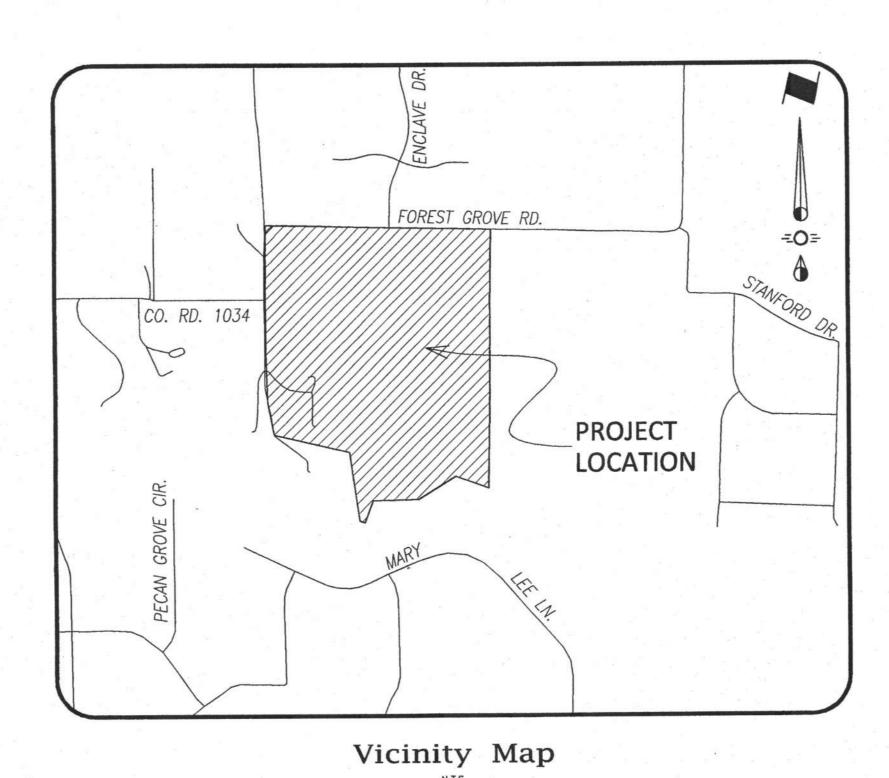
CITY OF LUCAS COLLIN COUNTY, TEXAS



# INDEX OF DRAWINGS

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#### BENCHMARKS:

BM1
Being a Railroad Spike Found in the centerline of Forest Grove
Road 420 feet east of northeast corner of the subject tract.
Elevation = 581.18

BM2
Being an "X" found in concrete in the centerline of Enclave
Drive 209 feet north of the intersection of Forest Grove Road
and Enclave Drive.
Elevation = 588.43

### PREPARED FOR:

## CENTURION ACQUISITIONS, LP

1221 I-35 E., SUITE 200 CARROLLTON, TEXAS 75006 Contact: STEVE LENART

AS-BUILT DRAWINGS
THIS DRAWING HAS BEEN REVISED TO CONFORM TO THE CONSTRUCTION RECORDS PROVIDED BY THE CONTRACTOR. ALIGNMENT AND GRADES SHOWN ON THIS DRAWING WERE NOT FIELD VERIFIED BY THE ENGINEER.

MATTHEW M. DORSETT, P.C. 90912

MATTHEW M. DORSETT, P.D.
2/24/15
DATE

765 Custer Road, Suite 100 • Plano, TX 75075 • (972) 422-0077 • TBPE No. F-2121

- All work and materials shall be in accordance with City's standard specifications and general design standards.
- 1. All topping sleeves and valves shall be full body ductile iron.
- 2. Valves to be Mueller, Waterous, or Clow 150 psi test.
- 3. Fittings shall be 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 Mego—Lugs or approved equal and concrete thrust blocking.
- 4. Fire hydrants to be Mueller 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 vending 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 achiever, water lines shall be encased six (6) inches around in concrete to the (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. An 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 on 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 appropriate 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 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 J"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 Inspection Department at 972-727-8999 (office) of 469-628-8607 (Public Works Supervisor).
- 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 proved 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" inch 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 (not 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 crosses 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 of 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.

PAVING SYSTEM
General Notes

1. Absolutely no earthwork, lime application, or other preparation of the subgrade for paving of streets, alleys, or fire lanes shall be initiated without authorization from the City Construction Engineer. Once all testing of underground facilities has been completed and verified to meet the City's specifications, the City Construction Engineer will issue a letter to the project owner or City's specifications, the City construction Engineer will issue a letter to the project owner of superintendent that will authorize the initiation of all subgrade work in preparation for paving.

- 2. All street, alley, and fire land right—of—way or easement width shall be excavated full width in accordance with the street and sidewalk section to be constructed.
- 3. The subgrade for all streets, alleys and fire lanes shall be stabilized with hydrated lime material to a distance 12 inches beyond the back of curb or edge of paving as applicable. The amount of lime material shall be hat amount which will reduce the plasticity index (PI) below fifteen (15) as verified by testing by an approved laboratory: the City will add one (1) percent to the laboratory results for field variation. Laboratory testing (time series) shall generally be conducted when all utilities are complete and the roadway subgrade is complete. Lime shall be applied by percentage dry unit weight of soil treated to a minimum in place compacted thickness of six (6) inches. At the discretion of the City, additional testing for the presence of sulfates in the pavement subgrade may be required at the Contractor's expense. If the sulfates are present at an unacceptable concentration, the City may require a recommendation for further treatment of the soil from the approved laboratory.
- 4. Subgrade testing requirements: All fill shall be compacted to no less than 95% of standard proctor density at 0-4% above optimum moisture content. Frequency of tests shall not exceed every 300 linear feet of fill. Frequency of testing shall not exceed every 300 linear feet per 2.0' of lift until final grad starting at 2.0' above natural/sound grade to tope of subgrade. All street, alley and fire land subgrade shall be compacted to no less than 95% of standard proctor density at 0-4% above optimum moisture content. Frequency of tests shall not exceed every 300 linear feet of subgrade, alternating from left quarter point to center line to right quarter point. Verification of lime depth, testing for subgrade gradations/pulverizations, and plasticity indices of the soil shall also be conducted; the frequency of this testing shall be as previously mentioned. All testing of materials required for the construction of any street, alley or fie lane shall be performed by an approved agency for testing materials. The nomination of the testing laboratory and the payment of such testing services shall be made by the Contractor. The engineer shall approve the laboratory nominated to do the testing of materials. It shall be the Contractor's responsibility to show by standard testing procedure that the work constructed does meet the requirements of the City's specifications.
- 5. Minimum design requirements: All street, alley and fire lane paving shall be designed to have a minimum compressive strength of 3500 psi at twenty-eight (28) days with a minimum of five (5) sacks of cement as verified by testing in an approved laboratory. Two batch designs shall be submitted to the City Construction Engineer for approval: one for machine work and one for hand work. All batch designs must be signed by the testing laboratory and include all documentation, such as results of field trial testing. A fly ash batch design may be submitted for approval on a specific job basis: fly ash up to twenty percent (20%) by weight of cement replacement may be used in matching pours. If applicable, all batch designs shall specify an appropriate sulfate resistant cement or equivalent. Slump shall be 1-3 inches for all machine work and 1-4 inches for all hand work. Streets (depending on classification) and fire lanes shall have a minimum thickness of six (6) inches; alleys shall have a minimum thickness of 8" to 5'8". Upon completion of construction, all streets and fire lanes shall be cored for depth (2" cores) at a spacing of 300 feet maximum alternating from left quarter point to center line to right quarter point. Alleys shall be cored for depth (2" cores) at a spacing of 300 feet maximum, along the center line. Pavement of a thickness less than the thickness shown on the plans by more than one-quarter (1/4) inch but less than three-quarter (3/4) inch will be considered deficient. The Contractor shall pay to the City two (2) times the unit bid price per square yard for the area determined to be deficient in thickness as defined above. Pavement deficient in strength by more than three-quarter (3/4) inch shall be removed and replace completely. The deficient area shall be cored immediately on ten (10) foot centers of one (1) per panel to be proved out. All streets, alleys and fire lanes will require cylinders to be made for strength tests by the approved laboratory. Samples for strength tests of which class of concrete placed each day shall be taken by an approved laboratory not less than once a day, or less that once for each 100-150 cubic yards of concrete. Four (4) cylinders shall be made: one shall be broken at 7 days, two (2) shall be broken at twenty-eight (28) days, and one shall be held in case of damage of any of the other three (3). The average strength test of two (2) cylinders from the same sample, tested at twenty-eight (28) days is required for each strength test; any strength test beyond twenty-eight (28) days is unacceptable. If the twenty-eight (28) day design strength is not reached upon strength testing the cylinders, the deficient shall be cored immediately on ten foot centers or one per panel to be proved out. For any areas deficient in strength by not more than 500 psi, the Contractor shall pay to the City one (1) time the unit bid price per square yard for the area determined to be deficient in strength. For any areas deficient in strength by more than 500 psi but more than 1000 psi, the Contractor shall pay to the City two (2) times the unit bid price per square yard for the area determined to be deficient in strength. Pavement deficient in strength by more than 1000 psi shall be removed and replaced completely. No more than three (3) to four (4) inch cores shall be extracted per panel without prior City approval. A rebar detector shall be used to ensure that the cored areas are clean of any rebar. All coring and additional laboratory testing shall be at the expense of the Contractor. The width to be considered for any deficiencies shall be the full width of the pavement.
- 6. Any section of all existing public or private streets, alleys or fire lanes shall be replace within 72 hours of removal.
- 7. The contractor shall furnish a maintenance bone of 10% (ten percent) of the total contract price to the City to run two (2) years from the date of final acceptance of the system by the City.

UTILITY CROSSINGS

General Notes

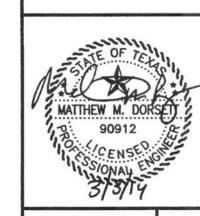
- 1. Tunneling and boring under City streets shall be accomplished by means of jacking, boring or tunneling equipment which is subject to the City approval prior to start of construction.
- 2. The voids outside of the carrier pipe or casing pipe shall by backfilled by hydraulically placed material so that there are no open voids over the roof of the funnel or bore. This shall be done without damage to the roadway structure.
- 3. All bore pits, trenches and inspection holes shall be backfilled within 48 hours of the installation of utility lines. The method of compaction shall be such that a soil density equal to that existing prior to the start of construction will be required as verified by any approved testing laboratory. Any excess or surplus material resulting due to displacement of utility lines and conduits shall be disposed of in an acceptable manner to the City.
- 4. The street sections that are shown as typical sections shall apply to any alleys, driveways, roadways, etc. that will be within a City right—of—way of easement.
- 5. The Contractor shall be required to install necessary warning and safety devises that would protect the safety and health of the public until the work has been finished and accepted by the City.
- 6. The use of a casing pipe will be based upon specific project location and soil conditions. In general, the minimum casing thickness is 0.25 inch and the material shall be steel. Where more than one section is required, the casing ends shall be welded together. Racispacers or City approved equal shall be used to support the carrier pipe. The use of wool skids is no longer permitted.

STORM SEWER SYSTEM
General Notes

- 1. All storm sewer pipe or box culvert in right—of—way or fire lanes shall be reinforced concrete pipe as per City Specifications and shall be laid on a minimum of a compacted crushed stone or pea gravel cushion, four inches thick below the bottom of the pipe shall unless otherwise approved by the City. The initial backfill of select material or fine granular shall be required to a minimum of the spring line of the pipe unless otherwise approved by the City.
- 2. Density testing requirements: Frequency of tests shall not be less than one every 300 linear feet of pipe per 2.0 of lift until final grade, starting at 2.0' above top of pipe. Every other lateral stubout that crosses the existing or proposed street, alley, or fire lane subgrade; inlet; and junction box will receive a density test every lift. All ditches shall be mechanically tamped and compacted to 95% of standard proctor density at 0 4% above optimum moisture. Water jetting is not permitted.
- 3. The joints shall be constructed and jointed together in such a manner that no spill through of backfill will occur. This includes the lift holes used in certain pipe or box sizes. Approved joint materials are concrete mortar; cold applied, plastic asphalt joint compound; rubber gaskets; and cold applied, preformed plastic gaskets.
- 4. Storm drainage inlets shall be as indicated on the approved construction plans. For secondary and major street intersections, a recessed type inlet will be required. For industrial and residential streets, a curb line inlet will be required unless otherwise approved. A round manhole cover with a locking device shall be placed on all inlet tops. The top shall be placed near the outlet pipe. All inlets shall have a compressive strength of 4000 psi at 28 days.
- 5. All precast box culverts or other special structures in any right—of—way or fire lane easement will require a certification from the manufacturer that the product meets the design dimensions and twenty-eight (2) day compressive strength. All cast-in-place box culverts or other special structures in and right-of-way and fire lane or utility easements will require cylinders to be made for strength tests by the approved laboratory. Samples for strength tests of each class of concrete placed each day shall be taken no less than once a day, nor less than once for each 100-150 cu yd of concrete, nor less than once for each 5000 sq ft of surface area for slabs and walls. Four (4) cylinders shall be made; one shall be broken at 7 day, two at (2) shall be broken at twenty—eight (28) days, and one shall be held in case of damage of any of the other three (3). The average strength of two (2) cylinders from the same sample, tested at twenty-eight (28) days, is required for each strength test; only strength test beyond twenty-eight (28) days is unacceptable. If the twenty-eight (28) day design strength is not reached upon strength testing the cylinders, the deficient area shall be cored immediately to be proved out. For any areas deficient in strength by not more than 500 psi, the Contractor shall pay to the City one (1) time the unit bid price per square yard for the area determined to be deficient in strength. For any area deficient by more than 500 psi but not more than 1000 psi, the Contractor shall pay to the City two (2) times the unit bid price per square vard for the area determined to be deficient in strength. For any greas deficient in strength by more than 1000 psi, the structure shall be removed and reconstructed at the full expense of the Contractor. Prior to city acceptance of any penalty payments for any traffic bearing structure that does not meet the 28 day design strength, the Design Engineer shall provide a sealed structural evaluation that assesses the performance adequacy of the deficient structure as constructed under the design service loads. All coring and additional laboratory testing shall be at the expense of the Contractor.
- 6. The Contractor shall furnish a maintenance bond of 10% (ten percent) of the total contract price to the City to run two (2) years from the date of final acceptance of the system by the City.

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Issue Dates:

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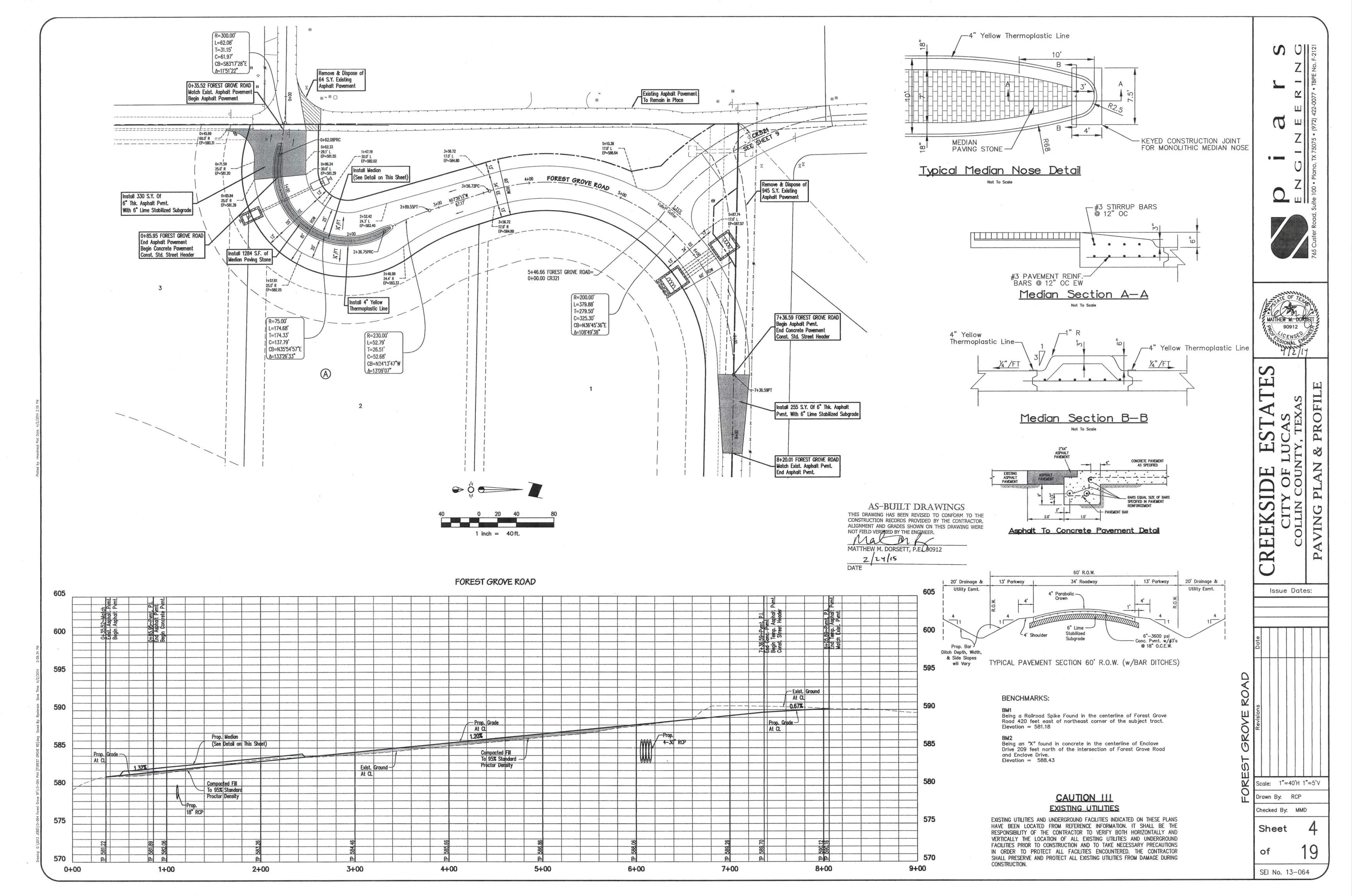
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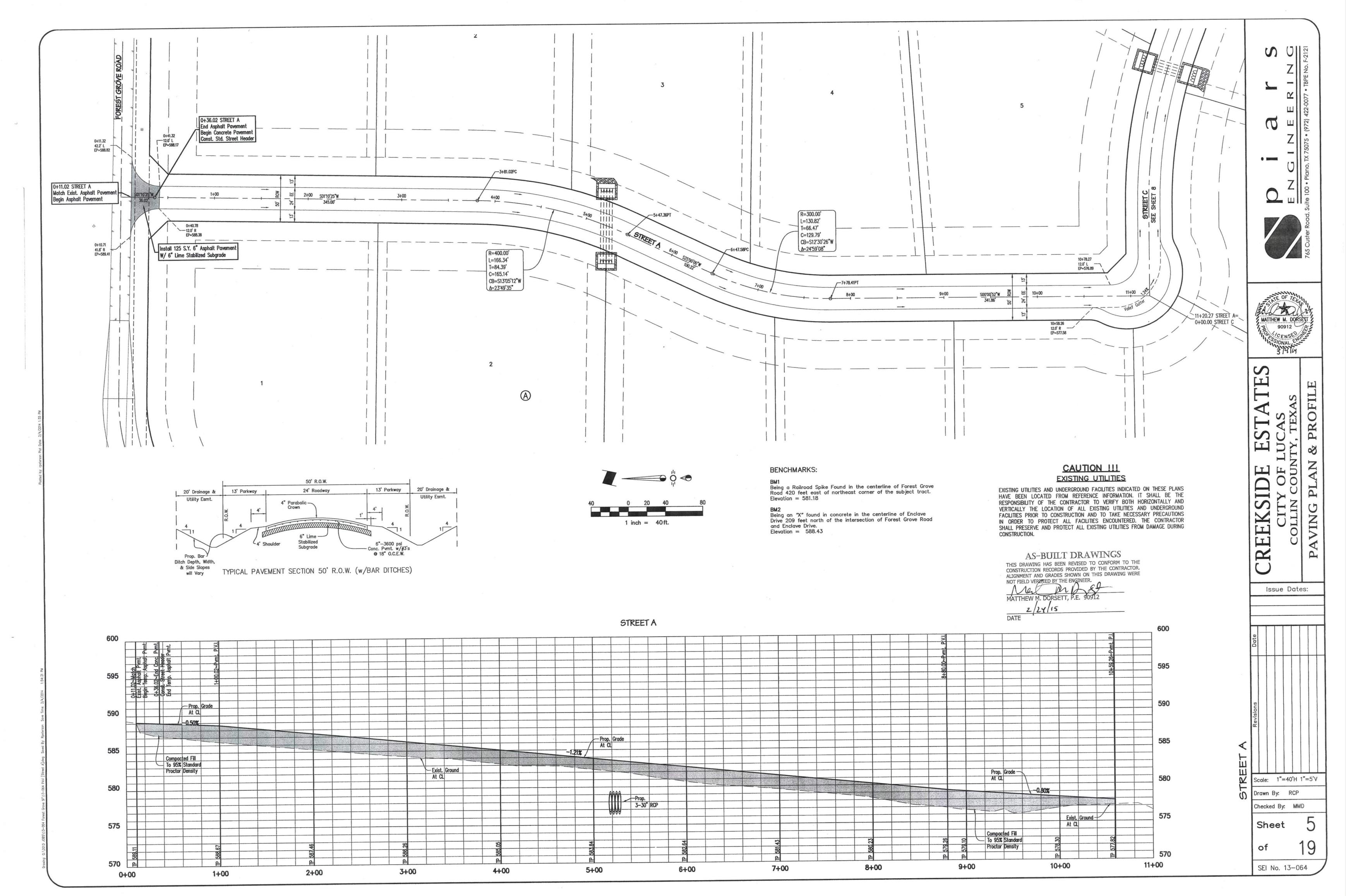
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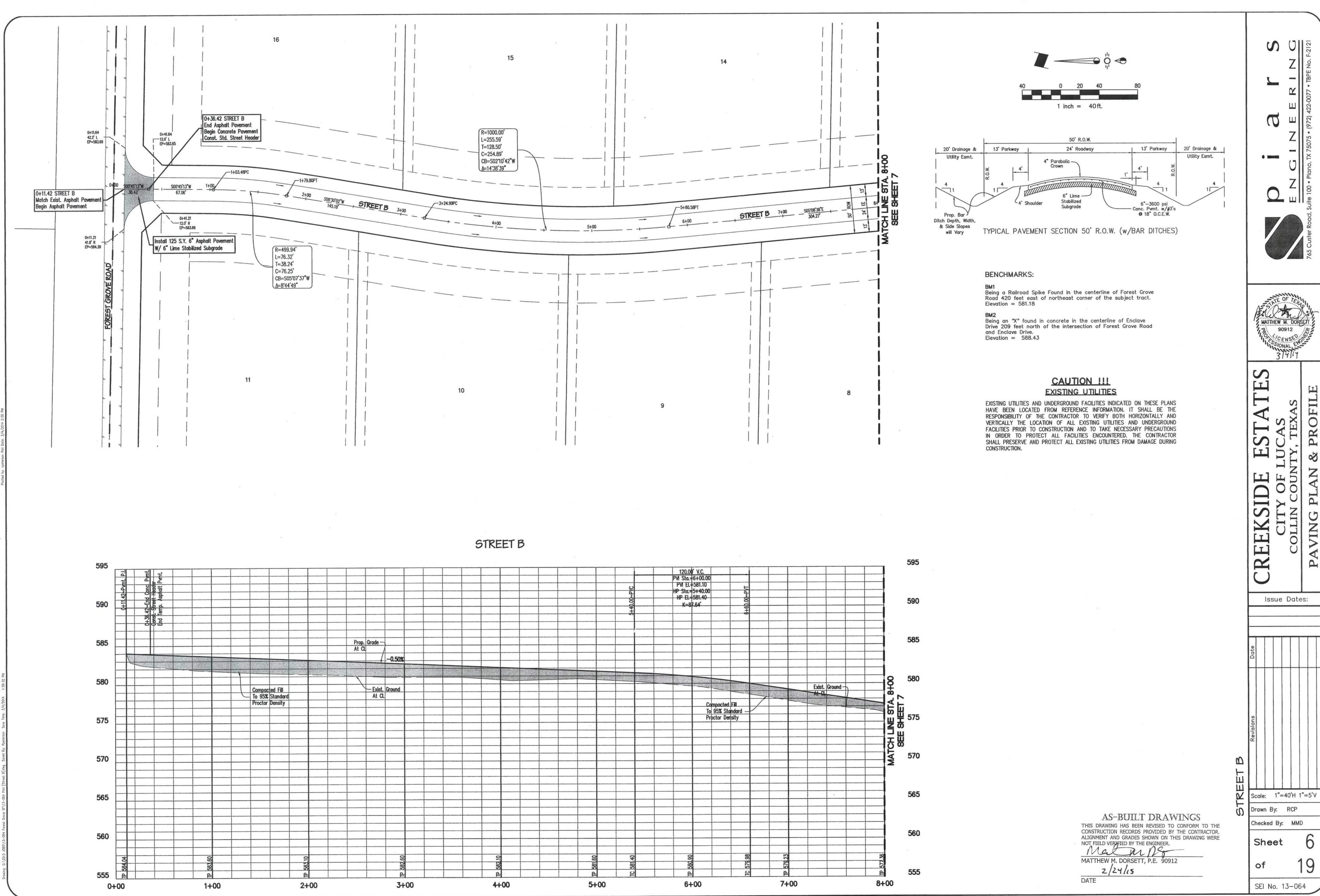
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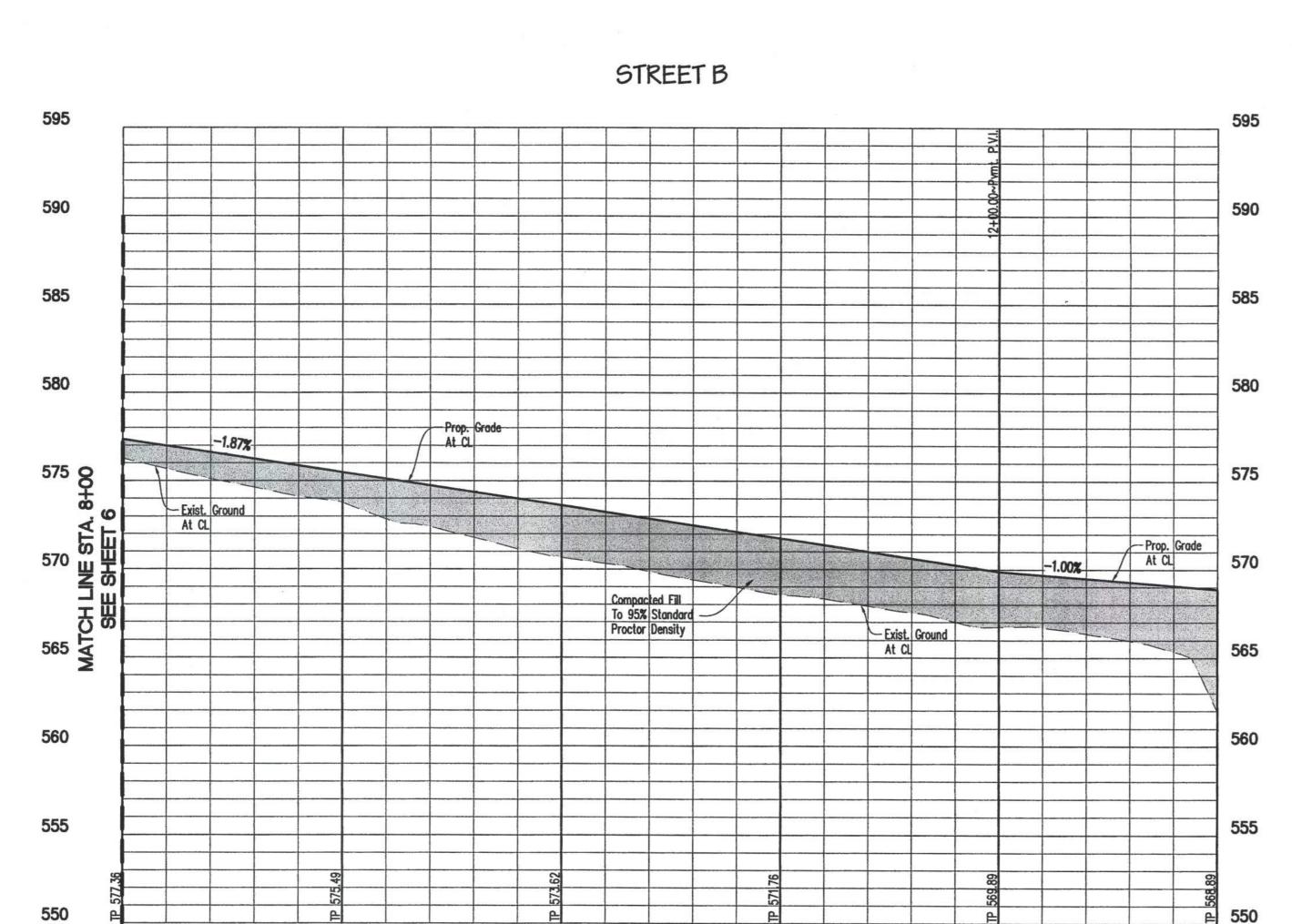
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MATTHEW M. DORSETT, P.E. 90912









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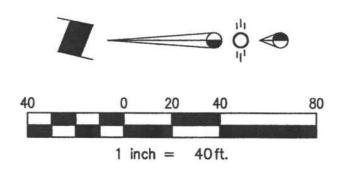
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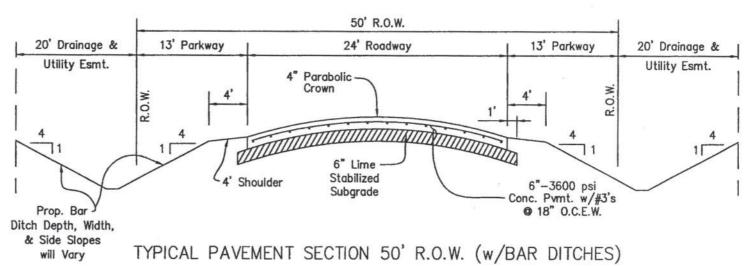
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TYPICAL PAVEMENT SECTION 50' R.O.W. (w/BAR DITCHES)

#### **BENCHMARKS:**

Being a Railroad Spike Found in the centerline of Forest Grove Road 420 feet east of northeast corner of the subject tract. Elevation = 581.18

BM2
Being an "X" found in concrete in the centerline of Enclave
Drive 209 feet north of the intersection of Forest Grove Road and Enclave Drive. Elevation = 588.43

#### CAUTION !!! **EXISTING UTILITIES**

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Issue Dates:

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Checked By: MMD

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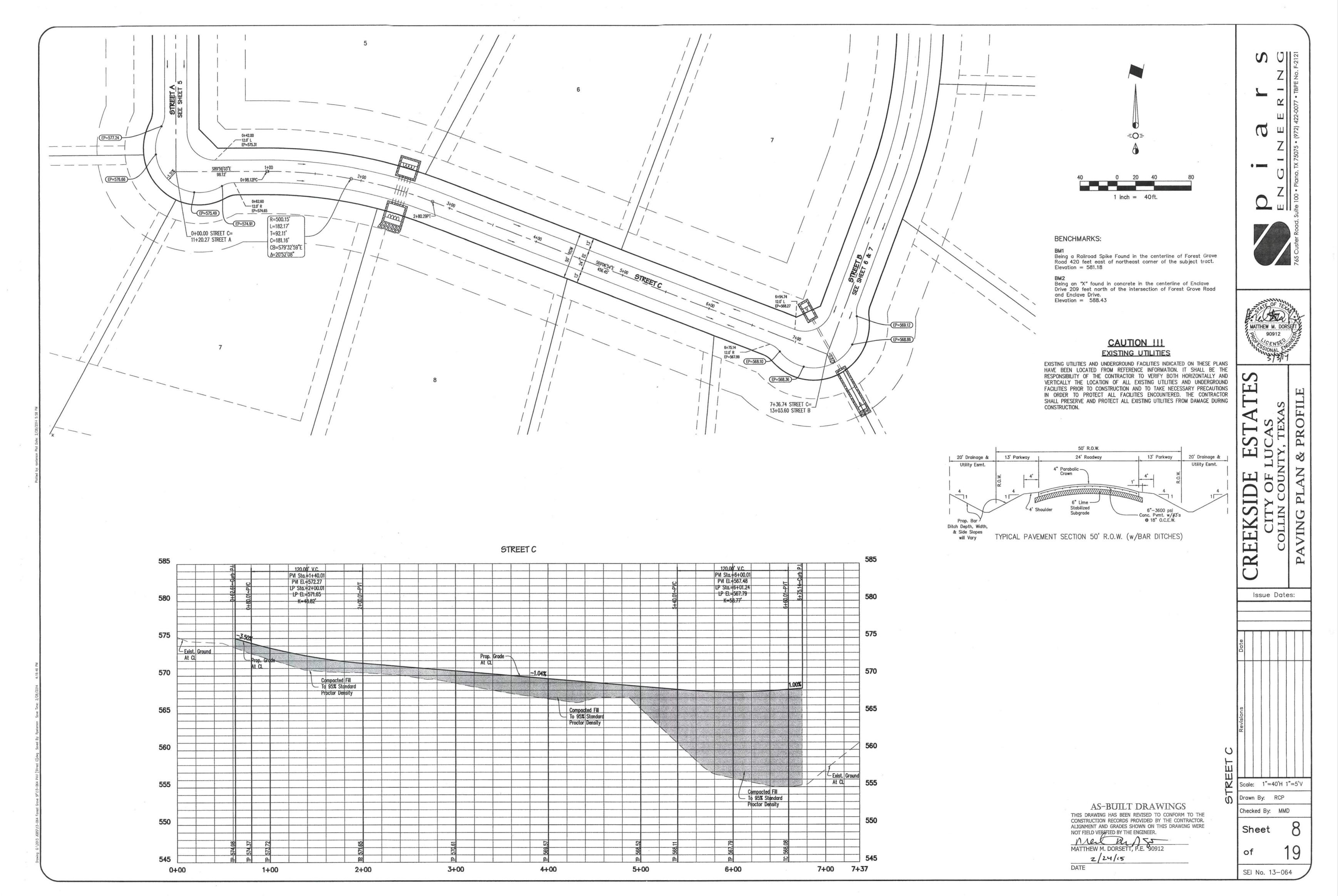
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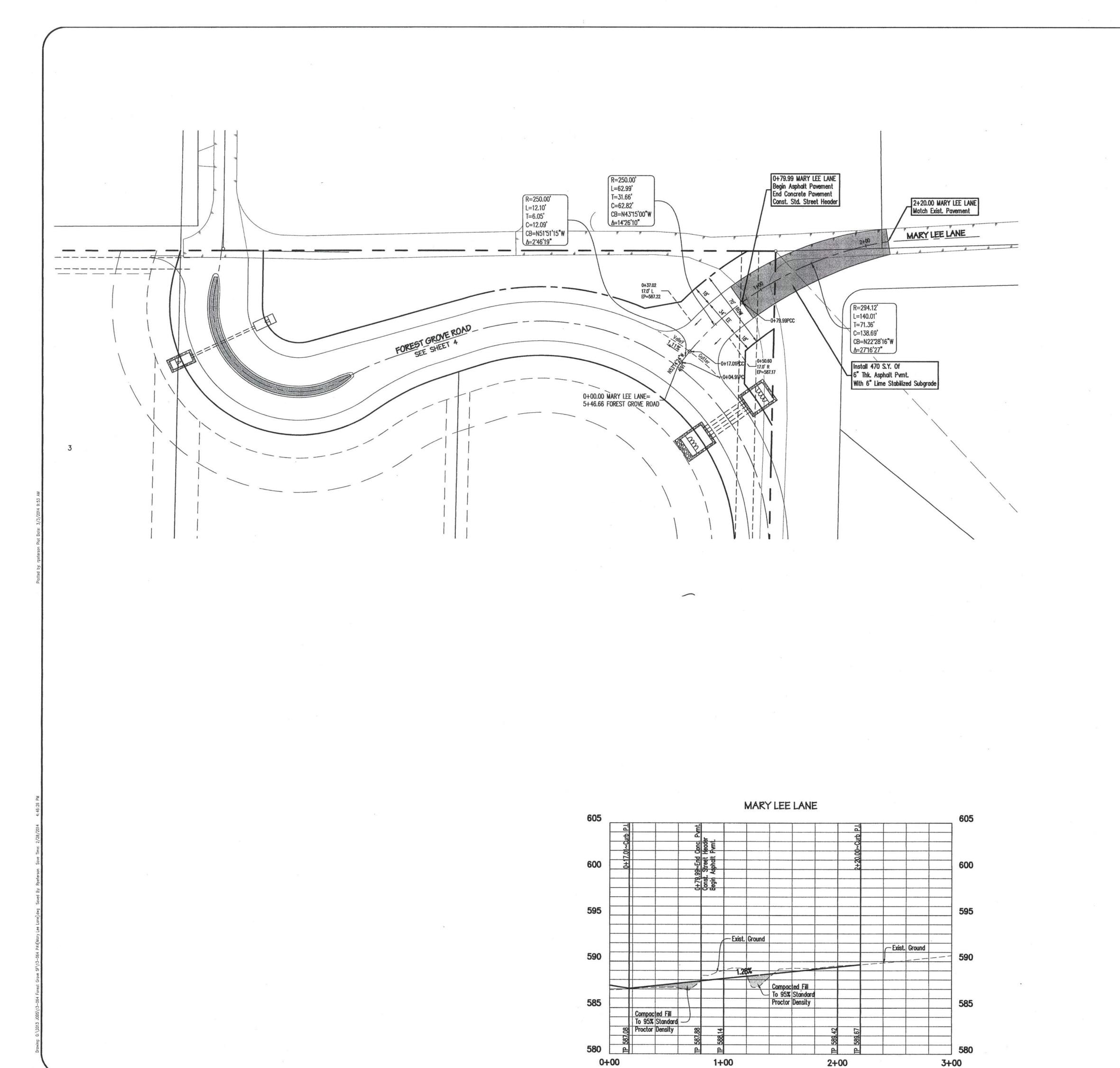
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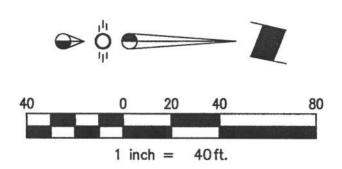
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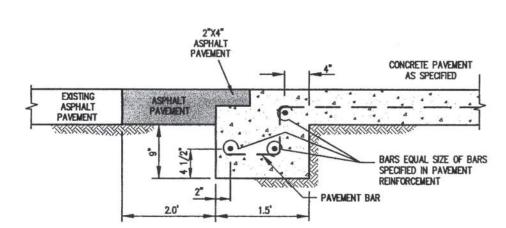
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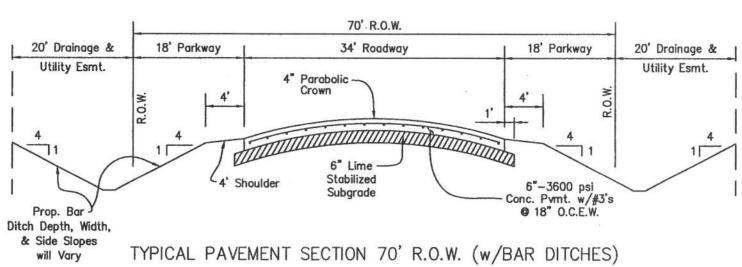








Asphalt To Concrete Pavement Detail



TYPICAL PAVEMENT SECTION 70' R.O.W. (w/BAR DITCHES)

#### **BENCHMARKS:**

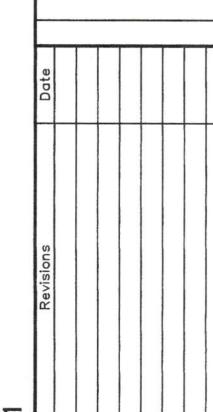
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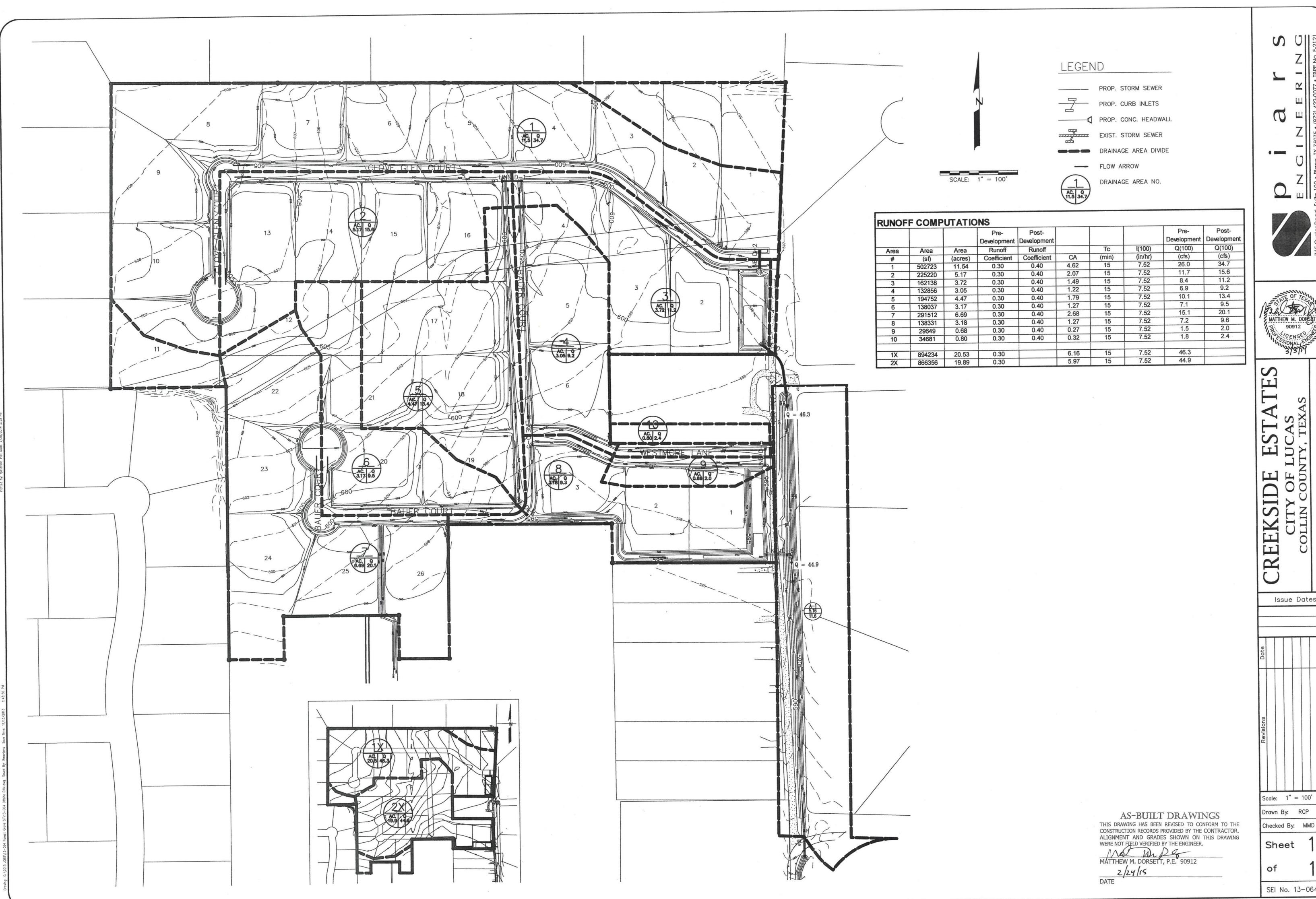
MATTHEW M. DORSETT, P.E. 90912 2/24/15 DATE

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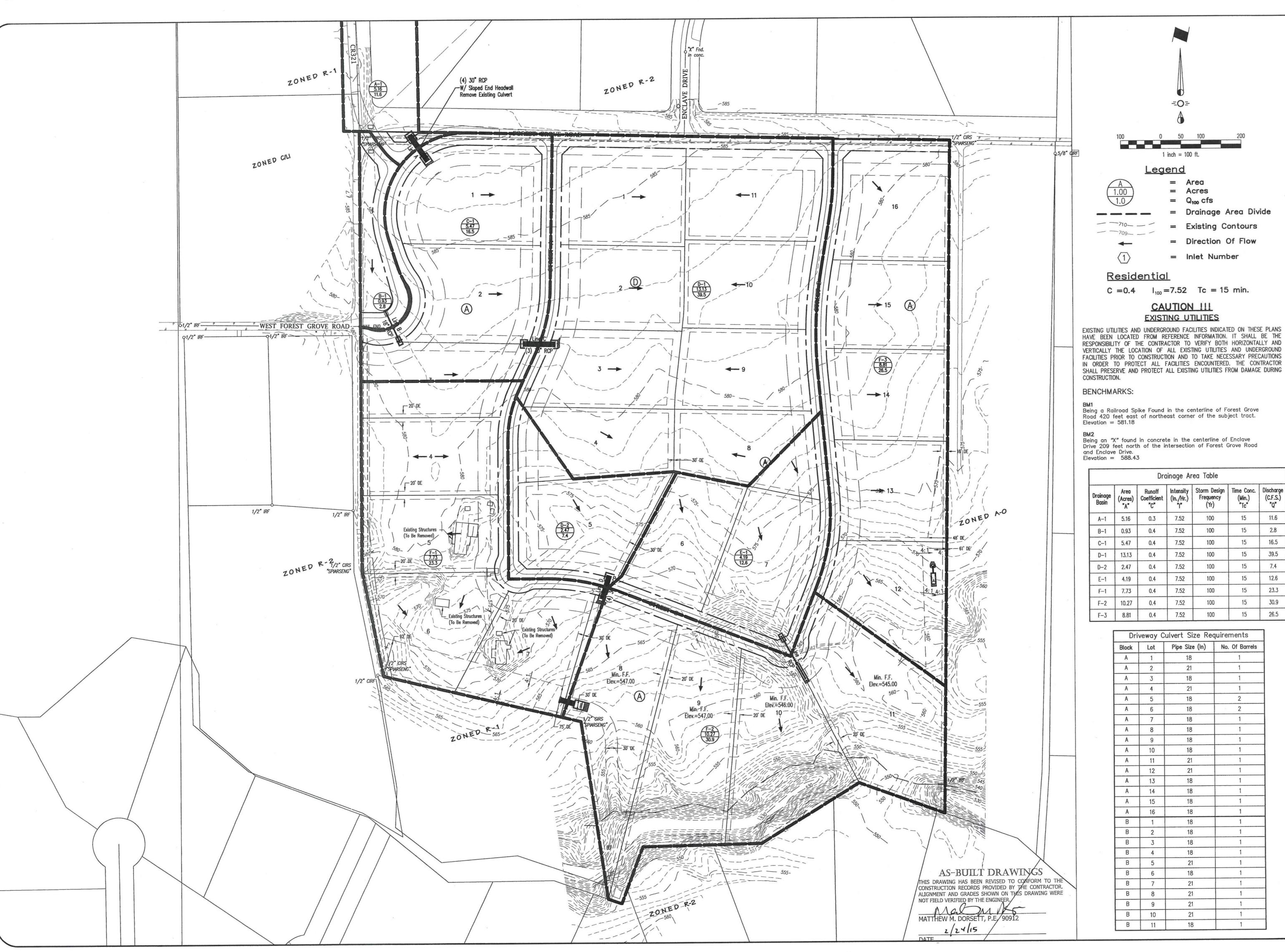


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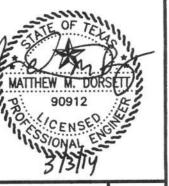
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Didiliago filoa fabio									
Drainage Basin	Area (Acres) "A"	Runoff Coefficient "C"	Intensity (In./Hr.)	Storm Design Frequency (Yr)	Time Conc. (Min.) "Tc"	Discharge (C.F.S.) "Q"			
A-1	5.16	0.3	7.52	100	15	11.6			
B-1	0.93	0.4	7.52	100	15	2.8			
C-1	5.47	0.4	7.52	100	15	16.5			
D-1	13.13	0.4	7.52	100	15	39.5			
D-2	2.47	0.4	7.52	100	15	7.4			
E-1	4.19	0.4	7.52	100	15	12.6			
F-1	7.73	0.4	7.52	100	15	23.3			
F-2	10.27	0.4	7.52	100	15	30.9			
F-3	8.81	0.4	7.52	100	15	26.5			





Issue Dates:

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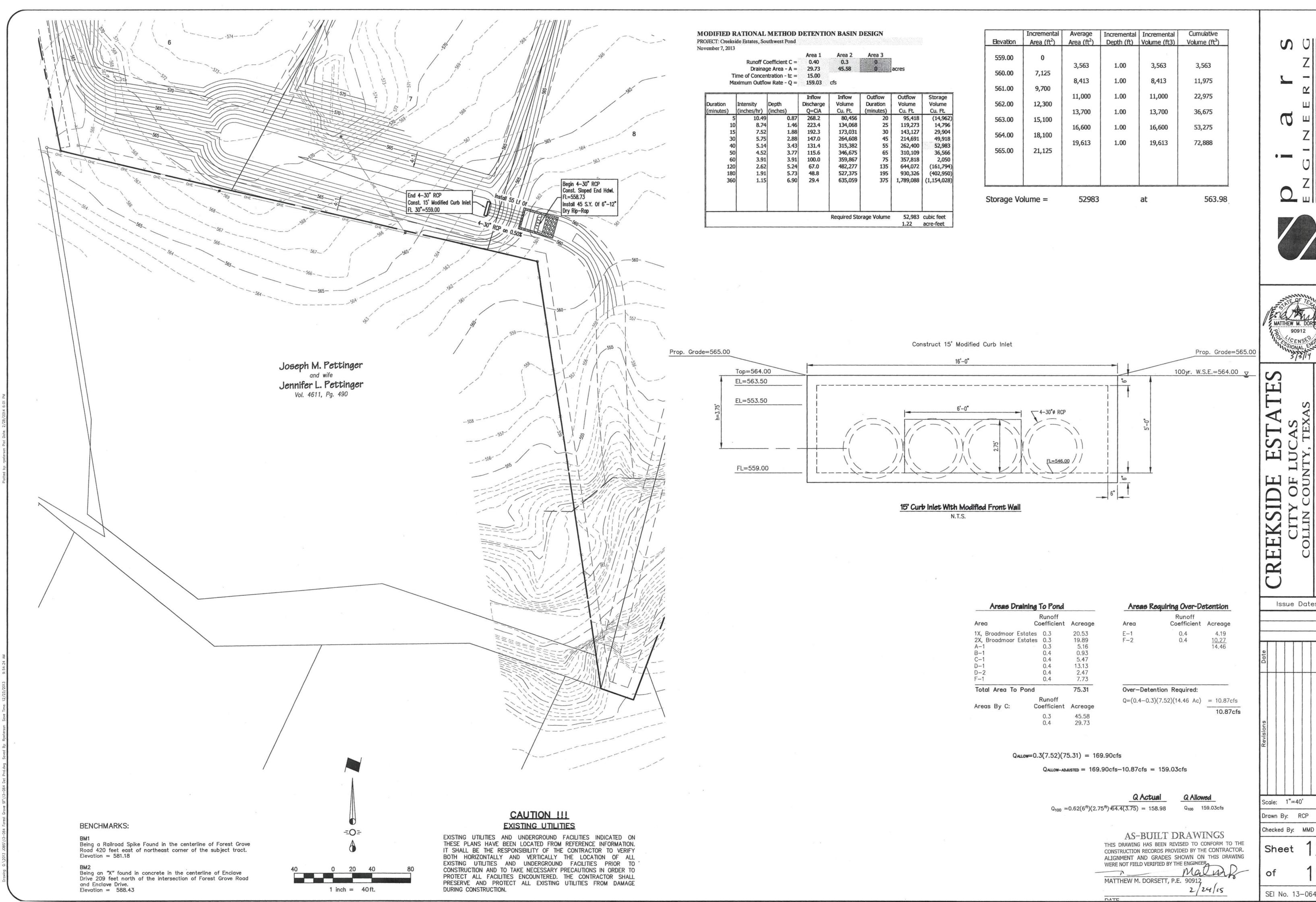
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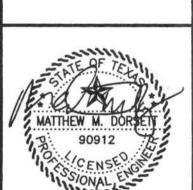
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SEI No. 13-064

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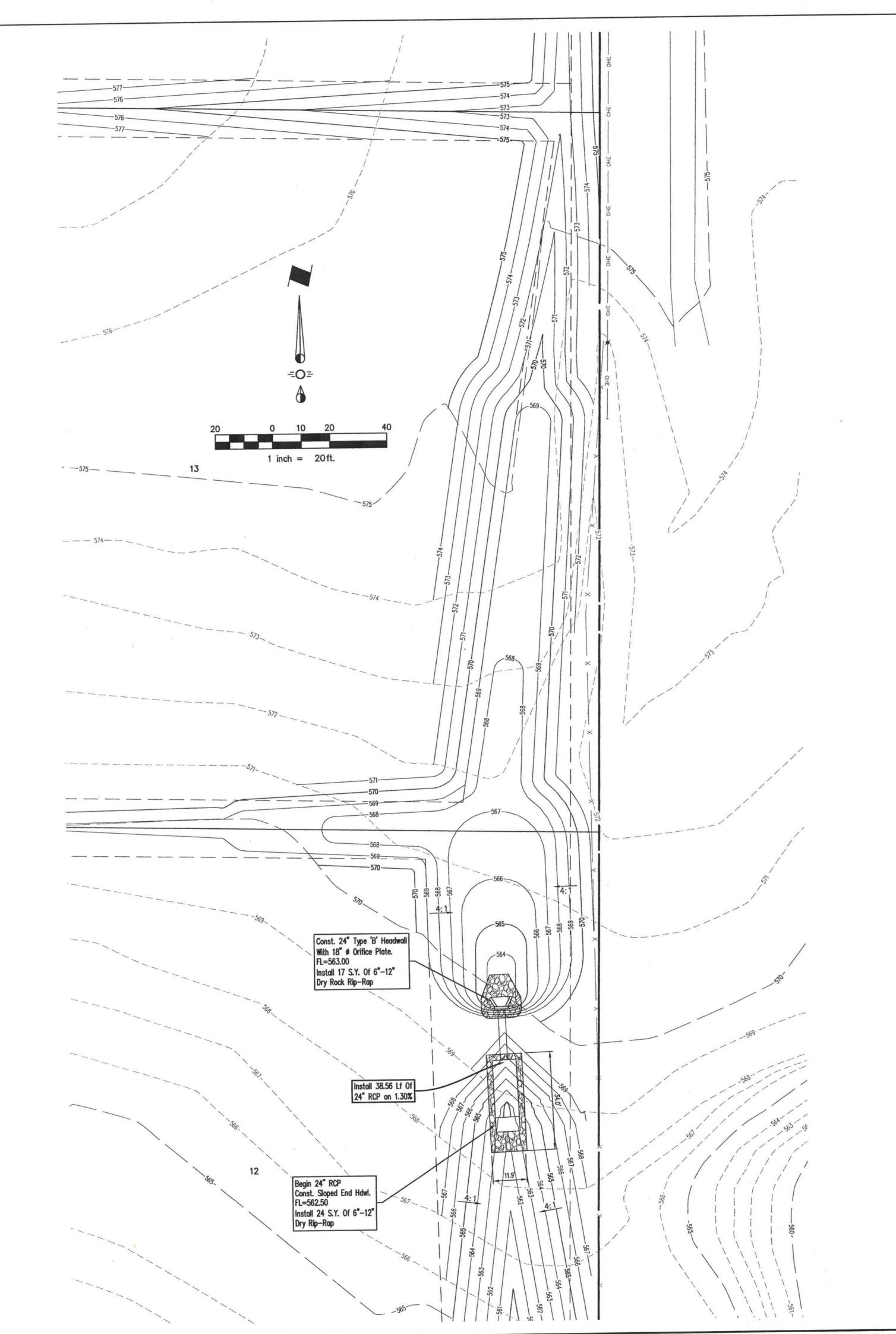




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Issue Dates:

SEI No. 13-064



MODIFIED RATIONAL METHOD DETENTION BASIN DESIGN PROJECT: Creekside Estates, Southeast Pond

November 7, 2013

Runoff Coefficient C = 0.40 Drainage Area - A = 8.81Time of Concentration - tc = 15.00Maximum Outflow Rate - Q = 19.88 cfs

Required Storage Volume 10,670 cubic feet

0.24 acre-feet

Inflow Volume Cu. Ft. Duration (minutes) Volume Discharge Q=CiA Intensity Depth (inches/hr) Cu. Ft. 14,910 30.8 18,480 17,892 5,958 23,850 26.5 9,635 26,838 36,473 10,670 43,472 32,802 18.1 38,766 9,019 47,785 15.9 44,730 80,514 4,874 13.8 49,604 (14,037) 66,477 195 116,298 (43,605) 375 223,650 (136,114) 72,693 6.7 4.1 87,536

Elevation	Incremental Area (ft²)	Average Area (ft²)	Incremental Depth (ft)	Incremental Volume (ft3)	Cumulative Volume (ft <sup>3</sup> )
	Aica (ic)	7404 (107			
563.00	0	72	1.00	72	72
564.00	143				
565.00	472	308	1.00	308	379
505.00	472	752	1.00	752	1,131
566.00	1,032	1,546	1.00	1,546	2,677
567.00	2,060		2 (0.000/20.000)		
568.00	3,981	3,021	1.00	3,021	5,698
300.00	3,501	5,491	1.00	5,491	11,188
569.00	7,000				

Storage Volume =

568.91

### CAUTION !!! **EXISTING UTILITIES**

EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION AND TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.

> AS-BUILT DRAWINGS THIS DRAWING HAS BEEN REVISED TO CONFORM TO THE CONSTRUCTION RECORDS PROVIDED BY THE CONTRACTOR.

> > Prop. FL 24"ø =563.00

ALIGNMENT AND GRADES SHOWN ON THIS DRAWING WERE NOT FIELD VERIFIED BY THE ENGINEER. MATTHEW M. DORSETT, P.E. 90912

2/24/15 W.S.E.=568.91 Prop. 24"ø Type B Hdwl. With 18"ø Orifice Plate.

**Orifice Calculations**  $Q=0.62A\sqrt{2(32.2)(h)}$ 

Areas Draining To Pond

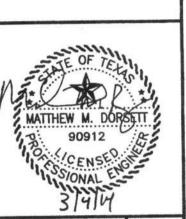
Q100=19.97cfs

Coefficient Acreage 8.81 F-30.4 8.81 Total Area To Pond

 $Q_{ALLOW}=0.3(7.52)(8.81) = 19.88cfs$ 

Q Allowed Q Actual  $Q_{100} = 0.62(1.767^{ft})\sqrt{2(32.2)(5.16)} = 19.97 \text{ cfs}$   $Q_{100}$  19.88cfs





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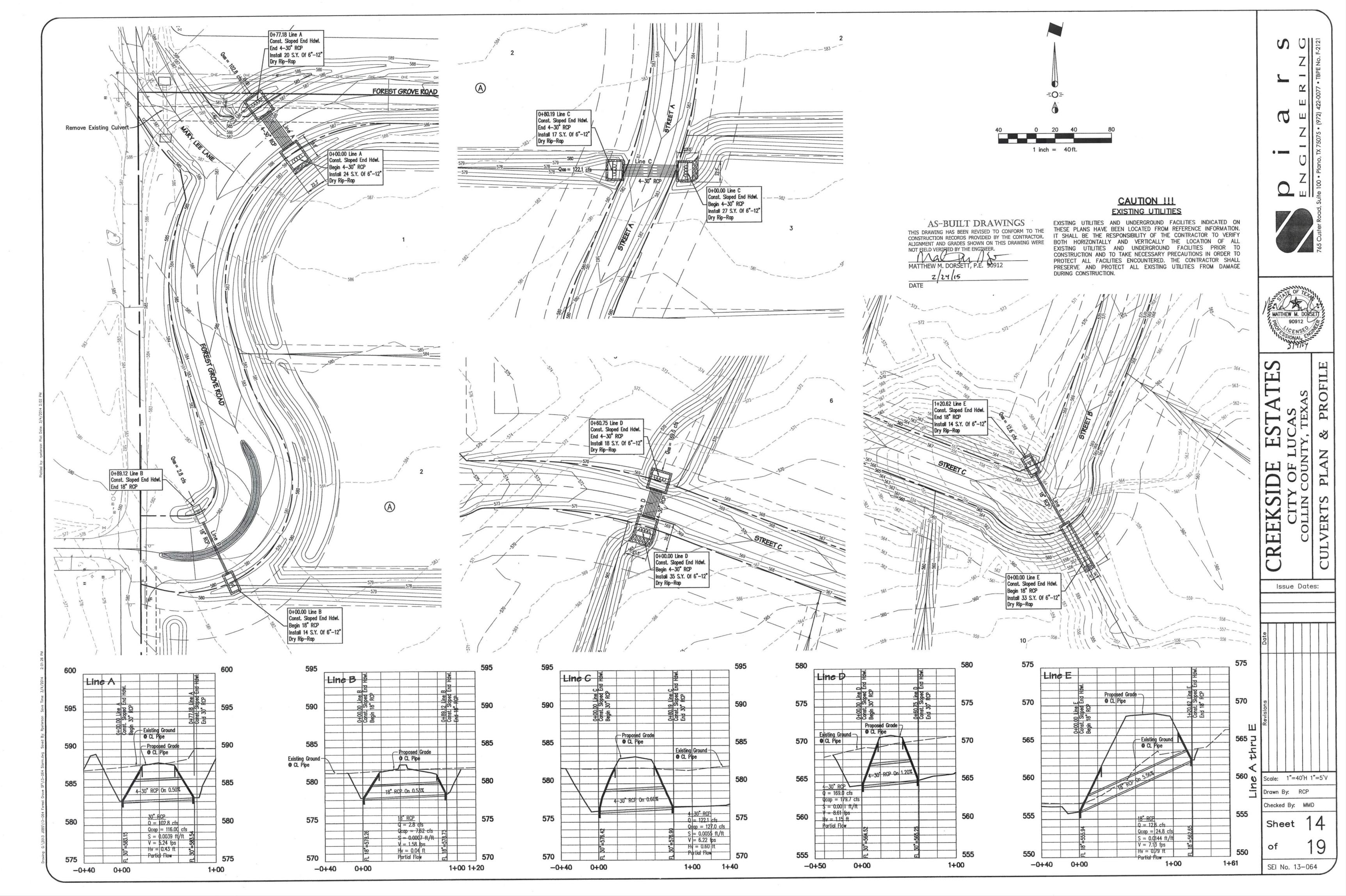
Issue Dates:

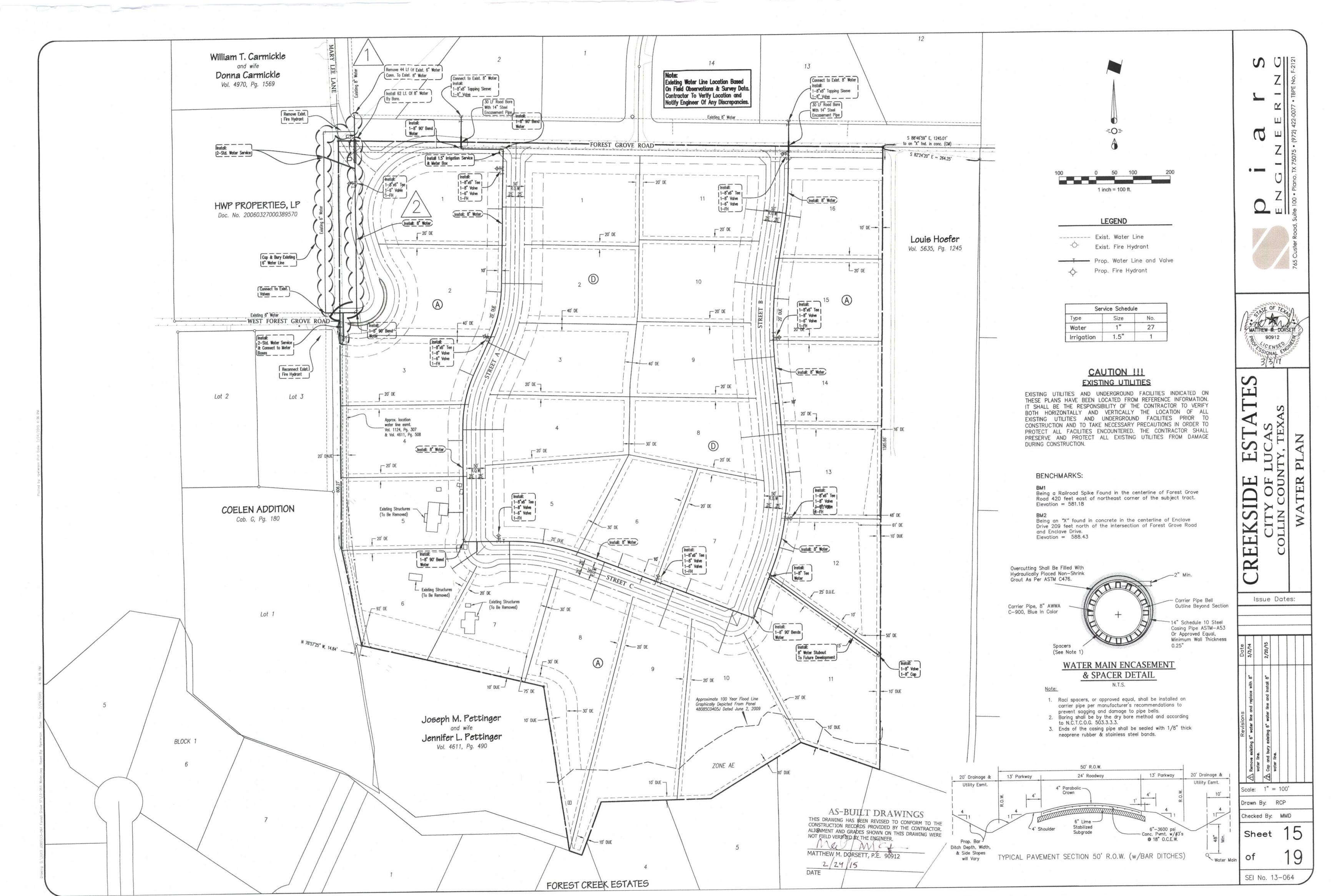
Scale: 1"=20' Drawn By: RCP

Checked By: MMD

Sheet

SEI No. 13-064





#### CONSTRUCTION NOTES: Silt fence shall be installed as per detail. 2. Contractor will install additional erosion control where erosion protection is needed as per the owners engineers, or the City Contractor to Establish 3. The existing vegetation along existing parkways and medians shall be Groundcover on All replaced to its original condition or better. Disturbed Offsite Areas All drainage swales shall be grassed as per City Standards, prior to the City acceptance of project. 5. All construction erosion control shall meet City Ordinance. -FOREST GROVE ROAD-1 inch = 100 ft.6. Erosion construction shall be completed in the following PHASES: PHASE 1 (Prior To Start Of Rough Grading) Silt fence shall be placed as shown on plan, per detail. Temporary PHASE 2 (After utility construction & prior to paying const.) Construction 1. Inlet protection to be installed as per detail. To prevent erosion Entrance / Exit material from entering storm sewer system. Proposed Contours PHASE 3 (After paving construction) Curlex or Ground Cover shall be installed as shown on plan, as per ← = Direction Of Flow 2. All parkways and disturbed area in street R.O.W. to be seeded with grass as per city standards. Vegetation to be established in all disturbed areas. 3' (91.4 cm MIN. WDTH) 4. In areas with 4:1 slopes, vegetation shall be established as required to BACKFILL & HAND TAMP EMBED POSTS 18" (45.7 cm) MIN. 6" (15.2 cm) \_\_\_\_\_ FLOW stabilize the slope. CONSTRUCTION NOTES - SILT FENCE Posts which support the silt fence shall be installed on a slight angle toward the anticipated runoff source. The post 4' (1.2 m) MIN. STEEL OR WOOD POSTS SPACED AT 5' (1.8 m) must be embedded a minimum of 18 inches. TO 8' (2.4 m) SOFTWOOD POSTS SHALL BE 3" (7.6 cm) MIN. IN. DIA. OR NOMINAL 2"x4" (5.1 cm x 10.2 cm). 2. The toe of the silt fence shall be trenched in with a spade or HARDWOOD POSTS SHALL HAVE A MIN. CROSS SECTION OF mechanical trencher, so that the downslope face of the trench 1.5"x1.5" (3.8 cm x 3.8 cm). is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g. pavement), weight fabric flap with FASTEN FABRIC TO TENSION REINFORCEMENT WIRE BY HOG RINGS, LOCKING PLASTIC TIES, OR CORD AT washed gravel on the uphill side to prevent flow under fence. A MAXIMUM SPACING OF 2' (61 cm). 3. The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material. 4. Silt fence shall be securely fastened to each support post or INSTALL CURLEX to woven wire, which is in turn attached to the support post. There shall be a 6 inch double overlap, securely fastened ATTACH THE WOVEN FABRIC USING EVENLY SPACED STAPLES OR LOCKING where ends of fabric meet. AND 2" (5.1 cm ) ACROSS TRENCH BOTTOM IN UPSTREAM DIRECTION. 5. Inspection shall be made weekly or after each rainfall. Repair PLASTIC TIES FOR WOODEN POSTS AT A MAX. SPACING OF 6" (15.2 cm). USE LOCKING PLASTIC TIES OR SEWN MINIMUM TRENCH SIZE SHALL BE 6" or replacement shall be made promptly as needed. (15.2 cm) SQUARE. BACKFILL AND VERTICAL POCKETS FOR STEEL POSTS AT 6. Silt fence shall be removed when the site is completely water line esmt. stabilized so as not to block or impede storm flow or Vol. 1124, Pg. 307 & Vol. 4611, Pg. 508 SILT FENCE DETAIL **←** 4 **→** 7. Accumulated silt shall be removed when it reached a depth of Not to Scale 6 inches. The silt shall be disposed of at an approved site Diversion Ridge Required Where Grade Exceeds 2% and in such a manner as to not contribute to additional Exist. Paved Road siltation. STORM WATER POLLUTION PREVENTION GENERAL NOTES SECTION A-A 1. All operators and/or contractors shall conform to the terms and conditions of the National Pollution Discharge Elimination Systems (NPDES) General Permit as Supply Water To Wash Wheels IF Necessary published in the Federal Register, Vol. 57, No. 175, September 9, 1992, by the Environmental Protection Agency (EPA). EEK 2. The Notice of Intent (NOI), as required by the General Permit, must be properly displayed on site at all times by each operator. All releases of reportable quantities of hazardous substances shall be reported 3"-5" Course Aggregate Min. 6" Thick immediately to the facility operator and EPA. Qualified operator personnel must inspect the site at least once every fourteen days and within 24 hours of a 1/2 - inch or greater rainfall event. The Diversion Ridge inspector shall document the results. - INSTALL ROCK CHECK PLAN Modifications to the Storm Water Pollution Prevention Plan shall be DAM PER DETAIL, implemented and be in-place within a seven calendar day period. D = 6'TEMPORARY STONE 6. If any contractor sees a violation by an operator or another contractor, he Issue Dates: shall notify the operator and contractor in violation, as well as the facility CONSTRUCTION ENTRANCE / EXIT Not to Scale Erosion control shall be installed prior to any grading. Accumulated silt deposits shall be removed from silt fences and hay bale dikes when silt depth reaches six inches. Removal of silt deposits by the contractor shall be incidental to the performance of the contract and a - INSTALL ROCK CHECK separate bid item shall not be included. DAM PER DETAIL, ABOVE POINT 'Y' 9. The contractor shall add or delete erosion protection at the request and D = 3'INSTALL ROCK CHECK direction of the Operator or the City. DAM PER DETAIL, WELL GRADED STONE 10. After installation of pavement, final lot benching and general cleanup, the (SEE SIZING CRITERIA) Paving Contractor shall establish grass groundcover in all street parkways, VIEW LOOKING UPSTREAM lots and all other disturbed areas. Materials shall be as specified in Item 2.15 and seeding shall be in accordance with Item 3.10 of the NCTCOG WIRE WRAPPED Standard Specifications. 11. It shall be the contractor's responsibility to control and limit silt and sediment leaving the site. Specifically, the contractor shall protect all public streets, alleys, streams and storm drainage systems from erosion It shall be the contractor's responsibility to provide a dumpster (or equal) to collect solid waste materials during construction. INSTALL SILT FENCE PER DETAIL. (TYP.) 13. The attached Drainage Area Map, as prepared by Spiars Engineering, Inc., SECTION A - A specifically for this project, shall be made part of the Storm Water Pollution Prevention Plan. 'L' = THE DISTANCE SUCH THAT POINTS 'A' AND 14. It is anticipated that the following non-storm water discharges will be associated with this project. These discharges are authorized through the 'B' ARE OF EQUAL ELEVATION. Scale: 1"=100' construction general permit: A. Fire hydrant flushings -POINT 'B' Drawn By: RCP B. Water used to wash vehicles and to control dust C. Potable water sources including waterline flushings AS-BUILT DRAWINGS Checked By: MMD D. Irrigation drainage THIS DRAWING HAS BEEN REVISED TO CONFORM TO THE CONSTRUCTION RECORDS PROVIDED BY THE CONFRACTOR. E. Pavement washdown Sheet F. Uncontaminated ground water ALIGNMENT AND GRADES SHOWN ON THIS DRAWING WERE NOT FIELD VERIFIED BY THE ENGINEER G. Construction water SPACING BETWEEN CHECK DAMS 15. Construction waste disposal containers shall be provided on the site for disposal of MATTHEW M. DORSETT all non-hazardous construction waste materials. 2/24/15 WRE WRAPPED ROCK CHECK DAM 16. The containers shall be hauled to landfill by the Contractor.All hazardous materials SEI No. 13-064 shall be handled and disposed of by the Contractor in accordance with Federal, DATE Not to Scale State and Local regulations.

