



May 25, 2023

Mr. Otis Spriggs  
Director of Development Services  
City of Angleton  
121 S. Velasco  
Angleton, TX 77515

Re: On-Going Services  
PT Storage Facility Site Development Plans– 2<sup>nd</sup> Submittal Review  
Angleton, Texas  
HDR Job No. 10361761

Dear Mr. Spriggs:

HDR Engineering, Inc. (HDR) has reviewed the plans for the above referenced development and offers the following comments:

General

1. The Angleton Drainage District provided approval on January 19, 2023 and a letter with stipulations noted and is provided as an attachment in this review. The Property Owner shall follow the provisions noted in the letter regarding additional structures added to the site in the future. Additionally, improvements shown to discharge into A.D.D. facilities shall be reviewed, inspected, and approved as part of the proposed construction. A signed copy of the letter shall also be provided.
2. Coordination with the City of Angleton Public Works shall be for the proposed fire hydrants taps and the detention outfall work located near an existing sanitary force main.

HDR takes no objection to the PT Storage Facility Site Development Plans with the exceptions noted. Please note, this does not necessarily mean that the entire drawings, including all supporting data and calculations, has been completely checked and verified; however, the drawings and calculations are signed, dated, and sealed by a registered professional engineer licensed to practice in the State of Texas, which therefore conveys the design professional's responsibility and accountability.

If you have any questions, please feel free to contact us at our office (713)-622-9264.

Sincerely,

HDR Engineering, Inc.

Javier Vasquez, P.E., CFM  
Civil Engineer

cc: Files (10361761/10336228)

Attachments

January 19, 2023

Dr. Patrick Thomas, DDS  
913 Cannan Drive  
Angleton, Texas 77515

Re: PT Storage Facility on 2001 N. Valderas Street, Angleton.  
Plat, Grading, Drainage and Detention Plan

Dear Mr. Thomas:

The Angleton Drainage District Board of Supervisors, during the special public meeting held on January 18, 2023, unanimously approved the plat, grading and drainage and detention plan for the PT Storage Facility to be located on 2001 North Valderas Street as presented.

As presented, the property consisting of 7.73-acres will be divided into two lots. Lot 1 will be located on the northeast corner and contains 2.957 acres and will consist of proposed of storage facilities and a 2.021-acre detention reserve. Lot 2 consists of 2.754-acres, has an existing barn and possibly a single -family residence in the future. There is a ditch on the west and north side of the property. The ditch is currently within a 30' Drainage easement. The ditch uses the entire drainage easement, measured from top bank to top bank. The proposed plat and plans will add an additional 10' to 15' of drainage easement for maintenance. There will be a shared 20' wide berm between the existing ditch and proposed pond.

Should any additional structures be added in the future, other than those on the plans presented on January 18, 2023, a subsequent review by the Angleton Drainage District will be required to ensure there are no adverse impacts to adjacent landowners.

Approval of this plat, grading and drainage and detention plan in no way represents that the Brazoria County Emergency Operations Center has complied with any federal, state, county or other law, statute, procedure or requirement of any type beyond the approval of the plat, grading and drainage and detention plan approved, with the stipulations listed, if any, in this letter, by the District.

Sincerely,

David B. Spoor, Chairman  
Angleton Drainage District Board of Supervisors

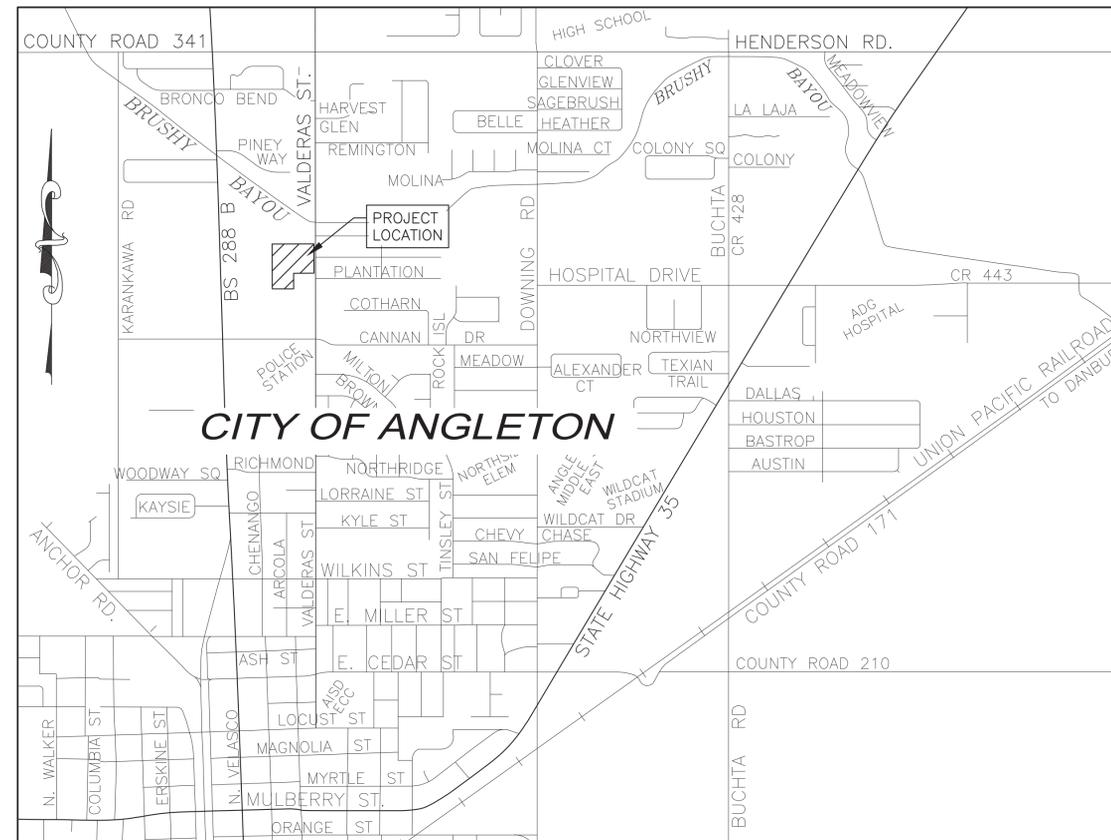
# PT STORAGE FACILITY

## PLANS FOR CLEARING, DETENTION, GRADING, DRAINAGE AND UTILITIES

May 19, 2023

**CITY OF ANGLETON**

<p><b>MAYOR</b> JASON PEREZ</p> <p><b>CITY MANAGER</b> CHRIS WHITTAKER</p>	<p><b>CITY COUNCIL</b></p> <p>CHRISTIENE DANIEL TRAVIS TOWNSEND JOHN WRIGHT CECIL BOOTH MARK GONGORA</p>
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VICINITY MAP  
N.T.S.

**INDEX OF SHEETS**

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- C.2 EXISTING CONDITIONS AND DEMOLITION SHEET
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- C.5 DETENTION POND LAYOUT
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- C.8 HYDRAULIC CALCULATIONS
- C.9 SWPPP LAYOUT & DETAILS
- C.10 SWPPP NARRATIVE

**STANDARD DETAILS (SD)**

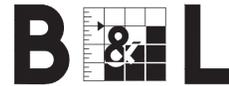
- SD.1 STORM SEWER CONSTRUCTION DETAILS SL-05
- SD.2 STORM SEWER INLET CONSTRUCTION DETAILS SL-07
- SD.3 STORM SEWER CONSTRUCTION DETAILS SL-10
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- SD.6 WATER LINE, SANITARY SEWER FORCE MAIN BEDDING DETAILS SL-19
- SD.7 STORM SEWER PIPE BEDDING AND BACKFILL DETAILS SL-20
- SD.8 CONCRETE PAVEMENT CONSTRUCTION DETAILS SL-21
- SD.9 WHEELCHAIR RAMP & SIDEWALK DETAILS I SL-25
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- SD.11 DRIVEWAY CONSTRUCTION DETAILS SL-27
- SD.12 GENERAL EROSION CONTROL NOTES SL-33

"Release of this application does not constitute a verification of all data, information and calculations supplied by the applicant. The engineer of record is solely responsible for the completeness, accuracy and adequacy of their submittal, whether or not the application is reviewed for Code compliance by the City Engineer."

"All responsibility for the adequacy of these plans remains with the Engineer who prepared them. In approving these plans, the City of Angleton must rely on the adequacy of the work of the Design Engineer."

NO.	DATE	DESCRIPTION	APPROVED
REVISIONS			

DESIGNED	RL
DRAWN	JLH
CHECKED	RL
DATE	



**BAKER & LAWSON, INC.**  
ENGINEERS • PLANNERS • SURVEYORS  
4905 TECHNOLOGY DRIVE, SUITE 1530  
ANGLETON, TEXAS 77515 (979) 849-6681  
REG. NO. F-825



The seal appearing on this document was authorized by Miguelangel A. Saucedo P.E. 121992

05-19-2023

OWNER:  
**DR. PATRICK THOMAS, DDS**  
913 CANNAN DRIVE  
ANGLETON, TX 77515

PLAN: \_\_\_\_\_  
PROFILE: \_\_\_\_\_  
HORIZONTAL: \_\_\_\_\_  
VERTICAL: \_\_\_\_\_

**PT STORAGE FACILITY**  
ANGLETON, TEXAS 77515

TITLE SHEET

PROJECT NO. 15239

**TS**

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15239-SHEET-SET.DWG

**GENERAL CONSTRUCTION NOTES**

CONTRACTOR SHALL NOTIFY THE "UNDERGROUND UTILITY COORDINATING COMMITTEE" (TELEPHONE NO. (979) 849-4364 AND THE CITY OF ANGLETON (TELEPHONE NO. (979) 849-4364) 48 HOURS BEFORE STARTING WORK IN STREET RIGHT-OF-WAYS OR EASEMENTS.

ALL EXISTING UNDERGROUND UTILITIES ARE NOT GUARANTEED TO BE COMPLETE OR DEFINITE, BUT WERE OBTAINED FROM INFORMATION AVAILABLE. CONTRACTOR HAS SOLE RESPONSIBILITY FOR FIELD VERIFICATION OF ALL EXISTING FACILITIES SHOWN ON DRAWINGS. CONTRACTOR SHALL COORDINATE ALL CONFLICTS WITH THE APPROPRIATE GOVERNING AGENCY. NO SEPARATE PAY.

CONTRACTOR SHALL PROVIDE A TRENCH SAFETY SYSTEM TO MEET, AS A MINIMUM, THE REQUIREMENTS OF OSHA SAFETY AND HEALTH REGULATION, PART 1926, SUBPART P AS PUBLISHED IN THE FEDERAL REGISTER, VOLUME 54, NO. 209, DATED OCTOBER 31, 1989.

CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TEXAS MUTCD MOST RECENT EDITION AS REVISED) DURING CONSTRUCTION.

CONTRACTOR SHALL COVER OPEN EXCAVATIONS IN PUBLIC STREETS WITH ANCHORED STEEL PLATES DURING NON-WORKING HOURS.

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 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS.

EXISTING PAVEMENTS, CURBS, SIDEWALKS, CULVERTS AND DRIVEWAYS (ADJACENT TO THE WORK) DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO EQUAL OR BETTER THAN THEIR ORIGINAL CONDITION AT CONTRACTOR EXPENSE.

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. CONTRACTOR SHALL TAKE NECESSARY ACTIONS TO PROTECT THE EXISTING SURFACES OUTSIDE THE WORK AREA FROM THE EQUIPMENT USED. ALL TRACKED MACHINERY (STREET PADS INCLUDED) SHALL NOT BE OPERATED DIRECTLY ATOP THE PAVEMENT WITHOUT APPROPRIATE PADDING AND PROTECTION OF THE SURFACES. ANY MARRED OR DISTRESSED AREAS SHALL BE REMOVED AND RESTORED WITH NEW MATERIALS TO THE SATISFACTION OF THE ENGINEER. ANY EXISTING DISTRESSED AREAS SHALL BE MADE KNOWN TO THE ENGINEER PRIOR TO OPERATIONS IN THE WORK AREA.

ALIGNMENT, CENTERLINE CURVE DATA AND STATIONING TO BE VERIFIED BY ON-THE-GROUND SURVEY FROM APPROVED SUBDIVISION PLAT (OR APPROVED PLAT FOR OFF SITE EASEMENTS), AND ELEVATIONS OF ALL CONNECTIONS TO EXISTING FACILITIES TO BE CONFIRMED PRIOR TO WORK START. CONTRACTOR TO NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

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

CONTRACTOR SHALL ASSURE HIMSELF THAT ALL CONSTRUCTION PERMITS HAVE BEEN OBTAINED PRIOR TO COMMENCEMENT OF WORK.

ALL UTILITY TRENCHES TO BE BACK FILLED TO 90% STANDARD PROCTOR DENSITY UNLESS OTHERWISE NOTED.

ALL SURVEY, LAYOUT, MEASUREMENT, AND GRADE STAKE WORK SHALL BE PERFORMED BY BAKER & LAWSON, INC. AS PART OF THE WORK UNDER THIS CONTRACT.

BAKER & LAWSON, INC. WILL PROVIDE EXPERIENCED INSTRUMENT PERSONAL, COMPETENT ASSISTANTS, AND SUCH INSTRUMENTS, TOOLS, STAKES, AND OTHER MATERIALS REQUIRED TO COMPLETE THE SURVEY, LAYOUT AND MEASUREMENT WORK.

CONSTRUCTION DEBRIS AND OTHER UNCLASSIFIED UNSUITABLE EXCESS MATERIAL SHALL BE HAULED TO A STATE APPROVED DISPOSAL SITE. ALL REFUSE MATERIALS (BROKEN CONCRETE, TREES, ASPHALT, ETC.) SHALL BE DISPOSED OF BY THE CONTRACTOR AT THEIR EXPENSE.

**CONSTRUCTION NOTES FOR PAVING & DRAINAGE**

GUIDELINES SET FORTH IN THE TEXAS MANUAL ON UNIFORM CONTROL DEVICES SHALL BE OBSERVED.

FILL SHALL BE PLACED IN MAXIMUM 8 INCH LOOSE LIFTS AND COMPACTED TO 95% OF OPTIMUM DENSITY AS DETERMINED USING TESTING METHOD ASTM D698.

CONTRACTOR RESPONSIBLE FOR MAINTAINING BARRICADES TO PREVENT TRAFFIC FROM USING NEW PAVEMENT UNTIL PROJECT IS COMPLETED AND ACCEPTED BY PROPER AUTHORITY OR AS AUTHORIZED BY ENGINEER.

TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT MAXIMUM SPACING OF 40 FOOT INTERVALS (SAWCUTS @ 20 FOOT(2.5 INCH DEEP)). LONGITUDINAL JOINTS SHALL BE AT MAXIMUM OF 14 FOOT SPACING. WOOD JOINT SHALL BE SOUND HEART REDWOOD.

6 INCH CONCRETE PAVEMENT TO BE 5.5 SACK MIX MIN. (3,500 PSI) REINFORCING STEEL TO CONFORM TO ASTM A-615, GRADE 60. PROVIDE MINIMUM 18 INCH LAPS. (36 BAR DIA)

SAW CUT TO EXPOSE EXISTING LONGITUDINAL STEEL REQUIRED TO CREATE A MINIMUM 18 INCH OVERLAP OF PROPOSED AND EXISTING LONGITUDINAL REINFORCING STEEL WHEN MAKING A CONNECTION TO EXISTING CONCRETE PAVEMENT. WHERE SPACING OF EXISTING LONGITUDINAL STEEL DIFFERS FROM PROPOSED STEEL SPACING, NOTIFY THE ENGINEER.

SUBGRADE TO BE STABILIZED 1 FOOT BACK OF PROPOSED CURB OR EDGE OF PAVEMENT. EXCESS LIME STABILIZED SOIL SHALL BE UTILIZED IN THE PREPARATION OF SUBGRADE FOR DRIVEWAYS. THERE WILL BE NO PAYMENT FOR PREPARING SUBGRADE FOR DRIVEWAYS AND SIDEWALKS. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE ASSOCIATED CONCRETE PAVEMENT. SUBGRADE FOR DRIVEWAYS AND PAVING SHALL INCLUDE PROOF ROLLING. SOFT AREAS TO BE EXCAVATED AND RECOMPACTED TO ADJACENT SOIL DENSITY.

USE CONTINUOUS LONGITUDINAL REINFORCING BAR IN CURB.

BACKFILL AND BEDDING FOR HEADWALL STRUCTURES, TYPE "C" INLETS, R.C.P. LEADS AND STORM SEWERS SHALL BE WITH 1.5 SACK CEMENT. STABILIZED SAND SHALL BE COMPACTED TO A DENSITY OF AT LEAST 90% OF DENSITY DETERMINED BY STANDARD MOISTURE DENSITY RELATION (ASTM D-698) AT OPTIMUM MOISTURE AND SHALL BE PLACED AND FINISHED WITHIN 3 HRS. OF MIXING. TEMPORARY TRAVEL WAY SURFACE SHALL BE WITH CEMENT STABILIZED LIMESTONE. PAYMENT FOR THESE ITEMS SHALL BE SUBSIDIARY TO THE VARIOUS STRUCTURAL BID ITEMS. VERIFICATION OF CEMENT STABILIZED SAND MIXTURE SHALL BE FURNISHED UPON REQUEST OF ENGINEER.

THE SUBGRADE SHALL BE BROUGHT TO THE REQUIRED GRADE BY THE USE OF GRADE STAKES (BLUE TOPS) AND APPROVED BY THE ENGINEER BEFORE LIME IS APPLIED.

RATE OF APPLICATION FOR LIME SHALL BE 7% OF THE DRY WEIGHT OF SOIL (QUALITY BASE ON 100 LB/CF) OR 31.5 LB/SY FOR 6 INCH STABILIZED SUBGRADE. LIME STABILIZED SUBGRADE SHALL NOT BE MIXED MORE THAN 1 INCH IN EXCESS OF THE REQUIRED DEPTH. LIME STABILIZED SUBGRADE SHALL BE BROUGHT TO THE OPTIMUM MOISTURE CONTENT DURING THE FIRST MIXING OPERATIONS THEN LEFT TO CURE FOR 2 CURING DAYS BEFORE FINAL MIXING CAN BEGIN. AFTER FINAL MIXING IS COMPLETED AND BEFORE SOIL DENSITY TESTS ARE TAKEN. LIME STABILIZED SUBGRADE SHALL BE BROUGHT TO THE REQUIRED GRADE BY THE USE OF GRADE STAKES (BLUE TOPS) AND APPROVED BY THE ENGINEER. DENSITY SHALL BE 95% OF THE STANDARD PROCTOR DENSITY AT OPTIMUM MOISTURE. TESTED AND COMPLETED SECTIONS SHALL BE KEPT MOIST CURED ON A DAILY BASIS WITH WATER TRUCKS OR SUBSTANTIAL SUPPLY HOSES FOR THE ENTIRE PERIOD THE SURFACE REMAINS UNCOVERED WITH ADDITIONAL COURSES. AFTER FINAL TESTING AND APPROVAL IS COMPLETE, TRACK EQUIPMENT, SCRAPERS AND OTHER HEAVY EQUIPMENT WILL NOT BE PERMITTED ON THE COMPLETED LIME STABILIZED AREA. LIGHT MOTOR GRADERS, RUBBER Tired TRACTORS, WATER TRUCKS AND ROLLERS USED IN THE FINISHING OPERATIONS WILL BE PERMITTED WITH THE APPROVAL OF THE ENGINEER. CONCRETE AND LOADED HAUL TRUCKS ARE STRICTLY PROHIBITED ON COMPLETED AREAS UNLESS THE TRAVELED AREA REGARDLESS OF CONDITION IS REMIXED COMPACTED AND TESTED FOR APPROVAL A SECOND TIME.

FORMS SHALL BE EITHER WOOD OR STEEL, OF GOOD QUALITY, FREE OF WARP AND SUFFICIENTLY STAKED TO AVOID SHIFTING WHEN LOAD IS APPLIED. ALL REDWOOD EXPANSION BOARDS SHALL BE STAKED WITH 1X2 REDWOOD STAKES AND ALLOWED TO REMAIN WITHIN THE POUR. METAL STAKES ARE APPROVED FOR USE TO STAKE METAL KEYWAYS.

REINFORCING SHALL BE SECURELY TIED AT ALL INTERSECTIONS AND SPLICES. ALL DOWELS SHALL BE SECURELY TIED. REINFORCEMENT SHALL BE CLEAN AND FREE OF RUST AT TIME OF USE. PLASTIC CHAIR OF THE CORRECT HEIGHT SHALL BE USED AT 48 INCH SPACING EACH WAY.

PRIOR TO CONCRETE PLACEMENT, CONTRACTOR SHALL PRESENT A CERTIFIED COPY OF TOP OF FORM GRADES TO THE ENGINEER FOR REVIEW AND APPROVAL. ELEVATIONS OF FORMS SHALL BE RECORDED AT 10 FOOT INTERVALS. ADJUSTMENTS TO FORMS SHALL BE COMPLETE 4 HRS. PRIOR TO CONCRETE PLACEMENT.

CONCRETE FOR PAVEMENTS SHALL BE "CLASS A" CONCRETE, SHALL NOT HAVE LESS THAN 5.5 SACKS OF CEMENT PER CUBIC YARD, AND SHALL NOT HAVE MORE THAN 6.5 GALLONS OF WATER PER SACK OF CEMENT. SLUMP SHALL NOT EXCEED 5 INCHES AND SHALL DEVELOP A MODULUS OF RUPTURE STRENGTH OF 3500 P.S.I. AT 28 DAYS. CONCRETE SHALL BE PLACED IN SUCH A MANNER AS TO REQUIRE AS LITTLE HANDLING POSSIBLE. USE OF AN APPROVED VIBRATING SCREED WILL BE REQUIRED. AT INTERSECTIONS AND SMALL AREAS WHERE A VIBRATORY SCREED CAN NOT BE USED, A HAND VIBRATOR OR "JITTERBUG" SHALL BE USED. USE OF A 12 FOOT CONCRETE PAVEMENT STRAIGHT EDGE WILL ALSO BE REQUIRED. ALL EXPOSED JOINTS SHALL BE EDGED AS NOTED ON DETAILS. SURFACE SHALL BE TYPICALLY A BELT FINISH OR BROOM FINISH (COARSE, MEDIUM OR LIGHT) AS REQUIRED BY THE APPLICATION AND DIRECTED BY THE ENGINEER.

FLY ASH SHALL MAKE UP FROM 20%-25% BY VOLUME OF THE SPECIFIED CEMENT VOLUME AND SHALL CONFORM TO ASTM C 618, CLASS F.

CURING COMPOUND SHALL BE TYPE II WITH WHITE PIGMENT. APPLIED AT THE UNDILUTED RATE OF 1 GALLON PER 200 SQUARE FEET.

EXPANSION JOINTS SHALL BE CLEANED, WIRE BRUSHED, BLOWN OR FLAME DRIED SEALED WITH AN APPROVED LIST RUBBERIZED HOT LAID ASPHALT JOINT AND CRACK SEALANT OR A 2 COMPONENT POLYMERIC SELF LEVELING COLD APPLIED SEALANT.

CONTRACTOR WILL NOT PERMIT TRAFFIC ON NEW CONCRETE PAVEMENT UNTIL BOTH A MINIMUM OF 7 CURING DAYS AND MODULUS OF RUPTURE STRENGTH OF 3500 P.S.I. TAKES PLACE OR AS APPROVED BY THE ENGINEER/PUBLIC WORKS DEPARTMENT.

CONCRETE FOR CURB SHALL BE A 3000 P.S.I. PERFORMANCE STRENGTH CONCRETE WITH A MINIMUM 5 SACK CEMENT PER CUBIC YARD CONTENT. CURB CONCRETE MIX MAY BE A SMALL AGGREGATE BATCH DESIGN.

A CONCRETE MIX DESIGN OF CONCRETE PLUS FLY ASH MAY BE SUBSTITUTED IN LIEU OF THE STANDARD CONCRETE BATCH DESIGN. THE FLY ASH SHALL CONFORM TO THE REQUIREMENTS OF TxDOT MATERIAL SPECIFICATION DMS-4610 AND SHALL NOT EXCEED 25% BY ABSOLUTE VOLUME OF THE SPECIFIED CEMENT CONTENT. THE MODULUS OF RUPTURE STRENGTHS MINIMUMS AND DEVELOPMENT PERIOD OF THE STANDARD CONCRETE MIX DESIGN SHALL REMAIN IN EFFECT AND SHALL BE VERIFIED BY A CONCRETE BATCH MIX DESIGN PREPARED AND TESTED BY A GEOTECHNICAL LAB AND SUBMITTED FOR REVIEW AND APPROVAL BY THE CITY ENGINEERING/PUBLIC WORKS DEPARTMENT PRIOR TO PAVING OPERATIONS.

ALL PAVEMENT SAW CUT REQUIRED IN THE PLANS SHALL BE CONSIDERED SUBSIDIARY TO THE PAVING REMOVAL PAY ITEM REQUIRING IT.

BLOCK SOD SHALL BE PLACED 16 INCH (ONE BLOCK WIDTH) WIDE ALONG THE EDGE OF ALL NEWLY CONSTRUCTED CURBS AND TO DRIVEWAY REPLACEMENT LIMITS.

THE CONTRACTOR WILL BE RESPONSIBLE FOR ANALYZING WEATHER CONDITIONS AND SUSPENDING OPERATIONS DURING PERIODS WHEN ADVERSE WEATHER CONDITIONS APPEAR LIKELY. CONCRETE PAVEMENT SHALL NOT BE PLACED WHEN THE AMBIENT TEMPERATURE IS 40°F AND FALLING OR ABOVE 100°F. CONCRETE MAY BE PLACED IF THE AMBIENT TEMPERATURE IS 35°F AND RISING. THE CONTRACTOR SHALL KEEP SUFFICIENT LENGTH OF COVERING MATERIAL ON THE JOB SITE TO PLACE OVER AND PROTECT THE SURFACE OF "FRESH" CONCRETE DURING PERIODS OF RAINS OR IF TEMPERATURE DROPS BELOW 32°F. NO SALT OR OTHER CHEMICALS SHALL BE ADDED TO CONCRETE TO PREVENT FREEZING.

**WASTEWATER CONSTRUCTION NOTES**

CONTRACTOR SHALL PROVIDE RECORD OF LOCATION OF ALL STACKS, STUBS, LEADS, ETC. TO CITY OF ANGLETON AND ENGINEER OF RECORD.

SEPARATION DISTANCES FOR ALL SANITARY SEWER AND WATER MAIN CONSTRUCTION SHALL BE GOVERNED BY THE "TEXAS NATURAL RESOURCE CONSERVATION COMMISSION RULES AND REGULATIONS FOR DESIGN CONSERVATION COMMISSION RULES AND REGULATIONS FOR DESIGN CRITERIA FOR SEWAGE SYSTEMS "SECTION 317.20," LATEST PRINTING.

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

WHERE SANITARY SEWER LINE CROSSES A WATER LINE WITH LESS THAN 9 FEET BUT MORE THAN 6 INCHES VERTICAL SEPARATION, PROVIDE ONE MINIMUM 18 FOOT JOINT OF PRESSURE RATED P.V.C. SANITARY SEWER (ASTM D2241, CLASS 150, SDR 26) CENTERED ON WATER LINE. INCLUDE COST OF WATER LINE CROSSING IN UNIT PRICE BID PER LINEAR FOOT FOR SANITARY SEWER IN APPROPRIATE SIZES.

CONTRACTOR TO NOTIFY OWNER'S REPRESENTATIVE UPON ENCOUNTERING ANY UNSUITABLE TRENCH CONDITIONS.

SANITARY SEWER LEADS UNDER OR WITHIN 1 FOOT OF EXISTING OR FUTURE PAVEMENT SHALL BE BACK FILLED WITH CEMENT STABILIZED SAND UP TO WITHIN 1 FOOT OF TOP OF PAVING SUBGRADE. CEMENT STABILIZED SAND BACK FILL FOR LEADS SHALL BE INCLUDED IN THE BID UNIT PRICE FOR LEADS. SANITARY LEADS SHALL BE CONSTRUCTED OF SCH. 40 P.V.C.

LOW PRESSURE AIR TEST SHALL BE CONDUCTED PER TNRC TAC 317.20. HOLDING TIMES SHALL BE AS ESTABLISHED BY TNRC. CONTRACTOR TO PROVIDE TEST PLUGS AND RISERS. NO SEPARATE PAY.

CONTRACTOR SHALL AT ALL TIMES PROVIDE MAXIMUM UNINTERRUPTED SERVICE AND SHALL AVAIL OF ANY ROUTING METHOD AND EQUIPMENT TO ACCOMPLISH THIS.

**WATER CONSTRUCTION NOTES**

CONTRACTOR SHALL PROVIDE ADEQUATE THRUST BLOCKING TO WITHSTAND TEST PRESSURE AS SPECIFIED IN CONTRACT DOCUMENTS. THRUST BLOCKING SHALL BE CLASS "B" CONCRETE 2500 P.S.I. AND SHALL BE SUBSIDIARY TO THE BID ITEM PERTINENT TO ITS USE. ALL CEMENT STABILIZED SAND BACKFILL SHALL BE 1.5 SK/CY CEMENT CONTENT. ALL M.J. D.I. FITTINGS WILL HAVE M.J. RESTRAINTS (STARGRIP OR EQUAL) WRAP FITTINGS & RESTRAINTS WITH 10 MIL POLY.

SEPARATION DISTANCES OF ALL WATER MAIN AND SANITARY SEWER MAIN CONSTRUCTION SHALL BE GOVERNED BY THE "TEXAS NATURAL RESOURCE CONSERVATION COMMISSION RULES AND REGULATIONS FOR DESIGN CRITERIA FOR SEWAGE SYSTEMS," SECTION 317.20, LATEST PRINTING.

ALL 4 INCH TO 12 INCH WATER MAINS TO BE P.V.C. PIPE, AWWA C-900, CLASS 150, SDR 18, MEETING THE REQUIREMENTS OF ANSI/NSF 61 UNLESS OTHERWISE NOTED.

WATER LINES UNDER OR WITHIN 1 FOOT OF NEW OR EXISTING PAVEMENTS (STREETS AND DRIVEWAYS) SHALL BE BACK FILLED WITH CEMENT STABILIZED SAND AS SPECIFIED IN THE CONSTRUCTION DETAIL.

PROVIDE A MINIMUM 6 INCHES OF CLEARANCE AT STORM SEWER AND WATER LINE CROSSINGS.

CENTERLINE OF FIRE HYDRANT TO BE LOCATED AT 3 FEET FROM BACK OF CURB WITH CENTERLINE OF STEAMER NOZZLE 22 INCHES ABOVE FINISHED GRADE. TURN STEAMER OUTLET TO FACE STREET.

WHERE WATER LINE CROSSES SANITARY SEWER LINE OR LEAD WITH LESS THAN 9 FEET VERTICAL SEPARATION, PROVIDE 1 MINIMUM 18 FOOT JOINT OF WATER LINE CENTERED ON LEAD. INCLUDE COST OF LEAD CROSSING IN UNIT PRICE BID PER LINEAR FOOT FOR WATER LINE IN APPROPRIATE SIZES.

THE CONTRACTOR AT ALL TIMES PROVIDE MAXIMUM UNINTERRUPTED FLOW TO ALL SERVICES AND MAINS AND SHALL AVAIL OF ANY ROUTING METHOD AND EQUIPMENT TO ACCOMPLISH THIS.

**CENTERPOINT ENERGY // ENTEX NOTES**

**CAUTION: UNDERGROUND GAS UTILITIES**

LOCATIONS OF CENTERPOINT ENERGY MAIN LINES (TO INCLUDE CENTERPOINT ENERGY, INTRASTATE PIPELINE, LLC, WHERE APPLICABLE) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE NOT USUALLY 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 811 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 (800) 752-8036 OR (713) 659-2111 (7:00 A.M. TO 4:30 P.M.) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.

• WHEN EXCAVATING WITHIN 18 INCHES 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.

\* FOR EMERGENCIES REGARDING GAS LINES CALL (800) 659-2111 OR (713) 659-2111.

THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES. ACTIVITIES ON OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY NO APPROVAL TO USE, CROSS OR OCCUPY CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN. IF YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT OUR SURVEYING & RIGHT OF WAY DIVISION AT (713) 207-5769.

**CAUTION: OVERHEAD POWER LINES**

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 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 (713) 207-2222.

**TEXAS NEW MEXICO POWER NOTES**

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 AND SAFETY CODE FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN 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 TEXAS NEW MEXICO POWER AT (409)949-5683 OR (888)866-7456.

**GENERAL CONSTRUCTION NOTES**

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE ANGLETON CONSTRUCTION MANUAL (ACM) AND LAND DEVELOPMENT CODE, HEREAFTER REFERRED TO THE ACM AND THE LDC.
2. APPROVAL OF THESE CONSTRUCTION PLANS DOES NOT CONSTITUTE A VERIFICATION OF ALL DATA, INFORMATION AND CALCULATIONS SUPPLIED BY THE APPLICANT. THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY, ADEQUACY, AND COMPLIANCE OF THE SUBMITTED PLANS.
3. ALL RESPONSIBILITY FOR PLANS RESTS ON DESIGN ENGINEER WHO PREPARED THEM. IN APPROVING THESE PLANS, THE CITY MUST RELY ON THE ADEQUACY AND ACCURACY OF THE DESIGN ENGINEER.
4. DESIGNS SHALL BE IN COMPLETE COMPLIANCE WITH THE LDC AND THE ACM. ANY WAIVER, DEVIATION, VARIANCE, OR EXCEPTION FROM ANY SPECIFIC REQUIREMENT(S) OF THE LDC OR ACM THAT WERE NOT EXPRESSLY REQUESTED WHEN PLANS ARE SUBMITTED, SHALL NOT BE CONSTRUED TO HAVE BEEN GRANTED IF PLANS ARE APPROVED. IT IS THE RESPONSIBILITY OF THE ENGINEER TO MAKE SUCH A WAIVER PROACTIVELY WHEN PLANS ARE SUBMITTED.
5. THE CONTRACTOR SHALL PROVIDE THE CITY A MINIMUM OF 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION.
6. ANY EXISTING PAVEMENT, CURBS, AND/OR SIDEWALKS DAMAGED OR REMOVED WILL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE BEFORE ACCEPTANCE OF THE SUBDIVISION.
7. THE LOCATION OF ANY WATER OR WASTEWATER LINES SHOWN ON THE PLANS MUST BE VERIFIED BY THE PUBLIC WORKS DEPARTMENT.
8. USE ONE CALL UTILITY SYSTEM: DIAL (800) 344-8377 OR 811, 48 HOURS BEFORE YOU DIG.
9. CALL THE CITY 48 HOURS PRIOR TO BEGINNING ANY WORK AND SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE CITY AND ALL AFFECTED UTILITY PROVIDERS, THE GENERAL CONTRACTOR, THE DEVELOPER AND THE DEVELOPER'S ENGINEER.

**CONSTRUCTION SEQUENCING**

CALL THE CITY 48 HOURS PRIOR TO BEGINNING ANY WORK AND SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE CITY AND ALL AFFECTED UTILITY PROVIDERS, THE GENERAL CONTRACTOR, THE DEVELOPER AND THE DEVELOPER'S ENGINEER.

OBTAIN A DEVELOPMENT PERMIT FROM THE CITY.

PROVIDE THE CITY WITH EVIDENCE ALL TCEQ LICENSES AND REQUIREMENTS ARE UP TO DATE.

INSTALL TEMPORARY EROSION CONTROLS AND TREE PROTECTION FENCING PRIOR TO ANY CLEARING AND GRUBBING. NOTIFY THE CITY WHEN INSTALLED.

ROUGH-CUT ALL REQUIRED OR NECESSARY PONDS. EITHER THE PERMANENT OUTLET STRUCTURE OR A TEMPORARY OUTLET MUCH BE CONSTRUCTED PRIOR TO DEVELOPMENT OF ANY EMBANKMENT OR EXCAVATION THAT LEADS TO PONDING CONDITIONS. THE OUTLET SYSTEM MUST CONSIST OF A LOW-LEVEL OUTLET AND AN EMERGENCY OVERFLOW MEETING THE REQUIREMENTS OF THE LDC. THE OUTLET SYSTEM SHALL BE PROTECTED FROM EROSION AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION UNTIL FINAL RESTORATION IS ACHIEVED.

INSTALL ALL UTILITIES TO BE LOCATED UNDER THE PROPOSED PAVEMENT OR WITHIN THE ROAD RIGHT-OF-WAY.

BEGIN INSTALLATION OF STORM SEWER LINES. UPON COMPLETION, RESTORE AS MUCH DISTURBED AREAS AS POSSIBLE, PARTICULARLY CHANNELS AND LARGE OPEN AREAS.

REGRADE STREETS TO SUBGRADE.

ENSURE THAT UNDERGROUND UTILITY CROSSINGS ARE COMPLETED. LAY 1ST COURSE BASE MATERIAL ON STREETS.

INSTALL CURB AND GUTTER.

LAY FINAL BASE COURSE ON ALL STREETS.

PLACE CONCRETE.

COMPLETE FINAL GRADING AND RESTORATION OF DETENTION, SEDIMENTATION/FILTRATION PONDS.

COMPLETE PERMANENT EROSION CONTROL AND RESTORATION OF SITE VEGETATION.

REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROLS.

COMPLETE ANY NECESSARY FINAL DRESS UP OF AREAS DISTURBED.

**LEGEND**

C.C.F.N.= COUNTY CLERK'S FILE NUMBER  
 O.P.R.B.C.T. = OFFICIAL PUBLIC RECORDS  
 BRAZORIA COUNTY, TEXAS  
 D.R.B.C.T. = DEED RECORDS BRAZORIA COUNTY TEXAS  
 P.O.B. = POINT OF BEGINNING  
 P.O.C. = POINT OF COMMENCEMENT  
 C.I.R. = CAPPED IRON ROD  
 I.R. = IRON ROD  
 FND. = FOUND  
 R.O.W. = RIGHT-OF-WAY  
 VOL. = VOLUME  
 PG. = PAGE

**SYMBOLS**

- ⊙ = MANHOLE
- ⊖ = CLEAN OUT
- ⊠ = WATER METER
- ⊕ = POWER POLE
- ⊗ = TELEPHONE PEDESTAL
- ⊞ = GAS METER
- ⊟ = WATER VALVE
- ⊠ = INLET
- ⊡ = GUY ANCHOR
- ⊢ = SIGN
- ⊣ = MAIL BOX
- ⊤ = UTILITY BOX
- ⊥ = LIGHT POLE
- ⊦ = FIRE HYDRANT
- ⊧ = BENCHMARK
- ⊨ = FOUND MONUMENT AS NOTED
- ⊩ = SET 5/8" C.I.R. "BAKER&LAWSON"
- = OVERHEAD ELECTRIC
- = BARBED WIRE FENCE
- = WOOD FENCE
- ◇— = CHAIN LINK FENCE

DESIGNED	RL		
DRAWN	JLH		
CHECKED	RL		
DATE	March 2023		
REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED

**Baker & Lawson, Inc.**  
 ENGINEERS • PLANNERS • SURVEYORS  
 4005 TECHNOLOGY DRIVE, SUITE 1530  
 ANGLETON, TEXAS 77515 (979) 849-6681  
 REG. NO. F-825

The seal appearing on this document was authorized by Miguelangel A. Saucedo P.E. 121992  
 05-19-2023

OWNER:  
**DR. PATRICK THOMAS, DDS**  
**913 CANNAN DRIVE**  
**ANGLETON, TX 77515**

PLAN: \_\_\_\_\_  
 PROFILE: \_\_\_\_\_  
 HORIZONTAL: \_\_\_\_\_  
 VERTICAL: \_\_\_\_\_

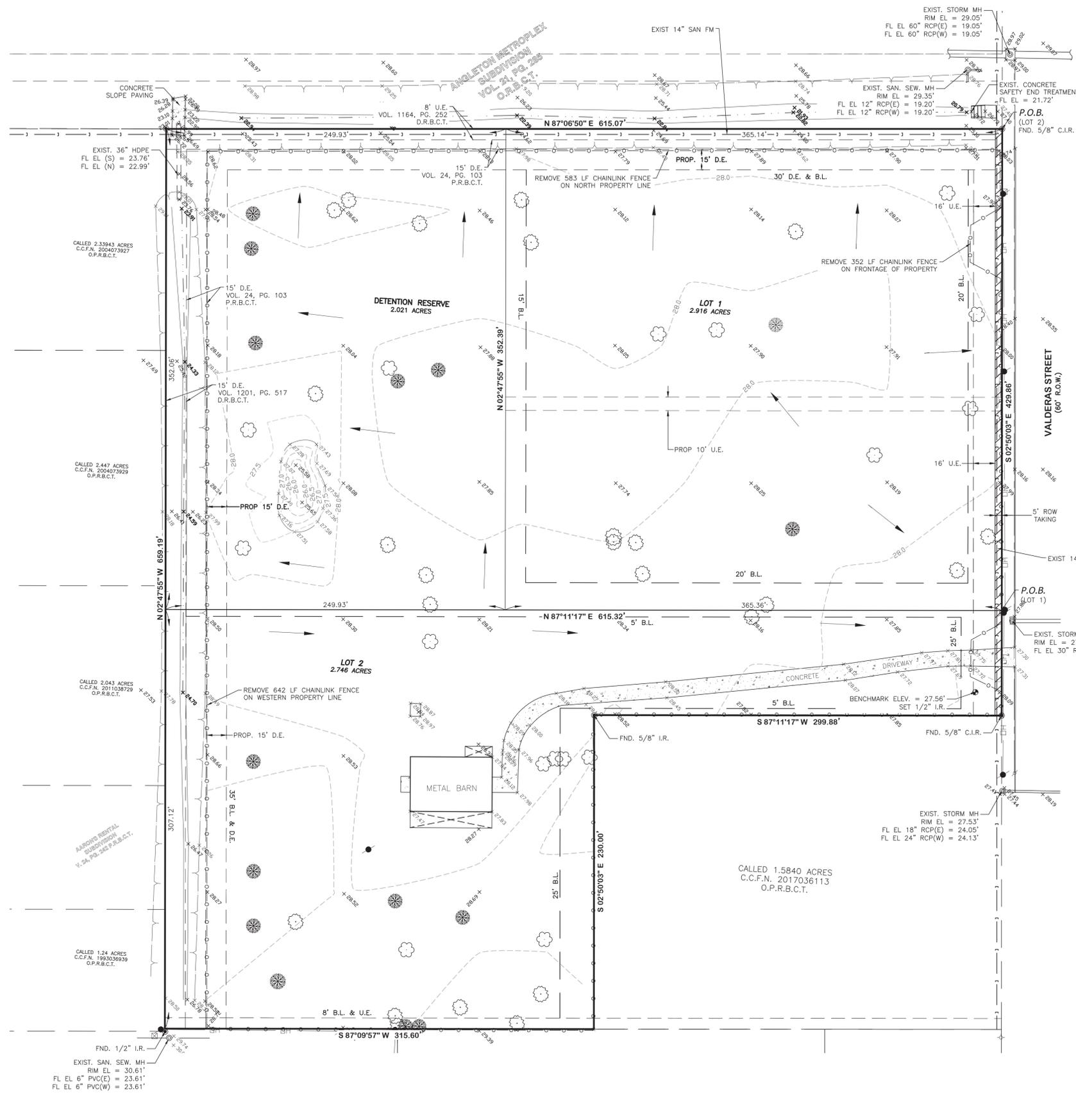
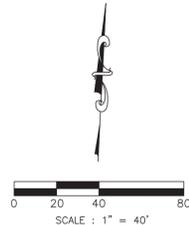
**PT STORAGE FACILITY**  
**ANGLETON, TEXAS 77515**

GENERAL NOTES

PROJECT NO. 15239

**C.1**

A:\V\00005\15239\15239-ENGINEERING-SURVEY\ENGINEERING\15239-SHEET-SET.DWG



- LEGEND**
- C.C.F.N. = COUNTY CLERK'S FILE NUMBER
  - O.P.R.B.C.T. = OFFICIAL PUBLIC RECORDS BRAZORIA COUNTY, TEXAS
  - D.R.B.C.T. = DEED RECORDS BRAZORIA COUNTY, TEXAS
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  - VOL. = VOLUME
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- SYMBOLS**
- ⊙ = MANHOLE
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  - ⊕ = SET 5/8" C.I.R. "BAKER&LAWSON"
  - = OVERHEAD ELECTRIC
  - = BARBED WIRE FENCE
  - = WOOD FENCE
  - = CHAIN LINK FENCE
- TREE SYMBOLS**
- 🌳 = LIVE OAK (HERITAGE TREE)
  - 🌳 = PECAN (HERITAGE TREE)
  - 🌳 = ELM (SIGNIFICANT TREE)
  - 🌳 = INSIGNIFICANT TREE

**FLOOD ZONE STATEMENT**

ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP No. 48539C0445K EFFECTIVE DECEMBER 30, 2020, THE SITE LIES PARTIALLY IN ZONE "X" (SHADED), AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTH OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.

**BENCHMARK:**

BENCHMARK ELEV. = 27.56'

DESCRIPTION: 1/2" IRON ROD SET FOR CONTROL POINT  
 NORTHING: 13,632,295.05, EASTING: 3,107,655.12

**NOTES:**

- ALL BEARINGS SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM OF 1983, (NAD83) SOUTH CENTRAL ZONE, PER GPS OBSERVATIONS.
- ALL ELEVATIONS SHOWN HEREON ARE GPS DERIVED (NAVD88, U.S. FOOT) AND ARE NOT TIED TO A PUBLISHED BENCHMARK.
- THIS MAP IS NOT A BOUNDARY SURVEY AND SHOULD NOT BE USED AS SUCH. THE BOUNDARY INFORMATION SHOWN HEREON IS BASED ON DEED RECORDATIONS OF THE SUBJECT TRACT AND IS NOT A RESULT OF AN ON-THE-GROUND SURVEY.

NO.	DATE	DESCRIPTION	APPROVED

DESIGNED RL  
 DRAWN JLH  
 CHECKED RL  
 DATE MARCH 2023

BAKER & LAWSON, INC.  
 ENGINEERS • PLANNERS • SURVEYORS  
 4005 TECHNOLOGY DRIVE, SUITE 1330  
 ANGLETON, TEXAS 77515 (979) 849-6681  
 REG. NO. F-825

The seal appearing on this document was authorized by Miguelangel A. Saucedo P.E. 121992 05-19-2023

OWNER:  
**DR. PATRICK THOMAS, DDS**  
 913 CANNAN DRIVE  
 ANGLETON, TX 77515

PLAN: 1" = 40'  
 PROFILE:  
 HORIZONTAL:  
 VERTICAL:

**PT STORAGE FACILITY**  
 ANGLETON, TEXAS 77515

EXISTING CONDITIONS  
 PROJECT NO. 15239

ANGLETON METROPLEX  
SUBDIVISION  
VOL. 51, PG. 285  
O.P.R.B.C.T.

TREE SUMMARY TABLE  
(LOTS 1 AND 2)

ID NO.	SPECIES	SIZE	STATUS
301	TALLOW	24	REMOVE
302	TALLOW	30	REMOVE
303	OAK	24	REMOVE
304	OAK	24	REMOVE
305	OAK	30	REMOVE
306	TALLOW	28	REMOVE
307	PECAN	14	REMOVE
308	OAK	32	REMOVE
309	PECAN	12	REMOVE
310	TALLOW	12	REMOVE
311	TALLOW	28	PRESERVE
312	OAK	23	REMOVE
313	OAK	10	REMOVE
314	TALLOW	38	REMOVE
315	TALLOW	25	REMOVE
316	TALLOW	60	REMOVE
317	HACKBERRY	30	REMOVE
318	HACKBERRY	30	REMOVE
319	PECAN	10	REMOVE
320	PECAN	10	REMOVE
321	PECAN	10	REMOVE
322	OAK	10	REMOVE
323	TALLOW	12	REMOVE
324	PECAN	10	REMOVE
325	PECAN	10	REMOVE
326	OAK	22	REMOVE
327	OAK	30	REMOVE
328	PECAN	10	PRESERVE
329	PECAN	10	PRESERVE
330	PECAN	10	PRESERVE
331	PECAN	12	PRESERVE
332	TALLOW	22	PRESERVE
333	PECAN	10	PRESERVE
334	PECAN	42	PRESERVE
335	OAK	12	PRESERVE
336	TALLOW	25	PRESERVE
337	TALLOW	36	PRESERVE
338	HACKBERRY	42	PRESERVE
339	PECAN	8	PRESERVE
340	PECAN	8	PRESERVE
341	HACKBERRY	8	PRESERVE
342	TALLOW	12	PRESERVE
343	OAK	38	PRESERVE
344	LIVE-OAK	22	PRESERVE
345	LIVE-OAK	22	PRESERVE
346	LIVE-OAK	22	PRESERVE
347	LIVE-OAK	30	PRESERVE
348	LIVE-OAK	12	PRESERVE
349	CITRUS	12	PRESERVE
350	CITRUS	12	REMOVE
351	CITRUS	12	REMOVE
352	HACKBERRY	40	REMOVE
353	HACKBERRY	22	REMOVE
354	HACKBERRY	12	REMOVE
355	HACKBERRY	12	REMOVE

ZONING (LOT 1): ZONE C-G  
REQUIRED SETBACKS  
20' FRONT YARD  
15' SIDE AND REAR YARD  
20' SIDE AND REAR YARD WHEN ADJACENT TO RESIDENTIAL

ZONING (LOT 2): ZONE SF-7.2  
REQUIRED SETBACKS  
25' FRONT YARD  
5' SIDE YARD  
20' REAR YARD

PROPOSED TREE FROM LIST

PROPOSED TREES SHALL BE 12" CALIPER FROM TREE LIST (15' CANOPY AT MATURITY)

TREE LIST

COMMON NAME  
GREEN ASH  
BASSWOOD  
EASTERN COTTONWOOD  
AMERICAN ELM  
BLACK HICKORY  
SOUTHERN MAGNOLIA  
RED MAPLE  
BUR OAK  
CALIFORNIA FAN PALM  
LOBLOLLY PINE  
SWEETGUM

- SYMBOLS**
- = SET 5/8" I.R. W/CAP "BAKER & LAWSON"
  - = FOUND MONUMENT (AS NOTED)
  - ⊕ = (TBM) TEMPORARY BENCHMARK
  - ⊙ = POWER POLE
  - ⊞ = MAIL BOX
  - ⊚ = WATER METER
  - ☁ = LIVE OAK (HERITAGE TREE)
  - ☁ = PECAN (HERITAGE TREE)
  - ☁ = ELM (SIGNIFICANT TREE)
  - ☁ = INSIGNIFICANT TREE
  - ☁ = PROPOSED TREE
  - ⊙ = DENOTES TREE TO BE REMOVED

HERITAGE TREE CALCULATIONS:  
TOTAL NUMBER OF HERITAGE TREES = 20  
TOTAL CALIPER OF HERITAGE TREES = 294 IN

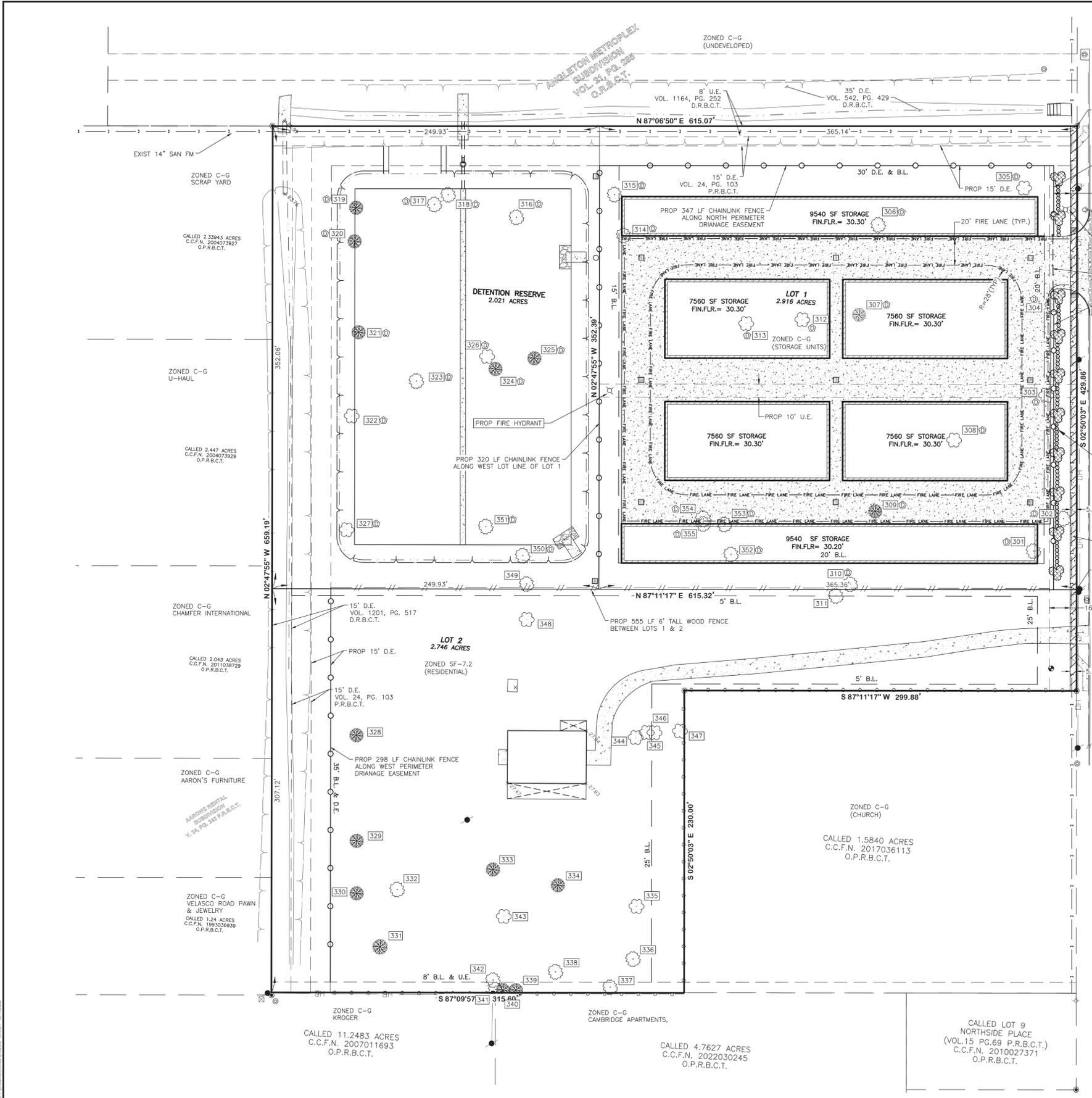
HERITAGE TREES TO BE REMOVED = 7  
CALIPER OF REMOVED HERITAGE TREES = 76 IN

HERITAGE & SIGNIFICANT TREES TO BE PRESERVED = 13  
CALIPER OF HERITAGE/SIGNIFICANT TREES TO BE PRESERVED = 218 IN

REQUIRED REPLACEMENT CALIPER = (76 - 218) X 3 = 0 IN

REQUIRED REPLACEMENT TREES = 0 TREES

FRONTAGE TREE CALCULATIONS:  
FRONTAGE = 352 FT - 40 FT DRIVEWAY - 20 FT EASEMENT = 292 FT  
FRONTAGE TREES REQUIRED = 292 / 30 = 9.7 = 10 TREES  
TOTAL PROPOSED TREES REQUIRED = 10 TREES  
TOTAL TREES PROVIDED = 10 TREES



NO.	DATE	DESCRIPTION	APPROVED

DESIGNED RL  
DRAWN JLH  
CHECKED RL  
DATE March 2023

**B & L**  
BAKER & LAWSON, INC.  
ENGINEERS • PLANNERS • SURVEYORS  
4005 TECHNOLOGY DRIVE, SUITE 1530  
ANGLETON, TEXAS 77515 (979) 849-6681  
REG. NO. F-825

The seal appearing on this document was authorized by Miguelangel A. Saucedo P.E. 121992

121992  
LICENSED PROFESSIONAL ENGINEER

05-19-2023

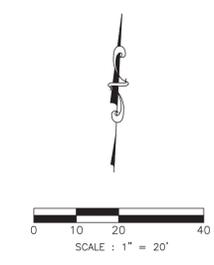
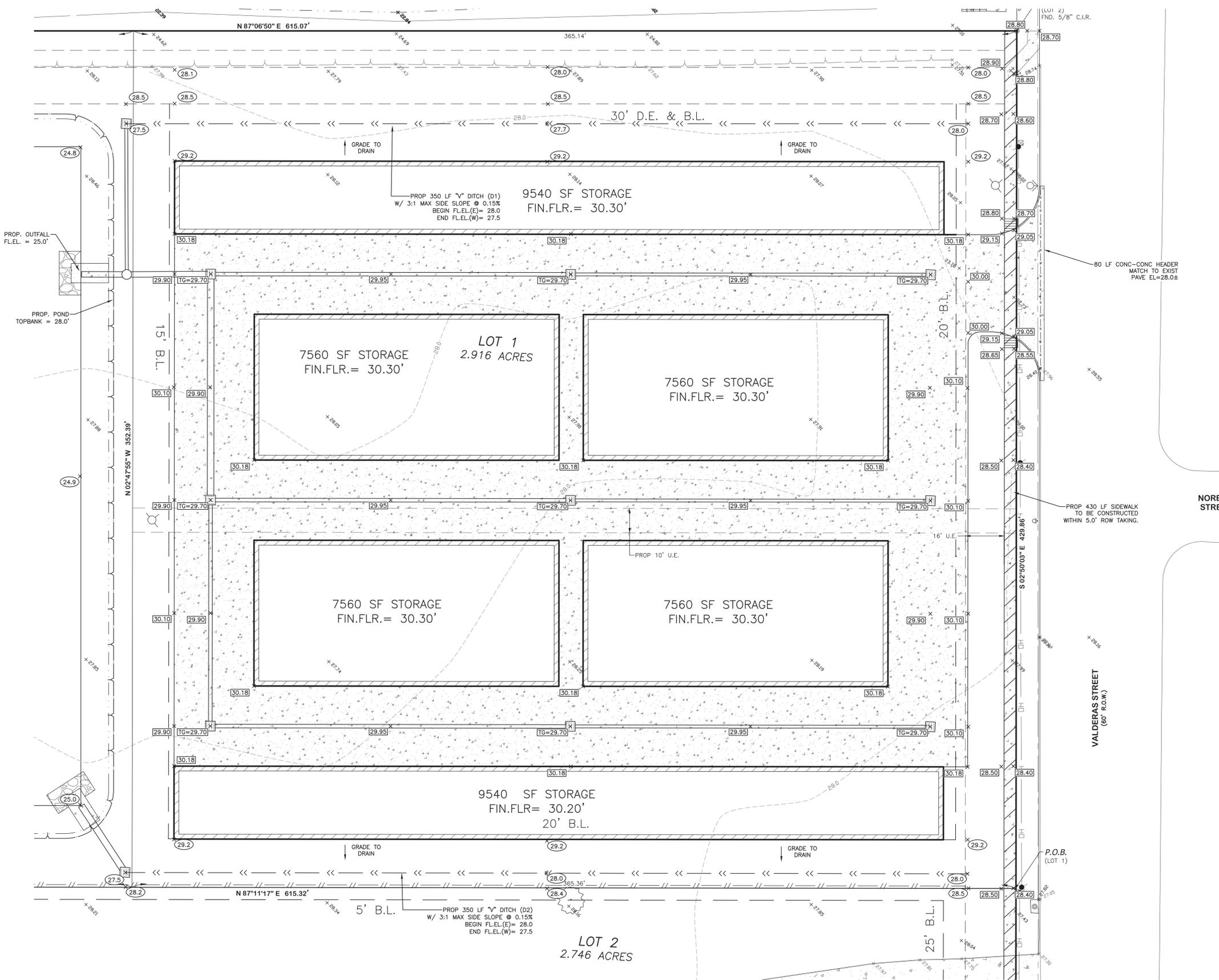
OWNER:  
**DR. PATRICK THOMAS, DDS**  
913 CANNAN DRIVE  
ANGLETON, TX 77515

PLAN: 1" = 40'  
PROFILE:  
HORIZONTAL:  
VERTICAL:

PT STORAGE FACILITY  
ANGLETON, TEXAS 77515

SITE & HERITAGE TREE PLAN

PROJECT NO. 15239



NO.	DATE	DESCRIPTION	APPROVED
REVISIONS			

DESIGNED: RL  
 DRAWN: JLH  
 CHECKED: RL  
 DATE: March 2023

**B & L**  
 BAKER & LAWSON, INC.  
 ENGINEERS • PLANNERS • SURVEYORS  
 4005 TECHNOLOGY DRIVE, SUITE 1330  
 ANGLETON, TEXAS 77515 (979) 849-6681  
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OWNER:  
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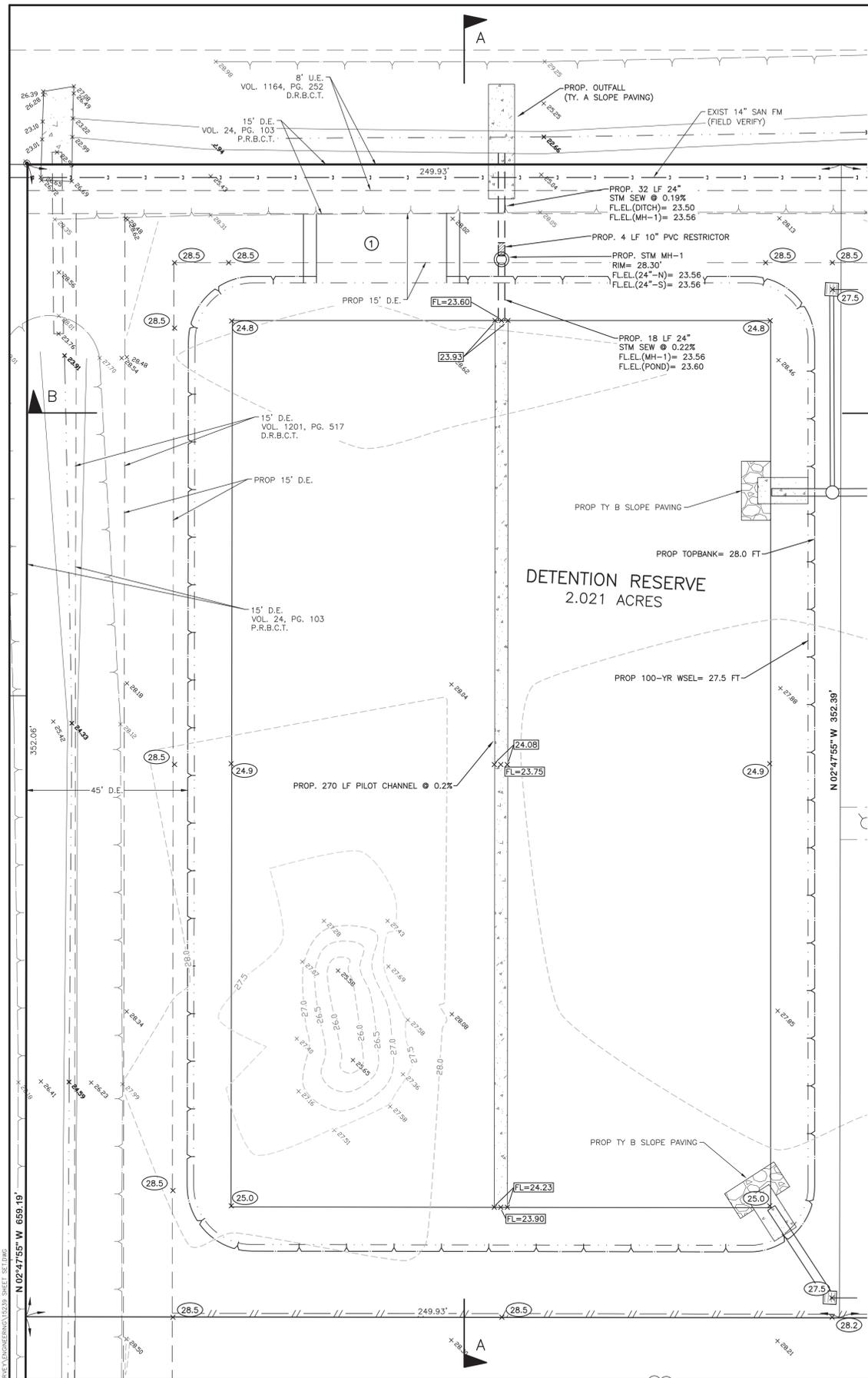
PLAN: 1" = 20'  
 PROFILE:  
 HORIZONTAL:  
 VERTICAL:

**PT STORAGE FACILITY**  
 ANGLETON, TEXAS 77515

GRADING PLAN

PROJECT NO. 15239

**C.4**



**POND CALCULATIONS**

AREA @ TOP BANK (EL=28.0') = 57,000 SF  
 AREA @ 100-YR WSEL (EL=27.5') = 55,100 SF  
 AREA @ BOTTOM (EL= 24.6') = 44,900 SF

STORAGE DEPTH= 2.9'  
 AVE AREA= 50,000 SF

PROP DETENTION= 3.32 AC-FT  
 REQUIRED = 3.305 AC-FT

**RESTRICTOR CALCULATIONS**

HEAD = 27.5 - 24.0 = 3.5'

ORIFICE EQUATION	
$Q = Cd \cdot A \cdot \sqrt{2 \cdot g \cdot H}$	
Where:	
Cd =	0.8
G =	32.2
H =	3.5
Q =	7.597
A =	0.63
USE 10" Dia. = 0.55 SF FOR RESTRICTOR	

**WEIR CALCULATIONS**

TRAPEZOIDAL WEIR FORMULA

$$Q = 3.247LH^{1.48} \frac{0.566L^{1.9}}{1 + 21.2L} H^{1.9} + 0.609H^{2.5}$$

Where:  
 Q = Flow Rate in cfs.  
 L = Width of the weir crest in feet.  
 H = Height of the upstream water above the weir crest in feet.

L =	40 FT
H =	0.5 FT
Q =	46.56 CFS

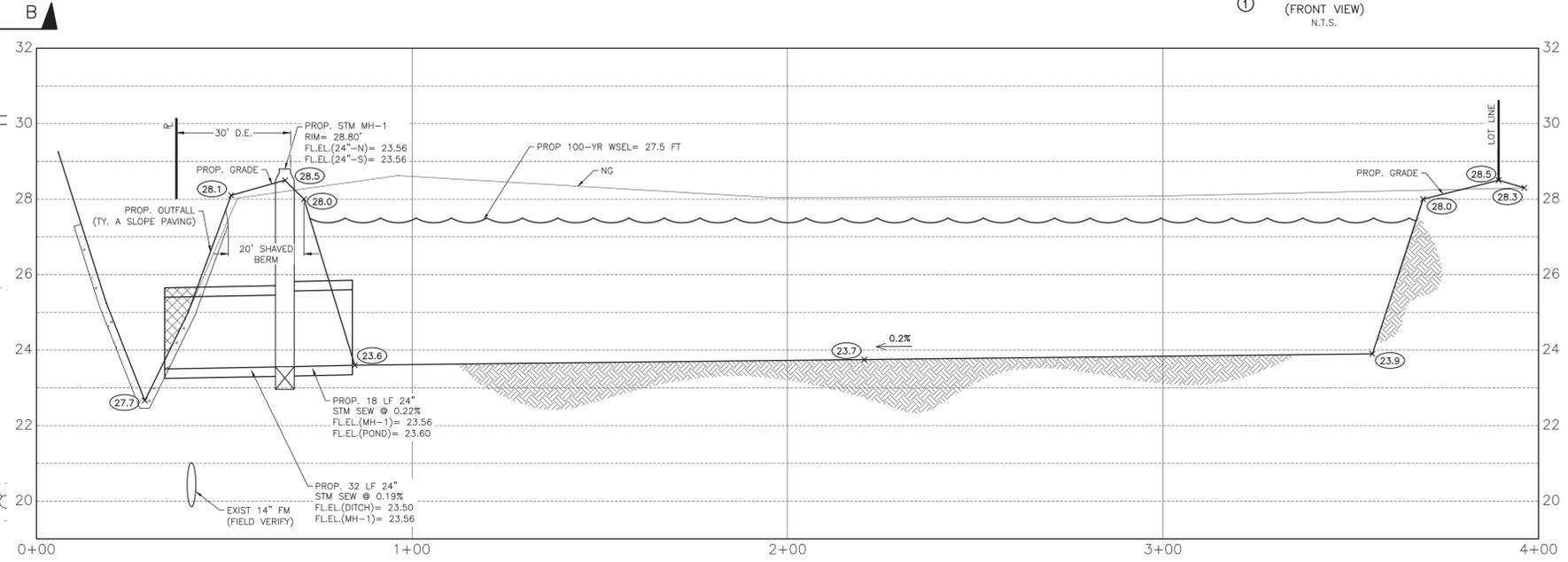
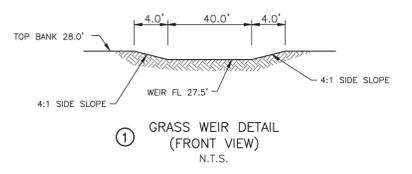
DOES NOT EXCEED POST DEVELOPMENT  
 Q100=50.00 CFS

**DETENTION NOTES:**

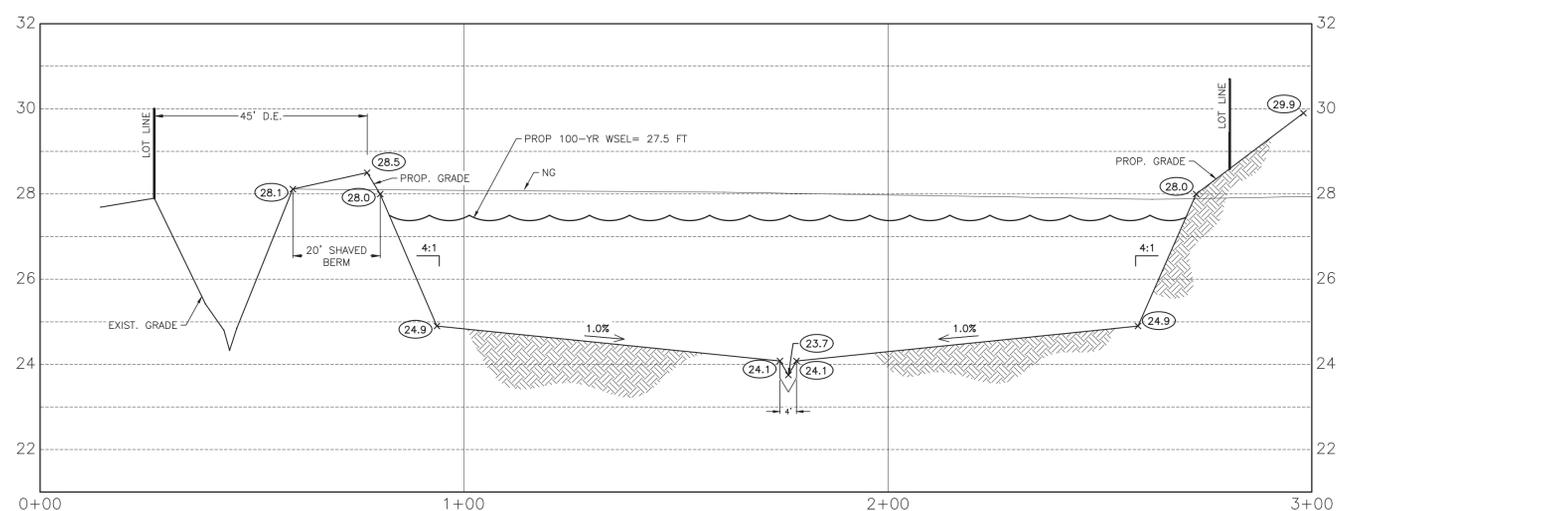
THE DETENTION PLAN IS PROVIDED FOR THE DEVELOPMENT OF LOT 1 ONLY.

THE CURRENT USE OF LOT 2 IS RESIDENTIAL AND ZONED SF-7.2. DETENTION IS NOT REQUIRED FOR LOT 2.

IF THE LAND USE OF LOT 2 CHANGES OR IF LOT 2 IS SUDIVIDED, A DETENTION PLAN WILL BE REQUIRED.



**SECTION A-A**  
 1" = 20' (HORIZ.)  
 1" = 2' (VERT.)



**SECTION B-B**  
 1" = 20' (HORIZ.)  
 1" = 2' (VERT.)

NO.	DATE	DESCRIPTION	APPROVED
REVISIONS			

DESIGNED: RL  
 DRAWN: JLH  
 CHECKED: RL  
 DATE: March 2023

**B & L**  
 BAKER & LAWSON, INC.  
 ENGINEERS • PLANNERS • SURVEYORS  
 4005 TECHNOLOGY DRIVE, SUITE 1330  
 ANGLETON, TEXAS 77515 (979) 849-6681  
 REG. NO. F-825

STATE OF TEXAS  
 MIGUEL A. SAUCEDA  
 121992  
 LICENSED PROFESSIONAL ENGINEER  
 05-19-2023

OWNER:  
**DR. PATRICK THOMAS, DDS**  
 913 CANNAN DRIVE  
 ANGLETON, TX 77515

PLAN: 1" = 20'  
 PROFILE:  
 HORIZONTAL:  
 VERTICAL:

**PT STORAGE FACILITY**  
 ANGLETON, TEXAS 77515

POND LAYOUT  
 PROJECT NO. 15239  
**C.5**

5-YEAR STORM SEWER CALCULATIONS

PATRICK THOMAS STORAGE UNITS, ANGLETON, TX  
DRAINAGE HYDRAULIC CALCULATIONS FOR THE 100-YEAR STORM EVENT  
BAKER & LAWSON, INC. JOB NO. 15239

D.A. NO.	RUN	AREA (AC)	C	Tc (MIN)	1.5-YR (MIN)	TOTAL AC	COMP. C	TRAVEL LENGTH (FT)	ACCUM Tc (MIN)	ACCUM I 100-YR	INLET Q (CFS)	INLET OPENING (SF)	PIPE Q (SF)	CULVERT IN. DIA	SLOPE (%)	CAPAC. (CFS)
I-1	I-1 to I-2	0.17	0.75	10	7.068	0.17	0.75	149	10.83	6.859	0.90	0.2	0.9	12	0.2	1.88
I-2	I-2 to I-3	0.24	0.75	10	7.068	0.41	0.75	149	10.83	6.859	1.27	0.3	2.1	15	0.2	3.41
I-3	I-3 to I-6	0.17	0.75	10	7.068	0.58	0.75	93	10.52	6.936	0.90	0.2	3.0	15	0.2	3.41
I-4	I-4 to I-5	0.2	0.75	10	7.068	0.2	0.75	149	10.83	6.859	1.06	0.3	1.0	12	0.2	1.88
I-5	I-5 to I-6	0.29	0.75	10	7.068	0.49	0.75	149	10.83	6.859	1.54	0.4	2.5	15	0.2	3.41
I-6	I-6 to I-9	0.2	0.75	10	7.068	1.27	0.75	93	10.52	6.936	1.06	0.3	6.6	24	0.2	11.96
I-7	I-7 to I-8	0.17	0.75	10	7.068	0.17	0.75	149	10.83	6.859	0.90	0.2	0.9	12	0.2	1.88
I-8	I-8 to I-9	0.24	0.75	10	7.068	0.41	0.75	149	10.83	6.859	1.27	0.3	2.1	15	0.2	3.41
I-9	I-9 to SMH-2	0.17	0.75	10	7.068	1.85	0.75	35	10.19	7.017	0.90	0.2	9.7	24	0.2	11.96
I-10	I-10 to SMH-2	0.27	0.75	10	7.068	0.27	0.75	62	10.34	6.979	1.43	0.4	1.4	12	0.2	1.88
SMH-2	SMH-2 to OUT	0	0.75	10	7.068	2.12	0.75	19	10.11	7.040			11.2	24	0.2	11.96
I-11	I-1 to I-3	0.18	0.75	10	7.068	0.18	0.75	33	10.18	7.020	0.95	0.2	0.9	10	0.2	1.16

Inlet Opening = Q/4 minimum

100-YEAR DITCH CALCULATIONS

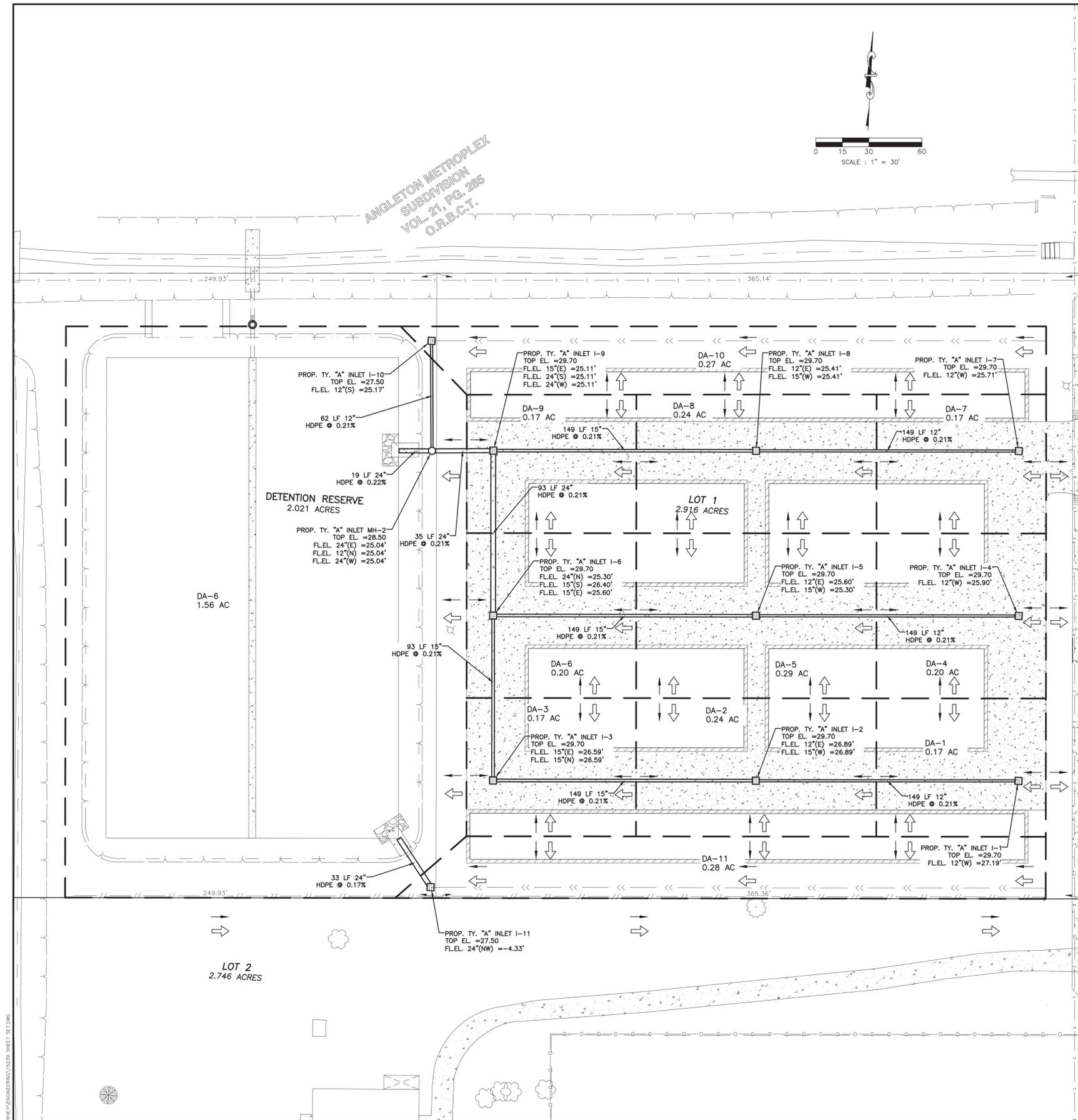
DRAINAGE HYDRAULIC CALCULATIONS FOR THE 100-YEAR STORM EVENT

D.A. NO.	RUN	AREA (AC)	C	Ditch Length	To (MIN)	Tc (MIN)	I 100-YR (in/hr)	Q 100-YR (CFS)
DA-D1	DITCH D1 TO I-10	0.27	0.75	350	10	12.33	11.153	2.26
DA-D2	DITCH D2 TO I-11	0.28	0.75	350	10	12.33	11.153	2.34

ID	NG ELEV FT	PROP FLEL	DITCH DEPTH (D) FT	DITCH BOTTOM WIDTH	SIDE SLOPE	CROSS SEC AREA (A) SF	WET PERIMETER (P) FT	HYDRAULIC RADIUS (R)	ROUGHNESS COEFFICIENT (N)	SLOPE (S) FT/FT	VELOCITY (Q) FPS	CAPACITY (Q) CFS	REQUIRED CAPACITY (Q) CFS
DITCH D1	28.5	27.5	1	0	4	4.0	8	0.50	0.025	0.0015	1.45	5.8	2.26
DITCH D2	28.5	27.5	1	0	4	4.0	8	0.50	0.025	0.0015	1.45	5.8	2.34

LEGEND



NO.	DATE	DESCRIPTION	APPROVED
REVISIONS			

DESIGNED RL  
DRAWN JLH  
CHECKED RL  
DATE August 2022

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REG. NO. F-825

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121992  
MIGUELANGEL A. SAUCEDO  
LICENSED PROFESSIONAL ENGINEER

05-19-2023

OWNER:  
**DR. PATRICK THOMAS, DDS**  
913 CANNAN DRIVE  
ANGLETON, TX 77515

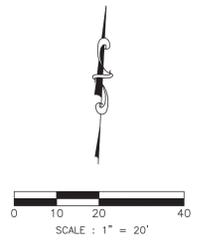
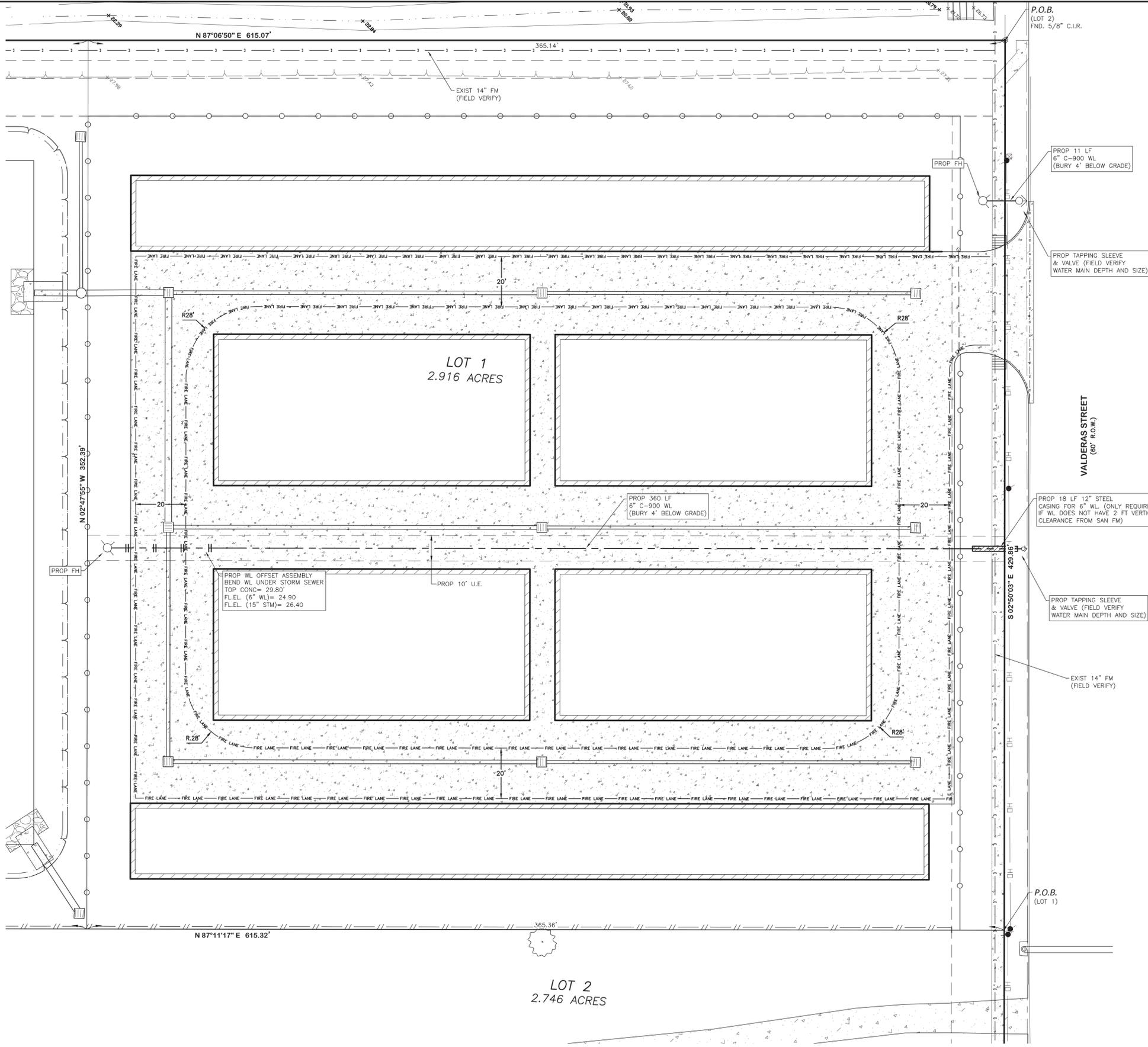
PLAN: 1" = 30'  
PROFILE:  
HORIZONTAL:  
VERTICAL:

PT STORAGE FACILITY  
ANGLETON, TEXAS 77515

DRAINAGE AREA MAP

PROJECT NO. 15239

**C.6**



NO.	DATE	DESCRIPTION	APPROVED
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DESIGNED	RL
DRAWN	JLH
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OWNER:  
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**913 CANNAN DRIVE**  
**ANGLETON, TX 77515**

PLAN: 1" = 20'  
 PROFILE: \_\_\_\_\_  
 HORIZONTAL: \_\_\_\_\_  
 VERTICAL: \_\_\_\_\_

**PT STORAGE FACILITY**  
**ANGLETON, TEXAS 77515**

UTILITY LAYOUT

PROJECT NO. 15239

**C.7**

A:\15239\15239\15239\ENGINEERING-SURVEY\ENGINEERING\15239-SHEET-SET.DWG

①

**Hydrological and Hydraulic Impacts**  
Patrick Thomas - Angleton, Texas  
Job # 15239

**Brazoria County, Texas**

**A = 4.13 Acre Development**

**Pre Development:**  
C = 0.2  
TC = 30.0 Minutes, I = 7.357 in/hr  
Q = 100 Year Storm = 47.597 cfs

**Post Development**  
C = 0.75  
T/C = 10.4 Minutes, I = 12.342 in/hr  
Q = 100 Year Storm = 47.788 cfs

**Required Detention:**  
3.305 acre - feet

Miguel Saucedo, PE. December 15, 2022

②

Drainage Analysis (Brazoria County: Region 1)  
Job # 15239 - Patrick Thomas Storage, Angleton TX

**Rainfall intensity calculations for Brazoria County (Region 1)**

I = intensity (in/hr)  
b = coefficient  
t = time of concentration  
d = coefficient  
e = coefficient

subscript  
i=1 = 2 year storm  
i=2 = 5 year storm  
i=3 = 10 year storm  
i=4 = 25 year storm  
i=5 = 50 year storm  
i=6 = 100 year storm

i := 1..6

b <sub>i</sub> :=	S <sub>0</sub> :=	d <sub>i</sub> :=
57.440	0.754	11.511
58.019	0.712	9.236
57.515	0.676	7.777
52.780	0.618	5.022
49.157	0.574	3.081
46.316	0.533	1.555

T<sub>0</sub> := 30 ENTER PREDEVELOPMENT TIME OF CONCENTRATION

I<sub>i</sub> :=  $\frac{b_i}{(d_i + T_0)^{0.5}}$  I<sub>6</sub> = 7.357  $\frac{\text{in}}{\text{hr}}$  Predevelopment Intensity of interest

C<sub>0</sub> = 0.20 ENTER PREDEVELOPMENT C VALUE

A<sub>0</sub> = 4.13 ENTER AREA (acres)

③

C<sub>f</sub> := 1.25

Q := C \* C<sub>f</sub> \* I<sub>6</sub> \* A  
Q = 7.597 cfs

P := 17 in Enter Atlas 14 Rainfall Depth: Region 2

V<sub>0</sub> := (C) \* A \* 43560 \*  $\frac{P}{12}$   
V = 5.097 × 10<sup>4</sup>

**DEVELOPMENT OF RUNOFF HYDROGRAPH MALCOM'S METHOD AS DESCRIBED IN THE BRAZORIA COUNTY DRAINAGE CRITERIA MANUAL**

T :=  $\frac{V}{1.39 \cdot Q}$  T = 4.827 × 10<sup>3</sup>

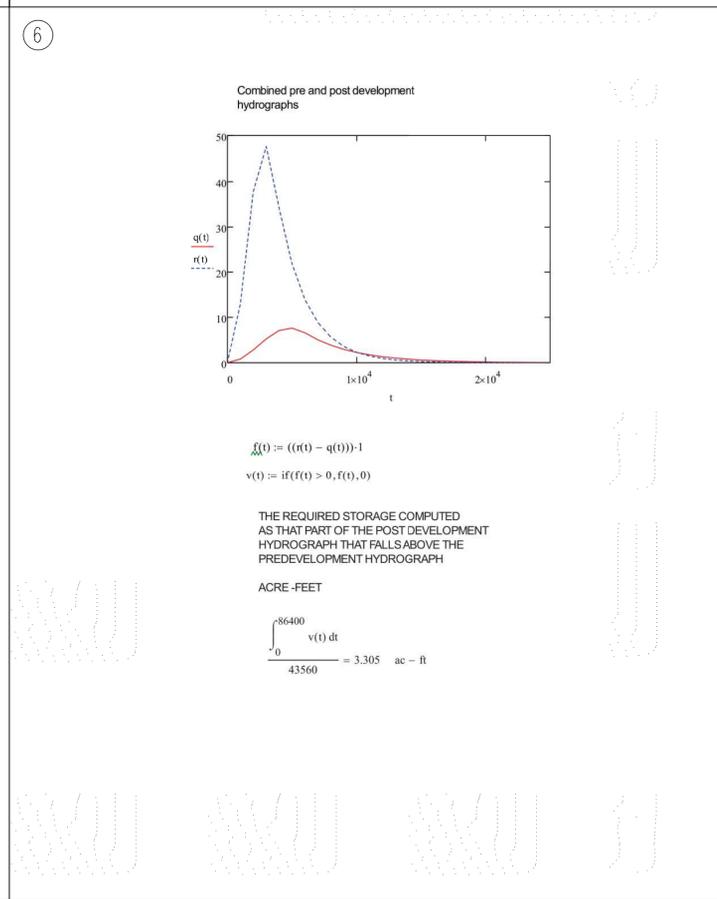
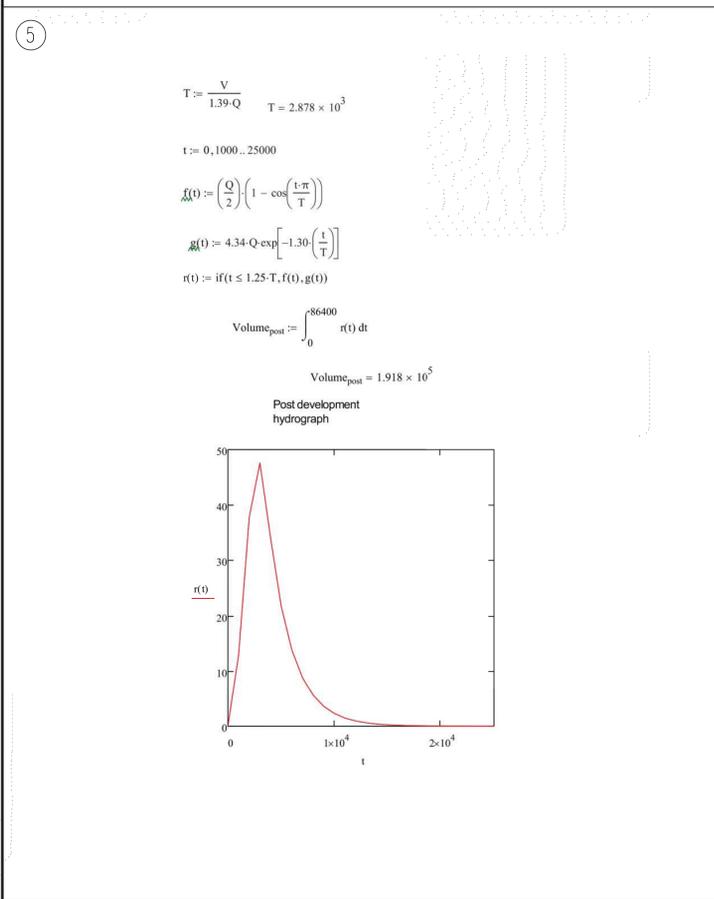
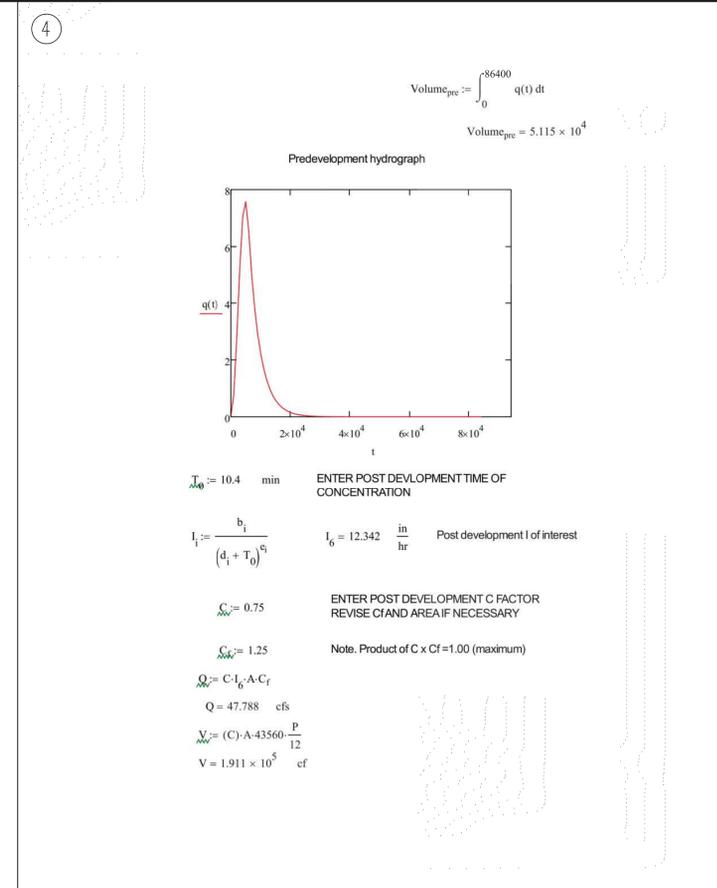
t := 0, 1000.., 84000

f(t) :=  $\left(\frac{Q}{2}\right) \left(1 - \cos\left(\frac{t \cdot \pi}{T}\right)\right)$  f(t) describes rising limb of hydrograph

g(t) := 4.34 \* Q \* exp[-1.30 \*  $\left(\frac{t}{T}\right)^2]$  g(t) describes descending limb of hydrograph

q(t) := if(t ≤ 1.25 \* T, f(t), g(t))

T = Time to peak, presented as a function of volume and peak flow and therefore indirectly related to time of concentration



DESIGNED	RL		
DRAWN	JLH		
CHECKED	RL		
DATE	August 2022		
NO.	DATE	DESCRIPTION	APPROVED
REVISIONS			

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05-19-2023

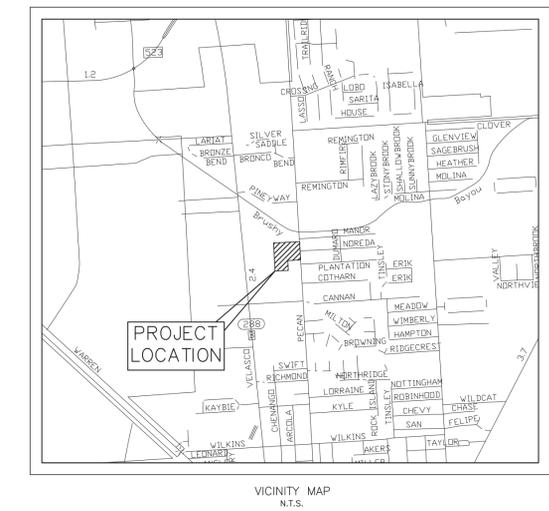
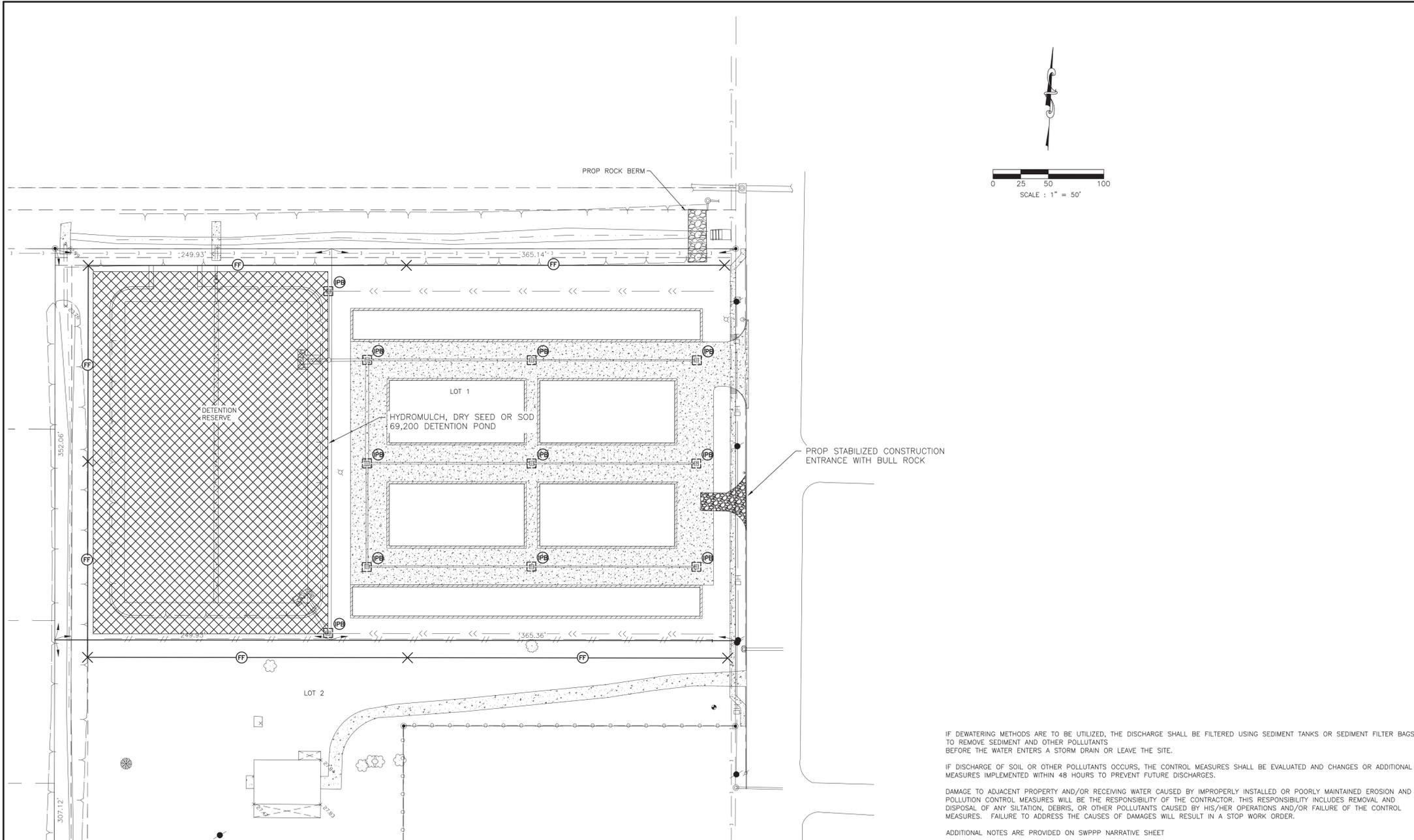
OWNER:  
**DR. PATRICK THOMAS, DDS**  
913 CANNAN DRIVE  
ANGLETON, TX 77515

PROFILE: \_\_\_\_\_  
HORIZONTAL: \_\_\_\_\_  
VERTICAL: \_\_\_\_\_

**PT STORAGE FACILITY**  
ANGLETON, TEXAS 77515

HYDROLOGIC CALCULATION

PROJECT NO. 15239



### PROJECT/SITE INFORMATION

PROJECT NAME: PATRICK THOMAS STORAGE UNITS

PROJECT ADDRESS/LOCATION: 2001 N VALDERAS STREET

CITY: ANGLETON STATE: TX. ZIP CODE: 77515

LATITUDE: 29°11'09" LONGITUDE: 95°25'46" COUNTY: BRAZORIA

NAME OF RECEIVING WATERS: BRUSHY BAYOU

05/01/2023 MONTH/DAY/YEAR ESTIMATED CONSTRUCTION START DATE

05/01/2024 MONTH/DAY/YEAR ESTIMATED COMPLETION DATE

ESTIMATE OF AREA TO BE DISTURBED: 4.978 AC. ACRES

ESTIMATE OF LIKELIHOOD OF DISCHARGE:

UNLIKELY  ONCE PER WEEK  CONTINUAL

ONCE PER MONTH  ONCE PER DAY

ARE THERE ANY LISTED ENDANGERED OR THREATENED SPECIES, OR DESIGNATED CRITICAL HABITAT IN THE PROJECT AREA?

YES  NO

ELIGIBILITY WITH REGARD TO PROTECTION OF ENDANGERED SPECIES HAS BEEN SATISFIED THROUGH THE INDICATED SECTION OF PART 1.B.3.e.(2) OF THE PERMIT.

(a)  (b)  (c)  (d)

IF DEWATERING METHODS ARE TO BE UTILIZED, THE DISCHARGE SHALL BE FILTERED USING SEDIMENT TANKS OR SEDIMENT FILTER BAGS TO REMOVE SEDIMENT AND OTHER POLLUTANTS BEFORE THE WATER ENTERS A STORM DRAIN OR LEAVE THE SITE.

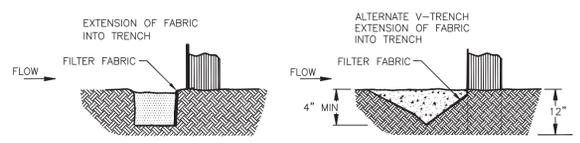
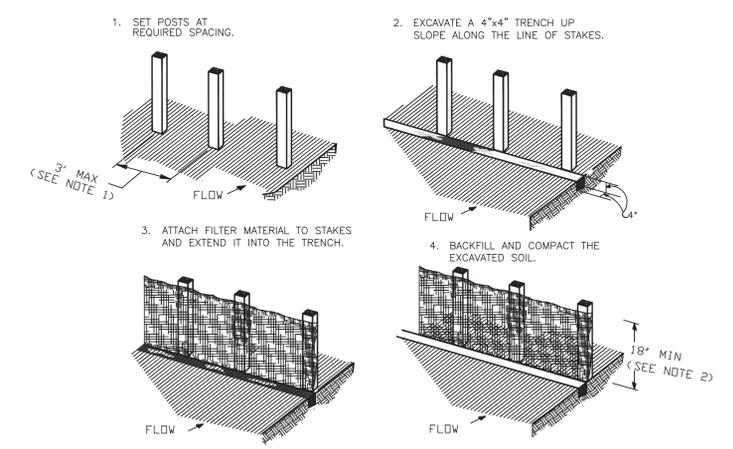
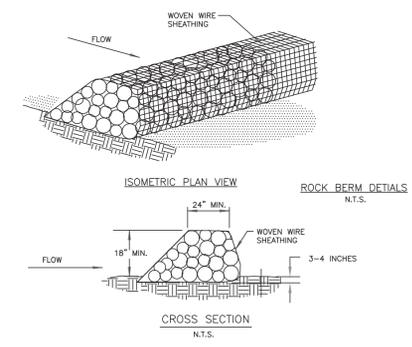
IF DISCHARGE OF SOIL OR OTHER POLLUTANTS OCCURS, THE CONTROL MEASURES SHALL BE EVALUATED AND CHANGES OR ADDITIONAL MEASURES IMPLEMENTED WITHIN 48 HOURS TO PREVENT FUTURE DISCHARGES.

DAMAGE TO ADJACENT PROPERTY AND/OR RECEIVING WATER CAUSED BY IMPROPERLY INSTALLED OR POORLY MAINTAINED EROSION AND POLLUTION CONTROL MEASURES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. THIS RESPONSIBILITY INCLUDES REMOVAL AND DISPOSAL OF ANY SILTATION, DEBRIS, OR OTHER POLLUTANTS CAUSED BY HIS/HER OPERATIONS AND/OR FAILURE OF THE CONTROL MEASURES. FAILURE TO ADDRESS THE CAUSES OF DAMAGES WILL RESULT IN A STOP WORK ORDER.

ADDITIONAL NOTES ARE PROVIDED ON SWPPP NARRATIVE SHEET

**ROCK BERM GENERAL NOTES**

- USE ONLY OPEN GRADED ROCK 4-8 INCHES IN DIAMETER FOR STREAM FLOW CONDITION. USE OPEN GRADED ROCK 3-5 INCHES IN DIAMETER FOR OTHER CONDITIONS.
- THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING A MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE SIZE OF 20 GAUGE AND SHALL BE BURIED IN A TRENCH APPROXIMATELY 3-4 INCHES DEEP.
- THE ROCK BERM SHALL BE INSPECTED EVERY TWO WEEKS OR AFTER 1/2" RAIN EVENT AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
- WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
- WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
- ROCK BERM SHOULD BE USED AS CHECK DAMS FOR CONCENTRATED FLOW AND ARE NOT INTENDED FOR USE IN PERIMETER PROTECTION.



**CONSTRUCTION NOTES:**

- 1 INCH THICK BY 2 INCH WOODEN STAKES TO BE SET AT MAX SPACING OF 3 FEET AND EMBEDDED A MIN OF 8 INCHES. IF PREASSEMBLED FENCE WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAX.
- ATTACH FILTER FABRIC TO WOODEN STAKES. FILTER FABRIC FENCE SHALL HAVE A MIN HEIGHT OF 18 INCHES AND MAX HEIGHT OF 36 INCHES ABOVE NATURAL GROUND.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHOULD BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.

**LEGEND**

SILT FENCE AROUND STRUCTURE UNDER CONSTRUCTION

SILT FENCE ACROSS EXISTING DITCH REINFORCED WITH FILTER FABRIC

HYDROMULCH SEED

NO.	DATE	DESCRIPTION	APPROVED
REVISIONS			

DESIGNED RL

DRAWN JLH

CHECKED RL

DATE August 2022

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121992  
MIGUELANGEL A. SAUCEDO  
LICENSED PROFESSIONAL ENGINEER

05-19-2023

OWNER:

**DR. PATRICK THOMAS, DDS**  
913 CANNAN DRIVE  
ANGLETON, TX 77515

PLAN: 1" = 50'

PROFILE: \_\_\_\_\_

HORIZONTAL: \_\_\_\_\_

VERTICAL: \_\_\_\_\_

PT STORAGE FACILITY  
ANGLETON, TEXAS 77515

SWPPP LAYOUT

PROJECT NO. 15239

C.9

# 1. SITE DESCRIPTION

- A. NATURE OF THE CONSTRUCTION ACTIVITY: THE PROJECT CONSISTS OF THE CONSTRUCTION OF A 4.978 AC STORAGE FACILITY WITH CONCRETE PARKING AND DRIVES AND ASSOCIATED BUILDING IN ANGLETON, BRAZORIA COUNTY, TEXAS. THE SITE HAS RESIDENTIAL PROPERTY TO THE SOUTH, COMMERCIAL PROPERTY TO THE WEST AND SOUTH, N VALDERAS STREET TO THE EAST, AND UNDEVELOPED LAND TO THE NORTH. CONSTRUCTION SHALL CONSIST OF THE BUILDINGS, DETENTION, PARKING, AND UTILITIES.
- B. INTENDED SEQUENCE OF MAJOR SOIL DISTURBING ACTIVITIES: THE WORK AREA WILL BE CLEARED OF ALL VEGETATIVE MATTER. BACKFILL AND SUBGRADE WILL BE PREPARED FOR DRIVE AREAS. STORM WATER FROM THE SITE WILL BE DIRECTED TO NEW CONSTRUCTED DETENTION POND. TRUCKS WILL BE USED TO HALL WASTE FROM CONSTRUCTION, DELIVER BASE MATERIAL, AND CONSTRUCTION MATERIAL TO THE SITE. BACKFILL WILL BE SOURCED FROM EXCAVATION FROM THE DETENTION POND EAST OF THE SITE. THE TRUCKS WILL BE ROUTED ALONG NORTH VALDERAS STREET FOR INGRESS AND EGRESS. RUTTING ON THE SITE DURING WET WEATHER WILL PROVIDE POTENTIAL FOR TRACKING MUD ALONG STREET.
- C. TOTAL PROJECT AREA: 4.978 ACRE
- D. TOTAL AREA TO BE DISTURBED: 4.978 ACRE
- WEIGHTED RUNOFF COEFFICIENT (BEFORE CONSTRUCTION): 0.20 (AFTER CONSTRUCTION): 0.75
- E. REFER TO GENERAL LOCATION MAP AND SITE MAP FOR DRAINAGE PATTERNS AND APPROXIMATE SLOPES ANTICIPATED AFTER MAJOR GRADING ACTIVITIES; AREAS OF SOIL DISTURBANCE; AREAS WHICH WILL NOT BE DISTURBED; LOCATIONS OF MAJOR STRUCTURAL AND NON-STRUCTURAL CONTROLS; LOCATIONS WHERE STABILIZATION PRACTICES ARE EXPECTED TO OCCUR; LOCATION OF OFF-SITE MATERIAL, WASTE, BORROW OR EQUIPMENT STORAGE AREAS; SURFACE WATERS (INCLUDING WETLANDS); AND LOCATIONS WHERE STORM WATER DISCHARGES TO A SURFACE WATER.
- F. LOCATION AND DESCRIPTION OF ANY DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY OTHER THAN CONSTRUCTION:
- G. NAME OF RECEIVING WATERS: DRAINAGE WILL BE COLLECTED IN STORM SEWER WHICH OUTFALL TO THE DETENTION POND WHICH FLOWS TO DITCH 12 VIA A RESTRICTOR. WATER WILL THEN TRAVEL THROUGH DITCH 12 TO BRUSHY BAYOU WHICH WILL OUTFALL INTO THE GULF OF MEXICO.
- AREAL EXTENT AND DESCRIPTION OF WETLAND OR SPECIAL AQUATIC SITE AT OR NEAR THE SITE WHICH WILL BE DISTURBED OR WHICH WILL RECEIVE DISCHARGES FROM DISTURBED AREAS OF THE PROJECT.
- NONE
- H. REFER TO FEDERAL REGISTER, VOLUME 63, NO.128, MONDAY JULY 6, 1998, PAGES 36497 TO 36515 FOR REQUIREMENTS OF NPDES GENERAL PERMITS FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES IN REGION 6.
- I. LISTED ENDANGERED OR THREATENED SPECIES OR CRITICAL HABITAT FOUND IN PROXIMITY TO THE CONSTRUCTION ACTIVITY:
- NONE
- J. PROPERTY LISTED OR ELIGIBLE FOR LISTING ON THE NATIONAL REGISTER OF HISTORIC PLACES:
- NONE

# 2. CONTROLS

## NARRATIVE – SEQUENCE OF CONSTRUCTION ACTIVITIES AND APPROPRIATE CONTROL MEASURES DURING CONSTRUCTION

- THE ORDER OF CONSTRUCTION WILL BEGIN WITH THE STRIPPING OF ALL VEGETATION FROM THE WORK AREA.
1. CONSTRUCT SILT FENCES ALONG THE PERIMETER OF THE WORK AREA AND ACROSS THE ROADSIDE DITCH.
  2. AFTER STRIPPING IS COMPLETED, FLEX BASE FOR DRIVES AND PARKING CAN THEN BE PLACED. CONSTRUCTION OF THE STRUCTURE WILL FOLLOW AFTER FOUNDATION PLACEMENT.
  3. EXCAVATION OF SUBGRADE WILL TAKE PLACE AFTER UNDERGROUND UTILITIES AND STORM SEWERS ARE INSTALLED.
  4. AFTER WORK IS COMPLETE, SEEDING AND FERTILIZER WILL BE PLACED ON ALL DISTURBED AREAS.
  5. ALL SEEDED AREAS ARE TO BE IRRIGATED TO ENSURE GROWTH. IRRIGATION SHALL BE CONTINUED UNTIL GROWTH IS ESTABLISHED.

## A. EROSION AND SEDIMENT CONTROLS:

EROSION AND SEDIMENT CONTROLS SHALL RETAIN SEDIMENT ON SITE TO THE EXTENT PRACTICABLE. CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS (WHERE APPLICABLE) AND GOOD ENGINEERING PRACTICES. OFFSITE SEDIMENT ACCUMULATIONS MUST BE REMOVED AT A FREQUENCY SUFFICIENT TO MINIMIZE OFFSITE IMPACTS. SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS WHEN CAPACITY HAS BEEN REDUCED BY 50%. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORM WASH SHALL BE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORM WATER DISCHARGES.

SOIL STABILIZATION PRACTICES:	OWNER/DEVELOPER	GENERAL CONTR.	BUILDER	OTHER
TEMPORARY SEEDING				
PERMANENT PLANTING, SODDING, OR SEEDING		X		
MULCHING— WHERE INDICATED				
SOIL RETENTION BLANKET				
VEGETATIVE BUFFER STRIPS				
PRESERVATION OF NATURAL RESOURCES				
OTHER:				

## THE FOLLOWING RECORDS SHALL BE MAINTAINED AND ATTACHED TO THIS SWPPP:

DATES WHEN MAJOR GRADING ACTIVITIES OCCUR, DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE, DATES WHEN STABILIZATION MEASURES ARE INITIATED.

STRUCTURAL PRACTICES:	OWNER/DEVELOPER	GENERAL CONTR.	BUILDER	OTHER
SILT FENCES		X		
HAY BALES				
ROCK BERMS				
DIVERSION, INTERCEPTOR, OR PERIMETER DIKES				
DIVERSION, INTERCEPTOR, OR PERIMETER SWALES				
DIVERSION DIKE AND SWALE COMBINATIONS				
PIPE SLOPE DRAINS				
ROCK BEDDING AT CONSTRUCTION EXIT		X		
TIMBER MATTING AT CONSTRUCTION EXIT				
SEDIMENT TRAPS				
SEDIMENT BASINS				
STORM INLET PROTECTION		X		
STONE OUTLET STRUCTURES		X		
OTHER:				

## B. STORM WATER MANAGEMENT MEASURES INSTALLED DURING CONSTRUCTION TO CONTROL POLLUTANTS IN STORM WATER DISCHARGES THAT WILL OCCUR AFTER CONSTRUCTION:

DETENTION POND AND DITCHES

## C. OTHER CONTROLS

NO SOLID MATERIALS, INCLUDING BUILDING MATERIALS, SHALL BE DISCHARGED TO WATERS OF THE UNITED STATES, EXCEPT AS AUTHORIZED BY A PERMIT ISSUED UNDER SECTION 404 OF THE CLEAN WATER ACT.

WASTE MATERIALS: ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL CONTAINER. THE CONTAINER SHALL MEET ALL STATE AND CITY SOLID WASTE MANAGEMENT REGULATIONS. THE CONTAINER SHALL BE EMPTIED AS NECESSARY AND THE TRASH HAULED TO AN APPROPRIATE DUMP SITE. NO CONSTRUCTION MATERIALS WILL BE BURIED ON SITE.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING) AT A MINIMUM, ANY PRODUCTS IN THE FOLLOWING CATEGORIES ARE CONSIDERED TO BE HAZARDOUS: PAINT, CLEANING SOLVENTS, ASPHALT PRODUCTS, PETROLEUM PRODUCTS, CHEMICAL ADDITIVES FOR SOIL STABILIZATION, AND CONCRETE CURING COMPOUNDS AND ADDITIVES. IN THE EVENT OF A SPILL WHICH MAY BE HAZARDOUS, THE SPILL COORDINATOR SHOULD BE CONTACTED IMMEDIATELY.

SANITARY WASTE: PORTABLE SANITARY FACILITIES WILL BE PROVIDED BY THE CONTRACTOR. ALL SANITARY WASTES WILL BE COLLECTED FROM PORTABLE UNITS AND SERVICED BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

## OFFSITE VEHICLE TRACKING SHALL BE MINIMIZED BY:

- HAUL ROADS DAMPENED FOR DUST CONTROL LOADED
- HAUL TRUCKS TO BE COVERED WITH TARPULIN
- EXCESS DIRT ON ROAD REMOVED DAILY STABILIZED
- CONSTRUCTION ENTRANCE

OTHER: TRUCKS HAULING VEGETATION AND DEBRIS WILL BE MONITORED AND SHALL BE COVERED WITH TARPULINS IF REQUIRED TO PREVENT DUST OR OTHER PARTICLES FROM BLOWING OR FALLING FROM TRUCK.

REMARKS: ALL OPERATIONS WILL BE CONDUCTED IN A MANNER THAT WILL MINIMIZE AND CONTROL THE AMOUNTS OF SEDIMENT THAT MAY ENTER THE RECEIVING WATERS. DISPOSAL AREAS SHALL NOT BE LOCATED IN ANY WETLAND, WATERBODY, OR STREAMBED. CONSTRUCTION STAGING AREAS AND VEHICLE MAINTENANCE AREAS SHALL BE CONSTRUCTED BY THE CONTRACTOR IN A MANNER TO MINIMIZE THE RUNOFF OF POLLUTANTS.

# 3. MAINTENANCE

ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN EFFECTIVE OPERATING CONDITION. IF A REPAIR IS NECESSARY IT SHALL BE DONE AT THE EARLIEST TIME POSSIBLE, BUT NO LATER THAN SEVEN CALENDAR DAYS AFTER THE GROUND HAS DRIED SUFFICIENTLY TO PREVENT FURTHER DAMAGE FROM HEAVY EQUIPMENT. THE AREAS ADJACENT TO DRAINAGE WAYS SHALL HAVE PRIORITY, FOLLOWED BY DEVICES PROTECTING STORM SEWER INLETS. MAINTENANCE SHALL BE PERFORMED BEFORE THE NEXT ANTICIPATED STORM EVENT OR AS SOON AS PRACTICABLE.

# 4. INSPECTION

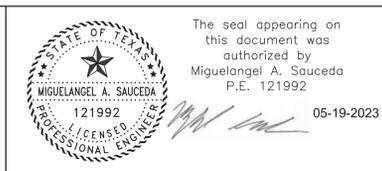
AN INSPECTION WILL BE PERFORMED BY THE PERMITEE EVERY FOURTEEN DAYS AS WELL AS AFTER EVERY ONE-HALF INCH OR GREATER RAINFALL EVENT. AN INSPECTION AND RAINFALL REPORT WILL BE MADE AFTER EACH INSPECTION. ANY DEFICIENCIES WILL BE NOTED AND APPROPRIATE CHANGES SHALL BE MADE TO THE SYSTEM TO COMPLY WITH REQUIREMENTS.

# 5. NON-STORMWATER DISCHARGES

- FIRE HYDRANT FLUSHING
- BUILDING WASHDOWN WITHOUT DETERGENTS
- PAVEMENT WASHDOWN WITHOUT DETERGENTS
- CONDENSATE
- UNCONTAMINATED GROUNDWATER
- UNCONTAMINATED FOUNDATION DRAINS

NO.	DATE	DESCRIPTION	APPROVED

DESIGNED RL  
 DRAWN JLH  
 CHECKED RL  
 DATE August 2022



OWNER:  
**DR. PATRICK THOMAS, DDS**  
**913 CANNAN DRIVE**  
**ANGLETON, TX 77515**

PLAN: \_\_\_\_\_  
 PROFILE: \_\_\_\_\_  
 HORIZONTAL: \_\_\_\_\_  
 VERTICAL: \_\_\_\_\_

**PT STORAGE FACILITY**  
**ANGLETON, TEXAS 77515**

SWPPP NARRATIVE

PROJECT NO. 15239

**C.10**

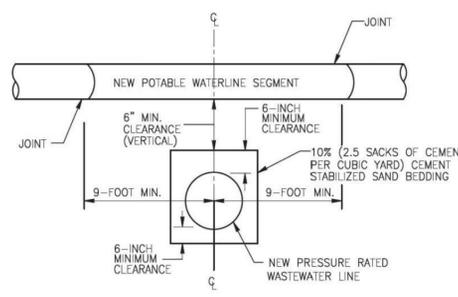








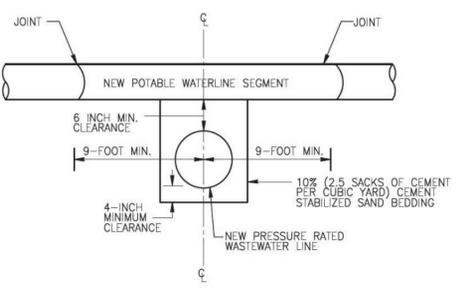
I  
NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE WITH SEGMENT LENGTHS OF EIGHTEEN (18) FEET OR GREATER, HAVING 6 INCHES OF VERTICAL CLEARANCE AND 4 FEET OF HORIZONTAL CLEARANCE



- WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN JOINTS OF THE WASTEWATER LINE.
- MINIMUM WASTEWATER PIPE STIFFNESS OF 115 PSI AT 5% DEFLECTION.
- EMBED WASTEWATER LINE IN CEMENT STABILIZED SAND TO AT LEAST 12" INCHES BEYOND EACH JOINT OF CROSSED SECTION OF PIPE.

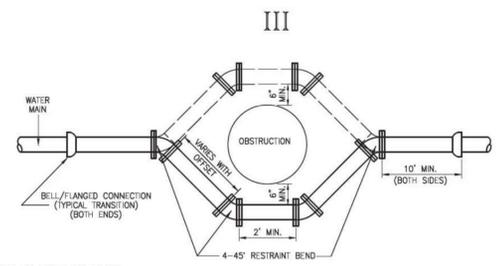
SL-WA-10

II  
NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE



- WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN JOINTS OF THE WASTEWATER LINE.
- MINIMUM WASTEWATER PIPE STIFFNESS OF 115 PSI AT 5% DEFLECTION.
- EMBED WASTEWATER LINE IN CEMENT STABILIZED SAND TO AT LEAST 12" INCHES BEYOND EACH JOINT OF CROSSED SECTION OF PIPE.

SL-WA-11



FOR A LINE TO PASS OVER AN OBSTRUCTION RATHER THAN UNDER, IT MUST HAVE ADEQUATE COVER AND BE APPROVED BY THE ENGINEERING DEPARTMENT.

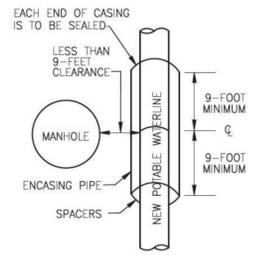
- NOTES:
- PIPE MATERIAL SHALL BE AWWA C900 PVC, DR-14, 200 PSI WITH INTEGRAL PVC RESTRAINED JOINTS.
  - OFFSET ASSEMBLY MUST PASS OVER THE OBSTRUCTION AS LONG AS THE MINIMUM CLEARANCE IS MAINTAINED. SPECIFIC APPROVAL FROM THE UTILITIES DEPARTMENT MUST BE GRANTED FOR THE OFFSET TO PASS UNDER THE OBSTRUCTION.
  - MATERIAL AND COATINGS SHALL BE IN ACCORDANCE WITH WATER MAIN STANDARD SPECIFICATIONS.
  - RESTRAIN EXISTING PIPING BEYOND OFFSET SECTION AS REQUIRED TO PREVENT MOVEMENT.
  - ALL PVC PRODUCTS MUST BE LISTED ON CITY OF SUGAR LAND'S APPROVED PRODUCTS LIST.

MIN. PIPE WALL THICKNESS	
4"	0.250"
6"	0.280"
8"	0.322"
12"	0.375"
AND LARGER	

PVC WATER PIPE OFFSET ASSEMBLY

SL-WA-12

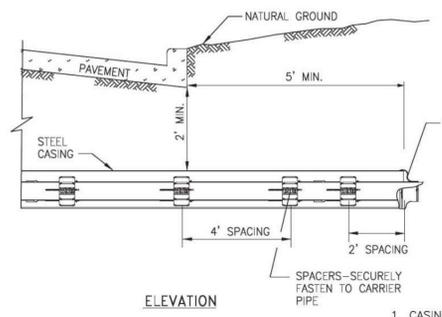
DETAIL OF WATER LINE CROSSING WASTEWATER FACILITIES WHERE SEPARATION IS LESS THAN 9' (NINE FEET)



- ENCASING PIPE
- 150 PSI PRESSURE CLASS PIPE MINIMUM 18 FEET LONG DIAMETER = 2 X WATERLINE DIAMETER
  - SPACE AROUND CARRIER PIPE SHALL BE SUPPORTED AT FIVE (5) FOOT (OR LESS INTERVALS WITH SPACERS)
  - CENTERED ON CROSSING
  - BOTH ENDS SEALED WITH CEMENT GROUT OR A MANUFACTURED WATER TIGHT SEAL.

MANHOLE CLEARANCE

SL-WA-13

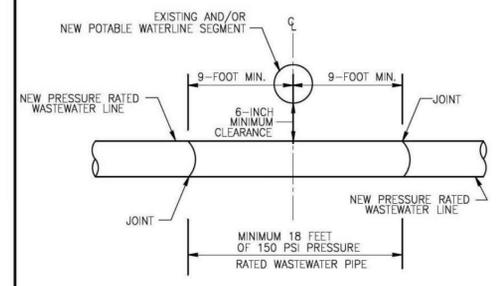


CARRIER PIPE	NOMINAL CASING	MIN. WALL THICKNESS (IN.)
6"	12"	0.11
8"	14"	0.15
10"	16"	0.18
12"	18"	0.20

- CASING SIZE AND THICKNESS SHALL CONFORM TO THE MINIMUM REQUIREMENTS AS SHOWN ON CASING SCHEDULE, OTHER PERMITS AS REQUIRED.
- MAINTAIN 3" MINIMUM CLEARANCE BETWEEN THE MAXIMUM OUTSIDE DIAMETER OF CARRIER PIPE AND CASING AT ALL LOCATIONS.
- DIMENSIONS ARE APPROXIMATE ONLY. CONTRACTOR SHALL INSTALL ADEQUATELY SIZED CASING TO ACCOMMODATE THE CARRIER PIPE.
- RESTRAINED JOINT PIPING IS REQUIRED WHEN USED IN CASING.

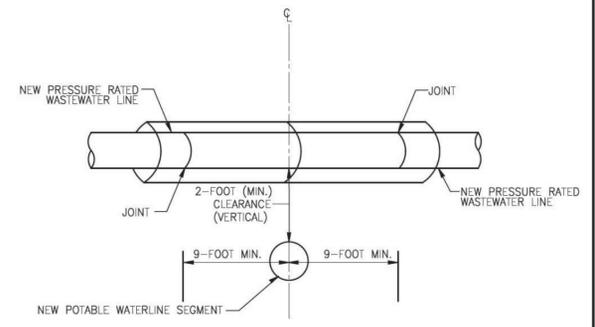
SL-WA-14

ALTERNATIVE A:  
PRESSURE RATED WASTEWATER PIPE



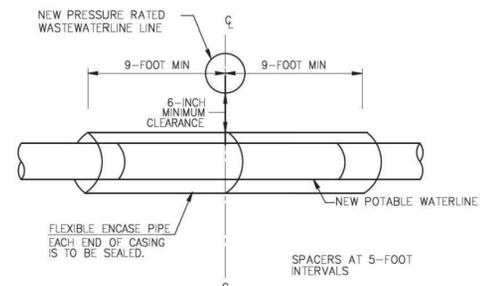
SL-WA-15

ALTERNATIVE B:  
EXISTING POTABLE WATERLINE CROSSING EXISTING PRESSURE RATED WASTEWATER LINE



SL-WA-16

ALTERNATIVE C:  
ENCASE NEW POTABLE WATERLINE UNDER A NEW PRESSURE RATED WASTEWATER LINE

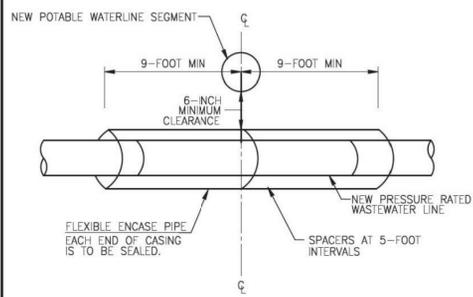


- SAME ENCASMENT CRITERIA AS "ALTERNATIVE B" OR
- NEW WATERLINE (WITHOUT CASING) TO BE CONSTRUCTED OF PVC C-900 (DR-18), DUCTILE IRON WITH MECHANICAL JOINT OR STEEL PIPE WITH WELDED JOINTS.
- BOTH WATERLINE AND WASTEWATER LINE MUST PASS A PRESSURE AND LEAKAGE TEST AS SPECIFIED IN AWWA C600 STANDARDS.

SL-WA-17

IV  
ENCASED WASTEWATER LINE

NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE WITH SEGMENT LENGTHS OF LESS THAN EIGHTEEN (18) FEET



- MINIMUM CASING PIPE STIFFNESS OF 115 PSI AT 5% DEFLECTION.
- MINIMUM CASING PIPE DIAMETER \* 2 X WASTEWATER LINE DIAMETER.
- THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE (5) FOOT (OR LESS) INTERVALS WITH SPACERS
- EACH END CASING IS TO BE SEALED WITH WATER TIGHT NO-SHRINK GROUT OR MANUFACTURED WATER TIGHT SEAL.

SL-WA-18

SL-WA-19

NO.	DATE	REVISION

SEAL: \_\_\_\_\_

DESIGN ENGINEER: \_\_\_\_\_ DATE: \_\_\_\_\_



CITY OF SUGAR LAND, TEXAS  
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:

WATER LINE CROSSING DETAILS

JOB No.: _____	SL-16
DATE: _____	
DESIGNED BY: _____	
DRAWN BY: _____	
CHECKED BY: _____	
SCALE: _____	SHEET OF _____

REVISION DATE: OCTOBER 2021

NO.	DATE	DESCRIPTION	APPROVED

DESIGNED: MS  
DRAWN: \_\_\_\_\_  
CHECKED: \_\_\_\_\_  
DATE: \_\_\_\_\_

**B & L**  
BAKER & LAWSON, INC.  
ENGINEERS • PLANNERS • SURVEYORS  
4005 TECHNOLOGY DRIVE, SUITE 1530  
ANGLETON, TEXAS 77515 (979) 849-6681  
REG. NO. F-825

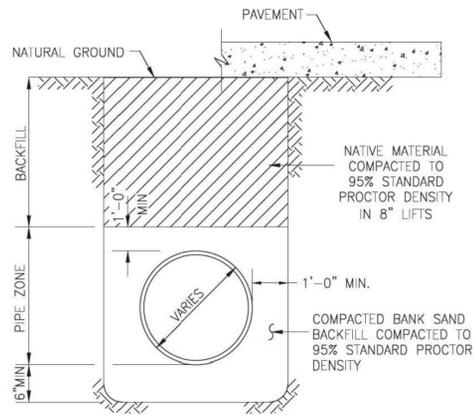
The seal appearing on this document was authorized by Miguelangel A. Saucedo P.E. 121992  
121992  
LICENSED PROFESSIONAL ENGINEER  
05-19-2023

OWNER:  
**DR. PATRICK THOMAS, DDS**  
913 CANNAN DRIVE  
ANGLETON, TX 77515

PLAN: \_\_\_\_\_  
PROFILE: \_\_\_\_\_  
HORIZONTAL: \_\_\_\_\_  
VERTICAL: \_\_\_\_\_

PT STORAGE FACILITY  
ANGLETON, TEXAS 77515

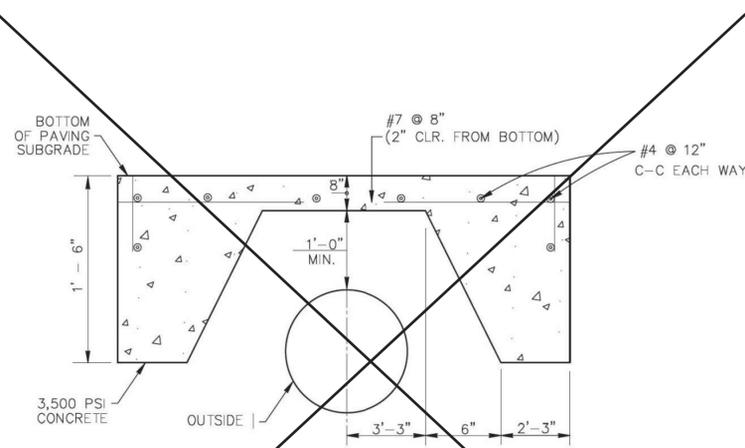
WATER LINE CROSSING DETAILS  
SL-16  
PROJECT NO. 15239  
SD.5



P.V.C. PIPE BEDDING & BACKFILL  
N.T.S.  
\*SEE CONSTRUCTION NOTES

SANITARY FORCE MAIN & WATER LINE  
BEDDING AND BACKFILL

SL-BB-01



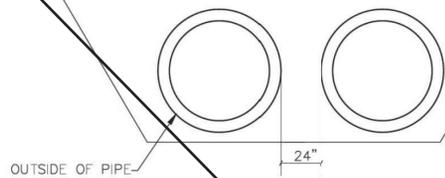
PROTECTIVE SLAB DETAIL  
ZERO LOAD TRANSFER CONCRETE SLAB

SL-BB-04

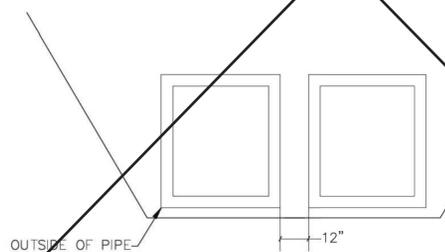
CONSTRUCTION NOTES

1. CONTRACTOR SHALL CONTACT SUGAR LAND ENGINEERING DEPARTMENT IMMEDIATELY IF WET SAND CONDITIONS ARE ENCOUNTERED.
2. LIMESTONE AND RECYCLED CONCRETE DIMENSIONS SHOWN ARE TYPICAL BUT MAY BE VARIED BY ORDER OF CITY ENGINEER.
3. LIMESTONE OR RECYCLED CONCRETE SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION No. 248 FLEXIBLE BASE, TYPE A, GRADE 2 AGGREGATE.
4. NO BEDDING SHALL BE INSTALLED IN WET CONDITIONS. WHEN WELL POINTING OR IN WET SAND CONDITIONS, MAINTAIN GROUND WATER 1 (FT) BELOW BOTTOM OF TRENCH FOR A MINIMUM OF 24-HRS AFTER BEDDING AND BACKFILL IS IN PLACE.
5. ALL MATERIALS SHALL BE FROM THE APPROVED PRODUCTS LIST UNLESS SPECIFICALLY APPROVED BY THE CITY ENGINEER.
6. SANITARY SEWER BEDDING FOR WET SAND CONDITIONS SHALL BE AS PER MODIFIED "A".
7. ALL SAND BEDDING FOR WATER LINES SHALL BE CLEAN, MECHANICALLY COMPACTED BANK SAND.
8. REFER TO: MANHOLE DETAILS, SANITARY, C.S.S., GENERAL, WATER CROSSING, WATER DISTRIBUTION DETAILS AND NOTES.
9. ALL BEDDING WILL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
10. A GEOTECHNICAL REPORT MAY BE REQUIRED TO ANALYZE THE BEARING CAPACITY OF EXISTING SOILS AND MAKE A DETERMINATION IF ADDITIONAL BEDDING AND BACKFILL IS APPROPRIATE.

SL-BB-05

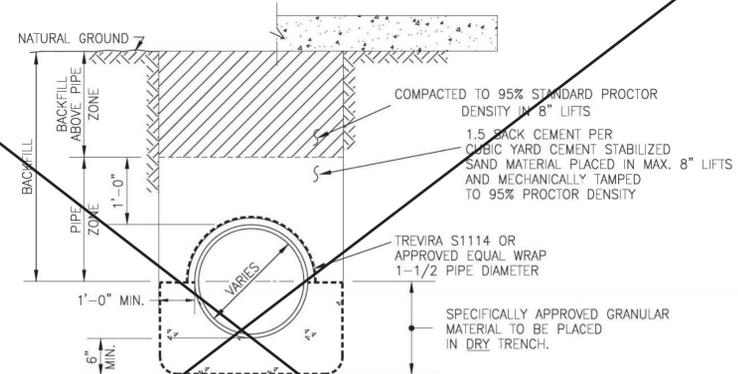


PIPE SEPARATION



RCB SEPARATION

SL-BB-16



MODIFIED "A"  
N.T.S.

NOTE: C.S.S. SHALL BE INSTALLED A MIN. 1' ABOVE TOP OF PIPE.

SANITARY SEWER  
BEDDING AND BACKFILL

SL-BB-03

REFER TO:

1. GENERAL NOTES
2. C.S.S. NOTES

No.	DATE	REVISION
SEAL:		
DESIGN ENGINEER: _____ DATE: _____		
 CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT		
CONSTRUCTION PLANS FOR:		
WATER LINE, SANITARY SEWER FORCE MAIN BEDDING DETAILS		
JOB No.:	SL-19	
DATE:		
DESIGNED BY:		
DRAWN BY:		
CHECKED BY:		
SCALE:		SHEET OF

REVISION DATE: OCTOBER 2021

NO.	DATE	DESCRIPTION	APPROVED
REVISIONS			

DESIGNED	MS
DRAWN	
CHECKED	
DATE	

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**BAKER & LAWSON, INC.**  
 ENGINEERS • PLANNERS • SURVEYORS  
 4005 TECHNOLOGY DRIVE, SUITE 1530  
 ANGLETON, TEXAS 77515 (979) 849-6681  
 REG. NO. F-825

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**MIGUELANGEL A. SAUCEDO**  
 121992  
 LICENSED PROFESSIONAL ENGINEER

05-19-2023

OWNER:  
**DR. PATRICK THOMAS, DDS**  
 913 CANNAN DRIVE  
 ANGLETON, TX 77515

PLAN:	
PROFILE:	
HORIZONTAL:	
VERTICAL:	

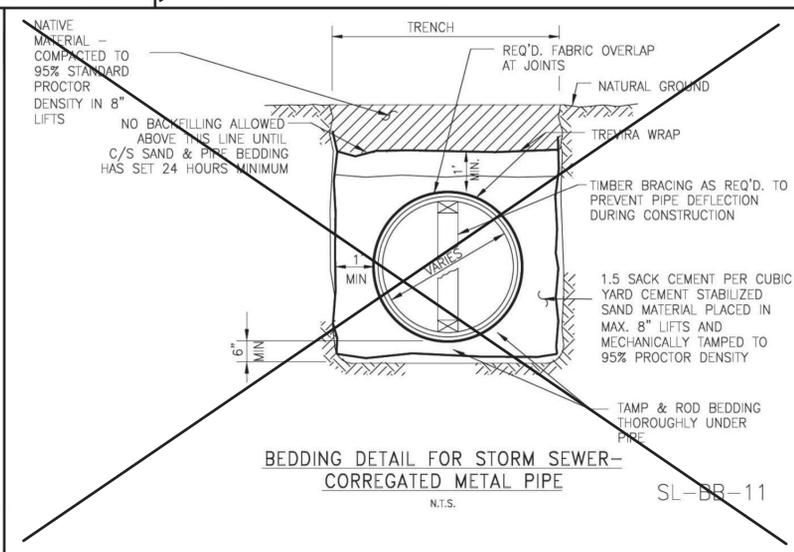
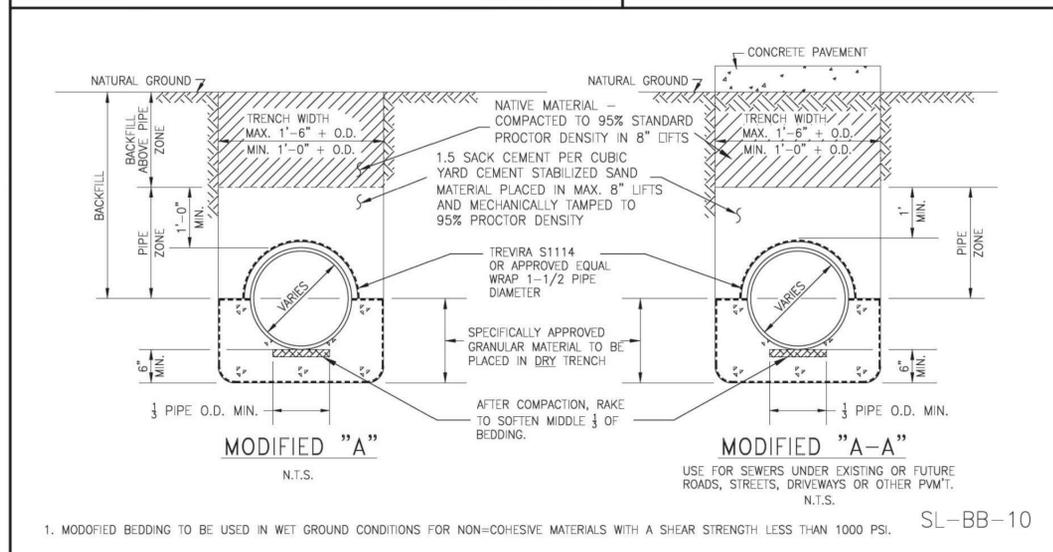
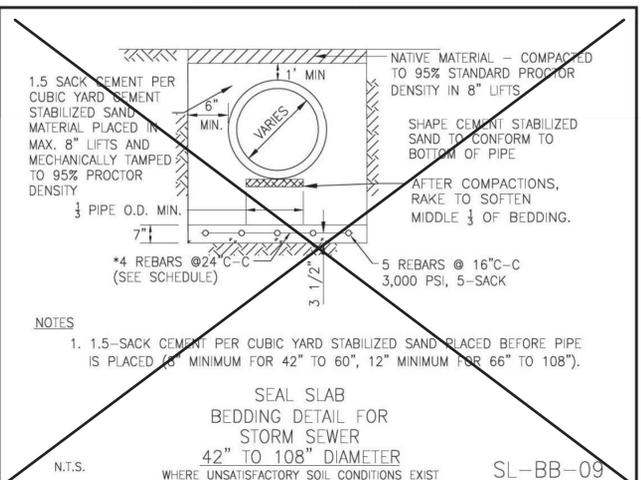
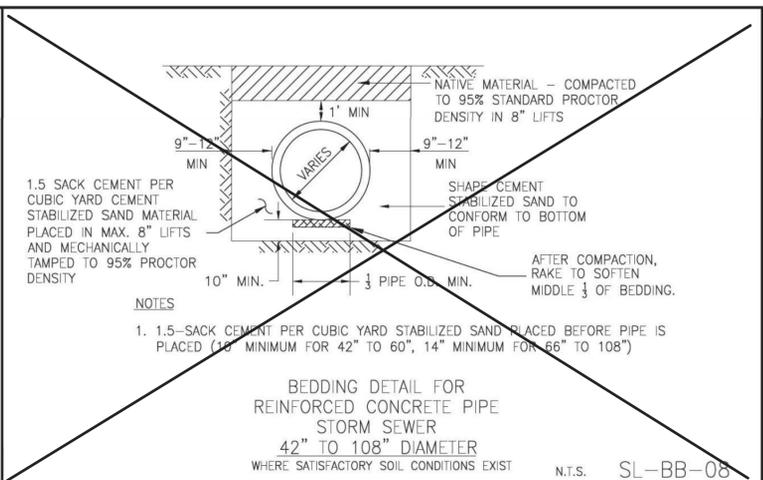
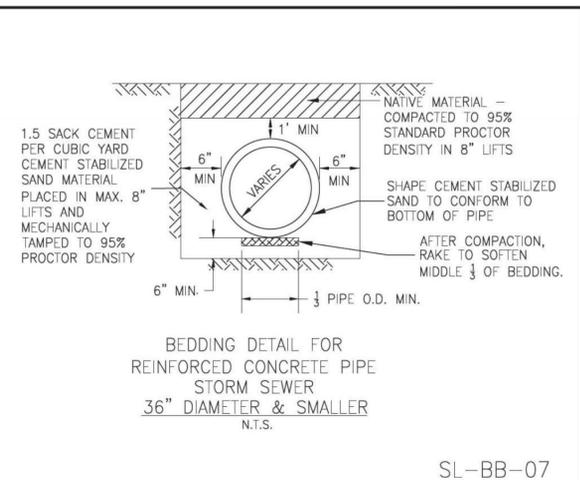
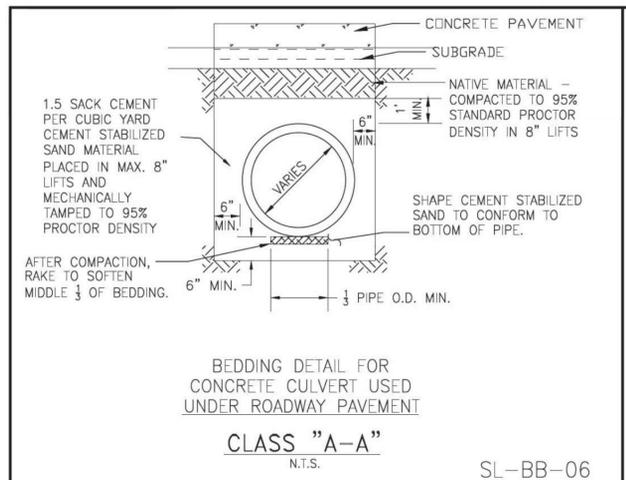
PT STORAGE FACILITY  
 ANGLETON, TEXAS 77515

WATER LINE, SANITARY SEWER FORCE MAIN BEDDING DETAILS  
 SL-19

PROJECT NO. 15239 **SD.6**

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15239-DETAIL-SET.DWG



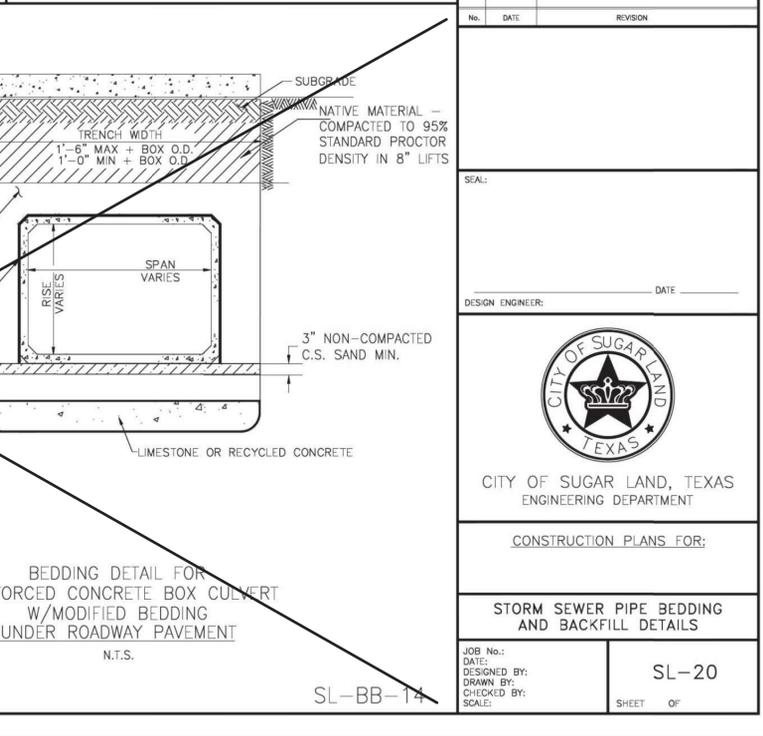
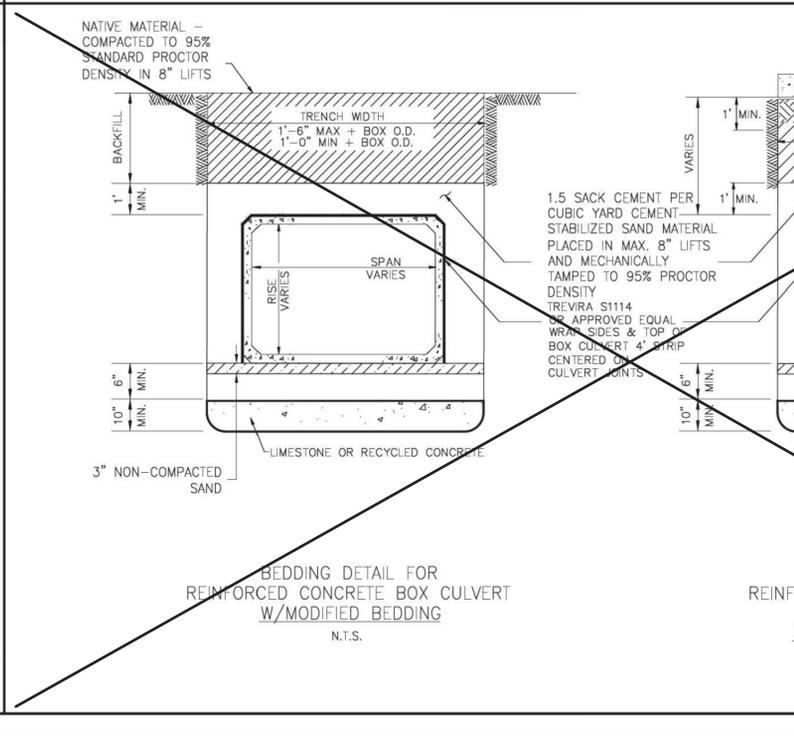
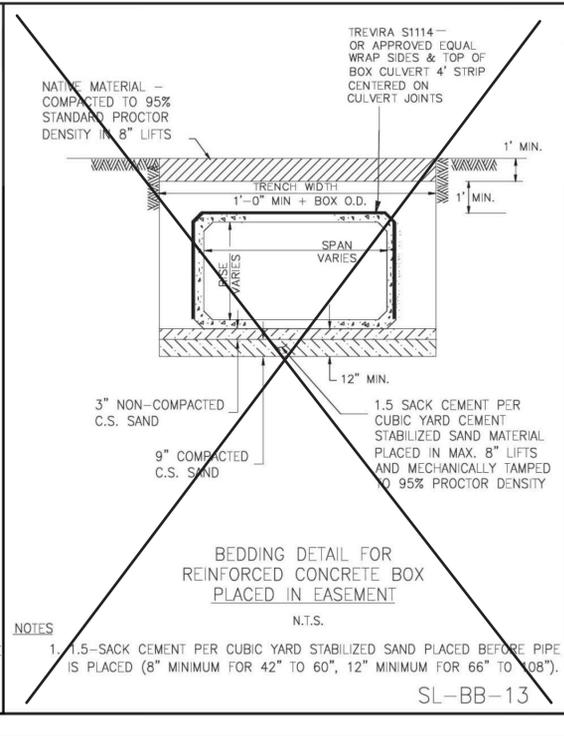
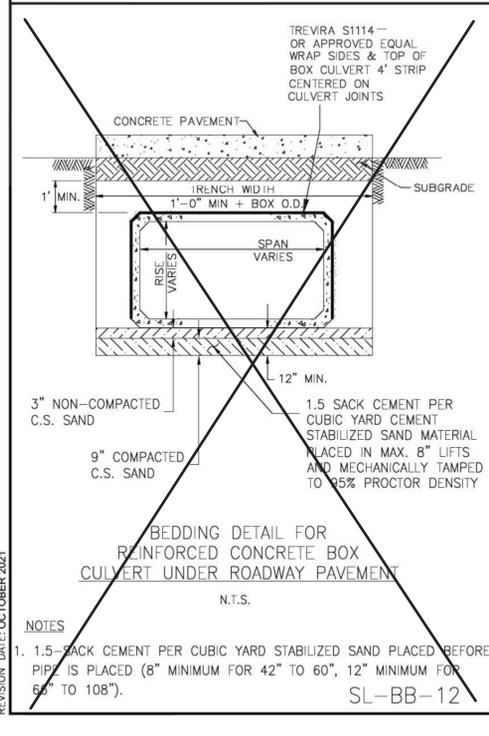
CONSTRUCTION NOTES

- CONTRACTOR SHALL CONTACT SUGAR LAND ENGINEERING DEPARTMENT IMMEDIATELY IF WET SAND CONDITIONS ARE ENCOUNTERED.
- SPECIFICALLY APPROVED GRANULAR MATERIAL DIMENSIONS SHOWN ARE TYPICAL BUT MAY BE VARIED BY ORDER OF CITY ENGINEER.
- SPECIFICALLY APPROVED GRANULAR MATERIAL SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION No. 247 FLEXIBLE BASE, TYPE A, GRADE 2 AGGREGATE.
- NO BEDDING SHALL BE INSTALLED IN WET CONDITIONS. WHEN WELL POINTING OR IN WET SAND CONDITIONS, MAINTAIN GROUND WATER 1' (FT.) BELOW BOTTOM OF TRENCH FOR A MINIMUM OF 24-HRS AFTER BEDDING AND BACKFILL IS IN PLACE.
- R.C.P. AND BOX CULVERTS SHALL BE INSTALLED WITH APPROVED GASKETS ONLY.
- MANHOLES SHALL BE PROVIDED WHERE MODIFIED "A" OR MODIFIED "A-A" BEDDING IS USED. STACKS ARE NOT ALLOWED.
- REFER TO: MANHOLE DETAILS, INLETS, OUTFALL AND END TREATMENT DETAILS, C.S.S., GENERAL NOTES, AND STORM NOTES.
- SPECIFIC DESIGNS MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER FOR MANHOLE ACCESS TO BOX CULVERTS AS REQUIRED.
- ALL BACKFILL WITHIN THE R.O.W. SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
- A GEOTECHNICAL REPORT MAY BE REQUIRED TO ANALYZE THE BEARING CAPACITY OF EXISTING SOILS AND MAKE A DETERMINATION IF ADDITIONAL BEDDING AND BACKFILL IS APPROPRIATE.
- EXCAVATE A HOLE \$ BELL HOLES FOR BELL PIPES (NO ADDITIONAL PAYMENT)

TYPICAL SEAL SLAB BAR SCHEDULE (OR AS DIRECTED BY ENGINEER)

PIPE SIZE	LGT #4 BARS	NO LONGIT #5 BARS
42"	5'4"	5
48"	6'8"	6
54"	6'8"	6
60"	8'0"	7
66"	8'0"	7
72"	9'4"	8
78"	9'4"	8
84"	9'4"	8
90"	10'8"	9
96"	10'8"	9
102"	12'0"	10
108"	12'0"	10

SL-BB-15



DESIGN ENGINEER: \_\_\_\_\_ DATE: \_\_\_\_\_

CITY OF SUGAR LAND, TEXAS  
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:

STORM SEWER PIPE BEDDING AND BACKFILL DETAILS

JOB No.: \_\_\_\_\_  
DATE: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
SCALE: \_\_\_\_\_

SL-20  
SHEET OF

REVISIONS

NO.	DATE	DESCRIPTION	APPROVED

DESIGNED MS  
DRAWN \_\_\_\_\_  
CHECKED \_\_\_\_\_  
DATE \_\_\_\_\_

**B & L**  
BAKER & LAWSON, INC.  
ENGINEERS-PLANNERS-SURVEYORS  
4005 TECHNOLOGY DRIVE, SUITE 1330  
ANGLETON, TEXAS 77515 (979) 849-6681  
REG. NO. F-825

STATE OF TEXAS  
121992  
MIGUEL ANGEL A. SAUCEDA  
LICENSED PROFESSIONAL ENGINEER  
The seal appearing on this document was authorized by Miguel Angel A. Saucedo P.E. 121992  
05-19-2023

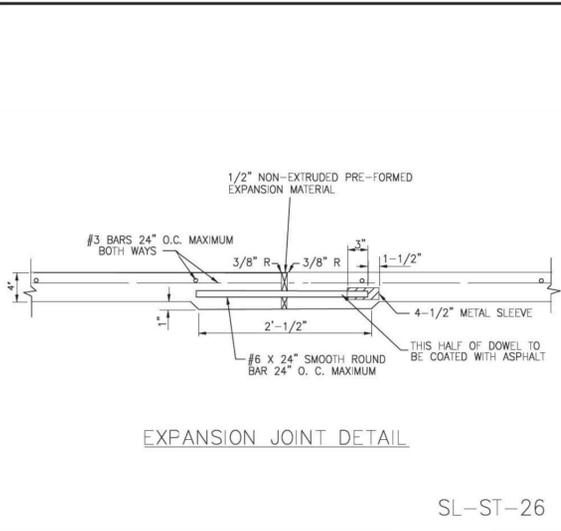
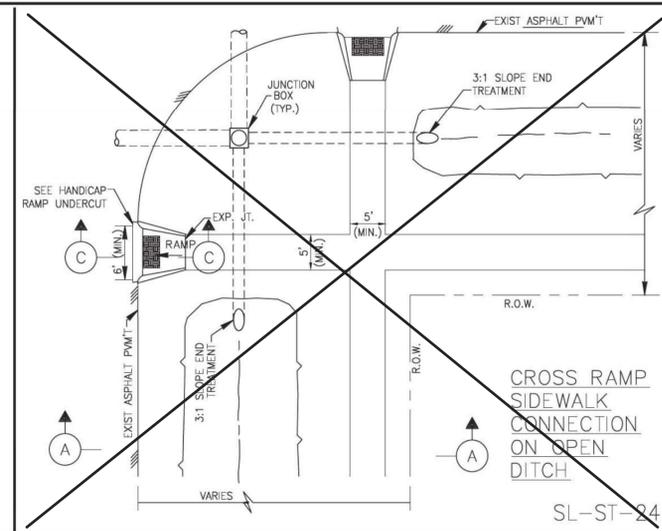
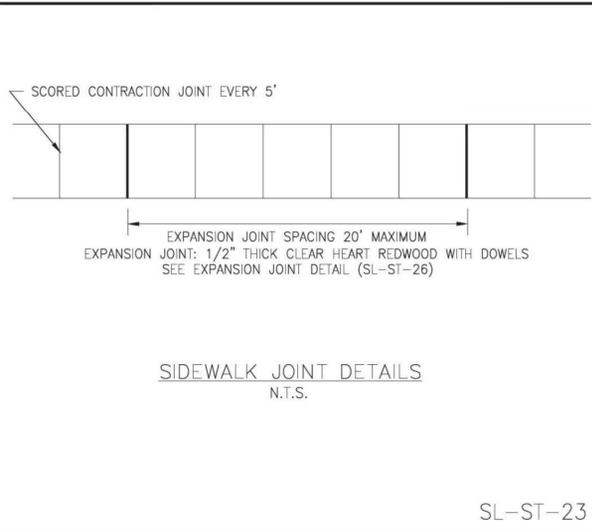
OWNER:  
**DR. PATRICK THOMAS, DDS**  
913 CANNAN DRIVE  
ANGLETON, TX 77515

PLAN: \_\_\_\_\_  
PROFILE: \_\_\_\_\_  
HORIZONTAL: \_\_\_\_\_  
VERTICAL: \_\_\_\_\_

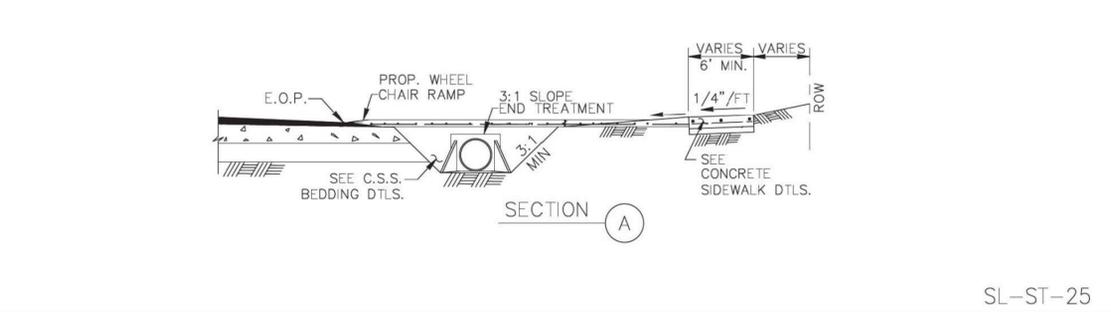
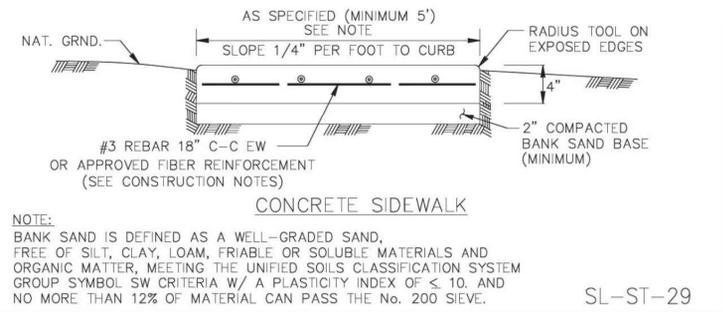
PT STORAGE FACILITY  
ANGLETON, TEXAS 77515

STORM SEWER PIPE BEDDING AND BACKFILL DETAILS  
SL-20  
PROJECT NO. 15239  
SD.7

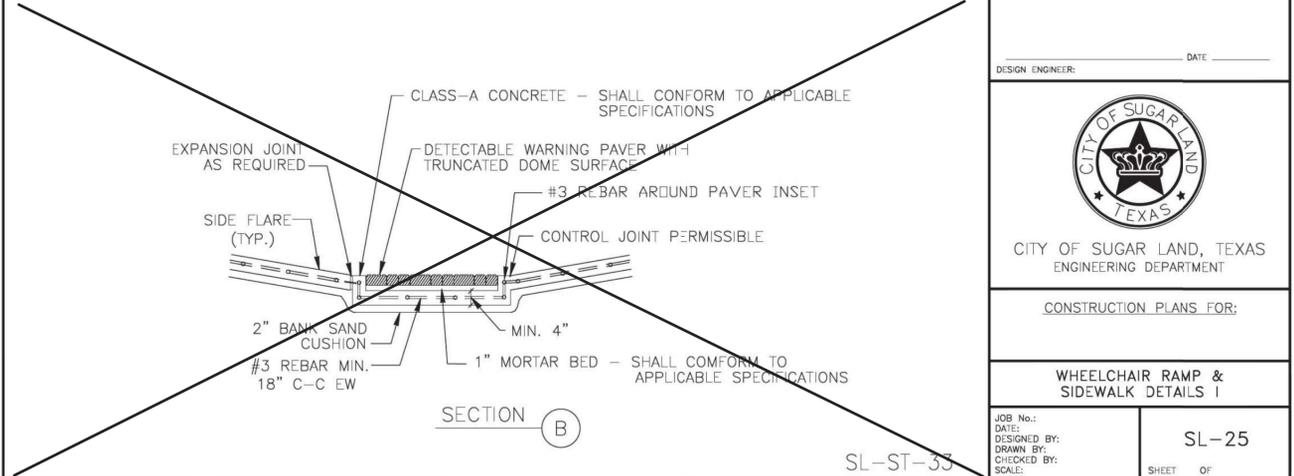
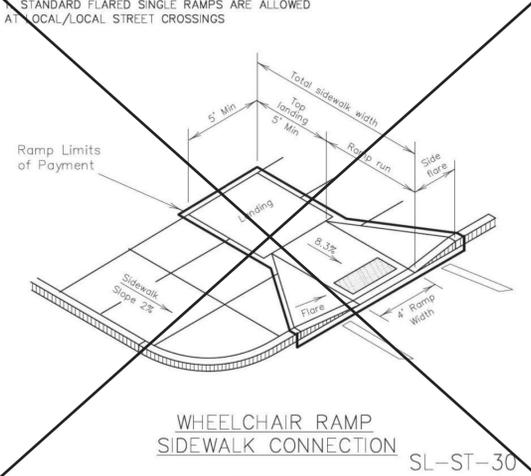
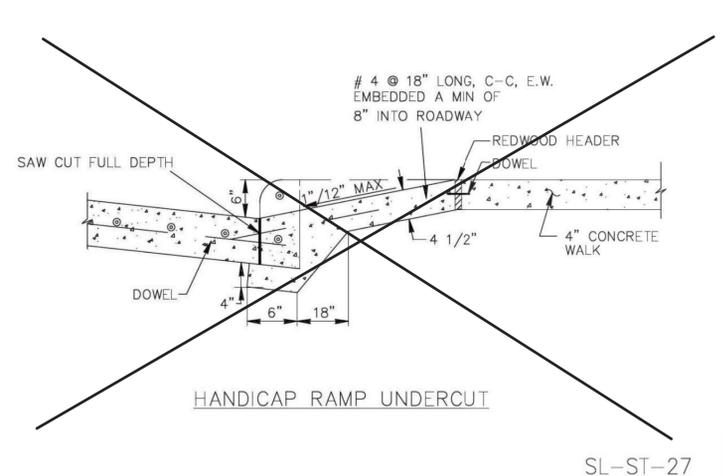
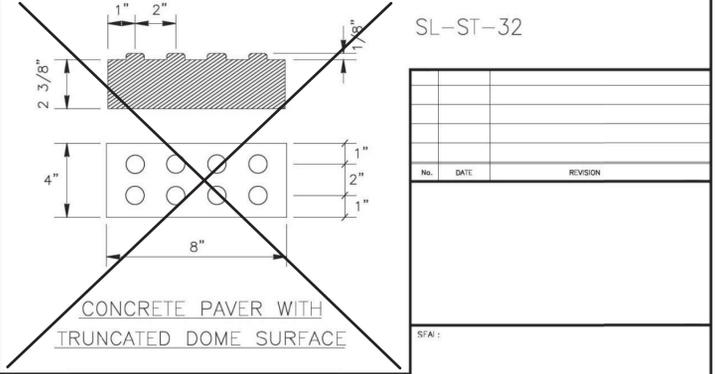
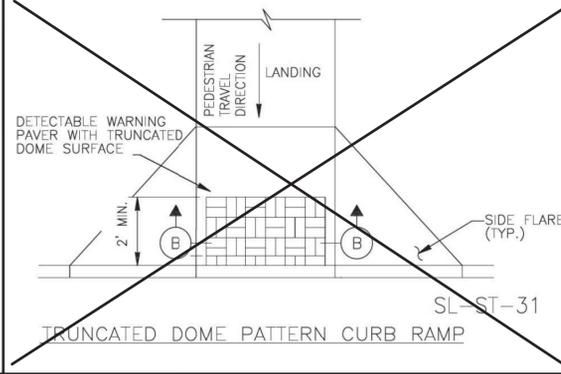
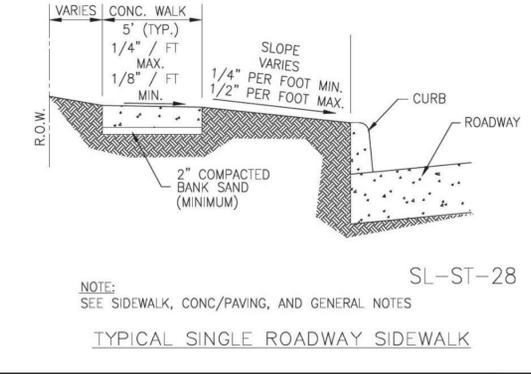
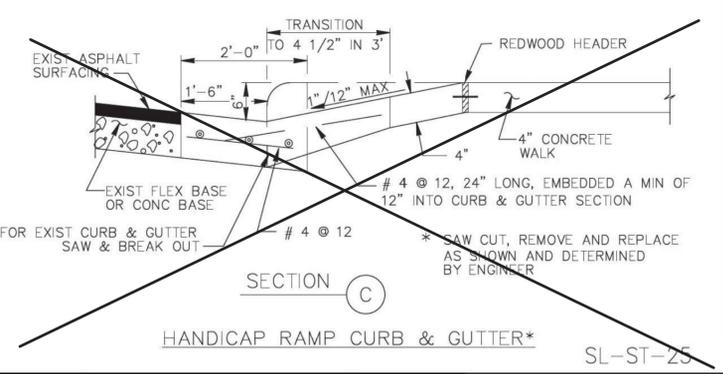




- NOTES:**
- EXISTING CURB AND GUTTER TO BE SAW CUT, REMOVED AND REPLACED. DOWEL STEEL FOR MINIMUM REINFORCING OVERLAP OF 10 INCHES (10") DOWELS SHALL BE EIGHTEEN INCHES (18") LONG AND EPOXIED A MINIMUM OF (8") EIGHT INCHES INTO EXISTING PAVEMENT.
  - IF SIDEWALKS ARE NEITHER EXISTING NOR PROPOSED WHERE WHEELCHAIR RAMP ACCESS IS REQUIRED, CONCRETE SIDEWALKS SURFACE 4 1/2" THICK SHALL BE INSTALLED TO PROVIDE ACCESS TO THE PEDESTRIAN PUSH BUTTONS.
  - DETECTABLE WARNINGS REQUIRED BY T.A.S. SECTIONS 4.1 AND 4.7 SHALL COMPLY WITH T.A.S. SECTION 4.29
  - THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNINGS USED ON INTERIOR SURFACE SHALL DIFFER FROM ADJOINING WALKING SURFACES IN RESILIENCY OR SOUND-ON-CANE.
  - DETECTABLE WARNING SURFACE SHALL COVER THE ENTIRE WIDTH AND DEPTH OF RAMP.
  - DETECTABLE WARNINGS SHALL BE INSTALLED WITH PAVERS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
  - CONCRETE PAVER UNITS SHALL MEET ALL REQUIREMENTS OF ASTM C-935, C-33, AND SHALL BE PLACED IN A TWO BY TWO UNIT BASKET WEAVE PATTERN, UNLESS SHOWN OTHERWISE IN THE PLANS.
  - CONCRETE PAVER UNITS SHALL HAVE A TRUNCATED DOME TOP SURFACE FOR DETECTABLE WARNING TO PEDESTRIANS. DOMES SHALL BE ALIGNED IN THE DIRECTION OF PEDESTRIAN TRAVEL.
  - CONCRETE PAVER UNIT COLOR FOR THE RAMP SHALL BE A CONTRASTING COLOR THAT PROVIDES A LIGHT REFLECTIVE THAT SIGNIFICANTLY CONTRASTS WITH THE ADJACENT SURFACES. ADJACENT SURFACES INCLUDE SIDE FLARES.
  - CONCRETE PAVER UNITS SHALL BE SAW CUT ONLY, AND ANY CUT UNIT SHALL NOT BE LESS THAN 25% OF A FULL UNIT.
- CONSTRUCTION NOTES:**
- THE MAXIMUM WIDTH BETWEEN EXPANSION JOINTS SHALL NOT EXCEED 20'-0"
  - EXPANSION JOINT IS TO BE 1/2" THICK CLEAR HEART REDWOOD WITH DOWELS.
  - SCORED CONTRACTION JOINTS SHALL BE EVERY 5' OR EQUAL TO WIDTH OF SIDEWALK.
  - ALL EARTHEN AREAS ARE TO BE SODDED UNLESS SHOWN OTHERWISE ON DRAWINGS.
  - 4 INCH, 5 SACK CEMENT PER CUBIC YARD CONCRETE, 3000 PSI, REINFORCED CONCRETE WITH #3 BARS, 18 INCHES C-C, FOR SIDEWALKS, #4 BARS 18" C-C FOR WHEEL CHAIR RAMP IS THE MINIMUM ACCEPTED. MINIMUM 3 LONGITUDINAL BARS, FIBER REINFORCING SIDEWALKS-STEEL AND POLYPROPYLENE BLENDED FIBER REINFORCEMENT SYSTEM SUCH AS NOVOMESH e3 AS MANUFACTURED BY S.I. CONCRETE SYSTEMS (OR PRE-APPROVED EQUAL) MAY BE USED AS AN ALTERNATE TO CONVENTIONAL REBAR REINFORCING AT A DOSAGE RATE OF 24 LBS. PER CUBIC YARD OF CONCRETE.
  - USE RADIUS TOOL ON ALL EXPOSED EDGES.
  - TOP OF THE SIDEWALK ELEVATION TO BE TOP OF CURB.
  - MEMBRANE CURING COMPOUND IS REQUIRED AS DESCRIBED IN ITEM 526 IN THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
  - REFER TO GENERAL NOTES AND CONCRETE/PAVING NOTES.
  - SIDEWALK EXPANSION JOINTS SHALL CONFORM TO STREET EXPANSION JOINT STANDARDS.



- THE MAXIMUM WIDTH BETWEEN EXPANSION JOINTS SHALL NOT EXCEED 20'-0"
- EXPANSION JOINT IS TO BE 1/2" THICK CLEAR HEART REDWOOD WITH DOWELS.
- SCORED CONTRACTION JOINTS SHALL BE EVERY 5' OR EQUAL TO WIDTH OF SIDEWALK.
- ALL EARTHEN AREAS ARE TO BE SODDED UNLESS SHOWN OTHERWISE ON DRAWINGS.
- 4 INCH, 5 SACK CEMENT PER CUBIC YARD CONCRETE, 3000 PSI, REINFORCED CONCRETE WITH #3 BARS, 18 INCHES C-C, FOR SIDEWALKS, #4 BARS 18" C-C FOR WHEEL CHAIR RAMP IS THE MINIMUM ACCEPTED. MINIMUM 3 LONGITUDINAL BARS, FIBER REINFORCING SIDEWALKS-STEEL AND POLYPROPYLENE BLENDED FIBER REINFORCEMENT SYSTEM SUCH AS NOVOMESH e3 AS MANUFACTURED BY S.I. CONCRETE SYSTEMS (OR PRE-APPROVED EQUAL) MAY BE USED AS AN ALTERNATE TO CONVENTIONAL REBAR REINFORCING AT A DOSAGE RATE OF 24 LBS. PER CUBIC YARD OF CONCRETE.
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- REFER TO GENERAL NOTES AND CONCRETE/PAVING NOTES.
- SIDEWALK EXPANSION JOINTS SHALL CONFORM TO STREET EXPANSION JOINT STANDARDS.



No.	DATE	REVISION
DESIGN ENGINEER:	DATE:	
CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT		
CONSTRUCTION PLANS FOR:		
WHEELCHAIR RAMP & SIDEWALK DETAILS I		
JOB No.:	DATE:	
DESIGNED BY:	DRAWN BY:	
CHECKED BY:	CHECKED BY:	
SCALE:	SCALE:	

NO.	DATE	DESCRIPTION	APPROVED

DESIGNED MS  
 DRAWN  
 CHECKED  
 DATE

The seal appearing on this document was authorized by Miguelangel A. Saucedo P.E. 121992

05-19-2023

OWNER:  
**DR. PATRICK THOMAS, DDS**  
 913 CANNAN DRIVE  
 ANGLETON, TX 77515

PLAN: \_\_\_\_\_  
 PROFILE: \_\_\_\_\_  
 HORIZONTAL: \_\_\_\_\_  
 VERTICAL: \_\_\_\_\_

PT STORAGE FACILITY  
 ANGLETON, TEXAS 77515

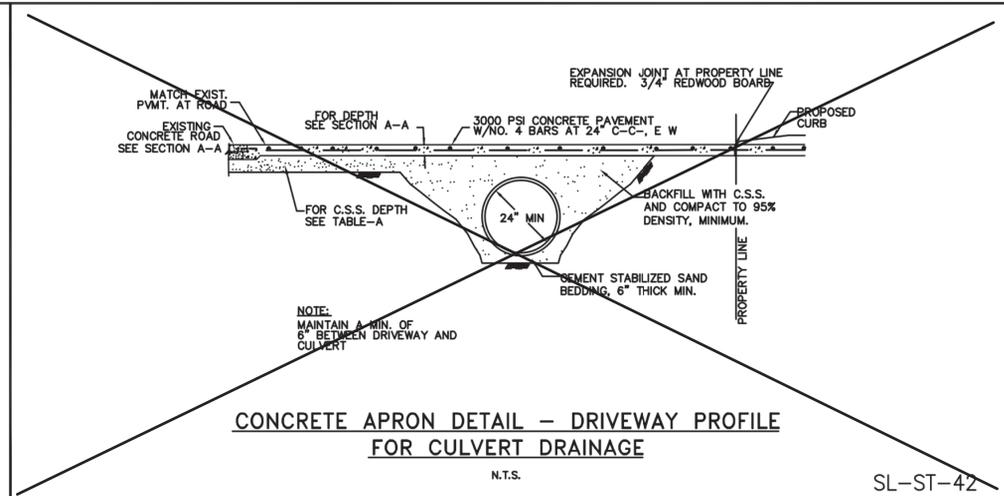
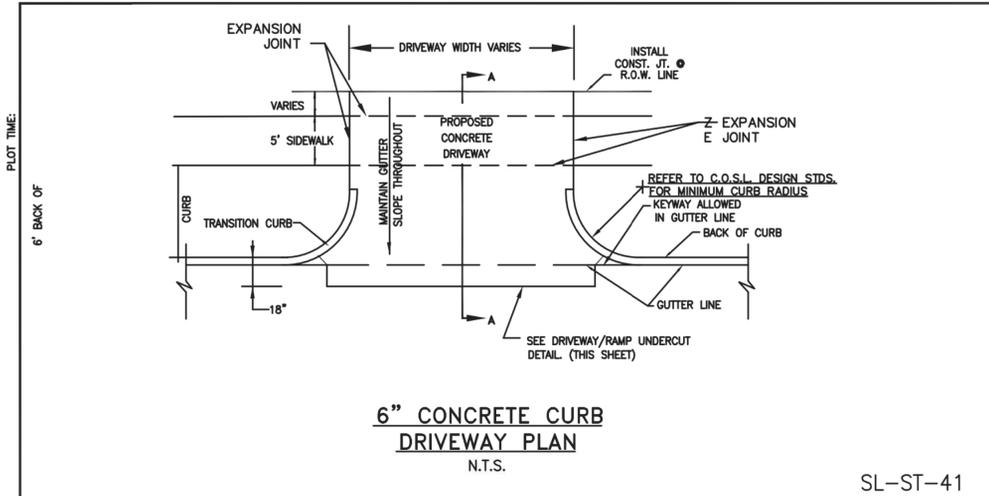
WHEELCHAIR RAMP & SIDEWALK DETAILS I  
 SL-25  
 PROJECT NO. 15239

REVISION DATE: OCTOBER 2021

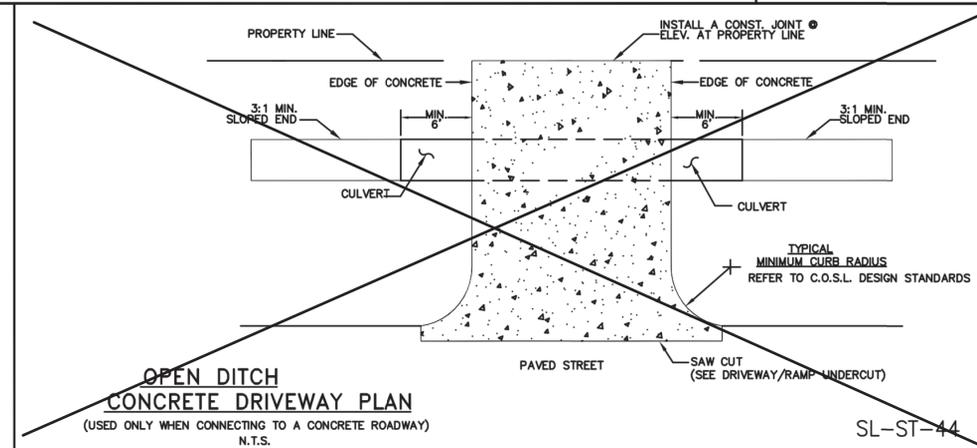
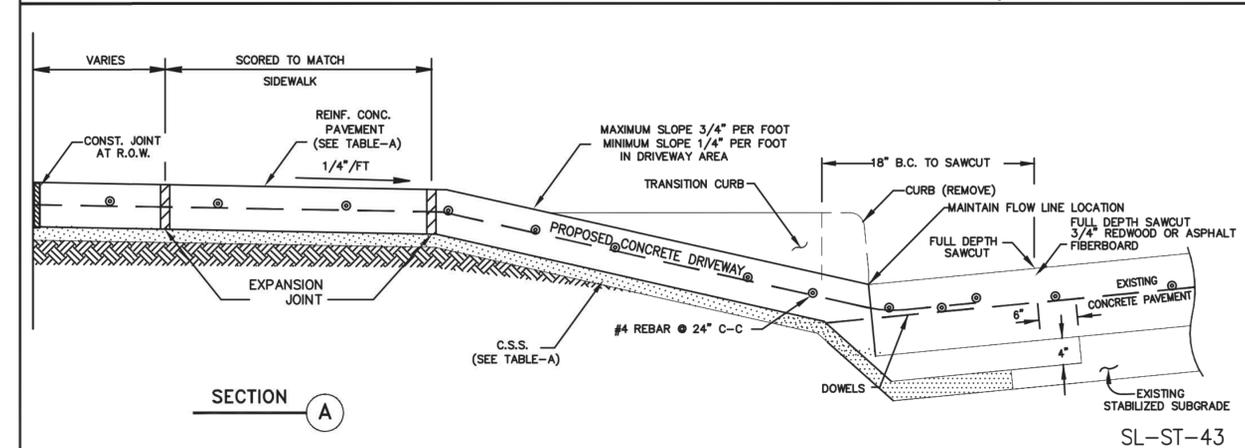
15239 DETAIL SET.DWG

SD.9





- NOTES:
- 1.) SAW CUT & BREAKOUT NO MORE THAN 72 HOURS PRIOR TO PROPOSED CONCRETE PLACEMENT. NOTIFY SUGAR LAND PRIOR TO CUT.
  - 2.) UNSTABLE SUBGRADE SHALL BE OVER EXCAVATED & REPLACED WITH CONCRETE.
  - 3.) IT IS CONTRACTOR'S RESPONSIBILITY TO NOTIFY SUGAR LAND OF ANY BIRD BATH PROBLEMS PRIOR TO CONSTRUCTION OF DRIVEWAY.
  - 4.) USE 1"x2" TREATED REDWOOD FOR HEADER.
  - 5.) EDGE ALL SIDES WITH EDGING TOOL AND BROOM FINISH
  - 6.) FOR INDUSTRIAL DRIVES, PAVEMENT SHALL HAVE A DEPTH OF 8" (IN).
  - 7.) EXPANSION JOINT AT PROPERTY LINE REQUIRED. 3/4" REDWOOD BOARD WITH NO. 4 DOWELS MINIMUM.
  - 8.) MAXIMUM ALLOWABLE DRIVEWAY GRADE IN PULIC R.O.W. IS 5%.
  - 9.) DRIVEWAY GRADE MUST MEET A.D.A AND T.A.S. SIDEWALK SLOPE, SIDEWALKS MUST BE SCORED TO MATCH ADJACENT SIDEWALK. IF SLOPE IS CONTINUED THROUGH THE R.O.W. LINE, PROVIDE A 3/4" REDWOOD EXPANSION JOINT WITH DOWELS AT R.O.W. LINE.
  - 10.) REFER TO GENERAL, C.S.S., ASPHALT, AND CONCRETE PAVEMENT NOTES.

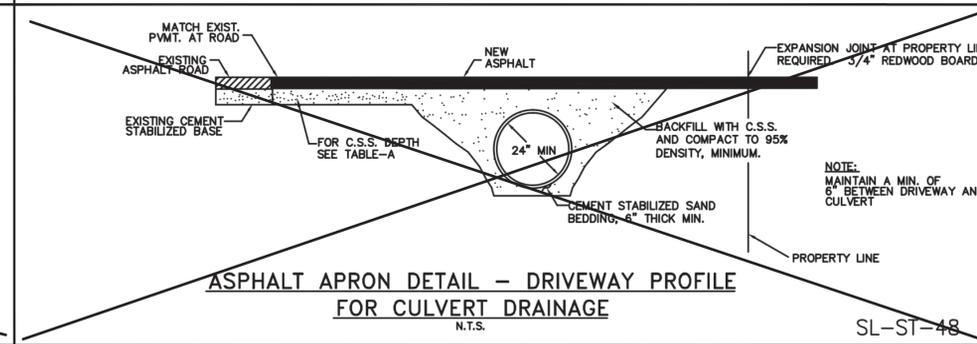
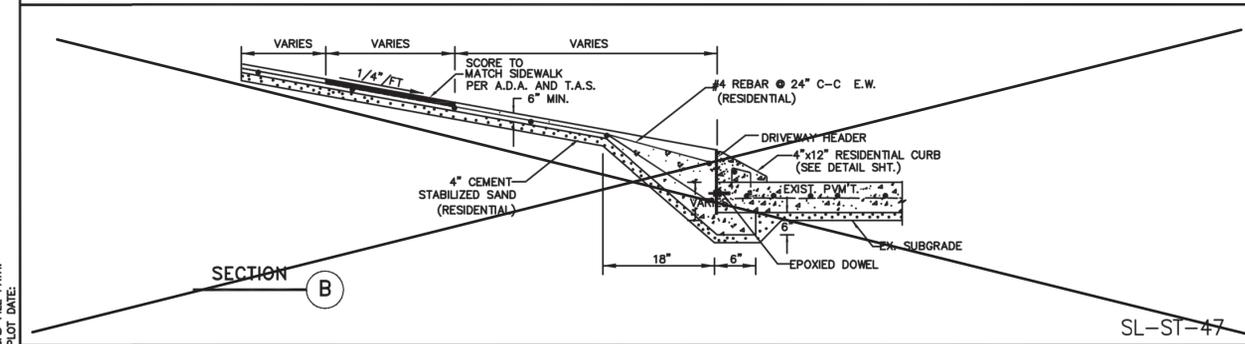
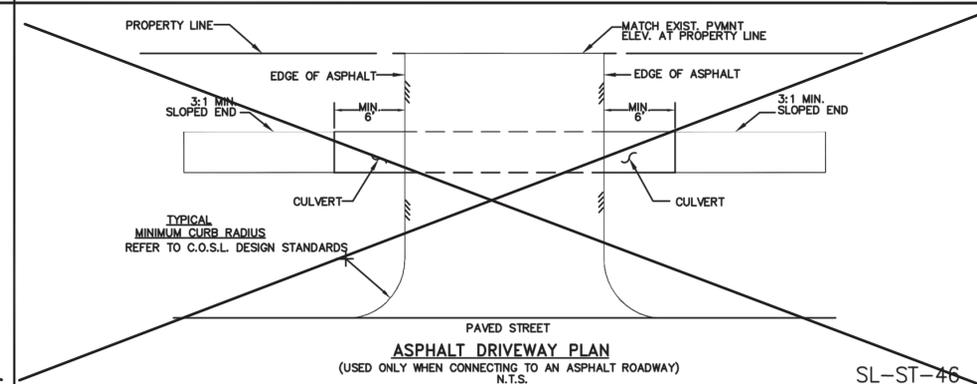
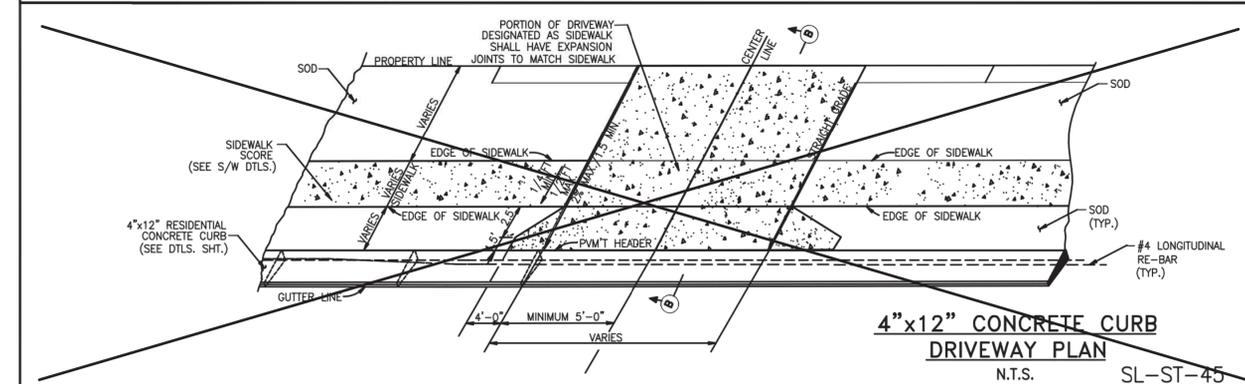


**TABLE-A**

CEMENT STABILIZED SAND 2-SK/C.Y.	
RESIDENTIAL	4" MINIMUM
COMMERCIAL	6" MINIMUM
INDUSTRIAL	8" MINIMUM
REINFORCED CONCRETE PAVEMENT 3000 PSI MIN	
RESIDENTIAL	4" MINIMUM
COMMERCIAL	6" MINIMUM
INDUSTRIAL	8" MINIMUM

**DRIVEWAY PAVEMENT CONSTRUCTION TABLE**

No.	DATE	REVISION



SEAL: \_\_\_\_\_

DESIGN ENGINEER: \_\_\_\_\_ DATE: \_\_\_\_\_



CITY OF SUGAR LAND, TEXAS  
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:

**DRIVEWAY CONSTRUCTION DETAILS**

JOB No.: \_\_\_\_\_  
DATE: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
SCALE: \_\_\_\_\_

SL-27  
SHEET OF

DESIGNED: MS

DRAWN: \_\_\_\_\_

CHECKED: \_\_\_\_\_

DATE: \_\_\_\_\_

NO.	DATE	DESCRIPTION	APPROVED

REVISIONS

**B & L**  
BAKER & LAWSON, INC.  
ENGINEERS • PLANNERS • SURVEYORS  
4005 TECHNOLOGY DRIVE, SUITE 1530  
ANGLETON, TEXAS 77515 (979) 849-6681  
REG. NO. F-825

The seal appearing on this document was authorized by Miguelangel A. Saucedo P.E. 121992



05-19-2023

OWNER:  
**DR. PATRICK THOMAS, DDS**  
913 CANNAN DRIVE  
ANGLETON, TX 77515

PLAN: \_\_\_\_\_  
PROFILE: \_\_\_\_\_  
HORIZONTAL: \_\_\_\_\_  
VERTICAL: \_\_\_\_\_

PT STORAGE FACILITY  
ANGLETON, TEXAS 77515

DRIVEWAY CONSTRUCTION DETAILS  
SL-27

PROJECT NO. 15239

SD.11

