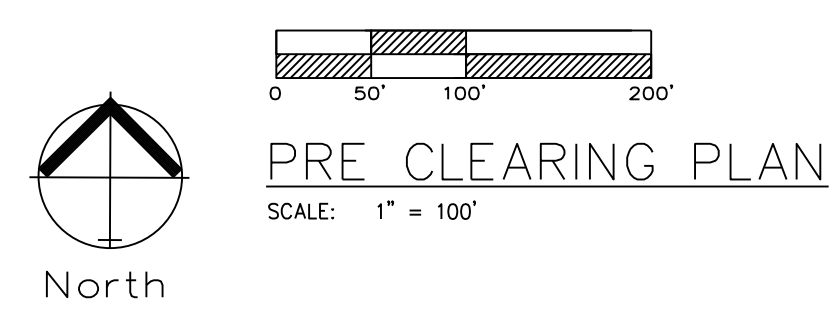
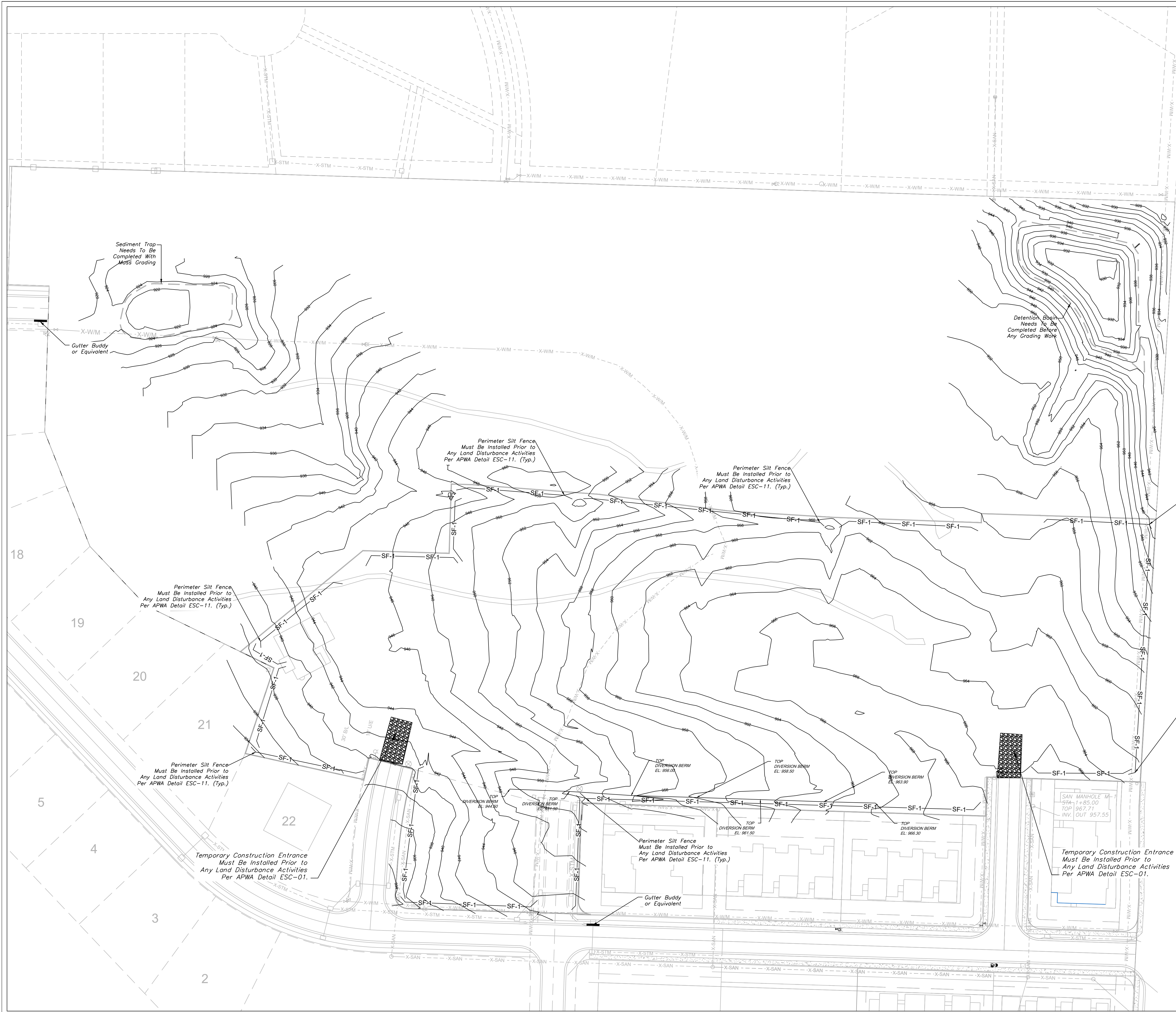
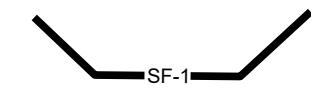




NOTES: The Land Disturbance Plans indicates the Final placement of erosion control devices. The contractor(s) may proceed with construction prior to the final placement of these devices by providing additional devices to control erosion on their items of work. These devices shall be maintained until the final devices are in place.

 **SILT FENCE PROTECTION**
TO BE MAINTAINED BY CONTRACTOR

LEGEND	
PHASE 1 SILT FENCE	 SF-1 
PHASE 2 SILT FENCE	 SF-2 
INLET PROTECTION	

DURING ALL PHASES OF CONSTRUCTION, INACTIVE AREA STABILIZATION METHODS AS DESCRIBED IN APWA SECTION 5111.3 SHALL BE USED TO CONTROL EROSION AND SILTATION.

Perimeter Silt Fence
Must Be Installed Prior to
Any Land Disturbance Activities
Per APWA Detail ESC-11. (Typ.)

Perimeter Silt Fence
Must Be Installed Prior to
Any Land Disturbance Activities
Per APWA Detail ESC-11. (Typ.)

Record Drawing

RECORD DRAWING
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"100-00 100.10", "4-00% 1.15% slope", or "8-inch HDPE-PVC pipe" are all typical examples of revisions that indicate that design data has been replaced with "as-built" information. All other data is as designed and has not been field verified.

Date: 11/17/2022
Certified by: Matthew J. Schlicht
Title: Engineer
Firm: Engineering Solutions

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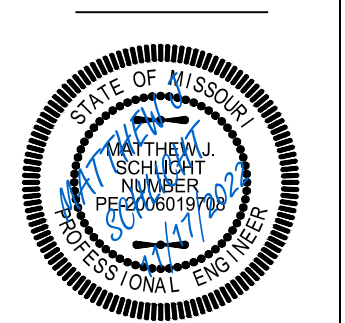
50 SE 30TH STREET
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Professional Registration
Missouri
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Surveying 2005008319-D
Kansas
Engineering E-1695
Surveying LS-218
Oklahoma
Engineering 6254
Nebraska
Engineering CA2821

THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

Project:
VILLAS OF CHAPEL
RIDGE-LSMO
Issue Date:
April 10, 2020

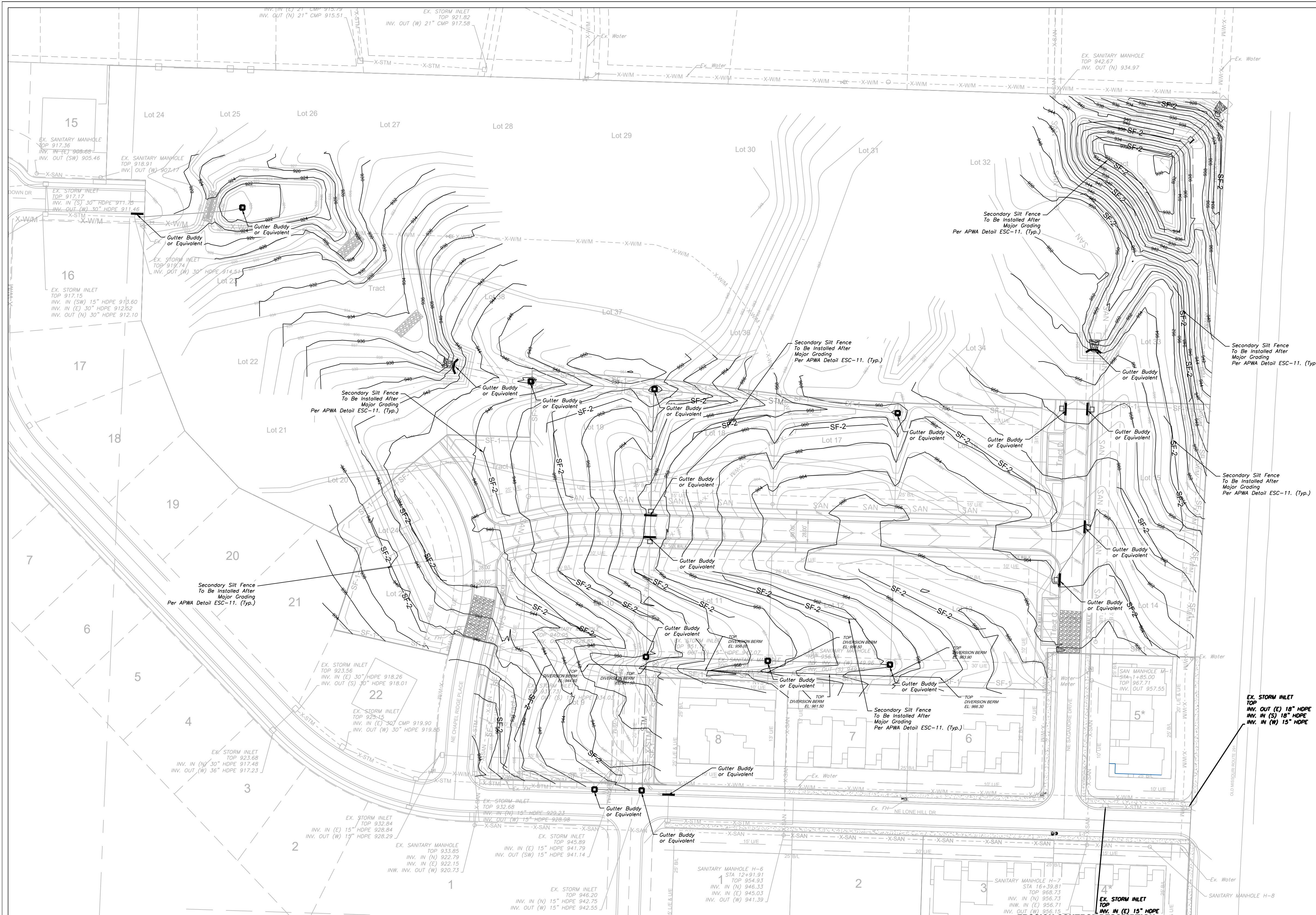
ESC PHASE 1 - Pre Clearing Plan
Construction Plans for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri



Matthew J. Schlicht
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NE PE E-14335

REVISIONS
6/25/2021 As-Built
8/18/2021 As-Built
8/31/2021 As-Built
9/9/2021 As-Built
11/17/2022 As-Built

C.050



INACTIVE AREA STABILIZATION PLAN
SCALE: 1" = 60'

North

NOTES: The Land Disturbance Plans indicates the Final placement of erosion control devices. The contractor(s) may proceed with construction prior to the final placement of these devices by providing additional devices to control erosion on their items of work. These devices shall be maintained until the final devices are in place.

LEGEND

PHASE 1 SILT FENCE — SF-1 — SF-1 —
PHASE 2 SILT FENCE — SF-2 — SF-2 —
INLET PROTECTION
GUTTER BUDDY OR EQUIVALENT

SILT FENCE PROTECTION
TO BE MAINTAINED BY CONTRACTOR

DURING ALL PHASES OF CONSTRUCTION,
INACTIVE AREA STABILIZATION METHODS AS
DESCRIBED IN APWA SECTION 5111.3 SHALL BE
USED TO CONTROL EROSION AND SILTATION.

MAINTENANCE:
TO MAINTAIN THE EROSION AND SEDIMENT CONTROLS, THE FOLLOWING PROCEDURES WILL BE PERFORMED:
SEDIMENT CAPTURE DEVICES: SEDIMENT WILL BE REMOVED FROM THE UPSTREAM OR UPSLOPE SIDE OF THE FILTER FABRIC FENCES, WHEN THE DEPTH OF ACCUMULATED SEDIMENT REACHES ABOUT ONE-THIRD THE HEIGHT OF THE STRUCTURE.
STORM SEWER INLETS: ANY SEDIMENT IN THE STORM SEWER INLETS WILL BE REMOVED AND DISPOSED OF PROPERLY.
TEMPORARY CONTROLS: ALL TEMPORARY CONTROLS WILL BE REMOVED AFTER THE DISTURBED AREAS HAVE BEEN STABILIZED.

INSPECTION PROCEDURES:
INSPECTIONS WILL BE DONE BY THE RESPONSIBLE PERSON(S) AT LEAST ONCE EVERY WEEK AND WITHIN 24 HOURS EACH STORM EVENT PRODUCING ANY AMOUNT OF RAINFALL. AREAS THAT HAVE BEEN RESEDED WILL BE INSPECTED REGULARLY AFTER SEED GERMINATION TO ENSURE COMPLETE COVERAGE OF EXPOSED AREAS. DISTURBED AREAS THAT HAVE NOT BEEN FINALLY STABILIZED SHALL HAVE ALL POLLUTION CONTROL MEASURES INSPECTED FOR PROPER INSTALLATION, OPERATION AND MAINTENANCE. LOCATIONS WHERE STORM WATER LEAVES THE SITE SHALL BE INSPECTED FOR EVIDENCE OF EROSION OR SEDIMENT DEPOSITION. ANY DEFICIENCIES SHALL BE NOTED IN A REPORT OF THE INSPECTION AND CORRECTED WITHIN SEVEN CALENDAR DAYS OF THE INSPECTION. THE PERMITTEE SHALL PROMPTLY NOTIFY THE SITE CONTRACTORS RESPONSIBLE FOR OPERATION AND MAINTENANCE OF POLLUTION CONTROL DEVICES OF DEFICIENCIES.

IF THE EXISTING GROUND COVER IS NATURAL GRASS, DISTURBED AREAS SHALL BE TEMPORARILY SEEDED WITH WHEAT/RYE AT A RATE OF 15 POUNDS PER 1000 SQUARE FEET. PERMANENT SEEDING SHALL CONSIST OF 80% IN THREE EQUAL PARTS OF THIN BLADE, TURF-TYPE, TALL FESCUE AND 10% BLUEGRASS SEED AT A RATE OF 10 POUNDS PER 1000 SQUARE FEET. BOTH TEMPORARY AND PERMANENT SEEDED AREAS SHALL BE MULCHED AND WATERED TO MAINTAIN THE PROPER MOISTURE LEVEL OF THE SOIL TO ESTABLISH GRASS. NEW GRASS SHALL BE WATERED AND MAINTAINED UNTIL IT REACHES A HEIGHT OF 3 INCHES. ANY BARE AREAS SHALL BE RESEDED.

ALL EROSION CONTROL DEVICES SHALL BE REMOVED BY GENERAL CONTRACTOR AFTER SITE STABILIZATION IS COMPLETE AND APPROVED BY ENGINEER.

THE DEVELOPER WILL DESIGNATE A QUALIFIED PERSON OR PERSONS TO PERFORM THE FOLLOWING INSPECTIONS:
STABILIZATION MEASURES: DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION WILL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. AFTER A PORTION OF THE SITE IS FINALLY STABILIZED, INSPECTIONS WILL BE CONDUCTED AT LEAST ONCE EVERY MONTH THROUGHOUT THE LIFE OF THE PROJECT. CONTRACTOR CAN CONTACT ENGINEERING SOLUTIONS FOR COPIES OF THE INSPECTION FORM TO BE USED FOR STABILIZATION MEASURES.
STRUCTURAL CONTROLS: FILTER FABRIC FENCES AND ALL OTHER EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN WILL BE INSPECTED REGULARLY FOR PROPER POSITIONING, ANCHORING, AND EFFECTIVENESS IN TRAPPING SEDIMENTS. SEDIMENT WILL BE REMOVED FROM THE UPSTREAM OR UPSLOPE SIDE OF THE FILTER FABRIC. CONTRACTOR CAN CONTACT ENGINEERING SOLUTIONS FOR COPIES OF THE INSPECTION FORM TO BE USED FOR STABILIZATION MEASURES.
DISCHARGE POINTS: DISCHARGE POINTS OR LOCATIONS WILL BE INSPECTED TO DETERMINE WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT AMOUNTS OF POLLUTANTS FROM ENTERING RECEIVING WATERS.
CONSTRUCTION ENTRANCE: LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE WILL BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING.

A LOG OF EACH INSPECTION SHALL BE KEPT. THE INSPECTION REPORT IS TO INCLUDE THE FOLLOWING MINIMUM INFORMATION: INSPECTOR'S NAME, DATE OF INSPECTION, OBSERVATIONS RELATIVE TO THE EFFECTIVENESS OF THE POLLUTION CONTROL DEVICES, ACTIONS TAKEN OR NECESSARY TO CORRECT DEFICIENCIES, AND LISTINGS OF AREAS WHERE LAND DISTURBANCE OPERATIONS HAVE PERMANENTLY OR TEMPORARILY STOPPED. THE INSPECTION REPORT SHALL BE SIGNED BY THE PERMITTEE OR BY THE PERSON PERFORMING THE INSPECTION IF DULY AUTHORIZED TO DO SO.

Record Drawing

EROSION CONTROL DESCRIPTION:

- 1.) SILT FENCE SHALL BE PLACED AT THE PERIMETER OF THE GRADING AND AT INTERMEDIATE AREAS THROUGHOUT THE SITE AS SHOWN ON THE PLAN. INLET SEDIMENT TRAPS SHALL BE PLACED SURROUNDING ALL STORM INLETS
- 2.) INSTALL TEMPORARY CONSTRUCTION ENTRANCE AS SHOWN ON PLAN

EROSION CONTROL PROCEDURE:

- 1.) SILT FENCE AND TEMPORARY CONSTRUCTION ENTRANCE SHALL BE INSTALLED AT THE PERIMETER OF THE GRADED AREAS PRIOR TO BEGINNING OF CLEARING OR DEMOLITION OPERATIONS. THE CONTRACTOR SHALL INSTALL SILT FENCE AS SHOWN ON PLANS AS GRADING PROGRESSES.

TEMPORARY CONSTRUCTION ENTRANCE NOTES:

- A.) INSTALLATION
- 1.) AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC STREETS. IF POSSIBLE, LOCATE WHERE PERMANENT ROADS WILL EVENTUALLY BE CONSTRUCTED
 - 2.) REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE AND CROWN FOR POSITIVE DRAINAGE
 - 3.) IF SLOPE TOWARDS THE PUBLIC ROAD EXCEED 2% CONSTRUCT A 6 TO 8 INCH HIGH RIDGE WITH 3H : 1V SIDE SLOPES ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE EDGE OF THE PUBLIC ROAD TO DIVERT RUNOFF AWAY FROM IT.
 - 4.) INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES ALONG PUBLIC ROADS
 - 5.) PLACE STONE TO DIMENSIONS AND GRADES AS SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPED FOR DRAINAGE
 - 6.) DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE
 - 7.) IF WET CONDITIONS ARE ANTICIPATED PLACE GEOTEXTILE FABRIC ON THE GRADED FOUNDATION TO IMPROVE STABILITY
- B.) TROUBLESHOOTING
- 1.) CONSULT WITH A QUALIFIED DESIGN PROFESSIONAL IF ANY OF THE FOLLOWING OCCUR:
 - INADEQUATE RUNOFF CONTROLS TO THE EXTENT THAT SEDIMENT WASHES ONTO PUBLIC ROADS
 - INSTALL DIVERSIONS OR OTHER RUNOFF CONTROL MEASURES
 - SMALL STONE, THIN PAD, OR ABSENCE OF GEOTEXTILE FABRIC RESULTS IN RUTS AND MUDDY CONDITIONS AS STONE IS PRESSED INTO SOIL THICKNESS OR ADD GEOTEXTILE FABRIC
 - PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC - EXTEND PAD BEYOND THE MINIMUM 50 FOOT LENGTH AS NECESSARY
- C.) INSPECTION AND MAINTENANCE
- 1.) INSPECT STONE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER ANY RAIN EVENT
 - 2.) RESHAPE PAD AS NEEDED FOR PROPER DRAINAGE AND RUNOFF CONTROL
 - 3.) TOP DRESS WITH CLEAN 2 AND 3 INCH STONE AS NEEDED
 - 4.) IMMEDIATELY REMOVE MUD OR SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADWAY. REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY
 - 5.) REMOVE ALL TEMPORARY ROAD MATERIALS FROM AREAS WHERE PERMANENT VEGETATION WILL BE ESTABLISHED

RECORD DRAWING
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"400-00 100 100", "4-00% 1.15% slope", or "8-inch HDPE-PVC pipe" are all typical examples of revisions that indicate that design data has been replaced with "as-built" information. All other data is as designed and has not been field verified.

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Certified by: Matthew J. Schlicht
Title: Engineer
Firm: Engineering Solutions

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THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

Project: VILLAGES OF CHAPEL RIDGE-LSMO
Issue Date: April 10, 2020

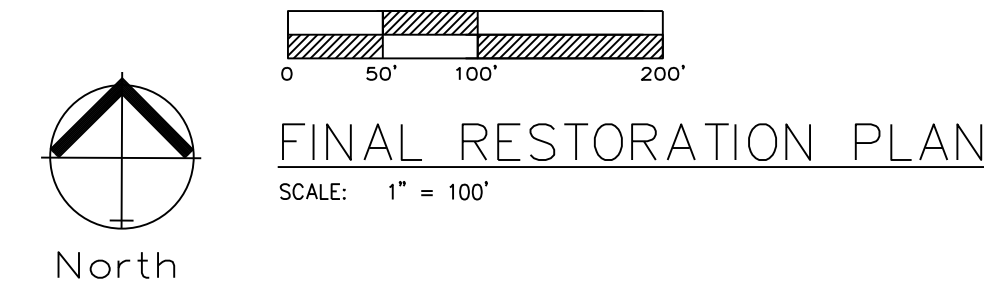
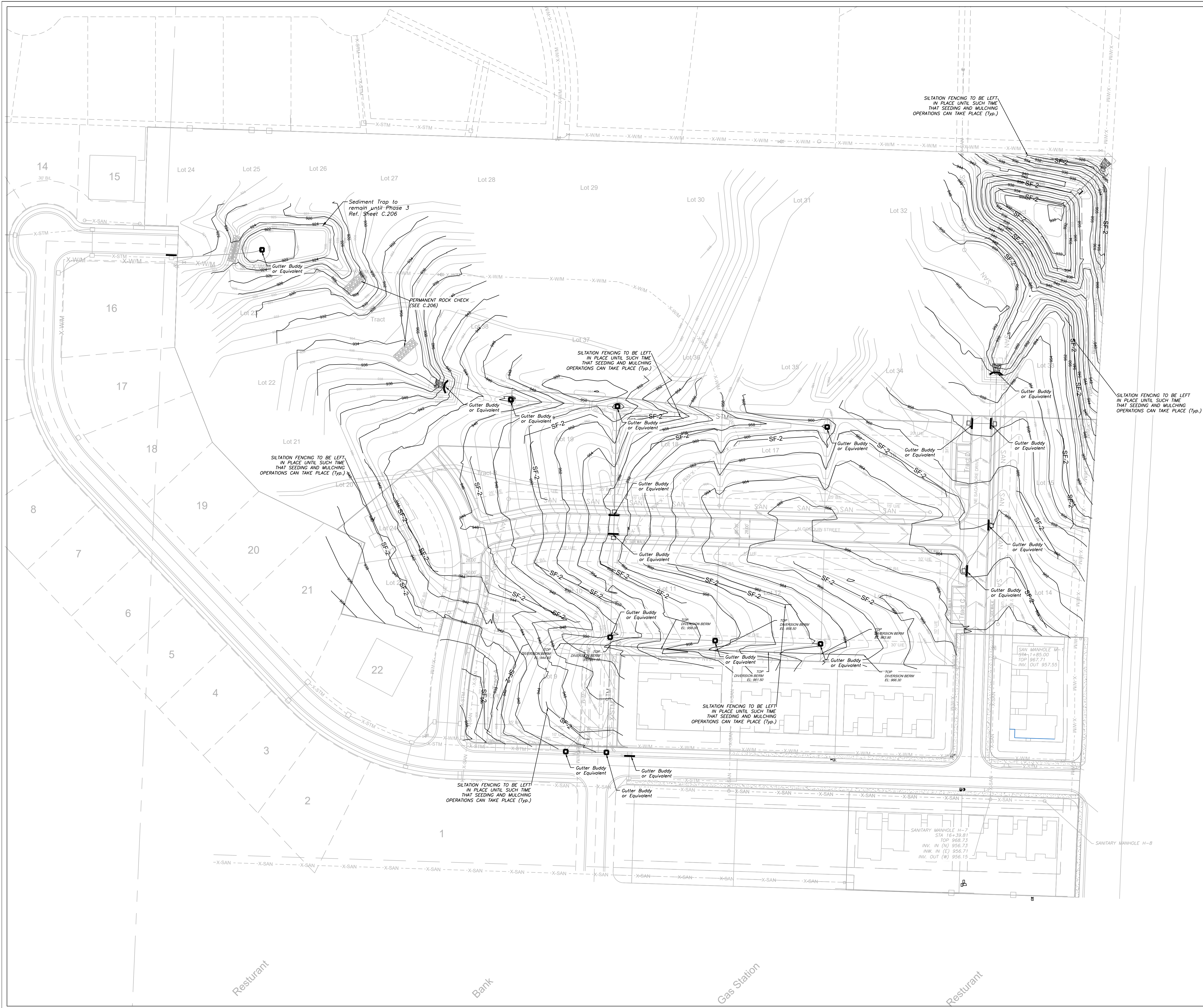
ESC PHASE 2 - Inactive Area Stabilization Plan
Construction Plans for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

REVISIONS

6/25/2021	As-Built
8/18/2021	As-Built
8/31/2021	As-Built
9/9/2021	As-Built
11/7/2022	As-Built

Matthew J. Schlicht
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OK PE 25226
NE PE E-14335

C. 051



SILT FENCE PROTECTION
TO BE MAINTAINED BY CONTRACTOR

LEGEND

PHASE 1 SILT FENCE ——— SF-1 ——— SF-1 ———
PHASE 2 SILT FENCE ——— SF-2 ——— SF-2 ———
INLET PROTECTION
GUTTER BUDDY OR EQUIVALENT ———

DURING ALL PHASES OF CONSTRUCTION,
INACTIVE AREA STABILIZATION METHODS AS
DESCRIBED IN APWA SECTION 5111.3 SHALL BE
USED TO CONTROL EROSION AND SILTATION.

NOTES: The Land Disturbance Plans indicates the Final placement of erosion control devices. The contractor(s) may proceed with construction prior to the final placement of these devices by providing additional devices to control erosion on their items of work. These devices shall be maintained until the final devices are in place.

SEED AND MULCH NOTES:
All areas disturbed by construction activities shall be seeded and mulched. Seeding shall be done before the proposed seedbed becomes eroded, crusted over, or dried out and shall not be done when the ground is frozen, or covered with snow. The seed shall comply with the requirements of the Missouri Seed Law and the Federal Seed Act. Also, it shall contain no seed of any plant on the Federal Noxious Weed List. Other weed seeds shall not exceed one percent by weight of mix.

Seed and Fertilizer Rate:
Mix I - Rye Grass / Blue Grass ——— 100 lbs. per Acre
Mix II - Tall Fescue / Blue Grass ——— 195 lbs. per Acre
Lime ——— 2000 lbs per Acre (50 lbs. per 1000 sq. ft.)
Fertilizer ——— 800 to 1200 lbs per Acre (25 lbs per 1000 sq. ft.)

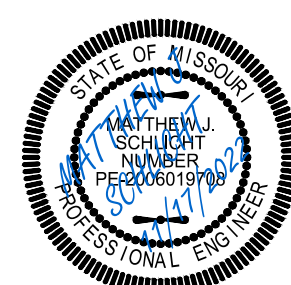
During the dates December 15th through May 31 ALL lime fertilizer, seed and mulch shall be applied to finished slopes of disturbed areas. During the months of June, July, October and November 1st through December 15th, lime fertilizer, seed and mulch shall be applied at the following rates:
Lime - 100% of specified quantity
Fertilizer - 75% of the specified quantity
Seed - 50% of the specified quantity
Mulch - 100% of the specified quantity

Mulch shall be Vegetative type, cereal straw from stalks of oats, rye, or barley, or approved equal. The straw shall be free of prohibited weed seed and relatively free of all other noxious and undesirable seed. Mulch shall be applied at the rate of 2 tons per acre, (70 to 90 lbs per 1000 sq. ft.). Mulch shall be embedded by a mulch anchoring tool or disk type roller having flat serrated disks spaced not more than 10 inches apart and cleaning scrapers shall be provided

ONCE SITE IS 90% VEGETATED ALL ESC DEVICES
SHALL BE REMOVED AND ANY DISTURBED AREAS
SHALL BE RESTORED

Record Drawing

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Date: 11/17/2022
Certified by: Matthew J. Schlicht
Title: Engineer
Firm: Engineering Solutions



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REVISIONS	
6/25/2021	As-Built
8/18/2021	As-Built
8/31/2021	As-Built
9/9/2021	As-Built
11/17/2022	As-Built

SILT FENCE DETAILS
Not to Scale

Notes:

- In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
- Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
- Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
- Attach fabric to upstream side of post.
- Install posts a minimum of 2' into the ground.
- Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.

Maintenance:

- Remove and dispose of sediment deposits when the deposit approaches $\frac{1}{2}$ the height of silt fence.
- Repair as necessary to maintain function and structure.

Joining Fence Sections
Not to Scale

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
STANDARD DRAWING NUMBER ESC-03
ADOPTED 10/24/2016

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

LATE STAGE AREA INLET
(Area inlets at final grade and existing inlets)

Notes:

- Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.
- Silt fence shall remain in place until excavated area is removed and Late Stage Area Inlet is being installed.
- Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.
- Wire reinforced silt fence may be used in place of silt fence attached to wood frame.

Maintenance:

- Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
- Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
- Repair or replace as necessary to maintain function and integrity of installation.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
STANDARD DRAWING NUMBER ESC-01
ADOPTED 10/24/2016

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

CONCRETE WASHOUT

Notes for Concrete Washout:

- Concrete washout areas shall be installed prior to any concrete placement on site.
- Concrete washout areas shall include a full subsurface pit sized relative to the amount of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 2:1. The vehicle tracking post shall be shaped towards the concrete washout area.
- Vehicle tracking control is required at the access point to all concrete washout areas.
- Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and dump rigs.
- A one-piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

Maintenance for Concrete Washout:

- Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
- Concrete washout areas shall be enlarged as necessary to maintain capacity for washed concrete.
- Concrete washout water, wasted pieces of concrete and all other debris in the subsurface pit shall be transported from the job site in a water-tight container and disposed of properly.
- Concrete washout areas shall remain in place until all concrete for the project is placed.
- When concrete washout areas are removed, excavations shall be filled with suitable compacted basefill and topsoil, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.

CONSTRUCTION ENTRANCE

Notes for Construction Entrance:

- Avoid locating on steep slopes, at curves on public roads, or adjacent to railroad areas.
- Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
- If slope towards the public road exceeds 2%, construct a 6'- to 8'-inch high ridge with 30:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
- Install pipe under the entrance if needed to maintain drainage ditches along public roads.
- Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
- Divert all surface runoff and drainage from the entrance to a sediment control device.
- If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

Maintenance for Construction Entrance:

- Reshape entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT
STANDARD DRAWING NUMBER ESC-01
ADOPTED 10/24/2016

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control. Concrete Washout modified from 2008 City of Great Bend Standard Drawings.

EARLY STAGE CURB INLET
(Open Box and Prior to Pouring Curb and Inlet Throat)

Notes:

- Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" x 10" (min.) board wrapped in silt fence. Structures shall have excavated storage area on all four sides to allow settling of sediment (Early Stage Curb Inlet).
- When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Draw within are not approved for curb inlet use.
- Contractor to field verify pouring water shall not create a traffic hazard.

Maintenance:

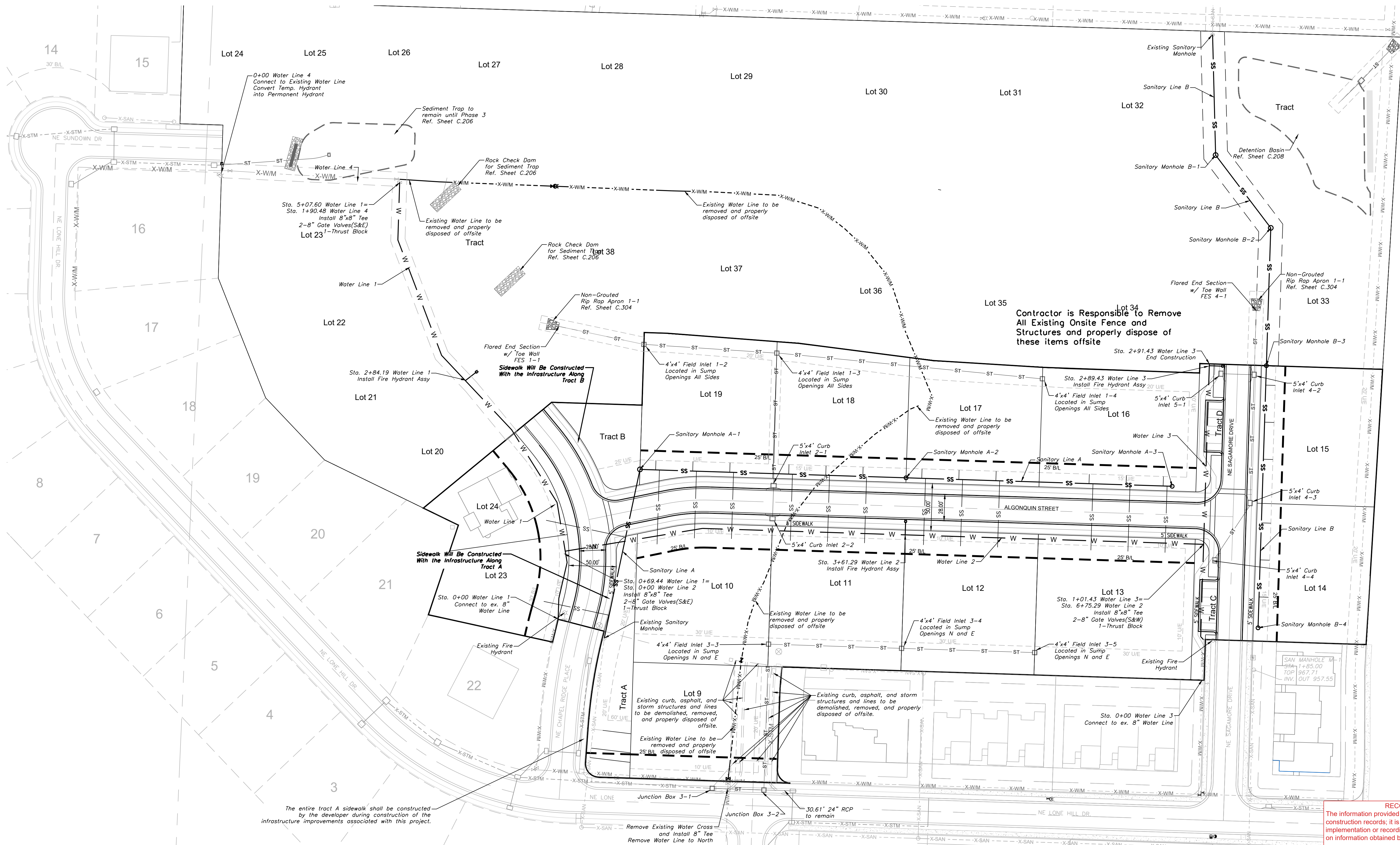
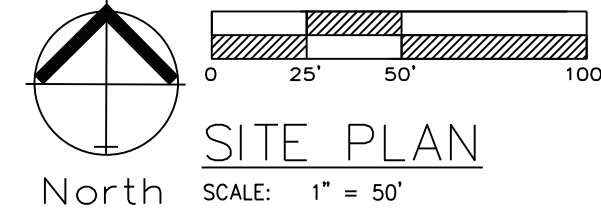
- Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
- Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
- Repair or replace as necessary to maintain function and integrity of installation.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
CURB INLET PROTECTION
STANDARD DRAWING NUMBER ESC-06
ADOPTED 10/24/2016

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

Record Drawing

Date: 11/17/2022
Certified by: Matthew J. Schlicht
Title: Engineer
Firm: Engineering Solutions



Contractor is Responsible to Remove
All Existing Onsite Fence and
Structures and properly dispose of
these items offsite

Record Drawing

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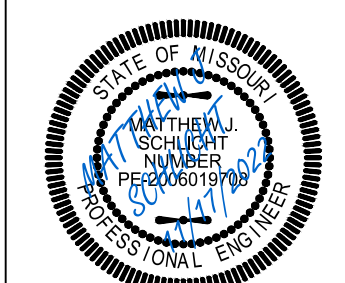


Professional Registration
Missouri
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Surveying 2005008319-D
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Engineering E-1695
Surveying LS-218
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Engineering 6254
Nebraska
Engineering CA2821

**THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D**
Lee's Summit, Jackson County, Missouri

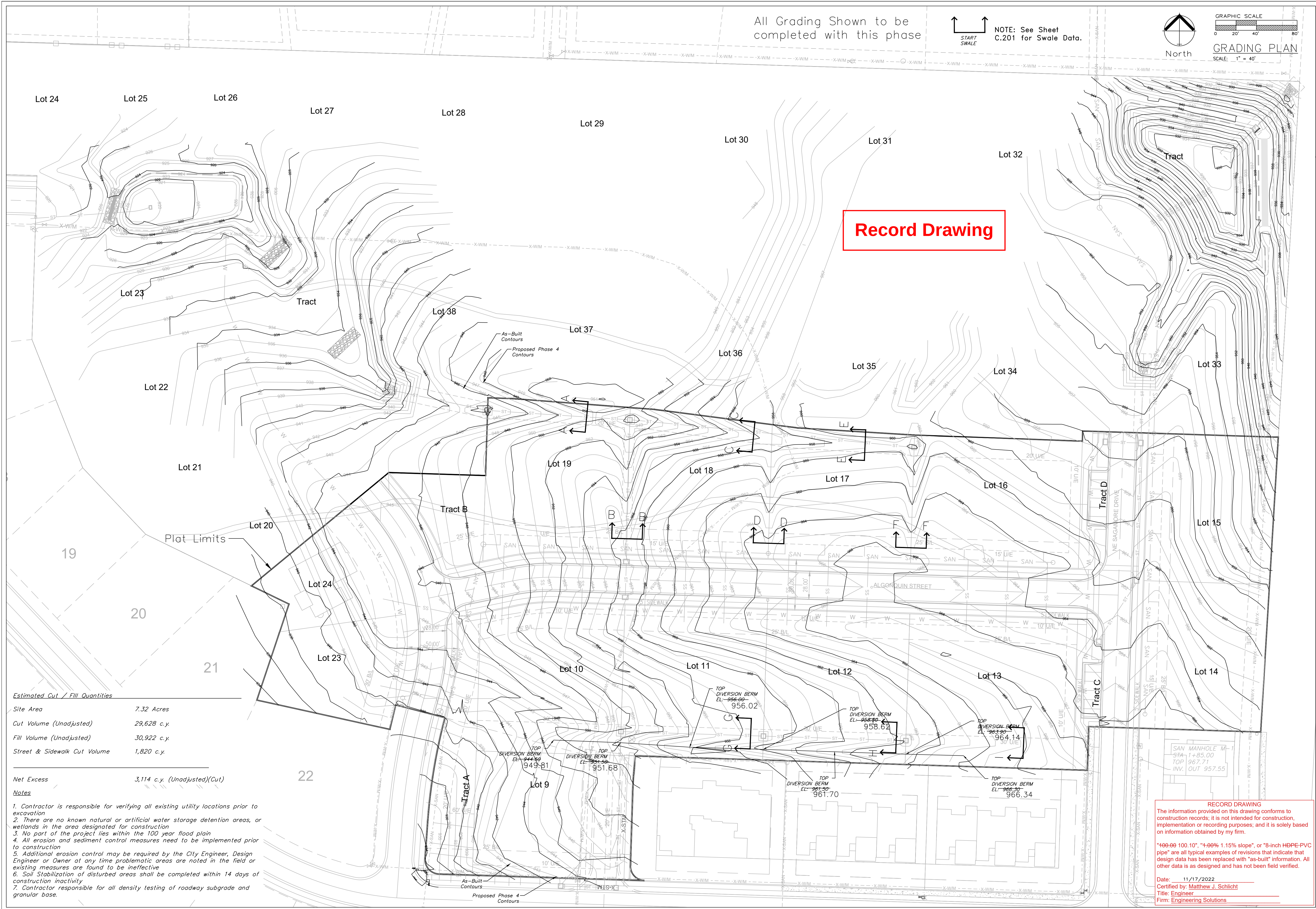
Project: VILLAS OF CHAPEL
RIDGE, LINO
Issue Date: April 10, 2020

Site Plan
Construction Plans for:
**THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D**
Lee's Summit, Jackson County, Missouri



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NE PE E-14335

REVISIONS
6/25/2021 As-Built
8/18/2021 As-Built
8/31/2021 As-Built
9/9/2021 As-Built
11/17/2022 As-Built



ENGINEERING SOLUTIONS

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THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

Project: VILLAS OF CHAPEL RIDGE LS100

Issue Date: April 10, 2020

Master Drainage Plan 1 of 3:
Grading Plan
Construction Plans for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

STATE OF MISSOURI

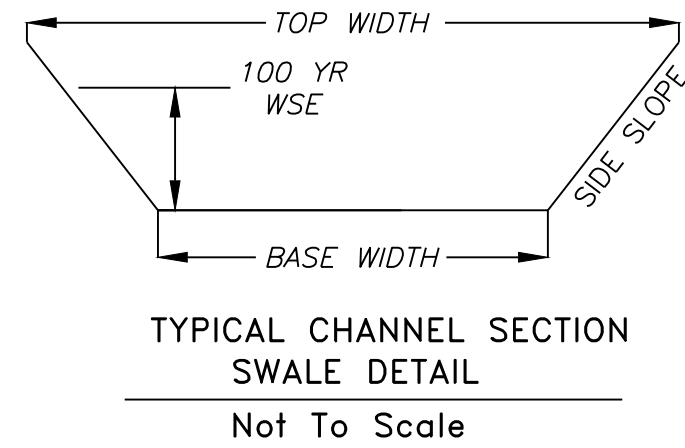
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REGISTERED PROFESSIONAL ENGINEER

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OK PE 25226
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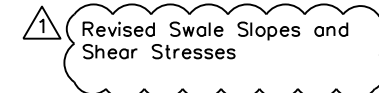
REVISIONS

6/25/2021	As-Built
8/18/2021	As-Built
8/31/2021	As-Built
9/9/2021	As-Built
11/17/2022	As-Built

C. 200



NOTE: Swale sections extend the entire length between upstream and downstream structures with the exception of a transition at each structure.



100 YEAR OVERFLOW SWALE SECTIONS

Section	100 Yr. Runoff (c.f.s.)	Bed Slope (%)	As-Built Slope	Base Width (ft)	Side Slope (1:V)	100 Yr WSE (ft)	Sectional Area	Velocity 100Yr. (f.p.s.)	Hydraulic Radius (ft)	Shear Stress (p.s.f.)	As-Built Shear Stress
A-A	1.35	6.67	6.67	4	5	0.11	0.50	2.70	0.10	0.42	0.42
B-B	2.37	6.67	6.77	6	5	0.13	0.86	2.74	0.12	0.49	0.50
C-C	3.60	6.67	6.70	4	5	0.20	1.00	3.60	0.17	0.69	0.69
D-D	2.50	6.67	7.07	6	5	0.13	0.86	2.89	0.12	0.49	0.52
E-E	3.60	2.72	2.79	6	5	0.21	1.48	2.43	0.18	0.34	0.32
F-F	1.03	6.67	7.56	6	5	0.08	0.51	2.01	0.08	0.34	0.35
G-G	3.00	6.00	5.56	5	3	0.18	1.00	3.01	0.16	0.51	0.56
H-H	3.73	4.16	3.57	5	3	0.21	1.27	2.94	0.18	0.46	0.41
I-I	3.37	4.00	4.69	5	3	0.20	1.12	3.01	0.18	0.45	0.52

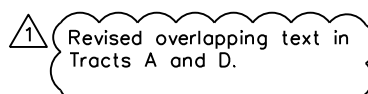
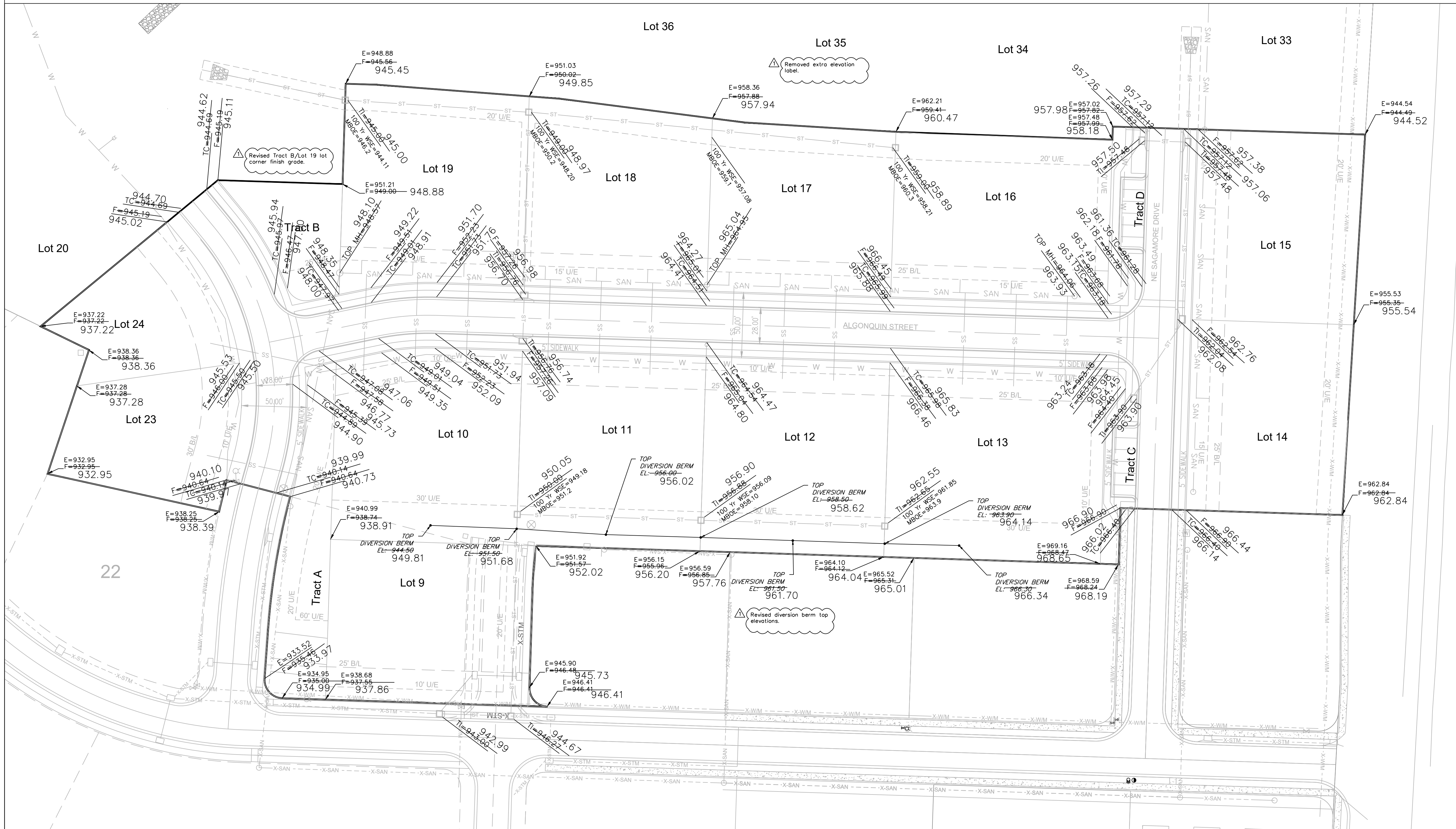
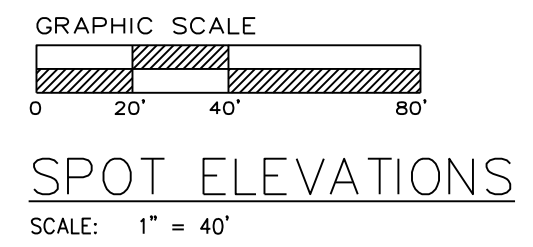
NOTE: Swale should be lined with "Straw with Net" turf reinforcement (Curlex Blanket or Eqv.) . Per Table 5607-1 in APWA Manual

Townhomes	Basement Type	MBOE Lt.	MBOE Rt.
Lot Number			
9	Full	940.8	951.0
10	Daylight	951.2	940.8
11	Daylight	958.1	951.2
12	Daylight	963.9	958.1
13	Full	966.0	963.9
14	Daylight	957.4	964.9
15	Walkout	946.5	957.4
16	Walkout	960.3	960.0
17	Walkout	959.1	960.3
18	Walkout	950.2	959.1
19	Daylight	946.2	950.2

Estates	Basement Type	MBOE Lt.	MBOE Rt.
23	Walkout	935.0	939.3
24	Walkout	939.3	939.2

Note:

AS GRADED PLOT PLAN REQUIRED FOR EACH LOT.



Record Drawing

RECORD DRAWING

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"100-00 100.10", "4-00% 1.15% slope", or "8-inch HDPE-PVC pipe" are all typical examples of revisions that indicate that design data has been replaced with "as-built" information. All other data is as designed and has not been field verified.

Date: 11/17/2022

Certified by: Matthew J. Schlicht

Title: Engineer

Firm: Engineering Solutions

Master Drainage Plan 2 of 3:

Spot Elevations

Construction Plans for:

THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT

LOTS 9-19 & TRACTS A-D

Lee's Summit, Jackson County, Missouri

Project:

VILLAS OF CHAPEL RIDGE LSMD

Issue Date:

April 10, 2020

THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT

LOTS 9-19 & TRACTS A-D

Lee's Summit, Jackson County, Missouri

Professional Registration

Missouri

Engineering 2005002186-D

Surveying 2005008319-D

Kansas

Engineering E-1695

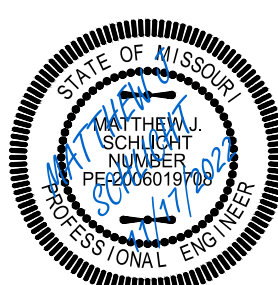
Surveying LS-218

Oklaoma

Engineering 6254

Nebraska

Engineering CA2821



Matthew J. Schlicht

MO PE 2006019708

KS PE 19071

OK PE 25226

NE PE E-14335

REVISIONS

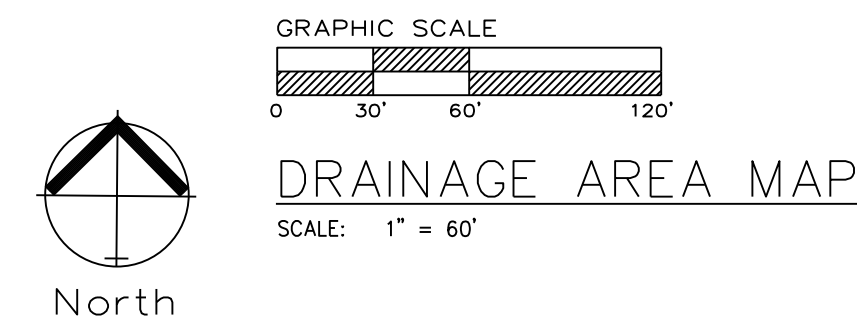
6/25/2021 As-Built

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11/17/2022 As-Built



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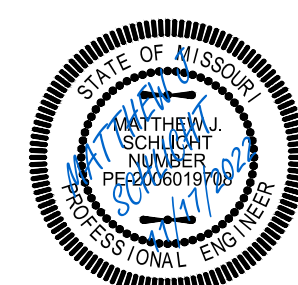
Professional Registration
Missouri
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Surveying 20050008319-D
Kansas
Engineering E-1695
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Nebraska
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THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

Project: VILLAS OF CHAPEL
RIDGE, LSMO

Issue Date: April 10, 2020

Master Drainage Map 3 of 3:
Drainage Area Map
Construction Plans for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACT'S A-D
Lee's Summit, Jackson County, Missouri



Matthew J. Schlich
MO PE 2006019708
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NE PE E-14335

REVISIONS

6/25/2021 As-Built
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8/31/2021 As-Built
9/9/2021 As-Built
11/17/2022 As-Built

C.202

APWA STORM DRAINAGE "TC" COMPUTATIONS FOR : VILLAS OF CHAPEL RIDGE 2ND PLAT																															
yellow areas are self computing overwrite if necessary		Surface types: SURFACE CODES										Asph/Conc	Bus/Com	Dirt	Grass/Park	Lake	MultFam	SnglFam	Undev	Other	TC COMPUTATION										
		C" Values										A	B	D	G	L	M	S	U	Z											
		0.90 0.87 0.60 0.30										0.90	0.66	0.51	0.3	P=Paved/Unpaved											S=Slope or Elevations if necessary				
		Overwrite Length=DN ELEV or Slope if necessary										SURFACE CODE					P=Flow-First REACH														
TOTAL WATERSHED		OVERLAND FLOW - 100' MAX										SURFACE CODE					SURFACE CODE					SURFACE CODE					SURFACE CODE				
AREA ID	TOTAL SQ.FT.	ACRES	WTRSHD LENGTH	UP ELEV	DN ELEV	SURFACE CODE	"C" VALUE	OVRLND LENGTH	UP ELEV	DN ELEV	SLOPE %	SURFACE CODE	"C" VALUE	OVRLND LENGTH	UP ELEV	DN ELEV	SLOPE %	SURFACE CODE	"C" VALUE	OVRLND LENGTH	UP ELEV	DN ELEV	SLOPE %	VELOCITY F/S	Cal Flow T(T)	Used Min 5 T(T)	Cal Channel One T(T)	Cal Channel Two T(T)	Total T(T)	AREA ID	
POST																													POST		
1	6734.45	0.15	171.71	962.75	956.48	M	0.66	36.7	962.8	962.00	2.0	P	135.0	962.0	956.5	4.09	4.1	3.8	5.0	0.5	0.0	5.5	1	3.8	5.0	0.5	0.0	5.5	1		
2	15497.29	0.36	321.00	969.90	961.04	M	0.66	36.0	969.9	969.15	2.1	P	285.0	969.2	961.0	2.85	3.4	3.7	5.0	1.4	0.0	6.4	2	3.7	5.0	1.4	0.0	6.4	2		
3	14565.88	0.33	115.82	969.20	962.90	M	0.66	60.5	968.2	966.00	3.6	P	55.4	966.0	962.9	5.60	4.8	4.0	5.0	0.2	0.0	5.2	3	4.0	5.0	0.2	0.0	5.2	3		
4	38022.54	0.87	290.56	968.20	956.48	M	0.66	100.0	968.2	963.50	4.7	P	190.6	963.5	956.5	3.68	3.9	4.7	5.0	0.8	0.0	5.8	4	4.7	5.0	0.8	0.0	5.8	4		
5	17621.66	0.40	168.61	970.50	961.65	M	0.66	100.0	970.5	967.15	3.4	U	68.6	967.2	961.7	8.02	4.6	5.3	5.3	0.3	0.0	5.5	5	5.3	5.3	0.3	0.0	5.5	5		
6	19480.08	0.45	219.25	968.00	955.58	M	0.66	100.0	968.0	962.00	6.0	U	119.3	962.0	955.6	5.38	3.7	4.4	5.0	0.5	0.0	5.5	6	4.4	5.0	0.5	0.0	5.5	6		
7	15534.05	0.36	183.86	964.00	949.00	M	0.66	100.0	964.0	955.00	9.0	U	83.9	955.0	949.0	7.15	4.3	3.8	5.0	0.3	0.0	5.3	7	3.8	5.0	0.3	0.0	5.3	7		
8	12379.23	0.28	279.25	967.30	955.76	M	0.66	33.5	967.3	966.50	2.4	P	245.7	966.5	955.8	4.37	4.2	3.4	5.0	1.0	0.0	6.0	8	3.4	5.0	1.0	0.0	6.0	8		
9	7326.23	0.17	257.20	966.50	955.76	M	0.66	11.5	966.5	966.20	2.6	P	245.7	966.2	955.8	4.25	4.2	2.0	5.0	1.0	0.0	6.0	9	2.0	5.0	1.0	0.0	6.0	9		
10	5324.92	0.12	125.42	966.50	958.00	M	0.66	47.2	966.5	963.80	5.7	U	78.3	963.8	958.0	7.41	4.4	3.0	5.0	0.3	0.0	5.3	10	3.0	5.0	0.3	0.0	5.3	10		
11	38079.28	0.87	354.14	966.50	948.00	M	0.66	100.0	966.5	960.50	6.0	U	254.1	960.5	948.0	4.92	3.6	4.0	5.0	1.2	0.0	6.2	11	4.0	5.0	1.2	0.0	6.2	11		
12	9008.94	0.21	139.74	955.00	944.00	M	0.66	100.0	955.0	946.50	8.5	U	39.7	946.5	944.0	6.29	4.0	3.9	5.0	0.2	0.0	5.2	12	3.9	5.0	0.2	0.0	5.2	12		
13	36460.35	0.84	346.50	957.50	939.00	M	0.66	36.5	957.5	956.50	2.7	P	310.0	956.5	939.0	5.65	4.8	3.4	5.0	1.1	0.0	6.1	13	3.4	5.0	1.1	0.0	6.1	13		
14	18586.66	0.43	304.64	955.00	932.80	M	0.66	100.0	955.0	946.60	8.4	U	204.6	946.6	932.8	6.74	4.2	3.9	5.0	0.8	0.0	5.8	14	3.9	5.0	0.8	0.0	5.8	14		
15	6741.28	0.15	280.50	945.50	932.50	M	0.66	11.5	946.5	946.20	2.6	P	269.0	946.2	932.5	5.09	4.6	2.0	5.0	1.0	0.0	6.0	15	2.0	5.0	1.0	0.0	6.0	15		

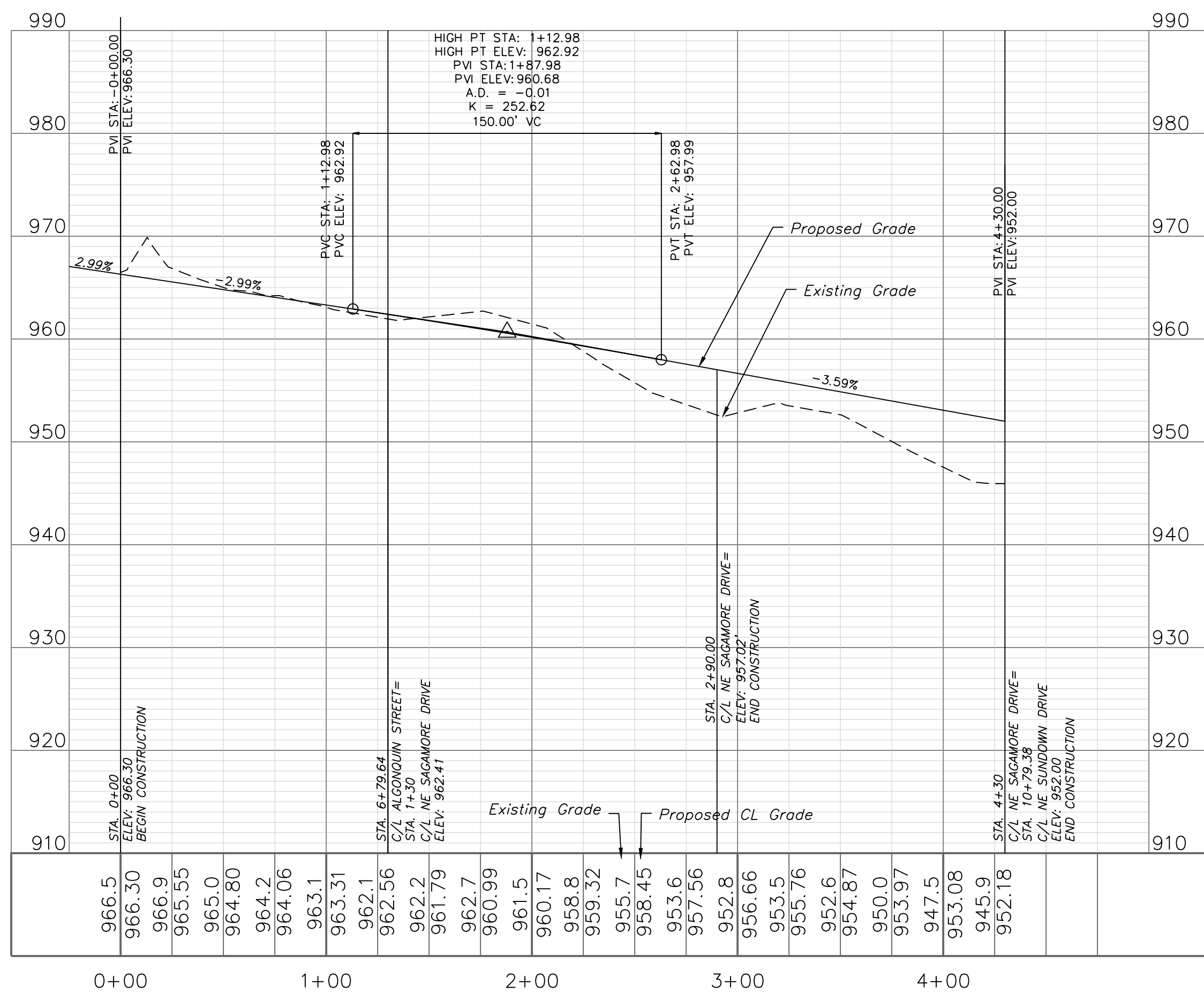
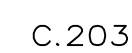
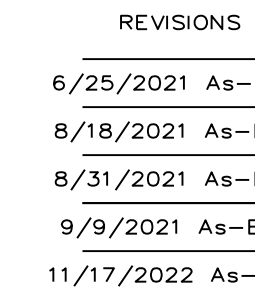
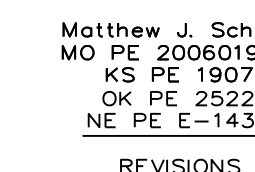
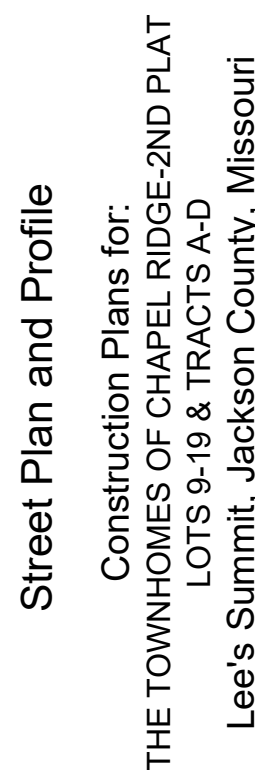
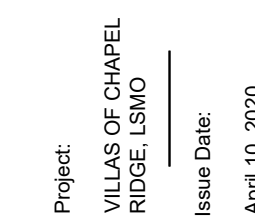
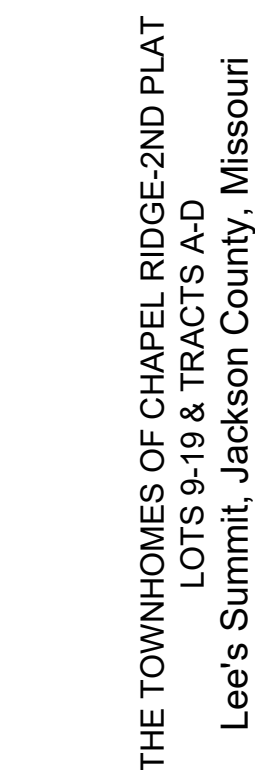
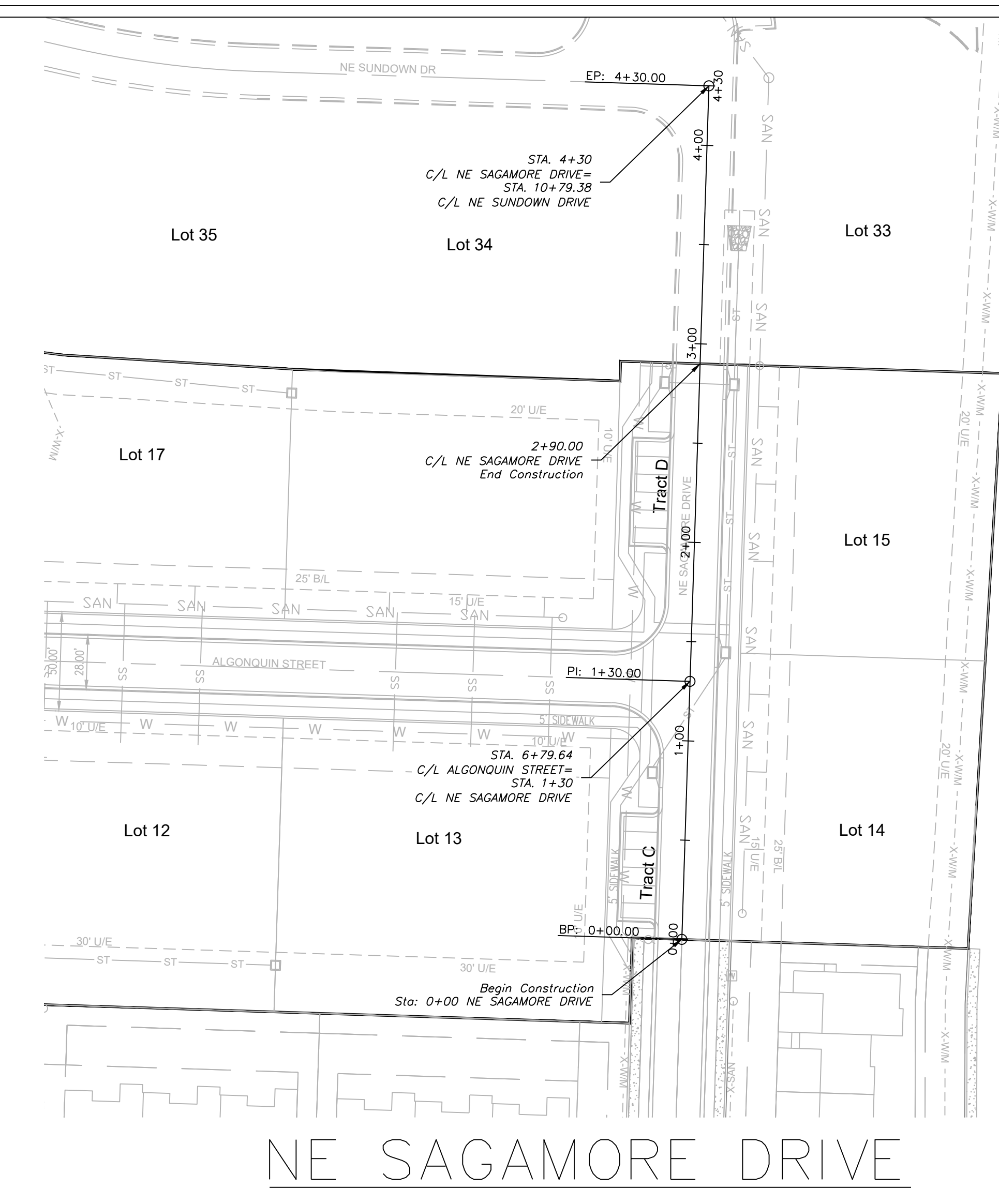
Record Drawing

RECORD DRAWING

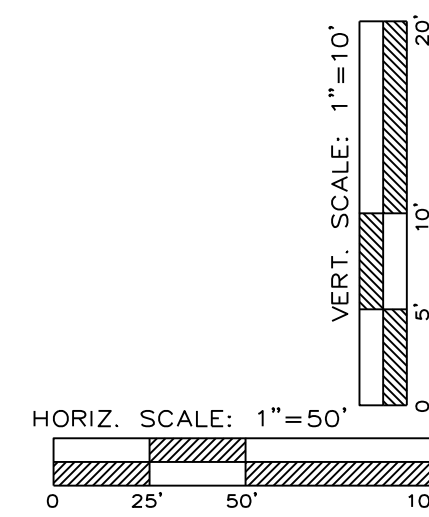
The information provided on this drawing conforms to construction records; it is not intended for construction, implementation or recording purposes; and it is solely based on information obtained by my firm.

"~~100.00~~ 100.10", "~~1.00%~~ 1.15% slope", or "8-inch HDPE-PVC pipe" are all typical examples of revisions that indicate that design data has been replaced with "as-built" information. All other data is as designed and has not been field verified.

Date: 11/17/2022
 Certified by: Matthew J. Schlicht
 Title: Engineer
 Firm: Engineering Solutions



Record Drawing



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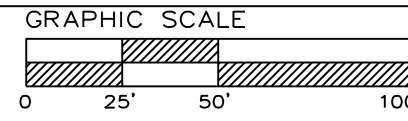
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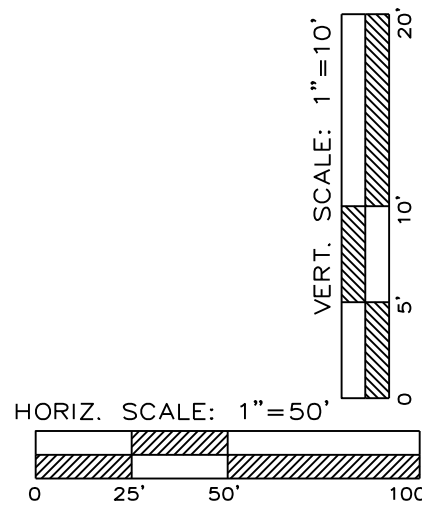
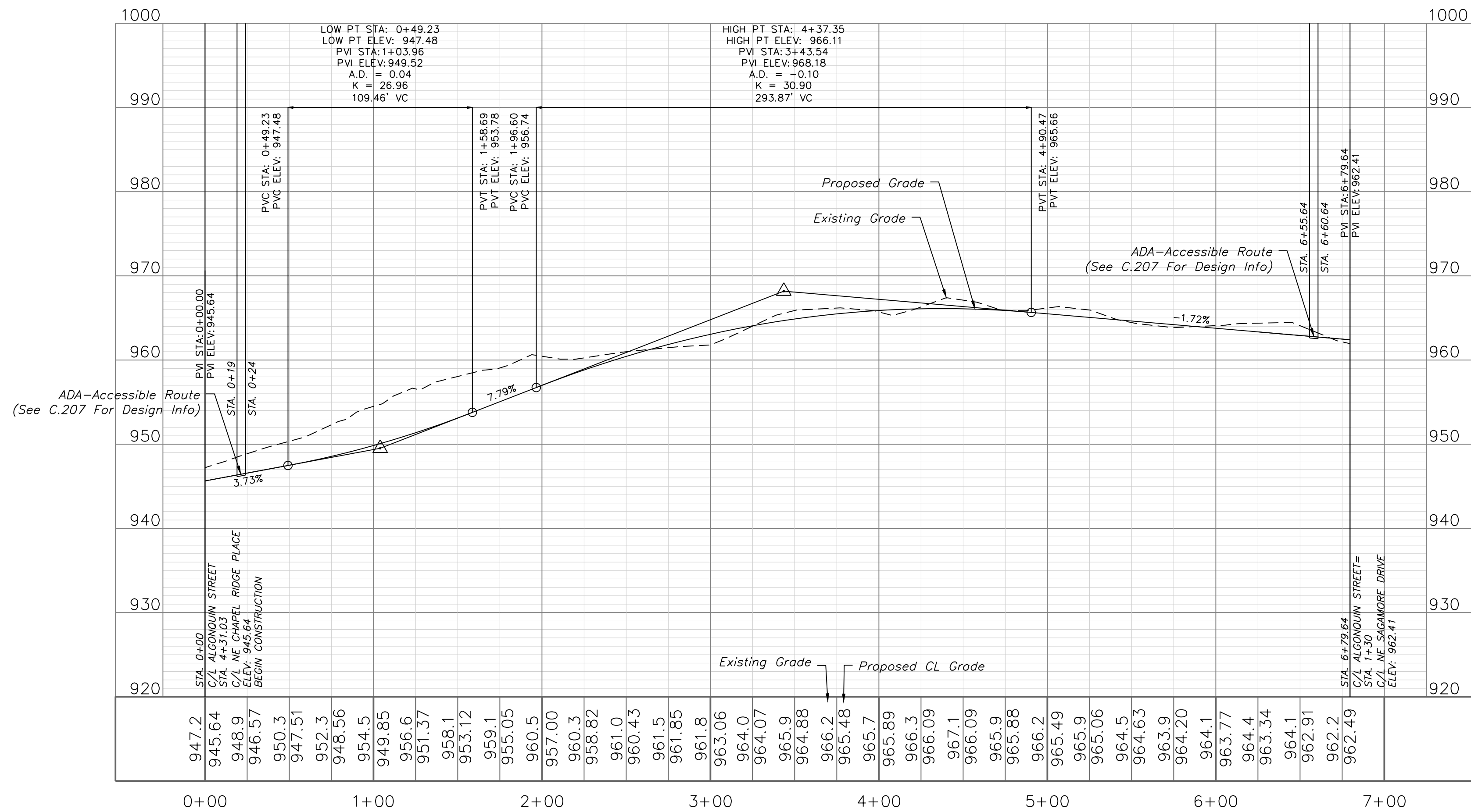
Title: Engineer

Firm: Engineering Solutions



STREET PLAN & PROFILE
SCALE: 1" = 50'

ALGONQUIN STREET

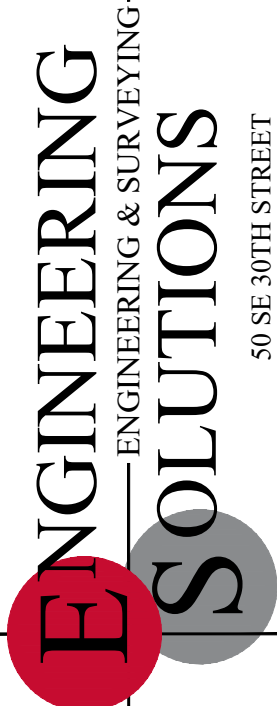


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Firm: Engineering Solutions

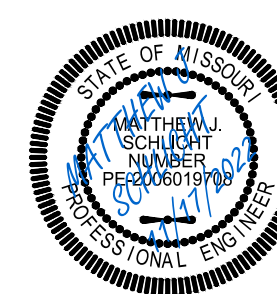


Professional Registration
Missouri
Engineering 2005002186-D
Surveying 2005008319-D
Kansas
Engineering E-1685
Surveying LS-218
Oklahoma
Engineering 5254
Nebraska
Engineering CA2821

THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

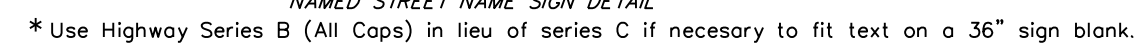
Project:
VILLAS OF CHAPEL
RIDGE-LSMO
Issue Date:
April 10, 2020

Street Plan and Profile
Construction CHAPLS for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri



Matthew J. Schlicht
MO PE 2006019708
KS PE 19071
OK PE 25226
NE PE E-14335

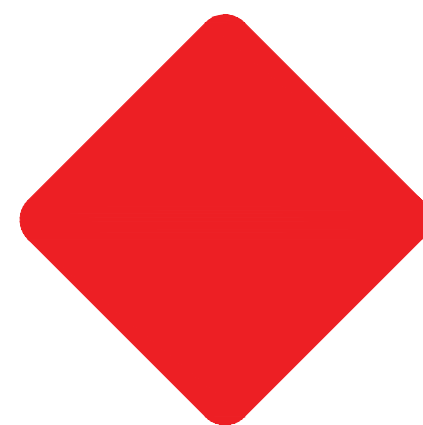
REVISIONS
6/25/2021 As-Built
8/18/2021 As-Built
8/31/2021 As-Built
9/9/2021 As-Built
11/17/2022 As-Built



* The height to the bottom of a sign when it is located in a pedestrian walkway or extends into a walkway shall be a minimum of 80 inches above the walkway.

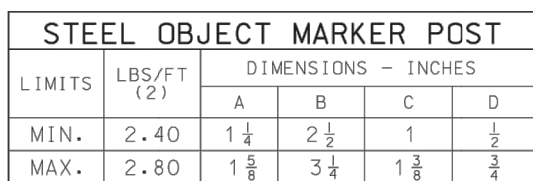


900.10
~~900.00~~ Indicates data replaced with "As-Built"
information. All other data is as designed
and has not been field verified.



OM4-3
18" X 18"
DETAIL

Record Drawing



(2) WEIGHT BEFORE GALVANIZING OR PUNCHING. LIMITS SHOWN ARE ABSOLUTE. NO FURTHER WEIGHT, DIMENSIONAL OR COMMERCIAL TOLERANCE WILL BE ACCEPTABLE.

BURR THREADS OF BOLTS
AS APPROVED BY THE
ENGINEER. \

HOLE PUNCHING TO EQUAL $\frac{3}{8}$ " DIAMETER HOLES, ONE INCH CENTER TO CENTER, BEGINNING ONE-HALF INCH FROM THE END AND CONTINUING THE ENTIRE LENGTH OF THE POST.

OBJECT MARKER POST AND FASTENER DETAILS

NOTES:

FOR GENERAL NOTES, SEE SHEET 1 OF 16.

TYPE D GUARDRAIL IS ACCESS RESTRAINT AND VISUAL
TARGET VALUE ONLY. IT HAS NO REDIRECTIVE CAPABILITY.

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DATE EFFECTIVE **Date:** 11/17/2022

DATE PREPARED Certified by: Matthew J. Schlicht

Title: Engineer
Firm: Engineering Solutions



ENGINEERING
—ENGINEERING & SURVEYING—
SOLUTIONS

50 SE 30TH STREET
LEE'S SUMMIT, MO 64082
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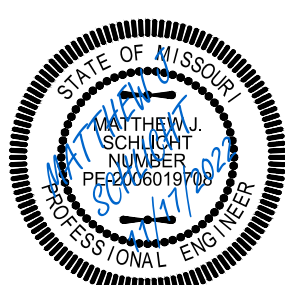
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

Project: VILLAS OF CH
RIDGE, LSMO

Issue Date: April 10, 2020

Street Signage Plan

Construction Plans for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri



Matthew J. Schlicht
MO PE 2006019708
KS PE 19071
OK PE 25226
NE PE E-14335

REVIS

6/25/2021 As-Built

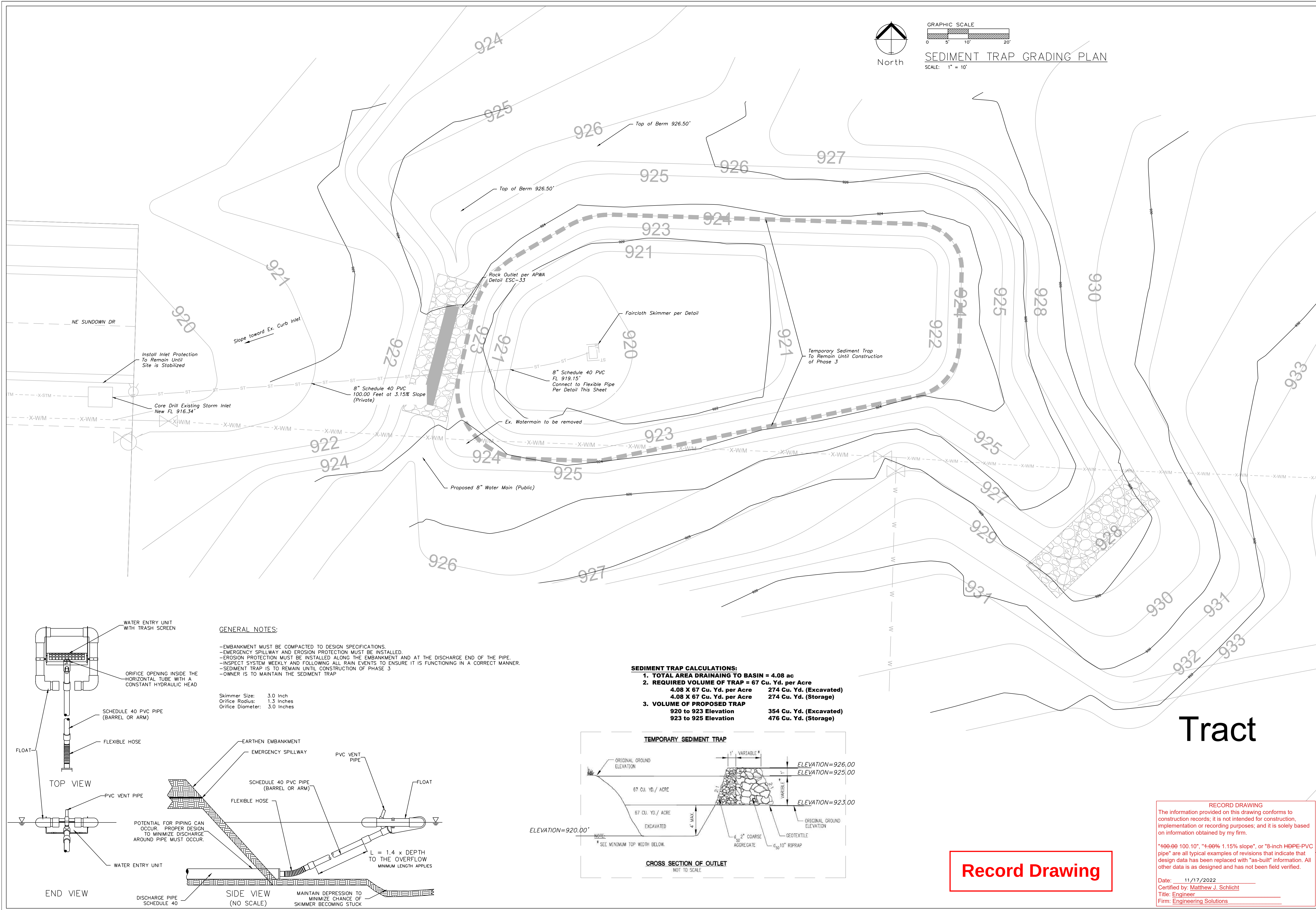
8/18/2021 As-Built

8/31/2021 As-Built

9/9/2021 As-Built

11/17/2022 As-Built

C.205



ENGINEERING SOLUTIONS
ENGINEERING & SURVEYING
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Professional Registration
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Engineering 2005002186-D
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Kansas
Engineering E-1685
Surveying LS-218
Oklahoma
Engineering 6254
Nebraska
Engineering CA2821

THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

Project: VILLAS OF CHAPEL RIDGE LS100
Issue Date: April 10, 2020

Sediment Trap
Grading Plan
Construction Plans for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

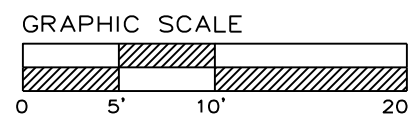
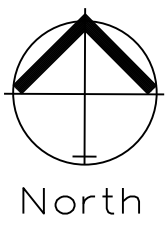
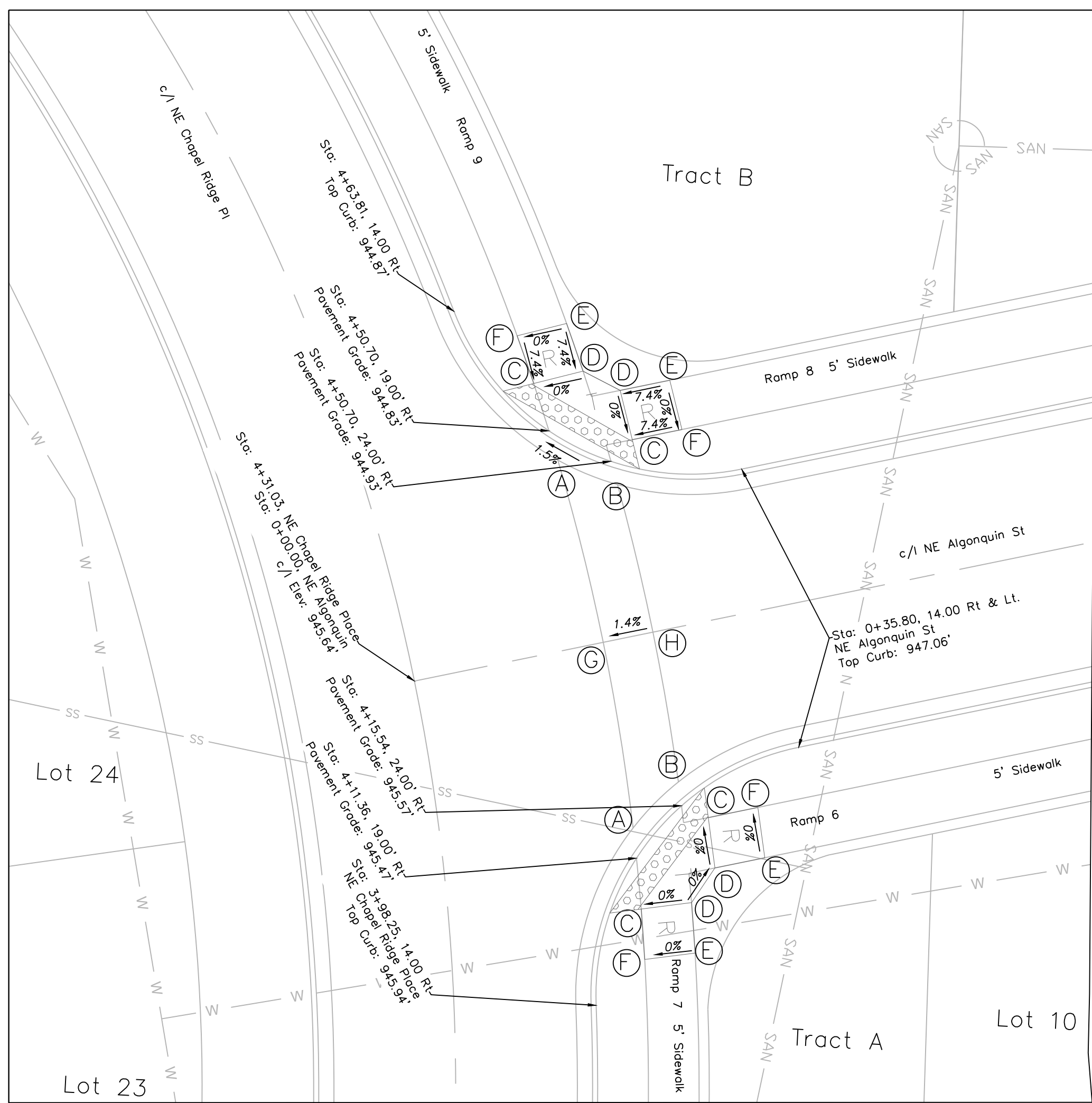
RECORD DRAWING
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*100-00 100.10", "4-00% 1.15% slope", or "8-inch HDPE-PVC pipe" are all typical examples of revisions that indicate that design data has been replaced with "as-built" information. All other data is as designed and has not been field verified.

Date: 11/17/2022
Certified by: Matthew J. Schlicht
Title: Engineer
Firm: Engineering Solutions

REVISIONS
6/25/2021 As-Built
8/18/2021 As-Built
8/31/2021 As-Built
9/9/2021 As-Built
11/17/2022 As-Built

C. 206

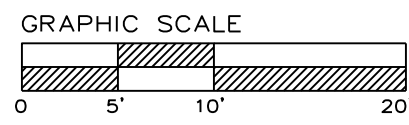
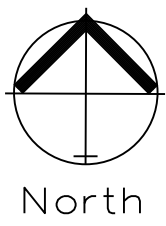


SIDEWALK AND INTERSECTION PLAN

SCALE: 1" = 10'

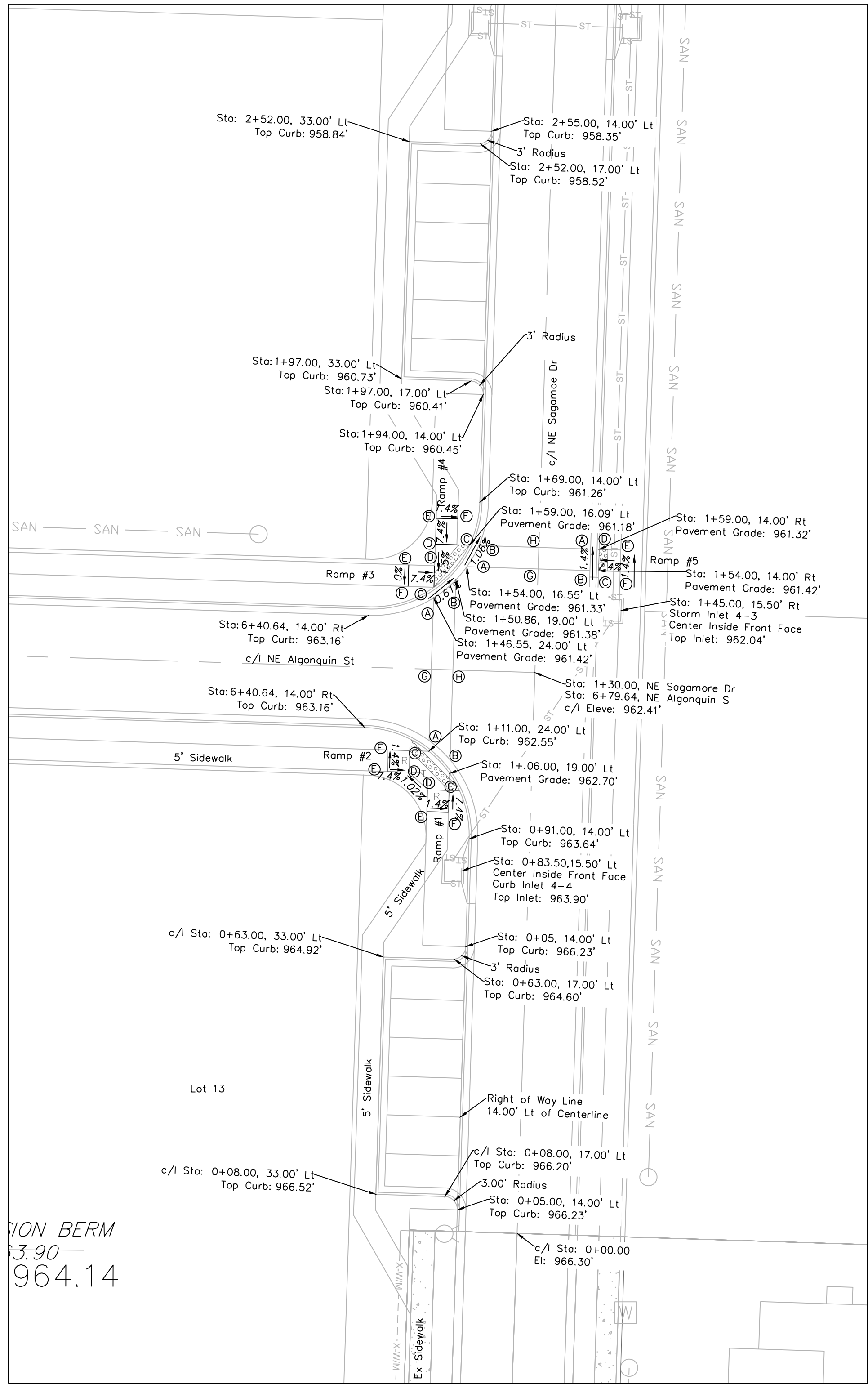
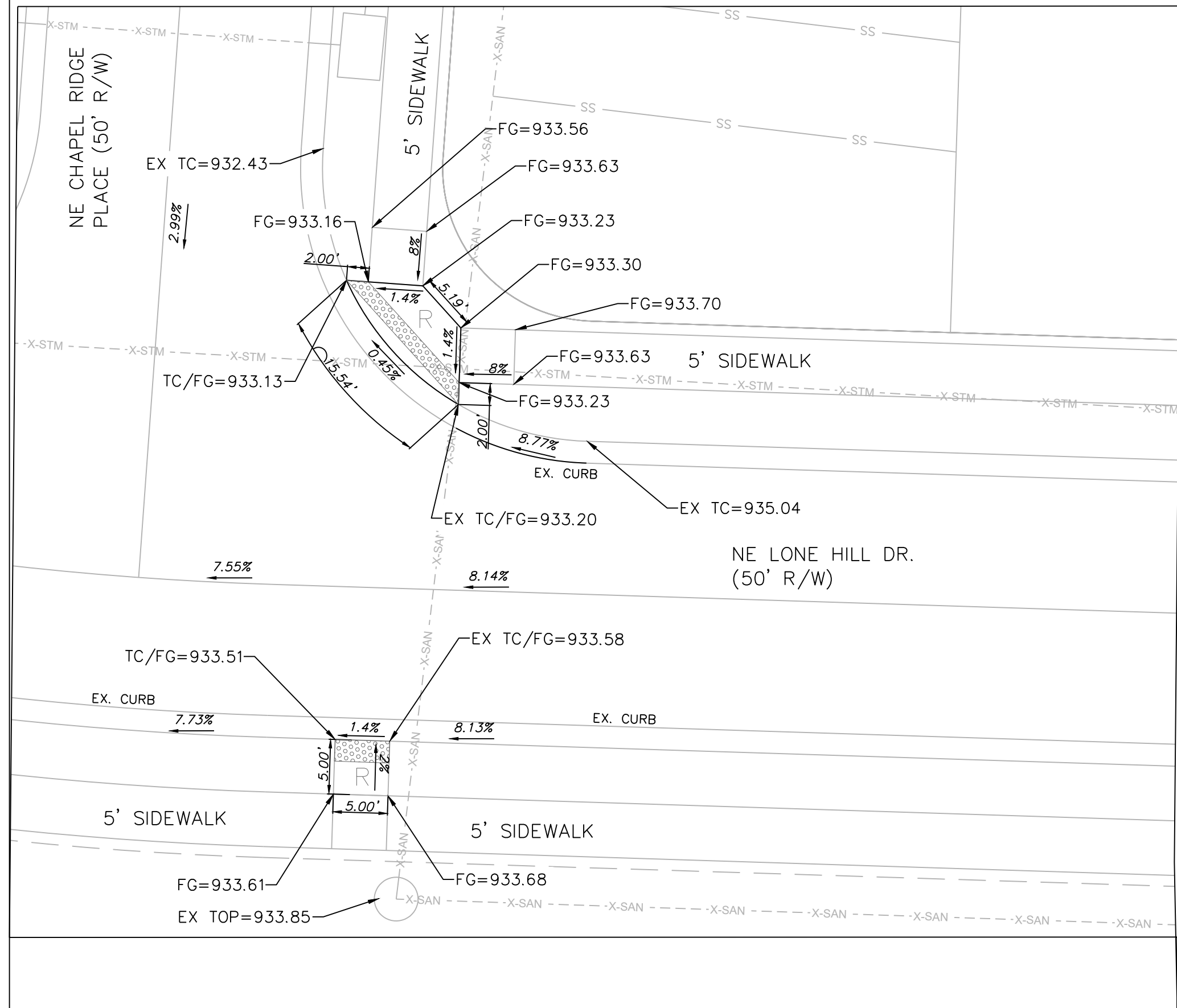
SPOT ELEVATION TABLE				
	Ramp 6	Ramp 7	Ramp 8	Ramp 9
Spot	Elevation	Elevation	Elevation	Elevation
A	945.47	945.47	944.83	944.83
B	945.57	945.57	944.93	944.93
C	945.62	945.52	944.98	944.88
D	945.62	945.62	944.98	944.98
E	945.99	945.99	945.35	945.35
F	945.99	945.99	945.35	945.35
G	945.18	945.18	945.18	945.18
H	945.25	945.25	945.25	945.25

NOTE:
ALL ADA ACCESSIBLE RAMPS TO BE CONSTRUCTED WITH STREET IMPROVEMENTS.



SIDEWALK AND INTERSECTION PLAN

SCALE: 1" = 10'



SPOT ELEVATION TABLE					
Spot	Ramp 1	Ramp 2	Ramp 3	Ramp 4	Ramp 5
A	962.55	962.55	961.42	961.33	961.35
B	962.70	962.70	961.38	961.27	961.42
C	962.75	962.69	961.45	961.30	961.42
D	962.82	962.76	961.45	961.37	961.42
E	963.19	963.13	961.90	961.81	961.75
F	963.12	963.06	961.90	961.74	961.82
G	961.99	961.99	961.99	961.38	961.31
H	961.92	961.92	961.92	961.31	961.31

RECORD DRAWING
The information provided on this drawing conforms to
the information provided on the record drawing, it is not intended for construction,
implementation or recording purposes; and it is solely based
on information obtained by my firm.
This drawing is a typical example of revisions that indicate that
design data has been replaced with "as-built" information. All
the data is as designed and has not been field verified.

Date: 11/17/2022

Certified by: Matthew J. Schlicht
Title: Engineer
Firm: Engineering Solutions

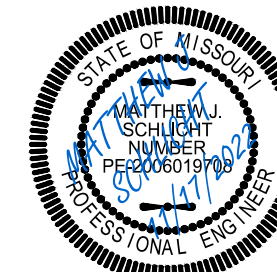


Professional Registration
Missouri
Engineering 2005002186-D
Surveying 2005008319-D
Kansas
Engineering E-1685
Surveying LS-218
Oklahoma
Engineering 6284
Nebraska
Engineering CA2821

THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

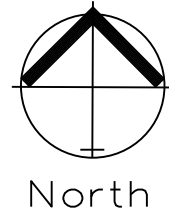
Project:
VILLAS OF CHAPEL
RIDGE-LSMO
Issue Date:
April 10, 2020

Sidewalk and
Intersection Plan
Construction Plans for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

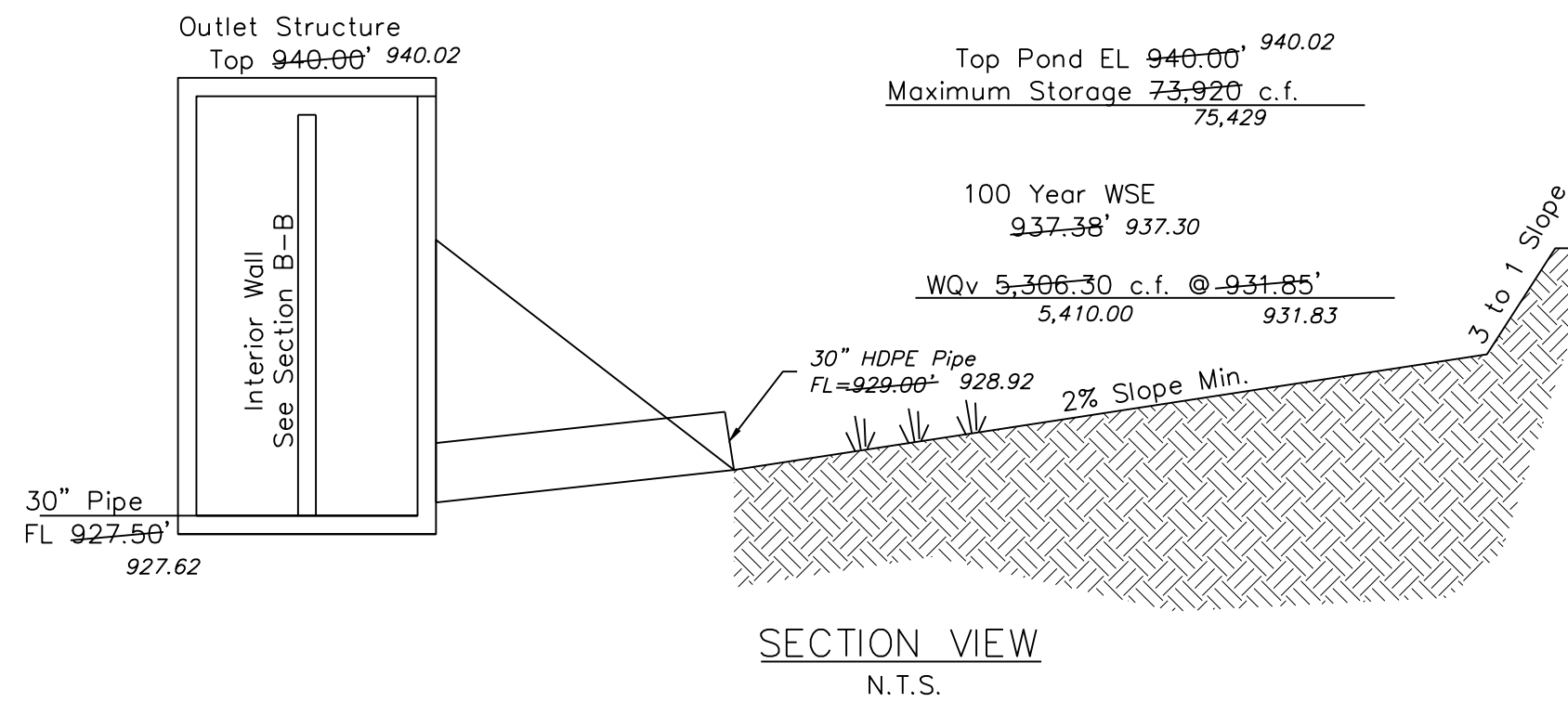
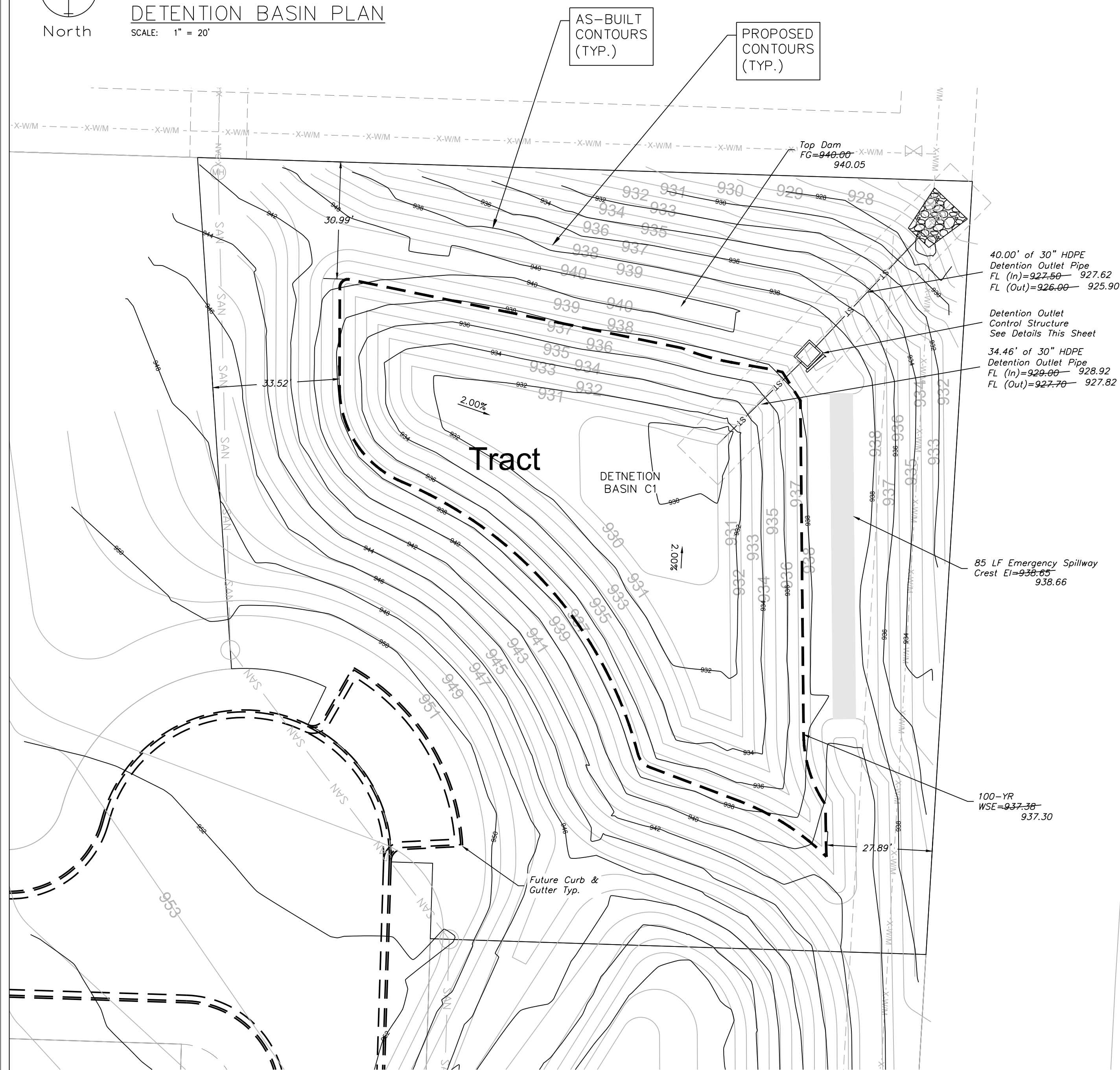


Matthew J. Schlicht
MO PE 2006019708
KS PE 19071
OK PE 25226
NE PE E-14335

REVISIONS
6/25/2021 As-Built
8/18/2021 As-Built
8/31/2021 As-Built
9/9/2021 As-Built
11/17/2022 As-Built



DETENTION BASIN PLAN
SCALE: 1" = 20'



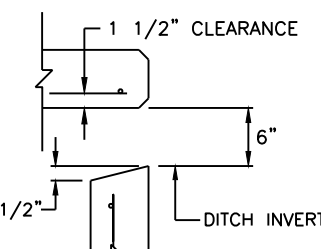
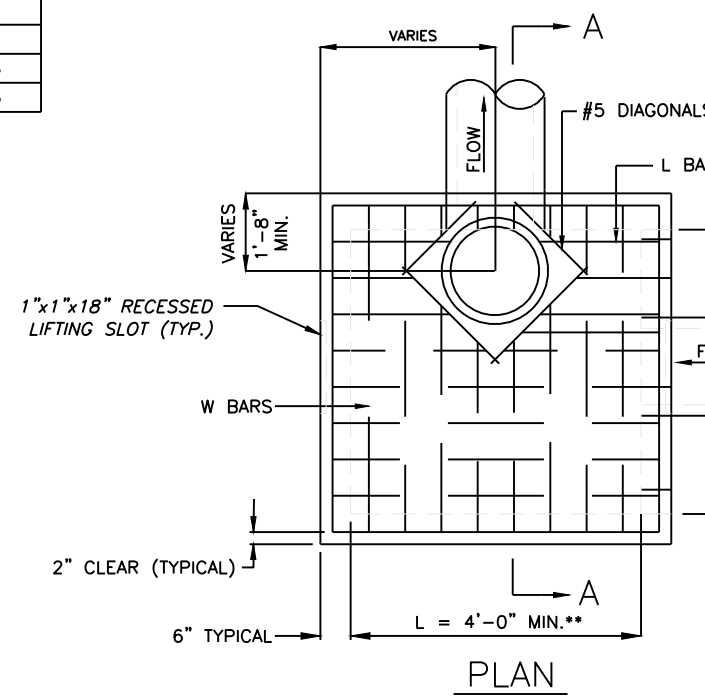
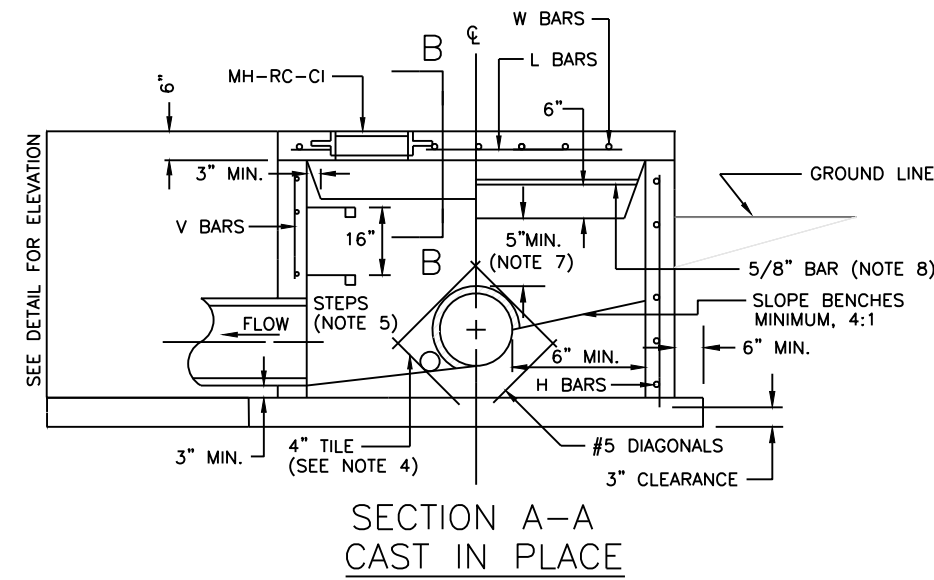
GENERAL NOTES:

1. Locate ring and cover over outlet.
2. All work and materials shall conform to APWA Sect. 2600.
3. Use 3/4" chamfer strip on all exposed concrete corners.
4. Steps required @ 16" O.C. when depth from top of casting to invert exceeds 4 feet.
5. Boxouts will not be allowed to project through the corners of the structure.
6. The minimum reinforcing shall be 1 H-bar over a cast-in-place pipe and 2 H-bars over a precast boxout.
7. Limit opening height to 6" with No. 5 galvanized bars extending to corner rebars.
9. Show field inlet orientation on plans plus number and size of opening.
10. O.R. = one half outside pipe diameter (O.D.).
11. 4" Ø field tile or precast hole shall be located at entering pipe and in the front face sump points. These tiles or openings shall be capped with 1/4" galvanized wire mesh on the outside of the inlet and clear the invert and base concrete.
12. Location of the Manhole shall be located along the Northeast side of the structure.

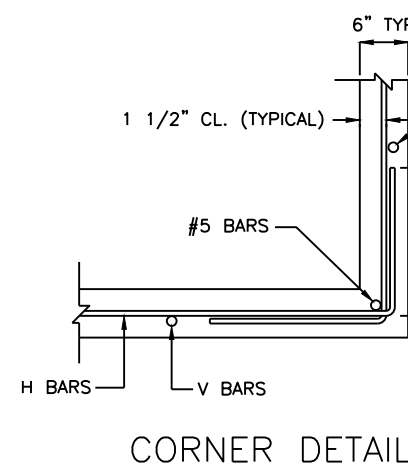
REINFORCING

BARS	SIZE	SPACING (IN.)
H	4	12
V	4	12
L	5	6
W	5	6

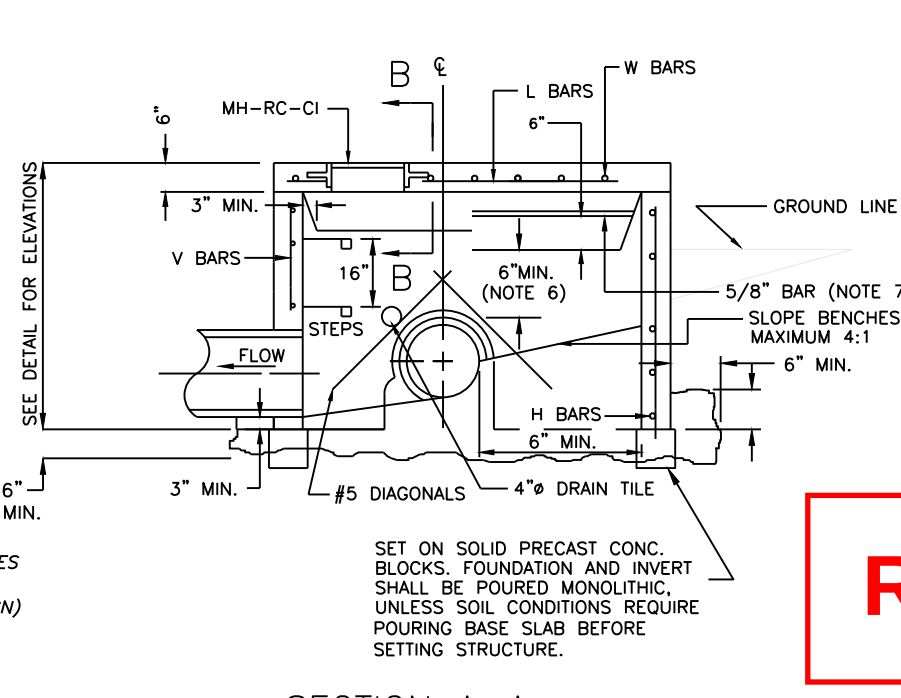
Detention Outlet Structure



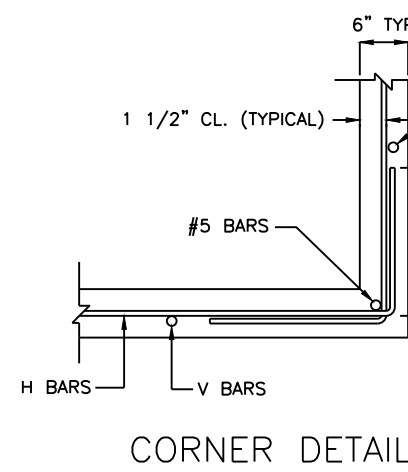
SECTION B-B



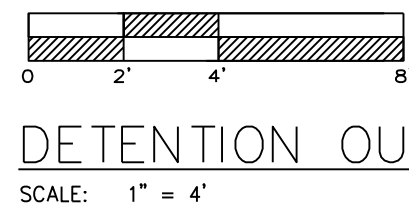
CORNER DETAIL



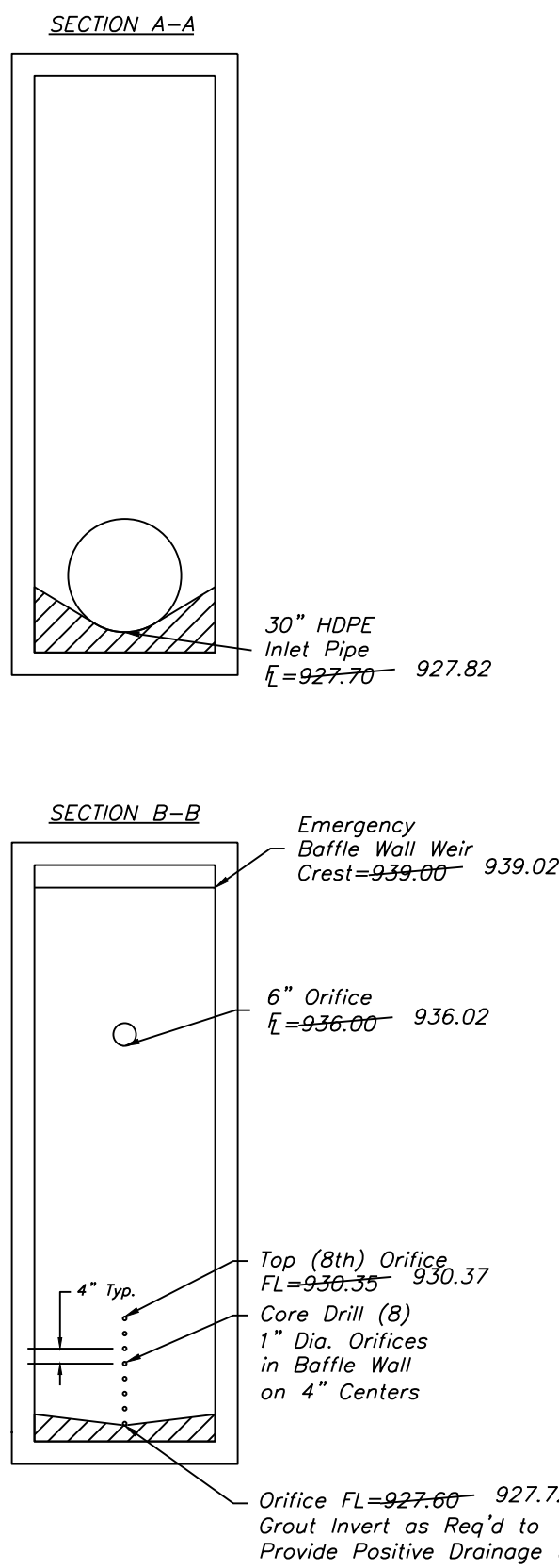
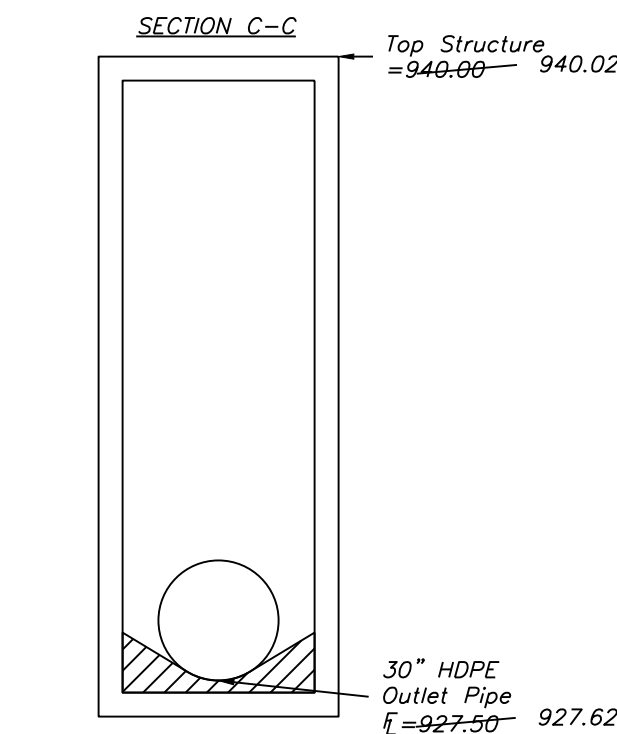
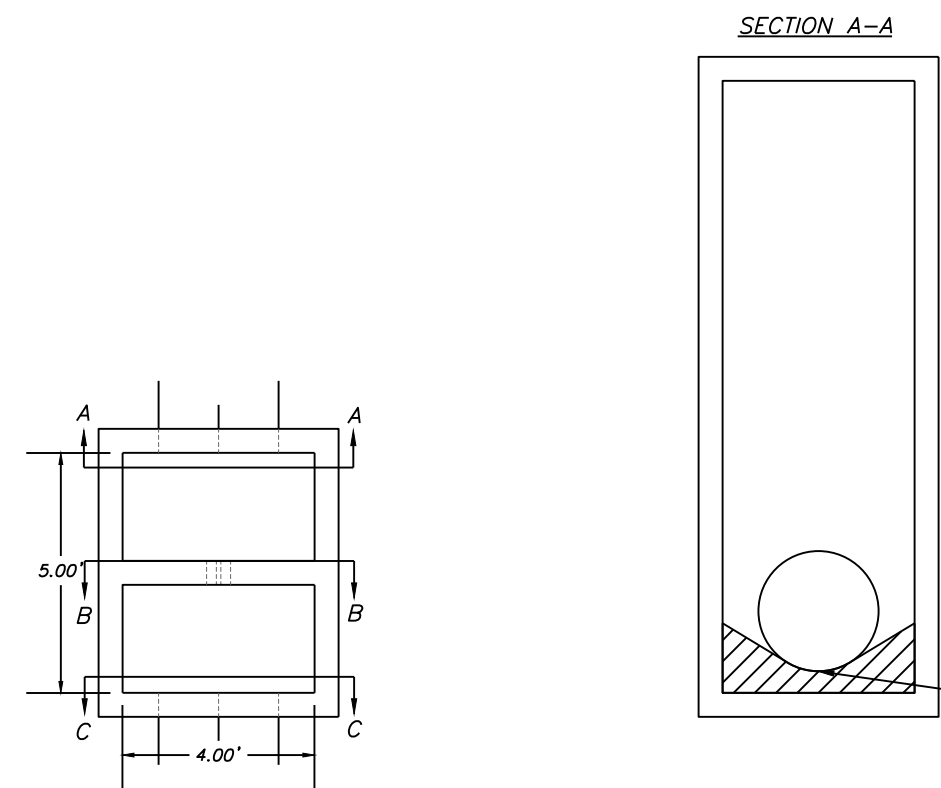
SECTION A-A



T-SECTION DETAIL

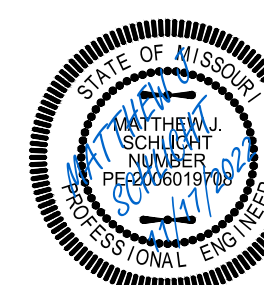


DETENTION OUTLET STRUCTURE



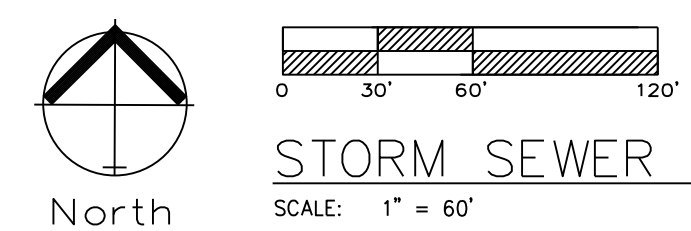
Record Drawing

RECORD DRAWING
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Certified by: Matthew J. Schlicht
Title: Engineer
Firm: Engineering Solutions



Matthew J. Schlicht
MO PE 2006019708
KS PE 19071
OK PE 25226
NE PE E-14335

REVISIONS
6/25/2021 As-Built
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11/17/2022 As-Built

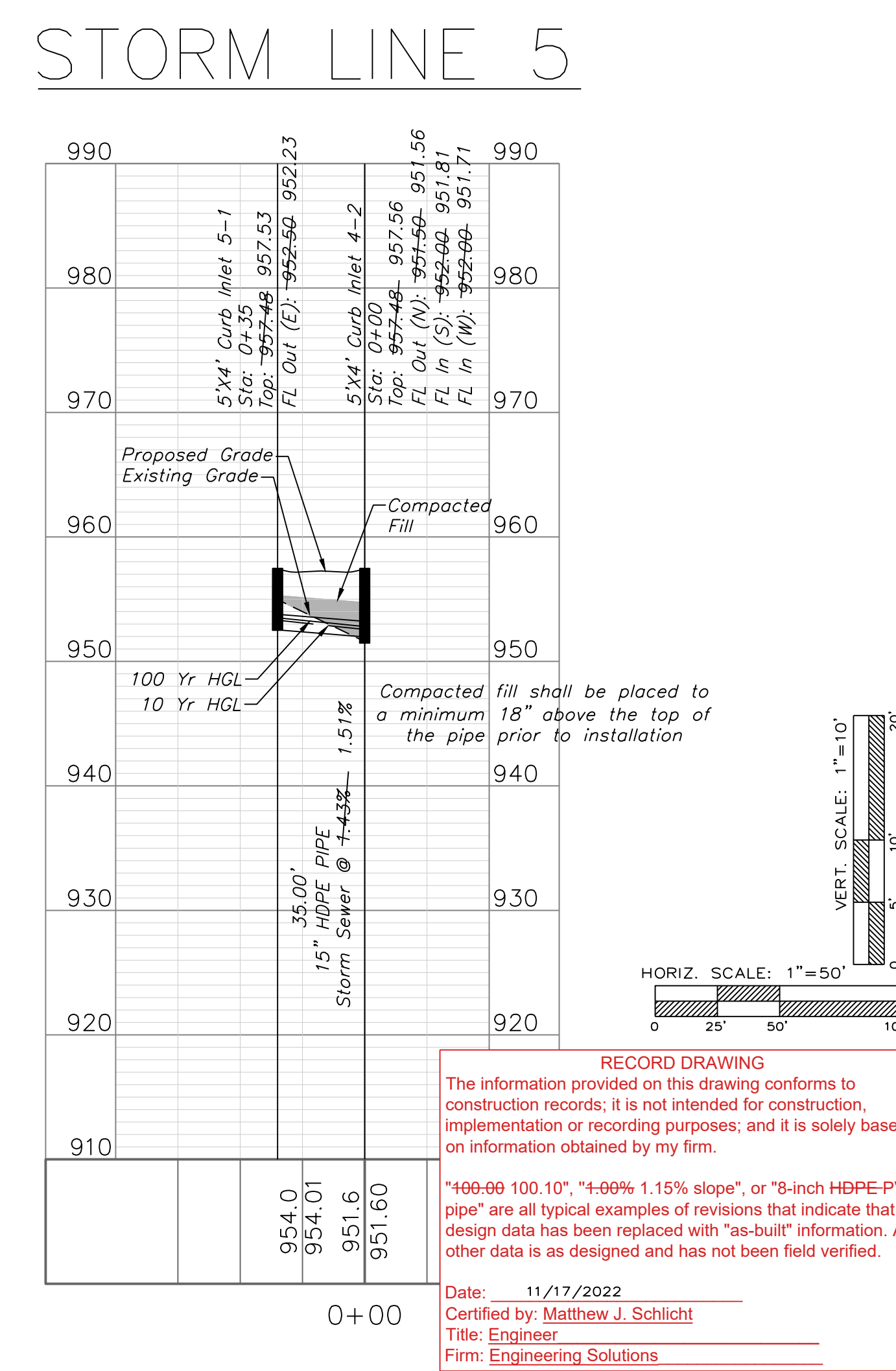
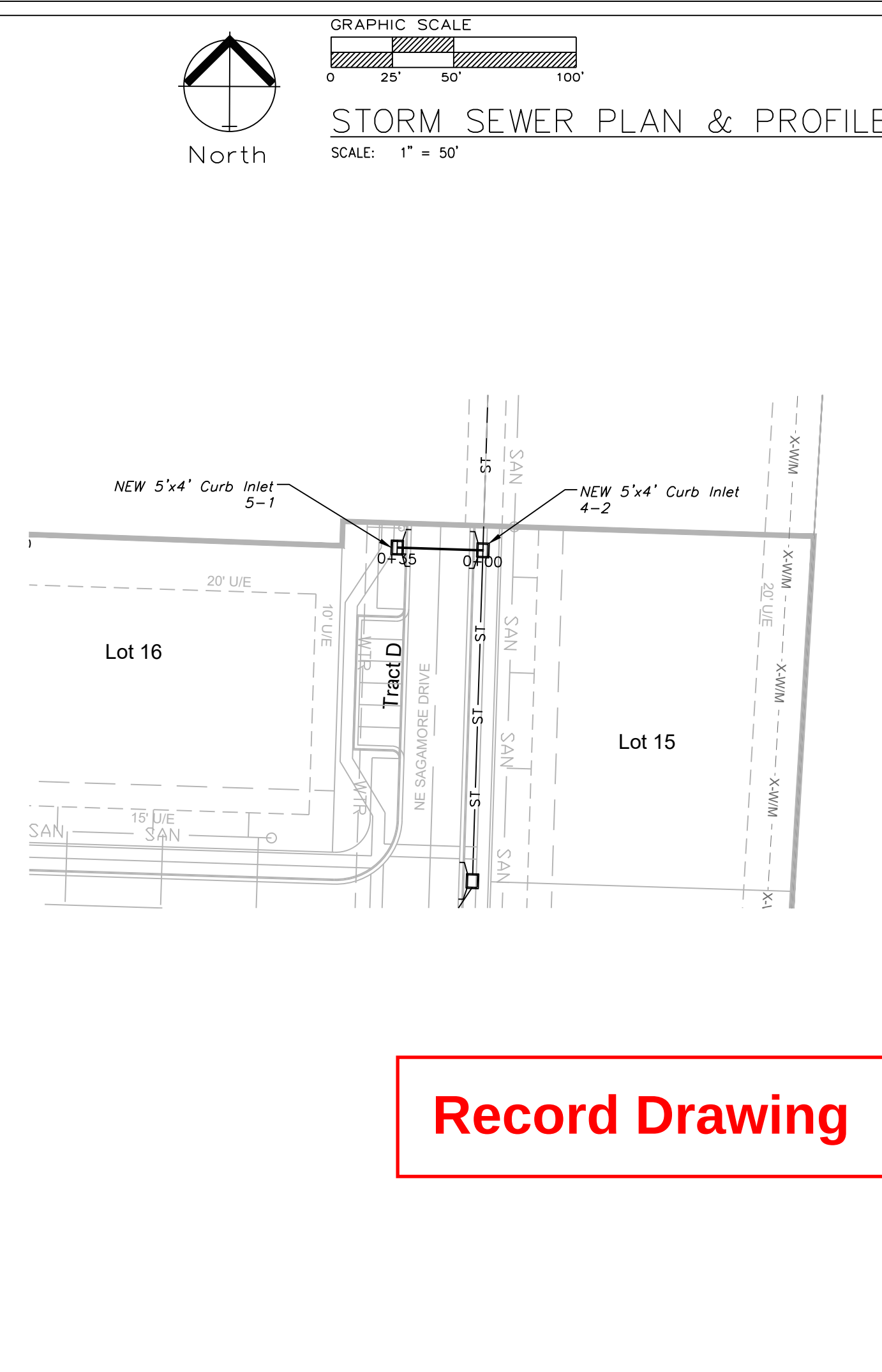
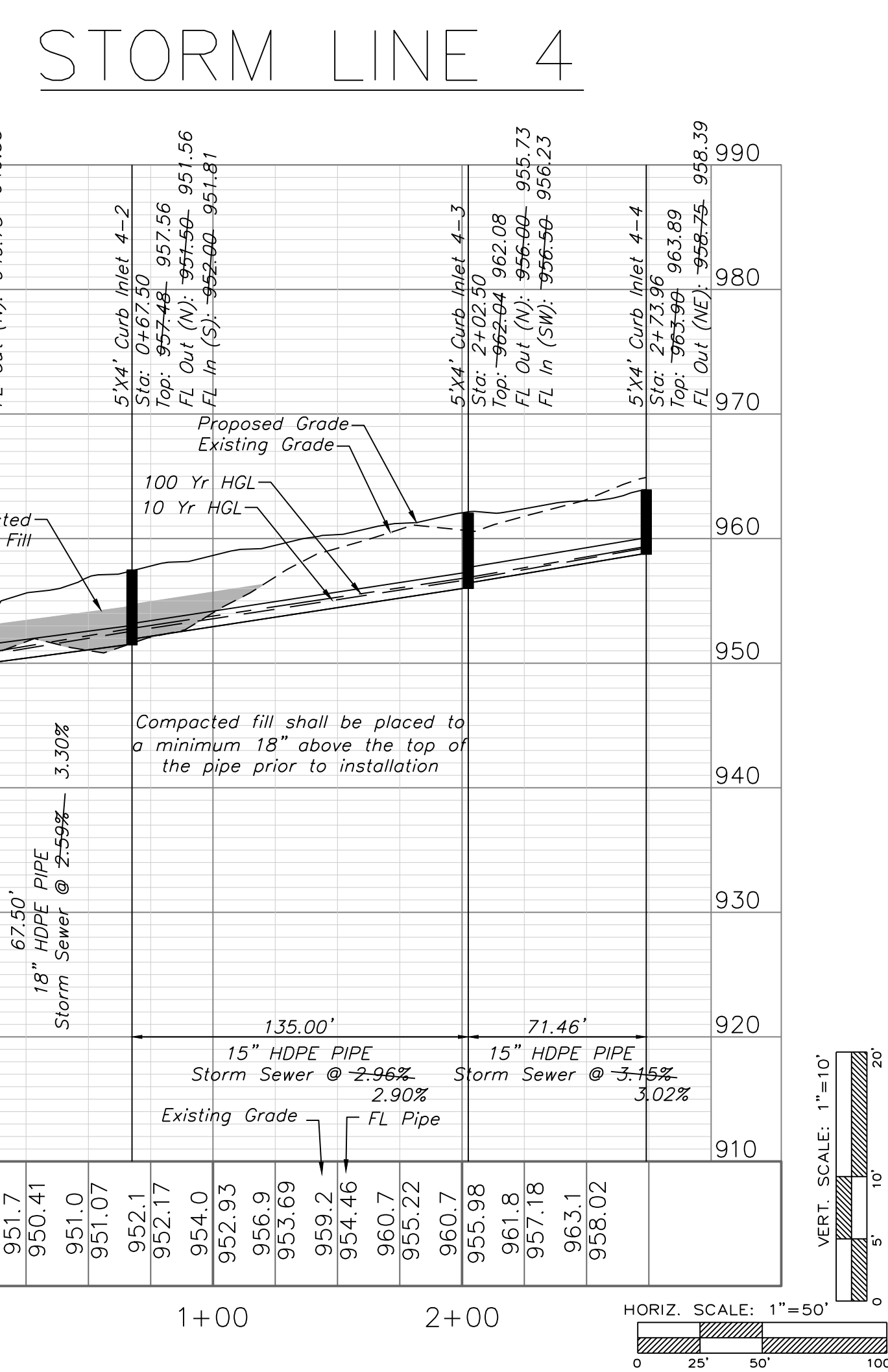
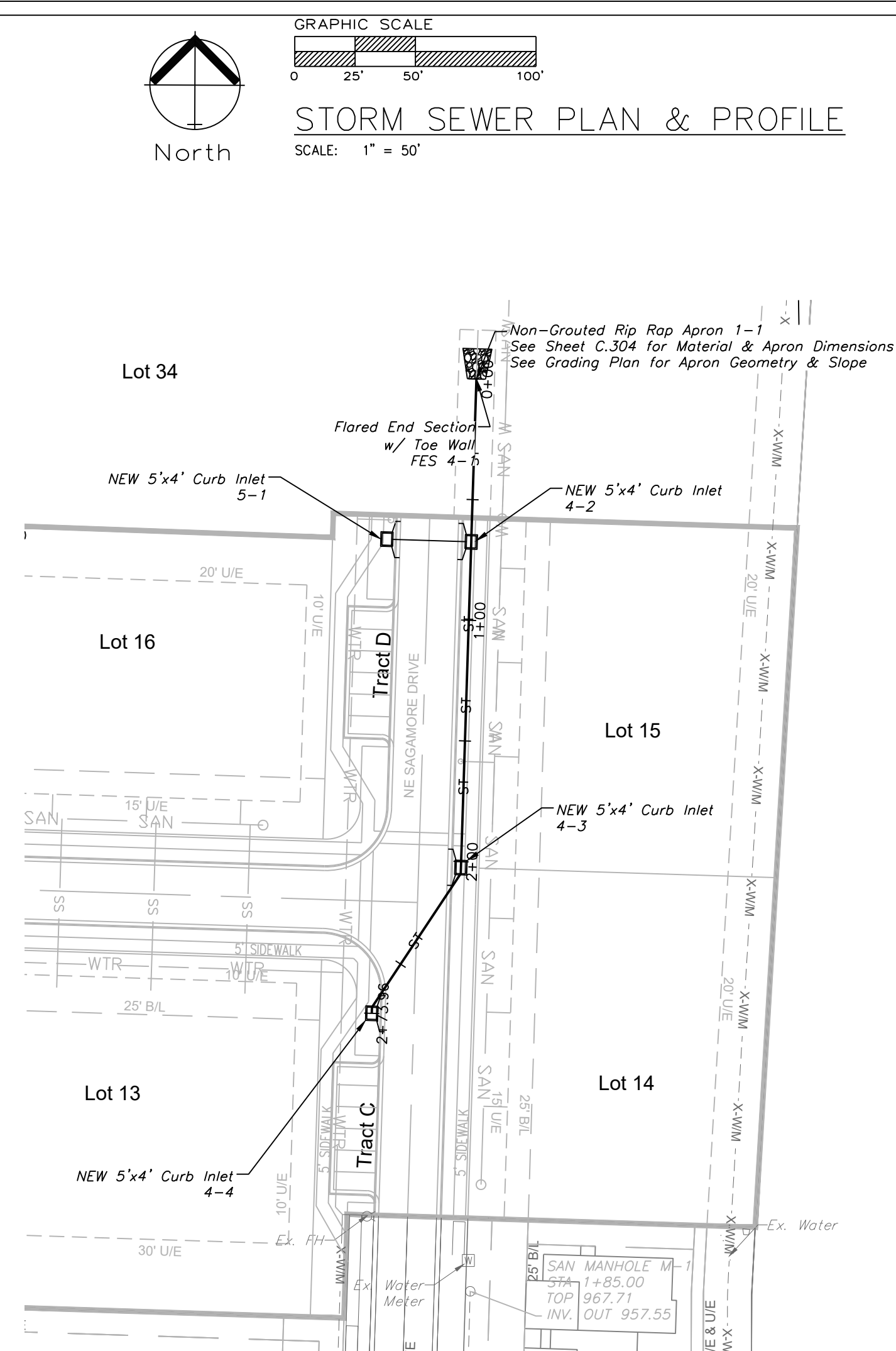
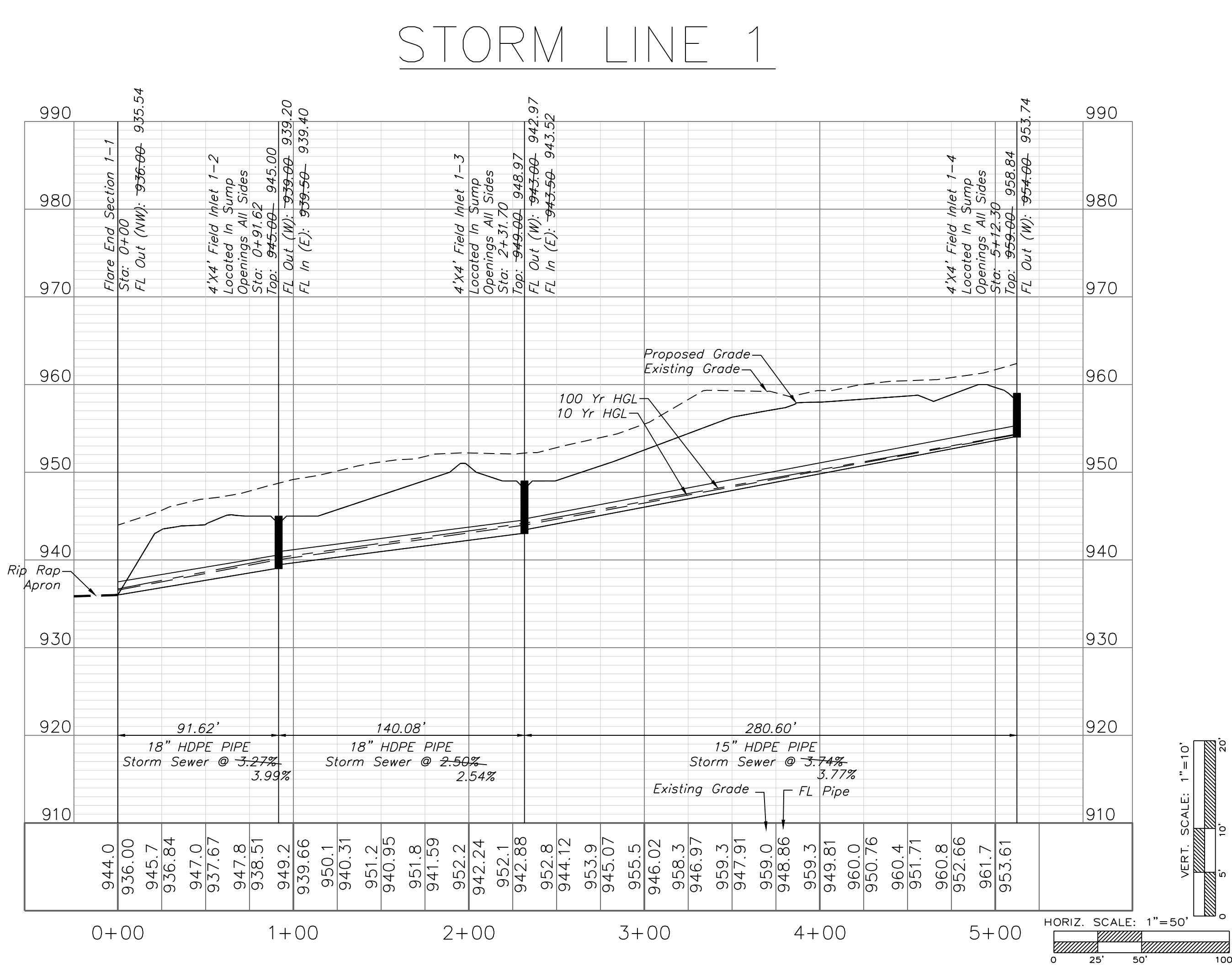
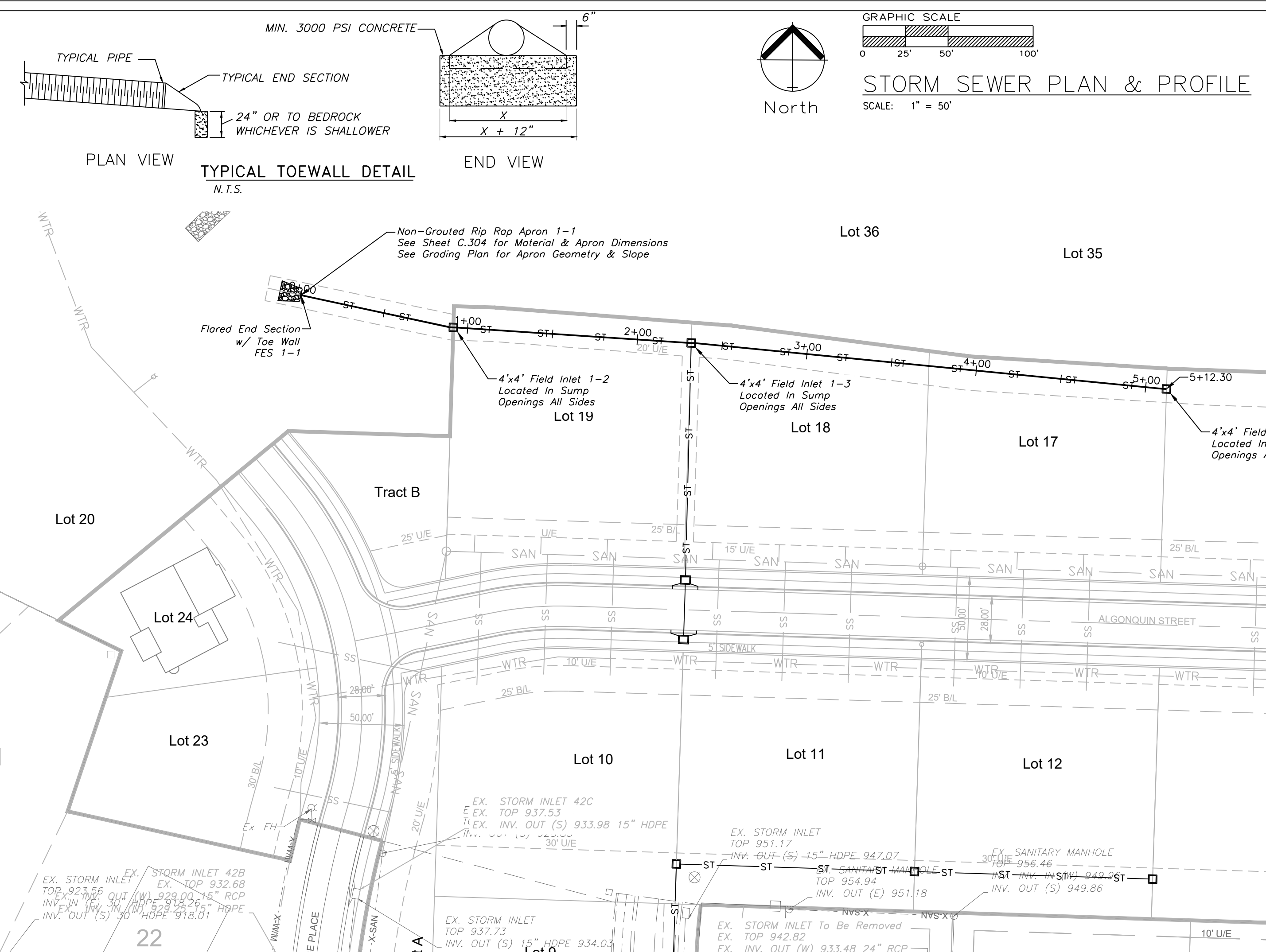


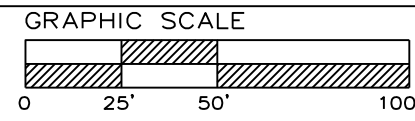
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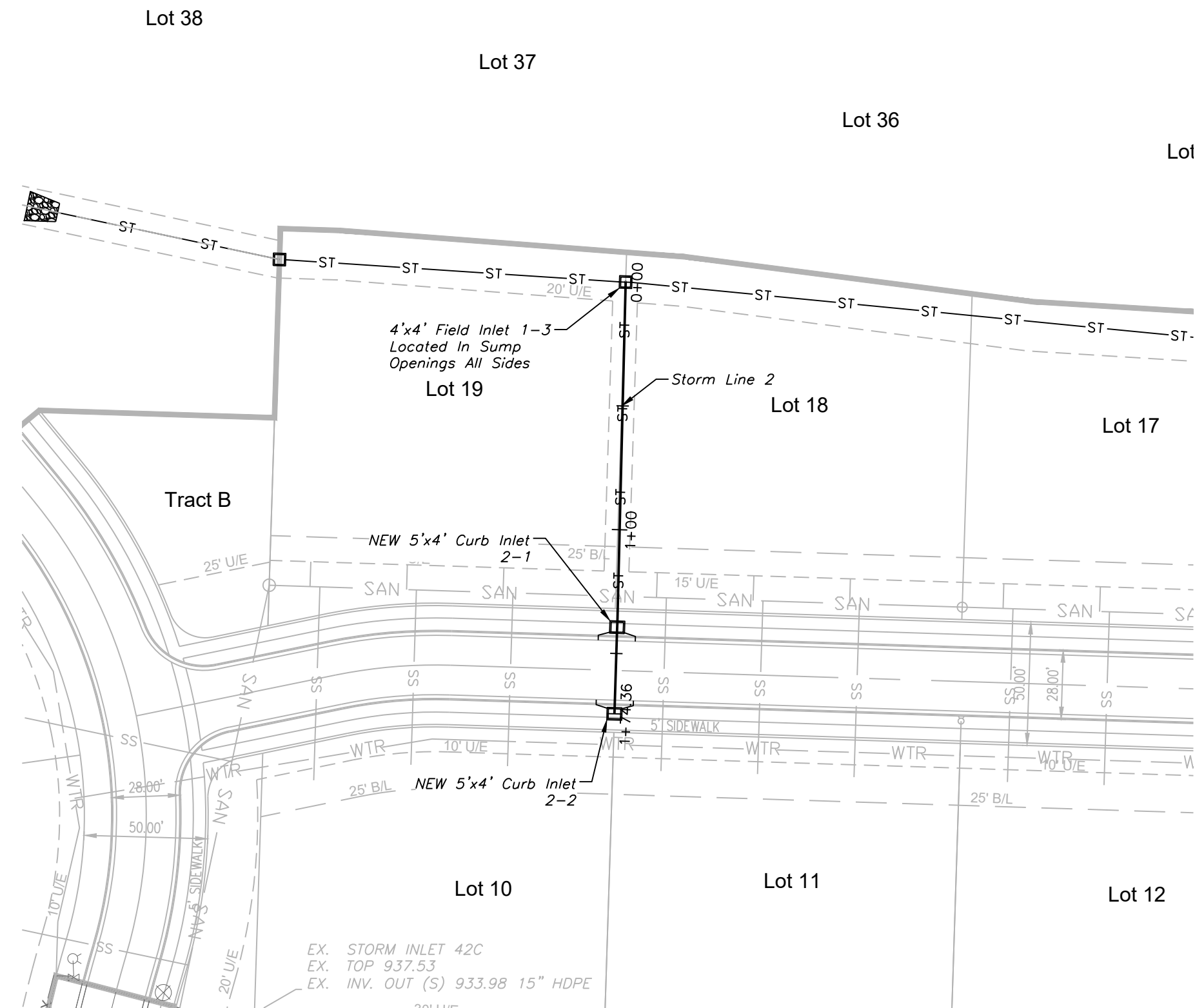
Date: 11/17/2022
Certified by: Matthew J. Schlicht
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Firm: Engineering Solutions



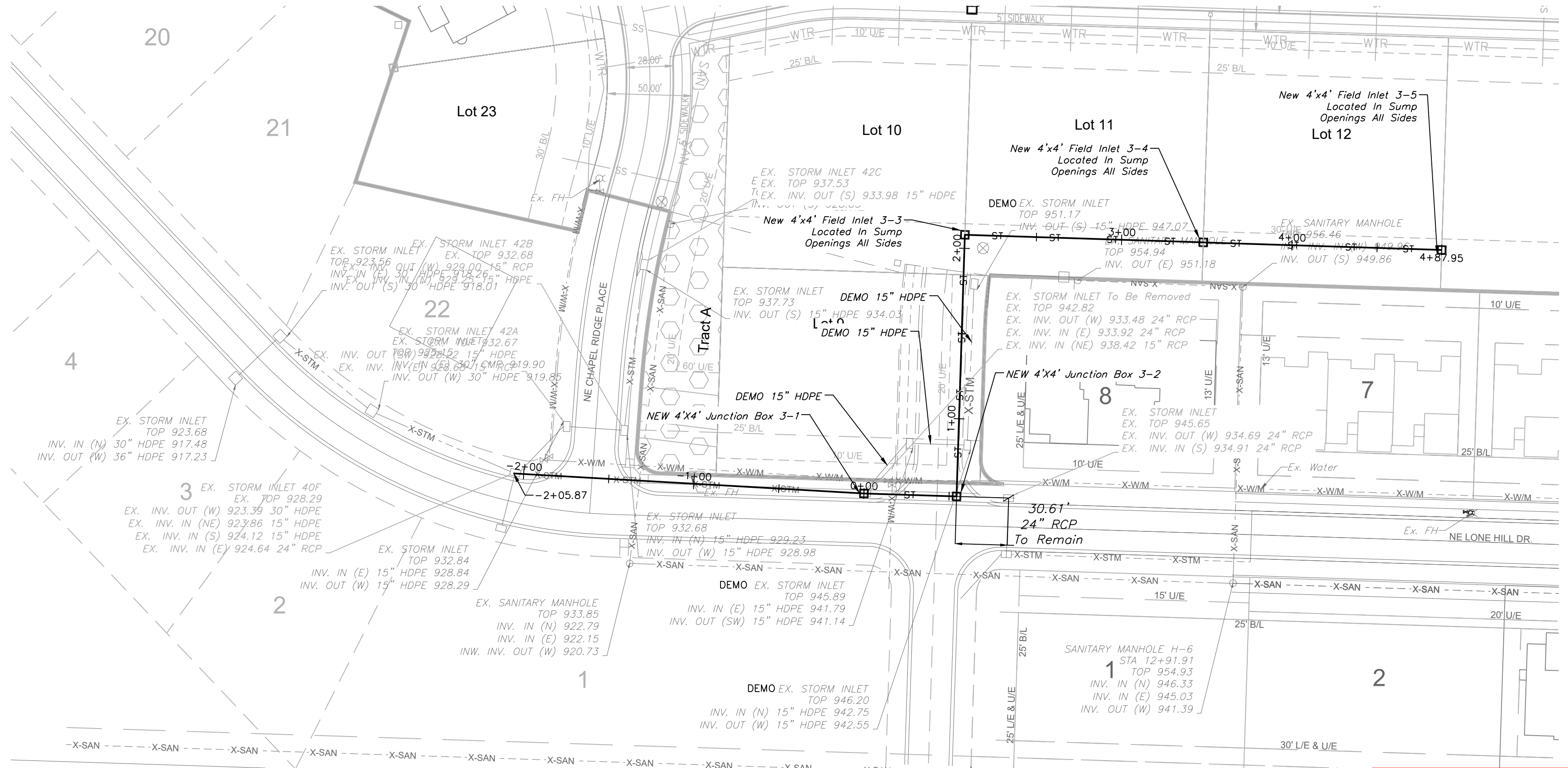
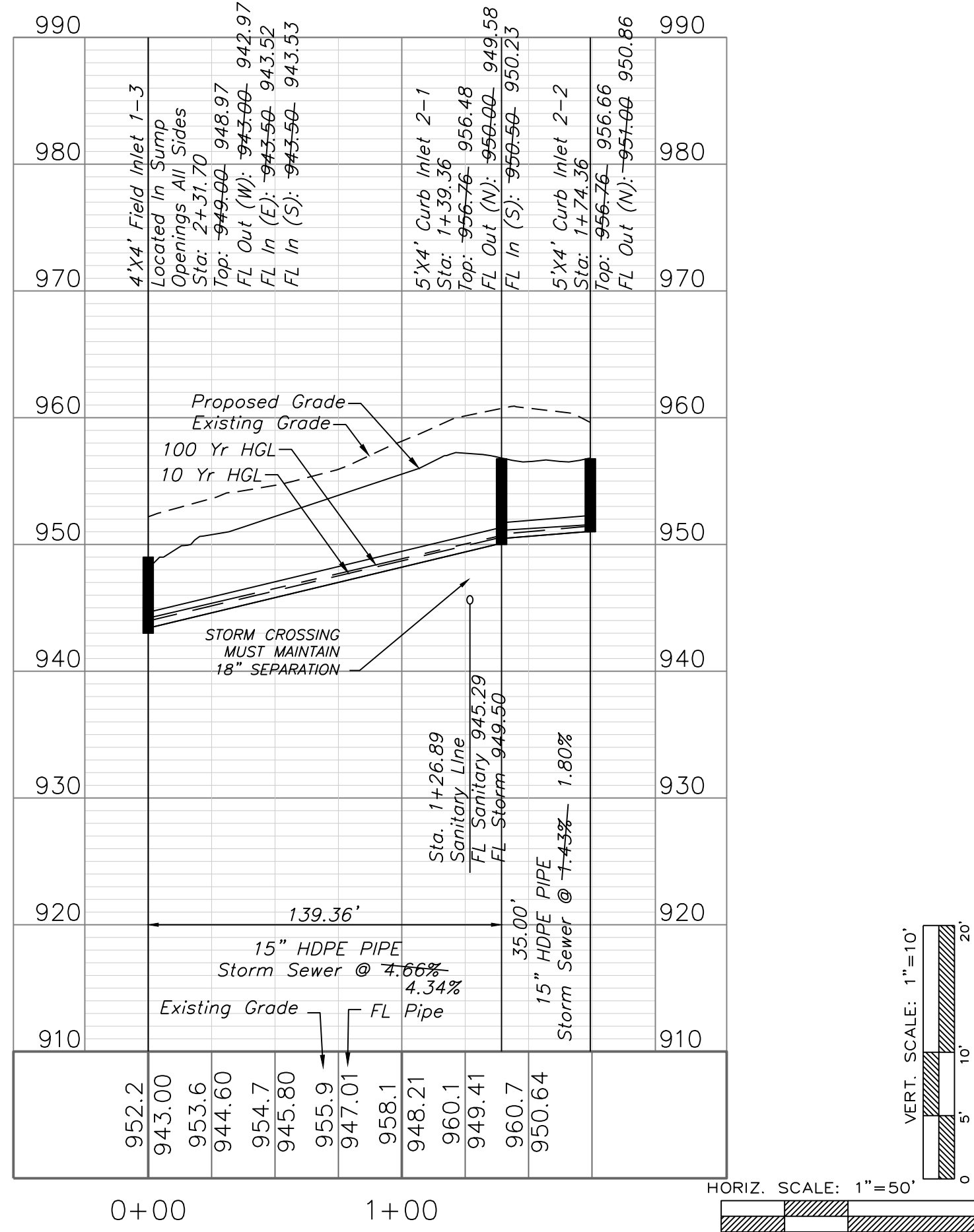


STORM SEWER PLAN & PROFILE

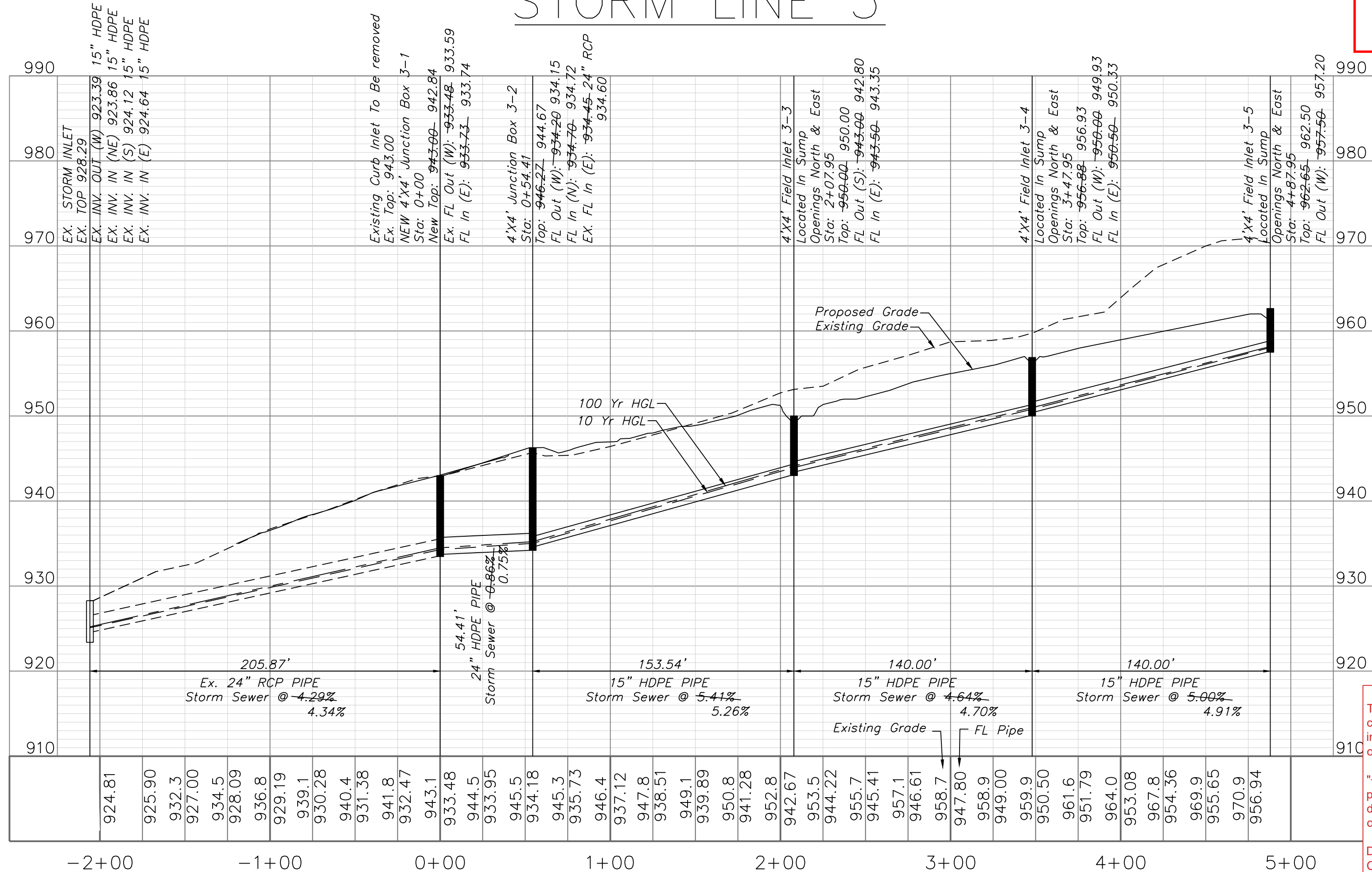
SCALE: 1" = 50'



STORM LINE 2



STORM LINE 3

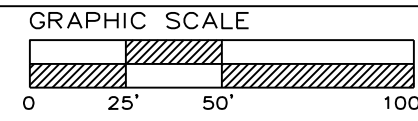
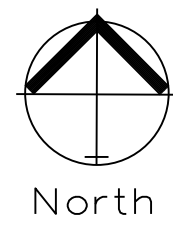


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Title: Engineer
Firm: Engineering Solutions



STORM SEWER PLAN & PROFILE

SCALE: 1" = 50'

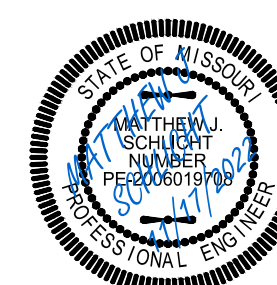


Professional Registration
Missouri
Engineering 2005002186-D
Surveying 200500319-D
Kansas
Engineering E-1695
Surveying LS-218
Oklahoma
Engineering E-254
Nebraska
Engineering CA2821

THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

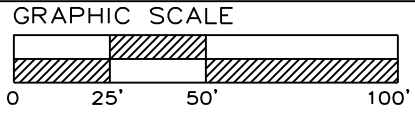
Project: VILLAS OF CHAPEL RIDGE, L.S.M.O.
Issue Date: April 10, 2020

Storm Sewer Plan and Profile
Construction Plans for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

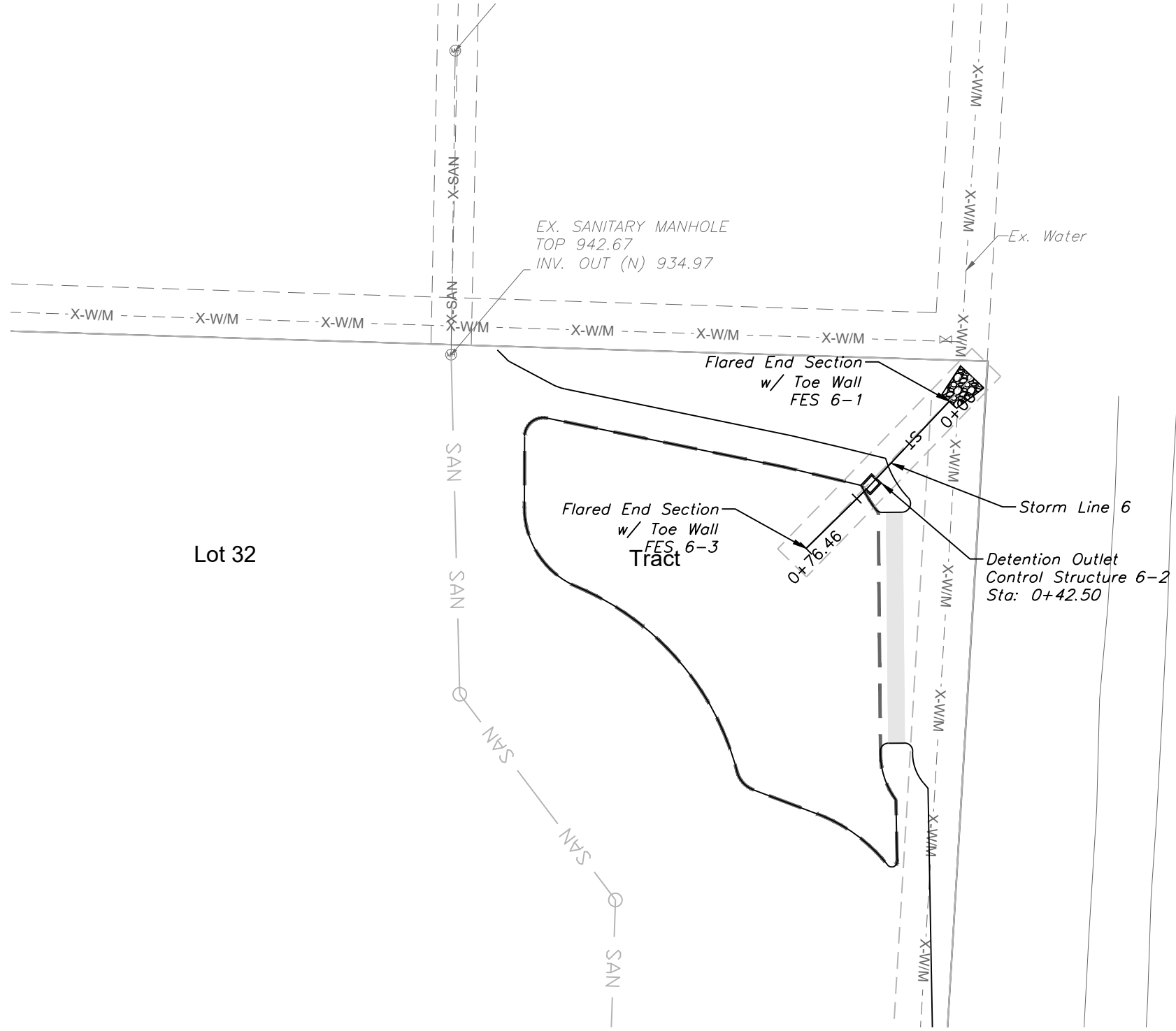


Matthew J. Schlicht
MO PE 2006019708
KS PE 19071
OK PE 25226
NE PE E-114335

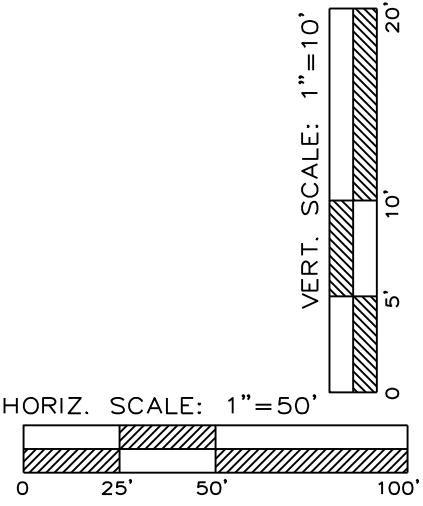
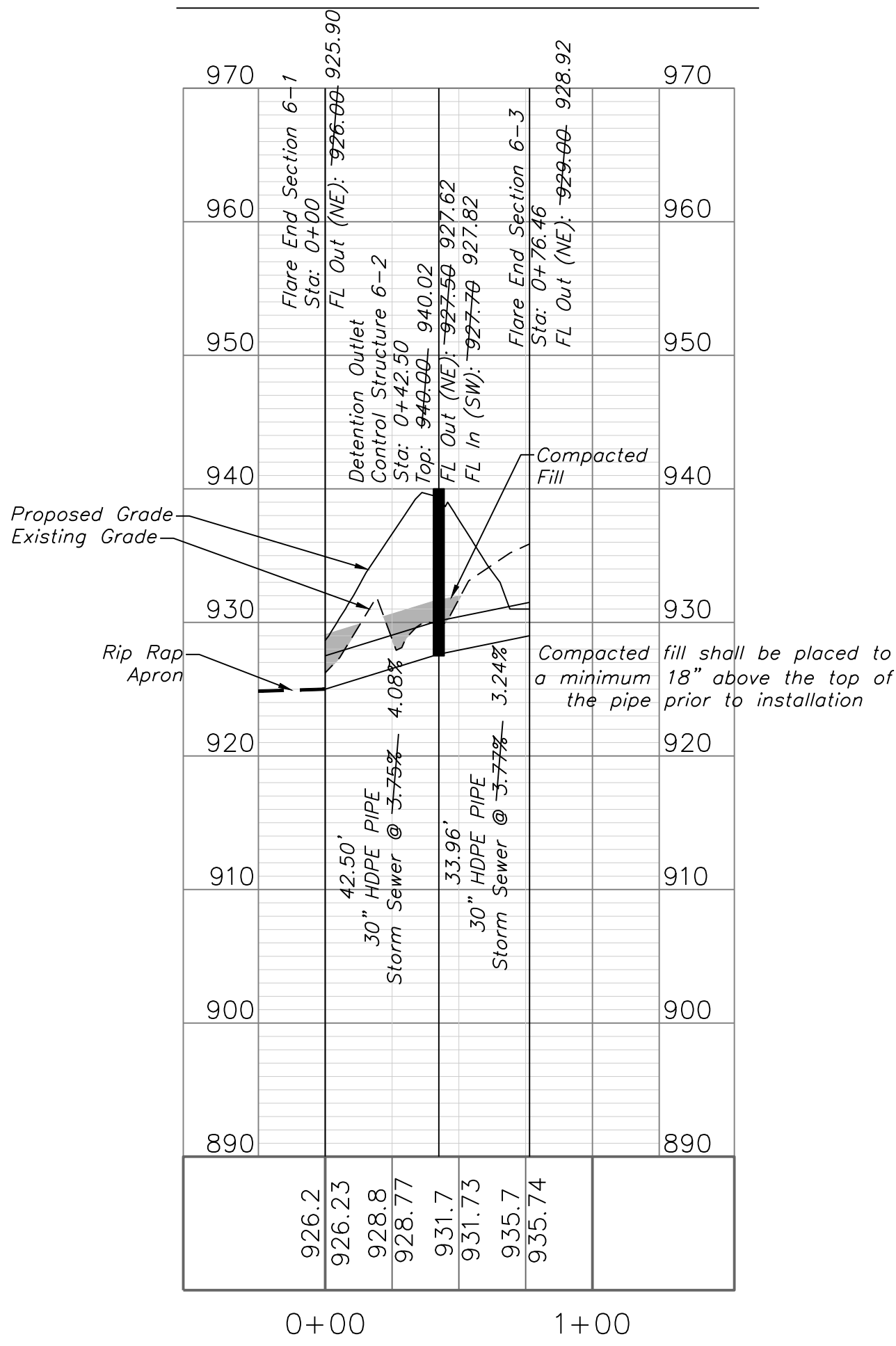
REVISIONS
6/25/2021 As-Built
8/18/2021 As-Built
8/31/2021 As-Built
9/9/2021 As-Built
11/17/2022 As-Built



STORM SEWER PLAN & PROFILE
SCALE: 1" = 50'



STORM LINE 6

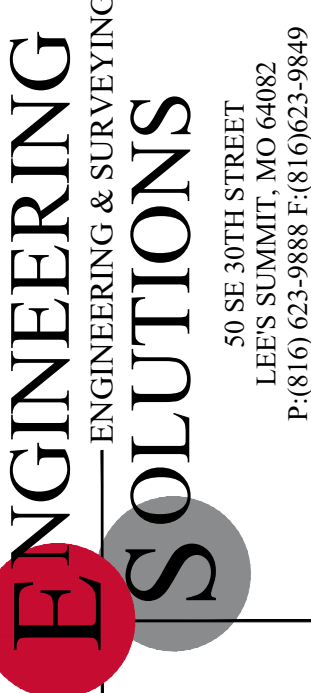


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Title: Engineer
Firm: Engineering Solutions

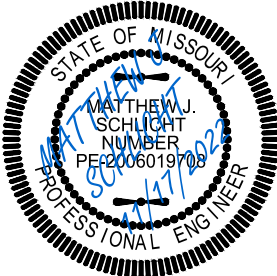


Professional Registration
Missouri
Engineering 2005002186-D
Surveying 2005008319-D
Kansas
Engineering E-1895
Surveying LS-218
Oklahoma
Engineering 6254
Nebraska
Engineering CA2821

THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

Project: VILLAS OF CHAPEL RIDGE L&MO
Issue Date: April 10, 2020

Storm Sewer Plan and Profile
Construction Plans for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri



Matthew J. Schlicht
MO PE 2006019708
KS PE 19071
OK PE 25226
NE PE E-14335

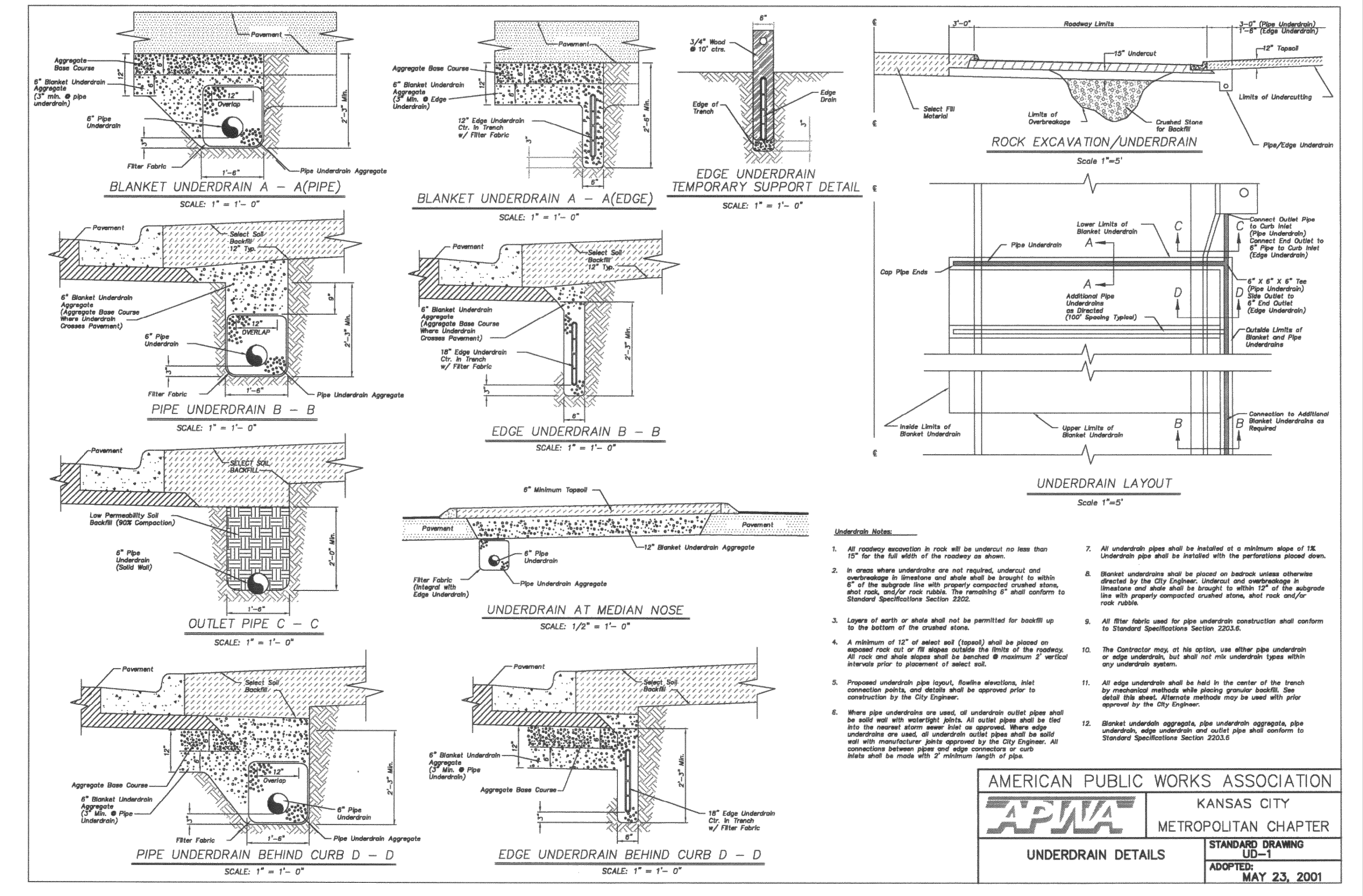
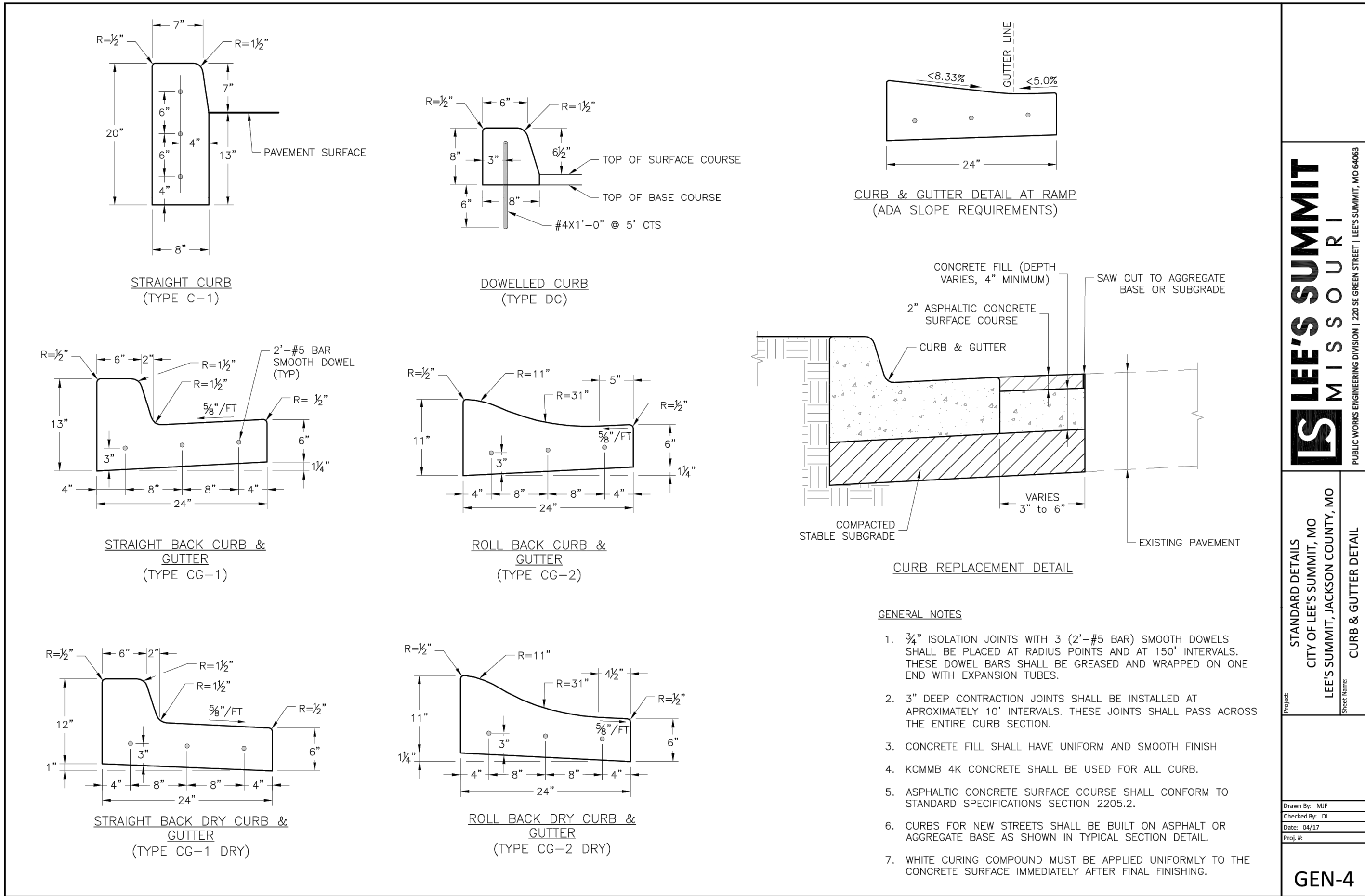
REVISIONS
6/25/2021 As-Built
8/18/2021 As-Built
8/31/2021 As-Built
9/9/2021 As-Built
11/17/2022 As-Built

10 YEAR INLET																						
D.S. Str.	Str.	Area (ac)	InletTime (min)	Int. (in/hr)	RunoffCoeff. (C)	Q=CIA (cfs)	Q Carry-over (cfs)	QCaptured (cfs)	QBypassed (cfs)	JunctType	CurbHeight (in)	CurbLength (ft)	GutterSlope (ft/ft)	GutterWidth (ft)	CrossSlope, Sw (ft/ft)	CrossSlope, Sx (ft/ft)	InletDepth (ft)	BypassDepth (ft)	BypassSpread (ft)	GutterDepth (ft)	GutterSpread (ft)	Bypass Str.
1-1	1-2	0.21	5.20	7.21	0.66	1.00	0	1	0	Dp-Curb	6	16	Sag	....	0.02	0.02	0.08	n/a	n/a	0.08	3.78	Sag
1-2	1-3	0.87	6.20	6.94	0.66	3.99	0	3.99	0	Dp-Curb	6	16	Sag	....	0.02	0.02	0.19	n/a	n/a	0.19	9.51	Sag
1-3	1-4	0.12	5.30	7.18	0.66	0.57	0	0.57	0	Dp-Curb	6	16	Sag	....	0.02	0.02	0.05	n/a	n/a	0.05	2.6	Sag
1-3	2-1	0.17	6.00	7.00	0.66	0.78	0	0.3	0.49	Curb	10	5	0.078	2	0.05	0.02	0.11	0.1	1.9	0.11	2.66	EX 42A
2-1	2-2	0.28	6.00	7.00	0.66	1.29	0	0.39	0.9	Curb	10	5	0.078	2	0.05	0.02	0.13	0.12	2.94	0.13	3.74	EX 42C
EX 40F	3-1	0	0.00	0.00	0.00	0.00	....	....	....	JB	....	....	....	....	....	....	....	....	....	....	....	....
3-1	3-2	0	0.00	0.00	0.00	0.00	....	....	....	JB	....	....	....	....	....	....	....	....	....	....	....	....
3-2	3-3	0.36	5.30	7.18	0.66	1.71	0	1.71	0	Dp-Curb	6	16	Sag	....	0.02	0.02	0.11	n/a	n/a	0.11	5.4	Sag
3-3	3-4	0.45	5.50	7.13	0.66	2.12	0	2.12	0	Dp-Curb	6	16	Sag	....	0.02	0.02	0.12	n/a	n/a	0.12	6.24	Sag
3-4	3-5	0.4	5.50	7.13	0.66	1.88	0	1.88	0	Dp-Curb	6	16	Sag	....	0.02	0.02	0.12	n/a	n/a	0.12	5.76	Sag
EX 40F	EX 42A	0.15	6.00	7.00	0.66	0.69	5.79	1.15	5.33	Curb	10	5	0.03	2	0.05	0.02	0.26	0.25	9.35	0.26	10.13	EX 40F
EX 42A	EX 42B	0.43	5.80	7.05	0.66	2.00	0	0.63	1.37	Curb	10	5	0.03	2	0.05	0.02	0.18	0.16	5.04	0.18	6.07	EX 40F
EX 42B	EX 42C	0.84	6.10	6.97	0.66	3.86	0.9	0.84	3.93	Curb	10	5	0.059	2	0.05	0.02	0.21	0.2	7.08	0.21	7.71	EX 40F
4-1	4-2	0.15	5.50	7.13	0.66	0.71	1.07	0.57	1.21	Curb	10	5	0.036	2	0.05	0.02	0.17	0.15	4.5	0.17	5.49	Offsite
4-2	4-3	0.36	6.40	6.89	0.66	1.64	0	0.56	1.07	Curb	10	5	0.03	2	0.05	0.02	0.17	0.15	4.43	0.17	5.51	4-2
4-3	4-4	0.33	5.20	7.21	0.66	1.57	0	0.55	1.02	Curb	10	5	0.03	2	0.05	0.02	0.17	0.15	4.3	0.17	5.4	5-1
4-2	5-1	0.87	5.80	7.05	0.66	4.05	1.02	0.97	4.09	Curb	10	5	0.036	2	0.05	0.02	0.24	0.22	8.04	0.24	8.81	Offsite

10 YEAR PIPE																						
D.S. Str.	U.S. Str.	LineLength (ft)	Incr.Area (ac)	TotalArea (ac)	RunoffCoeff. (C)	IncrC x A	TotalC x A	InletTime (min)	TimeConc (min)	RnfalInt (in/hr)	TotalRunoff (cfs)	TotalFlow (cfs)	CapacFull (cfs)	Veloc (ft/s)	PipeSize (in)	PipeSlope (%)	Inv ElevDn (ft)	Inv ElevUp (ft)	HGLDn (ft)	HGLUp (ft)	Grnd/RimDn (ft)	Grnd/RimUp (ft)
1-1	1-2	91.62	0.21	1.65	0.66	0.14	1.09	5.2	8	6.5	7.10	7.10	24.70	8.78	18	3.27	936.00	939.00	936.55	940.03	937.50	945.00
1-2	1-3	140.08	0.87	1.44	0.66	0.57	0.95	6.2	7.7	6.6	6.26	6.26	21.58	7.89	18	2.50	939.50	943.00	940.05	943.97	945.00	949.00
1-3	1-4	280.60	0.12	0.12	0.66	0.08	0.08	5.3	5.3	7.2	0.57	0.57	16.24	1.97	15	3.74	943.50	954.00	943.97	954.29	949.00	959.00
1-3	2-1	139.36	0.17	0.45	0.66	0.11	0.3	6	6.1	7	2.07	2.07	18.13	4.36	15	4.66	943.50	950.00	943.97	950.57	949.00	956.76
2-1	2-2	35.00	0.28	0.28	0.66	0.18	0.18	6	6	7	1.29	1.29	10.03	4.44	15	1.43	950.50	951.00	950.80	951.45	956.76	956.76
EX 40F	3-1	205.87	0.00	1.21	0	0	0.8	0	6.6	6.8	5.46	5.46	46.87	7.22	24	4.29	924.64	933.48	925.10	934.30	928.29	943.00
3-1	3-2	54.41	0.00	1.21	0	0	0.8	0	6.5	6.9	5.49	5.49	27.33	5.64	24	0.86	933.73	934.20	934.34	935.03	943.00	946.27
3-2	3-3	153.54	0.36	1.21	0.66	0.24	0.8	5.3	6.2	6.9	5.54	5.54	19.52	9.60	15	5.41	934.70	943.00	935.16	943.95	946.27	950.00
3-3	3-4	140.00	0.45	0.85	0.66	0.3	0.56	5.5	5.9	7	3.94	3.94	18.09	7.28	15	4.64	943.50	950.00	943.95	950.80	950.00	956.88
3-4	3-5	140.00	0.40	0.4	0.66	0.26	0.26	5.5	5.5	7.1	1.88	1.88	18.77	5.94	15	5.00	950.50	957.50	950.80	958.05	956.88	962.65
EX 40F	EX 42A	43.25	0.15	1.42	0.66	0.1	0.94	6	6.5	6.9	6.43	6.43	26.65	11.93	15	10.08	923.86	928.22	924.28	929.24	928.29	932.67
EX 42A	EX 42B	33.90	0.43	1.27	0.66	0.28	0.84	5.8	6.4	6.9	5.77	5.77	6.27	5.72	15	0.94	928.68	929.00	929.62	929.97	932.67	932.68
EX 42B	EX 42C	97.97	0.84	0.84	0.66	0.55	0.55	6.1	6.1	7	3.86	3.86	18.45	4.98	15	4.83	929.25	933.98	929.97	934.77	932.68	937.53
4-1	4-2	67.50	0.15	1.71	0.66	0.1	1.13	5.5	6.8	6.8	7.65	7.65	21.98	8.49	18	2.59	949.75	951.50	950.36	952.57	951.25	957.48
4-2	4-3	135.00	0.36	0.69	0.66	0.24	0.46	6.4	6.4	6.9	3.14	3.14	14.45	5.05	15	2.96	952.00	956.00	952.57	956.71	957.48	962.04
4-3	4-4	71.46	0.33	0.33	0.66	0.22	0.22	5.2	5.2	7.2	1.57	1.57	14.90	5.67	15	3.15	956.50	958.75	956.77	959.25	962.04	963.90
4-2	5-1	35.00	0.87	0.87	0.66	0.57	0.57	5.8	5.8	7	4.05	4.05	10.03	6.10	15	1.43	952.00	952.50	952.57	953.31	957.48	957.48

100 YEAR INLET																						
D.S. Str.	Str.	Area (ac)	InletTime (min)	Int. (in/hr)	RunoffCoeff. (C)	Q =CIA (cfs)	Q Carry-over (cfs)	QCaptured (cfs)	QBypassed (cfs)	JunctType	CurbHeight (in)	CurbLength (ft)	GutterSlope (ft/ft)	GutterWidth (ft)	CrossSlope, Sw (ft/ft)	CrossSlope, Sx (ft/ft)	InletDepth (ft)	BypassDepth (ft)	BypassSpread (ft)	GutterDepth (ft)	GutterSpread (ft)	Bypass Str.
1-1	1-2	0.21	5.20	10.91	0.66	1.51	0	1.51	0	Dp-Curb	6	16	Sag	....	0.02	0.02	0.1	n/a	n/a	0.1	4.98	Sag
1-2	1-3	0.87	6.20	10.50	0.66	6.03	0	6.03	0	Dp-Curb	6	16	Sag	....	0.02	0.02	0.25	n/a	n/a	0.25	12.54	Sag
1-3	1-4	0.12	5.30	10.87	0.66	0.86	0	0.86	0	Dp-Curb	6	16	Sag	....	0.02	0.02	0.07	n/a	n/a	0.07	3.42	Sag
1-3	2-1	0.17	6.00	10.58	0.66	1.19	0	0.38	0.81	Curb	10	5	0.078	2	0.05	0.02	0.13	0.11	2.73	0.13	3.55	EX 42A
2-1	2-2	0.28	6.00	10.58	0.66	1.96	0	0.49	1.46	Curb	10	5	0.078	2	0.05	0.02	0.15	0.14	4.02	0.15	4.73	EX 42C
EX 40F	3-1	0.00	0.00	0.00	0.00	0.00	....	....	....	MH	....	....	....	....	....	....	....	....	....	....	....	....
3-1	3-2	0.00	0.00	0.00	0.00	0.00	....	....	....	MH	....	....	....	....	....	....	....	....	....	....	....	....
3-2	3-3	0.36	5.30	10.87	0.66	2.58	0	2.58	0	Dp-Curb	6	16	Sag	....	0.02	0.02	0.14	n/a	n/a	0.14	7.12	Sag
3-3	3-4	0.45	5.50	10.79	0.66	3.20	0	3.2	0	Dp-Curb	6	16	Sag	....	0.02	0.02	0.16	n/a	n/a	0.16	8.22	Sag
3-4	3-5	0.40	5.50	10.79	0.66	2.85	0	2.85	0	Dp-Curb	6	16	Sag	....	0.02	0.02	0.15	n/a	n/a	0.15	7.6	Sag
EX 40F	EX 42A	0.15	6.00	10.58	0.66	1.05	9.33	1.46	8.91	Curb	10	5	0.03	2	0.05	0.02	0.31	0.29	11.53	0.31	12.26	EX 40F
EX 42A	EX 42B	0.43	5.80	10.66	0.66	3.03	0	0.78	2.25	Curb	10	5	0.03	2	0.05	0.02	0.21	0.19	6.41	0.21	7.33	EX 40F
EX 42B	EX 42C	0.84	6.10	10.54	0.66	5.85	1.46	1.04	6.27	Curb	10	5	0.059	2	0.05	0.02	0.25	0.23	8.68	0.25	9.26	EX 40F
4-1	4-2	0.15	5.50	10.79	0.66	1.07	1.78	0.72	2.12	Curb	10	5	0.036	2	0.05	0.02	0.2	0.18	5.97	0.2	6.84	Offsite
4-2	4-3	0.36	6.40	10.43	0.66	2.48	0	0.7	1.78	Curb	10	5	0.03	2	0.05	0.02	0.19	0.17	5.73	0.19	6.7	4-2
4-3	4-4	0.33	5.20	10.91	0.66	2.38	0	0.69	1.69	Curb	10	5	0.03	2	0.05	0.02	0.19	0.17	5.59	0.19	6.57	5-1
4-2	5-1	0.87	5.80	10.66	0.66	6.12	1.69	1.21	6.6	Curb	10	5	0.036	2	0.05	0.02	0.27	0.26	9.83	0.27	10.54	Offsite

100 YEAR PIPE																						
D.S. Str.	U.S. Str.	LineLength (ft)	Incr.Area (ac)	TotalArea (ac)	RunoffCoeff. (C)	IncrC x A	TotalC x A	InletTime (min)	TimeConc (min)	RnfalInt (in/hr)	TotalRunoff (cfs)	TotalFlow (cfs)	CapacFull (cfs)	Veloc (ft/s)	PipeSize (in)	PipeSlope (%)	Inv ElevDn (ft)	Inv ElevUp (ft)	HGLDn (ft)	HGLUp (ft)	Grnd/RimDn (ft)	Grnd/RimUp (ft)
1-1	1-2	91.62	0.21	1.65	0.66	0.14	1.09	5.2	7.8	9.9	10.79	10.79	24.70	10.16	18	3.27	936.00	939.00	936.69	940.26	937.50	945.00
1-2	1-3	140.08	0.87	1.44	0.66	0.57	0.95	6.2	7.6	10	9.51	9.51	21.58	8.46	18	2.50	939.50	943.00	940.26	944.19	945.00	949.00
1-3	1-4	280.60	0.12	0.12	0.66	0.08	0.08	5.3	5.3	10.9	0.86	0.86	16.24	2.07	15	3.74	943.50	954.00	944.19	954.36	949.00	959.00
1-3	2-1	139.36	0.17	0.45	0.66	0.11	0.3	6	6.1	10.5	3.13	3.13	18.13	4.42	15	4.66	943.50	950.00	944.19	950.71	949.00	956.76
2-1	2-2	35.00	0.28	0.28	0.66	0.18	0.18	6	6	10.6	1.96	1.96	10.03	5.02	15	1.43	950.50	951.00	950.87	951.56	956.76	956.76
EX 40F	2-3	205.87	0.00	1.21	0	0	0.8	0	6.6	10.3	8.26	8.26	46.87	8.17	24	4.29	924.64	933.28	945.21	934.50	928.29	943.70
3-1	3-2	54.41	0.00	1.21	0	0	0.8	0	6.5	10.4	8.31	8.31	27.33	6.26	24	0.86	933.73	934.20	934.50	935.23	943.00	946.27
3-2	3-3	153.54	0.36	1.21	0.66	0.24	0.8	5.3	6.2	10.5	8.38	8.38	19.52	11.23	15	5.41	934.70	943.00	935.27	943.13	946.27	950.00
3-3	3-4	140.00	0.45	0.85	0.66	0.3	0.56	5.5	5.9	10.6	5.95	5.95	18.09	7.66	15	4.64	943.50	950.00	944.13	950.99	950.00	956.88
3-4	3-5	140.00	0.40	0.4	0.66	0.26	0.26	5.5	5.5	10.8	2.85	2.85	18.77	5.32	15	5.00	950.50	950.50	950.99	950.99	956.88	962.65
EX 40F	EX 42A	43.25	0.15	1.42	0.66	0.1	0.94	6	6.5	10.4	9.74	9.74	26.65	14.07	15	10.08	923.86	928.72	924.38	929.40	928.29	932.67
EX 42A	EX 42B	33.90	0.43	1.27	0.66	0.28	0.84	5.8	6.4	10.4	8.74	8.74	6.27	7.12	15	0.94	928.68	929.00	929.93	930.55	932.67	932.68
EX 42B	EX 42C	97.97	0.84	0.84	0.66	0.55	0.55	6.1	6.1	10.5	5.85	5.85	18.45	5.22	15	4.83	929.25	933.98	931.73	934.96	932.68	937.53
4-1	4-2	67.50	0.15	1.71	0.66	0.1	1.13	5.5	6.8	10.3	11.59	11.59	21.98	9.87	18	2.59	949.75	951.50	950.52	952.80	951.25	957.48
4-2	4-3	135.00	0.36	0.69	0.66	0.24	0.46	6.4	6.4	10.4	4.75	4.75	14.45	5.44	15	2.96	952.00	956.00	952.80	956.88	957.48	962.04
4-3	4-4	71.46	0.33	0.33	0.66	0.22	0.22	5.2	5.2	10.9	2.38	2.38	14.90	5.70	15	3.15	956.50	958.75	956.88	959.37	962.04	963.90
4-2	5-1	35.00	0.87	0.87	0.66	0.57	0.57	5.8	5.8	10.7	6.12	6.12	10.03	6.62	15	1.43	952.00	952.50	952.80	953.50	957.48	957.48



Record Drawing

GENERAL NOTE:
1 - ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.

