Final Development Plans For

Summit Square II

Lee's Summit, Jackson County, Missouri

LOCATION MAP
Not To Scale

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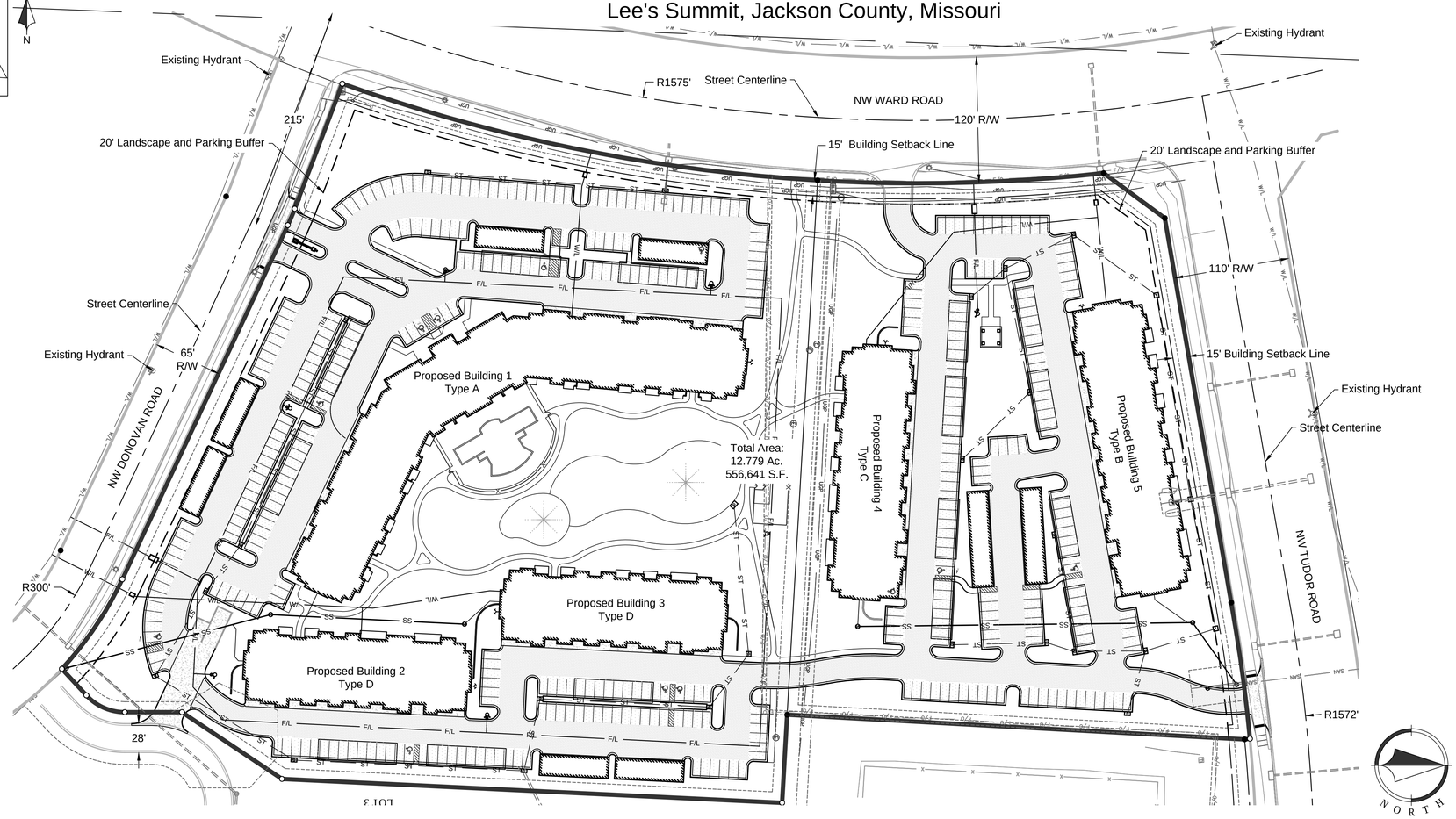

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UTILITIES

WATER & SANITARY SEWER
City of Lee's Summit Water Utilities
220 SE Green St
Lee's Summit, MO
(816) 969-1900

ELECTRICITY
Kansas City Power and Light
Phone: 816.471.5275

GAS
Missouri Gas Energy
PO Box 219255
Kansas City, Missouri 64141
Phone: 816.756.5252

TELEPHONE
AT&T
Phone: 800.288.2020

Time Warner Cable
Phone: 816.222.5952

CABLE TV
Comcast
Phone: 816.795.1100

Time Warner Cable
Phone: 816.358.8833

LEGAL DESCRIPTION

Lots 1 and 2, SUMMIT ORCHARD - FIRST PLAT, LOTS 1-4 & TRACT A, a subdivision in Lee's Summit, Jackson County, Missouri, according to the recorded plat thereof recorded August 26, 2016 as Document
No. 2016E0079184 in Plat Book 163, Page 87.

BENCHMARK:

BM-A: □ cut on the top centerline of a concrete curb inlet at back of curb near the NE quadrant of the intersection of NW Ward Rd. and NW Donovan Rd.
Elev: 1006.76

BM-B: □ cut on the top centerline of a concrete curb inlet at back of curb near the SE quadrant of the intersection of NW Ward Rd. and NW Tudor Rd.
Elev: 984.97

Oil / Gas Well Note:
There is no visible evidence, this date, of abandoned oil or gas wells located within the property boundary, as identified in "Environmental Impact Study of Abandoned Oil and Gas Wells in Lee's Summit, Missouri.

Flood Plain Note
We have reviewed the F.E.M.A. Flood Insurance Rate Map Number 29095C0417G, revised January 20, 2017, this tract graphically lies in OTHER AREAS, ZONE X, defined as areas determined to be outside the 0.2% annual chance floodplain.

GENERAL NOTES

1. All construction shall follow the City of Lee's Summit Design and Construction Manual as adopted by Ordinance 5813. Where discrepancies exist between the Final Development Plan and the Design and Construction Manual, the Design and Construction Manual shall govern.
2. The contractor will be responsible for securing all bonds, and insurance required by the contract documents, City of Lee's Summit, Mo., and all other governing agencies (including local, county, state, and federal authorities) having jurisdiction over the work proposed by these construction documents. The cost for all bonds, and insurance shall be the contractor's responsibility and shall be included in the bid for the work.
3. All existing utilities indicated on the drawings are according to the best information available to the engineer; however, all utilities actually existing may not be shown. The contractor shall be responsible for contacting all utility companies for an exact field location of each utility prior to any construction. All utilities, shown and un-shown, damaged through the negligence of the contractor shall be repaired or replaced by the contractor at his expense.
4. The contractor will be responsible for all damages to existing utilities, pavement, fences, structures, and other features not designated for removal. The contractor shall repair all damages at his expense.
5. The demolition of existing pavement, curbs, structures, and all other features necessary to construct the proposed improvements, shall be performed by the contractor. All waste material removed during construction shall be disposed off the project site. The contractor shall be responsible for all permits for hauling and disposing of waste material. The disposal of waste material shall be in accordance with all local, state, and federal regulations.
6. By use of these construction documents the contractor hereby agrees that he shall be solely responsible for the safety of the construction workers and the public. The contractor agrees to hold the engineer and owner harmless for any and all injuries, claims, losses, or damages related to the project.
7. The contractor will be responsible for providing all signage, barricades, lighting, etc., as required for temporary traffic control during the construction of this project. Maintenance of the temporary traffic control devices will be the contractor's responsibility. All traffic control in conduction with construction in the right-of-way shall be in conformance with the City Traffic Control Requirements.
8. Contractor shall furnish evidence that his/her insurance meets the requirements of the City of Lee's Summit, Missouri Municipal Code.
9. Prior to installing, constructing, or performing any work on the public storm sewer line (including connecting private drainage systems to the storm sewer), contact Inspections.
10. Connections to the public storm sewers between structures will not be permitted.
11. Contractor shall verify and accept existing topography shown herein. Contractor shall notify Engineer if any discrepancies are found prior to any earthwork activities.
12. Planning and Codes Administration will require a retaining wall design by a registered engineer in the State of Missouri.
13. Geogrid, footings, or other elements of the retaining wall(s) cannot encroach into the right of way or public easements.
14. A Knox Box shall be provided for Each Building.
15. All building and life safety issues shall comply with the 2012 International Fire Code and local amendments as adopted by the City of Lee's Summit.

811 Know what's **below.** **Call** before you dig.

Sheet
C01

Final Development Plans
18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Cover Sheet

NO.	BY	DATE	REVISION
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/13/18	PER CITY COMMENTS
				PRELIMINARY SUBMITTAL

Renaissance Infrastructure Consulting
913.317.9500
www.ric-consult.com
132 Abbie Avenue
Kansas City, Kansas 66103
Missouri Certificate of Authority No. 2006033630

STATE OF MISSOURI
MITCHELL SLUTTER
NUMBER PE-2002003418
PROFESSIONAL ENGINEER
5-14-18
MITCHELL E. SLUTTER PE-2002003418

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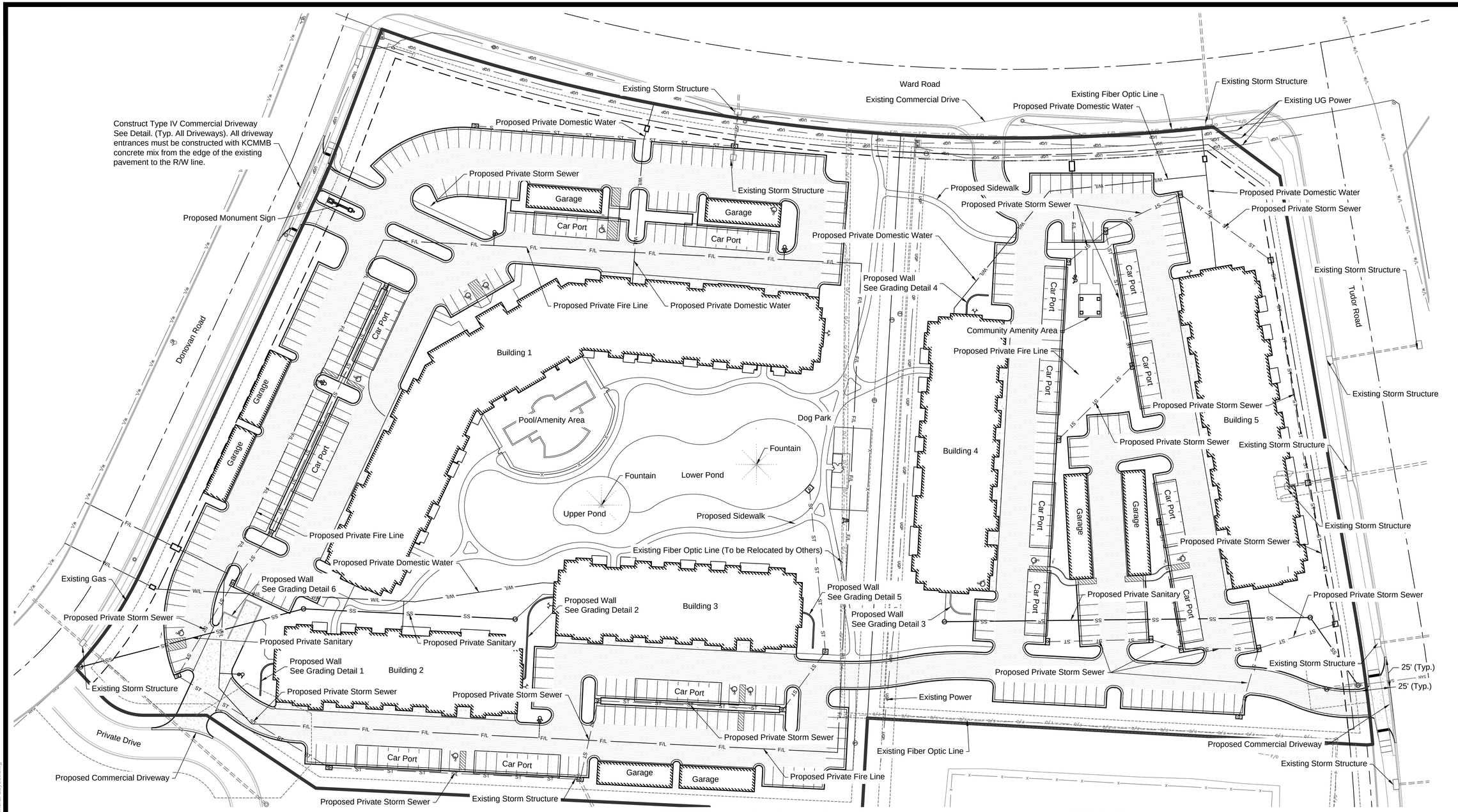

FOR NON-PUBLIC WORK

A. Screened items indicate a pre-construction topographic survey
B. Contraction joints shall conform to APWA Section 2200.
C. All concrete to be 4000 psi with 5% (+/- 1%) air entrainment. Cement mixtures with water/cement ratios at 0.5 or below are recommended
D. Construction of reinforced concrete pavements shall be in accordance with ACI 330 standard specifications.
E. Curing compound to be applied to all concrete surfaces immediately after broom finish.
F. Contractor shall reject concrete if it cannot be placed within 90 minutes of batch time expiration time shall be reduced to 60 minutes on high summer temperatures.

PAVEMENT MARKING AND SIGNAGE NOTES

1. Parking stall marking stripes shall be four inch (4") wide white stripes. Handicap stall marking shall be furnished at locations shown on plans.
2. Traffic control devices and pavement markings shall conform to the requirements of the "Manual of Uniform Traffic Control Devices." and to the City of Lee's Summit.
3. Traffic control and pavement markings shall be painted with a white Sherwin Williams S-W traffic marking series b-29y2 or approved equal. The pavement marking shall be applied in accordance with manufacturers recommendations. Apply on a clean, dry surface and at a surface temperature of not less than 70°f and the ambient air temperature shall not be less than 60°f and rising. Two coats shall be applied.
4. All pavement markings for handicap stalls and aisles shall be blue.

LAYOUT & PAVING NOTES

1. All construction shall conform to the City of Lee's Summit's minimum design standards.
2. The contractor shall check existing grades, dimensions, and inverts in the field and report any discrepancies to the architect/engineer prior to beginning work.
3. The contractor shall verify the exact location of all existing utilities, take care to protect utilities that are to remain, and repair contractor caused damage according to current local standards and at the contractor's expense. coordinate all construction with the appropriate utility company.
4. The contractor shall comply with all local codes, obtain all permits, and pay all fees prior to beginning work.
5. Prior to installing, constructing, or performing any work in the public right of way or on the public storm sewer line (including concrete pavement or connecting private drainage systems to the storm sewer), contact City of Lee's Summit public works at 816.969.1800 for inspection of the work. Contact must be made at least 24 hours prior to start of the work.
6. Provide a smooth transition between existing pavement and new pavement. Field adjustment of final grades may be necessary. Adjust all utilities prior to installation of pavement.
7. The contractor shall protect all trees to remain, in accordance with the specifications. Do not operate or store heavy equipment, nor handle, nor store materials within the driplines of trees or outside the limit of grading.
8. Concrete walks and pads shall have a broom finish. All concrete shall be 4,000 p.s.i. unless otherwise noted. Curb ramps, sidewalk slopes, and driveway ramps shall be constructed in accordance with all current local requirements. If applicable, the contractor shall request inspection of sidewalk and ramp forms prior to placement of concrete.
9. All damage to existing asphalt pavement to remain which results from new construction shall be replaced with like materials at contractor's expense.
10. Dimensions are to the back of curb, or edge of concrete, unless otherwise noted.
11. Excess material shall be disposed of by the contractor off the owner's property at no additional cost in a legal manner.
12. Maintain one set of as-built drawings on the job site for distribution to the engineer upon completion.
13. Concrete curb at all all concrete paving and both side of drive-in ramps shall be integral.
14. Contractor shall be responsible for mud and debris on public ROW which shall be removed in a timely manner daily.

SITE DATA TABLE

PROPERTY INFO:

Existing Zoning:	PMIX
Total Land Area:	12.779 Acres, 556,641 sqft
Proposed Street Right-of-Way:	0.00 Acres
Net Land Area:	12.779 Acres, 556,641 sqft
Proposed Use:	Multifamily Residential

BUILDING INFO:

Building 1:	Type A - N (4/4 - 104 Units)
Buildings 2 & 3:	Type D (4/5 - (2) 51 Units)
Building 4:	Type C (4/5 - 59 Units)
Building 5:	Type B (4/5 - 58 Units)

PARKING INFO:

Studio Apartment	= 35 Units
1 Bedroom Apartment	= 165 Units
2 Bedroom Apartment	= 123 Units
Total 1-2 Bedroom Apartments	= 320 Units
1.5 Stalls / 1-2 BR Unit	= 485 Spaces
0.5 Stalls / Unit (Visitor)	= 162 Spaces
Total Parking Required	= 647 Spaces
Surface Stalls Provided	= 308 Spaces
Carport Stalls Provided	= 103 Spaces
Detatched Garage Stalls Provided	= 52 Spaces
Attached Garage Stalls Provided	= 94 Spaces
Total Parking Provided	= 557 Spaces
ADA Parking Required	= 11 Spaces
ADA Parking Provided	= 11 Spaces

See NSPJ Letter dated 04/13/18 to Mike Weisenborn.

Total Floor Area	= 79,105 SF
Total Impervious Area	= 7.001 Acres
Floor Area Ratio (FAR)	= 0.142
Dwellings (Units) Per Acre	= 27.86

PAVING LEGEND

- Heavy Duty Asphalt Pavement
- Regular Duty Asphalt Pavement
- Concrete Pavement

NORTH

1"=40'

0 20' 40'

Sheet
C02

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

General Layout

NO.	BY	QD	DATE	
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/13/18	ORIGINAL SUBMITTAL
				REVISION

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PROFESSIONAL ENGINEER
5/14/18
MITCHELL E. SLUTTER PE-2002003418

Sheet
C03

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Site Dimension Plan 1

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Existing 10' Sidewalk
Existing Underground Power
Ward Road
Existing Underground Power
Existing Public Storm
Existing 15' B/L
Proposed Private Storm Structure
Existing Gas
Existing Underground Power
Proposed Private Storm Structure
Existing 10' U/E
Existing Water Line
Donovan Road
R111'
9' (Typ.)
18'
R55'
Existing Private Storm (To Be Removed)
Concrete Apron (Typ.)
R10'
Existing Underground Power
R50'
R3'
25'
21'
R5'
R50'
Garage
Proposed ADA Signage
Concrete Apron (Typ.)
Garage
Proposed Monument Sign
Proposed Private Hydrant
76'
91'
Car Port
Proposed Private Hydrant
Car Port
76'
R35'
R25'
R10'
28'
27'
29'
71'
9' (Typ.)
Existing 5' Sidewalk
R4'
R200'
Proposed Private Storm Structure
Existing Fiber Optic Line
20' Landscape and Parking Buffer
R205'
9' (Typ.)
75'
Car Port
Building 1
FFE: 1008.00
Dwelling Units: 104
Area: 35,645 sqft
Stories: 4
Proposed ADA Signage
Existing 10' U/E
Proposed Private Hydrant
Garage
Concrete Apron(Typ.)
R65'
R55'
R45'
R35'
R15'
R2'
R20'
R60'
R40'
Pool/Amenity Area
Jog Park
R30'
R25'
R72'
4' Telecom Esmt.
Car Port
75'
Garage
R50'
R67'
Lower Pond
R155'
R20'
R52'
R72'
R150'
R40'
Upper Pond
R85'
R115'
Proposed Private Hydrant
R15'
R25'
R47'
R65'
R35'
R80'
R120'
R5'
R2'
R60'
R40'
NORTH
1"=20'
0 10' 20'

Sheet
C04

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Site Dimension Plan 2

NO.	BY	CD	DATE	REVISION
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/19/18	ORIGINAL SUBMITTAL

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C05

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Site Dimension Plan 3

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Final Development Plans

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Summit Square II
Lee's Summit, Jackson County, Missouri

Site Dimension Plan 4

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C07

Final Development Plans

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Lee's Summit, Jackson County, Missouri

Grading Plan

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C08

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Grading Plan

NORTH
1"=20'
0 10' 20'

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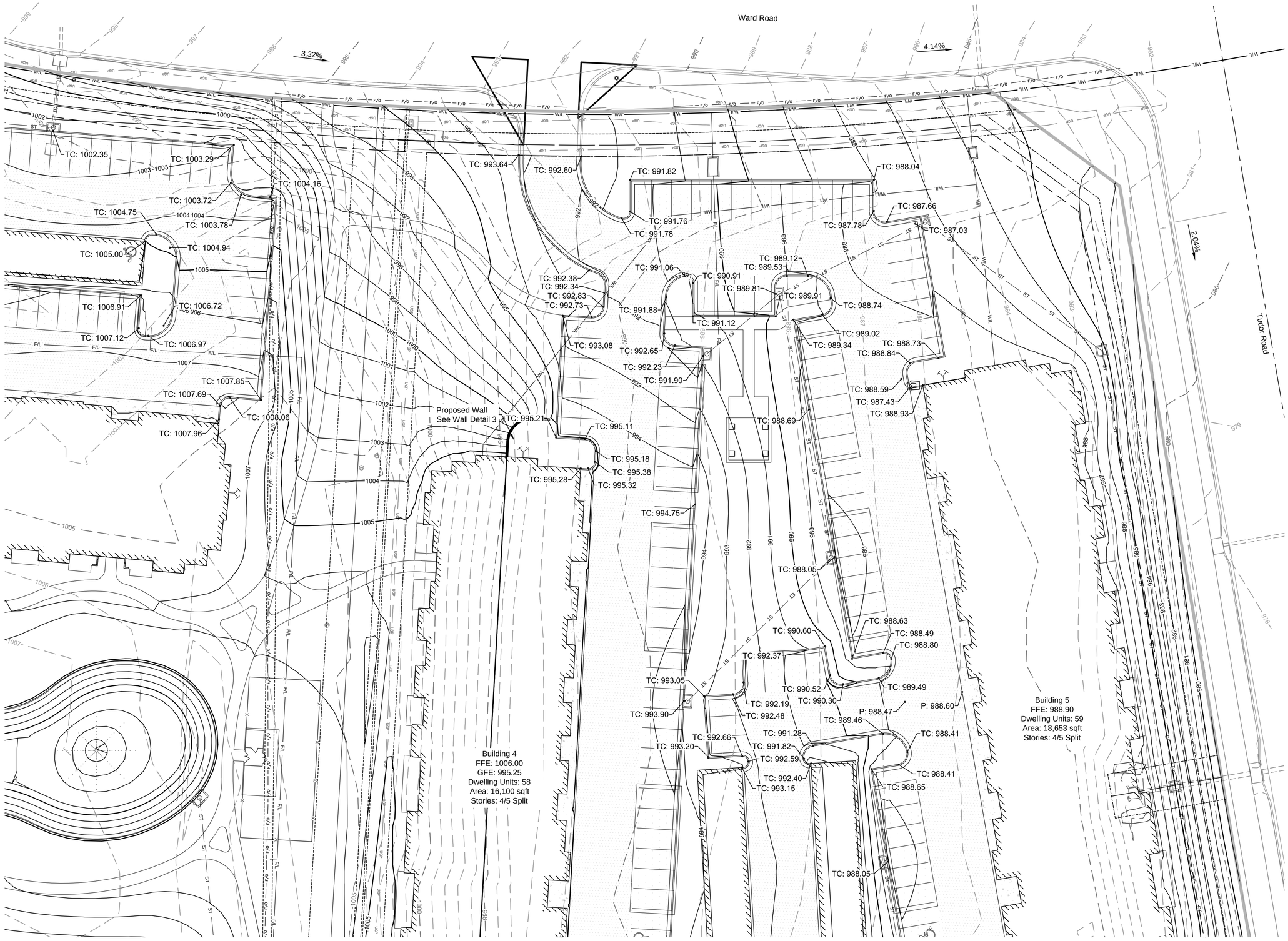

Sheet
C09

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Grading Plan

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Sheet
C10

Final Development Plans

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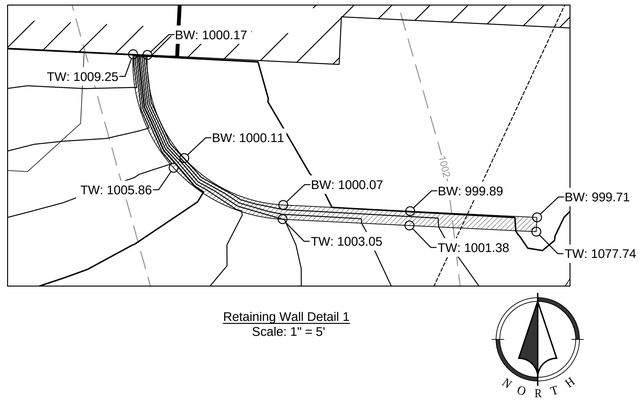

Retaining Wall Detail 1
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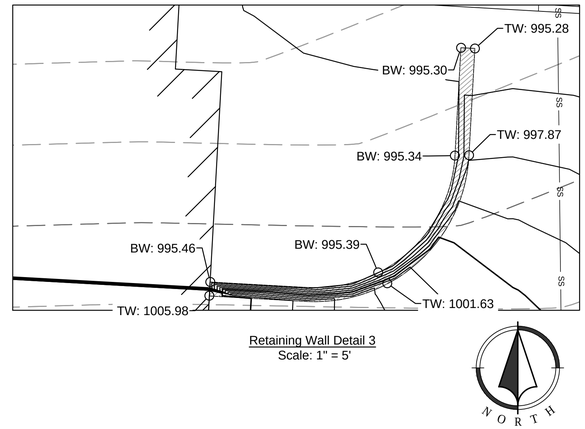

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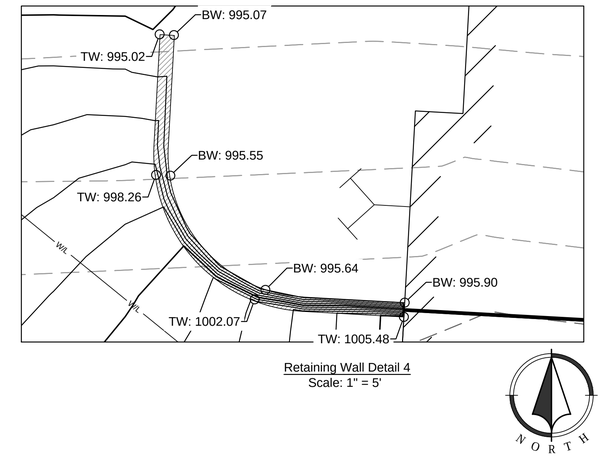

Retaining Wall Detail 4
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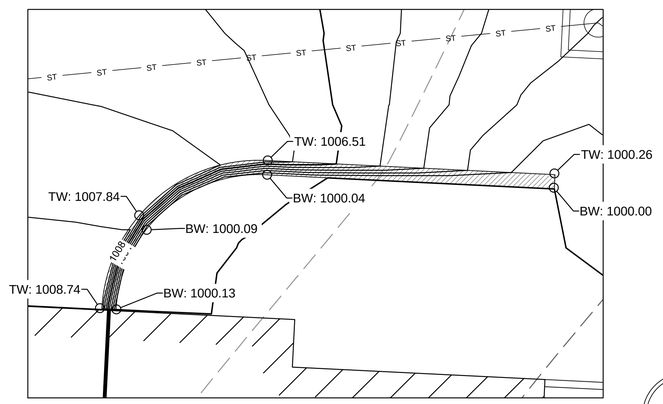

Retaining Wall Detail 5
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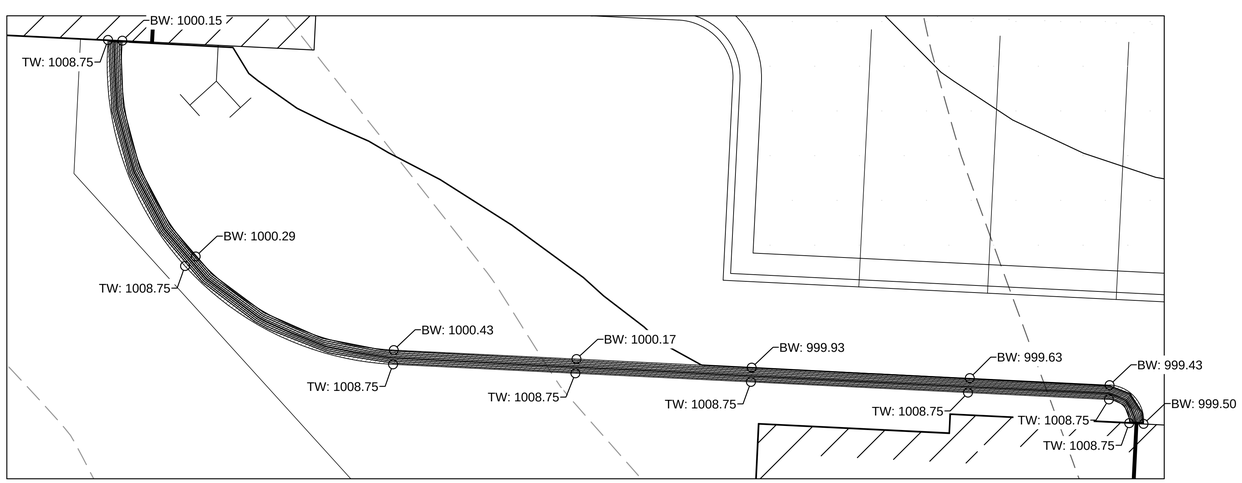

Retaining Wall Detail 2
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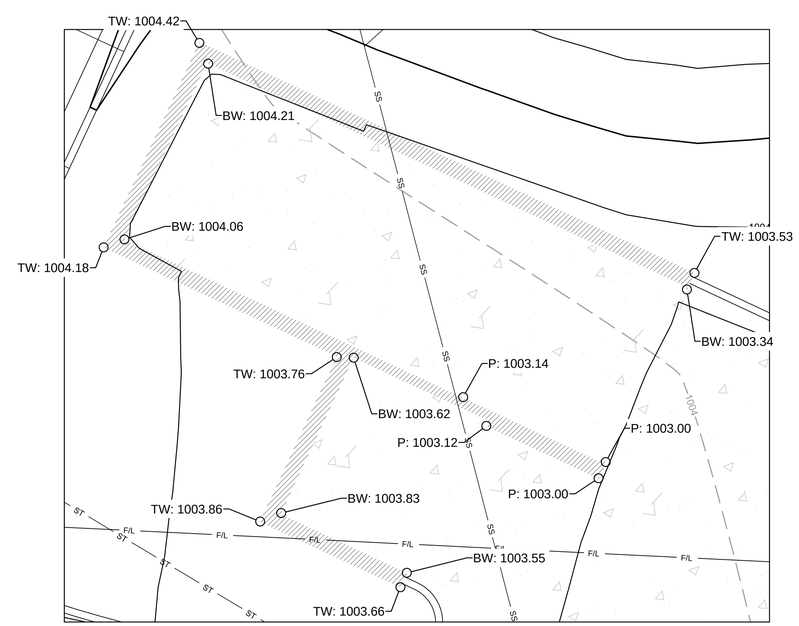

Retaining Wall Detail 6
Scale: 1" = 5'

Note:

All retaining walls shown shall be 8" modular block walls, buff color.
Modular Block Walls shall be designed by a design professional licensed in the State of Missouri, and approved by the City of Lee's Summit.

Sheet
C11

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Retaining Wall Details

NO.	BY	CD	DATE	REVISION
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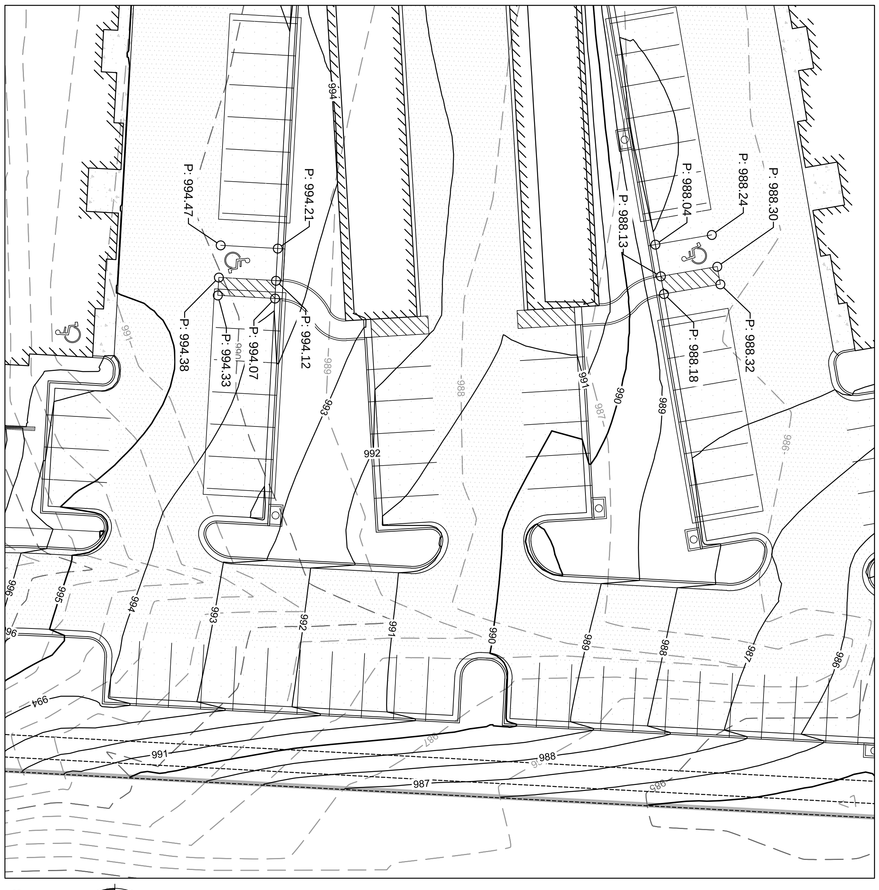

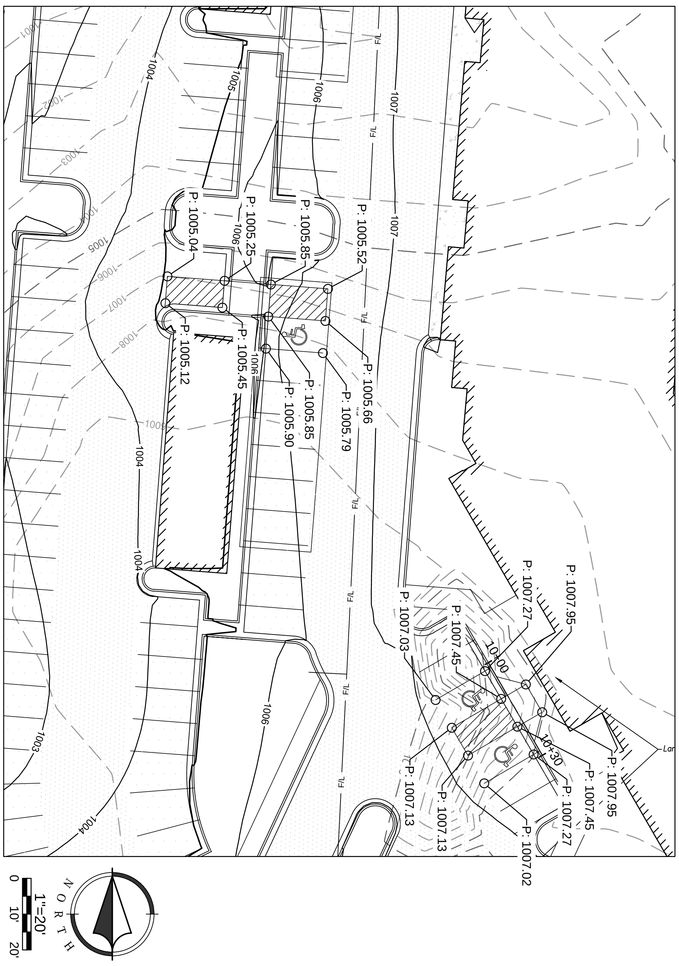

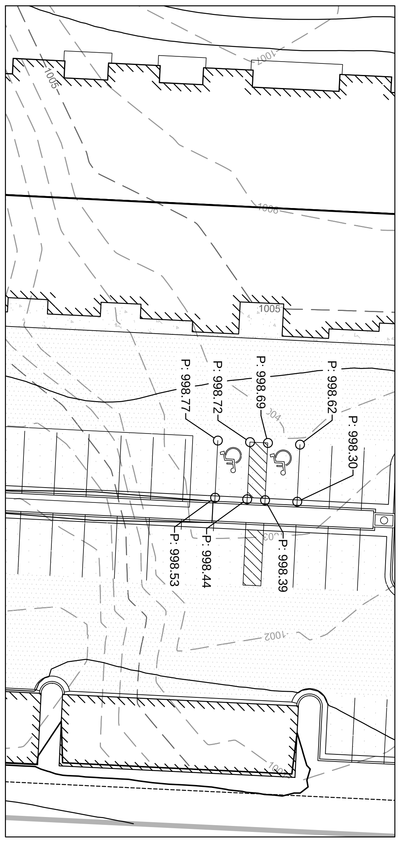

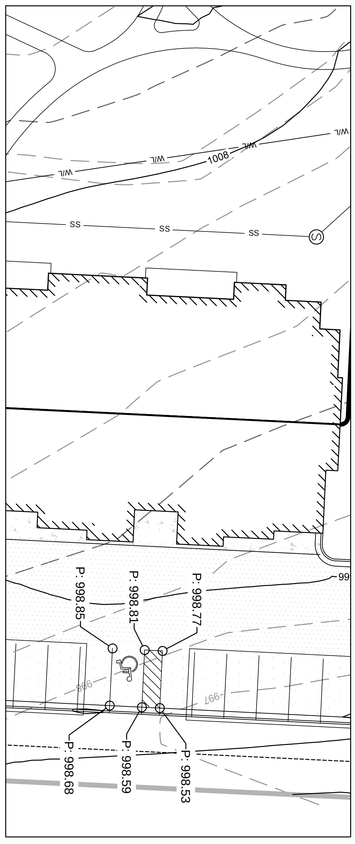

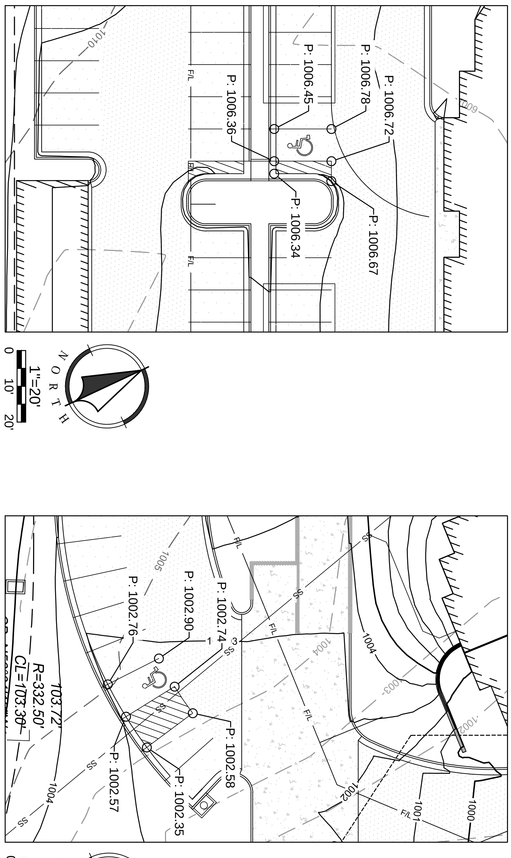

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ADA Details

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

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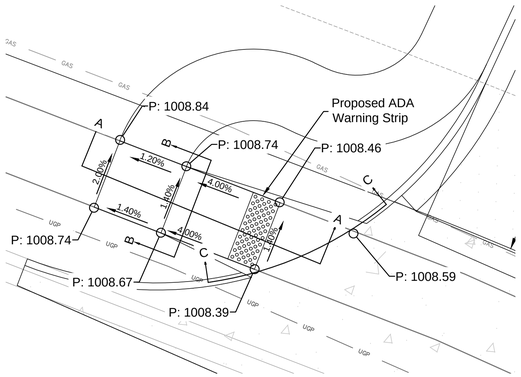
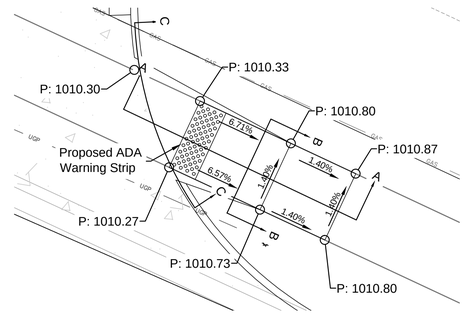
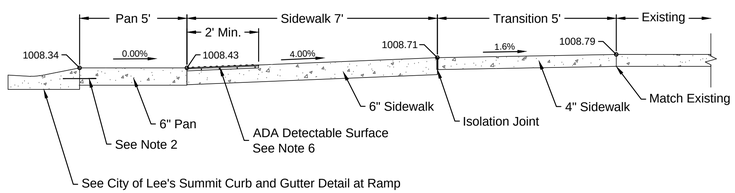


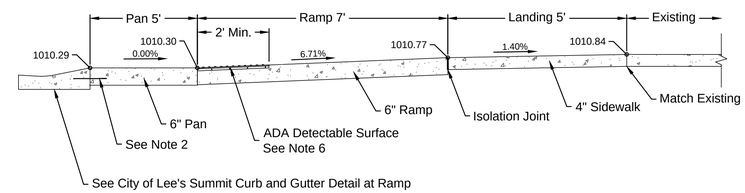
ADA Sidewalk South Detail 1
Scale: 1" = 5'



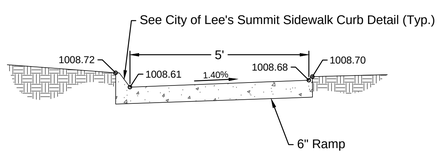
ADA Sidewalk South Detail 2
Scale: 1" = 5'



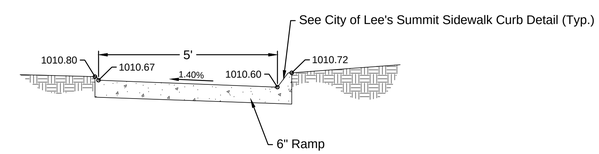
ADA Sidewalk South Detail 1
Section A-A
NTS



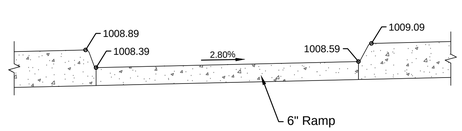
ADA Sidewalk South Detail 2
Section A-A
NTS



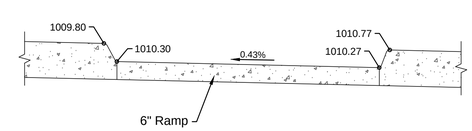
ADA Sidewalk South Detail 1
Section B-B
NTS



ADA Sidewalk South Detail 2
Section B-B
NTS



ADA Sidewalk South Detail 1
Section C-C
NTS



ADA Sidewalk South Detail 2
Section C-C
NTS

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C13

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

ADA Details 2

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PROFESSIONAL ENGINEER
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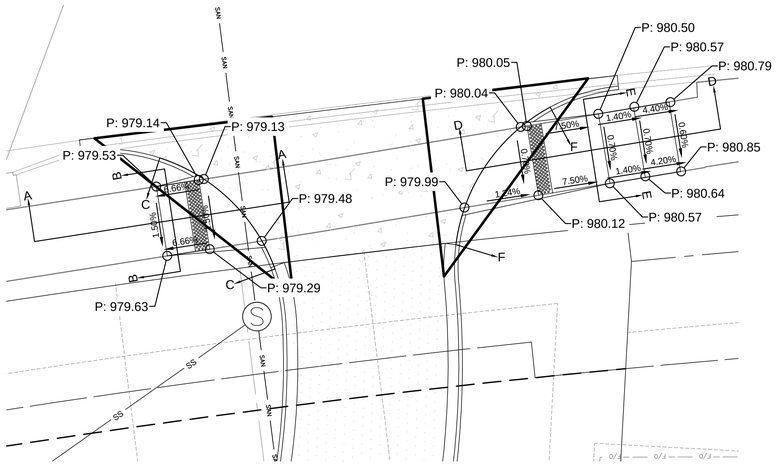
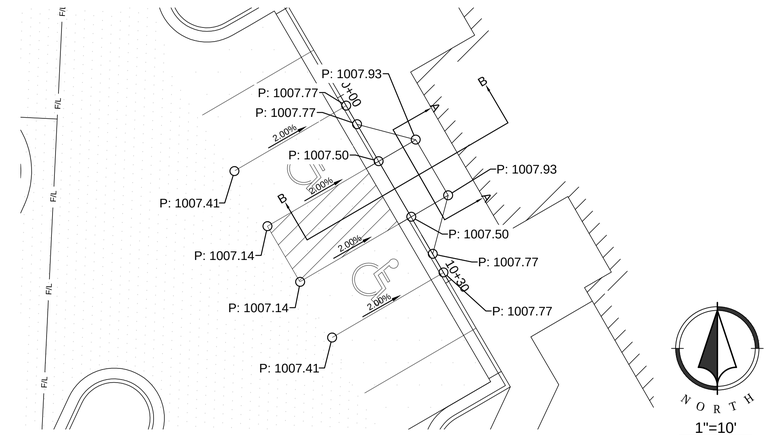
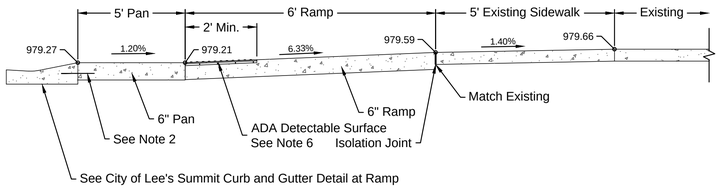


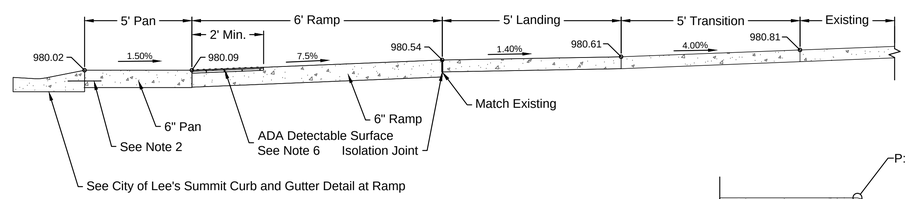
ADA Sidewalk North Detail
Scale: 1" =10'



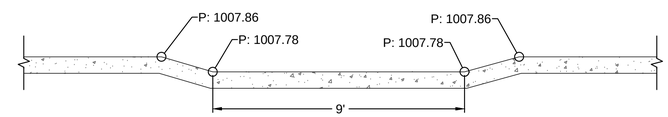
ADA Building Entrance Sidewalk
Scale: 1" =10'



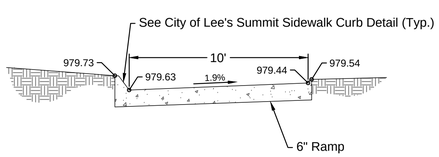
ADA Sidewalk North
Section A-A
NTS



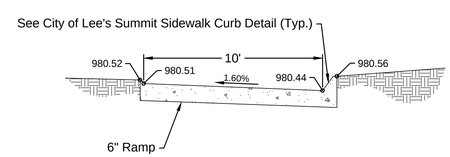
ADA Sidewalk North
Section D-D
NTS



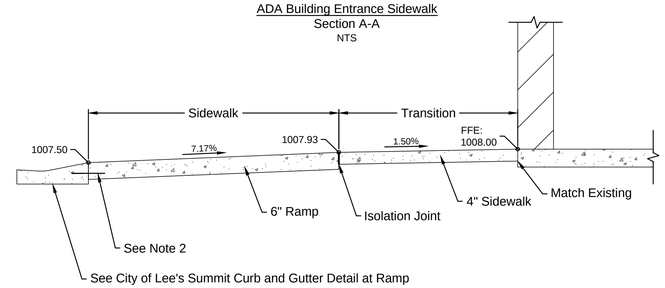
ADA Building Entrance Sidewalk
Section A-A
NTS



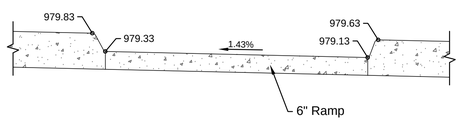
ADA Sidewalk North
Section B-B
NTS



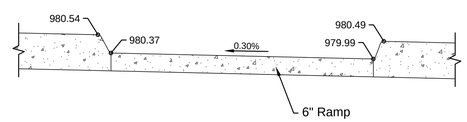
ADA Sidewalk North
Section E-E
NTS



ADA Building Entrance Sidewalk
Section B-B
NTS



ADA Sidewalk North
Section C-C
NTS



ADA Sidewalk North
Section F-F
NTS

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Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

ADA Details 2

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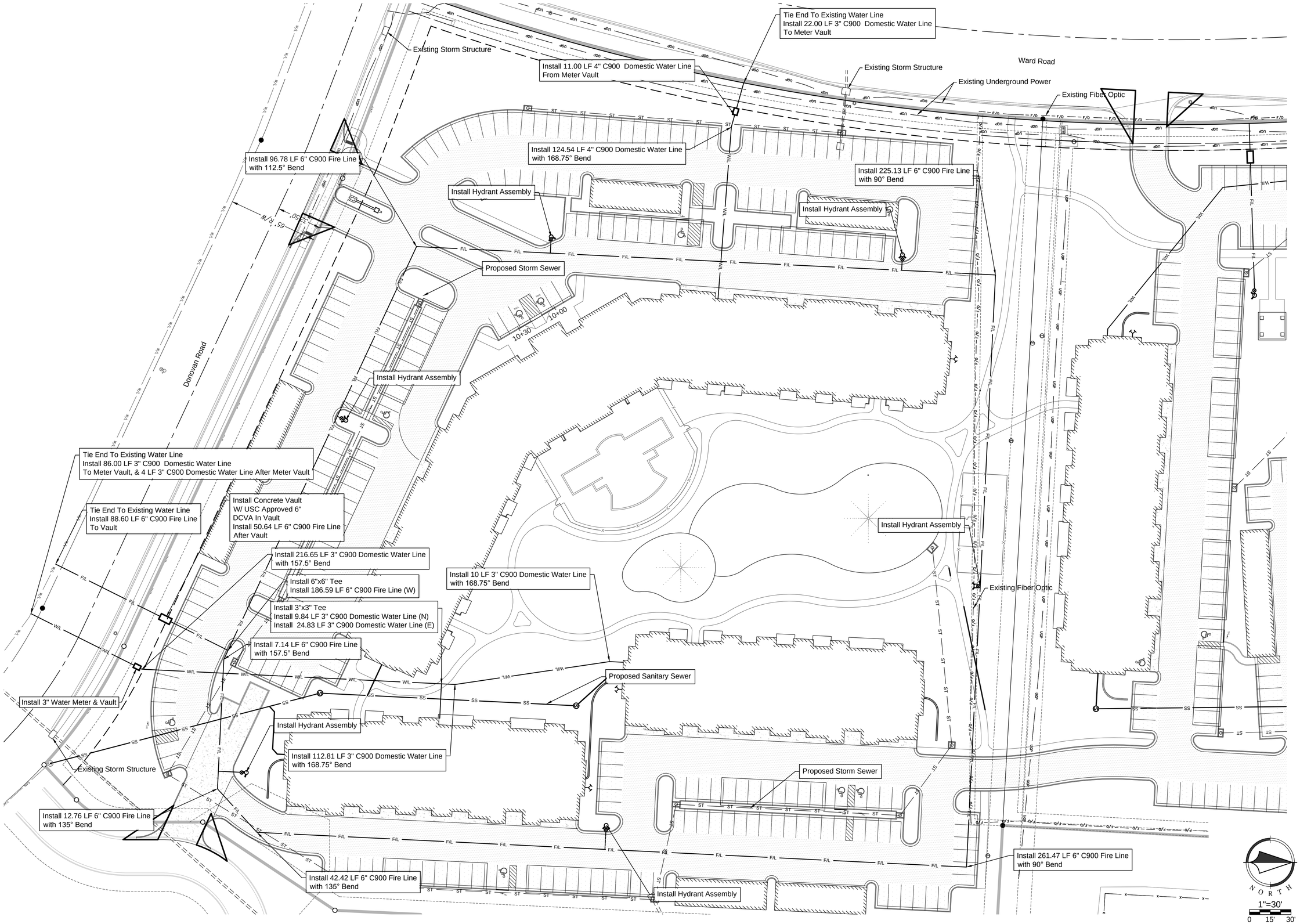
PROFESSIONAL ENGINEER
5-14-18
MITCHELL E. SLUTTER PE-2002003418



Sheet
C15

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Utility Plan 1

NO.	BY	DATE	REVISION
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PROFESSIONAL ENGINEER
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Connect To Existing Water Line
Install 24 LF 6" C900 Fire Line To Vault

Existing Fiber Optic

Existing Underground Power

Tie End To Existing Water Line
Install 26.00 LF 3" C900 Domestic Water Line
To Meter Vault

Install Concrete Vault
W/ USC Approved 6"
DCVA In Vault
Install 96.00 LF 6" C900 Fire Line
& Hydrant Assembly After Vault

Install 3" Water Meter & Concrete Vault
Install 14.23 LF 3" C900 Domestic Water Line

Install 3"x3" Tee
Install 138.07 LF 3" C900 Domestic Water Line (S)
Install 81.25 LF 3" C900 Domestic Water Line (E)

Install 131.74 LF 3" C900 Domestic Water Line
and 135° Bend

Proposed Storm Sewer

Proposed Hydrant

Install 4.94 LF 3" C900 Domestic Water Line
and 146.25° Bend

Proposed Sanitary Sewer

Ward Road

Tudor Road

NORTH

1"=20'

0 10' 20'

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Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Utility Plan 2

NO.	BY	CD	DATE	REVISION
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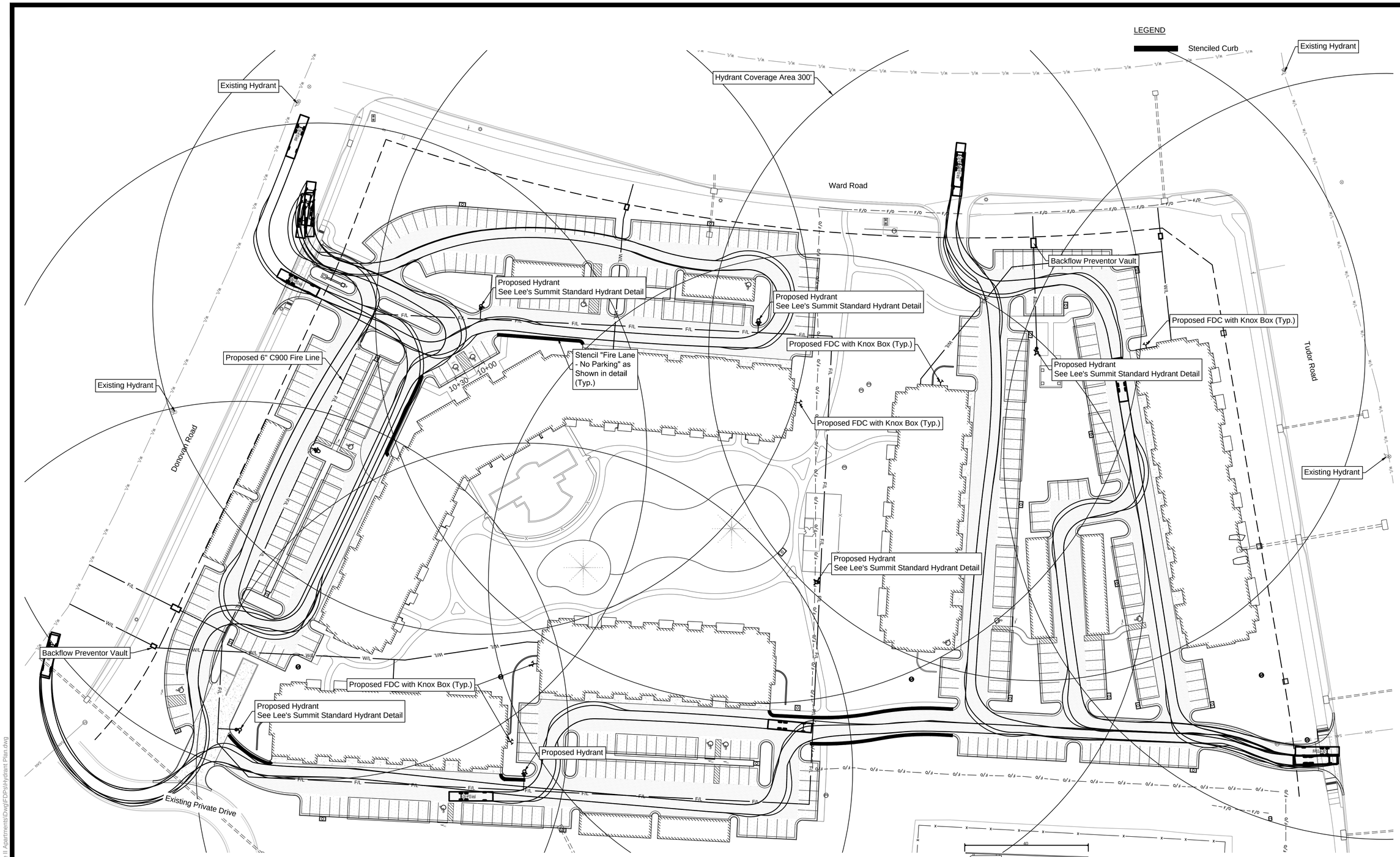
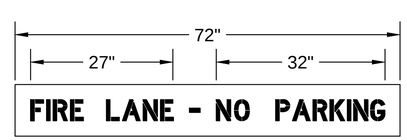


NOTE:

See the Water Impact Statement, dated April 13, 2018, included in the original submittal for fire flow calculations and test results.

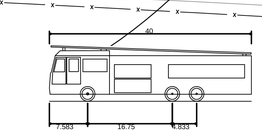
FIRE LANE DESIGNATION

1. Paint curb "Yellow".
2. Provide "NO PARKING FIRE LANE" stenciled on face of curb with "Black" paint every 20'.



FIRE LANE - NO PARKING STENCIL DETAIL

NOT TO SCALE



E-ONE HP100 Aerial

Overall Length	40.000ft
Overall Width	8.333ft
Overall Body Height	11.000ft
Min Body Ground Clearance	1.393ft
Track Width	8.333ft
Lock-to-lock time	6.00s
Max Wheel Angle	45.00°

NORTH

1"=40'

0 20' 40'

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Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Fire Protection Plan

NO.	BY	DATE	REVISION
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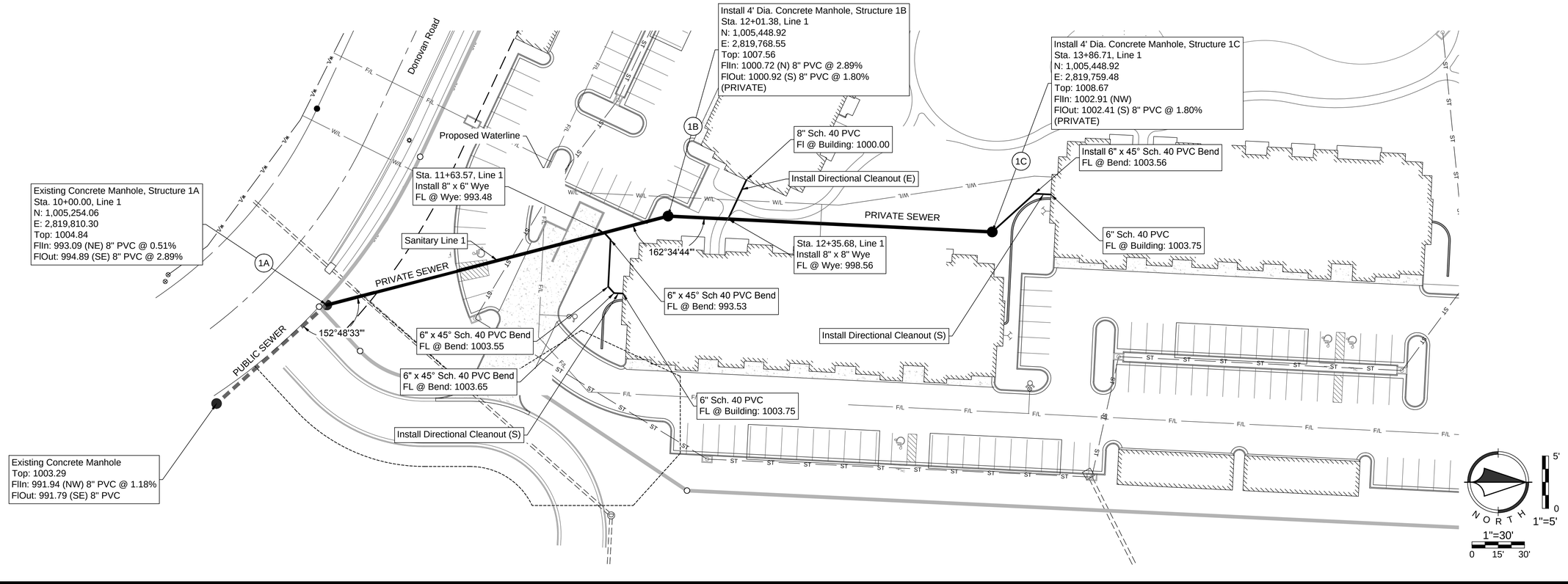
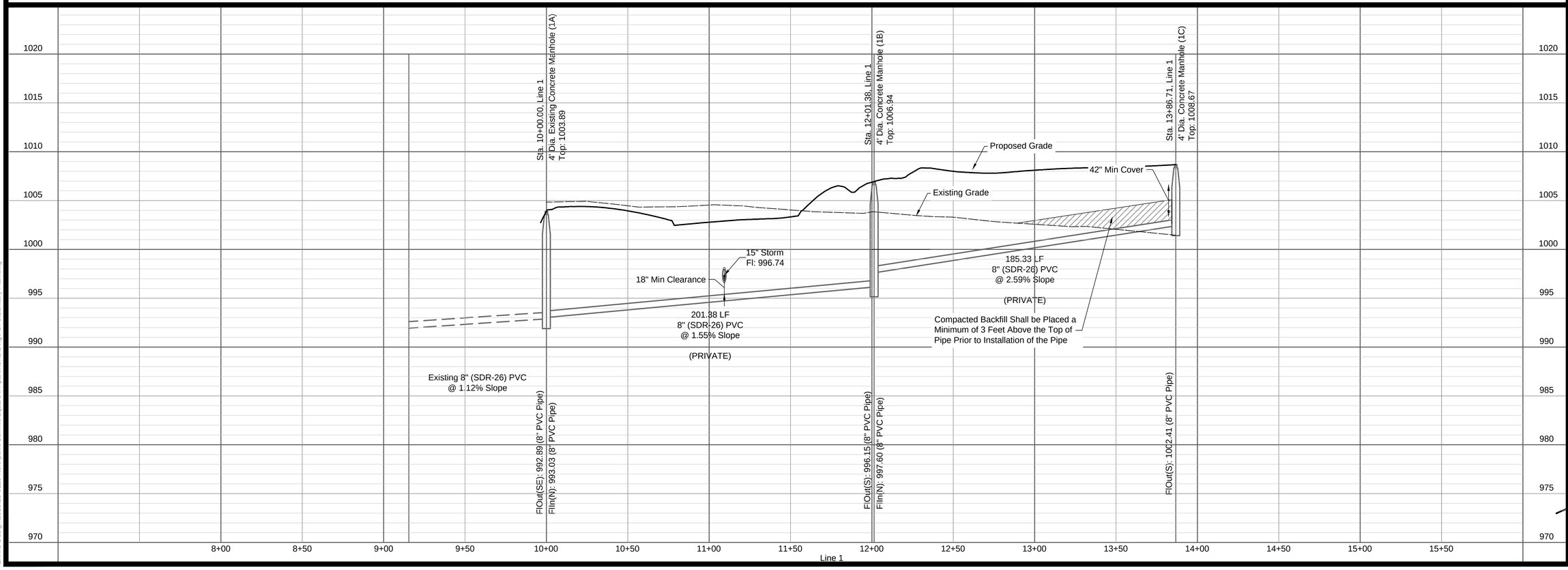
C18





Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Sanitary Plan and Profile

Line 1

NO.	BY	DATE	REVISION
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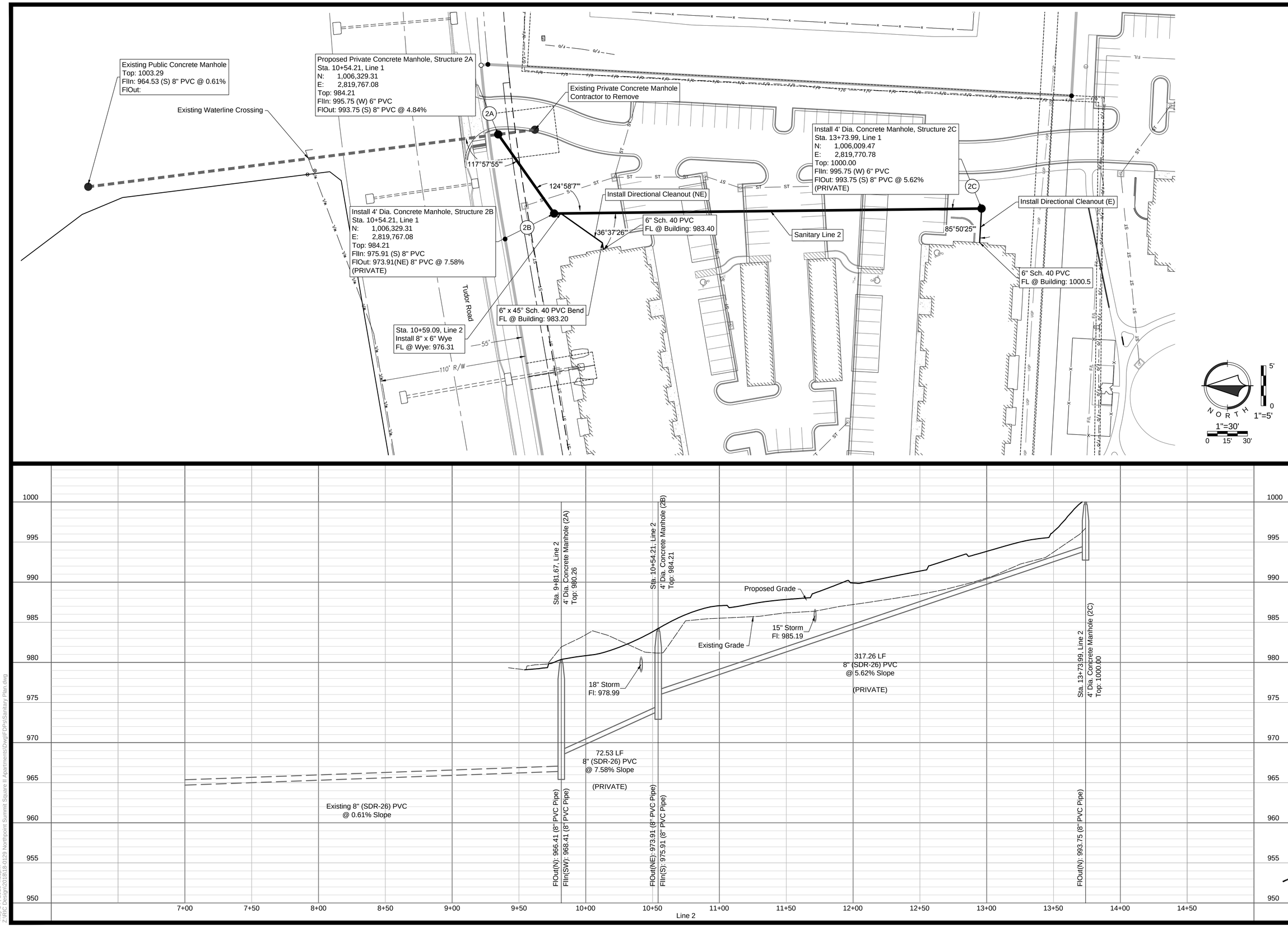

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Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Sanitary Plan and Profile

Line 2

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GRADING LEGEND:

- Existing Major Contour
- Existing Minor Contour
- Proposed Major Contour
- Proposed Minor Contour

LEGEND:

XX / XX — Drainage Area to Structure / Structure Description

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Final Development Plans

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Summit Square II
Lee's Summit, Jackson County, Missouri

Drainage Area Map

NO.	BY	DATE	REVISION
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5/14/18
MITCHELL E. SLUTTER PE-2002003418

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	Overland Flow										System Flow					Pipe Design													Structure Design									
Line	Point	Trib. Area (Ac.)	"C" Value	Design Storm	"K" Value	Time of Conc. (min.)	Intensity i (in./hr.)	Trib Runoff (cfs)	Bypass flow (cfs)	Total Runoff (cfs)	Total Area (Ac.)	Total (K*A*C)	Time of Conc. (min.)	Intensity i (in./hr.)	System Discharge (cfs)	U/S Node	D/S Node	Pipe Type	Pipe Shape	Pipe Diameter (in.)	Pipe Length (ft.)	Mannings "n" value	Pipe Slope (%)	Design Flow (cfs)	Pipe Capacity (cfs)	Full Flow Velocity (fps)	Design Flow Velocity (fps)	Depth of Flow (in.)	Flow Time (min.)	U/S Invert El.	U/S Crown El.	D/S Invert El.	D/S Crown El.	U/S Depth of Cover (ft.)	D/S Depth of Cover (ft.)	Headwater Inlet Elev. (EGL)	Headwater Outlet Elev. (EGL)	Inlet/Outlet Control	Top Elevation
	A3	1.010	0.67	10	1	5.00	7.35	4.94	0.00	4.94	1.010	0.67	5.00	7.35	4.94	A3	A2	HDPE	Round	15	160.80	0.012	1.00	4.94	6.98	5.68	6.16	9.3	0.43	999.51	1000.76	997.90	999.15	1.50	7.15	1000.42	999.26	I	1002.26
				100	1.25		10.32	8.67	0.00	8.67		0.84		10.32	8.67									8.67			5.68	15.0	0.47										
A	A2	0.492	0.85	10	1	5.00	7.35	3.09	0.00	3.09	1.502	1.09	5.47	7.21	7.87	A2	XA1	HDPE	Round	15	29.86	0.012	7.37	7.87	18.92	15.42	14.56	6.6	0.03	995.00	996.25	992.80	994.05	10.05	4.65	995.77	996.64	O	1006.30
				100	1.25		10.32	5.08	0.00	5.08		1.33		10.13	13.50									13.50			16.71	9.3	0.03										
Existing Inlet	XA1																																						998.70
	B7	0.304	0.76	10	1	5.00	7.35	1.70	0.00	1.70	0.304	0.23	5.00	7.35	1.70	B7	B6	RCP	Round	15	238.00	0.013	0.76	1.70	5.60	4.56	3.96	5.6	1.00	1003.30	1004.55	1001.50	1002.75	1.75	2.88	1003.81	1002.21	I	1006.30
				100	1.25		10.32	2.99	0.00	2.99		0.29		10.32	2.99									2.99			4.60	7.7	0.86										
	B6	0.595	0.75	10	1	5.00	7.35	3.27	0.00	3.27	0.898	0.68	6.00	7.06	4.78	B6	B5	RCP	Round	15	55.21	0.013	2.72	4.78	10.61	8.64	8.41	7.1	0.11	1001.00	1002.25	999.50	1000.75	3.38	3.65	1001.72	1001.19	I	1005.63
				100	1.25		10.32	5.75	0.00	5.75		0.85		9.92	8.39									8.39			9.58	10.1	0.10										
	B5	0.091	0.731	10	1	5.00	7.35	0.49	0.00	0.49	0.990	0.74	6.11	7.02	5.22	B5	B4	RCP	Round	15	94.18	0.013	4.51	5.22	13.67	11.14	10.29	6.3	0.15	999.00	1000.25	994.75	996.00	4.15	6.54	999.67	996.92	I	1004.40
				100	1.25		10.32	0.86	0.00	0.86		0.93		9.88	9.18									9.18			11.88	8.9	0.13										
	B4	0.322	0.59	10	1	5.00	7.35	1.39	0.00	1.39	1.312	0.93	6.26	6.98	6.51	B4	B3	RCP	Round	24	154.95	0.013	0.28	6.51	12.00	3.82	3.88	12.5	0.67	994.25	996.25	993.81	995.81	6.29	2.19	995.32	995.08	I	1002.54
				100	1.25		10.32	2.44	0.00	2.44		1.17		9.82	11.45									11.45			4.35	18.7	0.59										
	B3	0.464	0.68	10	1	5.00	7.35	2.31	0.00	2.31	1.776	1.25	6.93	6.80	8.48	B3	B2	RCP	Round	24	219.89	0.013	0.52	8.48	16.32	5.20	5.24	12.2	0.70	993.31	995.31	992.16	994.16	2.69	3.88	994.37	993.61	I	998.00
				100	1.25		10.32	4.05	0.00	4.05		1.56		9.58	14.92									14.92			5.89	18.0	0.62										
Add Line C	B2	0.308	0.79	10	1	5.00	7.35	1.80	0.00	1.80	2.785	2.06	7.63	6.62	13.64	B2	XB1	HDPE	Round	24	123.00	0.012	1.39	13.64	28.83	9.18	9.02	11.5	0.23	992.66	994.66	990.95	992.95	3.38	-2.80	993.68	993.17	I	998.04
				100	1.25		10.32	3.16	0.00	3.16		2.55		9.33	23.83									23.83			10.24	16.6	0.20										
Existing Inlet	XB1																																						990.15
	C4	SEE POND PLAN CALCULATIONS													11.52	C4	C3	HDPE	Round	15	143.21	0.012	5.08	11.52	15.71	12.80	13.94	9.5	0.17	1002.50	1003.75	995.23	996.48	1.25	5.51	1003.56	999.04	I	1005.00
															16.87									16.87			14.27	13.8	0.17										
	C3	0.000	0.00	10	1	5.00	7.35	0.00	0.00	0.00	0.000	0.00	5.17	7.30	11.52	C3	C2	HDPE	Round	21	62.97	0.012	0.97	11.52	16.87	7.01	7.52	12.6	0.14	994.73	996.48	994.12	995.87	5.51	2.48	995.85	996.05	O	1001.99
				100	1.25		10.32	0.00	0.00	0.00		0.00		10.25	16.87									16.87			8.00	17.0	0.13										
	C2	0.447	0.78	10	1	5.00	7.35	2.56	0.00	2.56	0.447	0.35	5.31	7.26	14.05	C2	C1	HDPE	Round	24	162.00	0.012	0.85	14.05	22.50	7.16	7.54	13.7	0.36	993.62	995.62	992.25	994.25	2.73	4.10	994.81	994.27	I	998.35
				100	1.25		10.32	4.50	0.00	4.50		0.44		10.19	21.31									21.31			8.14	18.5	0.33										
	C1	0.254	0.87	10	1	5.00	7.35	1.62	0.00	1.62	0.701	0.57	5.67	7.15	15.59	C1	B2	RCP	Round	24	70.53	0.013	1.13	15.59	24.00	7.64	8.10	13.9	0.15	991.75	993.75	990.95	992.95	4.60	5.09	992.97	993.13	O	998.35
				100	1.25		10.32	2.62	0.00	2.62		0.69		10.05	23.80									23.80			8.71	19.4	0.13										
Line B	B2																																						998.04
																														995.16		993.79							
	D7	0.238	0.81	10	1	5.00	7.35	1.42	0.00	1.42	0.238	0.19	5.00	7.35	1.42	D7	D6	HDPE	Round	15	90.43	0.012	3.32	1.42	12.70	10.35	6.73	3.3	0.22	989.50	990.75	986.50	987.75	2.35	1.79	989.81	987.48	I	993.10
				100	1.25		10.32	2.45	0.00	2.45		0.24		10.32	2.45									2.45			7.88	4.4	0.19										
	D6	0.216	0.76	10	1	5.00	7.35	1.20	0.00	1.20	0.454	0.36	5.22	7.28	2.60	D6	D5	HDPE	Round	15	27.89	0.012	4.30	2.60	14.46	11.78	8.80	4.2	0.05	986.30	987.55	985.10	986.35	1.99	1.88	986.72	986.65	I	989.54
				100	1.25		10.32	2.11	0.00	2.11		0.44		10.23	4.52									4.52			10.36	5.7	0.04										
Add Line E	D5	0.000	0.00	10	1	5.00	7.35	0.00	0.00	0.00	0.820	0.65	5.56	7.19	4.69	D5	D4	HDPE	Round	15	64.90	0.012	4.08	4.69	14.09	11.48	10.23	5.9	0.11	984.90	986.15	982.25	983.50	2.08	2.35	985.52	984.36	I	988.23
				100	1.25		10.32	0.00	0.00	0.00		0.81		10.10	8.16									8.16			11.85	8.1	0.09										
Add Line F	D4	0.166	0.73	10	1	5.00	7.35	0.89	0.00	0.89	5.133	4.38	5.66	7.15	31.36	D4	D3	HDPE	Round	18	73.22	0.012	4.03	31.36	22.77	12.88	12.88	18.0	0.09	981.30	982.80	978.35	979.85	3.05	1.84	983.20	982.43	I	985.85
				100	1.25		10.32	1.57	0.00	1.57		5.11		10.05	51.36									51.36			12.88	18.0	0.09										
	D3	0.000	0.00	10	1	5.00	7.35	0.00	0.00	0.00	5.133	4.38	5.76	7.13	31.24	D3	D2	HDPE	Round	24	125.85	0.012	2.46	31.24	38.38	12.22	13.59	16.3	0.15	978.10	980.10	975.00	977.00	1.59	8.04	979.59	979.23	I	981.69
				100	1.25		10.32	0.00	0.00	0.00		5.11		10.02	51.17									51.17			12.22	24.0	0.17										
Add Line G	D2	0.000	0.00	10	1	5.00	7.35	0.00	0.00	0.00	6.862	5.61	6.99	6.79	38.10	D2	XD1	RCP	Round	24	36.52	0.013	3.09	38.10	39.70	12.64	14.38	18.7	0.04	974.50	976.50	973.37	975.37	8.54	2.60	976.21	978.14	O	985.04
				100	1.25		10.32	0.00	0.00	0.00		6.58		9.56	62.87									62.87			12.64	24.0	0.05										
Existing Inlet	XD1																																						977.97
	E1	0.366	0.81	10	1	5.00	7.35	2.17	0.00	2.17	0.366	0.30	5.00	7.35	2.17	E1	D5	HDPE	Round	15	113.38	0.012	0.35	2.17	4.14	3.37	3.40	7.7	0.56	985.50	986.75	985.10	986.35	1.76	1.88	986.20	985.92	I	988.51
				100	1.25		10.32	3.78	0.00	3.78		0.37		10.32	3.78									3.78			3.82	11.3	0.49										
	D5																																						988.23
	F1	4.148	0.87	10	1	5.00	7.35	26.54	0.00	26.54	4.148	3.61	5.00	7.35	26.54	F1	D4	HDPE	Round	18	61.06	0.012	1.64	26.54	14.52	8.21	8.21	18.0	0.12	982.50	984.00	981.50	983.00	1.29	2.85	984.33	984.05	I	985.29
				100	1.25		10.32	42.82	0.00	42.82		4.15		10.32	42.82									42.82			8.21	18.0	0.12										
	D4																																						985.85
	G5	0.485	0.90	10	1	5.00	7.35	3.21	0.00	3.21	0.485	0.44	5.12	7.31	3.19	G5	G4	HDPE	Round	15	90.73	0.012	6.89	3.19	18.30	14.91	11.14	4.2	0.14	991.25	992.50	985.00	986.25	1.25	1.96	991.68	987.28	I	993.75
				100	1.25		10.32	5.01	0.00	5.01		0.48		10.27	4.98									4.98			12.57	5.3	0.12										
	G4	0.502	0.70	10	1	5.00	7.35	2.58	0.00	2.58	0.986	0.79	5.26	7.27	5.72	G4	G3	HDPE	Round	15	120.32	0.012	0.66	5.72	5.68	4.63	5.28	12.3	0.38	984.80	986.05	984.00	985.25	2.16	4.48	985.98	985.46	I	988.21
				100	1.25		10.32	4.52	0.00	4.52		0.92		10.22	9.43									9.43			4.63	15.0	0.43										
Add Line H	G3	0.000	0.00	10	1	5.00	7.35	0.00	0.00	0.00	1.061	0.85	5.69	7.15	6.09	G3	G2	HDPE	Round	15	69.95	0.012	0.93	6.09	6.72	5.48	6.19	11.1	0.19	983.80	985.05	983.15	984.40	4.68	2.85	984.89	984.67	I	989.73
				100	1.25		10.32	0.00	0.00	0.00		1.00		10.04	10.02									10.02			5.48	15.0	0.21										
	G2	0.667	0.57	10	1	5.00	7.35	2.78	0.00	2.78	1.728	1.23	5.91	7.08	8.72	G2	G1	HDPE	Round	18	100.44	0.012	0.90	8.72	10.74	6.08	6.76	12.2	0.25	982.90	984.40	982.00	983.50	2.85	1.81	984.03	983.73	I	987.25
				100	1.25		10.32	4.88	0.00	4.88		1.47		9.96	14.65									14.65			6.08	18.0	0.28										
	G1	0.000	0.00	10	1	5.00	7.35	0.00	0.00	0.00	1.728	1.23	6.18	7.01	8.63	G1	D2	HDPE	Round	18	197.61	0.012	0.40	8.63	7.22	4.08	4.08	18.0	0.81	981.80	983.30	981.00	982.50	2.01	2.54	983.41	982.76	I	985.31
				100	1.25		10.32	0.00	0.00	0.00		1.47		9.85	14.50									14.50			4.08	18.0	0.81										
	D2																																						985.04
	H1	0.075	0.88	10	1	5.00	7.35	0.48	0.00	0.48	0.075	0.07	5.00	7.35	0.48	H1	G3	HDPE	Round	15	41.97	0.012	4.77	0.48	15.22	12.40	5.58	1.8	0.13	986.00	987.25	984.00	985.25	4.55	4.48	986.16	984.63	I	991.80
				100	1.25		10.32	0.77	0.00	0.77		0.07		10.32	0.77									0.77			6.41	2.3	0.11										
	G3																																						989.73

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Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Drainage Calculations

NO.	BY	DATE	REVISION
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1	APT	MES	04/23/18	ORIGINAL SUBMITTAL

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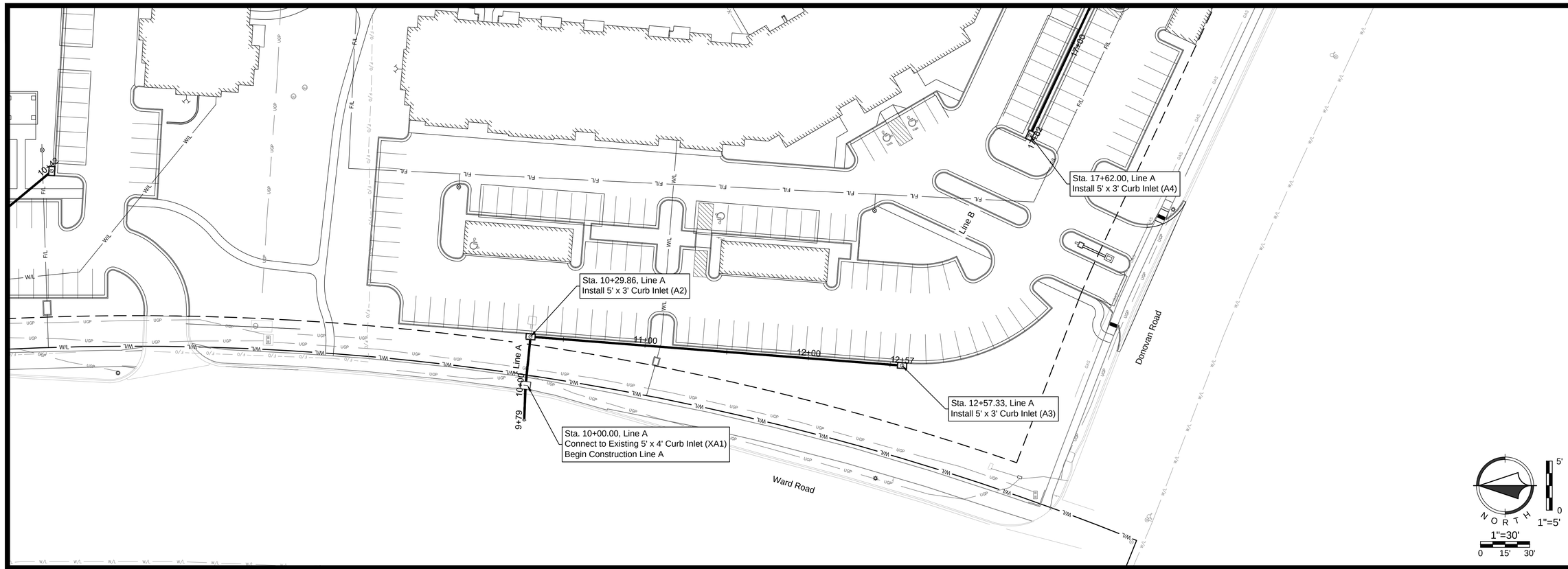
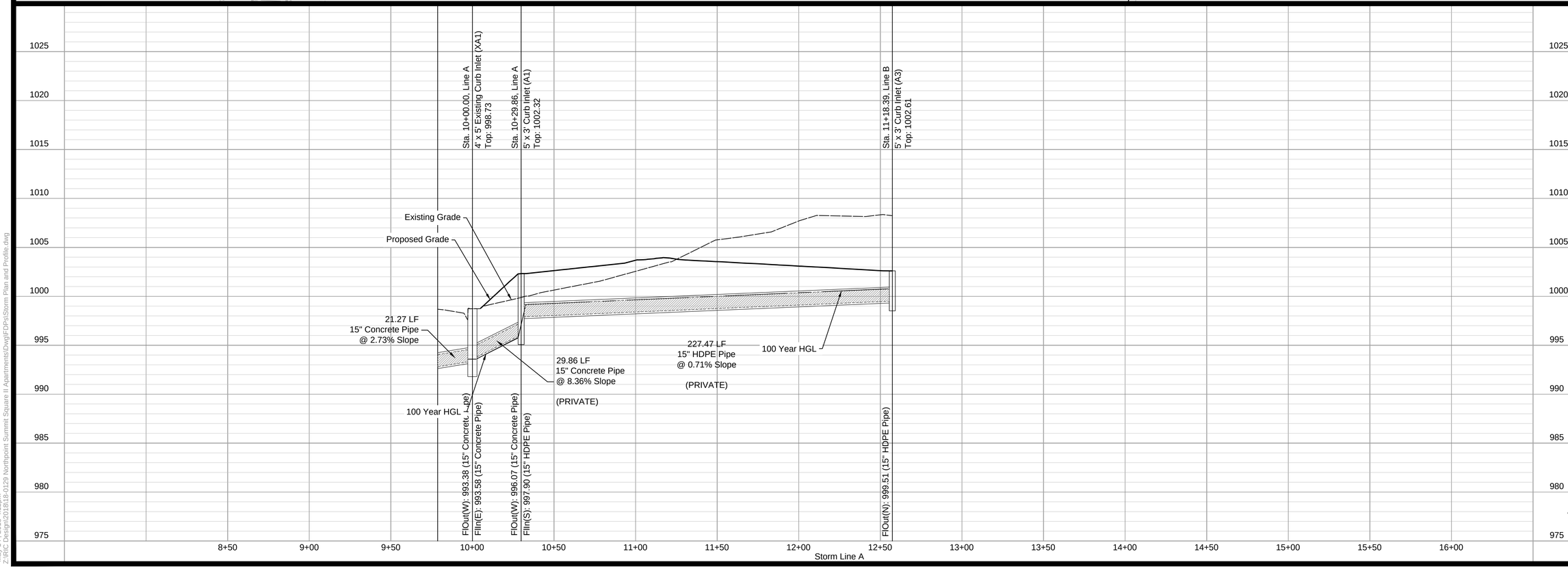
STATE OF MISSOURI
MITCHELL SLUTTER
NUMBER
PE-2002003418
PROFESSIONAL ENGINEER
5/14/18
MITCHELL E. SLUTTER PE-2002003418

Missouri Certificate of Authority No. 2010033630





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C22

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Storm Plan and Profile

Line A

NO.	BY	DATE	REVISION
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1	APT	MES	04/13/18	ORIGINAL SUBMITTAL

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STATE OF MISSOURI
MITCHELL E. SLUTTER
NUMBER
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PROFESSIONAL ENGINEER
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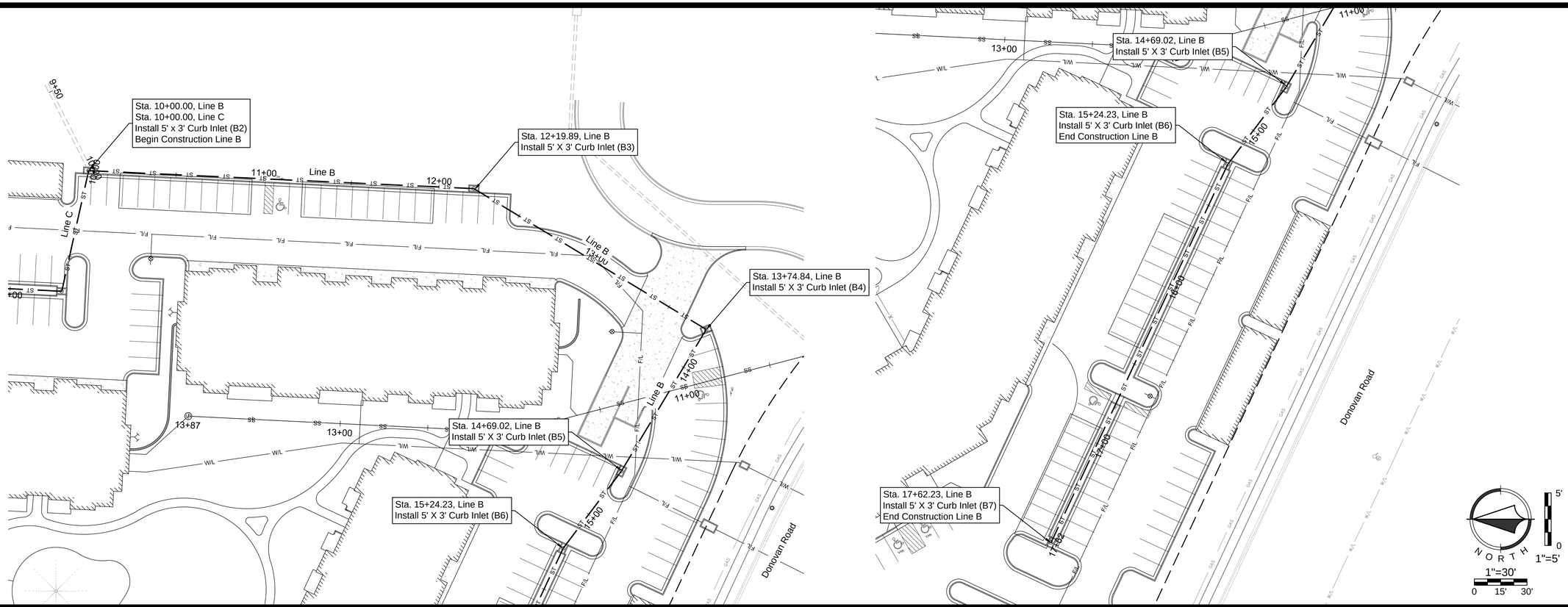
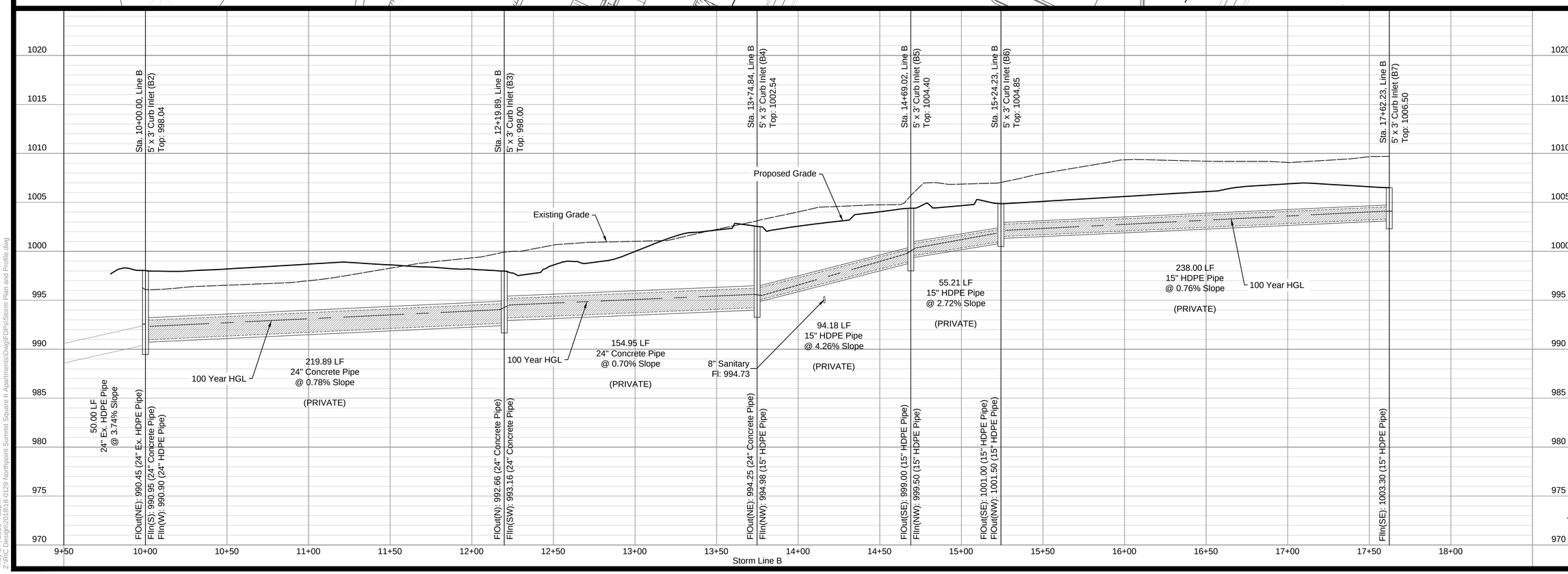
MITCHELL E. SLUTTER PE-2002003418





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C23

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Storm Plan and Profile

Line B

NO.	BY	CD	DATE	REVISION
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1	APT	MES	04/13/18	ORIGINAL SUBMITTAL

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STATE OF MISSOURI
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PROFESSIONAL ENGINEER
05/14/18
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Missouri Certificate of Authority No. 2000033630

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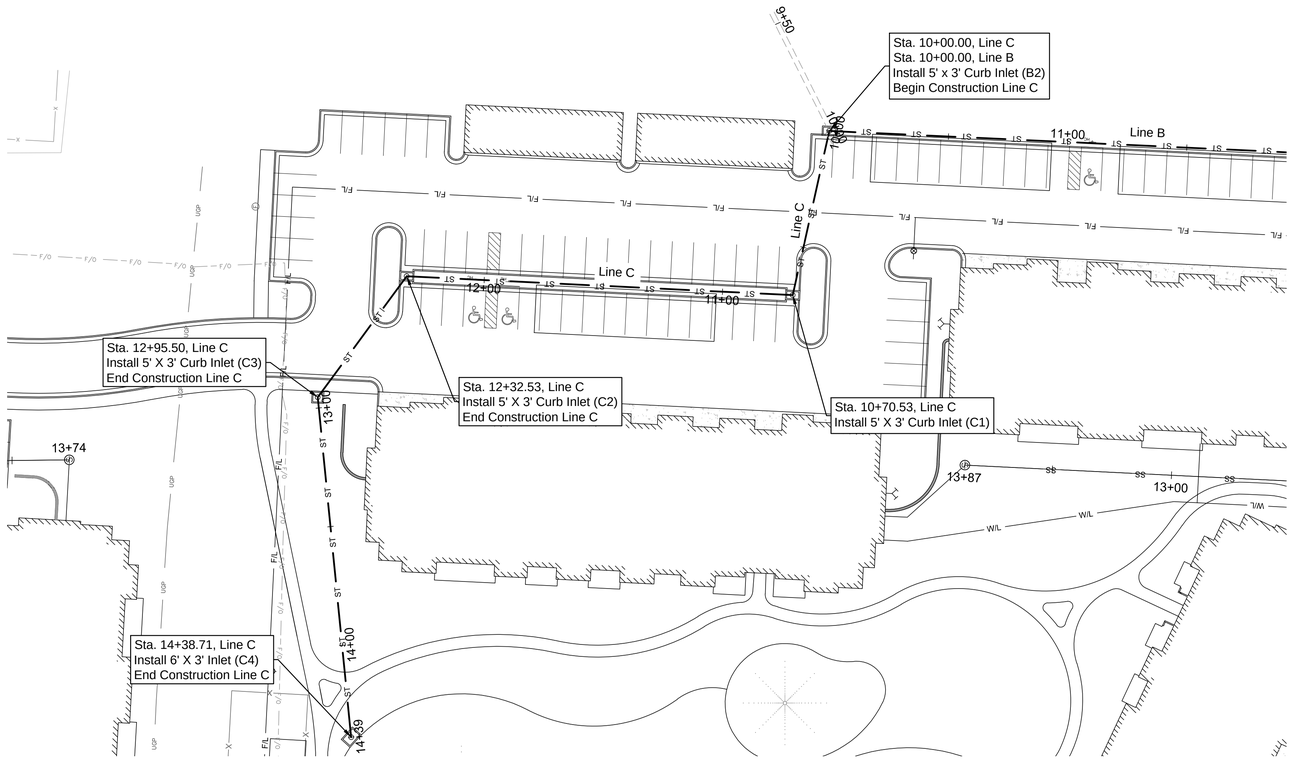

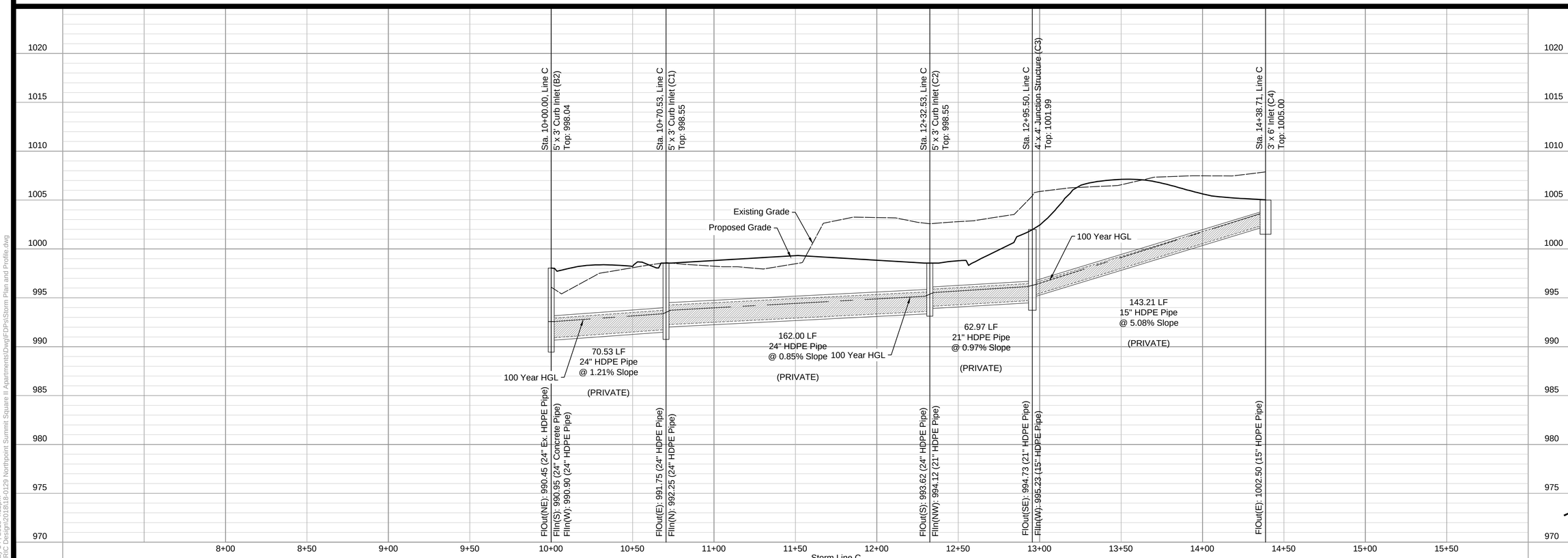

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C24

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Storm Plan and Profile

Line C

NO.	BY	CD	DATE	REVISION
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/13/18	ORIGINAL SUBMITTAL

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STATE OF MISSOURI
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NUMBER PE-2002003418
PROFESSIONAL ENGINEER
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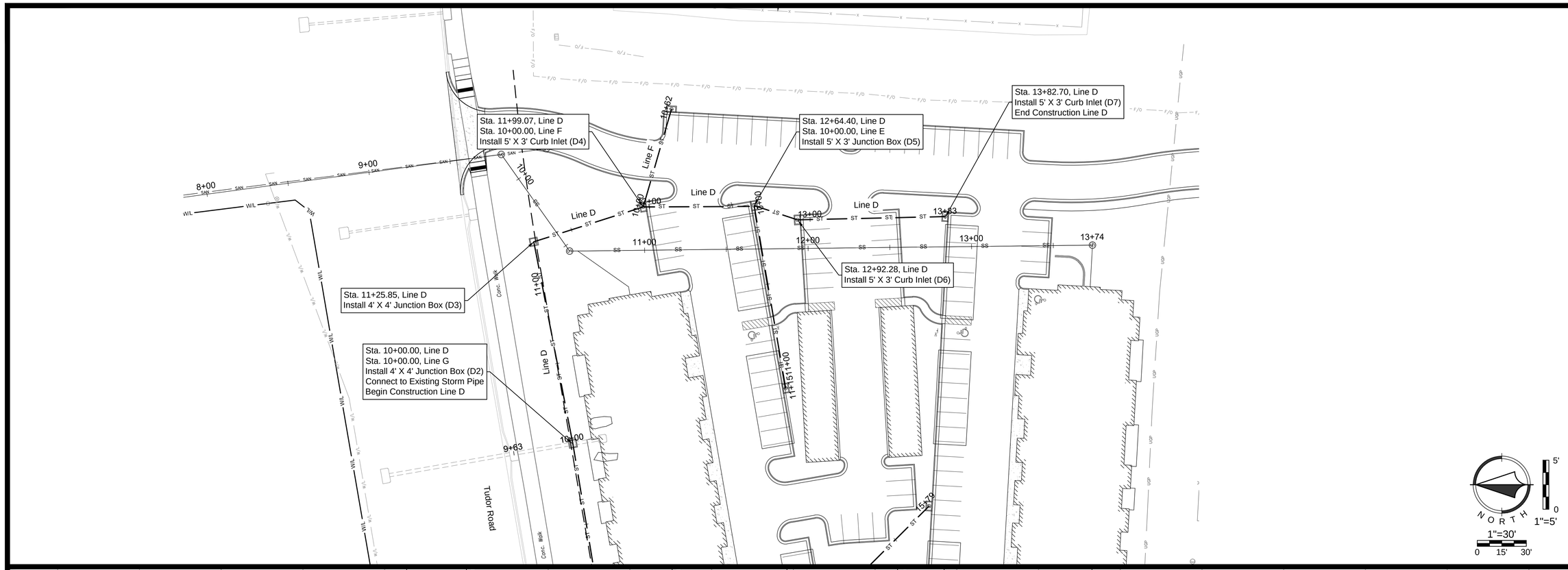
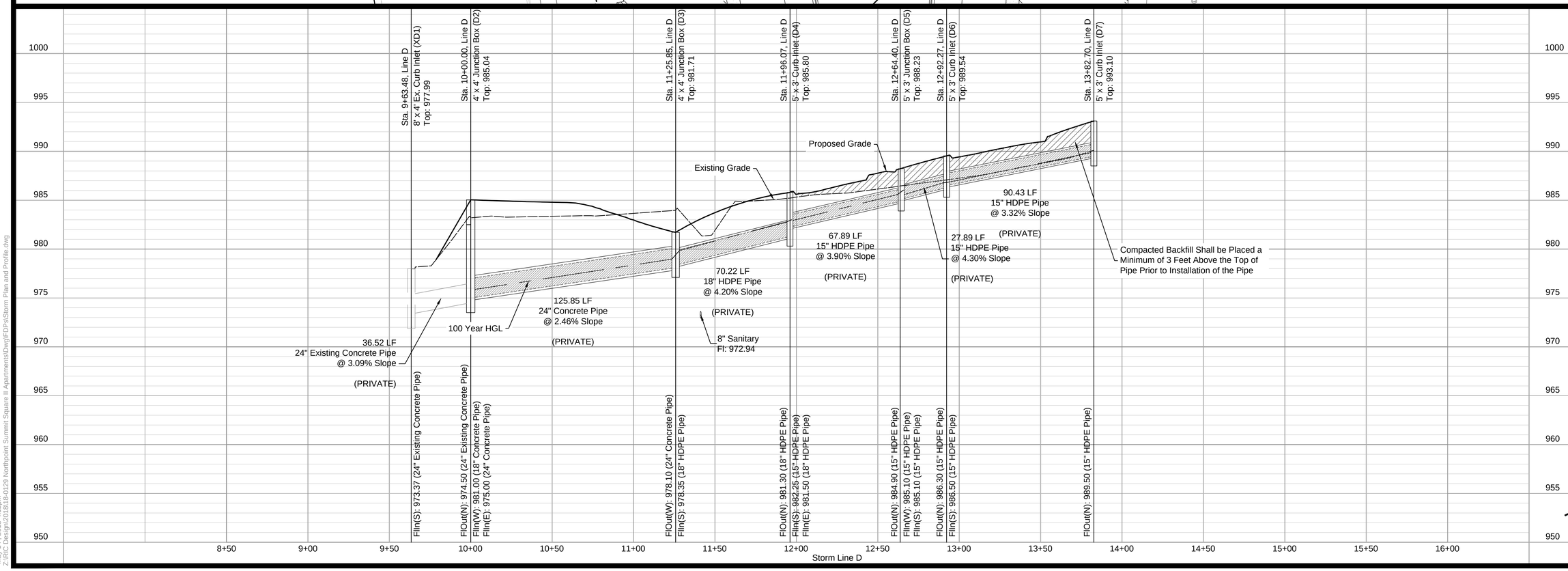
MITCHELL E. SLUTTER PE-2002003418





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C25

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Storm Plan and Profile

Line D

NO.	BY	CD	DATE	
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/13/18	ORIGINAL SUBMITTAL

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STATE OF MISSOURI
MITCHELL E. SLUTTER
NUMBER PE-2002003418
PROFESSIONAL ENGINEER
5/14/18
MITCHELL E. SLUTTER PE-2002003418

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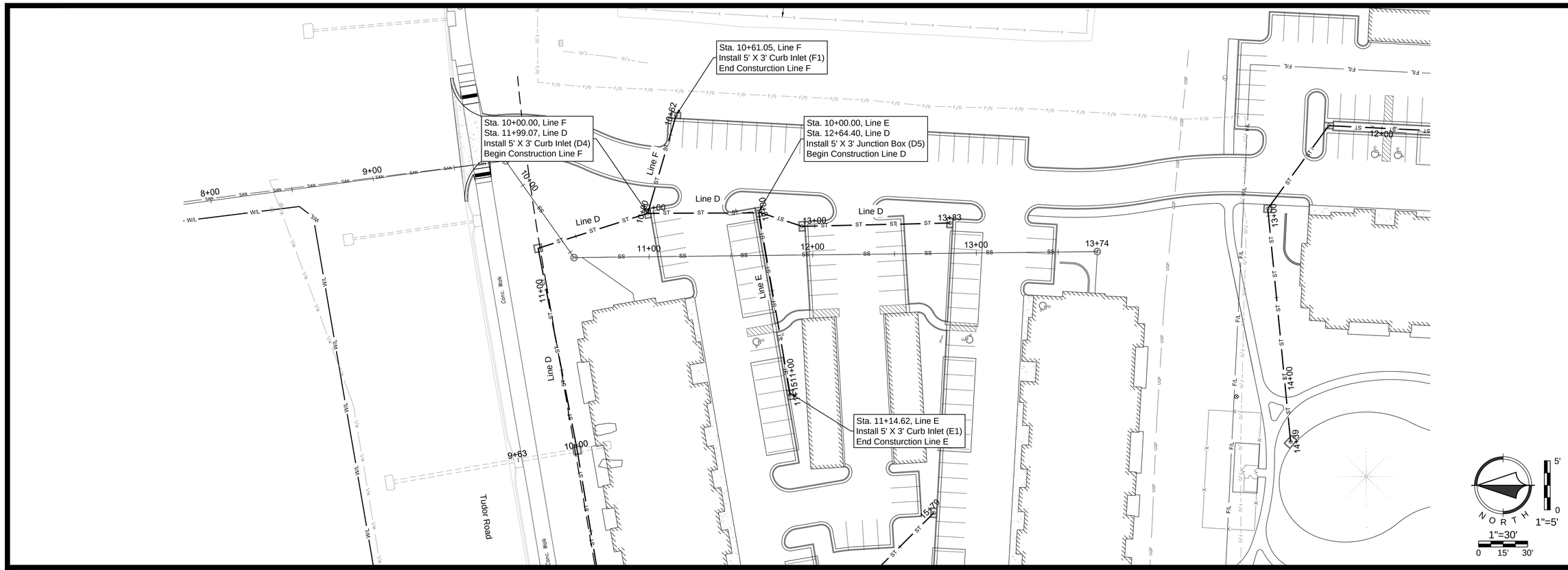

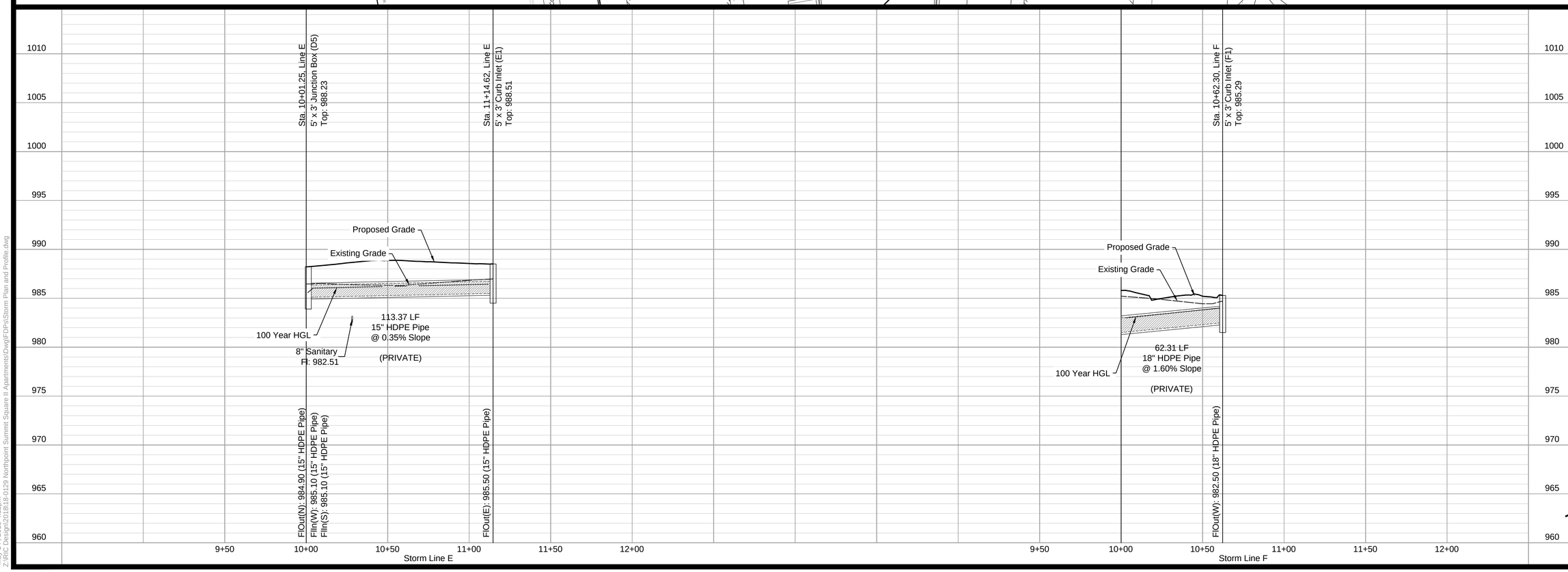

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Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Storm Plan and Profile

Lines E & F

NO.	BY	CD	DATE	REVISION
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/13/18	ORIGINAL SUBMITTAL

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STATE OF MISSOURI
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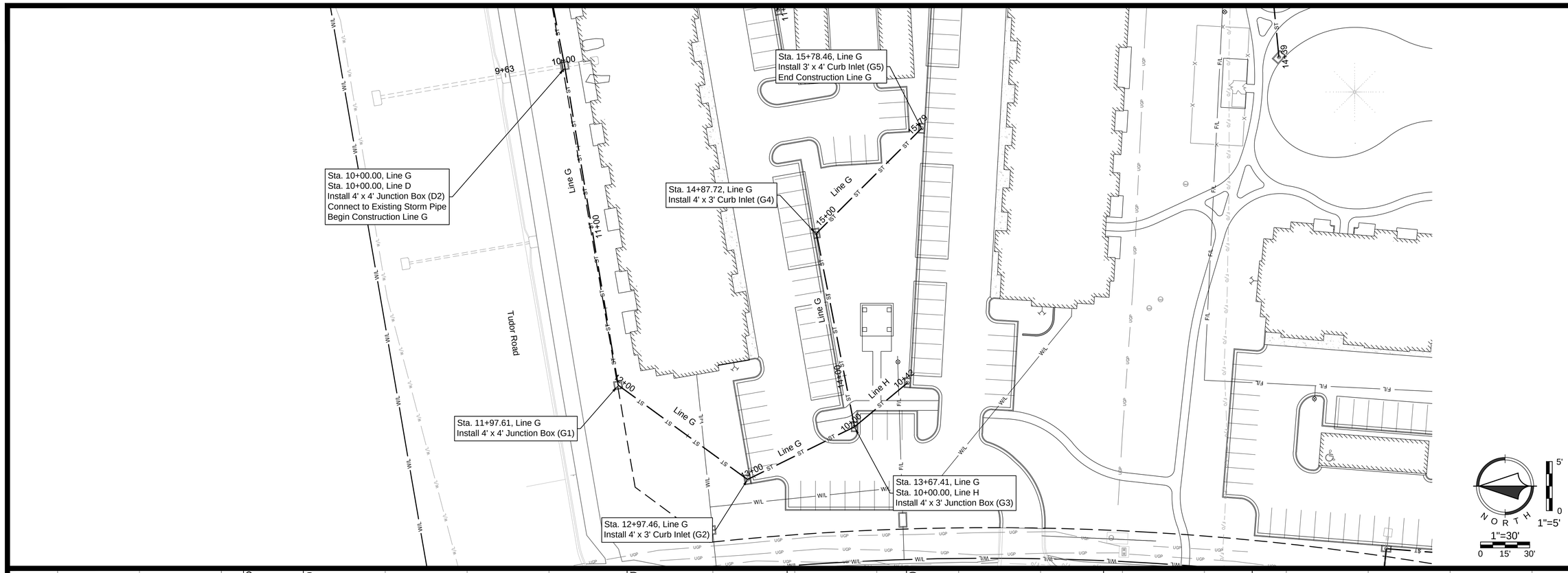
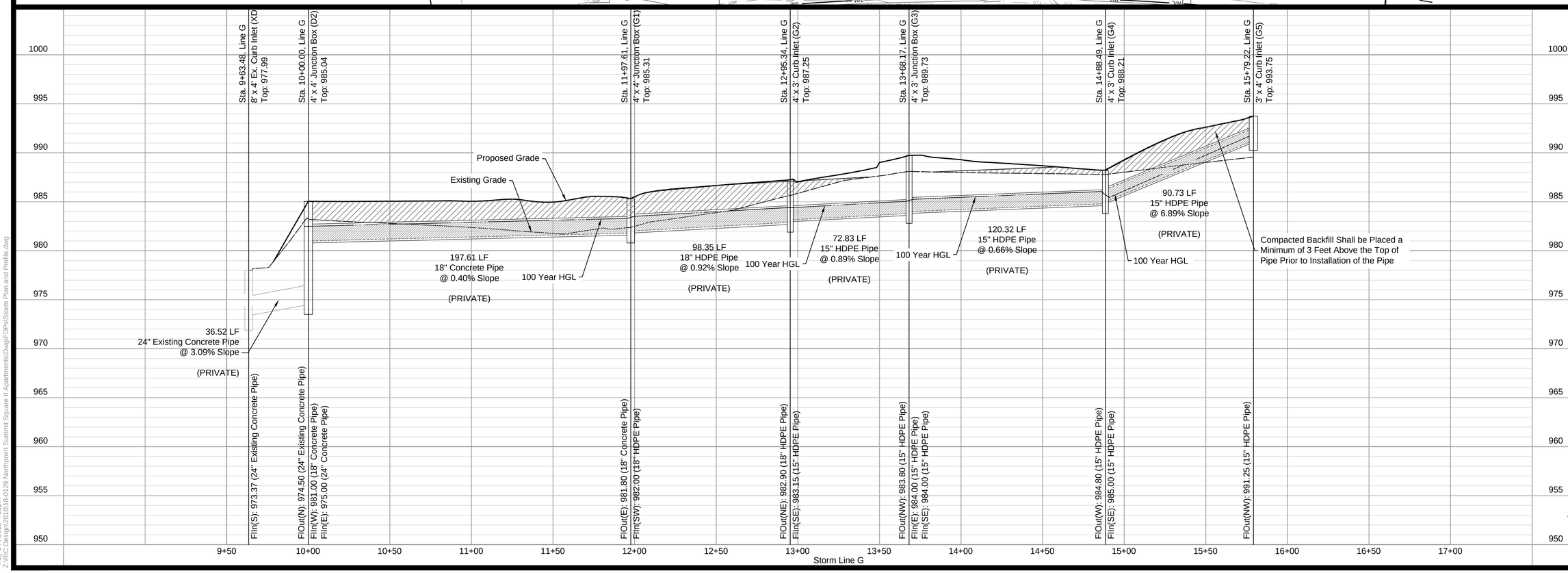
NUMBER PE-2002003418
PROFESSIONAL ENGINEER
5/14/18
MITCHELL E. SLUTTER PE-2002003418





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C27

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Storm Plan and Profile

Line G

NO.	BY	DATE	REVISION
2	APT	MES	05/14/13	PER CITY COMMENTS
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STATE OF MISSOURI
MITCHELL SLUTTER
NUMBER PE-2002003418
PROFESSIONAL ENGINEER
5/14/18
MITCHELL E. SLUTTER PE-2002003418

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Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Storm Plan and Profile

Line H

NO.	BY	DATE	REVISION
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/13/18	ORIGINAL SUBMITTAL

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STATE OF MISSOURI
MITCHELL E. SLUTTER
NUMBER PE-2002003418
PROFESSIONAL ENGINEER
5/14/18
MITCHELL E. SLUTTER PE-2002003418

Pond Design Calculations:

Note: As outlined in the Storm Water Report, the following development is part of a regional detention system. The proposed ponds are not required for detention and are for aesthetics only.

Runoff Calculations:

Area: 1.93 Ac (98 CN) + 1.15 Ac (74 CN) = 3.08 Ac
Tc: 10 Minutes
CN: 89.04

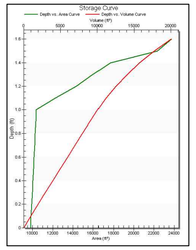
Q_{100} = 25.08 cfs
Q_{10} = 19.15 cfs

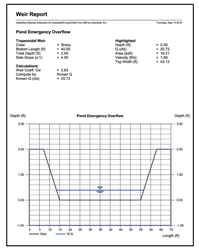
Stage Storage:

100 Year WSE: 1,005.47
10 Year WSE: 1004.84

Emergency Spillway Design:

Weir Length: 40'
Weir Elevation: 1005.60
Side Slopes: 4:1
Flow Depth: 0.39'





Spillway Erosion Protection:

Flow Area: 20.58 sqft
Flow WP: 44.12 ft
R = 0.466 ft
S = 0.005 ft/ft
γ = 62.4 x 0.466 x 0.005 = 0.145 psf
Spillway to be lined with well maintained turf grass. No additional erosion protection required.

Outlet Release Rates:

Q_{100} = 16.87 cfs
Q_{10} = 11.52 cfs

NORTH
1"=30'
0 15' 30'

Sheet
C29

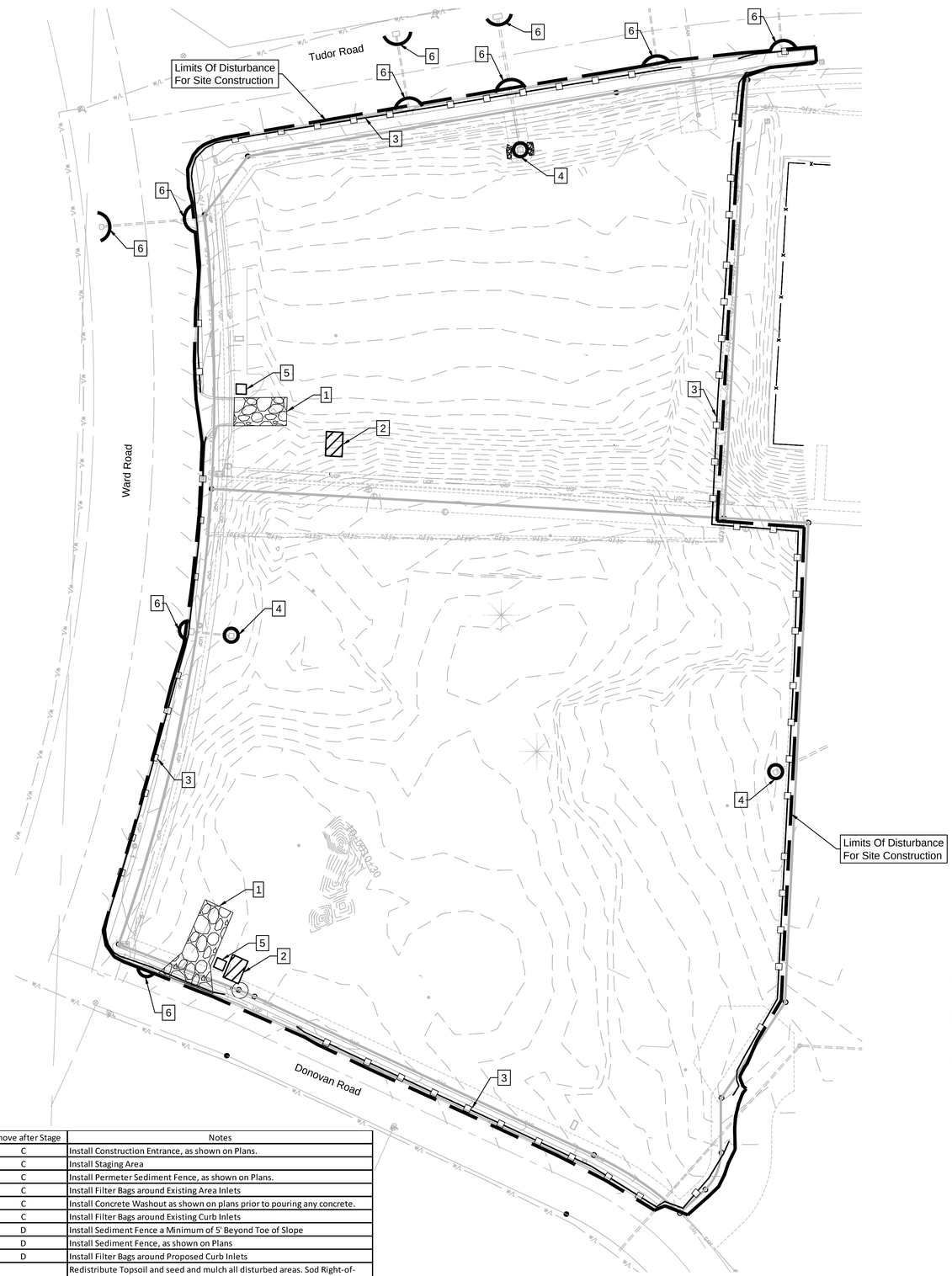
Final Development Plans
18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Pond Plan

NO.	BY	OD	DATE	REVISION
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/13/18	ORIGINAL SUBMITTAL

Renaissance Infrastructure Consulting
132 Abbie Avenue
Kansas City, Kansas 66103
913.317.9500
www.ric-consult.com
Missouri Certificate of Authority No. 2000033630

STATE OF MISSOURI
MITCHELL E. SLUTTER
NUMBER
PE-2002003418
PROFESSIONAL ENGINEER
5-14-18
MITCHELL E. SLUTTER PE-2002003418



WRITTEN SEQUENCING

1. Implement Pre-Clearing Plan:
   All temporary structural BMP's shown on the pre-clearing plan must be in place before the general clearing operations. Clearing necessary to place temporary structural BMP's is the minimum required for installation. Coordinate clearing necessary to place temporary structural BMP's with local weather forecast so that clearing and placement may be completed within a forecast dry period. Stabilize all erosion control measures after installation. Temporary Barrier Fence shall be in Place, around areas not to be disturbed, prior to any construction activities. This area includes Stream Corridor.
2. Clear and Stabilize Work Areas:
   Grade contractor areas and place all-weather surface on contractor areas.
3. Clearing and Grubbing:
   After Phase I BMP's are installed, contractor may clear, grub, and demo required areas as necessary.

EROSION CONTROL NOTES

1. Erosion control plan modifications shall be required if the plan fails to substantially control erosion and offsite sedimentation.
2. The retention of access controls and sediment controls shall be required for areas where seed has not established 70% cover.
3. The contractor shall temporarily seed and mulch all disturbed areas if there has been no construction activity on them for a period of fourteen (14) calendar days.
4. Install "J' Hooks on silt fence every 100 LF

EROSION CONTROL LEGEND	
	Stabilized Construction Entrance
	Staging Area
	Stockpile Area
	Concrete Washout
	Limits of Disturbance
	Perimeter Silt Fence
	Inlet Protection

Disturbed Area for Site Improvements : 13.55 Acres

ESTIMATED EARTHWORK

Cut: 15,882 CY
Fill: 30,674 CY

Earthwork calculations are informational only. Contractor shall be responsible for their own earthwork calculations and perform all necessary earthwork shown herein without additional cost to the owner if quantities differ than above. Earthwork numbers are unadjusted.

	Project Stages	BMP Plan Ref. No.	BMP Desription	Remove after Stage	Notes
Phase I	A-Prior to Land Disturbance	1	Construction Entrance	C	Install Construction Entrance, as shown on Plans.
		2	Staging Area	C	Install Staging Area
		3	Perimeter Sediment Fence	C	Install Permeter Sediment Fence, as shown on Plans.
		4	Area Inlet Protection	C	Install Filter Bags around Existing Area Inlets
		5	Concrete Washout	C	Install Concrete Washout as shown on plans prior to pouring any concrete.
		6	Curb Inlet Protection	C	Install Filter Bags around Existing Curb Inlets
Phase II	B-Site Grading	7	Stockpile Topsoil	D	Install Sediment Fence a Minimum of 5' Beyond Toe of Slope
	C-Site Construction	8	Sediment Fence	D	Install Sediment Fence, as shown on Plans
		9	Curb Inlet Protection	D	Install Filter Bags around Proposed Curb Inlets
Phase III	D-Final Stabilization	10	Establish Perennial Vegetation	N/A	Redistribute Topsoil and seed and mulch all disturbed areas. Sod Right-of-Way. Stabilization complete when 100% disturbed area is established with perennial vegetation with a density of 70%

NORTH
1"=60'
0 30' 60'

Sheet
C30

Final Development Plans
18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Erosion Control Phase 1

NO.	BY	CD	DATE	REVISION
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/19/18	ORIGINAL SUBMITTAL

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Missouri Certificate of Authority No. 2000033630

STATE OF MISSOURI
MITCHELL E. SLUTTER
NUMBER
PE-2002003418
PROFESSIONAL ENGINEER
5/14/18
MITCHELL E. SLUTTER PE-2002003418

WRITTEN SEQUENCING

1. Implement Pre-Clearing Plan:
   All temporary structural BMP's shown on the pre-clearing plan must be in place before the general clearing operations. Clearing necessary to place temporary structural BMP's is the minimum required for installation. Coordinate clearing necessary to place temporary structural BMP's with local weather forecast so that clearing and placement may be completed within a forecast dry period. Stabilize all erosion control measures after installation. Temporary Barrier Fence shall be in Place, around areas not to be disturbed, prior to any construction activities. This area includes Stream Corridor.
2. Clear and Stabilize Work Areas:
   Grade contractor areas and place all-weather surface on contractor areas.
3. Clearing and Grubbing:
   After Phase I BMP's are installed, contractor may clear, grub, and demo required areas as necessary.

EROSION CONTROL NOTES

1. Erosion control plan modifications shall be required if the plan fails to substantially control erosion and offsite sedimentation.
2. The retention of access controls and sediment controls shall be required for areas where seed has not established 70% cover.
3. The contractor shall temporarily seed and mulch all disturbed areas if there has been no construction activity on them for a period of fourteen (14) calendar days.
4. Install "J' Hooks on silt fence every 100 LF

EROSION CONTROL LEGEND	
	Stabilized Construction Entrance
	Staging Area
	Stockpile Area
	Concrete Washout
	Limits of Disturbance
	Perimeter Silt Fence
	Inlet Protection

Disturbed Area for Site Improvements : 13.55 Acres

ESTIMATED EARTHWORK

Cut: 15,882 CY
Fill: 30,674 CY

Earthwork calculations are informational only. Contractor shall be responsible for their own earthwork calculations and perform all necessary earthwork shown herein without additional cost to the owner if quantities differ than above. Earthwork numbers are unadjusted.

	Project Stages	BMP Plan Ref. No.	BMP Desription	Remove after Stage	Notes
Phase I	A-Prior to Land Disturbance	1	Construction Entrance	C	Install Construction Entrance, as shown on Plans.
		2	Staging Area	C	Install Staging Area
		3	Perimeter Sediment Fence	C	Install Permeter Sediment Fence, as shown on Plans.
		4	Area Inlet Protection	C	Install Filter Bags around Existing Area Inlets
		5	Concrete Washout	C	Install Concrete Washout as shown on plans prior to pouring any concrete.
		6	Curb Inlet Protection	C	Install Filter Bags around Existing Curb Inlets
Phase II	B-Site Grading	7	Stockpile Topsoil	D	Install Sediment Fence a Minimum of 5' Beyond Toe of Slope
	C-Site Construction	8	Sediment Fence	D	Install Sediment Fence, as shown on Plans
		9	Curb Inlet Protection	D	Install Filter Bags around Proposed Curb Inlets
Phase III	D-Final Stabilization	10	Establish Perennial Vegetation	N/A	Redistribute Topsoil and seed and mulch all disturbed areas. Sod Right-of-Way. Stabilization complete when 100% disturbed area is established with perennial vegetation with a density of 70%

NORTH
1"=60'
0 30' 60'

Sheet
C31

Final Development Plans
18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Erosion Control Phase 2

NO.	BY	OD	DATE	
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/12/18	ORIGINAL SUBMITTAL

REVISION

Renaissance Infrastructure Consulting
913.317.9500
132 Abbie Avenue
Kansas City, Kansas 66103
www.ric-consult.com

Missouri Certificate of Authority No. 2000033630

STATE OF MISSOURI
MITCHELL E. SLUTTER
NUMBER
PE-2002003418
PROFESSIONAL ENGINEER
5/14/18
MITCHELL E. SLUTTER PE-2002003418

May 14, 2018-4:13pm
Z:\RIC Design\2018\18-0129 Northpoint Summit Square II Apartments\Dwg\FDP\SI\Erosion Control.dwg

WRITTEN SEQUENCING

1. Implement Pre-Clearing Plan:
   All temporary structural BMP's shown on the pre-clearing plan must be in place before the general clearing operations. Clearing necessary to place temporary structural BMP's is the minimum required for installation. Coordinate clearing necessary to place temporary structural BMP's with local weather forecast so that clearing and placement may be completed within a forecast dry period. Stabilize all erosion control measures after installation. Temporary Barrier Fence shall be in Place, around areas not to be disturbed, prior to any construction activities. This area includes Stream Corridor.
2. Clear and Stabilize Work Areas:
   Grade contractor areas and place all-weather surface on contractor areas.
3. Clearing and Grubbing:
   After Phase I BMP's are installed, contractor may clear, grub, and demo required areas as necessary.

EROSION CONTROL NOTES

1. Erosion control plan modifications shall be required if the plan fails to substantially control erosion and offsite sedimentation.
2. The retention of access controls and sediment controls shall be required for areas where seed has not established 70% cover.
3. The contractor shall temporarily seed and mulch all disturbed areas if there has been no construction activity on them for a period of fourteen (14) calendar days.
4. Install "J' Hooks on silt fence every 100 LF

LEGEND

Sodded Areas

Seeded Areas

Disturbed Area for Site Improvements : 13.55 Acres

ESTIMATED EARTHWORK

Cut: 14,051 CY
Fill: 32,804 CY

Earthwork calculations are informational only. Contractor shall be responsible for their own earthwork calculations and perform all necessary earthwork shown herein without additional cost to the owner if quantities differ than above. Earthwork numbers are unadjusted.

NORTH
1"=60'
0 30' 60'

Sheet
C32

Final Development Plans
18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Erosion Control Phase 3

NO.	BY	DATE	REVISION
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/13/18	ORIGINAL SUBMITTAL

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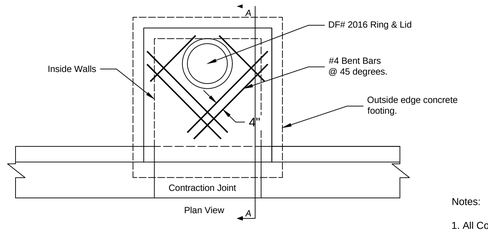
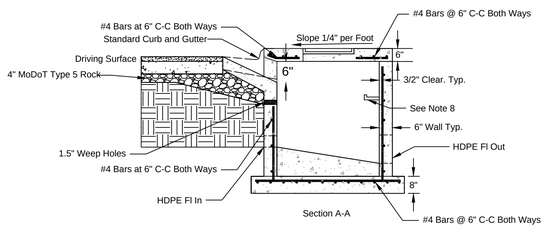
Missouri Certificate of Authority No. 2000033630

STATE OF MISSOURI
MITCHELL E. SLUTTER
NUMBER PE-2002003418
PROFESSIONAL ENGINEER
5/14/18
MITCHELL E. SLUTTER PE-2002003418



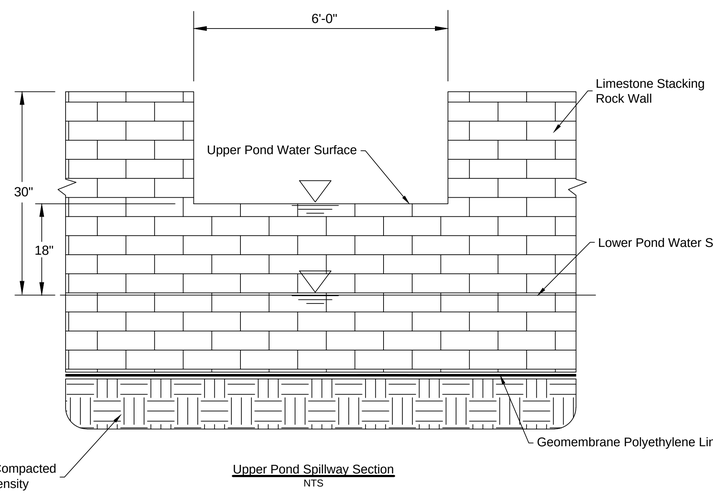


Standard Non-Setback Inlet Detail

NTS

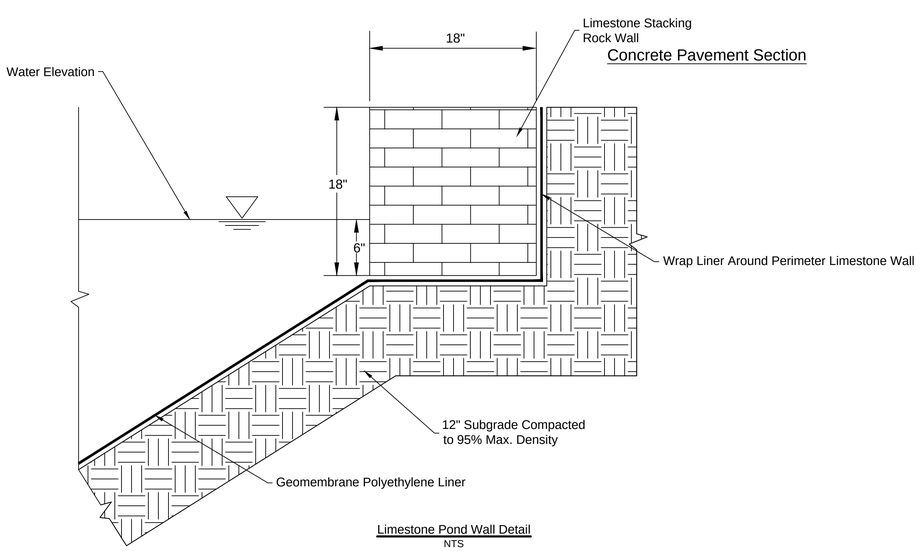
Notes:

1. All Concrete shall be KCMMB-4k.
2. Inlet Construction notes shall list the "L" Dimension first, the "W" dimension second, and the "H" dimension third.
3. Floor of inlets shall have a shaped concrete invert to provide for smooth flow.
4. The minimum dimension between top of pipe and top of box shall be 2' 6" (Typical all walls.)
5. All ingrade inlets shall conform to street grade. All inlets in sump shall be level. Bevel all exposed edges with 3/4" triangular molding.
8. Steps shall be spaced 1'-4" O.C. Vertically.
9. Any inlet, yard inlet, or junction box over 10 ft in length, 8 ft in width, or 12 ft in depth shall be considered non-standard, and a detail shall be shown. Any such detail shall be sealed by a structural engineer.
10. The throat and transition are subsidiary to the structure.
11. Lid shall be set true to line and grade along curb profile.



Upper Pond Spillway Section

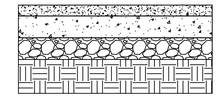
NTS



Concrete Pavement Section

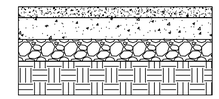
Limestone Pond Wall Detail

NTS



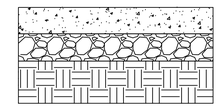
1.5" APWA Type 3 Asphaltic Concrete Surface Course
4" APWA Type 1 Asphaltic Base Course
6" MoDOT Type 5 Aggregate or Similar
6" Min. Stabilized Soil Compacted per Site Geotech Report

Light-Duty Asphalt Pavement Section



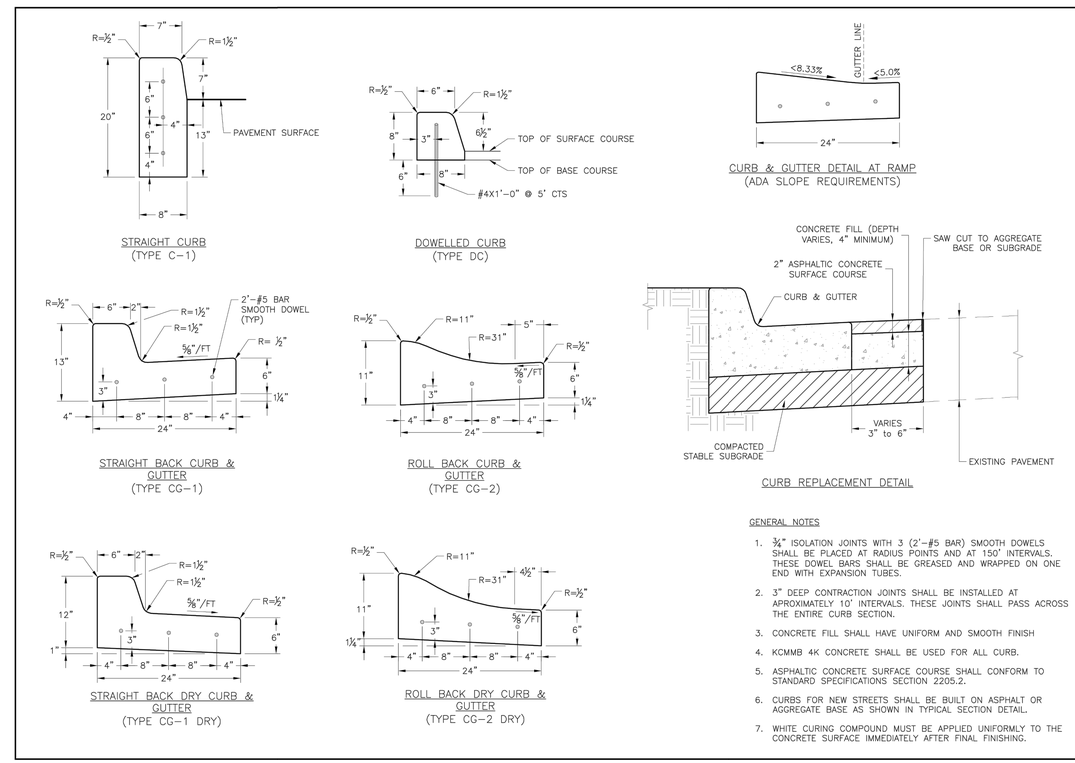
1.5" APWA Type 3 Asphaltic Concrete Surface Course
5" APWA Type 1 Asphaltic Base Course
6" MoDOT Type 5 Aggregate or Similar
6" Min. Stabilized Soil Compacted per Site Geotech Report

Heavy-Duty Asphalt Pavement Section



7" PC Concrete
4" Min. Open Graded Rock (ASTM C33 Size. 57 Aggreate or Similar)
Soil Compacted per Site Geotech Report

Heavy-Duty PC Pavement Section



GENERAL NOTES

1. ¾" ISOLATION JOINTS WITH 3 (2'-#5 BAR) SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 3" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS THE ENTIRE CURB SECTION.
3. CONCRETE FILL SHALL HAVE UNIFORM AND SMOOTH FINISH
4. KCMMB 4K CONCRETE SHALL BE USED FOR ALL CURB.
5. ASPHALTIC CONCRETE SURFACE COURSE SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 2205.2.
6. CURBS FOR NEW STREETS SHALL BE BUILT ON ASPHALT OR AGGREGATE BASE AS SHOWN IN TYPICAL SECTION DETAIL.
7. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Project:
Sheet Name: CURB & GUTTER DETAIL

Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #:

GEN-4

NO.	BY	CO	DATE	REVISION
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/13/18	ORIGINAL SUBMITTAL

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913.317.9500
www.ric-consult.com
Missouri Certificate of Authority No. 2010033630

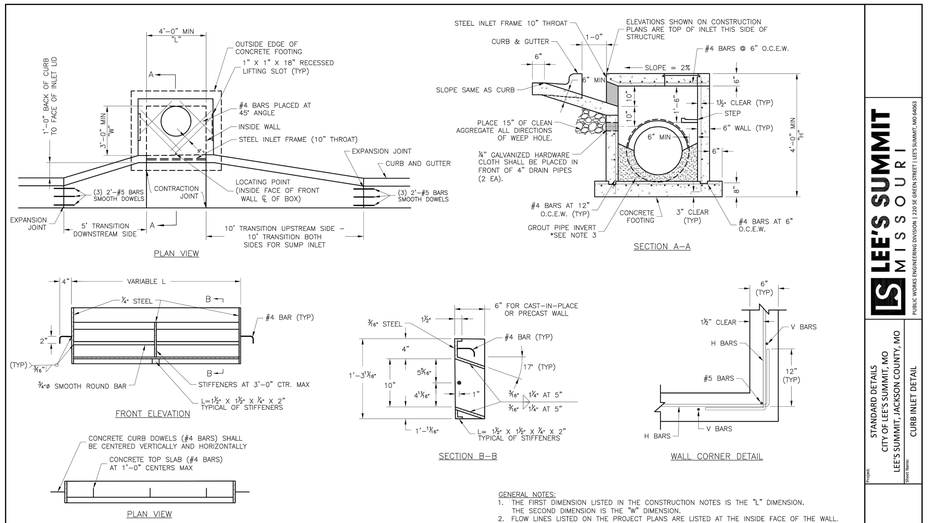
STATE OF MISSOURI
MITCHELL
SLUTTER
NUMBER
PE-2002003418
PROFESSIONAL ENGINEER
5/14/18
MITCHELL E. SLUTTER PE-2002003418

Sheet
C33

Final Development Plans
18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Standard Details

May 14, 2018 4:13pm
Z:\RIC Design\2018\18-0129 Northpoint Summit Square II Apartments\Dwg\FDPs\Standard Details.dwg



STEEL FRAME NOTES:
1. ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
2. ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
3. THE ENTIRE FRAME SHALL BE PAINTED A SINGLE COAT OF CHEM–PRIME #37H–7B PRIMER (GRAY) OR EQUAL.

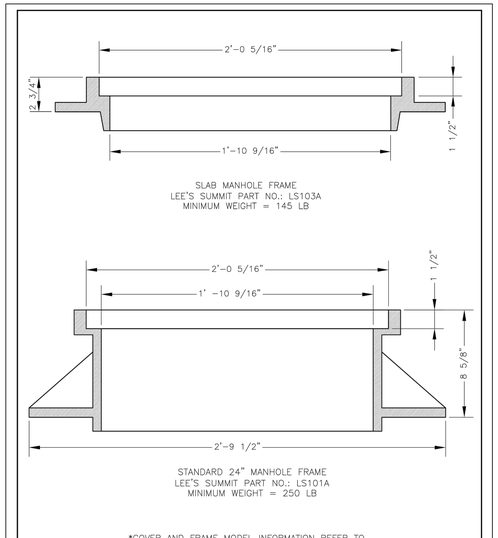
GENERAL NOTES:
1. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
2. FLOW LINES LISTED ON THE PROJECT PLANS ARE LISTED AT THE INSIDE FACE OF THE WALL.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. LOCATE MH RING AND COVER ON BLANK WALL IF POSSIBLE.
5. STEPS SHALL BE SPACED AT 1'–4" O.C. VERTICALLY ON BLANK WALL IF POSSIBLE.
6. BEVEL ALL EXPOSED EDGES WITH ¾"CHAMFER OR ½" TOOLED EDGE.
7. ON–GRADE INLETS SHALL CONFORM TO THE STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. LIFTING RINGS SHALL BE REMOVED AND SEALED WITH NON–SHRINKABLE GROUT
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
CURB INLET DETAIL

Drawn By: MJF
Checked By: DL
Date: 06/17
Proj. #

STM-1



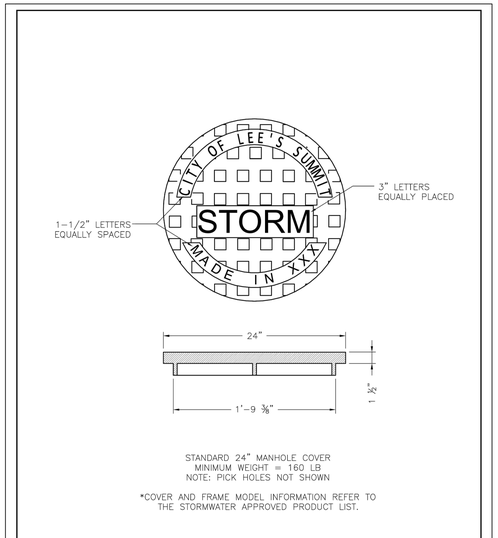
*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCTS LIST.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STORM MANHOLE FRAME DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

STM-7



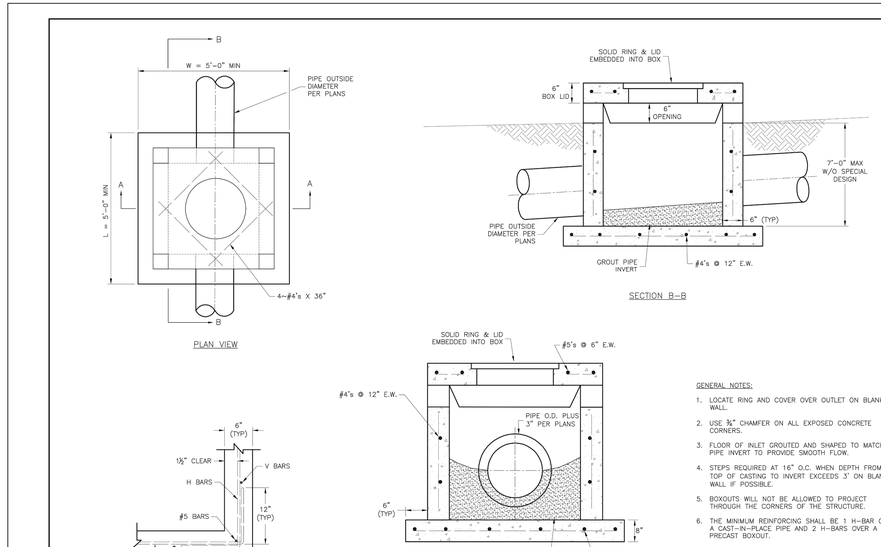
*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STORM MANHOLE COVER DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

STM-6



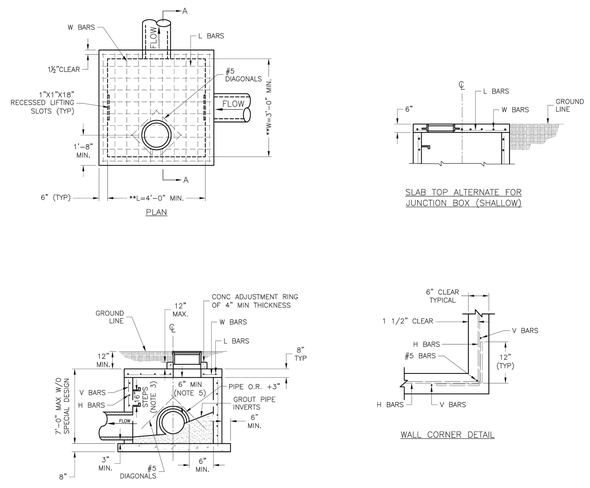
GENERAL NOTES:
1. LOCATE RING AND COVER OVER OUTLET ON BLANK WALL.
2. USE ¾" CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 3' ON BLANK WALL IF POSSIBLE.
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. SHOW FIELD INLET ORIENTATION ON PLANS PLUS NUMBER AND SIDE OF OPENINGS.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
FIELD INLET DETAIL

Drawn By: MJF
Checked By: DL
Date: 06/17
Proj. #

STM-2



REINFORCING

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

GENERAL NOTES:
1. LOCATE RING AND COVER ON BLANK WALL.
2. USE ¾" CHAMFER STRIP OR ½" R EDGER TOOL ON ALL EXPOSED CONCRETE CORNERS.
3. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 4' ON BLANK WALL IF POSSIBLE.
4. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS OF THE STRUCTURE, AND THE MINIMUM DISTANCE BETWEEN BOXOUTS IS 6".
5. THE MINIMUM REINFORCING SHALL BE 1 H–BAR OVER A CAST–IN–PLACE PIPE AND 2 H–BARS OVER A PRECAST BOXOUT.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. REINFORCING OF COVERS IN STREETS REQUIRE SPECIAL DESIGN.
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
JUNCTION BOX DETAIL

Drawn By: MJF
Checked By: DL
Date: 06/17
Proj. #

STM-3

Sheet
C34

Final Development Plans

18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Standard Details

NO.	BY	DATE	REVISION
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/13/18	ORIGINAL SUBMITTAL

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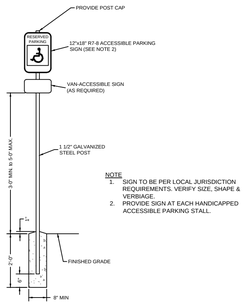
PROFESSIONAL ENGINEER
5/14/18
MITCHELL E. SLUTTER PE-2002003418

Missouri Certificate of Authority No. 2000033630

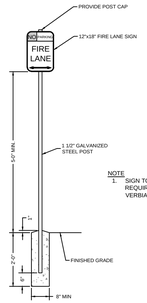
May 14, 2018-4:13pm
J:\RIC Design\2018\18-0129 Northpoint Summit Square II Apartments\Dwg\FDPs\Standard Details.dwg



NOTE
1. SIGN TO BE PER LOCAL JURISDICTION REQUIREMENTS. VERIFY SIZE, SHAPE & VERBIAGE.
2. PROVIDE SIGN AT EACH HANDICAPPED ACCESSIBLE PARKING STALL.

ACCESSIBLE PARKING SPACE SIGNAGE

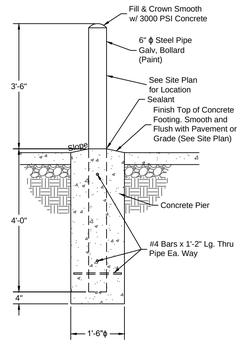
NOT TO SCALE



NOTE
1. SIGN TO BE PER LOCAL JURISDICTION REQUIREMENTS. VERIFY SIZE, SHAPE & VERBIAGE.

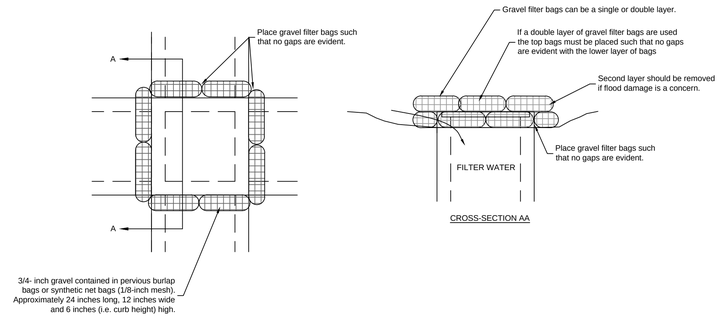
FIRE LANE SIGNAGE

NOT TO SCALE



BOLLARD DETAIL

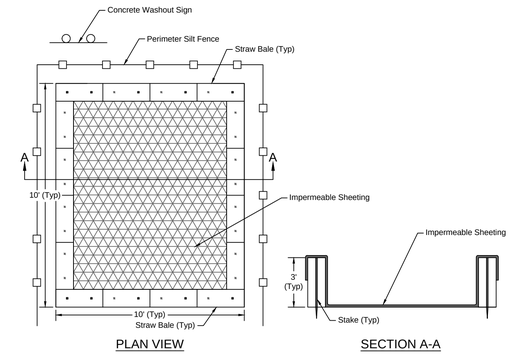
Not to Scale



CROSS-SECTION AA

GRAVEL FILTER BAGS DETAIL

Not to Scale

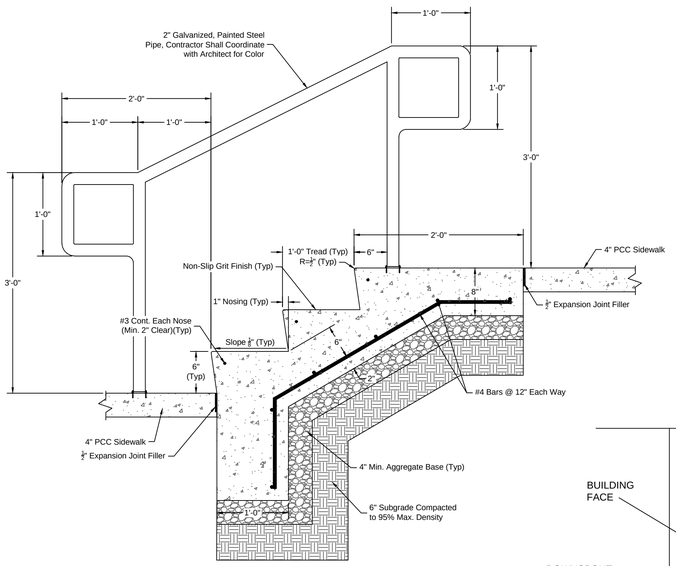


PLAN VIEW

SECTION A-A

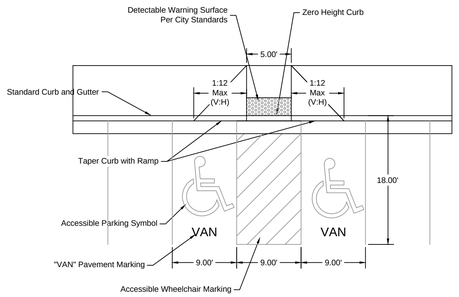
CONCRETE WASHOUT AREA

Not to Scale



CONCRETE STAIR DETAIL

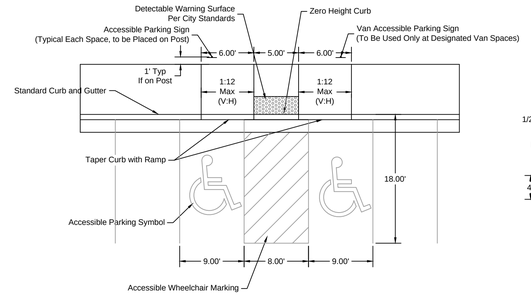
Not to Scale



Note:
Accessible Parking Symbol and Signage Shall Comply with the Applicable Recommendations of the Manual of Uniform Traffic Control Devices (MUTCD)

ACCESSIBLE PARKING DETAIL (90°)

Not to Scale



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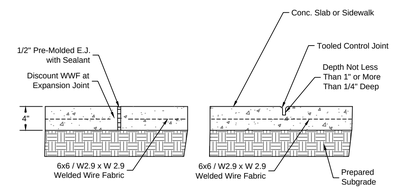
ACCESSIBLE PARKING DETAIL (90°)

Not to Scale



A-EXPANSION JOINT(EJ)

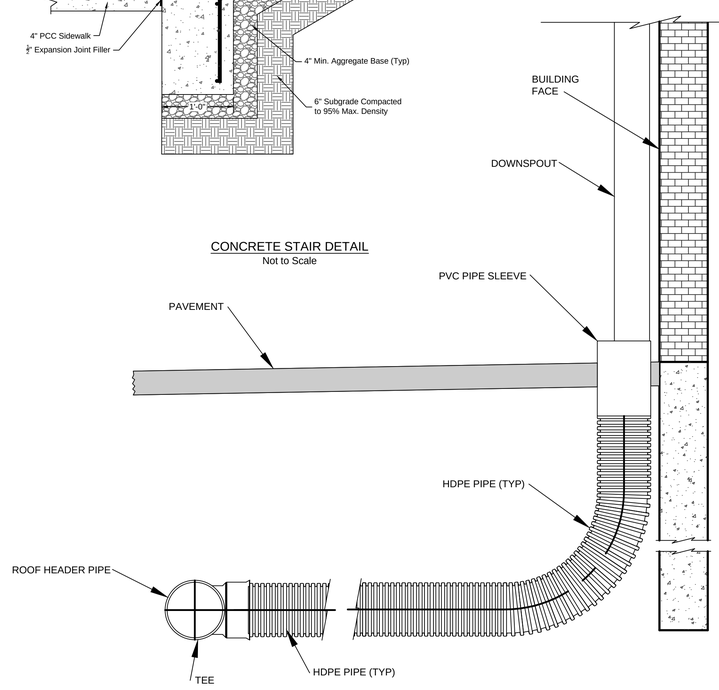
B-CONTROL JOINT (CJ)

SIDEWALK NOTES

1. 1/2" Pre-Milded Expansion Joints shall be Placed as Shown or not to Exceed 20' or When Abutting Existing Concrete.
2. 1/2" Control Joints Shall be Placed as Shown on the Drawings or at 5' Max.
3. Key All Construction Joints.
4. Prepared Subgrade Shall be Compacted and (2" in Cut Areas, 20" in Fill Areas Minimum. Any Project Geotech. Report shall Supersede these Minimums.

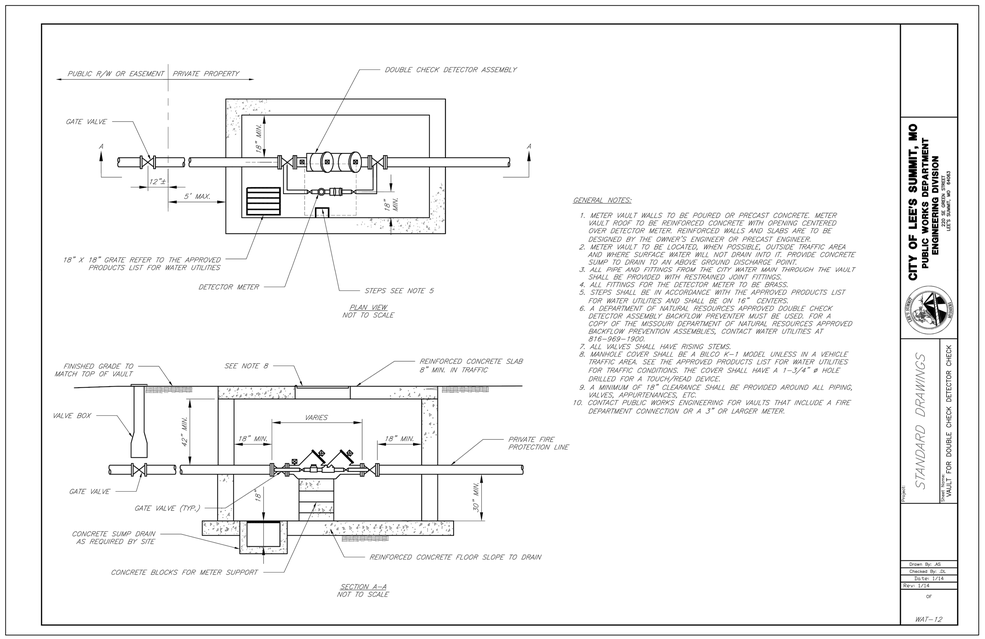
SIDEWALK DETAIL

Not to Scale



Downspout Detail

NTS



GENERAL NOTES:

1. METER VAULT WALLS TO BE POURED OR PRECAST CONCRETE. METER VAULT ROOF TO BE REINFORCED CONCRETE WITH OPENING CENTERED OVER DETECTOR METER. REINFORCED WALLS AND SLABS ARE TO BE DESIGNED BY THE OWNER'S ENGINEER OR PRECAST ENGINEER.
2. METER VAULT TO BE LOCATED, WHEN POSSIBLE, OUTSIDE TRAFFIC AREA AND WHERE SURFACE WATER WILL NOT DRAIN INTO IT. PROVIDE CONCRETE SUMP TO DRAIN TO AN ABOVE GROUND DISCHARGE POINT.
3. ALL PIPE AND FITTINGS FROM THE CITY WATER MAIN THROUGH THE VAULT SHALL BE PROVIDED WITH RESTRAINED JOINT FITTINGS.
4. ALL FITTINGS FOR THE DETECTOR METER TO BE BRASS.
5. STEPS SHALL BE IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST FOR WATER UTILITIES AND SHALL BE ON 16" CENTERS.
6. A DEPARTMENT OF NATURAL RESOURCES APPROVED DOUBLE CHECK DETECTOR ASSEMBLY BACKFLOW PREVENTER MUST BE USED. FOR A COPY OF THE MISSOURI DEPARTMENT OF NATURAL RESOURCES APPROVED BACKFLOW PREVENTION ASSEMBLIES, CONTACT WATER UTILITIES AT 816-969-1900.
7. ALL VALVES SHALL HAVE RISING STEMS.
8. MANHOLE COVER SHALL BE A BLCO K-1 MODEL UNLESS IN A VEHICLE TRAFFIC AREA. SEE THE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR TRAFFIC CONDITIONS. THE COVER SHALL HAVE A 1-3/4" ø HOLE DRILLED FOR A TOUCH/READ DEVICE.
9. A MINIMUM OF 18" CLEARANCE SHALL BE PROVIDED AROUND ALL PIPING, VALVES, APPURTENANCES, ETC.
10. CONTACT PUBLIC WORKS ENGINEERING FOR VAULTS THAT INCLUDE A FIRE DEPARTMENT CONNECTION OR A 3" OR LARGER METER.

CITY OF LEE'S SUMMIT, MO
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
(LEE'S SUMMIT, MO #560)

Project: STANDARD DRAWINGS
Item Name: VAULT FOR DOUBLE CHECK DETECTOR CHECK

Drawn By: AS
Checked By: DL
Date: 1/16
Rev: 1/14
Of
WAT-12

NO.	BY	OD	DATE	REVISION
2	APT	MES	05/14/13	PER CITY COMMENTS
1	APT	MES	04/13/18	ORIGINAL SUBMITTAL

Renaissance Infrastructure Consulting
132 Abbie Avenue
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www.ric-consult.com
Missouri Certificate of Authority No. 2010033630

STATE OF MISSOURI
MITCHELL
SLUTTER
NUMBER
PE-2002003418
PROFESSIONAL ENGINEER
MITCHELL E. SLUTTER PE-2002003418
5/14/18

Sheet
C35

Final Development Plans

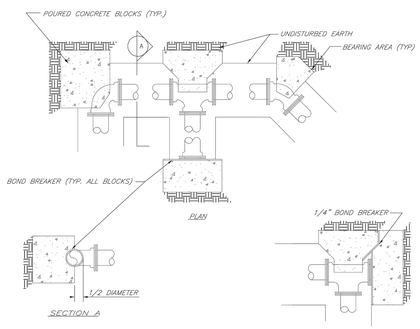
18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

Standard Details

REQUIRED CONCRETE BEARING AREA (SQUARE FEET – SF)

NOM. DIA. (INCHES)	180 TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	4.7	6.7	4.0	4.0	4.0
8	8.4	11.8	6.4	4.0	4.0
10	13.1	18.5	10.0	5.1	4.0
12	18.8	26.7	14.4	7.4	4.0
14	25.7	36.3	19.6	10.0	5.0
16	33.5	47.4	25.6	13.1	6.6
18	42.4	REST. JT.	32.5	16.5	8.3
20	REST. JT.	REST. JT.	40.1	20.4	10.3
24	REST. JT.	REST. JT.	REST. JT.	29.4	14.8

NOTES:
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
3. BEARING AREA MUST BE AGAINST UNDISTURBED SOIL.
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.



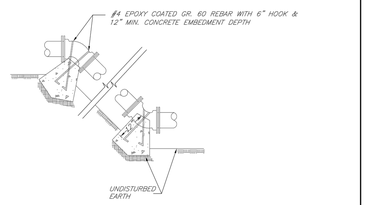
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HORIZONTAL THRUST BLOCKS

Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-1 | Rev: 1/14 | Rev:

REQUIRED CONCRETE VOLUME (CUBIC FEET – CF)

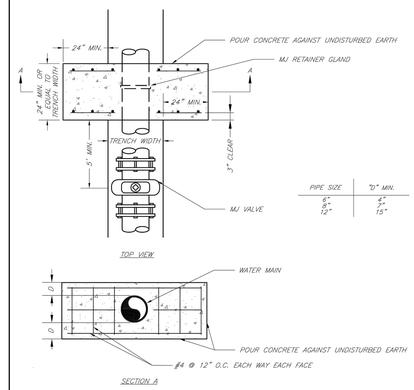
NOM. DIA. (INCHES)	180 TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	50.5	71.4	38.6	19.7	9.9
8	89.8	126.9	68.7	35.0	17.6
10	140.2	198.3	107.3	54.7	27.5
12	202.0	REST. JT.	154.6	78.8	39.6
14	REST. JT.	REST. JT.	210.4	107.3	53.9
16	REST. JT.	REST. JT.	REST. JT.	140.1	70.4
18	REST. JT.	REST. JT.	REST. JT.	177.3	89.1
20	REST. JT.	REST. JT.	REST. JT.	REST. JT.	110.0
24	REST. JT.	REST. JT.	REST. JT.	REST. JT.	158.4

NOTES:
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
3. BEARING MUST BE AGAINST UNDISTURBED SOIL.
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.



LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
VERTICAL THRUST BLOCKS

Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-2 | Rev: 1/14 | Rev:

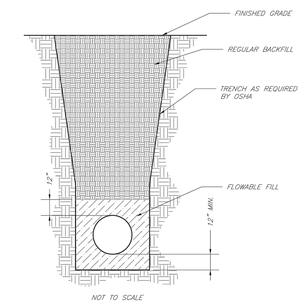


PIPE SIZE	"D" MIN.
6"	4"
8"	7"
12"	15"

NOTE:
THIS DETAIL NOT TO BE USED FOR PIPE GREATER THAN 12"

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
STRADDLE BLOCK

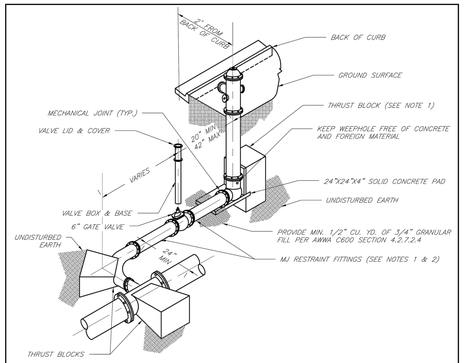
Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-3 | Rev: 1/14 | Rev:



NOTES:
1. FLOWABLE FILL SHALL MEET THE REQUIREMENTS OF THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL.
2. REGULAR BACKFILL ABOVE THE TRENCH CHECK SHALL BE FREE OF DEBRIS, ORGANIC MATTER, AND STONES > 6" IN ANY DIMENSION.
3. TOP OF FLOWABLE BACKFILL SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE.
4. LENGTH OF TRENCH CHECK SHALL BE A MINIMUM OF 12".

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
TRENCH CHECK

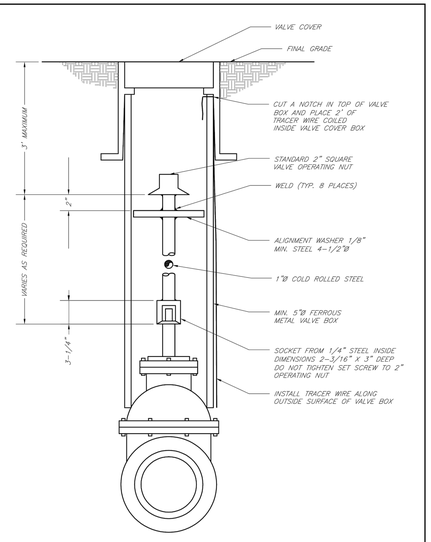
Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-6 | Rev: 1/14 | Rev:



NOTES:
1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.
3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
4. BOTTOM HYDRANT FLANGE SHALL BE 2" TO 6" ABOVE FINISHED GRADE.
5. FOR STREETS WITHOUT CURBS FIRE HYDRANTS SHALL BE PLACED WITHIN 1 FOOT OF THE R/W LINE, BUT NOT MORE THAN 10' FROM EDGE OF PAVEMENT. FIRE HYDRANT SHALL NOT BE PLACED IN BOTTOM OF DITCH.
6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.

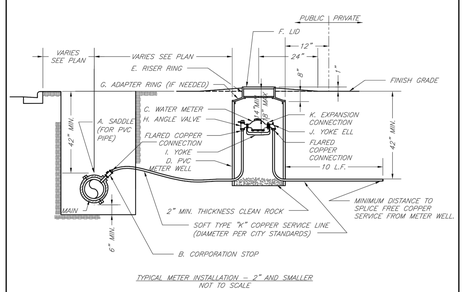
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HYDRANT WITH 90 DEGREE BEND

Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-8 | Rev: 1/14 | Rev:



LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
VALVE STEM EXTENSION AND VALVE BOX

Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-9 | Rev: 1/14 | Rev:

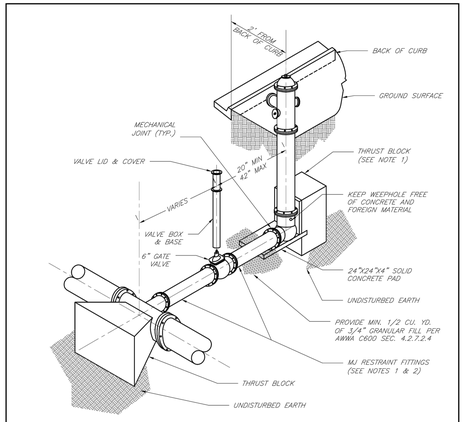


TYPICAL METER INSTALLATION – 2" AND SMALLER
NOT TO SCALE

NOTES:
1. METER INSTALLATION SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC OR IN CONCRETE PAVEMENT WITHOUT CITY APPROVAL.
2. IF METER IS TO BE LOCATED OTHER THAN IN FRONT OF PROPERTY LINE, CITY APPROVAL SHALL BE OBTAINED.
3. CITY TO FURNISH ITEMS A–K.
4. NO OTHER EQUIPMENT SHALL BE INSTALLED IN THIS PIT.
5. 42" MINIMUM BURY DEPTH FOR ALL SERVICE LINES.
6. EXCAVATION FOR TAP TO EXPOSE 4 LINEAR FEET OF MAIN.
7. NO SPLICES ALLOWED BETWEEN METER AND MAIN.
8. SERVICE CONNECTION TAP AT APPROXIMATELY 45 DEGREES.
9. LID AND RISER RING SHALL BE SET SO THAT GROUND WATER WILL DRAIN AWAY FROM THE WELL.
10. CONTACT WATER UTILITIES, 816–969–1900, FOR REQUIREMENTS OF A METER LARGER THAN 2"

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
SERVICE CONNECTION/METER WELL

Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-11 | Rev: 1/14 | Rev:



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6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HYDRANT INSTALLATION – STRAIGHT SET

Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-7 | Rev: 1/14 | Rev:

Sheet
C36

Final Development Plans
18-0129
Summit Square II
Lee's Summit, Jackson County, Missouri

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1	APT	MES	04/13/18	ORIGINAL SUBMITTAL

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