

GENERAL NOTES

GENERAL NOTES ON THE PROJECT PLANS AND DRAWINGS ARE SOLELY TO AID AND ASSIST THE CONTRACTOR WITH THE FIELD OPERATIONS FOR THE PROJECT. SAID GENERAL NOTES MAY NOT FULLY DESCRIBE ALL OF THE REQUIREMENTS FOR AN ITEM. THEREFORE, THE CONTRACTOR SHALL READ AND VERIFY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE PLANS, SPECIFICATIONS, GENERAL TERMS AND CONDITIONS, AND THE SUPPLEMENTAL TERMS AND CONDITIONS TO FULLY UNDERSTAND AND COMPLY WITH ALL THE REQUIREMENTS THEREIN. THE LOCATION AND SIZE OF ALL EXISTING UTILITIES AND TOPOGRAPHY HAVE BEEN PREPARED FROM INFORMATION AVAILABLE TO THE ENGINEER. THIS INFORMATION IS NOT GUARANTEED AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION OF ANY EXISTING UTILITIES AND TOPOGRAPHY PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL VERIFY ALL UTILITIES, BY ELECTRONIC METHODS AND BY HAND EXCAVATION IN COORDINATION WITH ALL UTILITY COMPANIES, PRIOR TO BEGINNING ANY CONSTRUCTION OPERATIONS. THIS WORK BY THE CONTRACTOR SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

1. APPLICABLE CODES

- 1.1. GENERAL  
ALL CONSTRUCTION, MATERIALS AND TESTING SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF CITY OF DELRAY BEACH, PALM BEACH COUNTY AND ALL OTHER LOCAL AND NATIONAL CODES WHERE APPLICABLE. WHEN ANY OF THE GOVERNING REGULATORY AGENCY'S STANDARDS ARE IN CONFLICT, THE MORE STRINGENT OF THE TWO SHALL APPLY.
- 1.2. CONSTRUCTION SAFETY  
ALL CONSTRUCTION SHALL BE DONE IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- 1.3. TRENCH SAFETY ACT  
CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLIANCE WITH THE STATE OF FLORIDA TRENCH SAFETY ACT.
- 1.4. SURVEY DATA  
ALL ELEVATIONS ON THE PLANS OR REFERENCED IN THE SPECIFICATIONS UNLESS OTHERWISE NOTED, ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88').

2. PRECONSTRUCTION RESPONSIBILITIES

- 2.1. THE CONTRACTOR SHALL OBTAIN A SUNSHINE STATE ONE CALL AT 811 CERTIFICATION NUMBER AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION.
- 2.2. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE SIZE, LOCATION, ELEVATION, AND MATERIAL OF ALL EXISTING UTILITIES WITHIN THE AREA OF CONSTRUCTION. EXISTING UTILITY LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF EXISTING UTILITIES SHOWN OR FOR ANY EXISTING UTILITIES NOT SHOWN.
- 2.4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY EXISTING UTILITIES FOR WHICH HE FAILS TO REQUEST LOCATIONS FROM THE UTILITY OWNER. HE IS RESPONSIBLE AS WELL FOR DAMAGE TO ANY EXISTING UTILITIES WHICH ARE PROPERLY LOCATED.
- 2.5. CONTRACTOR SHALL OBTAIN AND KEEP COPIES OF ALL REQUIRED PERMITS ONSITE PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR WORK PERFORMED WITHOUT PERMITS.

3. INSPECTIONS

- 3.1. THE CONTRACTOR SHALL NOTIFY CITY OF DELRAY BEACH, THE ENGINEER OF RECORD AND PALM BEACH COUNTY, IF APPLICABLE, AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION AND PRIOR TO THE INSPECTION OF THE FOLLOWING ITEMS:
  - 3.1.1. STORM DRAINAGE
  - 3.1.2. SANITARY SEWER
  - 3.1.3. WATER SYSTEM
  - 3.1.4. SUBGRADE - SUBMIT AND HAVE APPROVED DENSITIES PRIOR TO PLACEMENT OF ROCK LIMEROCK BASE - SUBMIT AND HAVE APPROVED DENSITIES AND AS-BUILTS PRIOR TO THE PLACEMENT OF ANY ASPHALT.
  - 3.1.6. ASPHALTIC CONCRETE
  - 3.1.7. FINAL INSPECTION
- 3.2. ALL INSPECTIONS SHALL BE MADE BY CITY OF DELRAY BEACH, THE ENGINEER OF RECORD WILL PROVIDE GENERAL CONSTRUCTION OBSERVATION SERVICES.

4. SHOP DRAWINGS

- 4.1. PRIOR TO THEIR CONSTRUCTION OR INSTALLATION, SHOP DRAWINGS SHALL BE SUBMITTED TO AND REVIEWED BY CITY OF DELRAY BEACH AND ENGINEER OF RECORD FOR SANITARY MANHOLES, CATCH BASINS, FIRE HYDRANTS, VALVES AND OTHER MECHANICAL/ELECTRICAL EQUIPMENT WITH ASSOCIATED STRUCTURES, INCLUDING ALL DATA, CATALOGUE, LITERATURE, SHALL BE SUBMITTED FOR WATER AND SEWER PIPES, FITTINGS, AND APPURTENANCES.
- 4.2. PRIOR TO SUBMITTING SHOP DRAWINGS TO THE ENGINEER, THE CONTRACTOR SHALL REVIEW AND APPROVE THE DRAWINGS, AND SHALL NOTE IN RED ANY DEVIATIONS FROM THE ENGINEER'S PLANS OR SPECIFICATIONS.
- 4.3. INDIVIDUAL SHOP DRAWINGS FOR ALL PRECAST STRUCTURES ARE REQUIRED. CATALOGUE LITERATURE WILL NOT BE ACCEPTED FOR PRECAST STRUCTURES.

5. TEMPORARY FACILITIES

- 5.1. TEMPORARY UTILITIES  
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR OR SUPPLY TEMPORARY WATER SERVICE, SANITARY FACILITIES AND ELECTRICITY TO HIS EMPLOYEES AND SUBCONTRACTORS FOR THEIR USE DURING CONSTRUCTION.
- 5.2. TRAFFIC REGULATION
  - 5.2.1. MAINTENANCE OF TRAFFIC IN THE PUBLIC RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE MUTCD.
  - 5.2.2. ALL OPEN TRENCHES AND HOLES ADJACENT TO ROADWAYS OR WALKWAYS SHALL BE PROPERLY MARKED AND BARRICADED TO ASSURE THE SAFETY OF BOTH VEHICULAR AND PEDESTRIAN TRAFFIC.
  - 5.2.3. NO TRENCHES OR HOLES NEAR WALKWAYS OR IN ROADWAYS OR THEIR SHOULDERS ARE TO BE LEFT OPEN DURING NIGHTTIME HOURS WITHOUT EXPRESS PERMISSION OF THE ENGINEER, CITY OF DELRAY BEACH AND LOCAL OR PALM BEACH COUNTY AUTHORITY. ALL CONSTRUCTION WITHIN FOOT RIGHT-OF-WAYS MUST CONFORM WITH FOOT SPECIFICATIONS, STANDARDS AND PERMIT REQUIREMENTS. NO WORK SHALL COMMENCE WITHIN FOOT RIGHT-OF-WAYS WITHOUT AN FOOT PERMIT. FULL LANE WIDTH RESTORATION TO MATCH EXISTING PAVEMENT SECTION IS REQUIRED IN ACCORDANCE WITH STANDARDS FOR PROPOSED WORK WITHIN FOOT RIGHT-OF-WAYS.
- 5.2.5. CONTRACTOR SHALL PREPARE AND SUBMIT MAINTENANCE OF TRAFFIC PLAN (MOT) WHERE REQUIRED BY FEDERAL, STATE, COUNTY OR LOCAL AGENCIES HAVING JURISDICTION. CONTRACTOR SHALL OBTAIN ALL REQUIRED APPROVALS AND PERMITS ASSOCIATED WITH THE MOT'S. ALL MOT'S ARE TO BE ATSSA CERTIFIED.

6. PROJECT CLOSEOUT

- 6.1. CLEANING OUT
  - 6.1.1. DURING CONSTRUCTION, THE PROJECT SITE AND ALL ADJACENT AREAS SHALL BE MAINTAINED IN A NEAT AND CLEAN MANNER. UPON FINAL CLEAN UP, THE PROJECT SITE SHALL BE LEFT CLEAR OF ALL SURPLUS MATERIAL OR TRASH. THE PAVED AREAS SHALL BE SWEEP BROOM CLEAN AS DIRECTED BY THE ENGINEER.
  - 6.1.2. THE CONTRACTOR SHALL RESTORE OR REPLACE, WHEN AND AS DIRECTED BY THE ENGINEER OR CITY OF DELRAY BEACH, ANY PUBLIC OR PRIVATE PROPERTY DAMAGED BY HIS WORK, EQUIPMENT, EMPLOYEES OR THOSE OF HIS SUBCONTRACTORS TO A CONDITION AT LEAST EQUAL TO THAT EXISTING IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS; TO THIS END, THE CONTRACTOR SHALL DO AS REQUIRED ALL NECESSARY HIGHWAY OR DRIVEWAY WALK, IRRIGATION AND LANDSCAPING WORK. ALL SUITABLE MATERIALS AND METHODS SHALL BE USED FOR SUCH RESTORATION.
  - 6.1.3. WHERE MATERIAL OR DEBRIS HAS WASHED OR FLOWED INTO OR BEEN PLACED IN WATER COURSES, DITCHES, DRAINS, CATCH BASINS, OR ELSEWHERE AS A RESULT OF THE CONTRACTOR'S OPERATIONS, SUCH MATERIAL OR DEBRIS SHALL BE REMOVED, SATISFACTORILY DISPOSED OF DURING PROGRESS OF WORK, AND THE AREA KEPT IN A CLEAN AND NEAT CONDITION AS DIRECTED BY THE ENGINEER.
- 6.1.4. CONTRACTOR CHANGES AND DIMENSIONS LOCATIONS AND ELEVATIONS OF ALL IMPROVEMENTS AND SHALL BE SIGNED AND SEALED BY A REGISTERED LAND SURVEYOR OR ENGINEER. FINAL AS-BUILT INFORMATION SHALL BE SUBMITTED ON AN AUTOCAD & PDF FORMAT AS DIRECTED BY THE ENGINEER.
- 6.2. PROJECT RECORD DOCUMENTS
  - 6.2.1. THE CONTRACTOR SHALL MAINTAIN ACCURATE AND COMPLETE RECORDS OF WORK ITEMS COMPLETED.
  - 6.2.2. PRIOR TO THE PLACEMENT OF ANY ASPHALT OR CONCRETE PAVEMENT, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER "AS-BUILT" PLANS SHOWING LIMEROCK BASE GRADES, AND ALL DRAINAGE, WATER AND SEWER IMPROVEMENTS. PAVING OPERATIONS SHALL NOT COMMENCE UNTIL THE ENGINEER AND THE APPROVING AGENCY HAS REVIEWED THE "AS-BUILTS".
  - 6.2.3. ALL REQUIRED DENSITY AND LBR TEST RESULTS FOR SUBGRADE SHALL BE PROVIDED TO THE ENGINEER AND CITY OF DELRAY BEACH PRIOR TO PLACING LIMEROCK BASE MATERIAL.
  - 6.2.4. ALL REQUIRED DENSITY AND LBR TEST RESULTS FOR LIMEROCK SHALL BE PROVIDED TO THE ENGINEER AND CITY OF DELRAY BEACH PRIOR TO PLACING ASPHALT.
  - 6.2.5. ALL "AS-BUILT" INFORMATION SUBMITTED TO THE ENGINEER SHALL BE SUFFICIENTLY ACCURATE, CLEAR AND LEGIBLE TO THE SATISFACTION OF THE ENGINEER THAT THE INFORMATION PROVIDES A TRUE REPRESENTATION OF THE IMPROVEMENTS CONSTRUCTED. LAKE AS-BUILTS WILL BE CROSS SECTIONS SHOWING THE DESIGNED SLOPE AS DASHED, AS-BUILT SECTIONS AS SOLID, AND HAVE THE TOP OF BANK REFERENCE TO THE LAKE MAINTENANCE EASEMENT. SPACING BETWEEN EACH CROSS-SECTION SHALL BE SUCH AS TO PROVIDE ENOUGH DATA TO DETERMINE IF THE LAKE WAS CONSTRUCTED AS DESIGNED.
  - 6.2.7. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD TWO COMPLETE SETS OF "AS-BUILT" CONSTRUCTION DRAWINGS. THESE DRAWINGS SHALL BE MARKED TO SHOW "RECORD DRAWING" OR "AS-BUILT" CONSTRUCTION CHANGES AND DIMENSIONS LOCATIONS AND ELEVATIONS OF ALL IMPROVEMENTS AND SHALL BE SIGNED AND SEALED BY A REGISTERED LAND SURVEYOR OR ENGINEER. FINAL AS-BUILT INFORMATION SHALL BE SUBMITTED ON AN AUTOCAD & PDF FORMAT AS DIRECTED BY THE ENGINEER.

7. Dewatering PERMIT

- 7.1. Dewatering PERMIT IS NOT AVAILABLE FOR THE SITE DEVELOPMENT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A Dewatering PERMIT.

8. UNSUITABLE MATERIAL REMOVAL AND DISPOSAL

- 8.1. CONTRACTOR IS RESPONSIBLE FOR DETERMINATION/INVESTIGATION OF SUBSURFACE CONDITIONS. ALL UNSUITABLE MATERIAL SURFACE AND SUBSURFACE WITHIN AREAS OF CONSTRUCTION IS TO BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS. UNSUITABLE MATERIAL INCLUDES BUT IS NOT LIMITED TO: DEBRIS, ORGANICS/MUCK AND PLASTIC MATERIAL. ALL UNSUITABLE MATERIAL REMOVED SHALL BE REPLACED WITH SUITABLE MATERIAL.

9. GEOTECHNICAL REQUIREMENTS

- 9.1. CONTRACTOR IS RESPONSIBLE FOR DETERMINATION/INVESTIGATION OF SUBSURFACE CONDITIONS.
10. DEMOLITION NOTES
  - 10.1. PROPER SAFETY PRECAUTIONS SHALL BE TAKEN TO SEPARATE AREA OF DEMOLITION FROM SURROUNDING PROPERTY.
  - 10.2. ALL ASPHALT AND CURB SHALL BE SAWCUT AT THE LIMITS OF DEMOLITION PRIOR TO

REMOVAL

- 10.3. ALL DEMOLITION TO BE PERFORMED IN A MANNER TO ELIMINATE HAZARDS TO PERSONS AND PROPERTY, MINIMIZE INTERFERENCE WITH USE OF ADJACENT AREAS, PROVIDE PROTECTION TO THE PUBLIC, AND TO PROVIDE FREE PASSAGE TO AND FROM ADJACENT AREAS OR STRUCTURES.
- 10.4. PRIOR TO AND DURING DEMOLITION, CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING ITEMS TO REMAIN.
- 10.5. CONTRACTOR SHALL REMOVE ALL MATERIALS COME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF ON A DAILY BASIS. DISPOSAL OF DEBRIS SHALL BE IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL PERMITS, RULES AND/OR REGULATIONS.
- 10.6. HAZARDOUS MATERIALS, IF PRESENT, SHALL BE DEALT WITH IN A MANNER CONSISTENT WITH FEDERAL, STATE AND LOCAL REGULATIONS.
- 10.7. UPON COMPLETION OF DEMOLITION, SITE IS TO BE LEFT IN CLEAN CONDITION FREE OF DEBRIS.
- 10.8. CONTRACTOR TO PROVIDE PROPER SEDIMENT CONTROL AND PROTECTION OF STORM WATER STRUCTURES, BOTH WITHIN AND OUTSIDE THE LIMITS OF DEMOLITION AND P/L, TO PREVENT DEPOSIT OF SEDIMENTS CONVEYED THROUGH RUNOFF. CONTRACTOR TO CLEAN AND REMOVE SEDIMENTS FROM ALL STRUCTURES AS NEEDED.
- 10.9. EXISTING UTILITIES INFORMATION IS PROVIDED FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING ALL UTILITIES SHOWN OR NOT SHOWN PRIOR TO DEMOLITION. CONTRACTOR SHALL HAVE ALL UTILITIES PROPERLY LOCATED PRIOR TO COMMENCEMENT OF DEMOLITION.
- 10.10. BRICK AND GROUT ANY REMAINING HOLE OPENINGS IN EXISTING STRUCTURES AFTER REMOVAL OF ANY PIPE DESIGNATED FOR REMOVAL.

11. EARTHWORK

- 11.3. GENERAL
  - 11.3.1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REQUEST A COPY OF THE GEOTECHNICAL ENGINEERING SOILS REPORT AND ADHERE TO THE CONDITIONS AND RECOMMENDATIONS STATED WITHIN.
  - 11.3.2. NONE OF THE EXISTING MATERIAL IS TO BE INCORPORATED IN THE LIMEROCK BASE.
  - 11.3.3. ALL SURFACE UNPAVED AREAS SHALL BE REMOVED TO A MINIMUM LBR VALUE OF 40 AND SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
  - 11.3.4. ALL FILL MATERIAL IN AREAS NOT TO BE PAVED SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
  - 11.3.5. A 2" BLANKET OF TOP SOIL SHALL BE PLACED OVER ALL AREAS TO BE SODDED.
- 11.4. ON-SITE
  - 11.4.1. ALL ORGANIC AND/OR UNSUITABLE MATERIAL UNDER THOSE AREAS TO BE PAVED SHALL BE REMOVED TO A DEPTH OF THREE (3) FEET BELOW FINISHED GRADE AND FOR THREE (3) FEET BEYOND THE PERIMETER OF THE PAVING AND DISPOSED OF BY CONTRACTOR AS PART OF WORK.
  - 11.4.2. ALL EXISTING MATERIAL TO BE REMOVED SHALL BE MINIMUM LBR 40 MATERIAL COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 THREE (3) FEET BEYOND PERIMETER OF THE PAVING.
  - 11.4.3. ALL UNSUITABLE MATERIAL UNDER EXFILTRATION TRENCH LOCATIONS SHALL BE REMOVED AND DISPOSED OF BY CONTRACTOR AS PART OF THIS WORK.

12. STORM DRAINAGE

- 12.1. CONTRACTOR MAY UTILIZE ONE OF THE FOLLOWING MATERIALS (AS DIRECTED AND APPROVED BY APPROVING AUTHORITY) ON A SIZE FOR SIZE BASIS:
    - 12.1.1. ALUMINUM
      - 12.1.1.1. PIPE SHALL BE ALUMINUM, MANUFACTURED IN CONFORMANCE WITH ASTM B-209. METAL SHALL NOT BE ALLOWED WITHIN THE ROAD RIGHT-OF-WAY.
      - 12.1.1.2. PIPE SHALL BE SPIRAL RIB DRAINAGE PIPE WITH 3/4" x 3/4" RIBS. APPROXIMATELY 7-1/2" ON CENTER. GAUGE THICKNESS SHALL MEET FOOT STANDARD 945-1.
      - 12.1.1.3. PIPE COUPLING BANDS SHALL BE 12" WIDE STANDARD SPLIT BANDS OF THE SAME ALLOY AS THE PIPE AND MAY BE ONE GAUGE LIGHTER THAN THE PIPE.
    - 12.1.1.4. POLYURETHANE OR OTHER SEALANT SHALL BE USED WITH COUPLING BANDS ON ALL NON-PERFORATED PIPE.
    - 12.1.1.5. CONTECH ULTRA-FLO
  - 12.1.2. REINFORCED CONCRETE (RCP)
    - 12.1.2.1. REQUIREMENTS OF SECTION 449 OF THE FOOT STANDARD SPECIFICATIONS. ALL REINFORCED CONCRETE PIPE SHALL BE CLASS III WATER TIGHT AND CONFORM TO THE STANDARD SPECIFICATIONS.
    - 12.1.2.2. JOINT DATA CATALOGUE EMPLOY O-RING TYPE GASKETS AS SPECIFIED IN SECTION 942-1 OF FOOT STANDARD SPECIFICATIONS AND ASTM C443-98.
  - 12.1.2.3. PRECAST CONCRETE MANHOLES AND CATCH BASINS SHALL MEET THE REQUIREMENTS OF ASTM SPECIFICATION C-478 AND 647.
  - 12.1.2.4. CONCRETE FOR PRECAST MANHOLES AND CATCH BASINS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
  - 12.1.2.5. REINFORCING STEEL FOR MANHOLES AND CATCH BASINS SHALL CONFORM TO ASTM SPECIFICATION A-615 AND A-305, LATEST EDITION.
  - 12.1.2.6. ALL RE-BAR SPLICES IN CONCRETE STRUCTURES SHALL HAVE A MINIMUM LAP OF 24 BAR DIAMETERS.
  - 12.1.2.7. ALL JOINTS IN CONCRETE STRUCTURES SHALL BE FINISHED WATERTIGHT.
  - 12.1.2.8. ALL SPACES AROUND PIPING ENTERING OR LEAVING MANHOLES AND CATCH BASINS SHALL BE COMPLETELY FILLED WITH 2:1 CEMENT MORTAR.
  - 12.1.2.9. ALL CONCRETE PIPE SHALL HAVE MODIFIED TONGUE AND GROOVE JOINT AND HAVE RUBBER O-RINGS, UNLESS OTHERWISE SPECIFIED.
- 12.1.3. HIGH DENSITY POLYETHYLENE PIPE (HDPE)
  - 12.1.3.1. HIGH DENSITY POLYETHYLENE PIPE FOR STORM SEWERS SHALL CONFORM TO FOOT 948-2.
- 12.1.4. POLYVINYL-CHLORIDE PIPE (PVC)
  - 12.1.4.1. POLYVINYL-CHLORIDE PIPE FOR STORM SEWERS SHALL CONFORM TO FOOT 948-1.
  - 12.1.4.2. CONTECH A2000 PVC
- 12.2. CONCRETE AND STEEL DRAINAGE SYSTEMS SHALL CONFORM TO THE REQUIREMENTS OF FOOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, CURRENT EDITION, SECTION 430. BEDDING AND INITIAL BACKFILL OVER DRAINAGE PIPE SHALL BE SAND WITH NO ROCK LARGER THAN 3/4" & 2" DIAMETER, RESPECTIVELY.
- 12.3. BACKFILL MATERIAL UNDER PAVED AREAS SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
- 12.4. BACKFILL MATERIAL UNDER AREAS NOT TO BE PAVED SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 (INCLUDES SWALE AREAS).
- 12.6. CONTRACTOR SHALL INSTALL AND MAINTAIN TEMPORARY SILT SCREENERS IN CATCH BASINS AND AT LOCATIONS AS DIRECTED BY THE ENGINEER UNTIL FINAL ACCEPTANCE OCCURS.

13. FDEP GENERAL WATER NOTES

- 13.1. ALL PIPE, PIPE FITTINGS, PIPE JOINT PACKING AND JOINTING MATERIALS, VALVES, FIRE HYDRANTS AND METERS INSTALLED SHALL CONFORM TO APPLICABLE AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARDS.
- 13.2. ALL PUBLIC UTILITY COMPONENTS, EXCLUDING FIRE HYDRANTS, THAT WILL COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NST INTERNATIONAL STANDARD 61 AS ADOPTED IN RULE 62-555.335, F.A.C., OR OTHER APPLICABLE STANDARDS, REGULATION OR REQUIREMENTS REFERENCED IN SUBPARAGRAPH 62-555.330(5)(b).
- 13.3. ALL PIPE AND FITTINGS INSTALLED SHALL BE COLOR CODED OR MARKED IN ACCORDANCE WITH SUBPARAGRAPH 62-555.330(21)(B)3, F.A.C., USING BLUE AS PREDOMINANT COLOR. (UNDERGROUND PLASTIC PIPE SHALL BE SOLID-WALL BLUE PIPE, SHALL HAVE A C-EXTRUDED BLUE EXTERNAL SKIN, OR SHALL BE WHITE OR BLACK PIPE WITH BLUE STRIPES. ALL PIPE SHALL BE COLOR CODED OR MARKED IN ACCORDANCE WITH METAL OR CONCRETE PIPE SHALL HAVE BLUE STRIPES AND APPLIED TO THE PIPEWALL. PIPE STRIPPED DURING MANUFACTURING OF THE PIPE SHALL HAVE CONTINUOUS STRIPES THAT RUN PARALLEL TO THE DIRECTION OF FLOW. THAT ARE 1/2" WIDE AND 1/4" HIGH. STRIPES AT 90-DEGREE INTERVALS AROUND THE PIPE AND THAT WILL REMAIN INTACT DURING AND AFTER INSTALLATION OF THE PIPE. IF TAPE OR PAINT IS USED TO STRIPE PIPE DURING PIPE THAT IS LOCATED ALONG THE TOP OF THE PIPE, FOR PIPE WITH AN INTERNAL DIAMETER OF 24 INCHES OR GREATER, TAPE OR PAINT SHALL BE APPLIED IN CONTINUOUS LINES ALONG EACH SIDE OF THE PIPE AS WELL AS ALONG THE TOP OF THE PIPE. ABOVEGROUND PIPE SHALL BE PAINTED BLUE OR SHALL BE COLOR CODED OR MARKED LIKE UNDERGROUND PIPE.)
- 13.4. NEW OR ALTERED WATER MAINS CONSTRUCTED OF POLYVINYL CHLORIDE PIPE SHALL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA STANDARD C603 OR C605, RESPECTIVELY, AS INCORPORATED INTO RULE 62-555.330, F.A.C. AND ALL OTHER NEW OR ALTERED WATER MAINS SHALL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA STANDARD C600 AS INCORPORATED INTO RULE 62-333.330.

14. FDEP GENERAL SEWER NOTES

- 14.1. APPROPRIATE DEFLECTION TESTS ARE SPECIFIED FOR ALL FLEXIBLE PIPE. TESTING IS REQUIRED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS TO PERMIT STABILIZATION OF THE SOIL PIPE SYSTEM. TESTING REQUIREMENTS SPECIFY: 1) NO PIPE SHALL EXCEED A DEFLECTION OF 5% (2) USING A RIGID BALL OR WATER, OR 3) NO PIPE DEFLECTION TEST WITH A DIAMETER NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER OR AVERAGE INSIDE DIAMETER OF THE PIPE, DEPENDING ON WHICH IS SPECIFIED IN THE ASTM SPECIFICATION, INCLUDING THE APPENDIX, TO WHICH THE PIPE IS MANUFACTURED, AND 3) PERFORMING THE TEST WITHOUT MECHANICAL PULLING DEVICES.
- 14.2. LEAKAGE TESTS ARE SPECIFIED REQUIRING THAT: 1) THE LEAKAGE EXFILTRATION OR INFILTRATION DOES NOT EXCEED 100 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY FOR ANY SECTION OF THE SYSTEM; 2) EXFILTRATION OR INFILTRATION TEST BE PERFORMED WITH A MINIMUM POSITIVE HEAD OF 2 FEET; AND 3) IF POSITIVE HEAD IS A MINIMUM, CONFORM TO THE TEST PROCEDURE DESCRIBED IN ASTM C924 FOR CONCRETE PIPE, ASTM F-1417 FOR PLASTIC PIPE, AND FOR OTHER MATERIALS APPROPRIATE TEST PROCEDURES. DESIGN REQUIRES THAT A BENCH BE PROVIDED ON EACH SIDE OF ANY MANHOLE CHANNEL WHEN THE PIPE DIAMETER(S) ARE LESS THAN THAT THE MANHOLE DIAMETER AND THAT NO LATERAL SEWER, SERVICE CONNECTION, OR DROP MANHOLE PIPE DISCHARGES ONTO THE SURFACE OF THE BENCH.
- 14.4. DESIGN REQUIRES: 1) MANHOLE LIFT HOLES AND GRADE ADJUSTMENT RINGS BE SEALED WITH NON-SHRINK MORTAR OR OTHER APPROPRIATE MATERIAL; 2) INLET AND OUTLET PIPES BE JOINED TO THE MANHOLE WITH A GASKETED FLEXIBLE WATERTIGHT CONNECTION OR ANOTHER WATERTIGHT CONNECTION ARRANGEMENT THAT ALLOWS DIFFERENTIAL SETTLEMENT OF THE PIPE AND MANHOLE WALL; AND 3) WATERTIGHT MANHOLE COVERS BE USED WHEREVER THE MANHOLE TOPS MAY BE FLOODED BY STREET RUNOFF OR OTHER WATERS.
- 14.5. MANHOLE INSPECTION AND TESTING FOR WATERTIGHTNESS OR DAMAGE PRIOR TO PLACING INTO SERVICE AREA SPECIFIED. AIR TESTING, IF SPECIFIED FOR CONCRETE SEWER MANHOLES, CONFORMS TO THE TEST PROCEDURES DESCRIBED IN ASTM.
- 14.6. SUITABLE COUPLINGS APPROVED BY THE ENGINEER AND COMPLYING WITH ASTM SPECIFICATIONS ARE REQUIRED FOR JOINING DISSIMILAR MATERIALS.

15. GENERAL WATER AND SEWER NOTES

- 15.1. ALL APPLICABLE PERMITS MUST BE OBTAINED AND ALL APPLICABLE FEES AND CHARGES MUST BE PAID PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- 15.2. A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH CITY OF DELRAY BEACH ATTENDED BY THE CONTRACTOR, ENGINEER AND OTHER INTERESTED PARTIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- 15.3. THE CONTRACTOR SHALL MAINTAIN AT ALL TIMES ON THE SITE, A CURRENT SET OF APPROVED CONSTRUCTION PLANS. THE PLANS SHALL BE MADE AVAILABLE TO THE

MUNICIPALITY'S ENGINEER OR HIS DESIGNEE UPON REQUEST.

- 15.4. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE APPROVED PLANS. APPROVAL OF PLANS BY THE MUNICIPALITY IN NO WAY IMPLIES VERIFICATION OF THE ACCURACY OF THOSE PLANS OR FEATURES DEPICTED THEREON. THE OWNER'S ENGINEER SHALL BRING TO THE ATTENTION OF THE MUNICIPALITY'S ENGINEER ANY DISCREPANCY IN, OR VARIATION FROM, THE APPROVED PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING AND NEWLY INSTALLED UTILITIES AND IMPROVEMENTS THROUGHOUT THE DURATION OF SERVICE OR DESTRUCTION AT ALL TIMES THROUGHOUT THE DURATION OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING SUCH MEASURES AS NECESSARY TO PROTECT THE HEALTH, SAFETY AND WELFARE OF THOSE PERSONS HAVING ACCESS TO THE WORK SITE. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO SAFEGUARD ALL EXISTING STRUCTURES AND UTILITIES. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS. ANY AND ALL CONFLICTS WITH EXISTING UTILITIES SHALL BE REPORTED TO THE ENGINEER.
- 15.5. THE CONTRACTOR SHALL INFORM THE MUNICIPALITY OF ANY EXISTING STRUCTURES IN ADVANCE OF COMMENCING CONSTRUCTION AND/OR CONNECTING TO A MUNICIPAL FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SCHEDULING OF, AND PAYMENT FOR, SUCH TESTS AS MAY BE DEEMED NECESSARY BY THE OWNER'S ENGINEER OR THE MUNICIPAL ENGINEER, AND AS CALLED FOR IN THE PLANS AND SPECIFICATIONS.
- 15.7. THE OWNER'S ENGINEER SHALL MAKE SUFFICIENT INSPECTIONS OF THE WORK TO ENABLE HIM TO CERTIFY THE INSTALLATION AS BEING IN CONFORMANCE WITH THE APPLICABLE STANDARDS AND SPECIFICATIONS.
- 15.8. THE OWNER'S REPRESENTATIVE WILL INFORM THE CONTRACTOR WHEN TO BACK FILL THE WORK, AND WILL WITNESS ALL PRESSURE, BACTERIOLOGICAL AND INFILTRATION/EXFILTRATION TESTS.
- 15.9. SANITARY SEWERS AND FORCE MAINS SHOULD CROSS UNDER WATER MAINS WHENEVER POSSIBLE. SANITARY SEWERS AND FORCE MAINS SHALL BE Laid TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE WHENEVER POSSIBLE. WHERE SANITARY SEWERS OR FORCE MAINS MUST CROSS A WATER MAIN WITH LESS THAN 18 INCHES VERTICAL DISTANCE, BOTH THE SEWER AND THE WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP), MIN. CLASS 52 AT THE CROSSING. SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 12 INCHES MUST BE MAINTAINED AT ALL CROSSINGS. ALL CROSSINGS SHALL BE ARRANGED SO THAT THE SEWER PIPE AND THE WATER MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING (PIPES CENTERED ON THE CROSSING). WHERE A NEW PIPE CONFLICTS WITH AN EXISTING PIPE WITH LESS THAN 18 INCHES VERTICAL CLEARANCE, THE PIPE SHALL BE ARRANGED TO MEET THE CROSSING REQUIREMENTS ABOVE.
- 15.10. A MINIMUM OF 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ANY TYPE OF SEWER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE. IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10 FOOT HORIZONTAL SEPARATION, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR IN AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER OR FORCE MAIN AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER WHERE IT IS NOT POSSIBLE TO MAINTAIN A VERTICAL DISTANCE OF 18 INCHES IN PARALLEL INSTALLATIONS. THE WATER MAIN SHALL BE CONSTRUCTED OF DIP AND THE SANITARY SEWER OR THE FORCE MAIN SHALL BE CONSTRUCTED OF DIP. THE WATER MAIN SHALL BE CONSTRUCTED OF DIP WITH A MINIMUM VERTICAL SEPARATION OF 6 INCHES. THE WATER MAIN SHOULD ALWAYS BE ABOVE THE SEWER. JOINTS ON THE WATER MAIN SHALL BE LOCATED AS FAR APART AS POSSIBLE FROM JOINTS ON THE SEWER OR FORCE MAIN (STAGGERED JOINTS).
- 15.11. NO DEVIATION FROM APPROVED PLANS SHALL BE PERMITTED WITHOUT THE WRITTEN CONSENT OF THE MUNICIPAL ENGINEER.
- 15.12. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THESE PLANS WITH ANY PAVING AND DRAINAGE PLANS IN THIS PROJECT WORK AREA.
- 15.13. ALL INSTALLATIONS WITHIN THE COUNTY RIGHT-OF-WAY SHALL BE IN CONFORMITY WITH THE COUNTY ENGINEERING DIVISION "MINIMUM STANDARDS".
- 15.14. ALL INSTALLATIONS AND TESTING OF DUCTILE IRON PIPE SHALL COMPLY WITH ANSI/AWWA C-600-99 (OR CURRENT EDITION)
- 15.15. COATINGS AND LININGS (DIP):
  - 15.15.1. DUCTILE IRON PIPE AND FITTINGS FOR UNDERGROUND SERVICE SHALL RECEIVE AN EXTERIOR BITUMINOUS COATING OF COAL TAR EPDM OR AN EPOXY RESIN AS BASE PAINT, 1.0-MIL FILM THICKNESS IN ACCORDANCE WITH ANSI/AWWA A21.51/C-151.
  - 15.15.2. EXPOSED DUCTILE IRON PIPE AND FITTINGS FOR SERVICE SHALL RECEIVE A FACTORY APPLIED EXTERIOR COATING OF UNIVERSAL RUST-INHIBITIVE PRIMER, 2.0 MILS DRY FILM THICKNESS.
- 15.15.3. DUCTILE IRON PIPE AND FITTINGS FOR WASTEWATER SERVICE SHALL RECEIVE A FACTORY APPLIED INTERIOR CERAMIC EPXY COATING WITH A MINIMUM DRY THICKNESS OF 40 MILS IN ACCORDANCE WITH ANSI/AWWA C21.51/C-151, PROTECTO-2000.
- 15.15.4. DUCTILE IRON PIPE AND FITTINGS FOR WATER AND REUSE SERVICE SHALL RECEIVE AN EXTERIOR COATING AS SPECIFIED ABOVE AND SHALL BE CEMENT MORTAR LINED AND BITUMINOUS SEALED IN ACCORDANCE WITH ANSI A21.4.

SD P = C1/2  
L = 148,000

WHERE:  
L = ALLOWABLE LEAKAGE IN GPH  
D = NOMINAL PIPE DIAMETER IN INCHES  
S = LENGTH OF PIPE IN FEET BEING TESTED  
P = AVERAGE TEST PRESSURE IN PSI

NOTE: THE SECTION OF MAIN BEING TESTED SHALL BE LIMITED TO A MAXIMUM LENGTH OF 2000'.

16. WATER SYSTEM NOTES

- 16.1. ALL WATER MAINS LARGER THAN 12" SHALL BE DUCTILE IRON PIPE (DIP). ALL PIPE MATERIAL SHALL BE APPROVED BY THE ENGINEER AND SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
  - 16.1.1. PVC (NOT ALLOWED)
  - 16.1.1.1. 4" AND 6" DIA. CLASS 500, DR14
  - 16.1.1.2. 8" AND 12" DIA. CLASS 150, DR18 ANSI/AWWA C900-07
  - 16.1.2. DIP
    - 16.1.2.1. 15.1.1.1. ANSI/AWWA C151/A21.51 - 02 AND CEMENT MORTAR LINED AND SEALED PER ANSI/AWWA C104/A21.4-02
    - 16.1.2.2. PRESSURE CLASS 350 FOR 4"-24" DIAMETER PIPE
    - 16.1.2.3. PRESSURE CLASS 250 FOR 30" OR GREATER DIAMETER PIPE
    - 16.1.2.4. CLASS 53 FOR FLANGED APPLICATIONS
  - 16.1.2. ALL DUCTILE IRON PIPE WATER MAINS SHALL BE INSTALLED WITH A MINIMUM CLEAR COVER OF 36 INCHES. ALL PVC WATER MAINS SHALL BE INSTALLED WITH MINIMUM CLEAR COVER OF 36 INCHES.
  - 16.3. ALL TRENCHING, PIPE-LAYING, BACKFILL, PRESSURE TESTING AND DISINFECTING MUST COMPLY WITH THE COUNTY OFFICE MINIMUM CODE REQUIREMENTS.
  - 16.4. MINIMUM CLEARANCE BETWEEN STORM STRUCTURES AND WATER MAINS SHALL BE 6', AND MAXIMUM DEFLECTION PER EACH JOINT SHALL BE 2" WHERE DEFLECTION IS REQUIRED.
  - 16.5. ALL FITTINGS SHALL BE CAST IRON OR DUCTILE IRON MEETING ANSI/AWWA C-110/A21.10-03 SPECIFICATIONS, WITH 250 PSI MINIMUM WORKING PRESSURE. FITTINGS MUST BE CEMENT LINED AND SEAL COATED PER ANSI/AWWA C151/A21.51-02 AND C-104/A21.4-03.
  - 16.6. MEG-A-LUG OR APPROVED EQUAL RESTRAINED JOINT CONSTRUCTION, IF APPROVED BY THE ENGINEER, SHALL BE USED TO MINIMIZE OR ELIMINATE THRUST BLOCKS.
  - 16.7. GATE VALVES 4 INCH AND LARGER SHALL BE RESILIENT SEAT AND SHALL MEET ANSI/AWWA C-509-01 SPECIFICATIONS (LATEST REVISION). VALVES SHALL BE MUELLER OR APPROVED EQUAL.
  - 16.8. MIN. VALVE SPACING SHALL BE AS PER SECTION 8.2 OF THE TEN STATES STANDARDS.
  - 16.9. FIRE HYDRANTS SHALL BE AS REQUIRED BY THE MUNICIPAL AUTHORITY AND AT A MINIMUM SHALL BE TRAFFIC BREAKAWAY TYPE MUELLER CO. CENTURIUM MODEL NO. A-423 OR APPROVED EQUAL AND SHALL BE INSTALLED WITH THE CENTER OF THE HOSE NOZZLE 18" ABOVE FINISHED GRADE, OR AS DIRECTED BY ENGINEER.
  - 16.10. CONTRACTOR SHALL SUBMIT REQUIRED NUMBER OF COPIES AS REQUESTED BY THE ENGINEER OF THE PROPOSED MATERIALS.
    - 16.10.1. PIPE AND FITTINGS
    - 16.10.2. VALVES
    - 16.10.3. FIRE HYDRANTS
    - 16.10.4. CURB AND CORP. STOPS
    - 16.10.5. WATER SERVICE TUBING
    - 16.10.6. U BRANCHES
    - 16.10.7. WATER SERVICE CASING
    - 16.10.8. ALL OTHERS AS REQUESTED BY THE ENGINEER OR THE OWNER.
  - 16.11. WHEN PVC PIPE IS USED FOR WATER MAINS, A 14-GAUGE MULTISTRAND COPPER WIRE OR APPROVED EQUAL MATERIAL SHALL BE INSTALLED CONTINUOUSLY ALONG THE LENGTH OF THE PIPE. THE WIRE SHALL BE BROUGHT UP AND A MINIMUM OF FOUR FEET OF EXCESS WIRE SHALL BE COILED AT EACH VALVE. A GREEN LOCATOR (MODEL NO. 1253 AS MANUFACTURED BY AUTOMATION PRODUCTS CO.) OR APPROVED EQUAL SHALL BE INSTALLED AT EVERY WATER SERVICE.
  - 16.12. THE COMPLETE WATER SYSTEM SHALL BE HYDROSTATICALLY TESTED UNDER A MINIMUM CONSTANT PRESSURE OF 150 PSI FOR A MINIMUM 2 HOURS TEST AND SHALL NOT EXCEED THE LEAKAGE REQUIREMENTS AS PER ANSI/AWWA SPECIFICATIONS C600-05 IN ACCORDANCE WITH THE FOLLOWING LEAKAGE FORMULA:  
$$L = \frac{SD \cdot P \cdot C1/2}{L} = 148,000$$

WHERE:  
L = ALLOWABLE LEAKAGE IN GPH  
D = NOMINAL PIPE DIAMETER IN INCHES  
S = LENGTH OF PIPE IN FEET BEING TESTED  
P = AVERAGE TEST PRESSURE IN PSI

NOTE: THE SECTION OF MAIN BEING TESTED SHALL BE LIMITED TO A MAXIMUM LENGTH OF 2000'. NO ALLOWABLE LEAKAGE SHALL BE PERMITTED FOR FIRE HYDRANTS.

- 16.1. DISINFECTION OF WATER MAINS SHALL COMPLY WITH ANSI/AWWA C-651-05 STANDARD.
- 16.14. THE CONTRACTOR SHALL SUPPLY AND INSTALL APPROVED REFLECTIVE MARKERS IN THE STREET DRIVING LANE ADJACENT TO ALL FIRE HYDRANTS. COLOR AND LOCATION SHALL BE DIRECTED BY THE ENGINEER.
- 16.15. PAVEMENT RESTORATION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
- 16.16. ALL WATER MAIN INSTALLATIONS SHALL COMPLY WITH THE COLOR CODING REQUIREMENTS OF CHAPTER 62-555.320, F.A.C.
- 16.17. RESTRAINED JOINT PIPE SHALL BE USED FOR ALL BENDS, TEES, CROSSES, PLUGS AND FIRE HYDRANTS PER THE STANDARD DETAILS AND MUNICIPAL UTILITY REQUIREMENTS.

17. FIRE SAFETY NOTES

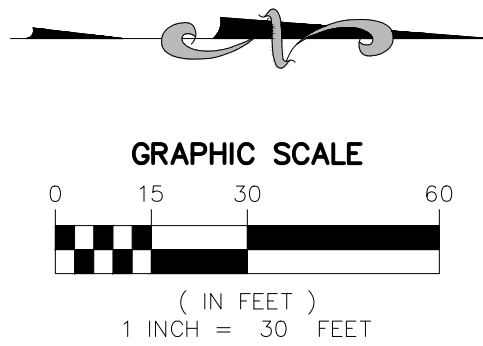
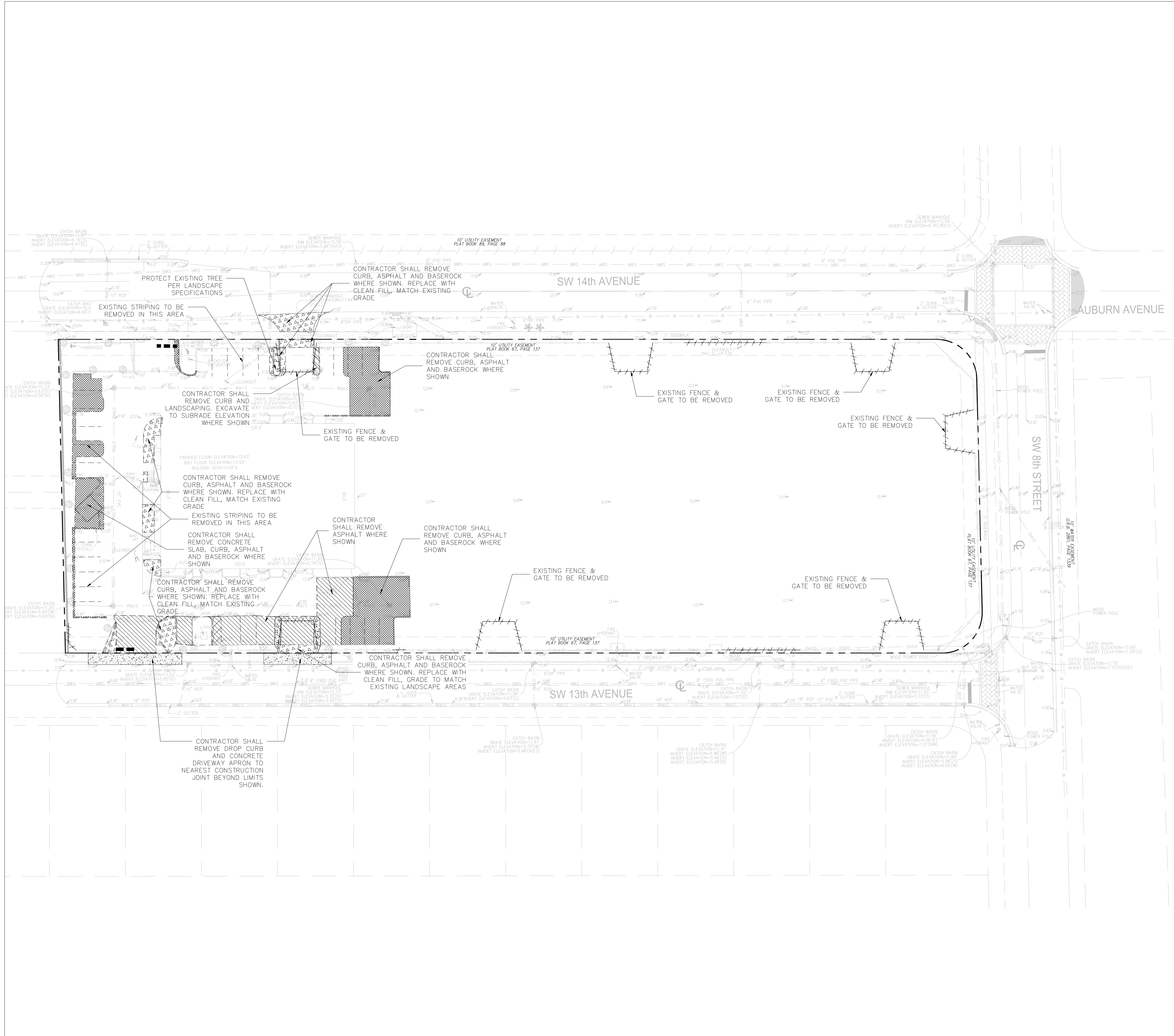
- 17.1. ALL FIRE HYDRANTS SHALL COMPLY WITH THE FOLLOWING INSTALLATION CRITERIA:
  - 17.1.1. ALL FIRE HYDRANTS SHALL FALL WITHIN 6 FEET FROM THE EDGE OF PAVED ROAD SURFACE OR DRIVEWAY.
  - 17.1.2. THE 4-1/2" OUTLET SHALL FACE THE ROADWAY.
  - 17.1.3. UNOBSTRUCTED SPACE (6') SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE FIRE HYDRANT UNLESS OTHERWISE REQUIRED OR APPROVED BY THE FIRE CHIEF.
  - 17.1.4. FIRE DEPARTMENT SHALL APPROVE ALL FIRE HYDRANT LOCATIONS.
  - 17.1.5. REFLECTORS IN THE ROADWAY TO INDICATE FIRE HYDRANT LOCATIONS SHALL BE PROVIDED AND INSTALLED AS DIRECTED BY THE ENGINEER.
  - 17.1.6. MINIMUM WATER FLOW REQUIRED FOR FIRE HYDRANTS SHALL BE 750 GPM OR AS REQUIRED BY THE MUNICIPAL AUTHORITY.
18. PAVING
  - 18.17. GENERAL
    - 18.17.1. ALL UNDERGROUND UTILITIES SHALL BE COMPLETED PRIOR TO THE CONSTRUCTION OF THE LIMEROCK BASE AND PRIOR TO THE PAVEMENT.
    - 18.17.2. ALL STREET CORNER PAVEMENT RADIUS SHALL BE 25 FEET UNLESS OTHERWISE NOTED ON THE PLANS.
    - 18.17.3. TWO ROWS OF BAHIA SD SHALL BE LAID ALONG CURB WITHIN TWO WEEKS OR AS DIRECTED BY THE ENGINEER OF INSTALLING FIRST LIFT OF ASPHALT.
  - 18.18. MATERIALS
    - 18.18.1. LIMEROCK BASE MATERIAL SHALL HAVE A MINIMUM OF 70% CARBONATES (CALCIUM AND MAGNESIUM) WITH A MINIMUM LBR OF 100.
    - 18.18.2. SUBGRADE MATERIAL SHALL HAVE A MINIMUM LBR OF 40 AND INSTALLED AT 98% AASHTO T-180 SPECS. (INCLUDES STABILIZED ROADWAY SHOULDERS)
    - 18.18.3. PRIME COAT AND TACK COAT SHALL MEET FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARDS.
  - 18.18.4. SURFACE COURSE SHALL BE EQUAL TO FDOT TYPE S-3 (SP9.5 EQUIVALENT) ASPHALT CONCRETE. CONTRACTOR TO SUBMIT FDOT APPROVED ASPHALT MIX SHOP DRAWINGS FOR ENGINEER'S REVIEW/APPROVAL PRIOR TO PLACEMENT OF ANY ASPHALT.
  - 18.19. INSTALLATION
    - 18.19.1. LIMEROCK BASE MATERIAL SHALL BE 8" THICK OR AS SHOWN AND SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
    - 18.19.2. LIMEROCK BASE MATERIAL SHALL BE PLACED IN TWO OR MORE EQUAL LIFTS.
    - 18.19.3. ASPHALTIC CONCRETE SHALL BE AS INDICATED ON PLANS, AND PLACED IN TWO (2) LIFTS.
    - 18.19.4. PRIME COAT SHALL BE PLACED ON ALL LIMEROCK BASES IN ACCORDANCE WITH FDOT STANDARDS.
    - 18.19.5. TACK COAT SHALL BE PLACED AS REQUIRED IN ACCORDANCE WITH FDOT STANDARDS.
  - 18.20. TESTING
    - 18.20.1. ALL SUBGRADE, LIMEROCK AND ASPHALT TESTS REQUIRED SHALL BE TAKEN AT THE DIRECTION OF THE ENGINEER AND/OR CITY OF DELRAY BEACH.
  - 18.21. PAVERS
    - 18.21.1. ALL PAVEMENT MATERIAL, INSTALLATION AND MAINTENANCE SPECIFICATIONS SHALL MEET THE REQUIREMENTS OF CITY OF DELRAY BEACH.

19. SIGNING AND MARKING

- 19.1. PAVEMENT MARKINGS, REFLECTIVE PAVEMENT MARKERS AND GEOMETRICS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFF



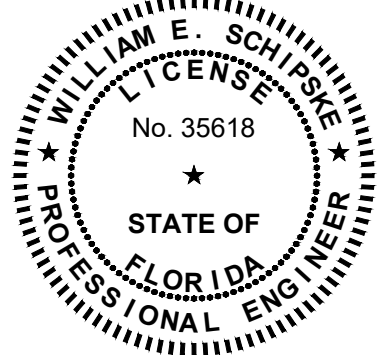
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LEGEND:

- RIGHT OF WAY/PROPERTY LINE
- EXISTING CONCRETE SIDEWALK/SURFACE (TO REMAIN)
- EXISTING CONCRETE PAVERS (TO REMAIN)
- EXISTING STORM DRAINAGE LINE (TO REMAIN)
- EXISTING DRAINAGE CATCH BASIN/CURB INLET/MANHOLE (TO REMAIN)
- EXISTING SANITARY SEWER LINE (TO REMAIN)
- EXISTING SANITARY SEWER MANHOLE (TO REMAIN)
- EXISTING BURIED ELECTRIC LINE (TO REMAIN)
- EXISTING WIRING PULL BOX/ELECTRIC METER/UTILITY POLE (TO REMAIN)
- EXISTING WATER LINE (TO REMAIN)
- EXISTING IRRIGATION LINE (TO REMAIN)
- EXISTING BACKFLOW PREVENTER/WATER VALVE/WATER METER/IRRIGATION CONTROL VALVE/FIRE HYDRANT (TO REMAIN)
- EXISTING UNKNOWN UTILITY LINE (TO REMAIN)
- EXISTING BOLLARD/TRAFFIC SIGN/TRASH RECEPTACLE (TO REMAIN)
- EXISTING TREES (TO REMAIN)
- EXISTING CONCRETE SIDEWALK/SURFACE (TO BE REMOVED) (APPROX. 450 SF)
- EXISTING ASPHALT PAVEMENT (TO BE REMOVED) (APPROX. 3,552 SF)
- EXISTING TYPE 'D' CURB (TO BE REMOVED) (APPROX. 175 LF)
- EXISTING DRIVEWAY CURB (TO BE REMOVED) (APPROX. 42 LF)
- EXISTING FENCE & GATE (TO BE REMOVED) (APPROX. 395 LF)
- EXISTING STRIPING (TO BE REMOVED VIA WATER BLASTING)
- EXISTING IRRIGATION LINE (TO BE REMOVED)
- EXISTING IRRIGATION CONTROL VALVE (TO BE REMOVED)
- EXISTING TRAFFIC SIGN/BIKE STAND/BOLLARD (TO BE REMOVED, SEE SHEET C3.0 FOR TRAFFIC SIGN AND BIKE STAND RELOCATION)
- EXISTING TREES (TO BE REMOVED, SEE LANDSCAPE PLANS FOR DETAILS)

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APPROVED: WILLIAM E. SCHIPSKE, P.E.  
FLA. REGISTRATION NO. 35618 DATE: 1/31/2025

SITE DEMOLITION PLAN

**DELRAY BUSINESS INCUBATOR**  
905 14th AVENUE, DELRAY BEACH, FL 33444  
DELRAY INDUSTRIAL PROPERTIES, LLC.

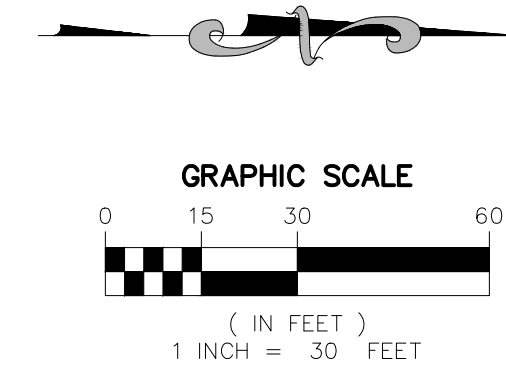
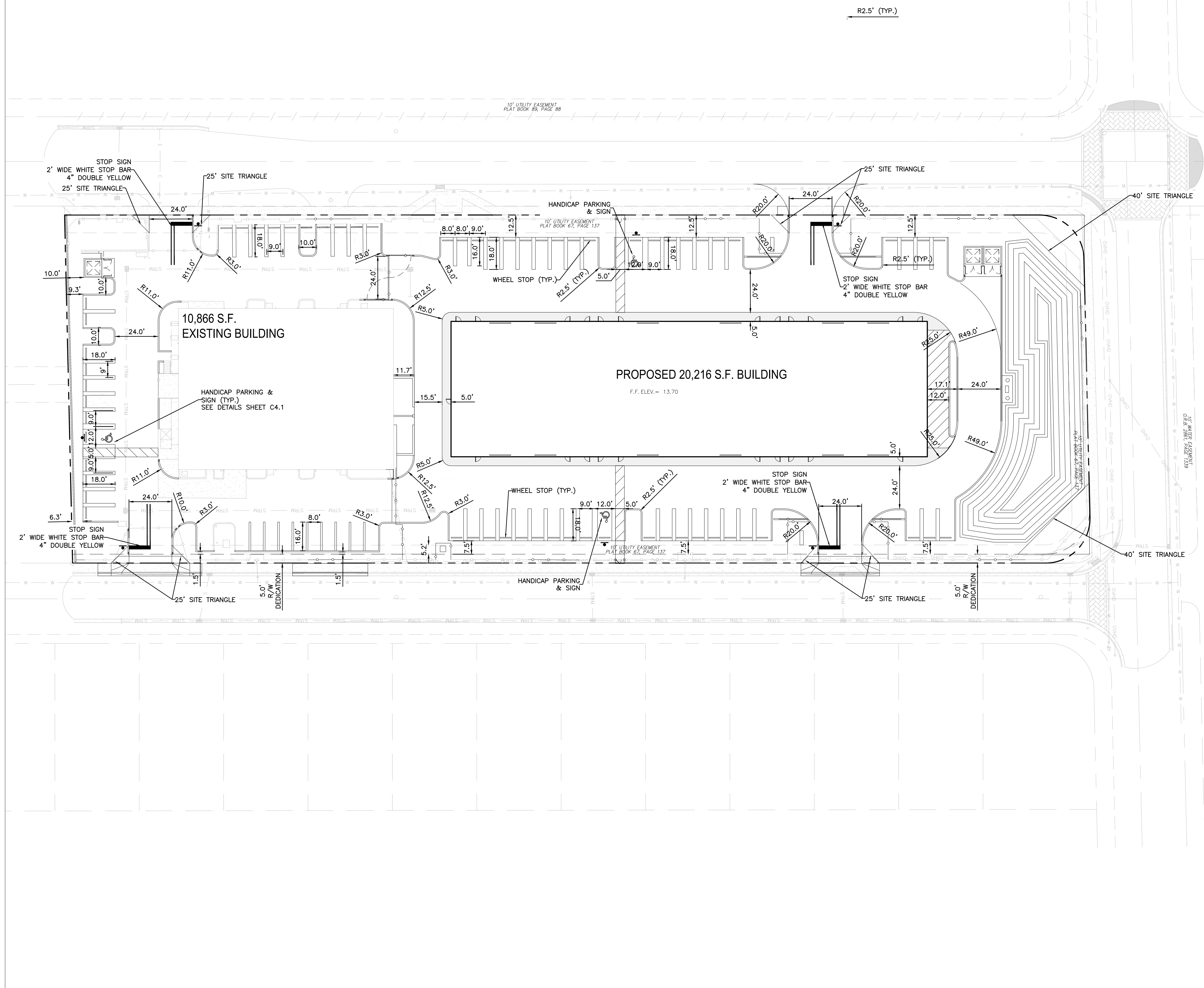
**MILLER LEGG**  
South Florida Office 5747 N. Andrews Way  
Ft. Lauderdale, Florida 33309-2364  
954-438-7000 Fax: 954-438-8664  
www.millerlegg.com

CERTIFICATE OF AUTHORIZATION  
EB7318 LB6686 LC0337  
WES  
DES: DWN: CHN:  
PROJECT / FILE NO.  
**22-00015**  
DRAWING NO.  
**C2.0**  
DATE DRAWN  
8-14-22

8/4/23	SPRAB RESUB 2022-08-04	REV.	DATE	REVISIONS
8/4/23	REV. PER SHIP DRAWING REVIEW			
8/17/25	REV. CENTER DRIVE & ADD PARKING			



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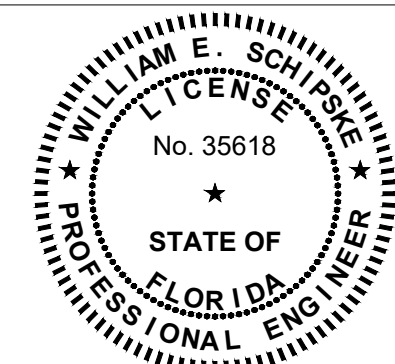


#### LEGEND:

- RIGHT OF WAY/PROPERTY LINE
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- EXISTING CONCRETE PAVERS (TO REMAIN)
- EXISTING DRAINAGE CATCH BASIN/CURB INLET/MANHOLE (TO REMAIN)
- EXISTING SANITARY SEWER MANHOLE (TO REMAIN)
- EXISTING WIRING PULL BOX/ELECTRIC METER/UTILITY POLE (TO REMAIN)
- EXISTING BACKFLOW PREVENTER/WATER VALVE/WATER METER/IRRIGATION CONTROL VALVE/FIRE HYDRANT (TO REMAIN)
- EXISTING BOLLARD/TRAFFIC SIGN/TRASH RECEPTACLE (TO REMAIN)
- EXISTING TREES (TO REMAIN)
- PROPOSED BUILDING
- PROPOSED HAND RAIL
- PROPOSED CONCRETE SIDEWALK/SURFACE (APPROX. 655 SF)
- PROPOSED ASPHALT RESTORATION (APPROX. 122 SF)
- PROPOSED CONCRETE SIDEWALK/SURFACE RESTORATION (APPROX. 120 SF)
- PROPOSED RELOCATED PAVERS (SEE SHEET C2.0) (APPROX. 70 SF)
- PROPOSED WATER METER/BACKFLOW PREVENTER

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FLA. REGISTRATION NO. 35618 DATE: 1/31/2025

#### SITE GEOMETRY, MARKING, & SIGNAGE PLAN

**DELRAY BUSINESS INCUBATOR**  
905 14th AVENUE, DELRAY BEACH, FL 33444  
DELRAY INDUSTRIAL PROPERTIES, LLC.

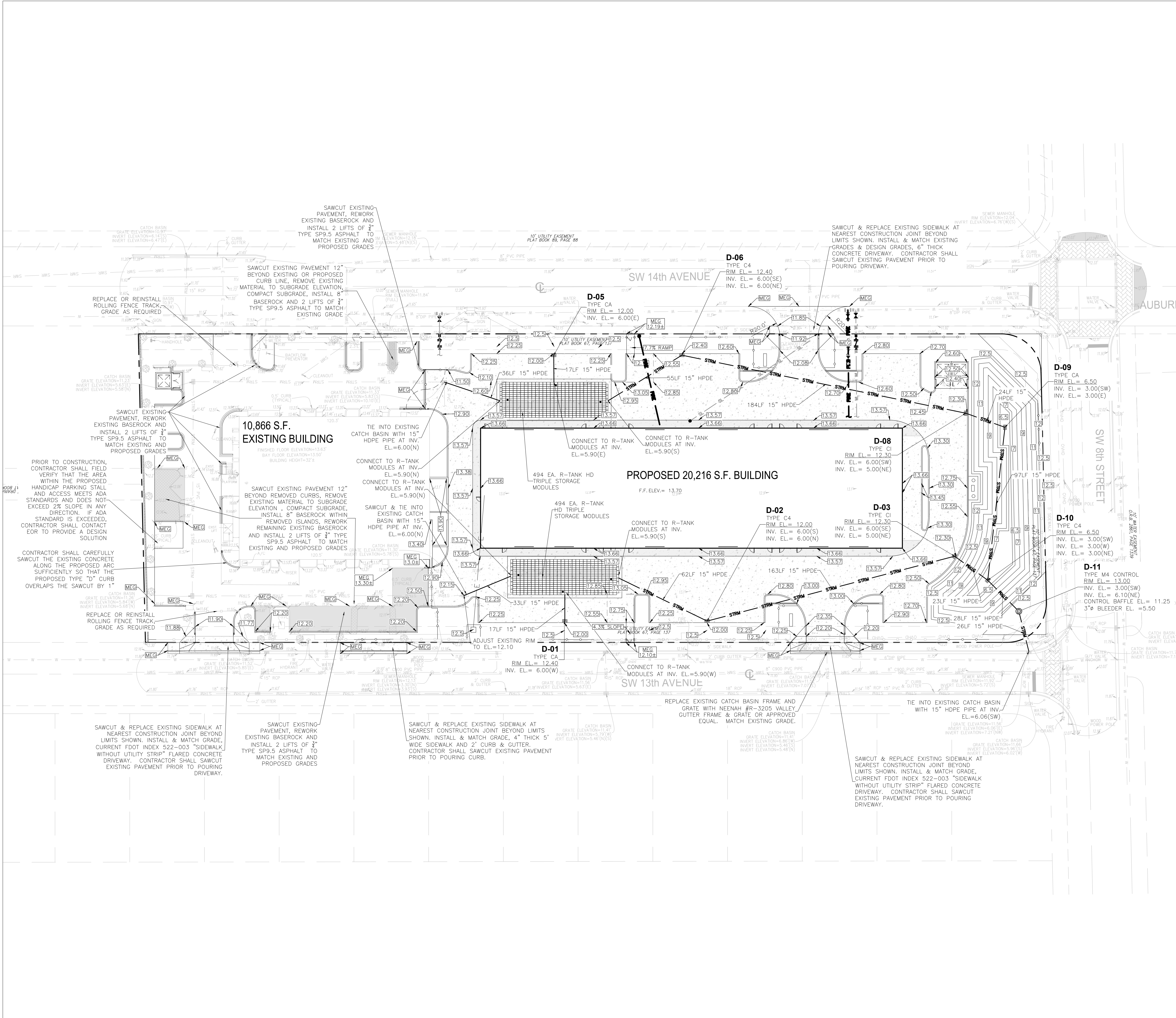
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**C3.0**  
DATE DRAWN  
8-14-22

8/4/23	SPRAB RESUB 2022-08-04	REV.	DATE	REV.	DATE
12/9/24	REV. PER SHOP DRAWING REVIEW				
1/17/25	REV. CENTER DRIVE & ADD PARKING				

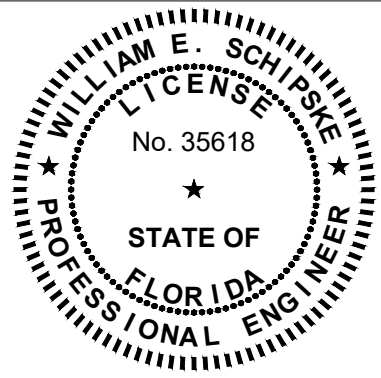


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SITE PAVING, GRADING, & DRAINAGE PLAN

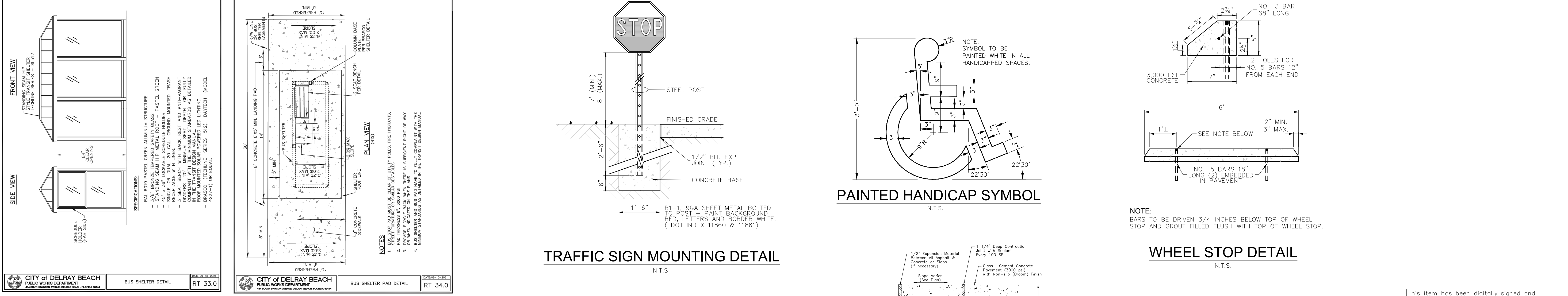
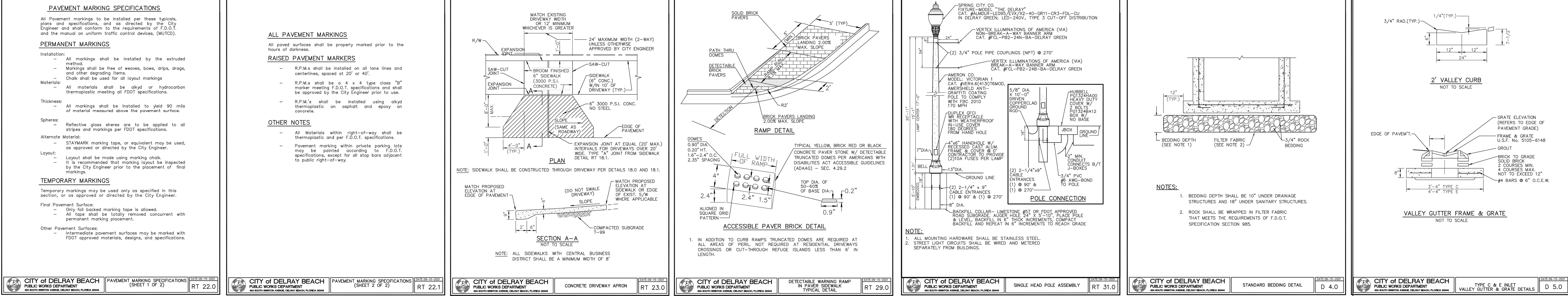
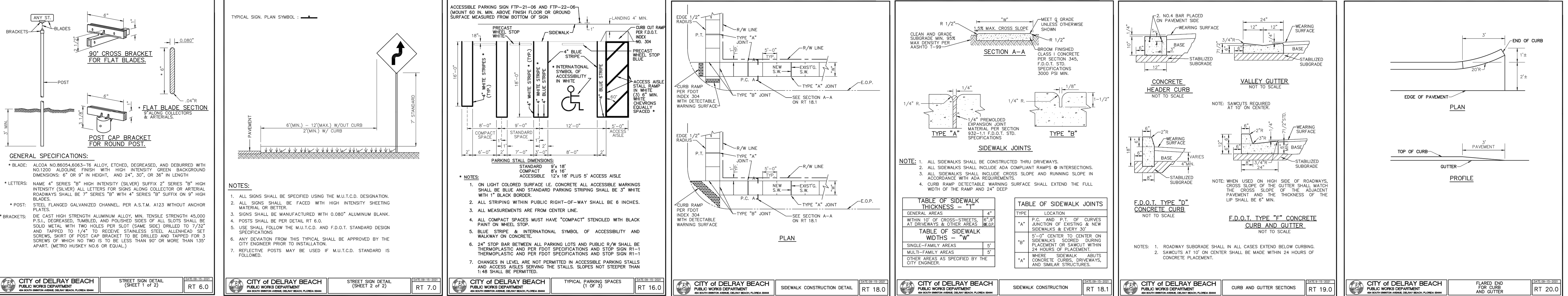
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8/9/24	REV. CENTER DRIVE & ADD PARKING	
11/17/25		
REV.	DATE	REVISIONS





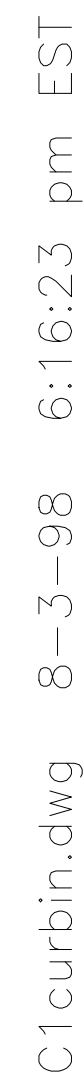
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2	8/24/24	REV. PER SHIP DRAWING REVIEW

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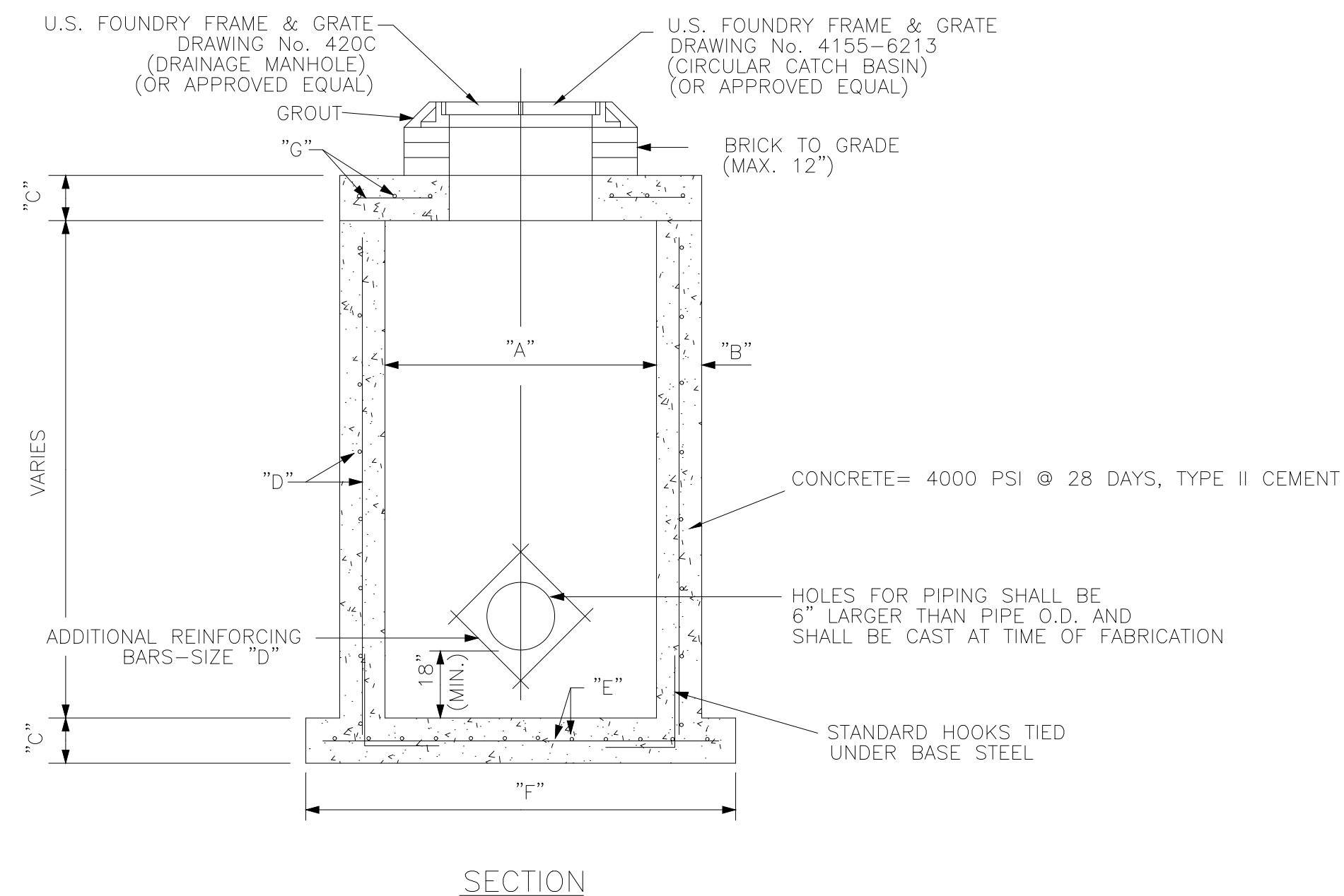


U.S. FOUNDRY STEEL GRATE, DRAWING  
No.4155-6210 (OR APPROVED EQUAL)

Labels and Dimensions:

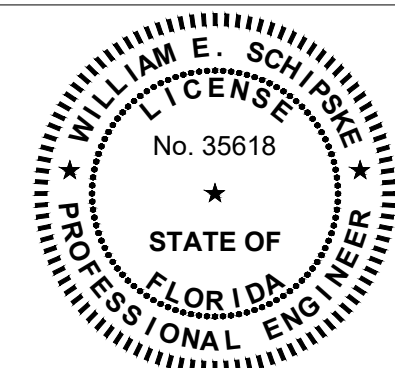
- GROUT
- BRICK TO GRADE (MIN. 2, MAX. 4 BRICKS TYP.)
- PRECAST CONCRETE INLET
- #4 @ 12" C.C.E.W.
- 4,000 PSI AT 28 DAYS TYPE II CEMENT
- 2" CLEAR
- HOLES FOR PIPING SHALL BE 6" LARGER THAN PIPE O.D. AND SHALL BE CAST AT TIME OF FABRICATION. ADD 4- #4 BARS AS SHOWN, SEE PLAN FOR ORIENTATION
- 8" (vertical dimension)
- 24" X 37" (grate opening)
- 18" MIN. (vertical dimension)
- 3" (vertical dimension)
- 60" (vertical dimension)
- 3/4" WASHED ROCK, 6" THICK MIN.
- #4 @ 12" O.C.E.W.
- STANDARD HOOKS TIED UNDER BASE STEEL

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APPROVED : WILLIAM E. SCHIPSKE, P.E.  
FLA. REGISTRATION NO. 35618 DATE : 1/31/2025

## DRAINAGE DETAILS

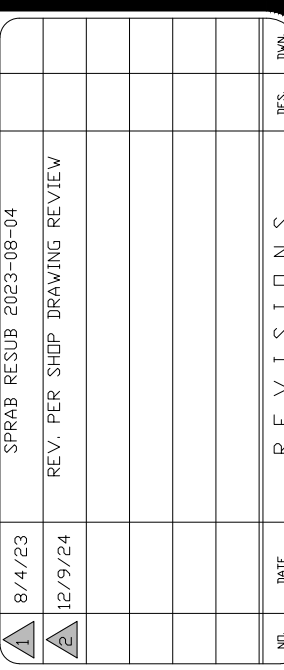
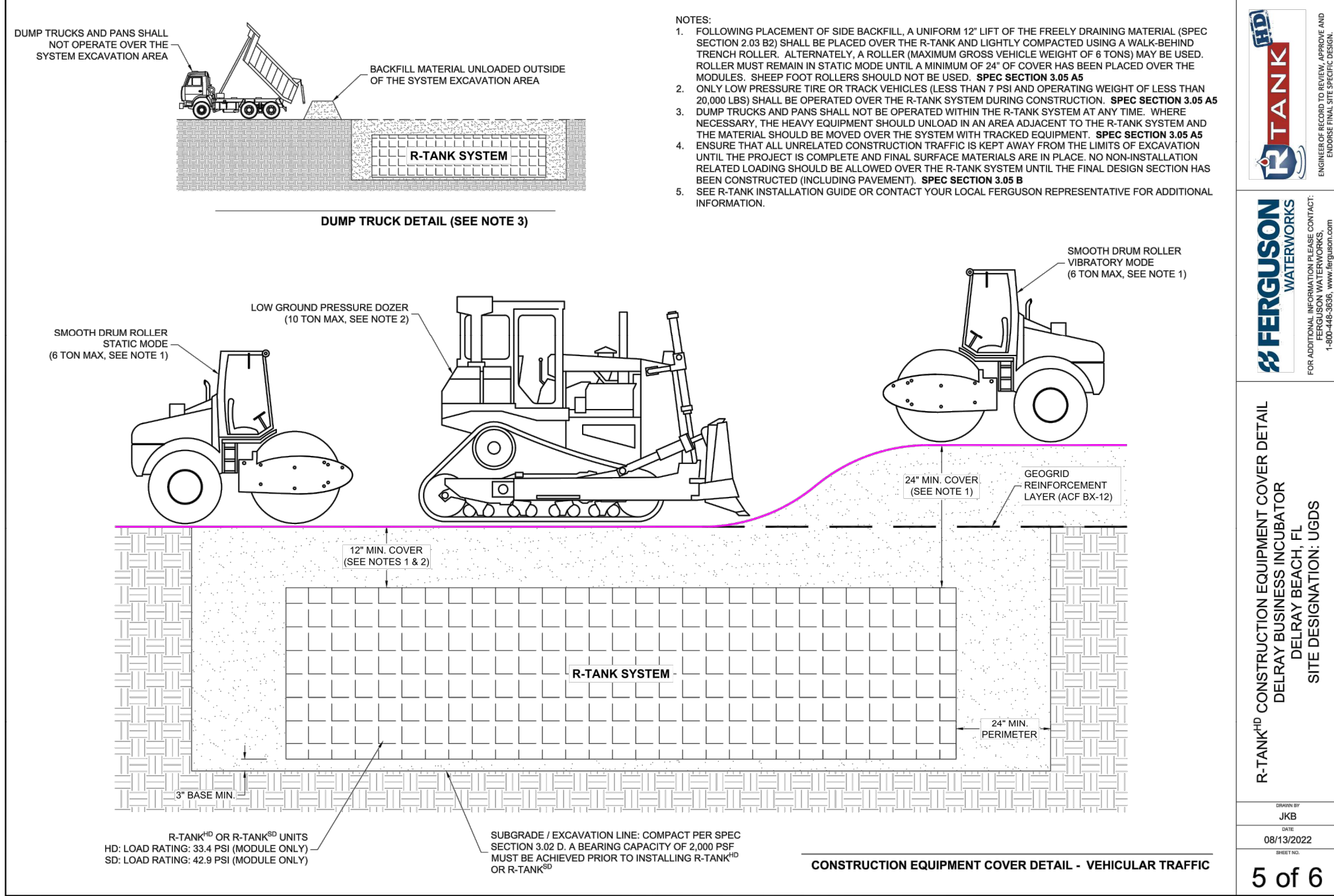
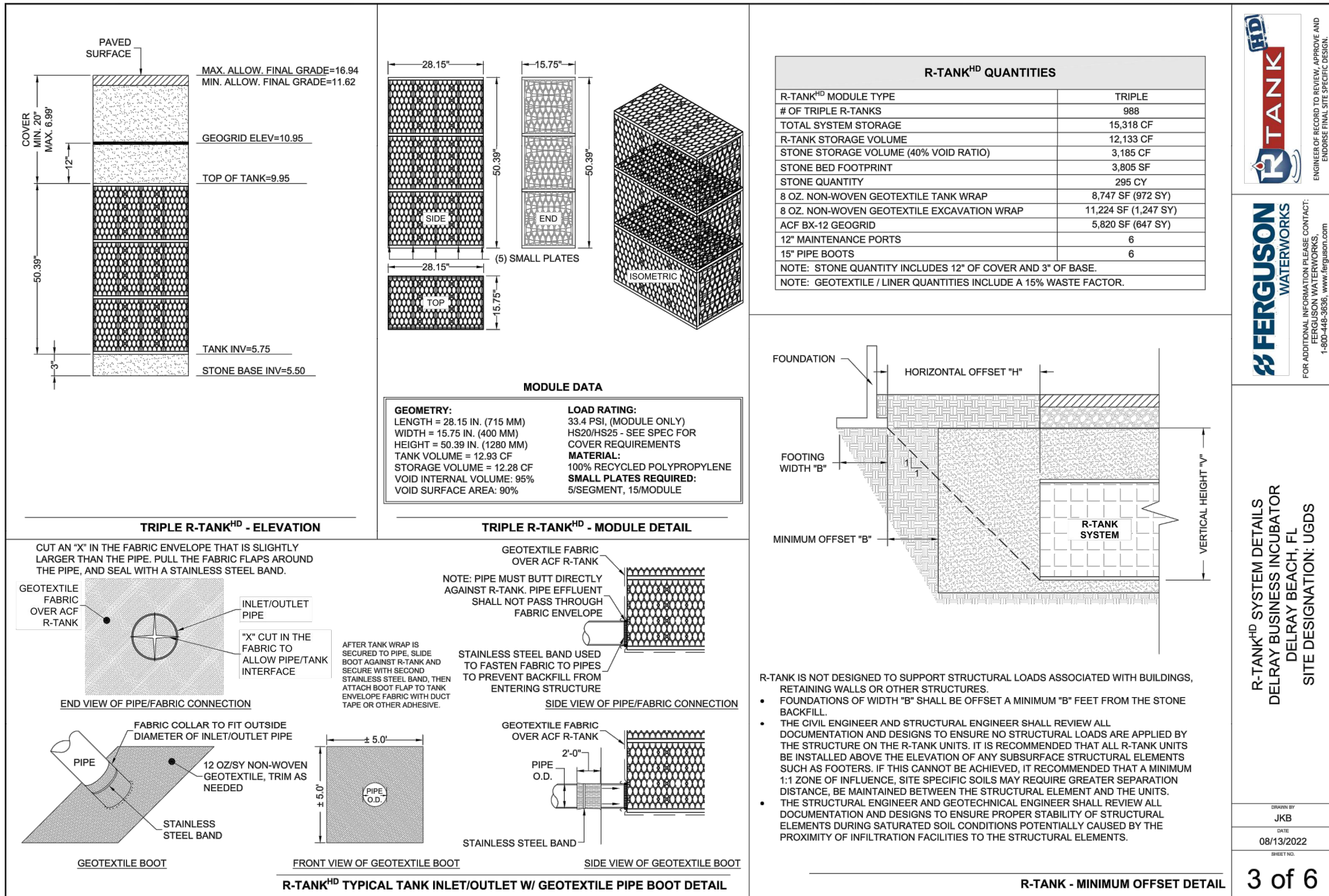
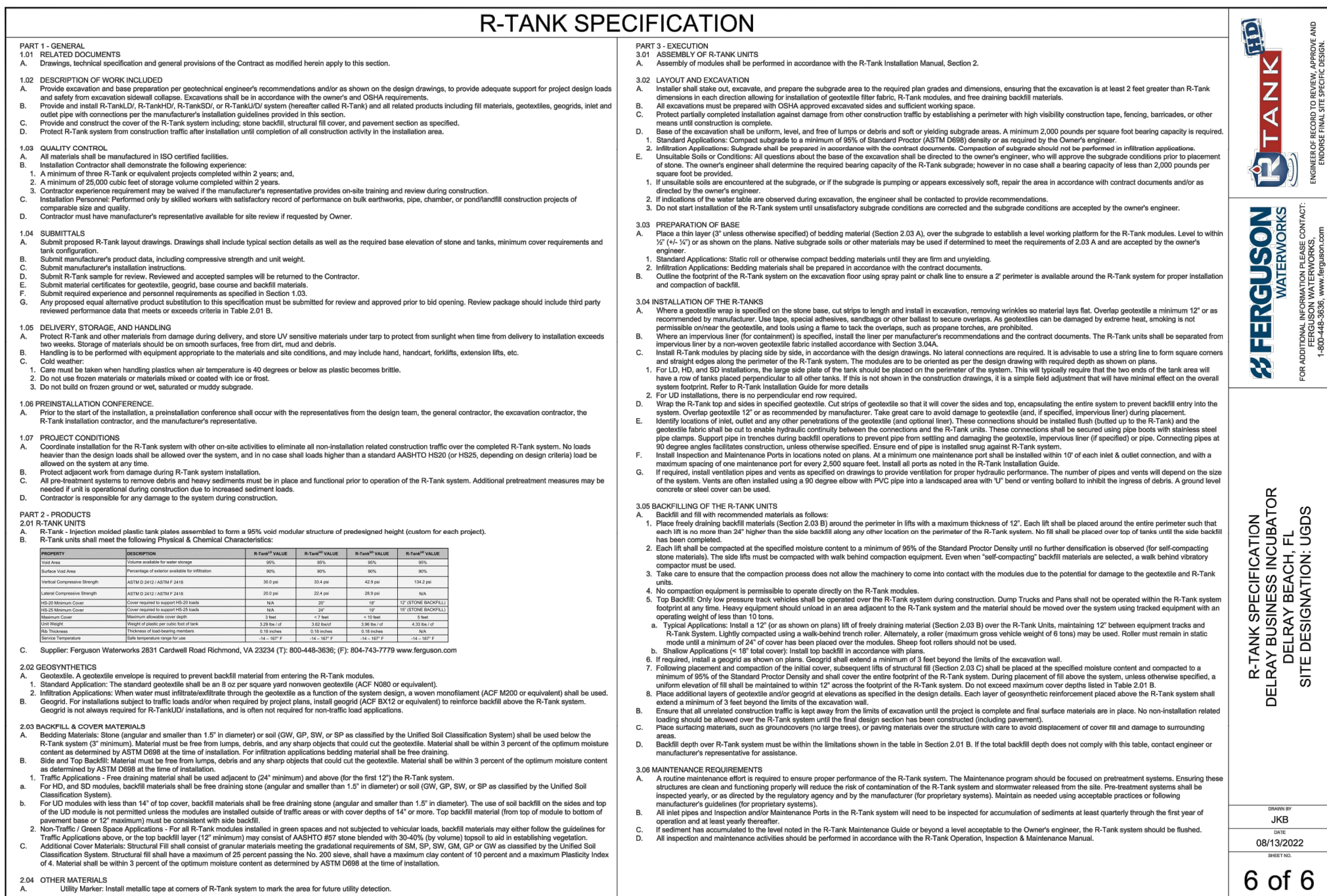
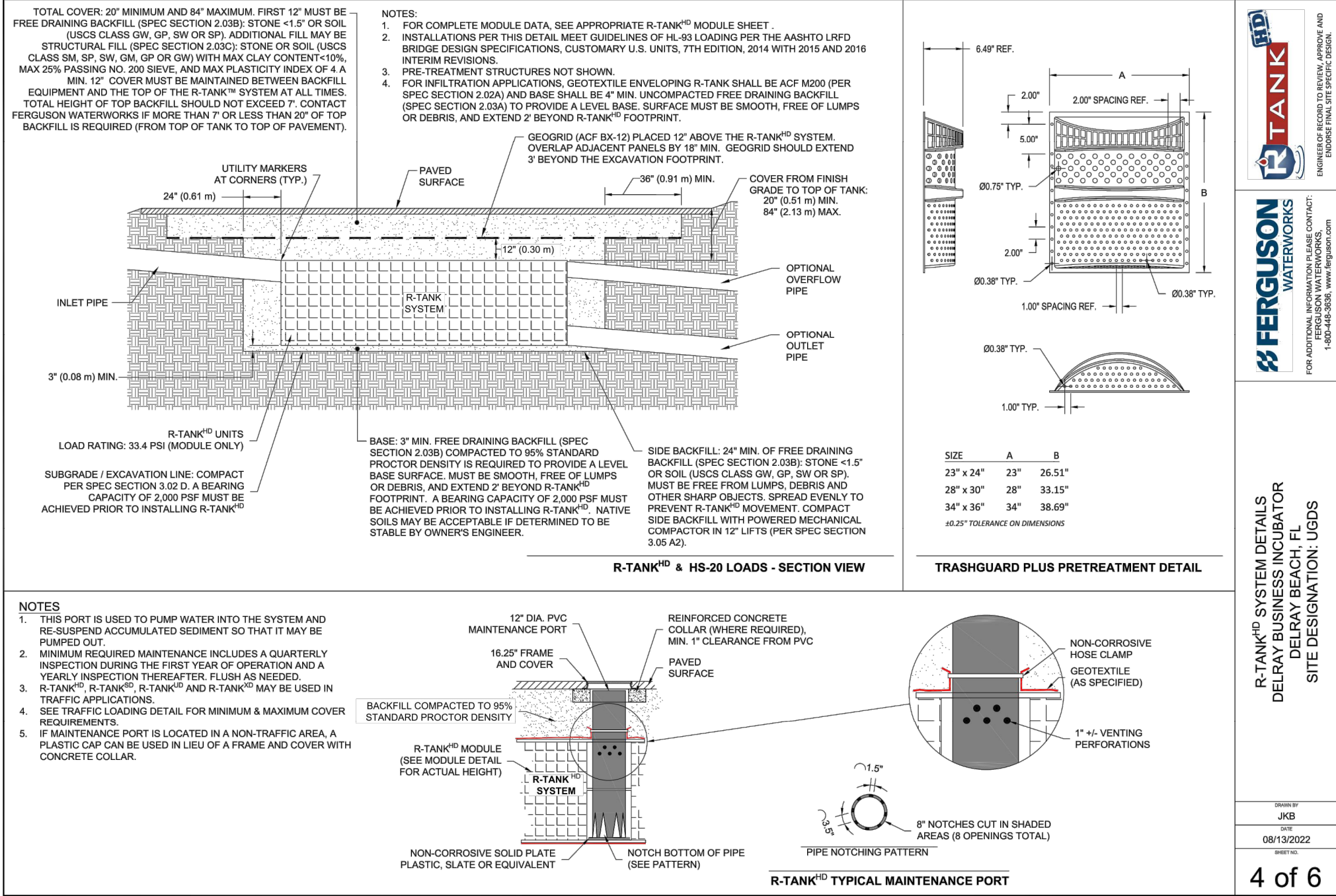
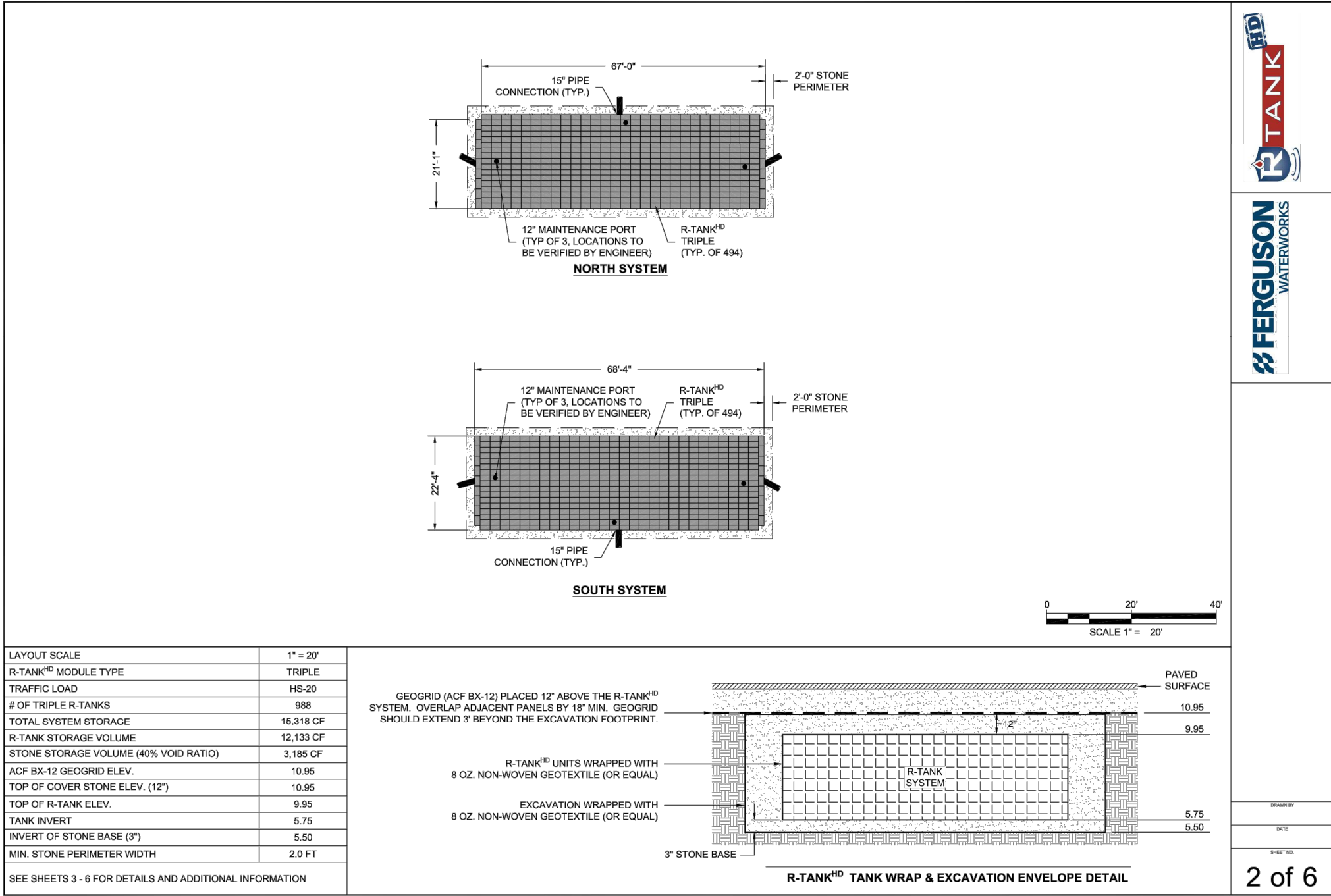
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CERTIFICATES OF AUTHORIZATION		
EB7318 LB6680 LC0337		
WES		
IES.	DWN.	CHK.
PROJECT / FILE NO.		
22-00015		
DRAWING NO.		
C4.2		
DATE DRAWN		
8-14-22		

**DELDRAY BUSINESS INCUBATOR**  
905 14th AVENUE, DELRAY BEACH, FL 33444  
DELRAY INDUSTRIAL PROPERTIES, LLC.

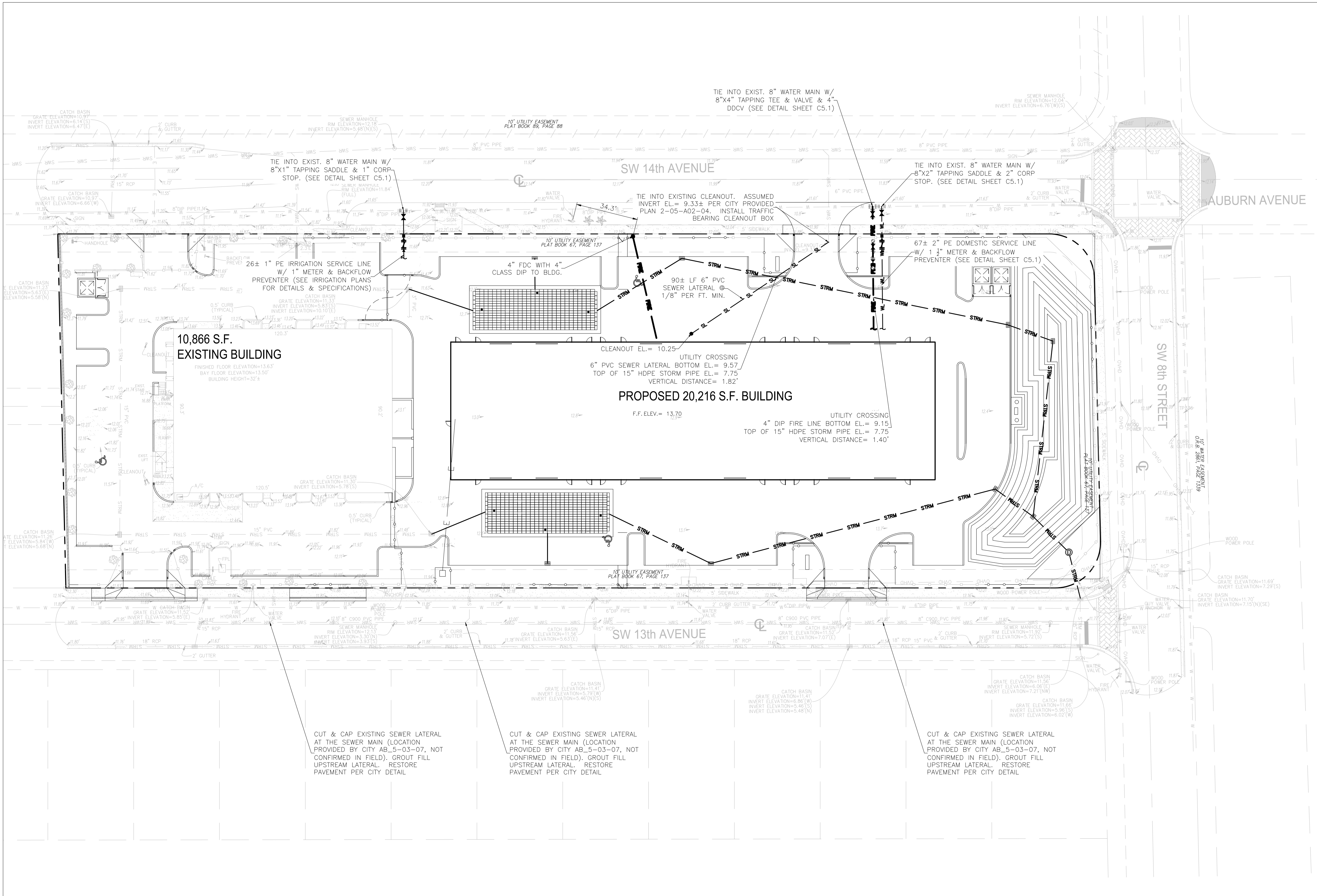








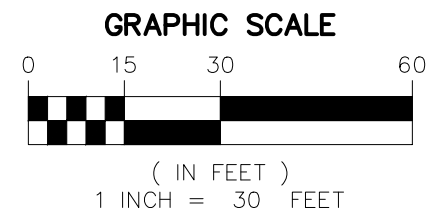
V:\Projects\2022\22-00015 - Delray Business Incubator\Drawings\22-00015\_Civil.dwg 2025/01/31 14:16 by BILL SCHIPSKE



### UTILITY PROVIDERS:

THE FOLLOWING UTILITY PROVIDERS CAN ATTEST THAT UTILITY SERVICES CAN BE ACCOMMODATED AS SHOWN ON THE COMPOSITE UTILITY PLAN:

1. AT&T (TELEPHONE): \_\_\_\_\_
2. COMCAST-PBG (CATV): \_\_\_\_\_
3. \_\_\_\_\_
4. FLA PUBLIC UTILITIES CO (GAS): \_\_\_\_\_
5. FLORIDA POWER & LIGHT - PALM BEACH (ELECTRIC): \_\_\_\_\_



### LEGEND:

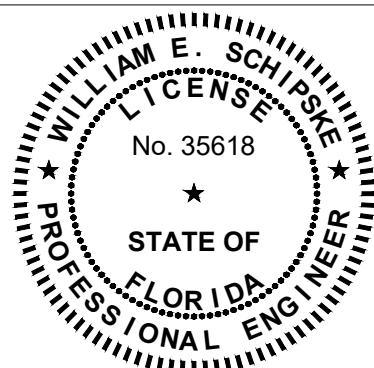
	RIGHT OF WAY/PROPERTY LINE
	EXISTING CONCRETE SIDEWALK/SURFACE (TO REMAIN)
	EXISTING CONCRETE PAVERS (TO REMAIN)
	EXISTING STORM DRAINAGE LINE (TO REMAIN)
	EXISTING DRAINAGE CATCH BASIN/CURB INLET/MAHOLE (TO REMAIN)
	EXISTING SANITARY SEWER LINE (TO REMAIN)
	EXISTING SANITARY SEWER MANHOLE (TO REMAIN)
	EXISTING BURIED ELECTRIC LINE (TO REMAIN)
	EXISTING WIRING PULL BOX/ELECTRIC METER/UTILITY POLE (TO REMAIN)
	EXISTING WATER LINE (TO REMAIN)
	EXISTING IRRIGATION LINE (TO REMAIN)
	EXISTING BACKFLOW PREVENTER/WATER VALVE/WATER METER/IRRIGATION CONTROL VALVE/FIRE HYDRANT (TO REMAIN)
	EXISTING UNKNOWN UTILITY LINE (TO REMAIN)
	EXISTING BOLLARD/TRAFFIC SIGN/TRASH RECEPTACLE (TO REMAIN)
	EXISTING TREES (TO REMAIN)
	PROPOSED BUILDING
	PROPOSED HAND RAIL
	PROPOSED CONCRETE SIDEWALK/SURFACE (APPROX. ____ SF)
	PROPOSED ASPHALT RESTORATION (APPROX. 220 SF)
	PROPOSED CONCRETE SIDEWALK/SURFACE RESTORATION (APPROX. 78 SF)
	PROPOSED RELOCATED PAVERS (SEE SHEET C2.0) (APPROX. ____ SF)
	PROPOSED SEWER LATERAL
	PROPOSED SEWER CLEANOUT
	PROPOSED DOMESTIC WATER SERVICE LINE
	PROPOSED WATER METER/BACKFLOW PREVENTER (SEE DETAIL SHEET C5.1)
	PROPOSED STORM DRAINAGE LINE
	PROPOSED DRAINAGE MANHOLE/CATCH BASIN

### NOTE:

1. THERE ARE NO AT&T FACILITIES WITHIN THE PROJECT AREA.
2. ANY TREES OR SHRUBS PLACED WITHIN WATER, SEWER, OR DRAINAGE EASEMENTS SHALL CONFORM TO THE CITY OF DELRAY BEACH STANDARD DETAILS; LD 1.0 & LD2.0
3. CONTRACTOR SHALL COORDINATE WITH CITY UTILITIES REGARDING THE LOCATION OF EXISTING SANITARY SEWER LATERALS TO BE CUT & CAPPED AT THE SEWER MAIN ON SW 13TH AVENUE TO VERIFY EXACT LOCATION PRIOR TO COMMENCEMENT OF CONSTRUCTION.

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APPROVED: \_\_\_\_\_ WILLIAM E. SCHIPSKE, P.E.  
FLA. REGISTRATION NO. 35618 DATE: 1/31/2025

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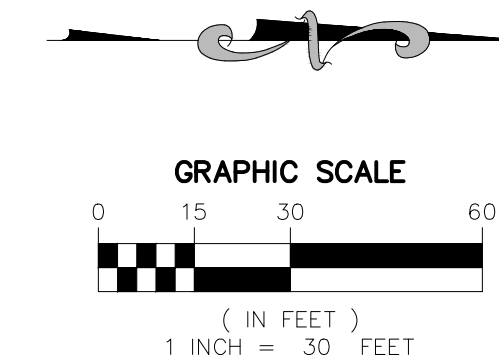
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EB7318 LB6680 LC0337  
WES  
DES: \_\_\_\_\_ DWN: \_\_\_\_\_ CHK: \_\_\_\_\_  
PROJECT / FILE NO.  
**22-00015**  
DRAWING NO.  
**C5.0**  
DATE DRAWN  
8-14-22

SITE UTILITY PLAN









RIGHT OF WAY/PROPERTY LINE

EXISTING CONCRETE SIDEWALK/SURFACE (TO REMAIN)

EXISTING CONCRETE PAVERS (TO REMAIN)

EXISTING STORM DRAINAGE LINE (TO REMAIN)

EXISTING DRAINAGE CATCH BASIN/CURB INLET/MANHOLE (TO REMAIN)

EXISTING SANITARY SEWER LINE (TO REMAIN)

EXISTING SANITARY SEWER MANHOLE (TO REMAIN)

EXISTING BURIED ELECTRIC LINE (TO REMAIN)

EXISTING WIRING PULL BOX/ELECTRIC METER/UTILITY POLE (TO REMAIN)

EXISTING WATER LINE (TO REMAIN)

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PROPOSED BUILDING

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PROPOSED SEWER CLEANOUT

PROPOSED DOMESTIC WATER SERVICE LINE

PROPOSED WATER METER/BACKFLOW PREVENTER (SEE DETAIL SHEET C5.1)

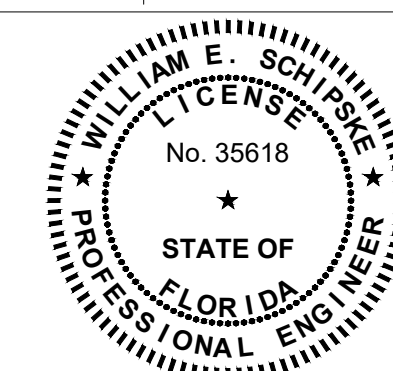
PROPOSED STORM DRAINAGE LINE

PROPOSED DRAINAGE MANHOLE/CATCH BASIN

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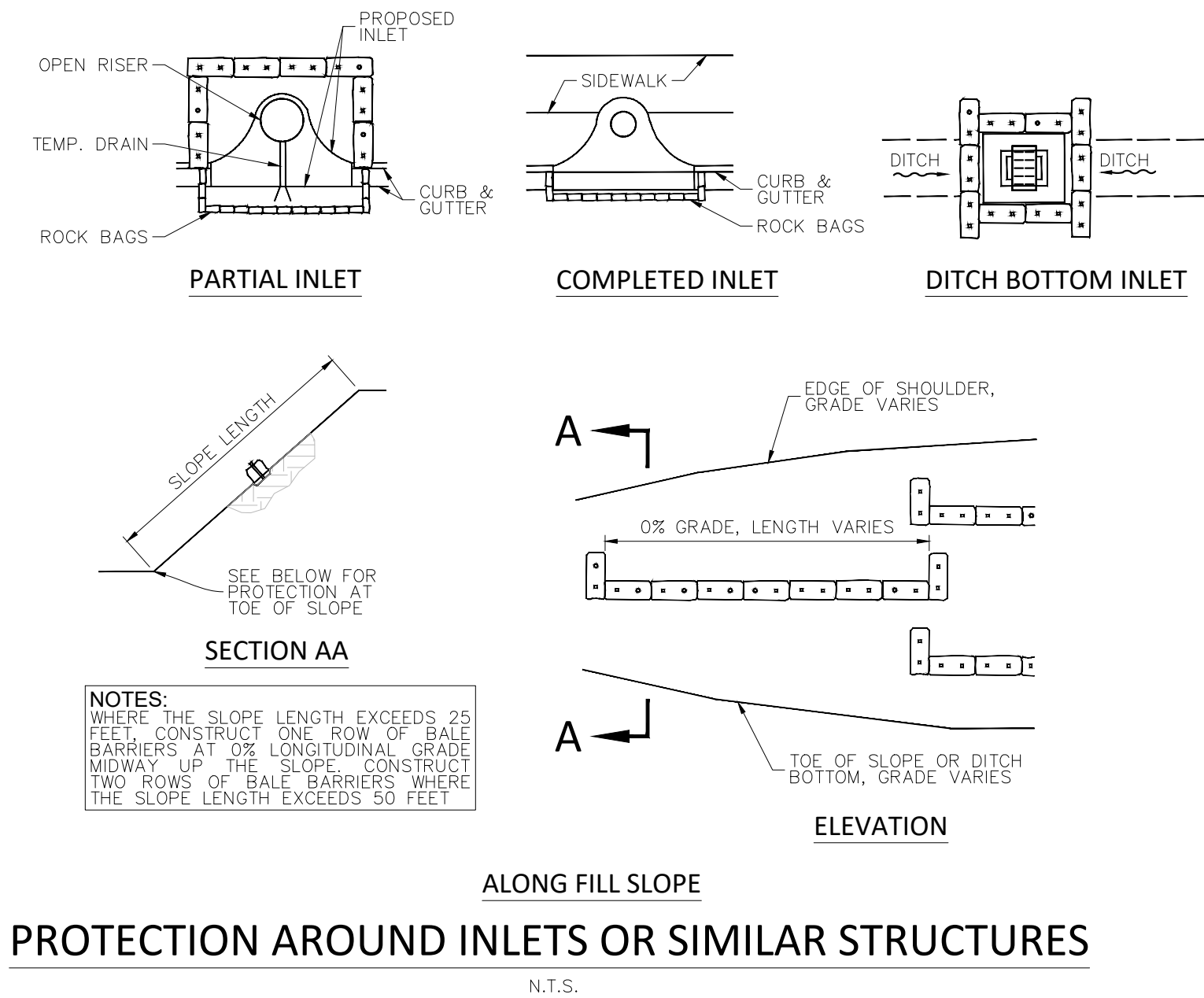
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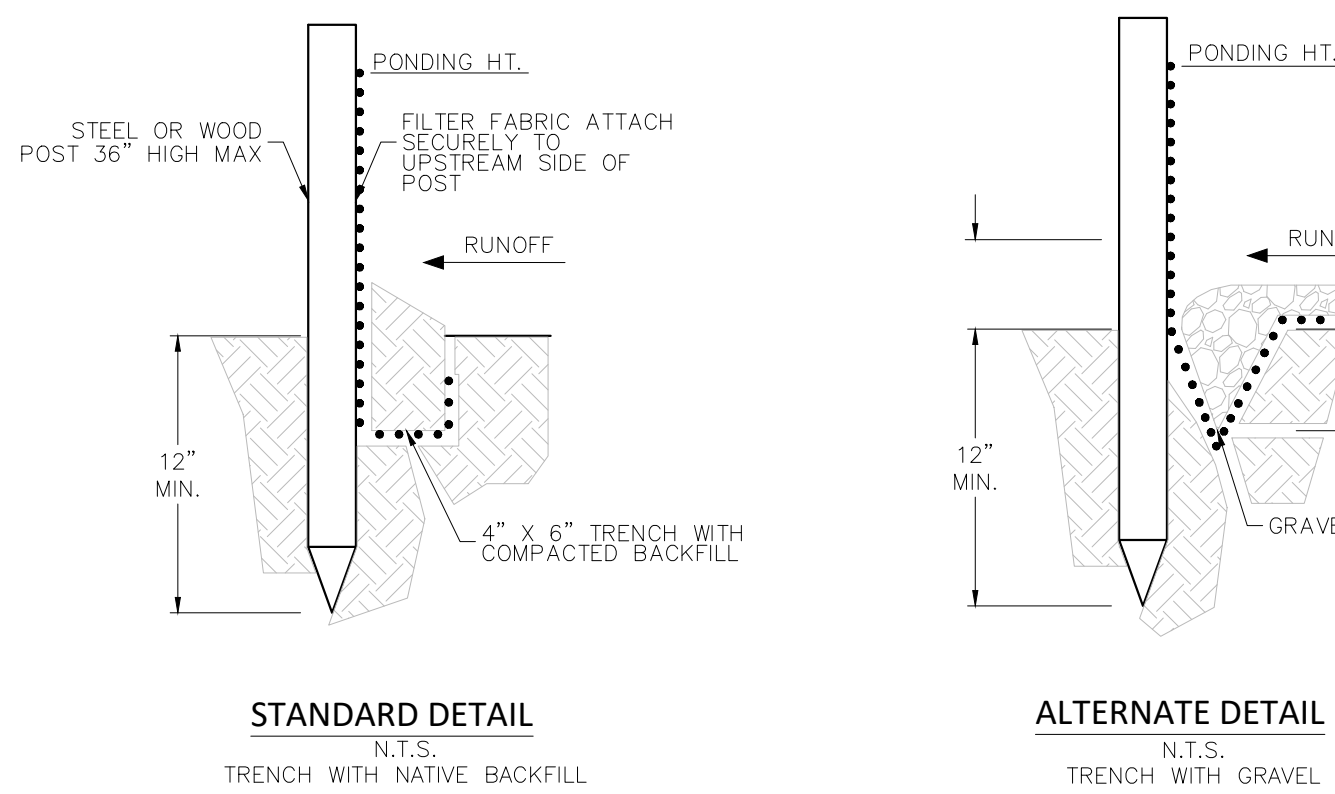
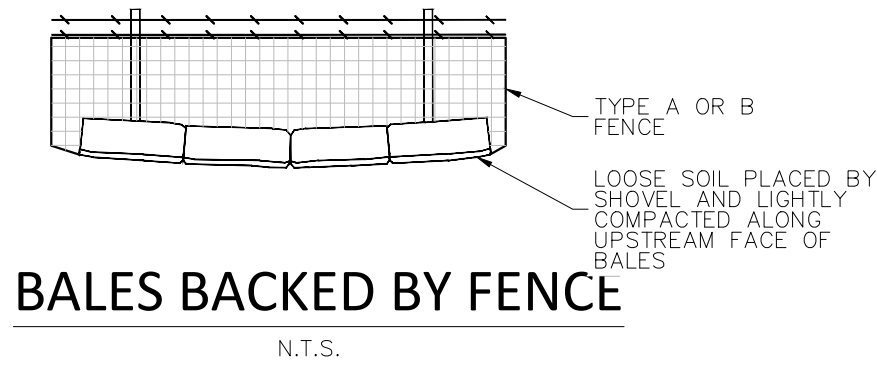
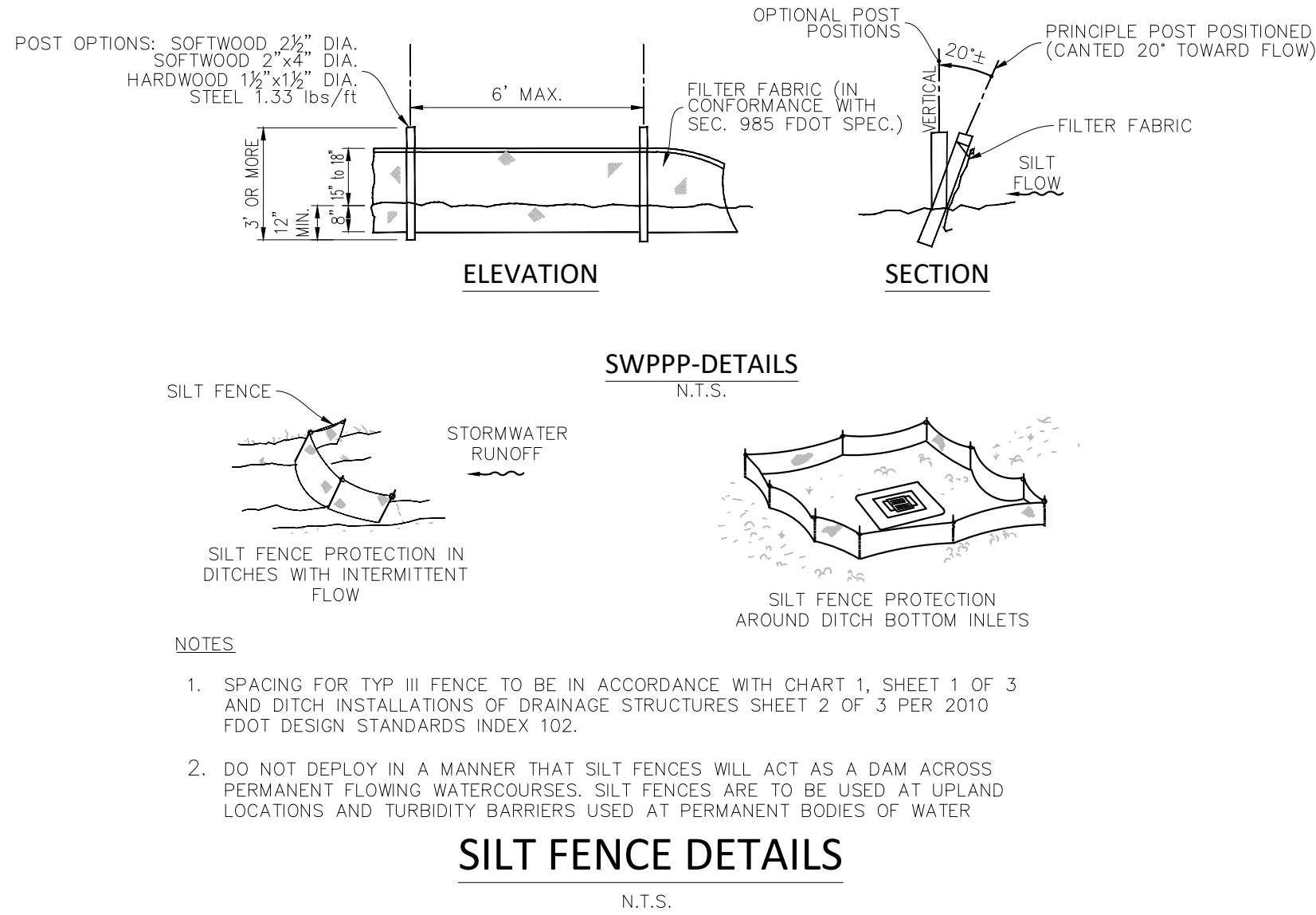
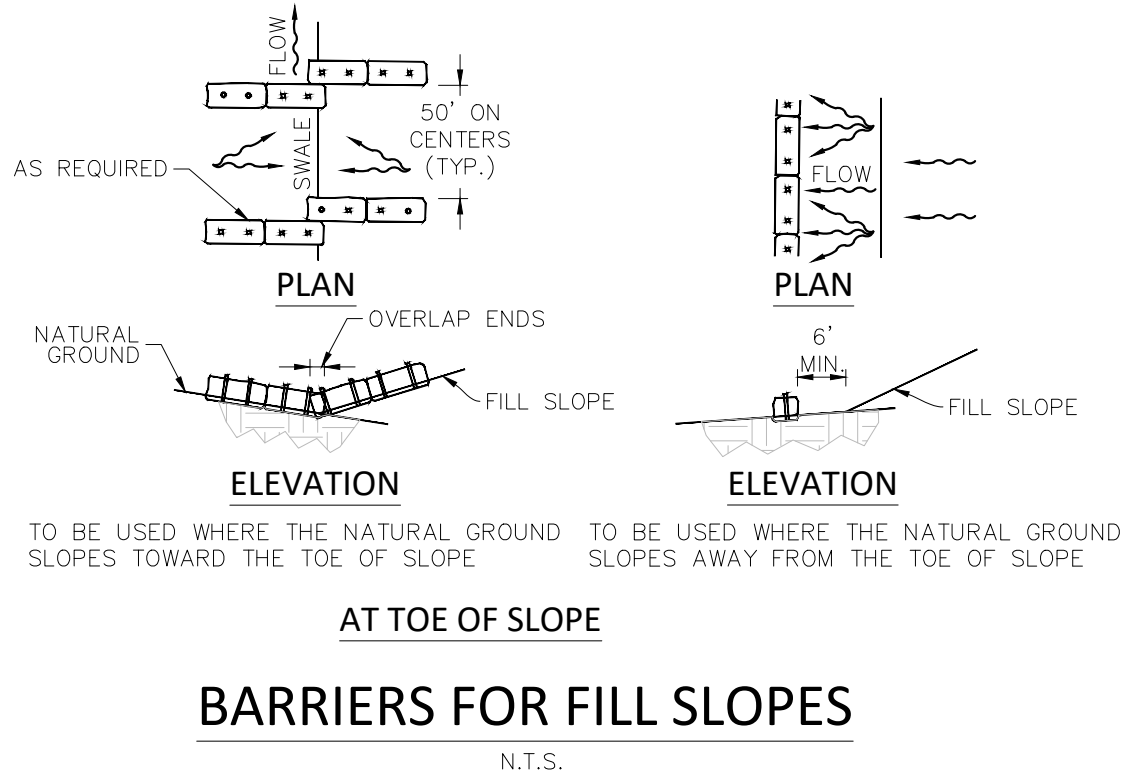
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C6.0		
DATE DRAWN		
8-14-22		

8/4/23	3PRAB RESUB 2023-08-04	
12/9/24	REV. PER SHIP DRAWING REVIEW	
01/31/25	REV. CENTER DRIVE & ADD PARKING	
DATE	DESCRIPTION	REV.

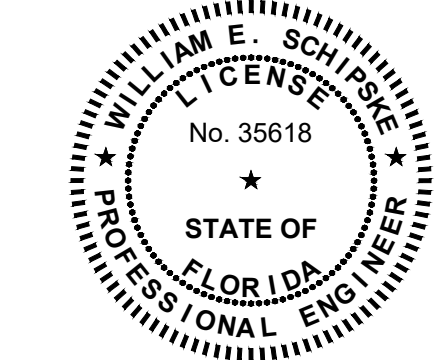
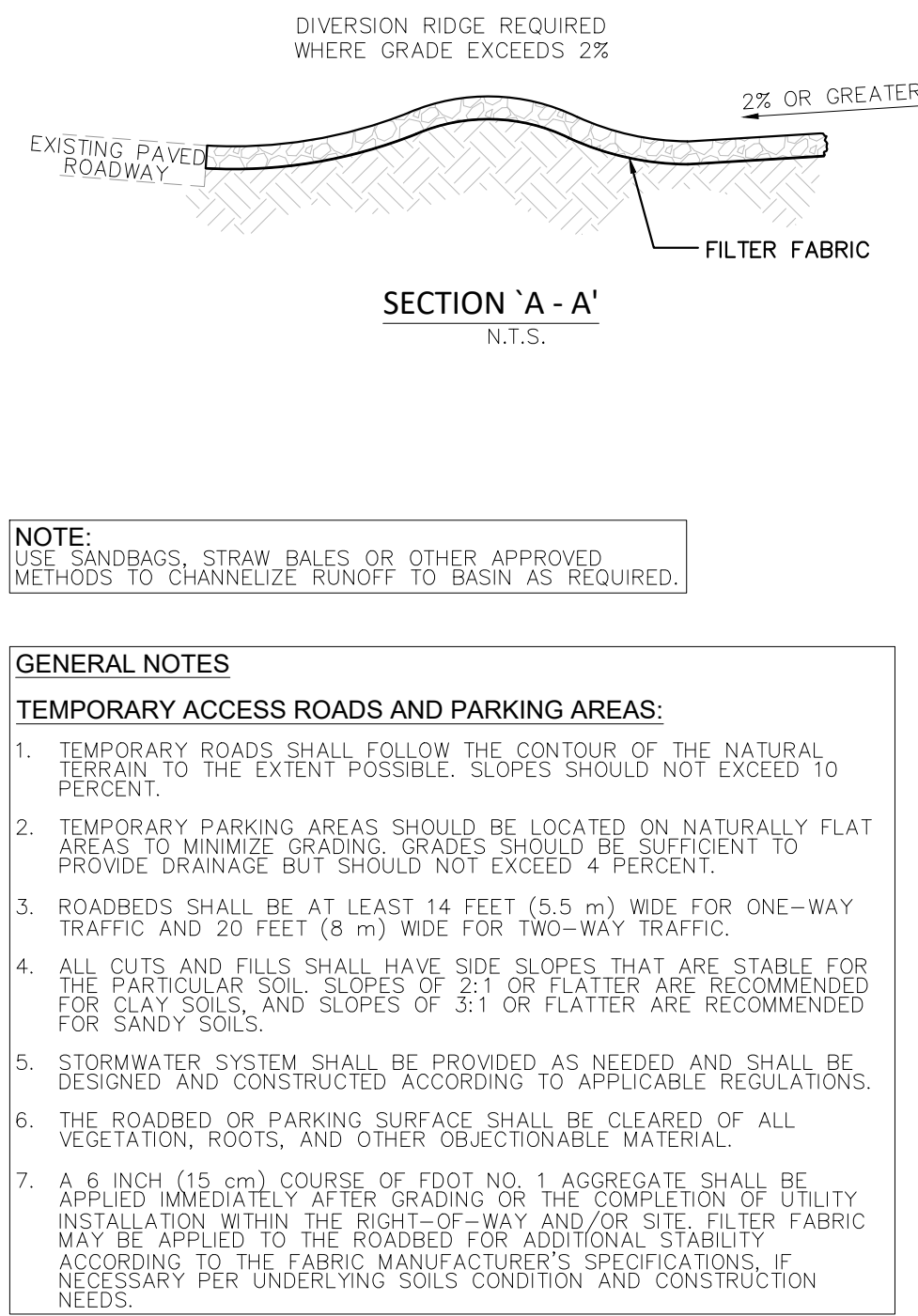
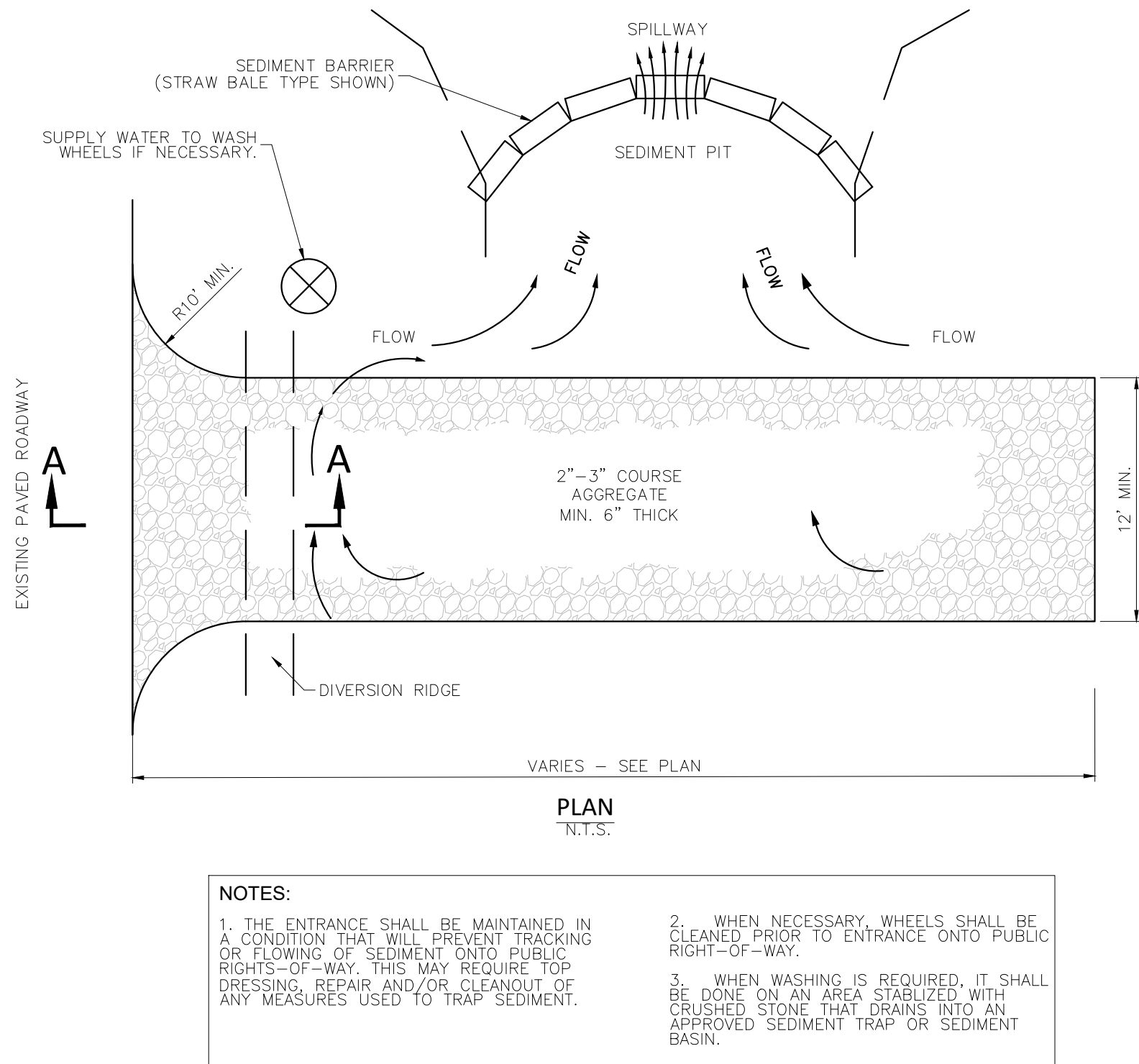
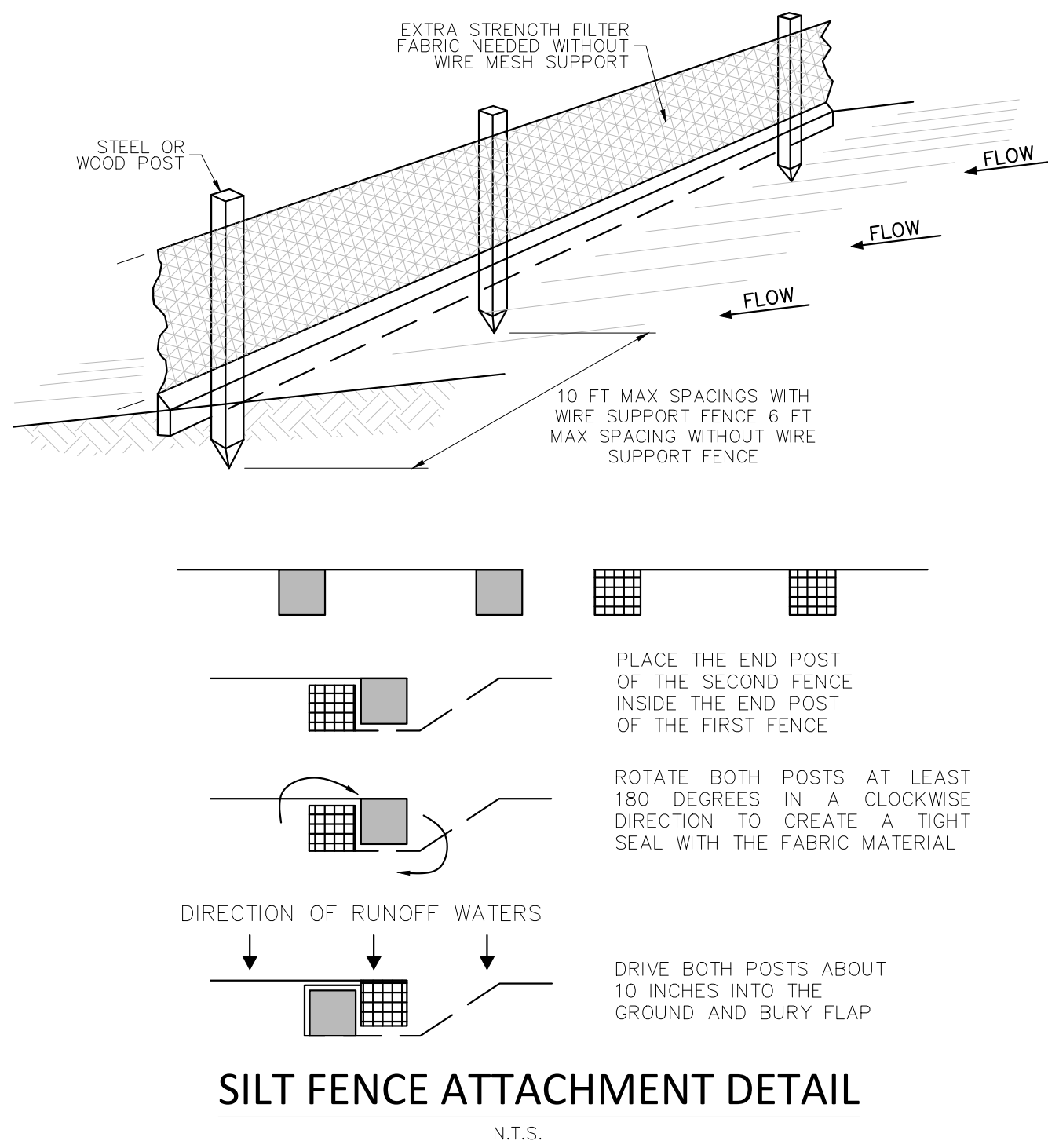




- NOTES FOR BAILED HAY OR STRAW BARRIERS**
1. TYPE I AND II SYNTHETIC BARRIER SHOULD BE SPACED IN CORACLE WITH CHART I, SHEET I PER INDEX 102 OF THE 2010 FDOT DESIGN STANDARDS.
  2. BALES SHALL BE ANCHORED WITH 2-1" x 2" (OR 1" DIA.) x 4' WOOD STAKES. STAKES OF OTHER MATERIAL OR SHAPE PROVIDING EQUIVALENT STRENGTH MAY BE USED IF APPROVED BY THE ENGINEER. STAKES OTHER THAN WOOD SHALL BE REMOVED UPON COMPLETION OF THE PROJECT.
  3. RAILS AND POSTS SHALL BE 2"x4" WOOD. OTHER MATERIALS PROVIDING EQUIVALENT STRENGTH MAY BE USED IF APPROVED BY THE ENGINEER.
  4. ADJACENT BALES SHALL BE BUTTED FIRMLY TOGETHER.
  5. WHERE USED IN CONJUNCTION WITH SILT FENCE, BALES SHALL BE PLACED ON THE UPSTREAM SIDE OF THE FENCE.



- NOTES:**
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
  2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
  3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.



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STORMWATER POLLUTION PREVENTION DETAILS

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