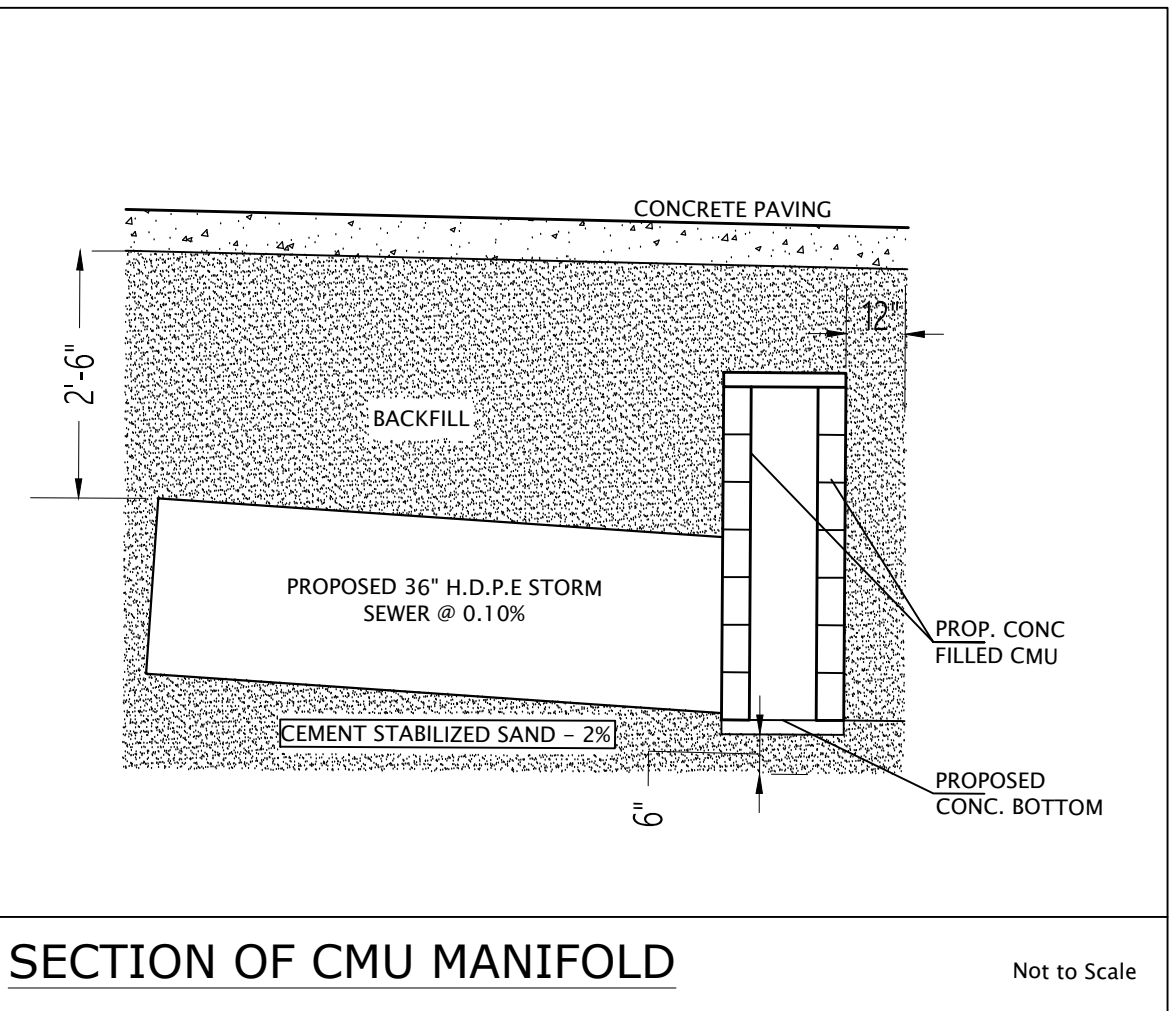
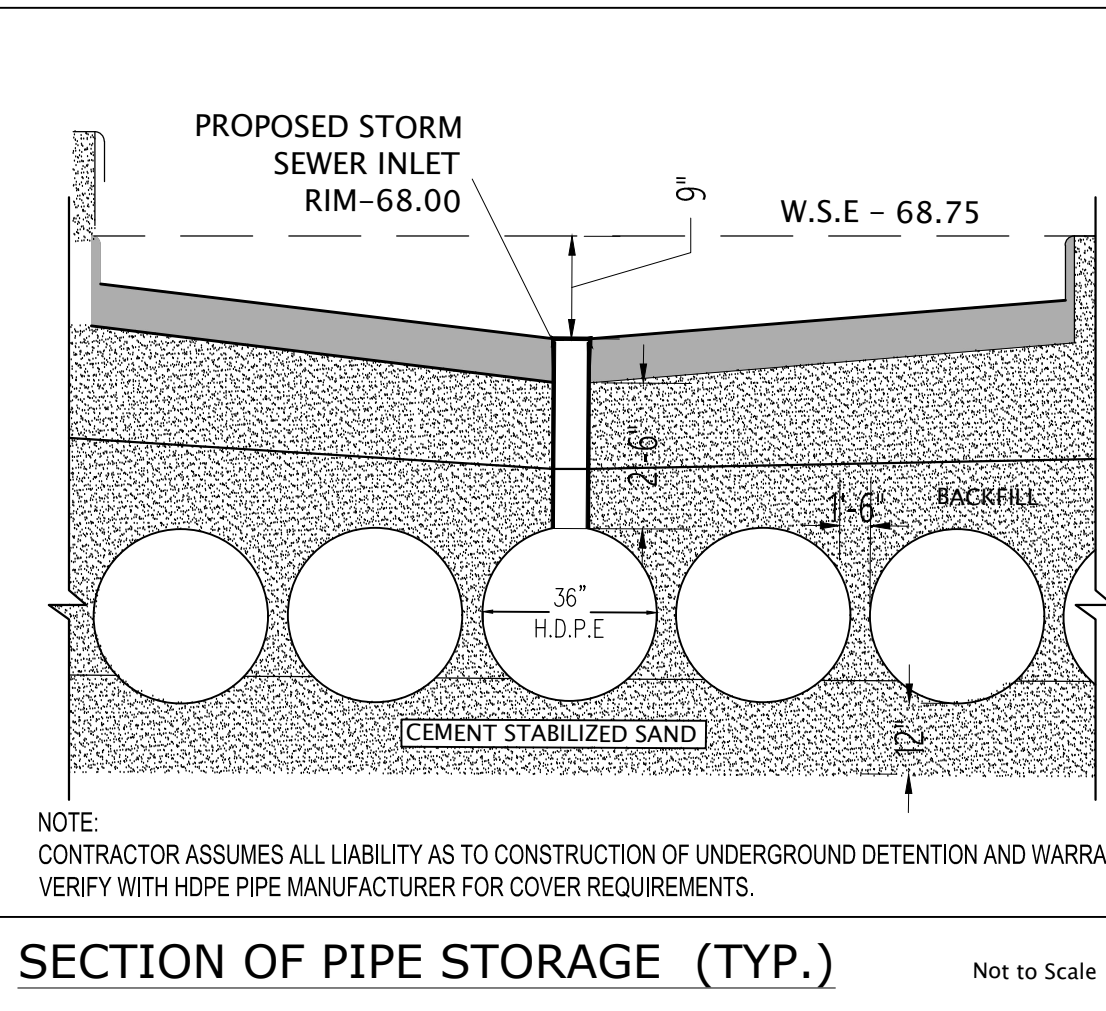
NOTE:
MAINTAIN MINIMUM LINE CLEARANCE AT ALL FIRE LINE CROSSINGS.

* REFER TO MISSOURI CITY STORM SEWER PIPE BEDDING AND BACKFILL DETAILS. CONTRACTOR TO VERIFY WITH PIPE MANUFACTURER PRIOR TO ANY WORK.

Rainfall frequency	b	d	e	
2-year	68.00	7.90	0.8000	
5-year	70.00	7.70	0.7490	
10-year	81.00	7.70	0.7530	
25-year	81.00	7.70	0.7240	
100-year	91.00	7.90	0.7060	
EXIST ACRE	PRIMPERVIOUS	DETENTION	PR-ERVIOUS	
AREA 'A'	1.2314	0.9447	0	0.07
T _c	25.37	10.00		
C	0.35	0.9	0.6	0.2
INTENSITY		PEAK FLOW RATE		
i ₂	4.1194	Q ₂	2.5915	
i ₅	5.0934	Q ₅	2.1952	
i ₁₀	5.8119	Q ₁₀	2.5049	
i ₂₅	6.4325	Q ₂₅	2.7724	
i ₁₀₀	7.0637	Q ₁₀₀	3.3030	
i ₁₀₀	11.8721	Q ₁₀₀	11.6954	
Weighted Coefficient 'C _w '			0.8000	

REDUCER OR RESTRICTOR PIPE	
TOTAL DRAINAGE AREA	53,639 SQFT. = 1.2314 ACRES
UNDEVELOPED RATE OF DISCHARGE	0.50 CFS/AC. X 1.2314 ACRES = 0.6157 CFS
DEVELOPED RATE OF DISCHARGE (100 YR) W/OUT RESTRICTOR	0.80 x 11.8712 x 1.2314 ACRES = 11.69 CFS
D = Q ^{1/2} / (2.25H ^{1/4})	0.6157 ^{1/2} / (2.25 x 3.0 ^{1/4}) = 0.486' = 5.84"
USE MINIMUM 6" RESTRICTOR PIPE	
DETENTION CALCULATIONS	
DETENTION REQUIRED	= 0.64AC-FT (Per Malcom's method for TxDOT)
AREA OF THE PARKING LOT	= 24,874 Sq-Ft
DEPTH OF DETENTION	= 0.5833
VOL OF DET IN PARKING	= 24,874 * 0.5833
	= 14,509 Cu-Ft
DIAMETER OF PIPE	= 36 INCHES
TOTAL LENGTH OF PIPE	= 1900 FT
VOL IN PIPES	= 1900*7.07
	= 13,433.00 Cu-Ft
TOTAL VOLUME	= 27,942 CU-FT
= 0.6415 Ac-FT	
RATE OF DETN PROVIDED	= 0.6415 Ac-FT/Ac
TOTAL DETENTION PROVIDED > DETENTION REQUIRED	

LEGEND	
XX.XX-T/C	TOP OF CURB GRADE
XX.XX-T/P	
XX.XX-PG	GRADE AT PROPERTY LINE
XX.XX-G	GRADE
—	FLOW LINE INSIDE PROPERTY
- - -	FLOW LINE OUTSIDE PROPERTY

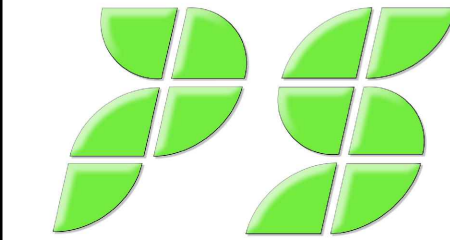


C3.00
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SITE DRAINAGE AND GRADING PLAN
SCALE: 1:20

Zaine Shaping Center

1911 FM 1092,
Missouri City, TX 77477

SITE DRAINAGE AND GRADING



14022 HEMPSTEAD RD.
HOUSTON, TX 77040
TEL: (713) 999-1919
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DRAWN	DESIGN	JOB NUMBER
AAA	LK	2323
DATE		SHEET NO.
OCT 2023		
SCALE		C3.00
1:20		