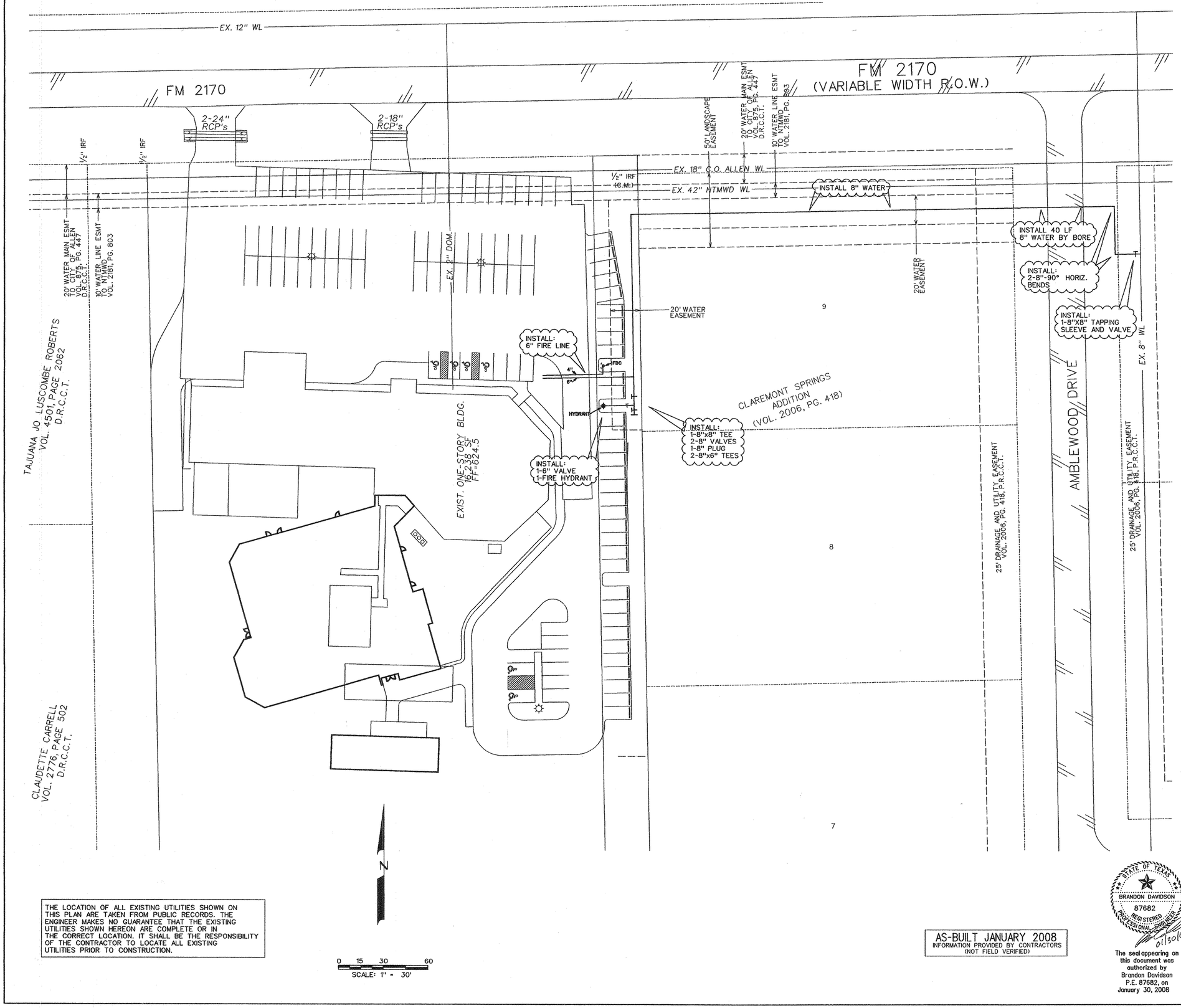

THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN ARE TAKEN FROM PUBLIC RECORDS. THE ENGINEER MAKES NO GUARANTEE THAT THE EXISTING UTILITIES SHOWN HEREON ARE COMPLETE OR IN THE CORRECT LOCATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

AS-BUILT JANUARY 2008
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

STATE OF TEXAS
BRANDON DAVIDSON
87682
REGISTERED PROFESSIONAL ENGINEER
01/30/08

The seal appearing on this document was authorized by Brandon Davidson P.E. 87682, on January 30, 2008

WATER SYSTEM
General Notes

All work and materials shall be in accordance with City's standard specifications and general design standards.

1. All tapping sleeves and valves shall be full body ductile iron.

2. Valves to be Mueller, Waterous, or Clow -150 psi test.

3. Fittings shall of the mechanical joint type, flanged where applicable, and be manufactured by US Pipe, American, or other as approved by the City - Class 250. All fittings shall be restrained by the use of Mega-Lugs or approved equal and concrete thrust blocking.

4. Fire hydrants to be American Darling, and Waterous three-way standard thread with valve in lead or approved equal. All mains steamer nozzles shall have a nominal inside diameter of 4-inches.

5. Water lines in the area of storm drain inlets shall be constructed behind the inlet by pulling the pipe using longitudinal bending in accordance with the manufacturer's requirements. Fittings may be used if bending is impractical: consult the project City Construction Inspector.

6. Water lines crossing under storm drains and sanitary sewer lines shall have a minimum of 18" clearance below storm drains and two (2) feet clearance below sanitary sewer lines or otherwise as governed by TNRCC Chapter 290 requirements. Parallel water lines shall be at least nine (9) feet clear horizontally to sanitary sewer lines and manholes. Where minimum clearance cannot be achieved, water lines shall be encased six (6) inches around in concrete to ten (10) feet either side of utility crossing. Where water lines cross creeks or ditches the water line shall be protected by concrete encasement at least ten (10) feet past the embankment slope on each side.

7. Water mains: All water lines shall have a minimum of 48" cover over the top of the pipe. All new water mains shall be PVC pipe in accordance with the following: C900 DR 14 for 4"-8", C900 DR 18 for 12 ", and C905 DR 18 for over 12 ", all "blue in color as per City specifications: the pipe shall be laid on a minimum of class "B" embedment (see Detail Drawing No. 14-A). Water mains up to 12" shall be installed 2' back of curb: mains larger than 12" shall be installed at least 3' from the back of curb depending upon conditions. Detectable metallic tape ("Blue-Caution Buried Water Below" or approved equal) shall be installed to a maximum depth of 12" below finished grade (after compaction) above all PVC mains.

8. The Contractor shall install fire hydrants as the locations shown. A M.J. and flanged tee with a flanged end to M.J. gate valve is required so that the gate valve is anchored to the main.

9. Fire Hydrants shall be painted as follows:
A. Tnemec Series 43-38H Diffused Aluminum, Silver for 6 inch mains
B. Tnemec Series 2H Hi-Build Tneme-Gloss, True Blue Safety for 8 inch mains.
C. Tnemec Series 2H Hi-Build Tneme-Gloss, Yellow Safety for 12 inch or larger water mains.

All hydrants shall be painted with two coats of Tnemec Series 43-38H Diffused Aluminum, Silver paint. When a color code other than Tnemec Series 43-38H Diffused Aluminum Silver is required the top bonnet, including the lip and all nozzle caps shall be painted the appropriate color.

10. All bolts and nuts used with mechanical joint fitting shall be "Cor-Ten" steel or approved equal.

11. The installation of a blue stemsonite (or equal) model 88-SSA fire hydrant marker will be installed opposite fire hydrants just off center to the side of the street adjacent to the hydrant.

12. Polyethylene encasement - the Contractor shall furnish and install polyethylene wrap around the ductile iron pipe, related fittings and valves. This wrap shall be an 8 mil. thickness polytube. Seams and overlaps shall be wrapped and held in place by two (2) inch wide plastic backed adhesive tape, Polyken 900 or Scotchrap no. 50, or an approved equal, with approximate two (2) foot laps on the polytube. The wrap on the barrel of the pipe shall be loose enough to allow the film to shift with the soil. The wrap shall be installed without breaks, tears, or holes in the film. The cost of the polyethylene tube wrap and complete installation shall be included in the unit price bid for the furnishing and the installation of ductile iron pipe and related fittings and valves.

13. Valve boxes shall be furnished at the required length in order to be set to final grade on each gate valve. After the final clean up and alignment has been completed, the Contractor shall pour a reinforced concrete block 24"x 24" x 6' around all valve boxes so the finished grade is level with the finished parkway. All valve stack components shall be cast iron. Valve boxes over four (4) feet deep will require extensions. All valves shall be marked with a saw on the curb or pavement with "V". The "V" shall point to the location of the valve as follows: If the valve is in the paving, the "V" shall be marked upright: if the valve is outside the paving, the "V" shall be marked upside down.

14. The Contractor shall coordinate operation of all existing valves with the City. Contact the City Construction Inspector at the Construction Inspection Department at 972-335-5560.

15. All water lines shall be pressure tested to 200 psi for a three-hour continuous period. Leakage rate shall not exceed 25 gallons per inch of nominal diameter per mile of pipe over a 24-hour period. Contractor shall flush and sterilize lines and prove lines to be free of fecal coliform organisms by obtaining samples for laboratory tests for contamination. The Contractor shall reflush and resterilize until all samples prove free from contamination.

16. All residential water services shall be as follows:
A. Water services shall be normally located in the center of the lot. A water meter box, as approved by the City, with lock lid shall be installed two (2) feet back of curb line.
B. The water service shall be a minimum of 1" diameter continuous type "K" soft copper pipe. Sand embedment shall be used around the pipe and corporation stop. Service saddles shall be brass body with double bronze flattened straps (no banded) - Ford, Mueller, or City approved equal.
C. Contractor shall tie a 1" wide piece of blue plastic flagging to the water service meter setter and shall leave a minimum of 36" of flagging exposed after backfill: after curb and paving is completed.
D. The utility contractor shall install the water services to a point two (2) feet back of the curb line at a depth of 12 inches. The meter box shall be furnished and installed by the Contractor after the paving Contractor has completed the fine grading in back of the curb. Each service location will be marked on the curb with a single vertical saw mark by the utility Contractor and tied to property corners on the "As-Recorded" plans.

17. For non-residential water services, the meter box shall be furnished and installed by the Contractor after the paving Contractor has completed the final grading in the back of the curb. Meter boxes/vaults shall be located outside of paving. Each service location will be marked on the curb or pavement with a single vertical saw mark by the utility Contractor and tied to property corners on the "as Recorded" plans.

18. Density testing requirements: Frequency of tests shall not be less than one every 300 linear feet of main pipe per 2.0' of lift until final grade, starting at 2.0' above top of pipe. Water services are to be tested at a rate of 1 for every 6 services that cross the proposed right-of-way or every 300 lf of water service installed. Every other main, stubout, and fire hydrant lead that cross the existing or proposed street, alley, or fire lane subgrade shall also receive at least one set of density tests. All ditches shall be mechanically tamped and compacted to 95% standard proctor density at 0-4% above optimum moisture. Water jetting is not permitted.

19. The Contractor shall be responsible for providing "As-Recorded" plans to the engineer of record showing the location of water services and valves by distance to lot lines. This information shall be placed and marked "As-Recorded" by the engineer of record. Copies of these "As-Recorded" plans shall be furnished to the City as required.

20. The Contractor shall furnish maintenance bond of 10% (ten percent) of the total contract price to the City to run two years from the date of acceptance of the system by the City

CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200

DEVELOPMENT PLANS FOR
GRACE EVANGELICAL FREE CHURCH
COLLIN COUNTY, TEXAS

WATER PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
BDD	BDD	BDD	
JOB NUMBER	DATE	SCALE:	
07056	SEPTEMBER 12, 2007	1"=30'	2 OF 3

GRACE EVANGELICAL FREE CHURCH