

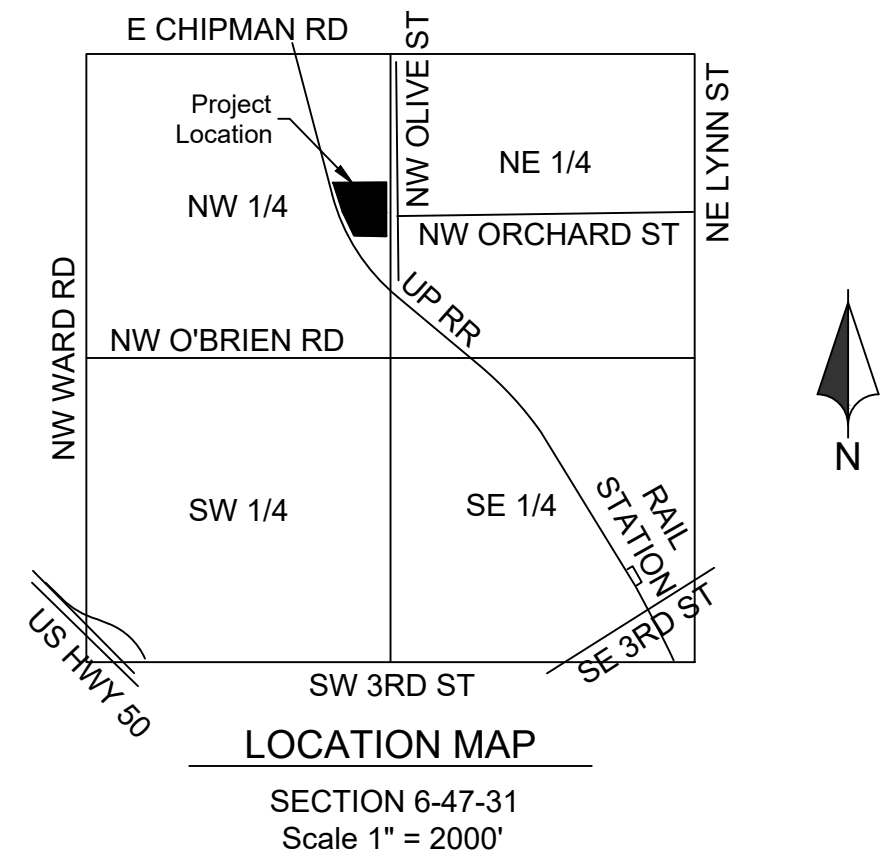
NO.	BY	DATE	REVISION
1	JGD	MES 10/01/20	PER CITY COMMENT
2	JGD	MES 08/15/20	PER CITY COMMENT
3	JGD	MES 06/11/20	PER CITY COMMENT
1	JGD	MES 06/08/20	ORIGINAL SUBMISSION

Renaissance Infrastructure Consulting
1815 MCGEE STREET, SUITE 200
KANSAS CITY, MISSOURI 64108
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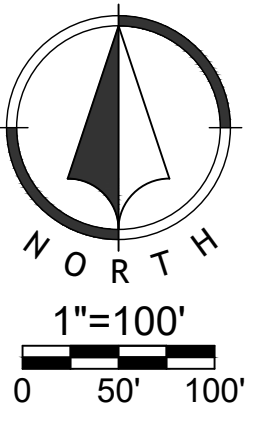
Public Street and Storm For Sequoia Residential

Lee's Summit, Jackson County, Missouri
Total Project Area: 3.78 Acres (164,565.80 SF)



Sheet List Table

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LEGAL DESCRIPTION
Lot 1, 2, and 3, EXCEPT the North 140 feet of the East 150 feet of Lot 3, HEARNE'S ADDITION, (aka/ HEARNES FIRST ADDITION) and the North Half of vacated Orchard Street lying South and adjacent, a subdivision in Lee's Summit, Jackson County, Missouri.

Lot 22, and 23, HEARNE'S ADDITION, a subdivision in Lee's Summit, Jackson County, Missouri, EXCEPT the South 8 feet of the West 50 feet of Lot 22 and also EXCEPT, the South 8 feet of Lot 23, and ALSO EXCEPT the South 88 feet of the East 150 feet of Lot 22, together with the South 1/2 of vacated Orchard Street lying North of and Adjacent to the said premises in question.

BENCHMARK:
BM-A: 1.0 mi NW along the Missouri Pacific Railroad from the station at Lee's Summit, at the crossing of Sheer Road, 86 ft southeast of the center line of Sheer Road, 36 ft northeast of the northwest rail, 28.4 ft southeast of a telephone pole, 697 ft southwest of a fence, 1.8 ft west of a witness post, set in the top of a concrete post which projects 0.3 ft above the ground. Elev: 994.87
BM-B: 1.3 mi N along the Missouri Pacific Railroad from the station at Lee's Summit, Jackson County, at semaphore 2611, on the top of the concrete base, and 10 ft east of the track. A chiseled square. Elev: 971.80

Oil / Gas Well Note:
There is no visible evident, 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." (Figure B-4, pg. 91)

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.

UTILITIES

WATER & SANITARY SEWER City of Lee's Summit Water Utilities 220 SE Green St Lee's Summit, MO Phone: 816.969.1900	TELEPHONE AT&T Phone: 800.288.2020 Time Warner Cable Phone: 816.222.5952
ELECTRICITY Kansas City Power and Light Phone: 816.471.5275	CABLE TV Comcast Phone: 816.795.1100
GAS Missouri Gas Energy PO Box 219255 Kansas City, Missouri 64141 Phone: 816.756.5252	Time Warner Cable Phone: 816.358.8833

LEGEND

--- Existing Section Line	----- Proposed Right-of-Way
==== Existing Right-of-Way Line	----- Proposed Property Line
----- Existing Lot Line	----- Proposed Lot Line
----- Existing Easement Line	----- Proposed Easement
==== Existing Curb & Gutter	==== Proposed Curb & Gutter
==== Existing Sidewalk	==== Proposed Sidewalk
==== Existing Storm Sewer	==== Proposed Storm Sewer
□ Existing Storm Structure	□ Proposed Storm Structure
--- W/L --- Existing Waterline	A Proposed Fire Hydrant
--- GAS --- Existing Gas Main	--- WATER --- Proposed Waterline
----- Existing Sanitary Sewer	--- SS --- Proposed Sanitary Sewer
⊙ Existing Sanitary Manhole	⊙ Proposed Sanitary Manhole
--- Existing Contour Major	--- Proposed Contour Major
--- Existing Contour Minor	--- Proposed Contour Minor
----- Proposed Asphaltic Pavement	----- Future Curb & Gutter

APPLICATION/OWNER:
Dick Burton
Cherokee Flight LLC
8 SW AA Highway
Kingsville, MO 64061
daburton@mail.com

CIVIL ENGINEER:
Mick Slutter, P.E.
1815 McGee St, #200
Kansas City, MO 64116
mslutter@ric-consult.com

LANDSCAPE ARCHITECT:
Andy Gabbert, PLA
5015 NW Canal St, #100
Riverside, MO 64150
agabbert@ric-consult.com

GENERAL NOTES

- All construction shall follow the City of Lee's Summit Design and Construction Manual as adopted by Ordinance 5813. Where discrepancies exist between the Construction Document and the Design and Construction Manual, the Design and Construction Manual shall govern.
- 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.
- 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/her expense.
- 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/her expense.
- 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.
- 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.
- 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.
- Contractor shall furnish evidence that his/her insurance meets the requirements of the City of Lee's Summit, Missouri Municipal Code.
- Prior to installing, constructing, or performing any work on the public storm sewer line (including connecting private drainage systems to the storm sewer), contact Lee Summit Inspections.
- Connections to the public storm sewers between structures will not be permitted.
- Contractor shall verify and accept existing topography shown herein. Contractor shall notify Engineer if any discrepancies are found prior to any earthwork activities.
- Planning and Codes Administration will require a retaining wall design by a registered engineer in the State of Missouri.
- Geogrid, footings, or other elements of the retaining wall(s) cannot encroach into the right of way or public easements.
- A Knox Box shall be provided for Each Building.
- 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.



ADA ACCESSIBLE ROUTE NOTES

- All Accessible route construction shall conform to the latest version of the ADA Standards for Accessible Design published by the Department of Justice and the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way published by the United States Access Board.
- Other than ramps and ramp runs, walking surfaces must have running slopes not steeper than 1:20.
- The cross slope of walking surfaces shall not be steeper than 2%.
- The minimum width for a linear segment of accessible route shall be 36 inches.
- Where the accessible route makes a 180 degree turn around an element which is less than 48 inches wide, clear width shall be 42 inches minimum approaching the turn, 48 inches minimum at the turn and 42 inches leaving the turn.
- An accessible route with a clear width less than 60 inches shall provide passing spaces at intervals of 200 feet maximum. Passing spaces shall be 60 inch by 60 inch minimum.
- Ramp runs shall have a running slope not steeper than 1:12.
- Ramp runs with a rise greater than 6 inches shall have handrails.
- Ramp landings with a maximum slope of 1:48 shall be provided before and after ramp runs.
- The maximum rise of a ramp run shall be 30 inches.
- The maximum counter slope between the pavement and the curb at a curb ramp shall be 1:20.
- Curb ramp landings with a maximum slope of 1:48 shall be provided at the top of curb ramps with a clear width of 60 inches.
- Detectable warning surfaces complying with the latest ADA Standards shall be provided at pedestrian street crossings and refuge islands.
- Passenger loading zones shall be provided adjacent to any ADA Accessible stall and have a 2% maximum slope in all directions.
- Contractor to field verify existing site conditions and contact the engineer if field conditions do not match plan prior to construction.

GRADING NOTES

- All construction shall conform to the City's minimum design standards.
- Spot Grades shown herein shall govern over finished grades.
- The contractor shall provide evidence that his insurance meets the requirements of the Project.
- All traffic control shall be in conformance with the Manual of Uniform Traffic Control Devices (MUTCD).
- The contractor is responsible for the protection of all property corners and section corners. Any property corners and/or section corners disturbed or damaged by construction activities shall be reset by a Registered Land Surveyor licensed in the State of Kansas, at the contractor's expense.
- The contractor shall be responsible for the restoration of the right-of-way and for damaged improvements such as curbs, driveways, sidewalks, street light and traffic signal junction boxes, traffic signal loop lead ins, signal poles, irrigation systems, etc. Damaged improvements shall be repaired in conformance with the latest City standards and to the City's satisfaction.
- The contractor is responsible for providing erosion and sediment control BMPs to prevent sediment from reaching paved areas, storm sewer systems, drainage courses and adjacent properties. In the event the prevention measures are not effective, the contractor shall remove any debris, silt, or mud and restore the right-of-way, or adjacent properties to original or better condition.
- The contractor shall sod all disturbed areas within the public street right-of-way unless otherwise noted on the plans or if specific written approval is granted by the City.
- All public street sidewalk ramps constructed will be required to comply with the Americans with Disabilities Act (ADA).
- Excavation for utility work in public street right-of-way requires a Right-of-Way Work Permit from the Public Works Department, in addition to all other permits.
- All work shall be confined within easements and/or construction limits as shown on the plans.
- Curb stakes and hubs shall be provided at all high points, low points, ADA ramp openings, and on each side of all curb inlets when setting string line.
- All National Pollution Discharge Elimination System(NPDES) standards shall be met.
- Public and Private utility facilities shall be moved or adjusted as necessary by the owners to fit the new construction unless otherwise noted on the plans. The Contractor is responsible for the cost of utility relocations unless otherwise indicated on the plans.

SITE UTILITY NOTES

- The contractor is specifically cautioned that the location and/or elevation of existing utilities as Shown on these plans is based on records of the various utility Companies, and where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must call the appropriate utility companies at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to coordinate with and relocate and/or remove all existing utilities which conflict with the proposed improvements shown on the plans.
- The construction of storm sewers on this project shall conform to the requirements of Jackson County, Lee's Summit Technical Specifications and Design Criteria.
- The contractor shall field verify the exact location and elevation of the existing storm sewer locations and the existing elevations at locations where the proposed storm sewer collects or releases to existing ground. If discrepancies are encountered from the information shown on the plans. The contractor shall contact the design engineer. No pipes shall be laid until direction is received from the design engineer.
- It will be the contractors responsibility to field adjust the top of all manholes and boxes as necessary to match the grade of the adjacent area. Tops of existing manholes shall be raised as necessary to be flush with proposed pavement elevations, and to be 6-inches above finished ground elevations in non-paved areas. No separate or additional compensation will be made to the contractor for making final adjustments to the manholes and boxes.
- Inlet locations, horizontal pipe information and vertical pipe information is shown to the center of the structure. Deflection angles shown for storm sewer pipes are measured from the center of the curb inlets and manholes. The contractor shall adjust the horizontal location of the pipes to go to the face of the boxes. All roof drains shall be connected to storm sewer structures. Provide cleanouts on roof drain lines at 100' max. spacing and at all bend points. Do not connect roof drains directly to storm sewer pipes.
- The contractor shall be responsible for furnishing and installing all fire and domestic water lines, meters, back flow devices, pits, valves and all other incidentals required for a complete operable fire protection and domestic water system, if not furnished or installed by the Board of Public Utilities. Coordinate with the Board of Public Utilities. All costs associated with the complete water system for the building shall be the responsibility of the contractor. All work shall conform to the requirements of Jackson County, Lee's Summit.
- The contractor shall be responsible for furnishing and installing all sanitary sewer service lines from the building to the public line. The contractor shall refer to the architectural plans for specific locations and elevations of the service lines of the building connection. All work shall conform to the requirements of Lee's Summit.
- The contractor is responsible for securing all permits, bonds and insurance required by the contract documents, Lee's Summit, and all other governing agencies (including local, county, state and federal authorities) having jurisdiction over the work proposed by the construction documents. The cost for all permit bonds and insurance shall be the contractors responsibility and shall be included in the bid for the work.
- By the use of these construction documents the contractor hereby agrees that he/she 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.
- The contractor shall be responsible for furnishing all materials, tools and equipment and installation of electrical power, telephone and gas service from a point of connection from the public utility lines to the building structure. This will include all conduits, service lines, meters, concrete pads and all other incidentals required for a complete and operational system as required by the owner and the public utilities. Refer to building plans for exact tie-in locations of all utilities. Contractor shall verify connection points prior to installation of utility line.
- All fill material is to be in place, compacted, and consolidated before installation of proposed utilities. On-site geotechnical engineer shall provide written confirmation that this requirement has been met and that utilities may proceed in the fill areas. All utilities are to be placed in trench conditions.
- Contractor shall notify the utility authorities inspectors 49 hours before connecting to any existing line.
- Storm sewer roof drains(st) shall be as follows (unless otherwise shown on plans).
-PVC SDR 35 per ASTM D3034, for pipes less than 12' deep.
-PVC SDR 26 per ASTM D3034, for pipes 12' to 20' deep.
- Waterlines shall be as follows (unless otherwise shown on plans):
-for 8" and larger: ductile iron pipe per AWWA C150
-between 2" and 6": copper tube Type "K" per ANSI 816.22 or ductile iron pipe per AWWA C150
-For smaller than 2":copper tube Type "K" per ANSI 816.22
- Minimum trench width shall be 2 feet.
- Contractor shall maintain a minimum of 42" of cover on all waterlines. All water line joints are to be mechanical joints with thrust blocking as called out in specifications and construction plans. Water mains and service lines shall be constructed in accordance to the Board of Public Utilities specifications for commercial services.
- All waterlines shall be kept ten feet (10') apart (parallel) from sanitary sewer lines or manholes. Or when crossing, an 18" vertical clearance (outside edge of pipe to outside edge of pipe) of the waterline above the sewer line is required.
- Trench Drain shall be ACO S200K or approved equal.
- Trench Drain shall be installed in accordance with the manufacturer's installation instructions and recommendations.
- In the event of a vertical conflict between waterlines, sanitary lines, storm lines and gas lines (existing and proposed), the sanitary line shall be ductile iron pipe with mechanical joints at least 10 feet on both sides of the crossing (or encased in concrete the same distance), the waterline shall have mechanical joints with appropriate thrust blocking as required to provide a minimum of 18" clearance. Meeting requirements ANSI A21.10 or ANSI 21.11 (AWWA C151)(Class 50).
- All underground storm, sanitary, water and other utility lines shall be installed, inspected and approved before backfilling. Failure to have inspection approval prior to backfill will constitute rejection of work.
- All necessary inspections and/or certifications required by codes and/or utility service companies shall be performed prior to announced building possession and the final connection of service. Contractor shall coordinate with all utility companies for installation requirements and specifications.
- refer to building plans for site lighting electrical plan, irrigation, parking lot security system and associated conduit requirements. Coordinate with Owner that all required conduits are in place and tested prior to paving.
- When a building utility Connection from site utilities leading up to the building cannot be made immediately, temporarily mark all such utility terminations.

EARTHWORK NOTES:

- CONTOURS AND ELEVATIONS: Existing and proposed contours are shown on plans at one foot (1') contour intervals, unless otherwise noted. Proposed contours and elevations shown represent approximate finish grade.
- CLEARING AND GRUBBING: Prior to the start of grading and earthwork, the areas to be graded shall be stripped of all vegetation, organic matter, and topsoil, to a minimum depth of four inches (4") or as otherwise directed by the Geotechnical Engineer. Stripping materials shall not be incorporated into structural fills. Topsoil materials shall not be used in building and pavement areas.
- TOPSOIL: Prior to the start of grading, the contractor shall strip all topsoil from areas to be graded and stockpile at a location on or adjacent to the site as directed by the owner. At completion of grading operations and related construction, the contractor will be responsible for redistribution of topsoil over all areas disturbed by the construction activities. Topsoil shall be placed to a minimum depth of six inches (6") and in accordance with specifications for landscaping.
- SUBGRADE PREPARATION: Prior to placement of new fill material, the existing subgrade shall be proofrolled and approved under the direction of the Geotechnical Engineer or his representative.
- PROOFROLLING: Prior to the placement of new fill material, the existing subgrade shall be proofrolled and approved under the direction of the Geotechnical Engineer. Unsuitable areas identified by the proofrolling areas shall be undercut and replaced with controlled structural fill or treated with flyash per the Geotechnical report.
- EARTHWORK:
 - GEOTECHNICAL: All earthwork shall conform to the recommendations of the Geotechnical report.
 - SURFACE WATER: Surface water shall be intercepted and diverted during the placement of fill.
 - FILLS: All fills shall be considered controlled or structural fill and shall be free of vegetation, organic matter, topsoil, and debris. All fill required for project shall be provided by the Contractor. Material Shall be pre-approved by the Engineer prior to placement.
 - EXISTING SLOPES: Where fill material is to be placed on existing slopes greater than 5:1 (horizontal to vertical), existing slope shall be benched providing a minimum vertical face of twelve inches (12"). Fill material shall be placed and compacted in horizontal lifts not exceeding nine inches (9") (loose fit measurement), unless otherwise approved by the Geotechnical Engineer.
 - COMPACTION REQUIREMENTS: Earth fill material shall be placed and compacted to a minimum density of ninety five percent (95%) of the material's maximum dry density as determined by ASTM D698 (standard proctor compaction). The moisture content at the time of placement and compaction shall be within a range of -2% to 3% above the optimum moisture content as defined by the standard proctor compaction procedure. The moisture contents shall be maintained within this range until completion of the work. Where compaction of earth fill by a large roller is impractical or undesirable, the earth fill shall be hand compacted with small vibrating rollers or mechanical tampers.
- TESTING AND INSPECTION: Testing and inspection services required to make tests required by the specifications and to observe the placement of fills and other work performed on this project shall be provided by a commercial testing laboratory (Geotechnical Engineer) selected by the owner. The cost of testing will be the owner's responsibility.
- SEEDING: All areas disturbed by earthwork operations in the right-of-way shall be seeded.

Summary of Quantities			
Item	Description	Qty.	Unit
1	Clearing and Grubbing	1	LS
2	Demolition	1	LS
3	2" Asphaltic Concrete Surface	152	TONS
4	4" Asphaltic Concrete Base	305	TONS
5	6" MODOT Type 5 Base	226	CY
6	6" Chemical Subgrade Stabilization	226	CY
7	Curb and Gutter	755	LF
8	Sidewalk	2163	SF
9	ADA Ramp	2	EA
10	R8-3a NO PARKING SIGN (24" x 30")	10	LS
11	R1-1 STOP SIGN (30" x 30")	1	LS
12	4" Data Line Conduit	1,926	LF
13	4" Underground Power Conduit	1,920	LF
14	4' x 3' Curb Inlet	2	EA
15	12" RCP	100	LF
16	15" RCP	35	LF
17	18" HDPE	122	LF
18	End Section	3	EA
19	4' Dia. Sanitary Manhole	4	EA
20	8" (SDR-26) PVC	521	LF
21	Connection to Existing Manhole	1	LS
22	AWWA C900 PVC	510	LF
23	6" Tee	1	LF
24	6" x 11.25° Horizontal Bend	4	EA
25	6" x 22.5° Horizontal Bend	2	EA
26	6" x 45° Horizontal Bend	5	EA
27	6" Gate Valve	1	EA
28	Relocate Existing Fire Hydrant	1	LS
29	Fire Hydrant Assembly	1	EA
30	Erosion Control	1	LS

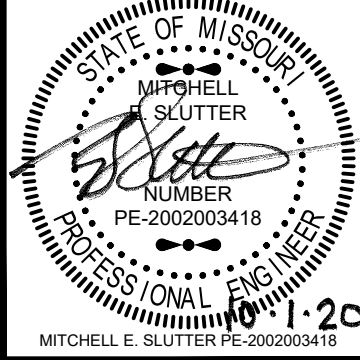
Note:
Quantities are for Information only

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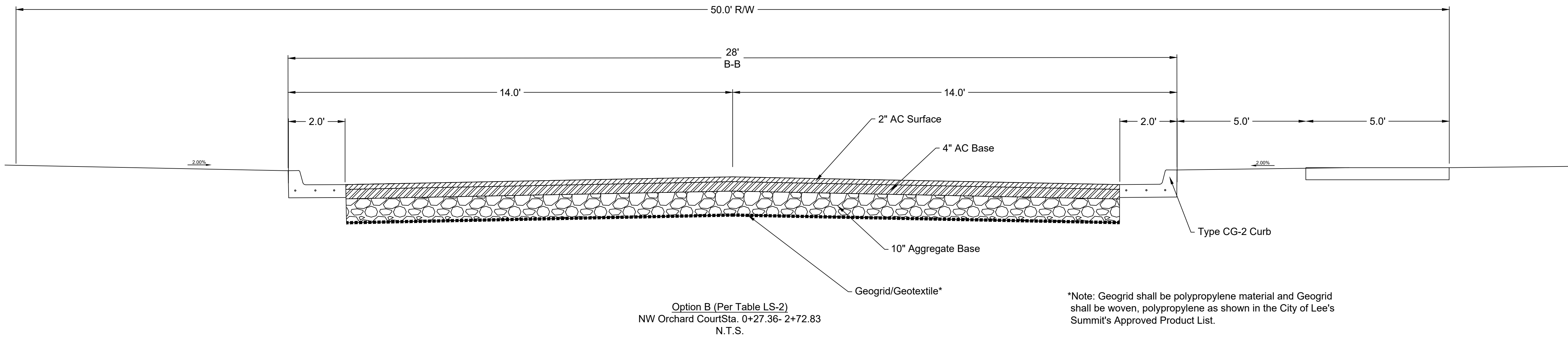
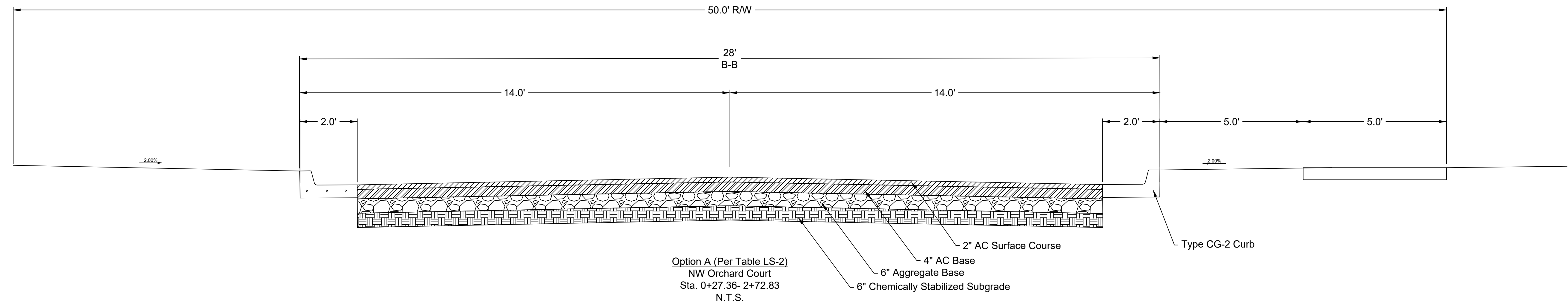
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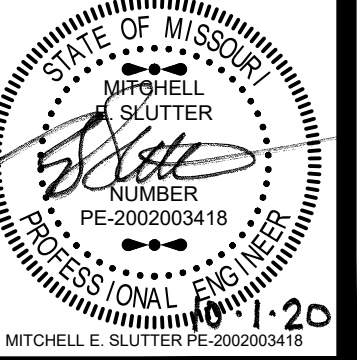
Roadway Typical
Section



*Note: Geogrid shall be polypropylene material and Geogrid shall be woven, polypropylene as shown in the City of Lee's Summit's Approved Product List.

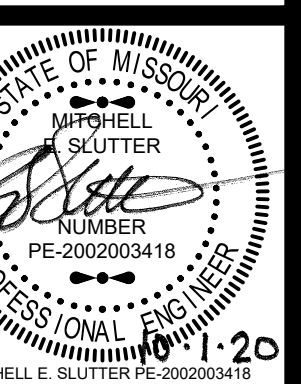
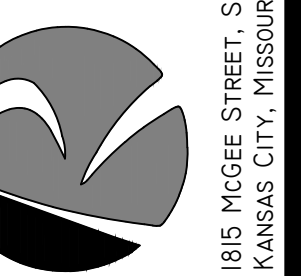
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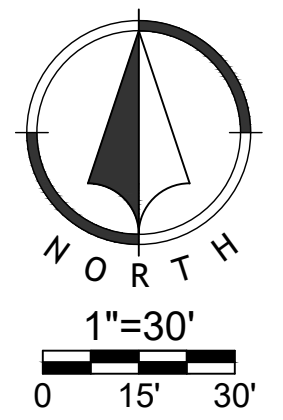
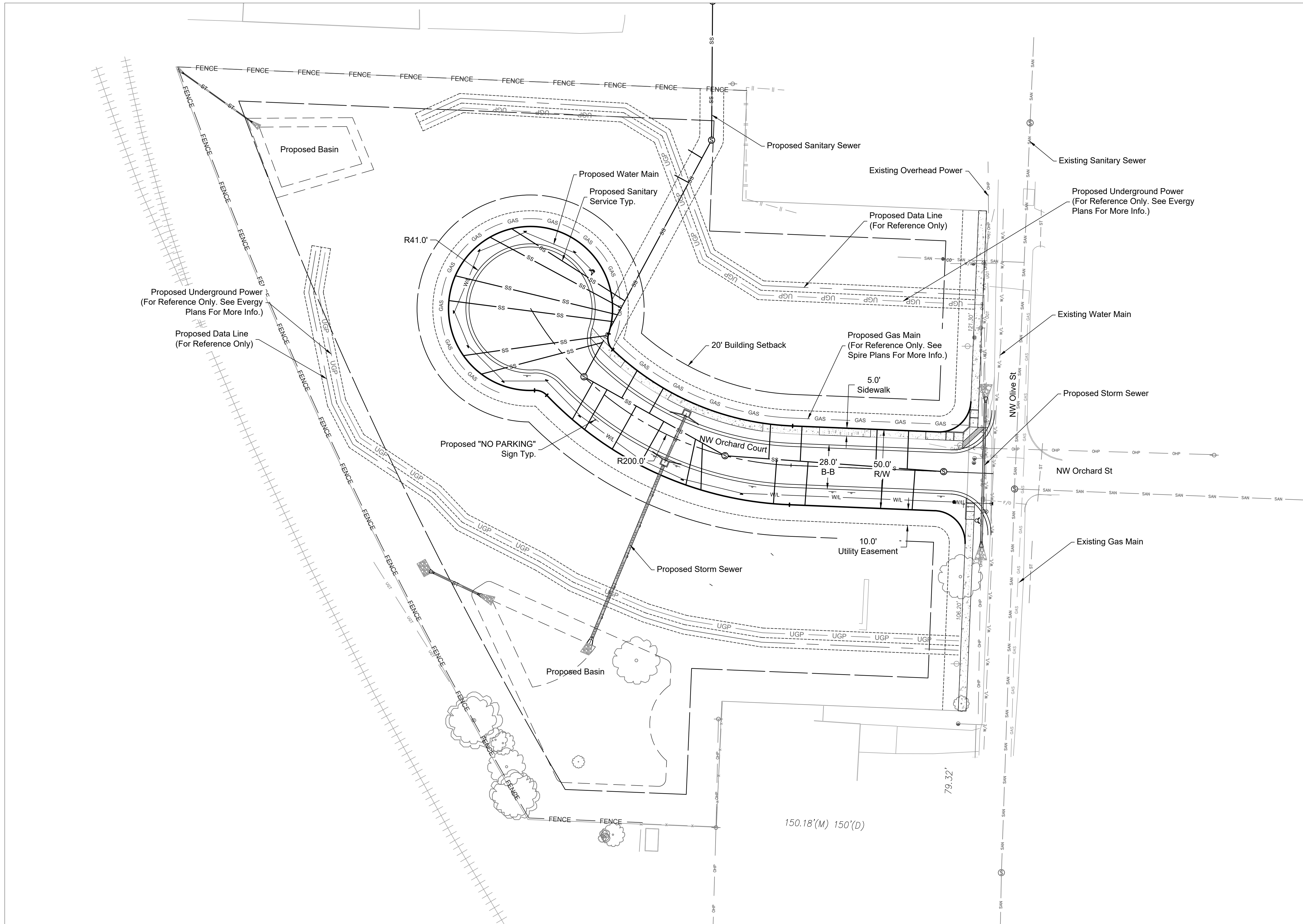


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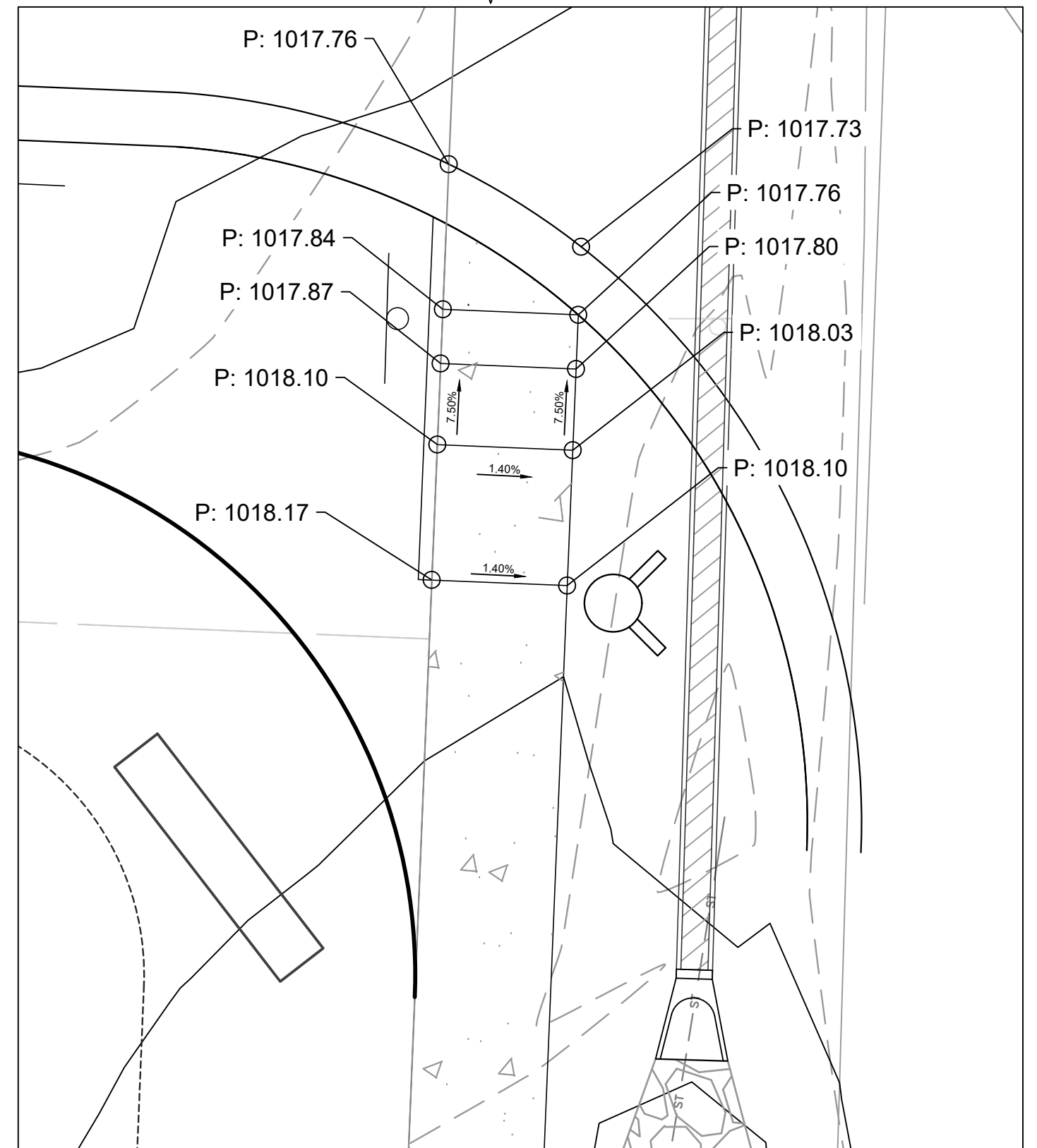
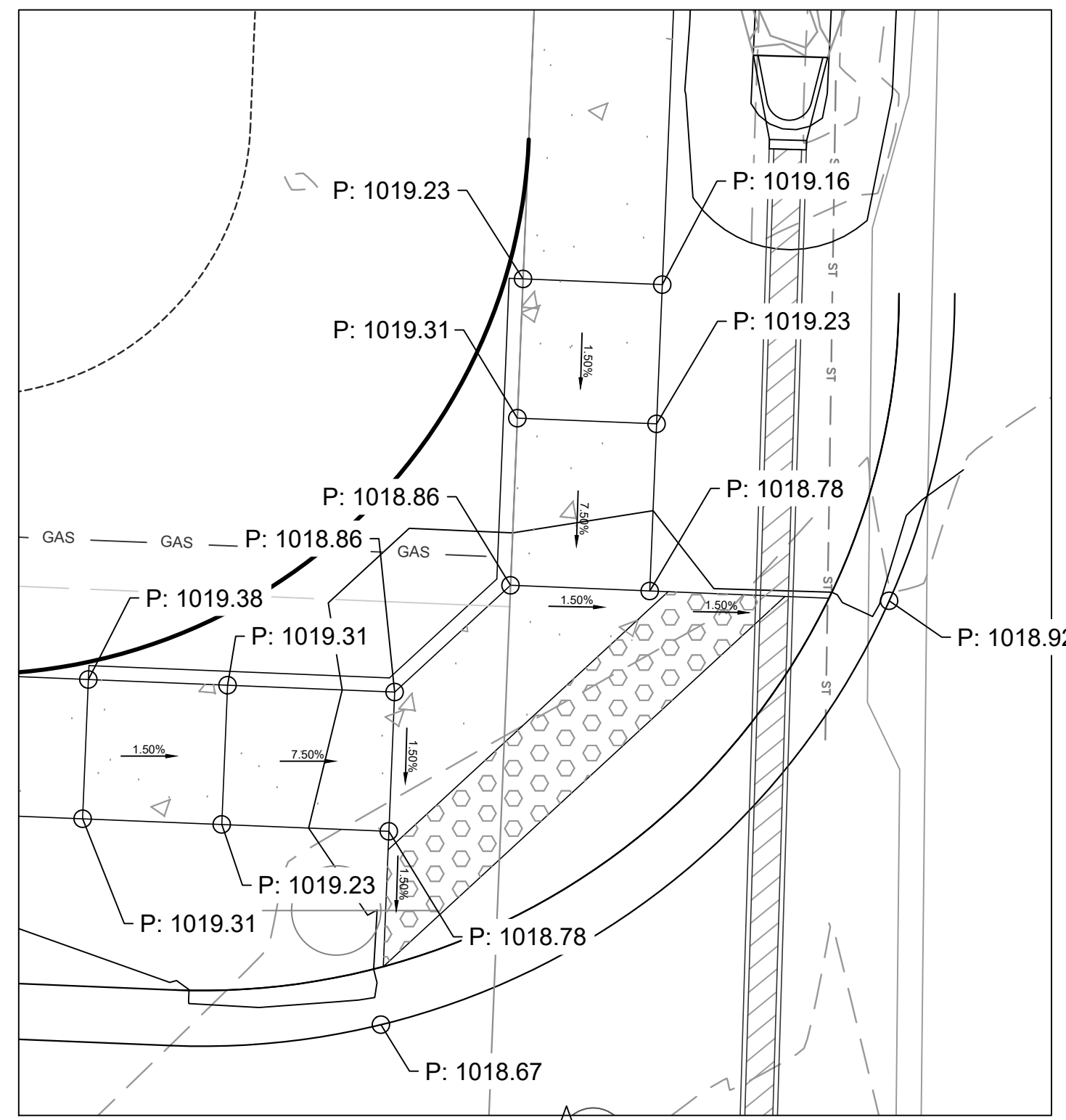
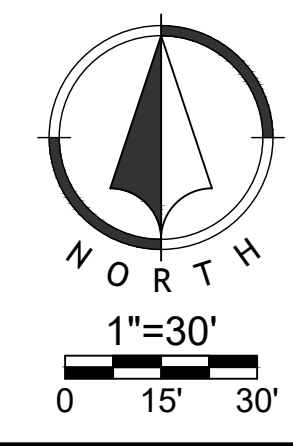
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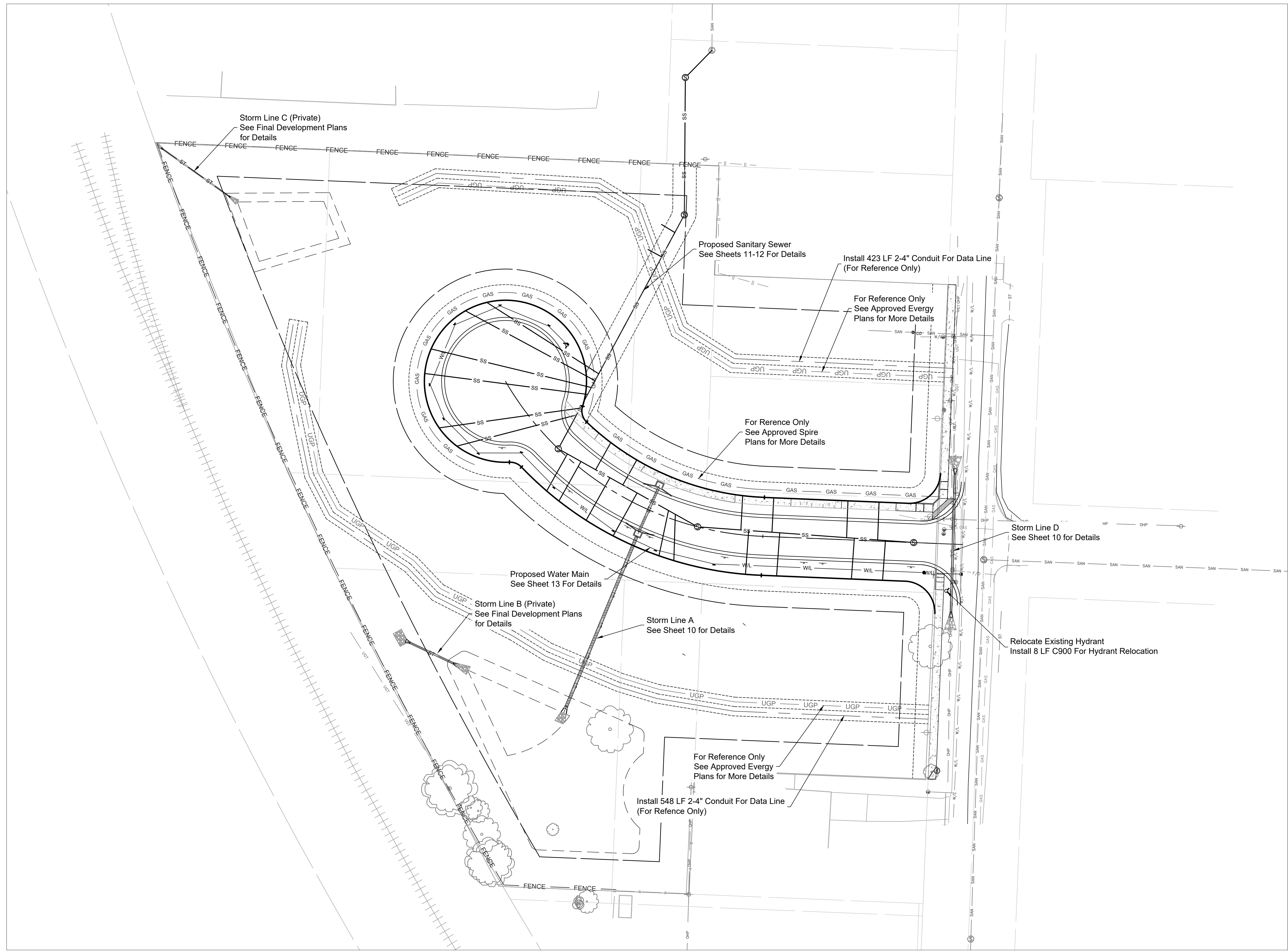


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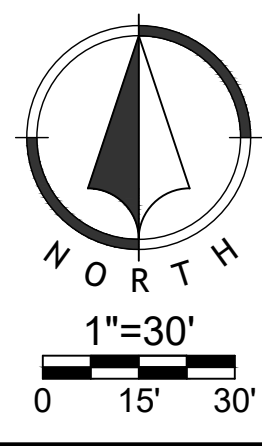
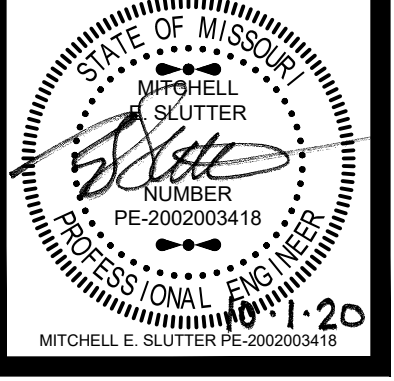
Utility Plan



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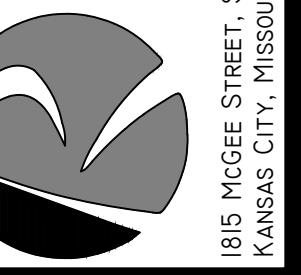
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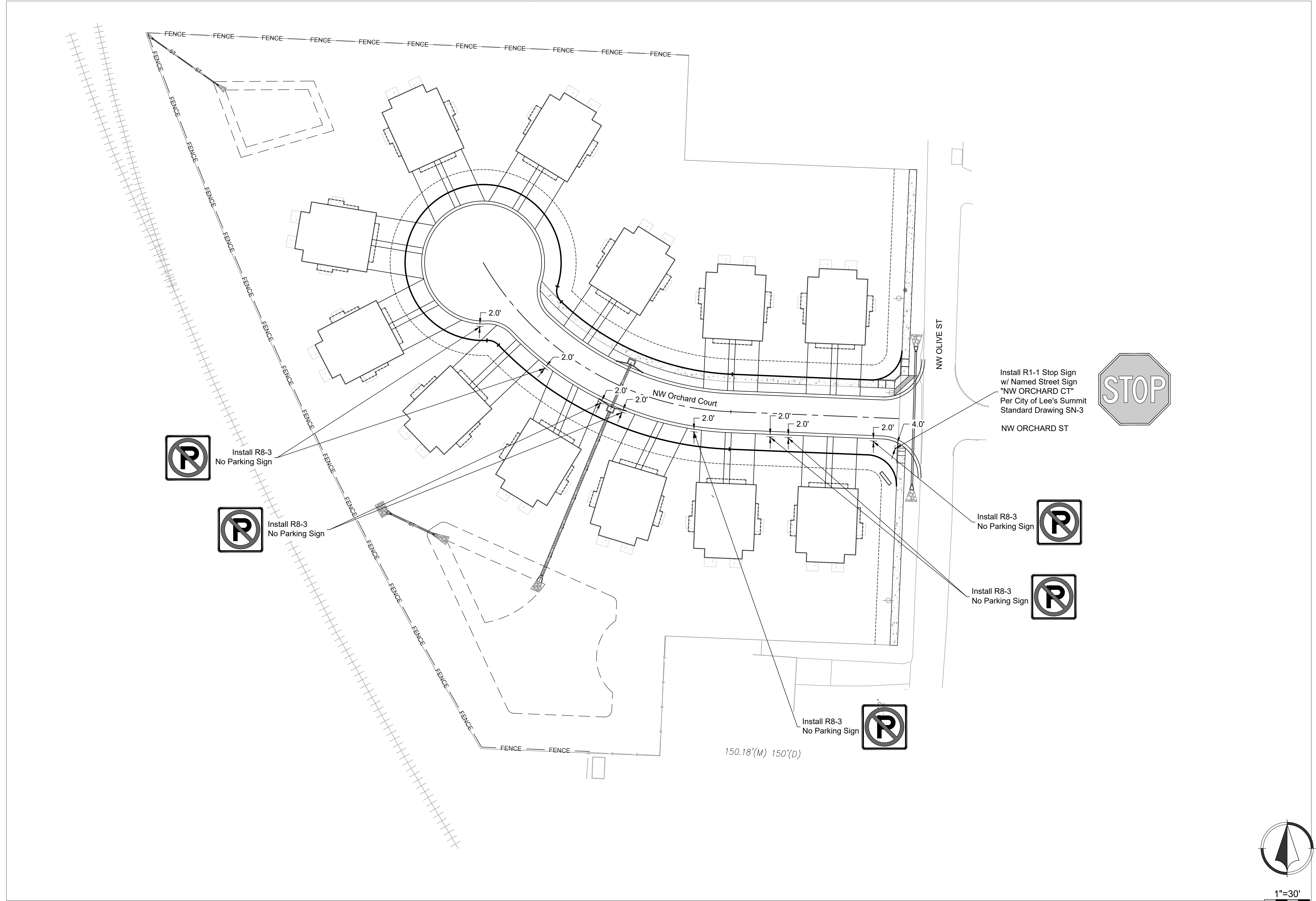
Signing Plan

NO.	BY	DATE	REVISION
3	JGD	MES 10/01/20	PER CITY COMMENT
2	JGD	MES 06/11/20	PER CITY COMMENT
1	JGD	MES 06/08/20	ORIGINAL SUBMISSION

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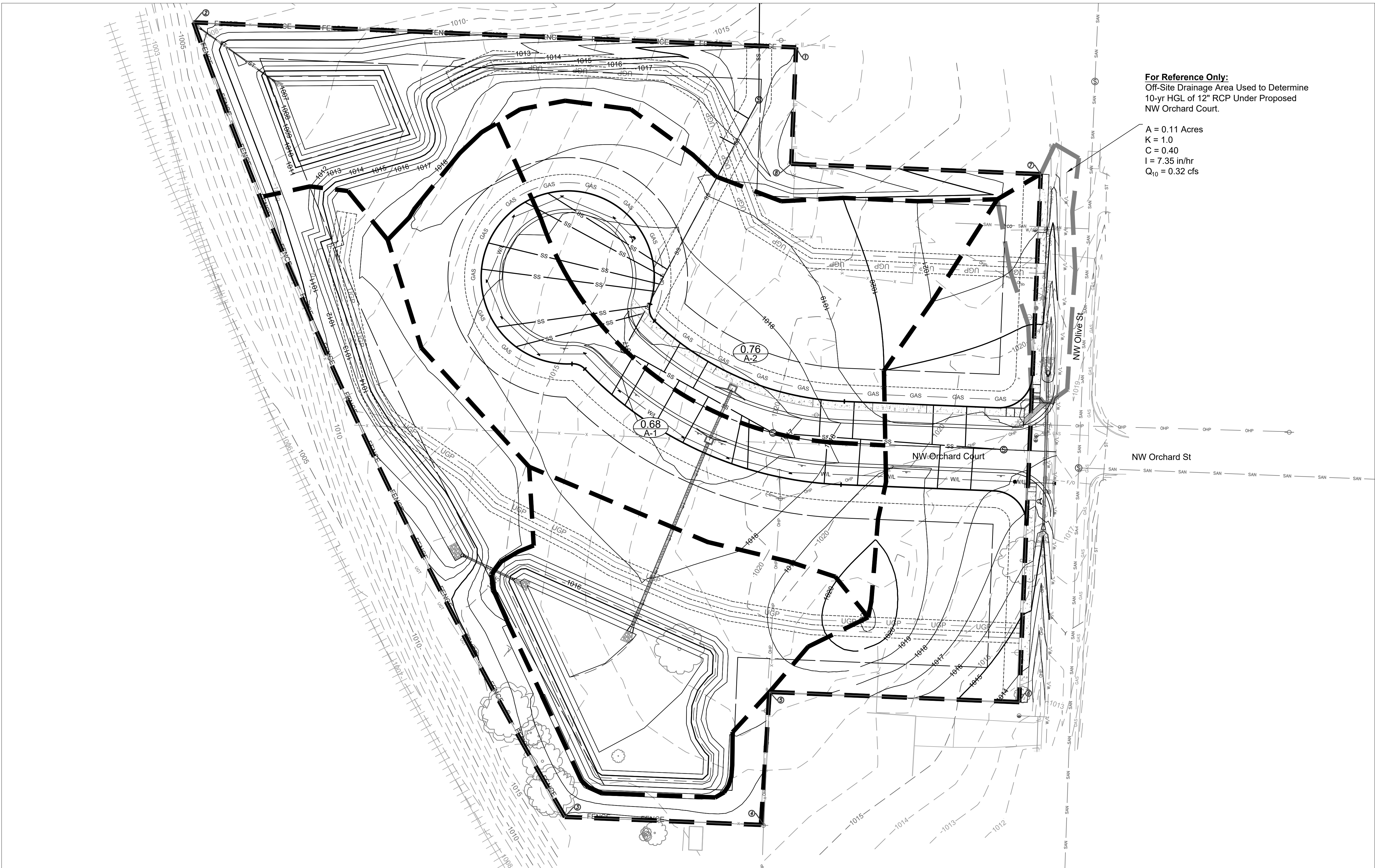
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Drainage Plan

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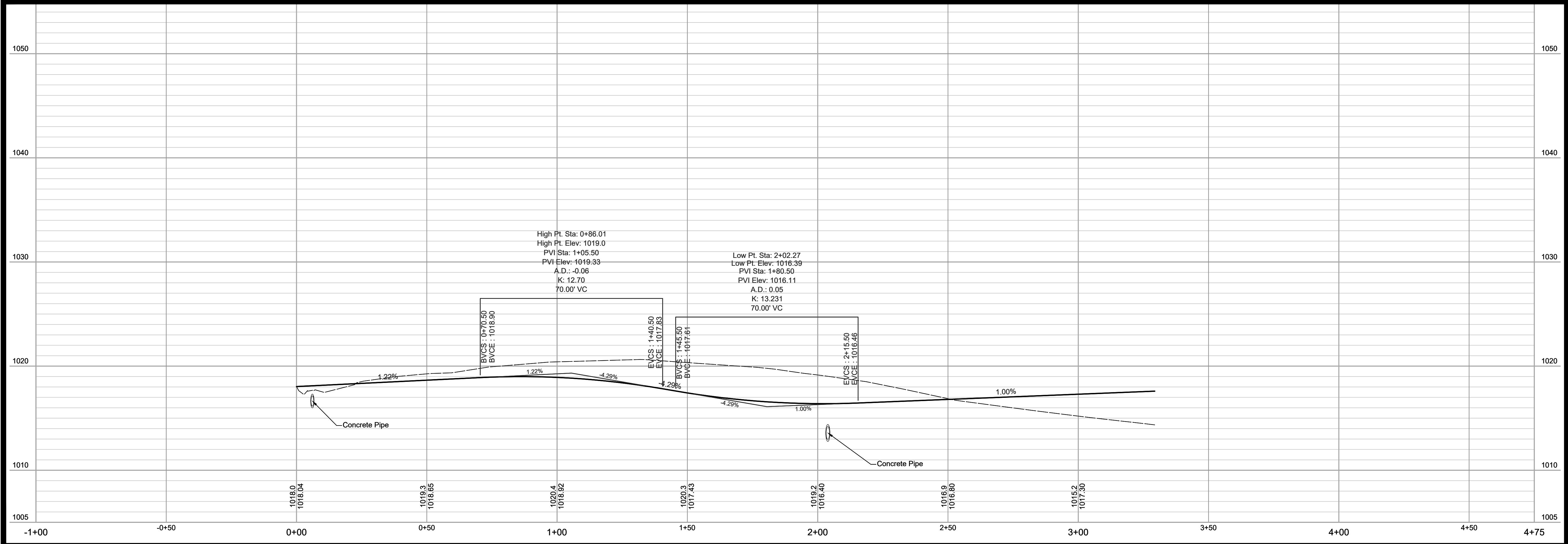
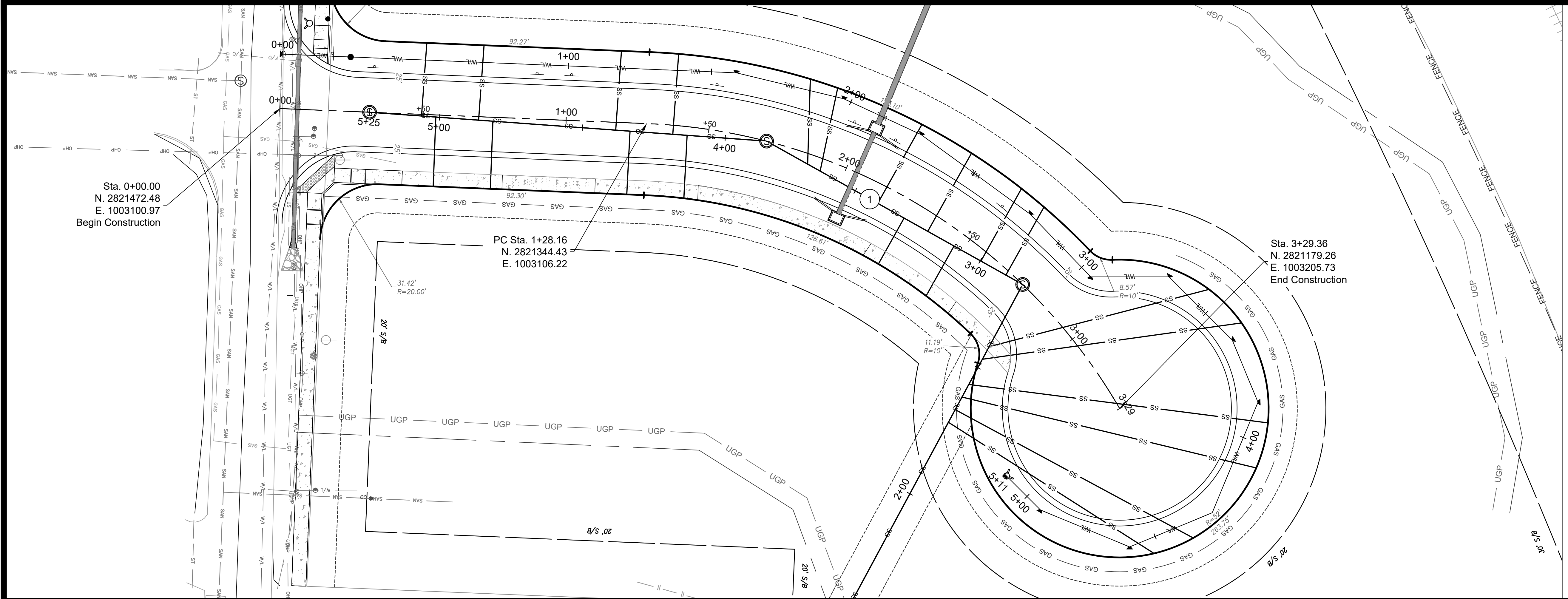
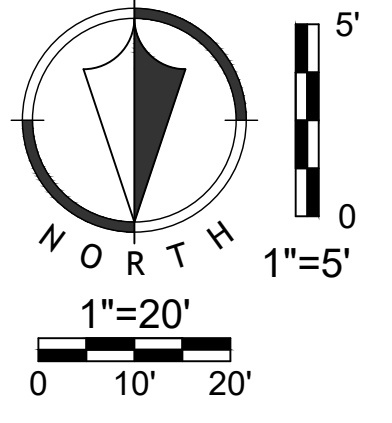
For Reference Only:
Off-Site Drainage Area Used to Determine
10-yr HGL of 12" RCP Under Proposed
NW Orchard Court.

A = 0.11 Acres
K = 1.0
C = 0.40
I = 7.35 in/hr
Q₁₀ = 0.32 cfs



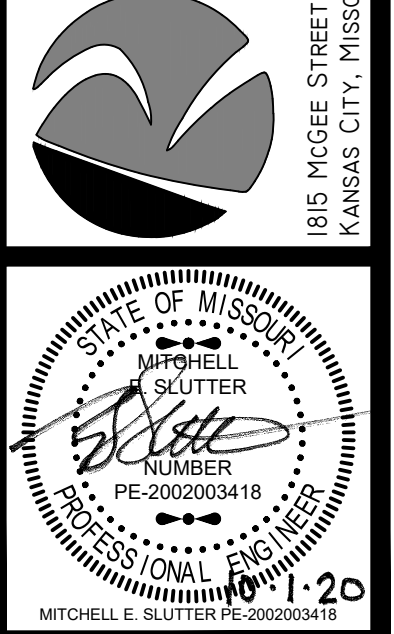
Overland Flow												System Flow					Pipe Design										Structure Design														
Line	Point	Trib. Area (Ac.)	"C" Value	Design Storm	"K" Value	Time of Conc. (min.)	Intensity i (in./hr.)	Trib Runoff (cfs)	Bypass flow (cfs)	Total Runoff (cfs)	Total Area (Ac.)	Total (K*A*C)	Time of Conc. (min.)	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		
A	A-2	0.760	0.66	25	1.1	5.00	7.35	4.06	0.00	4.06	0.760	0.55	5.00	7.35	4.06	A-2	A	RCP	Round	15	34.37	0.013	0.52	4.06	4.66	3.79	4.27	10.8	0.13	1013.05	1014.30	1012.87	1014.12	2.34	-2.51	1014.05	1014.05	I	1016.64		
				100	1.25		10.32	6.47	1.82	8.29		0.63		10.32	6.47									6.47			5.43													3.79	15.0
A	A-1	0.680	0.66	25	1.1	5.00	7.35	3.63	0.00	3.63	1.440	1.05	5.00	7.35	7.69	A-1	0	HDPE	Round	18	124.52	0.01	0.50	7.69	9.60	5.43	6.02	12.1	0.34	1012.62	1014.12	1012.00	1013.50	2.51	-1.50	1013.72	1013.57	I	1016.63		
				100	1.25		10.32	5.79	2.66	8.45		1.19		10.32	12.26									5.43			18.0													0.38	
A	A																																								1013.50

Horizontal Curve Data:
PC Sta. 1+28.16
PT Sta. 3+29.36
Radius: 200'
Chord Length: 192.83'
L: 201.20
Delta Angle: 57.64°



NO.	BY	DATE	REVISION
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2	JGD MES	06/11/20	PER CITY COMMENT
1	JGD MES	05/08/20	ORIGINAL SUBMISSION

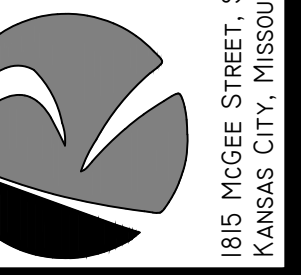
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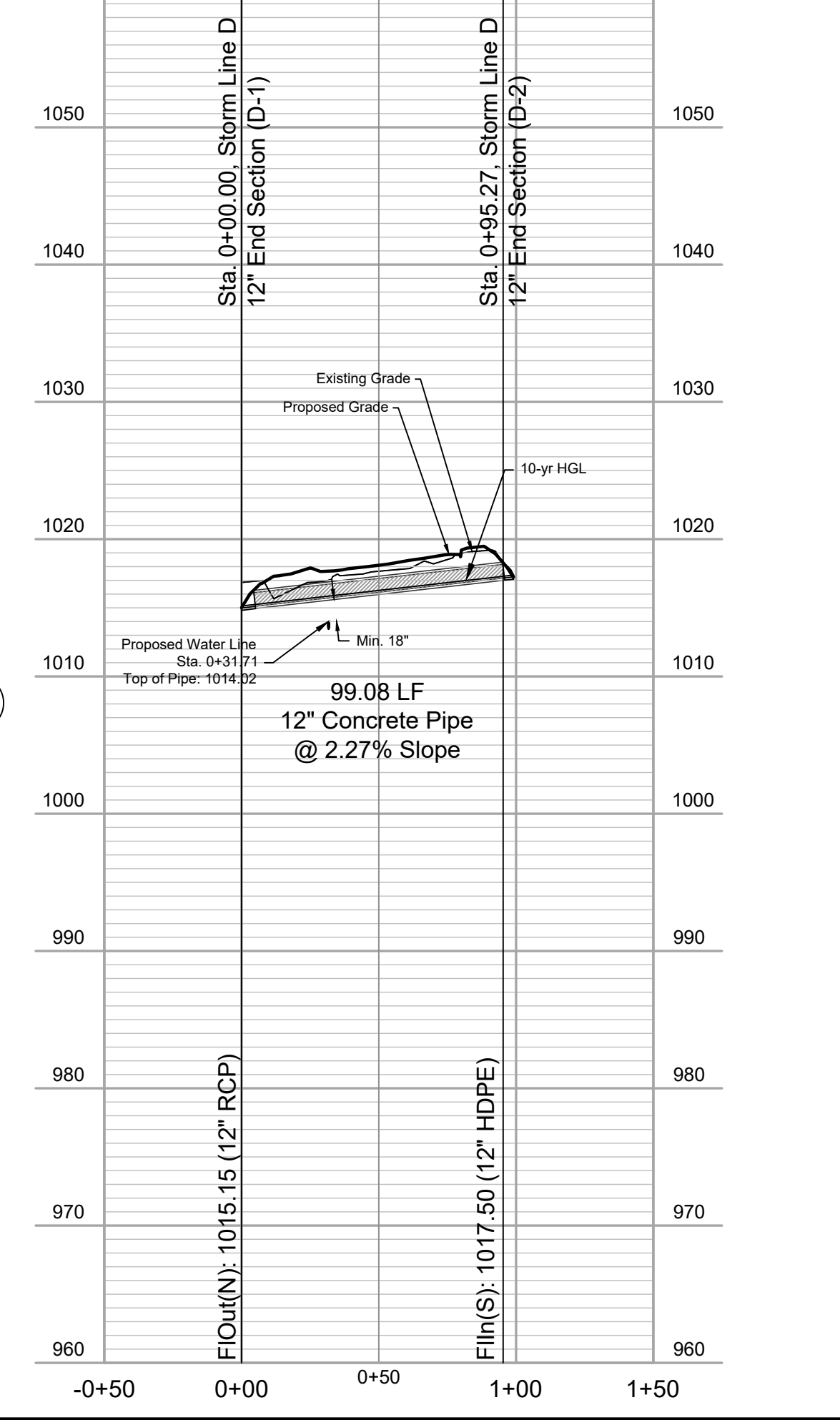
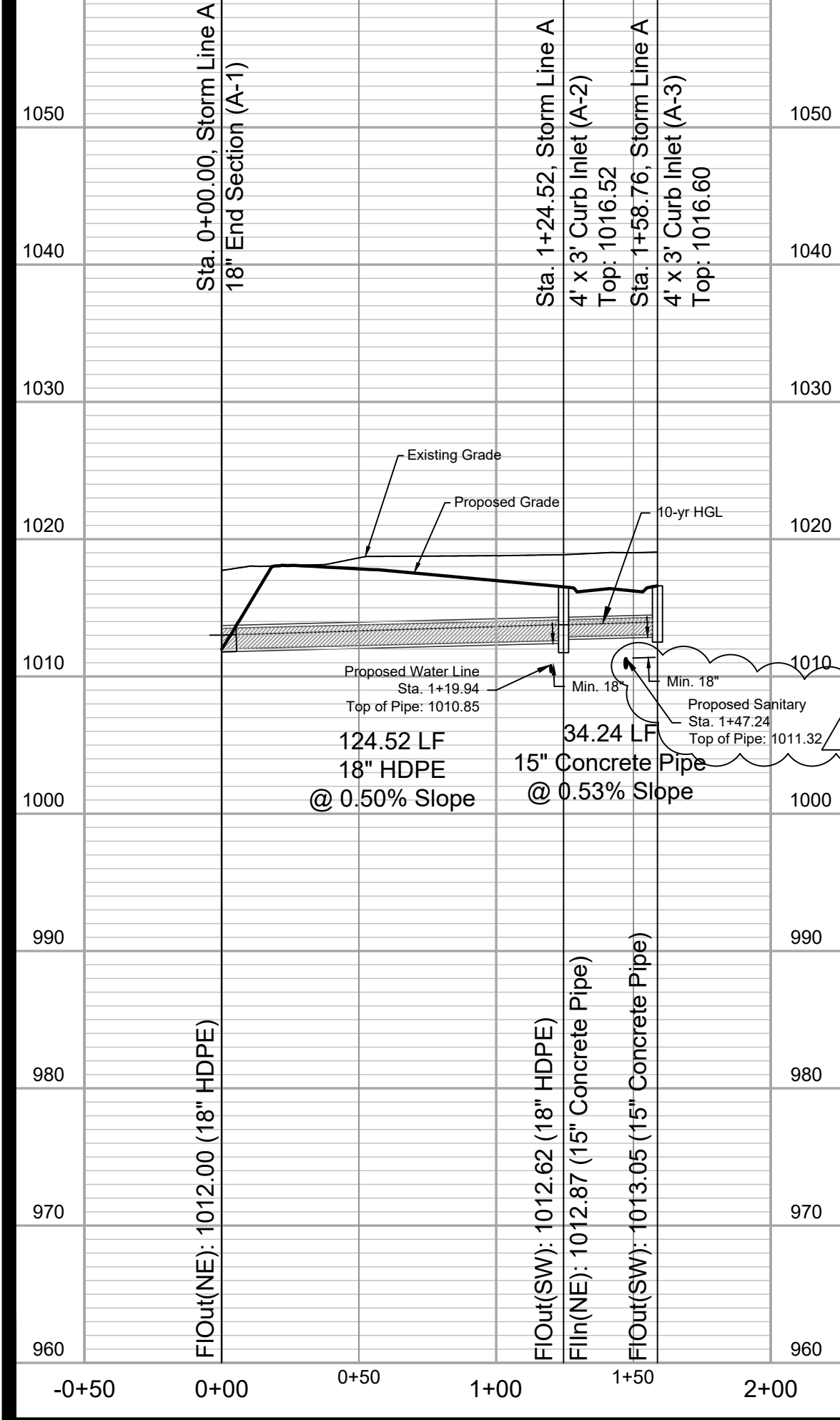
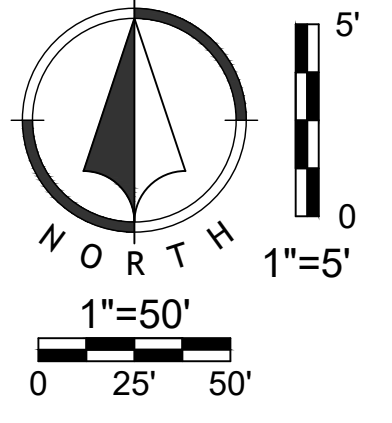
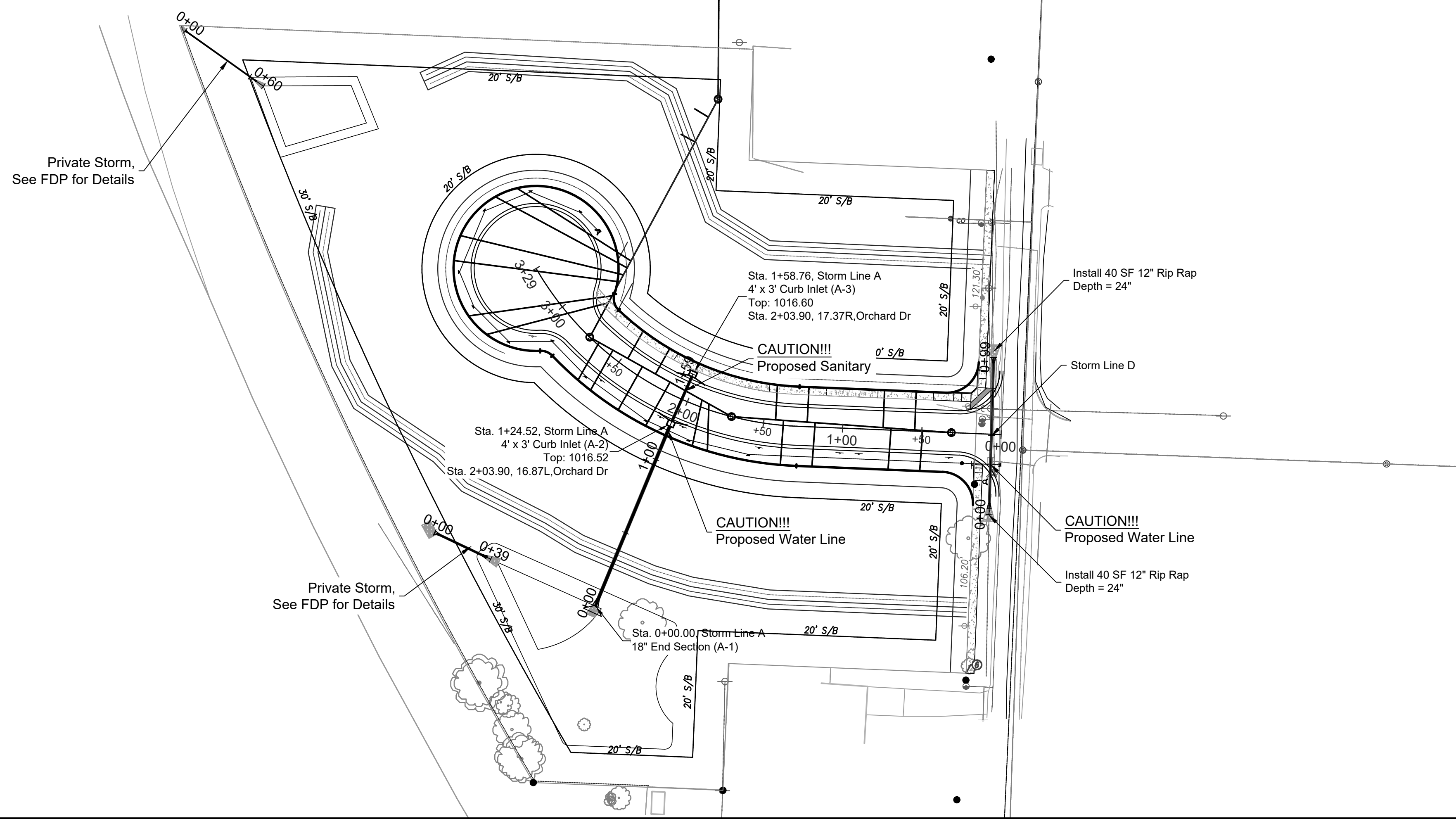
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GENERAL NOTES

- All construction materials and procedures on this project shall conform to the following requirements:
 - City of Lee's Summit, Missouri Standard Specifications: Section 3500 - Sanitary Sewers
- The contractor will be responsible for securing all bonds, and insurance required by the Final Development Plans, City of Lee's Summit, 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.
- 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.
- 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.
- 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.
- By use of these Final Development Plans 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.
- 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.
- Contractor shall furnish evidence that his/her insurance meets the requirements of the City of Lee's Summit Municipal Code.
- 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.
- The Developer (not the contractor) to pick up all permits.

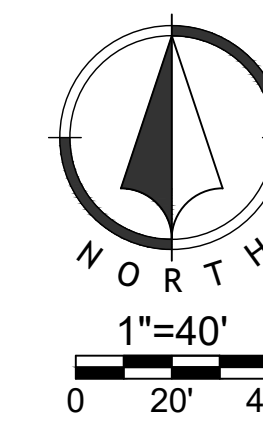
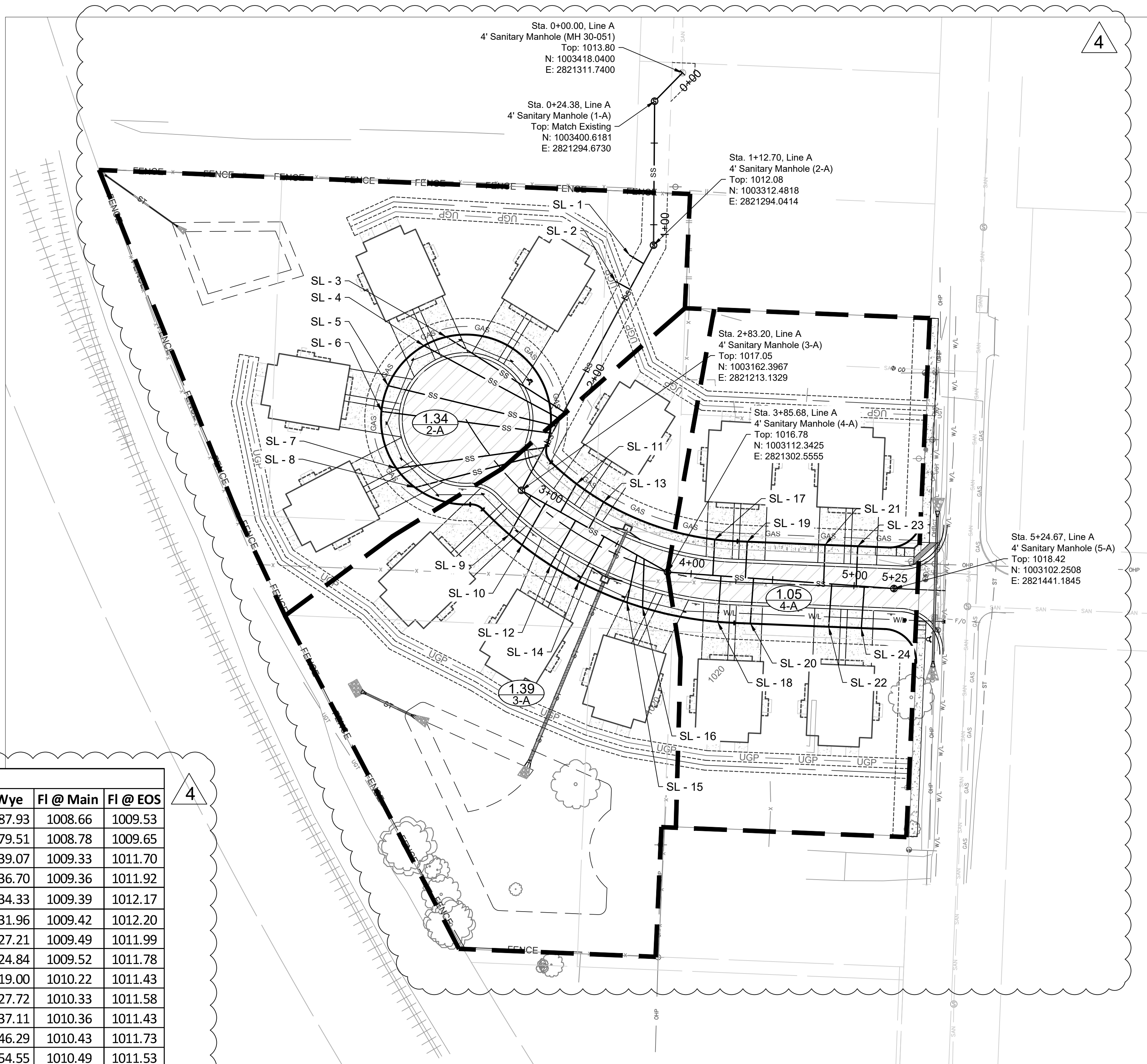
Summary of Quantities

Item	Description	Qty.	Unit
1	8" (SDR-26)PVC	525	LF
2	4" (SDR-26) PVC	1000	LF
3	4" Dia. Concrete Manhole	5	EA
4	8" x 4" PVC Wye	24	EA
5	Erosion Control	1	LS

Proposed Service Line Design Table

Service Line	Sta @ Main (ft)	D.D.S (ft)	Install Pipe (LF)	N @ EOS	E @ EOS	N @ Wye	E @ Wye	FI @ Main	FI @ EOS
SL-1	1+25.05	12.87	10.00	1003306.35	2821279.37	1003301.15	2821287.93	1008.66	1009.53
SL-2	1+43.31	30.62	10.00	1003290.28	2821270.71	1003285.53	2821279.51	1008.78	1009.65
SL-3	2+28.53	115.84	85.19	1003256.32	2821167.25	1003210.52	2821239.07	1009.33	1011.70
SL-4	2+33.53	120.84	94.45	1003250.93	2821153.56	1003206.12	2821236.70	1009.36	1011.92
SL-5	2+38.53	125.84	105.69	1003226.47	2821131.58	1003201.71	2821234.33	1009.39	1012.17
SL-6	2+43.53	130.84	105.31	1003210.72	2821127.50	1003197.31	2821231.96	1009.42	1012.20
SL-7	2+53.53	140.84	91.37	1003175.82	2821136.72	1003188.51	2821227.21	1009.49	1011.99
SL-8	2+58.53	145.84	79.32	1003164.12	2821148.08	1003184.11	2821224.84	1009.52	1011.78
SL-9	2+89.92	6.72	27.23	1003135.36	2821205.70	1003159.12	2821219.00	1010.22	1011.43
SL-10	2+99.92	16.72	29.00	1003128.92	2821213.55	1003154.23	2821227.72	1010.33	1011.58
SL-11	3+10.68	27.48	19.94	1003166.37	2821246.85	1003148.98	2821237.11	1010.36	1011.43
SL-12	3+21.20	37.99	31.28	1003116.54	2821231.00	1003143.84	2821246.29	1010.43	1011.73
SL-13	3+30.66	47.46	18.36	1003155.24	2821263.52	1003139.21	2821254.55	1010.49	1011.53
SL-14	3+41.20	58.00	31.57	1003106.52	2821248.32	1003134.07	2821263.74	1010.56	1011.86
SL-15	3+64.26	81.06	29.67	1003093.77	2821277.72	1003122.80	2821283.87	1010.71	1011.97
SL-16	3+69.26	86.06	29.72	1003090.66	2821287.28	1003120.36	2821288.23	1010.74	1012.00
SL-17	4+13.30	27.84	22.02	1003132.31	2821331.45	1003110.32	2821330.32	1011.23	1012.34
SL-18	4+18.52	32.84	28.16	1003081.87	2821333.26	1003109.96	2821335.31	1011.26	1012.49
SL-19	4+33.50	47.82	22.11	1003130.95	2821351.39	1003108.87	2821350.25	1011.36	1012.47
SL-20	4+38.50	52.82	27.74	1003080.84	2821353.23	1003108.51	2821355.24	1011.39	1012.61
SL-21	4+81.51	95.83	23.63	1003129.00	2821399.01	1003105.38	2821398.13	1011.67	1012.81
SL-22	4+86.51	100.83	26.22	1003078.87	2821401.21	1003105.02	2821403.12	1011.70	1012.89
SL-23	5+01.49	115.82	24.27	1003128.12	2821418.96	1003103.93	2821418.07	1011.80	1012.96
SL-24	5+06.50	120.82	25.59	1003078.05	2821421.19	1003103.57	2821423.05	1011.83	1013.01

Segment	Peak Base Flow (Residential)			Peak Infiltration			Peak Inflow			Design Peak Flow, cfs	Pipe Full Capacity, cfs	Pipe Dia. Inches	Pipe Length, ft	Pipe Slope, %	Pipe Vel Full fps	Design Vel, fps		
	U/S MH	D/S MH	Area, acres	PDWF, gpd/ac	Flow, cfs	Area, acres	Infiltration Rate, gpd/ac	Flow, cfs	Tributary Area, acres								Rainfall Intensity, iph	Inflow Factor
5-A	4-A	0.000	1500	0.000	0.000	500.000	0.000	0.000	5.490	0.006	0.000	0.000	0.907	8.000	139.000	0.650	2.599	0.000
4-A	3-A	1.050	1500	0.002	1.050	500.000	0.001	0.000	5.490	0.006	0.000	0.003	0.907	8.000	102.480	0.650	2.599	0.577
3-A	2-A	1.390	1500	0.003	1.390	500.000	0.001	1.040	5.490	0.006	0.034	0.039	0.907	8.000	170.500	0.650	2.599	1.287
2-A	1-A	1.340	1500	0.003	1.340	500.000	0.001	2.440	5.490	0.006	0.080	0.119	0.907	8.000	88.140	0.650	2.599	1.779
1-A	Existing	1.300	1500	0.003	1.300	500.000	0.001	3.780	5.490	0.006	0.125	0.209	0.914	8.000	24.390	0.660	2.619	2.105
Existing	Existing	0.000	1500	0.000	0.000	500.000	0.000	3.780	5.490	0.006	0.125	0.249	0.900	8.000	323.770	0.470	2.578	2.173



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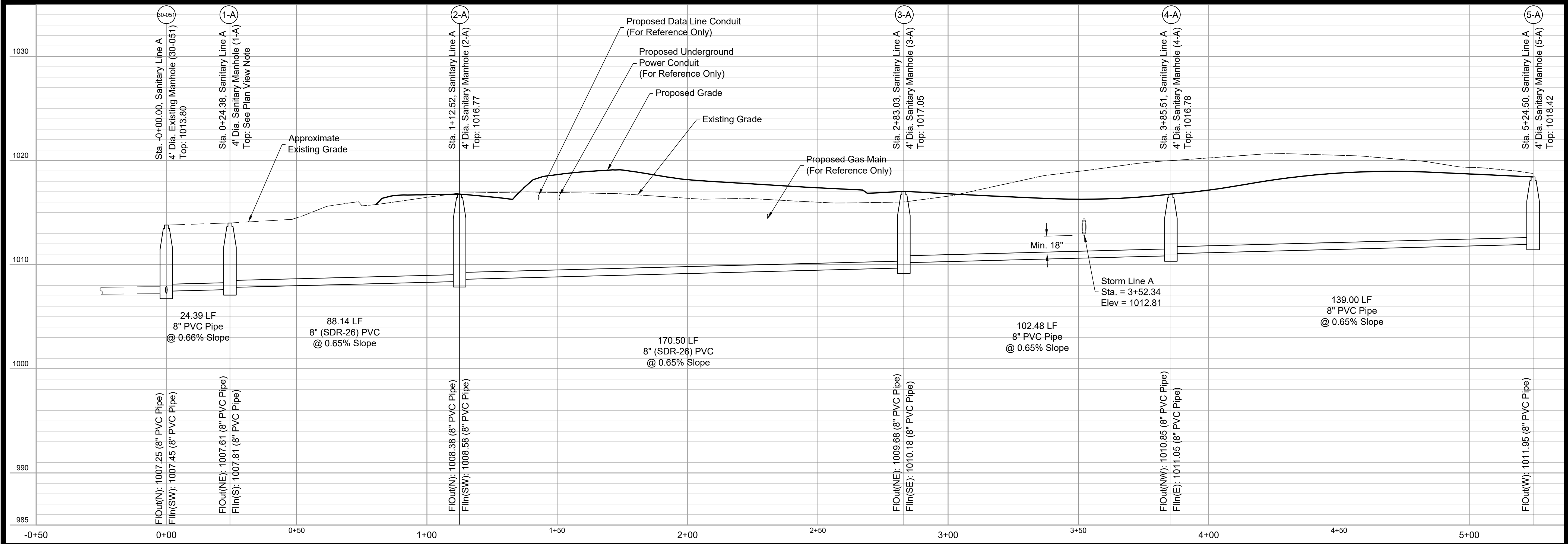
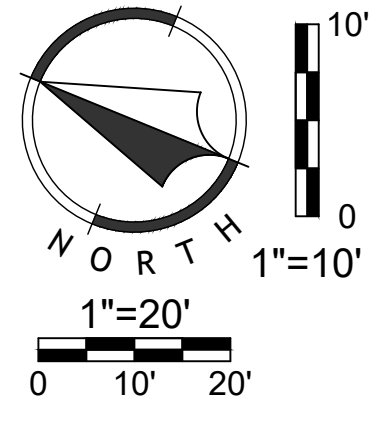
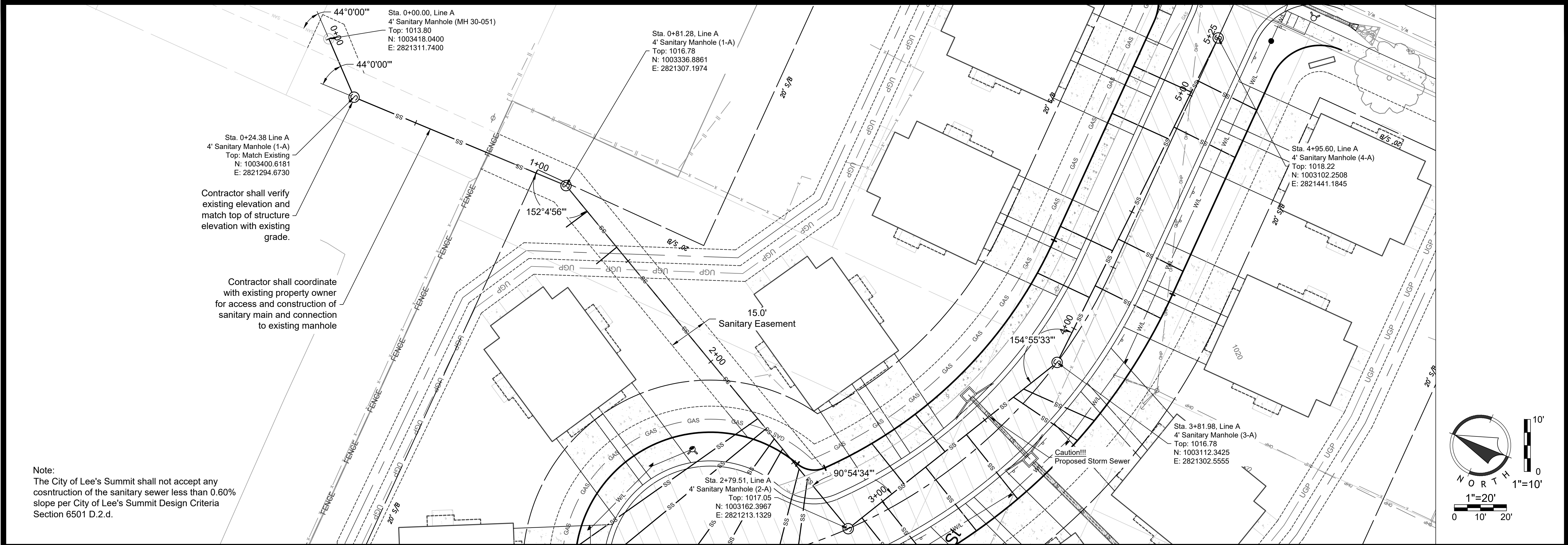
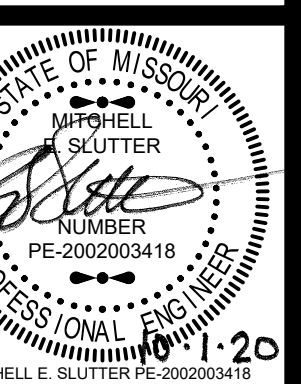
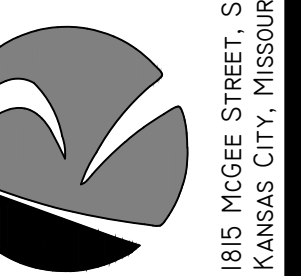
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Professional Engineer Seal: STATE OF MISSOURI, MICHAEL S. SLUTTER, LICENSE NUMBER PE-200203418

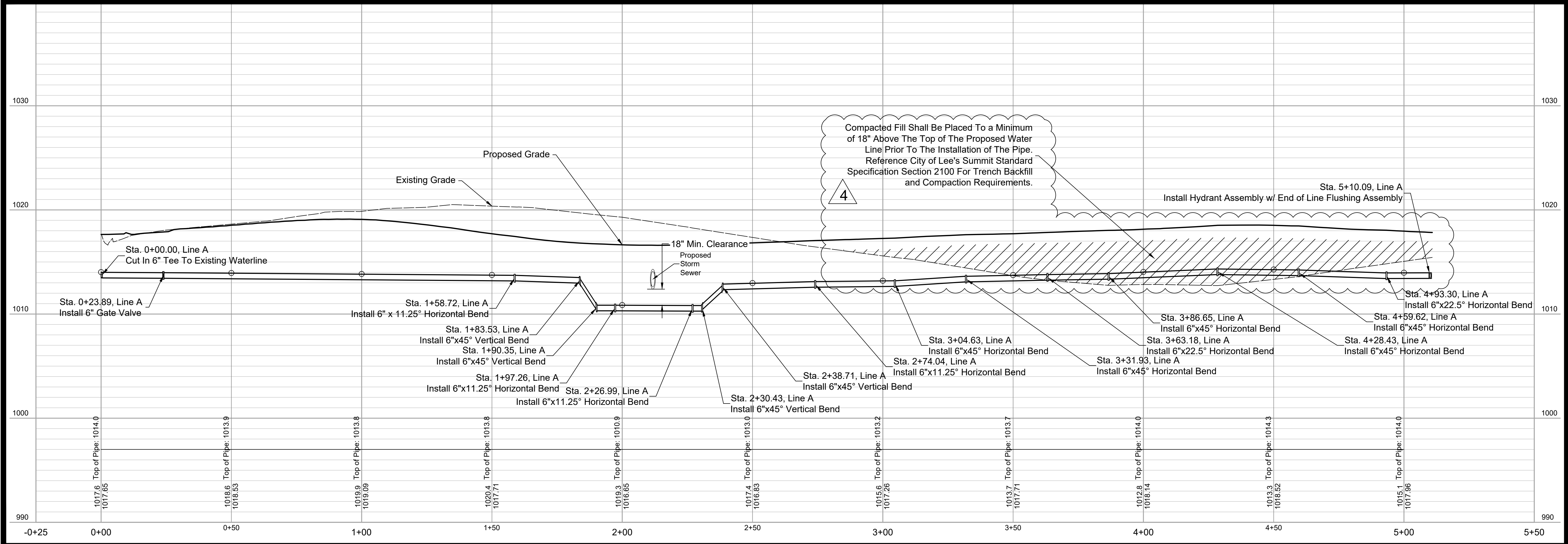
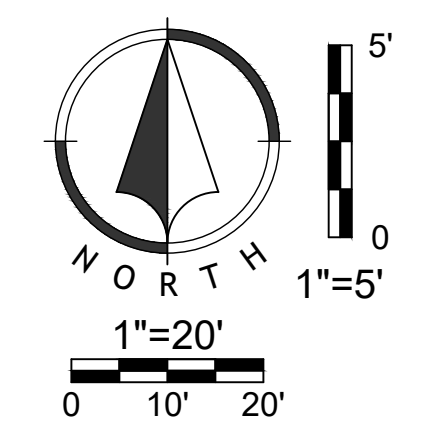
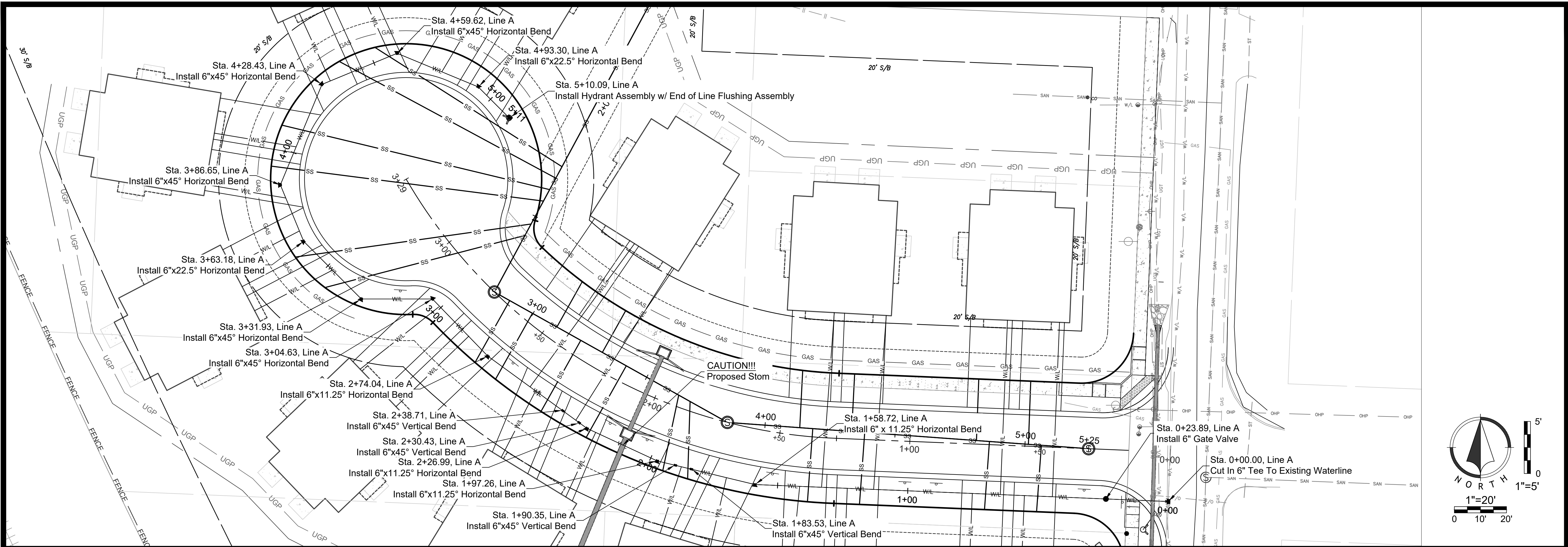
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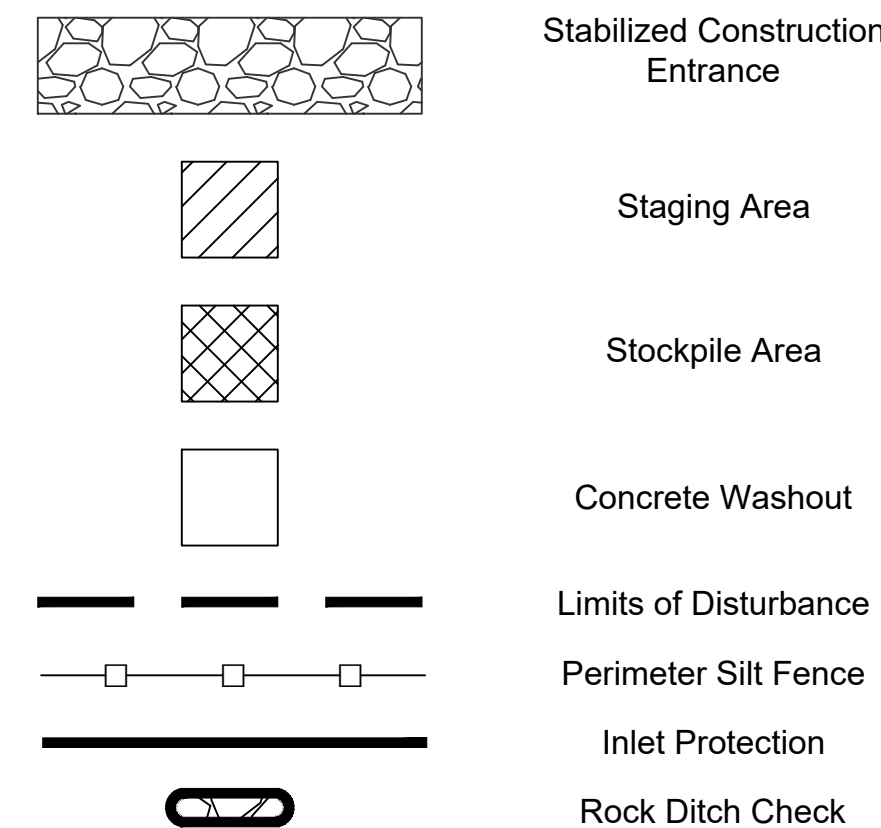
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EROSION CONTROL LEGEND

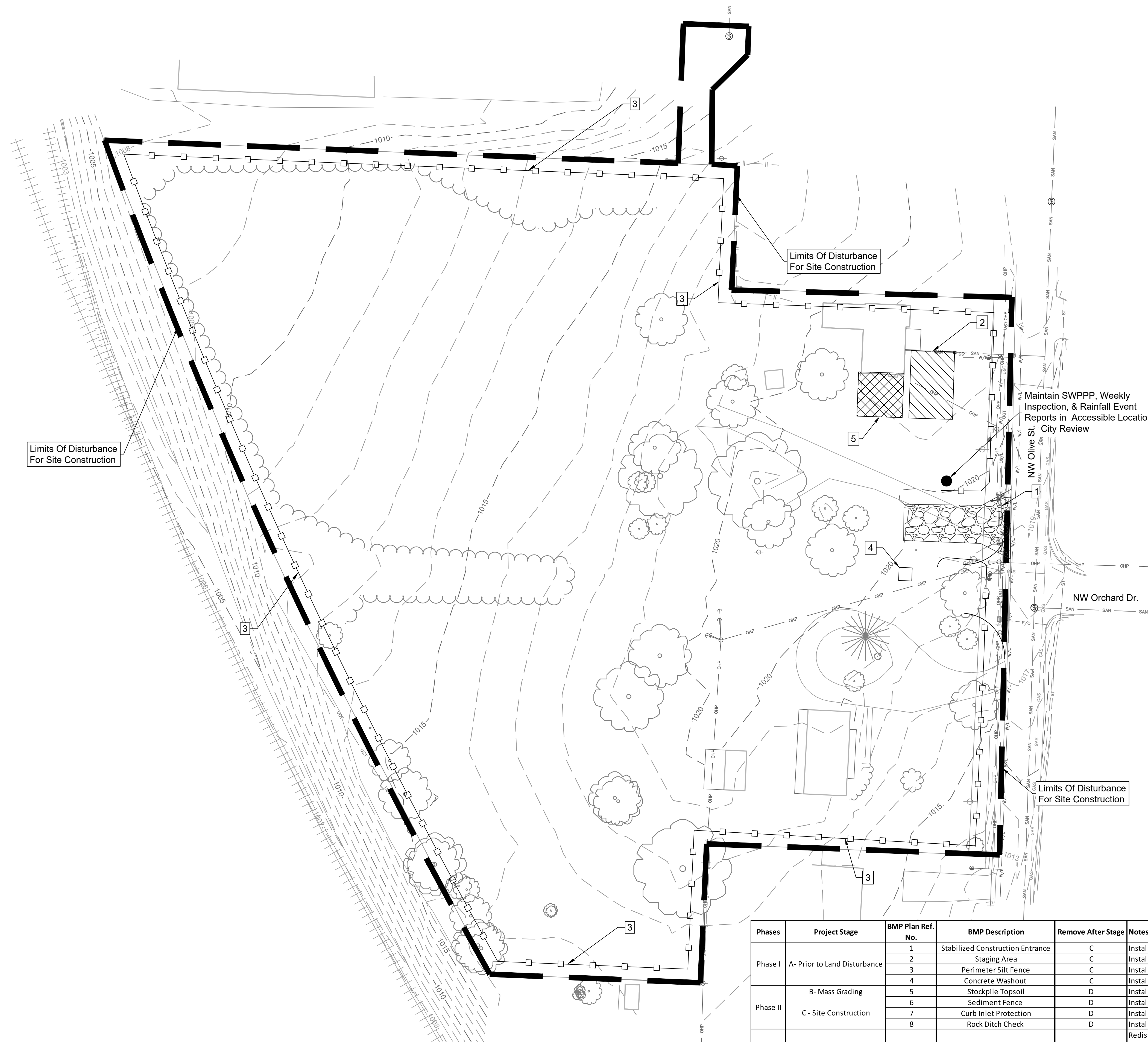


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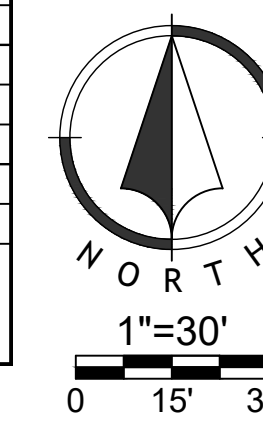
- Implement Pre-Clearing Plan:**
All temporary structural BMP's shown on the pre-clearing plan must be in place before the general clearing operations. Clearing necessary to place temporary structural BMP's is the minimum required for installation. Coordinate clearing necessary to place temporary structural 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.
- Clear and Stabilize Work Areas:**
Grade contractor areas and place all-weather surface on contractor areas.
- Clearing and Grubbing:**
After Phase I BMP's are installed, contractor may clear, grub, and demo required areas as necessary.

EROSION CONTROL NOTES

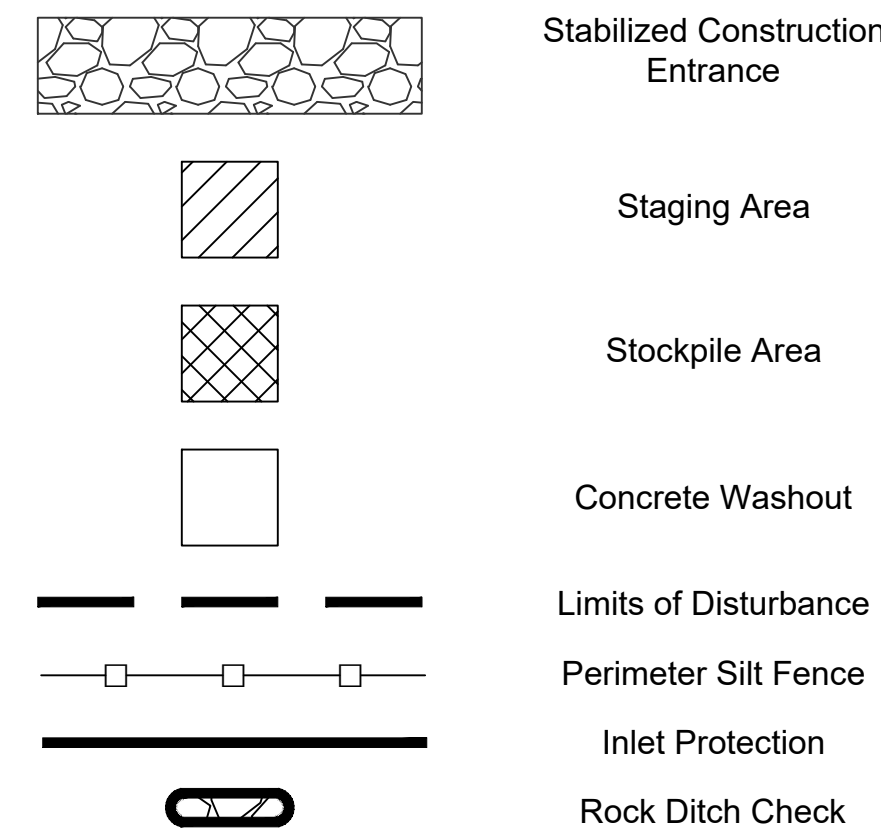
- Erosion control plan modifications shall be required if the plan fails to substantially control erosion and offsite sedimentation.
- The retention of access controls and sediment controls shall be required for areas where seed has not established 70% cover.
- The contractor shall temporarily seed and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



Phases	Project Stage	BMP Plan Ref. No.	BMP Description	Remove After Stage	Notes
Phase I	A- Prior to Land Disturbance	1	Stabilized Construction Entrance	C	Install Construction Entrance, as shown on Plans.
		2	Staging Area	C	Install Staging Area
		3	Perimeter Silt Fence	C	Install Perimeter Silt Fence, as Shown on Plans.
		4	Concrete Washout	C	Install Concrete Washout as shown on plans prior to pouring any concrete
Phase II	B- Mass Grading	5	Stockpile Topsoil	D	Install Sediment Fence a Minimum of 5' Beyond Toe of Slope
		6	Sediment Fence	D	Install Sediment Fence, as Shown on Plans
		7	Curb Inlet Protection	D	Install Filter Bags around Proposed Curb Inlets
		8	Rock Ditch Check	D	Install Rock Ditch Check, as Shown on Plans
Phase III	D- Final Stabilization	9	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%.



EROSION CONTROL LEGEND



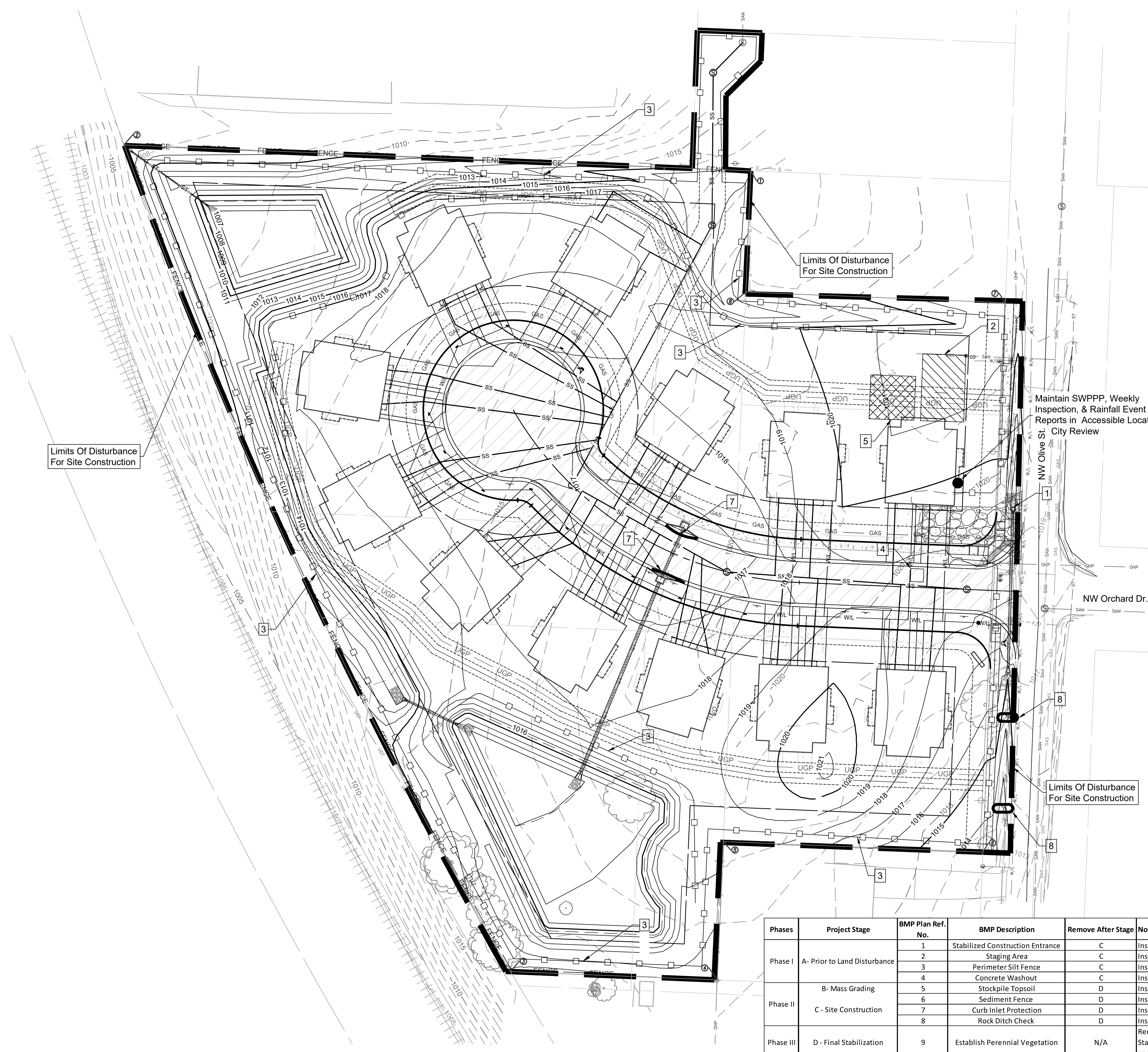
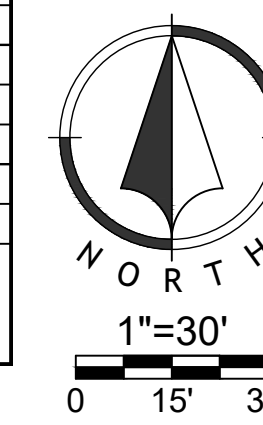
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Phase I	A- Prior to Land Disturbance	1	Stabilized Construction Entrance	C	Install Construction Entrance, as shown on Plans.
		2	Staging Area	C	Install Staging Area
		3	Perimeter Silt Fence	C	Install Perimeter Silt Fence, as Shown on Plans.
		4	Concrete Washout	C	Install Concrete Washout as shown on plans prior to pouring any concrete
Phase II	B- Mass Grading	5	Stockpile Topsoil	D	Install Sediment Fence a Minimum of 5' Beyond Toe of Slope
		6	Sediment Fence	D	Install Sediment Fence, as Shown on Plans
		7	Curb Inlet Protection	D	Install Filter Bags around Proposed Curb Inlets
		8	Rock Ditch Check	D	Install Rock Ditch Check, as Shown on Plans
Phase III	D- Final Stabilization	9	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%.



Oct 01, 2020 11:35am
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NO.	BY	DATE	REVISION
3	JGD	MES 08/15/20	PER CITY COMMENT
2	JGD	MES 06/11/20	PER CITY COMMENT
1	JGD	MES 05/08/20	ORIGINAL SUBMISSION

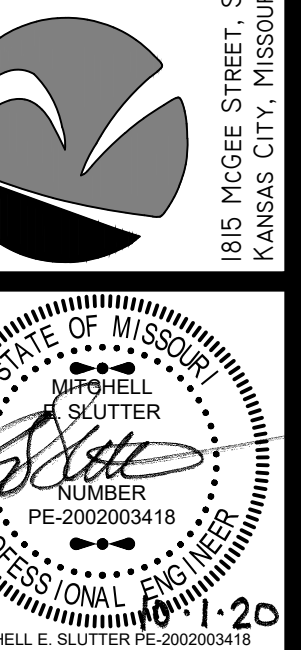
Renaissance Infrastructure Consulting

816.800.0950
1815 MCGEE STREET, SUITE 200
KANSAS CITY, MISSOURI 64108
WWW.RIC-CONSULT.COM

MO Certificate of Authority: E-2010033630

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EROSION CONTROL LEGEND

Establish Perennial Vegetation

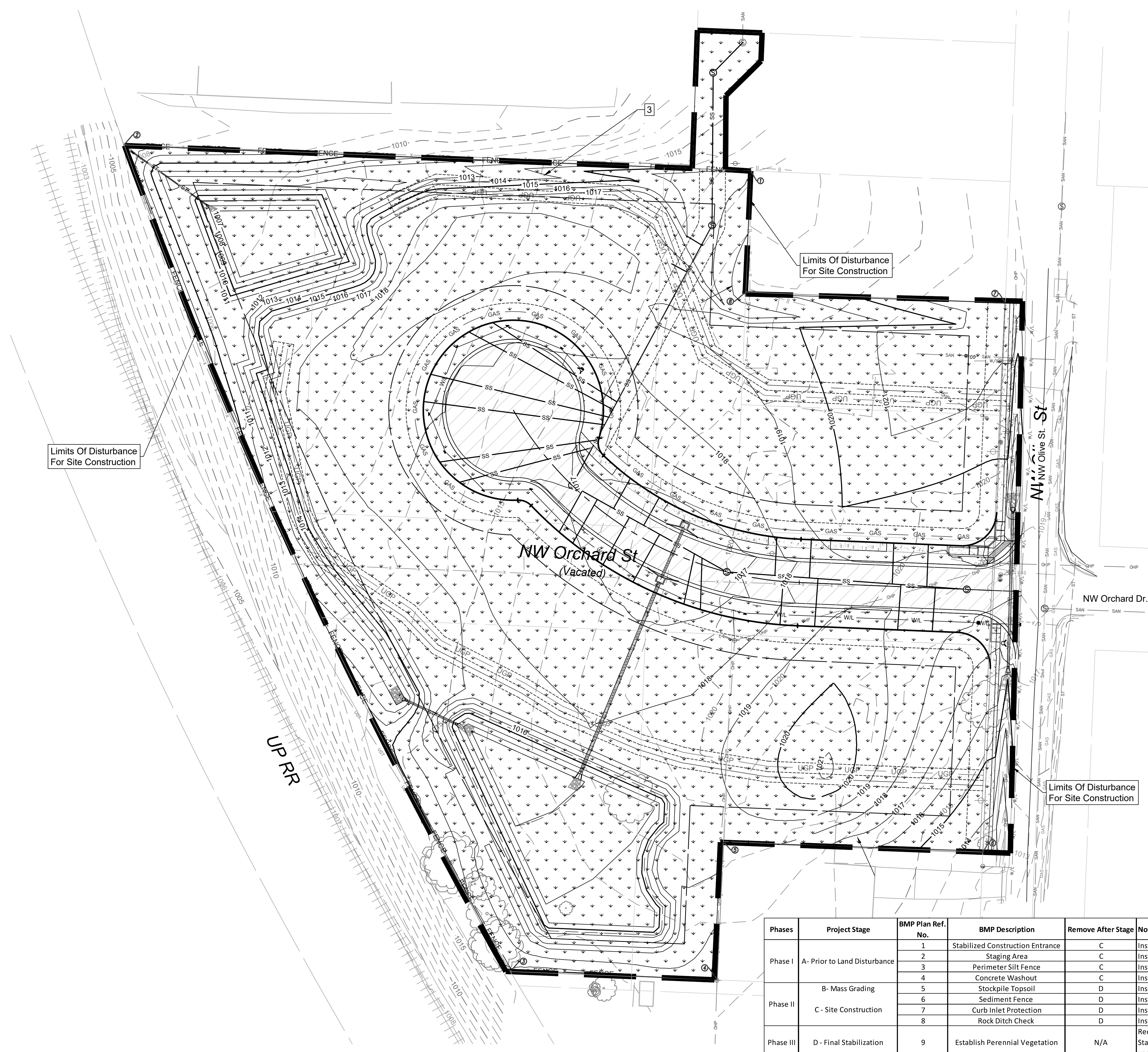
WRITTEN SEQUENCING

- 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.
- Clear and Stabilize Work Areas:**
Grade contractor areas and place all-weather surface on contractor areas.
- Clearing and Grubbing:**
After Phase I BMP's are installed, contractor may clear, grub, and demo required areas as necessary.

EROSION CONTROL NOTES

- Erosion control plan modifications shall be required if the plan fails to substantially control erosion and offsite sedimentation.
- The retention of access controls and sediment controls shall be required for areas where seed has not established 70% cover.
- 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.
- Install "J" Hooks on silt fence every 100 LF

Phases	Project Stage	BMP Plan Ref. No.	BMP Description	Remove After Stage	Notes
Phase I	A- Prior to Land Disturbance	1	Stabilized Construction Entrance	C	Install Construction Entrance, as shown on Plans.
		2	Staging Area	C	Install Staging Area
		3	Perimeter Silt Fence	C	Install Perimeter Silt Fence, as Shown on Plans.
		4	Concrete Washout	C	Install Concrete Washout as shown on plans prior to pouring any concrete
Phase II	B- Mass Grading	5	Stockpile Topsoil	D	Install Sediment Fence a Minimum of 5' Beyond Toe of Slope
		6	Sediment Fence	D	Install Sediment Fence, as Shown on Plans
		7	Curb Inlet Protection	D	Install Filter Bags around Proposed Curb Inlets
Phase III	D- Final Stabilization	8	Rock Ditch Check	D	Install Rock Ditch Check, as Shown on Plans
		9	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%.



STANDARD INSTALLATION
NOT TO SCALE

VERTICAL RISER
NOT TO SCALE

NOTES:
1. ALL SEWER STUBS SHALL BE CONSTRUCTED TO PROPERTY LINE OR 10' MINIMUM FROM THE MAIN, WHERE SIDEWALKS ARE PRESENT, CONTRACTOR SHALL EXTEND SERVICE LINE UNDER EXISTING SIDEWALK TO TWO FEET BEYOND.
2. IMPERVIOUS TRENCH CHECKS SHALL BE PLACED ON BUILDING SEWER STUBS (AT LEAST 5' AWAY FROM THE SANITARY SEWER MAIN).
3. TRENCH CHECKS ON THE BUILDING SEWER STUBS SHALL EXTEND 6" BELOW THE BOTTOM OF THE PIPE. LENGTH SHALL BE A MINIMUM OF 12". THE HEIGHT OF THE TRENCH CHECK SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE. THE WIDTH OF THE TRENCH CHECK SHALL BE THE WIDTH OF THE TRENCH.
4. SEE SPECIFICATION SECTION 2100 FOR SEWER MAIN BEDDING AND BACKFILL.
5. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER.
6. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP. WIRE SHALL BE TAPED OR TIED TO THE PIPE AT 5' INTERVALS.
7. TRACER WIRE BOX SHALL BE INSTALLED WITHIN 1.0' OF PROPERTY LINE.
8. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
BUILDING SEWER STUB AND RISER

Date: 12/13
Drawn By: SC
Checked By: DL
FILE: SAN-1
Rev: 10/15
Rev: 12/15

NOTES:
1. PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C478 EXCEPT AS MODIFIED BY THE SPECIFICATIONS.
2. A WALL THICKNESS NOT LESS THAN ONE-TWELFTH (1/12) OF THE INSIDE DIAMETER OR 4", WHICHEVER IS GREATER, SHALL BE USED WHEN THE MANHOLE DEPTH IS LESS THAN 15'.
3. WATERPROOFING SHALL BE REQUIRED ON THE OUTSIDE OF MANHOLES. THE WATERPROOFING SHALL CONSIST OF A TOTAL DRY FILM THICKNESS OF NOT LESS THAN 14 MILS OF BITUMINOUS COATING.
4. ONLY ECCENTRIC MANHOLE CONES WILL BE ALLOWED UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
5. THE FILL CONCRETE FLOW CHANNEL FOR SIDE BRANCHES SHALL BE PLACED TO PROVIDE A SMOOTH TRANSITION INTO THE FLOW LINE.
6. REFER TO THE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR APPROVED MANHOLE GASKET MODELS.
7. REFER TO THE APPROVED PRODUCTS LIST FOR APPROVED STEPS.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
STANDARD PRECAST MANHOLE - SANITARY SEWER

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

SLAB MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS103A
MINIMUM WEIGHT = 145 LB

STANDARD 24" MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS101A
MINIMUM WEIGHT = 250 LB

*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

NEW MANHOLE

EXISTING MANHOLE

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

Date: 02/13
Drawn By: JN
Checked By: DL
FILE: SAN-5
Rev: 1/14
Rev:

FLARED END SECTION

PLAN VIEW
NOT TO SCALE

END VIEW
NOT TO SCALE

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
FLARED END SECTION SUPPORT DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL
STM-5

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

GENERAL NOTES:
1. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION.
2. THE SECOND DIMENSION IS THE "W" DIMENSION.
3. FLOW LINES LISTED ON THE PROJECT PLANS ARE LISTED AT THE INSIDE FACE OF THE WALL.
4. FLOOR OF INLET GROUGHT AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
5. LOCATE MH RING AND COVER ON BLANK WALL IF POSSIBLE.
6. STEPS SHALL BE SPACED AT 1'-4" O.C. VERTICALLY ON BLANK WALL IF POSSIBLE.
7. BEVEL ALL EXPOSED EDGES WITH 3/8" CHAMFER OR 1/2" TOOLED EDGE.
8. ON-GRADE INLETS SHALL CONFORM TO THE STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
9. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON-SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
10. LIFTING RINGS SHALL BE REMOVED AND SEALED WITH NON-SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
11. 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
CURB INLET DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL
STM-1

NO.	BY	DATE	REVISION
1	JGD	08/15/20	PER CITY COMMENT
2	JGD	06/11/20	PER CITY COMMENT
3	JGD	06/11/20	ORIGINAL SUBMISSION

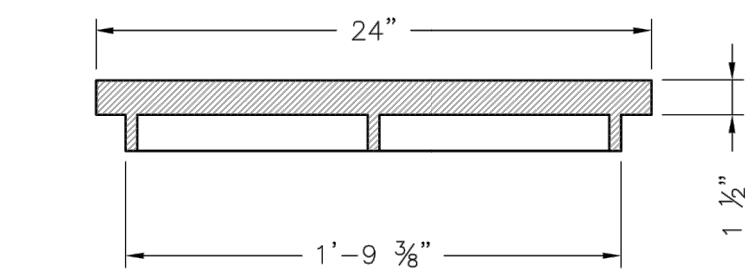
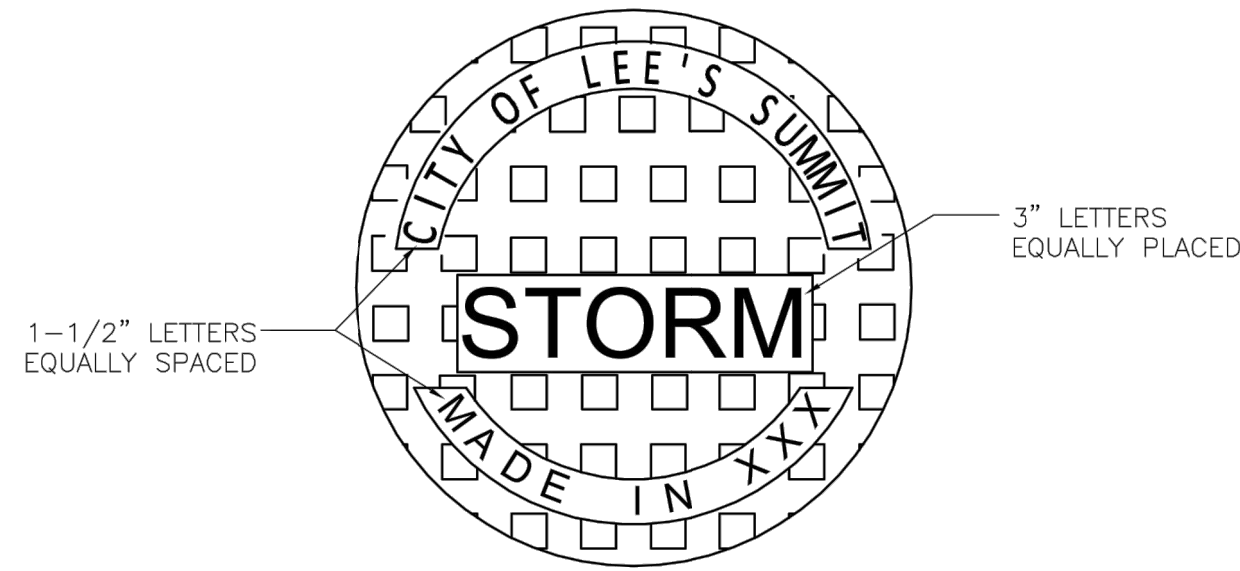
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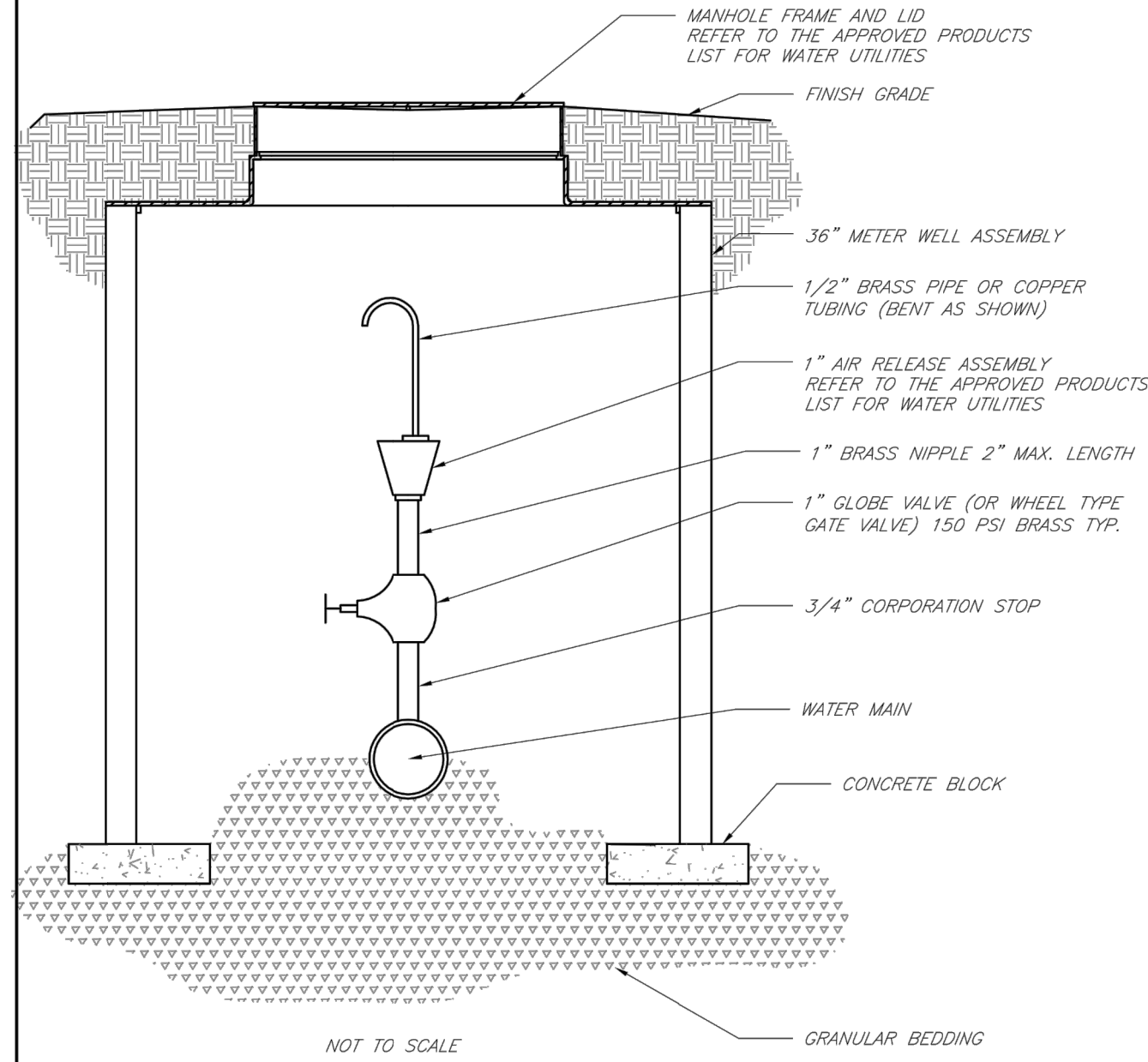
STATE OF MISSOURI
MICHELL SLUTTER
Professional Engineer
No. PE-200203418
EXPIRES 12/31/2024

04.01.2020-11:52am Z:\RCDesign\2018\18-0251 Burton Townhomes\Lee's Summit\DWG\Street & Storm Plans\18-0251_CDDSTD101.dwg



STANDARD 24" MANHOLE COVER
MINIMUM WEIGHT = 160 LB
NOTE: PICK HOLES NOT SHOWN
*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: MIF
Checked By: DL
STM-6

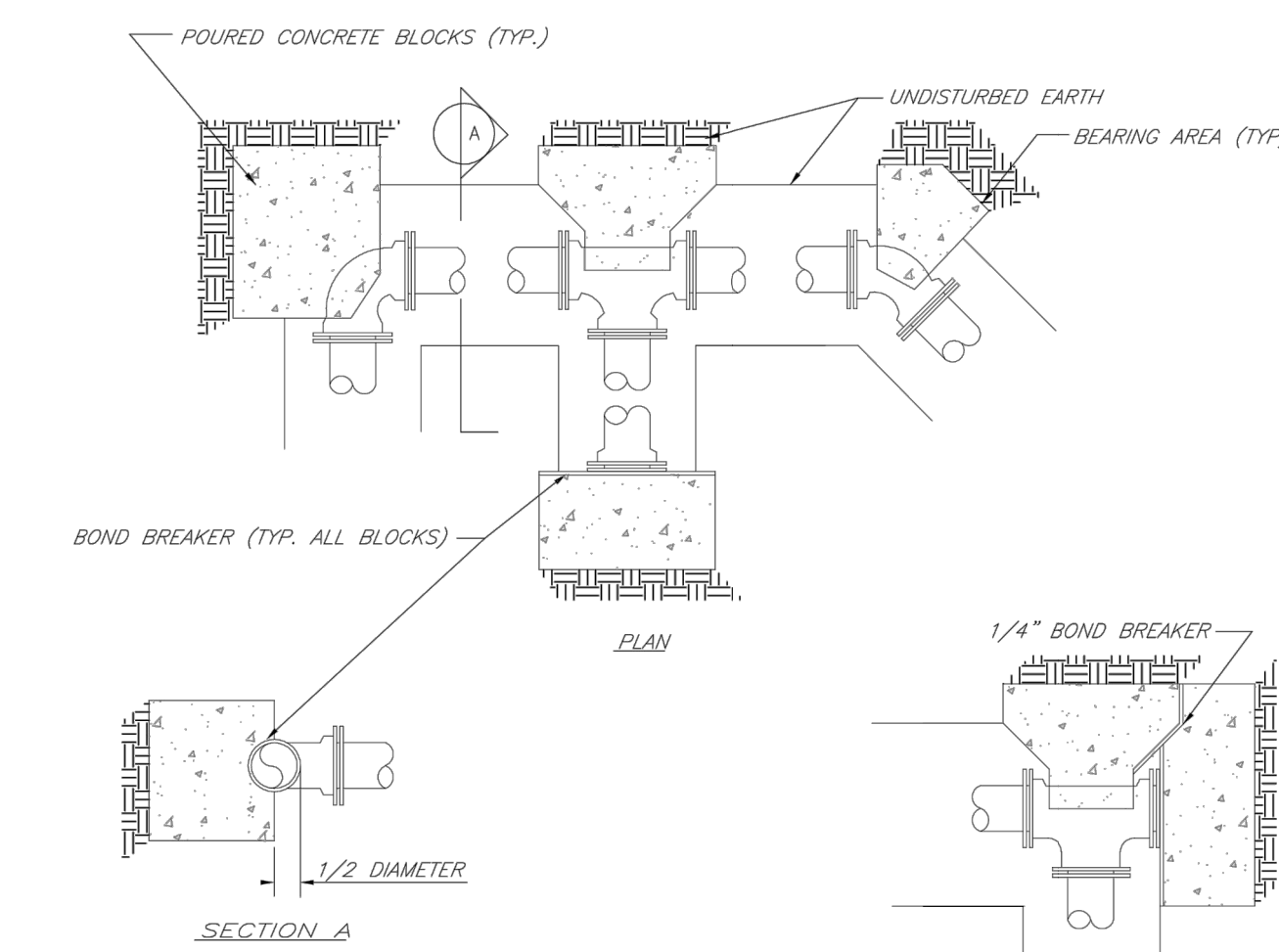


LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
AIR RELEASE ASSEMBLY
Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-10
Rev: 1/14

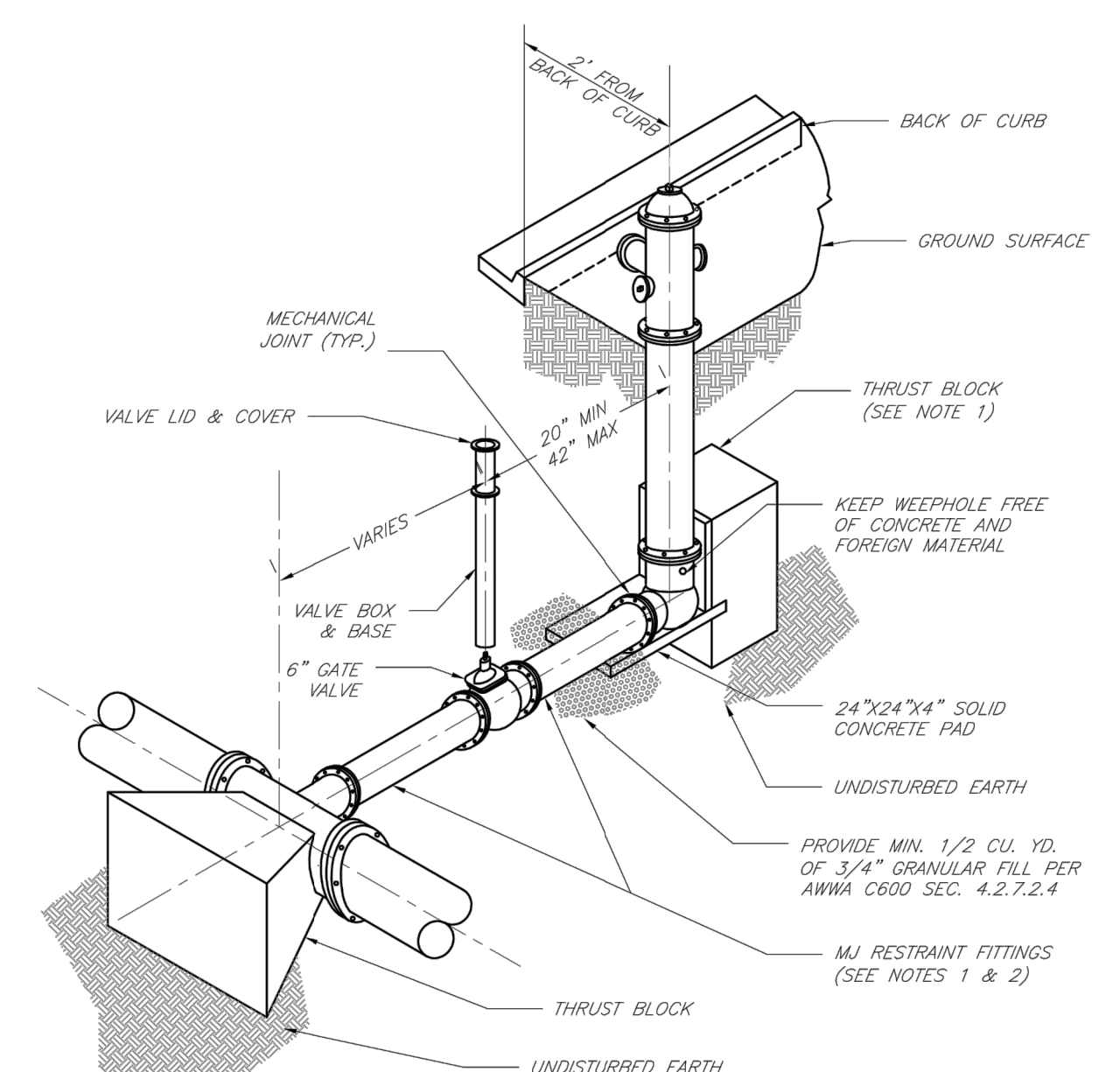
REQUIRED CONCRETE BEARING AREA (SQ. FEET - SF)

NOM. DIA. (INCHES)	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	60.1	32.5	16.5	8.3
20	52.1	74.4	40.1	20.4	10.3
24	71.4	100.0	54.0	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.

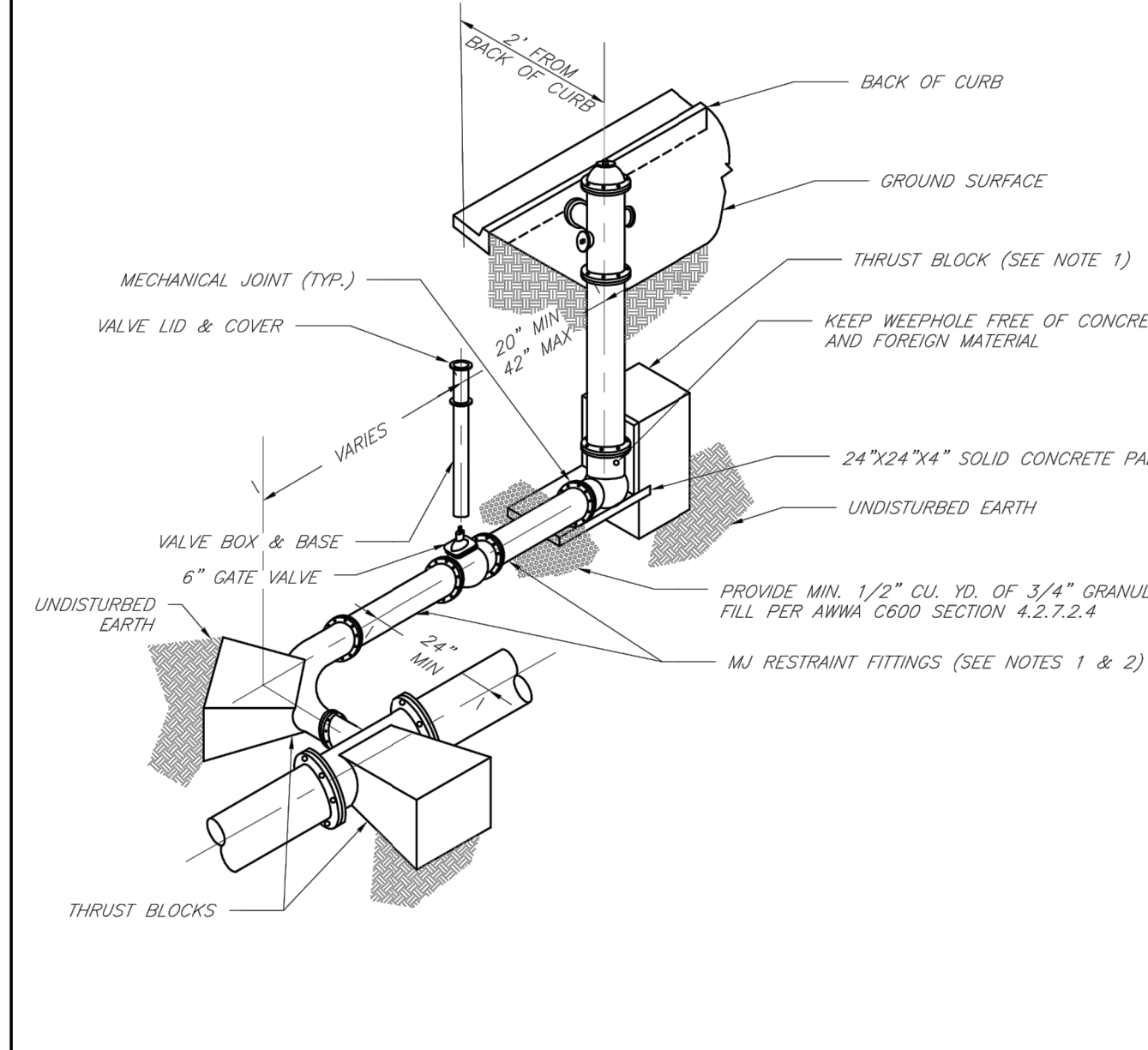


LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HORIZONTAL THRUST BLOCKS
Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-1
Rev: 1/14



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



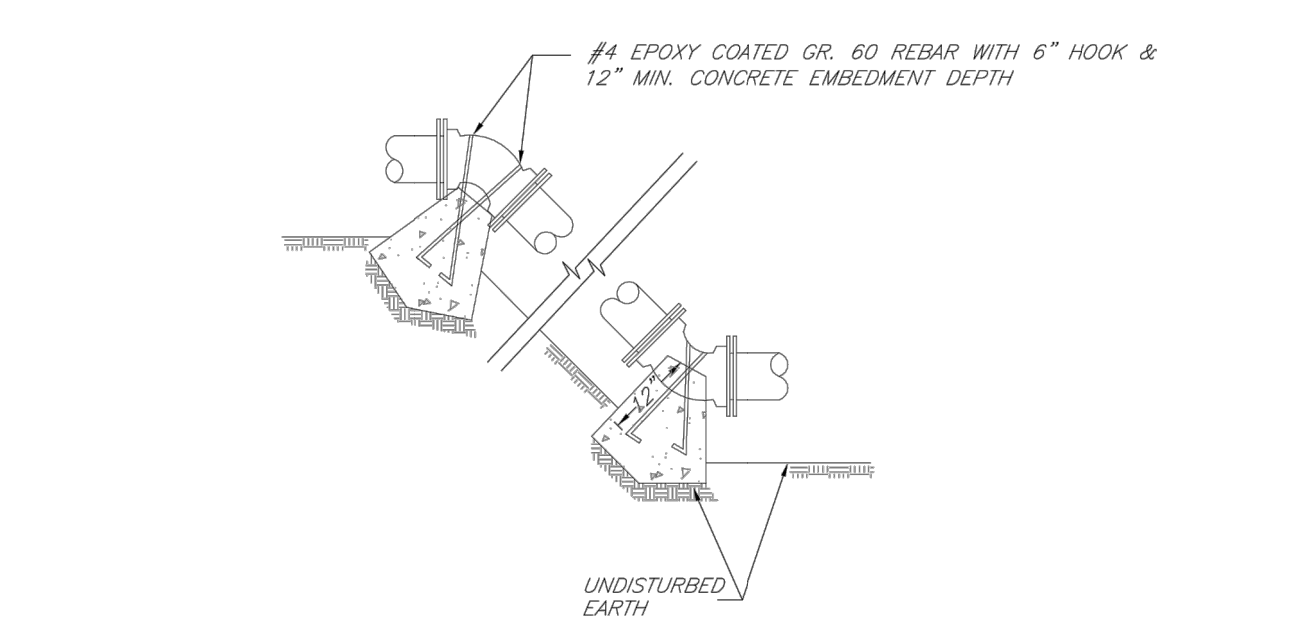
NOTES:
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6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HYDRANT WITH 90 DEGREE BEND
Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-8
Rev: 1/14

REQUIRED CONCRETE VOLUME (CUBIC FEET - CF)

NOM. DIA. (INCHES)	TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	50.5	71.4	38.6	19.7	8.9
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	282.0	154.6	78.8	39.6
14	274.0	388.0	210.4	107.3	51.9
16	356.0	514.0	280.0	140.1	70.4
18	448.0	660.0	360.0	177.3	89.1
20	550.0	824.0	450.0	220.0	110.0
24	816.0	1200.0	648.0	324.0	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 AREA MUST BE AGAINST UNDISTURBED SOIL.
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.



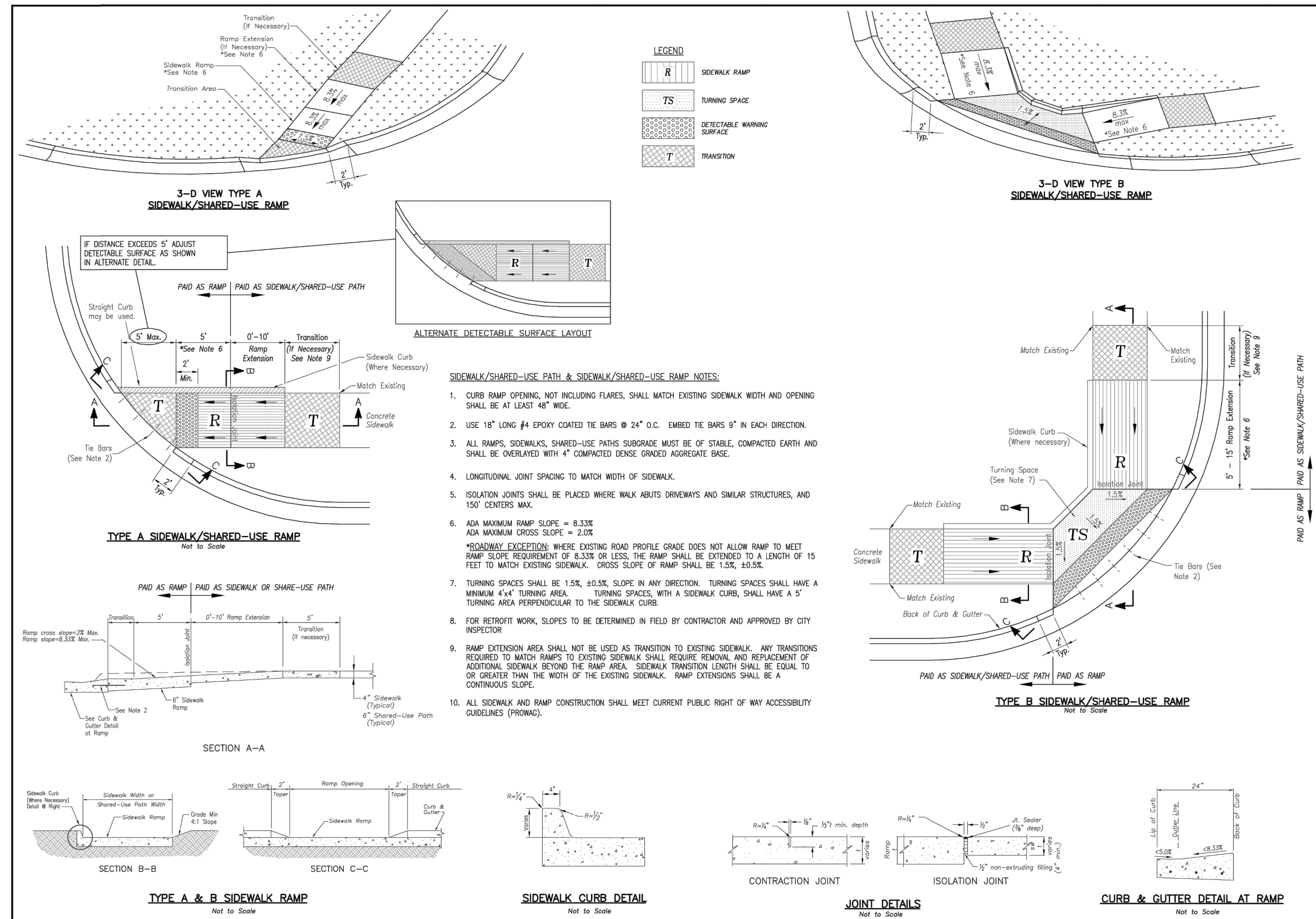
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
VERTICAL THRUST BLOCKS
Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-2
Rev: 1/14

NO.	BY	DATE	REVISION
1	JGD	08/15/20	PER CITY COMMENT
2	JGD	06/11/20	PER CITY COMMENT
3	JGD	06/08/20	ORIGINAL SUBMISSION

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KANSAS CITY, MISSOURI 64108
WWW.RIC-CONSULT.COM
E-2010033630
MO Certificate of Authority

STATE OF MISSOURI
MICHELL E. SLUTTER
Professional Engineer
No. 2002003418
PE-2002003418
1-20
MITCHELL E. SLUTTER PE-2002003418

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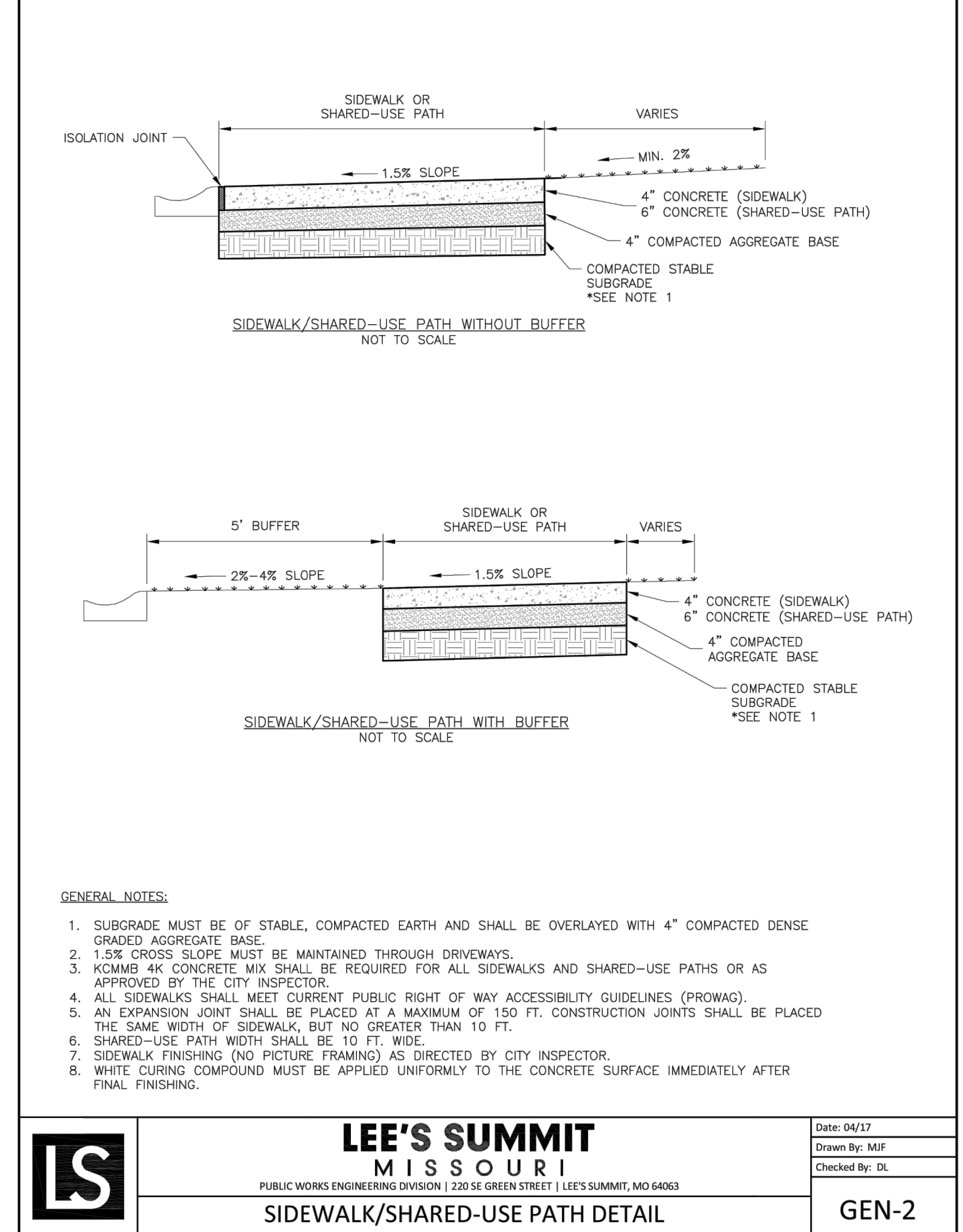


LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64083

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

GEN-3A
CURB & GUTTER DETAIL

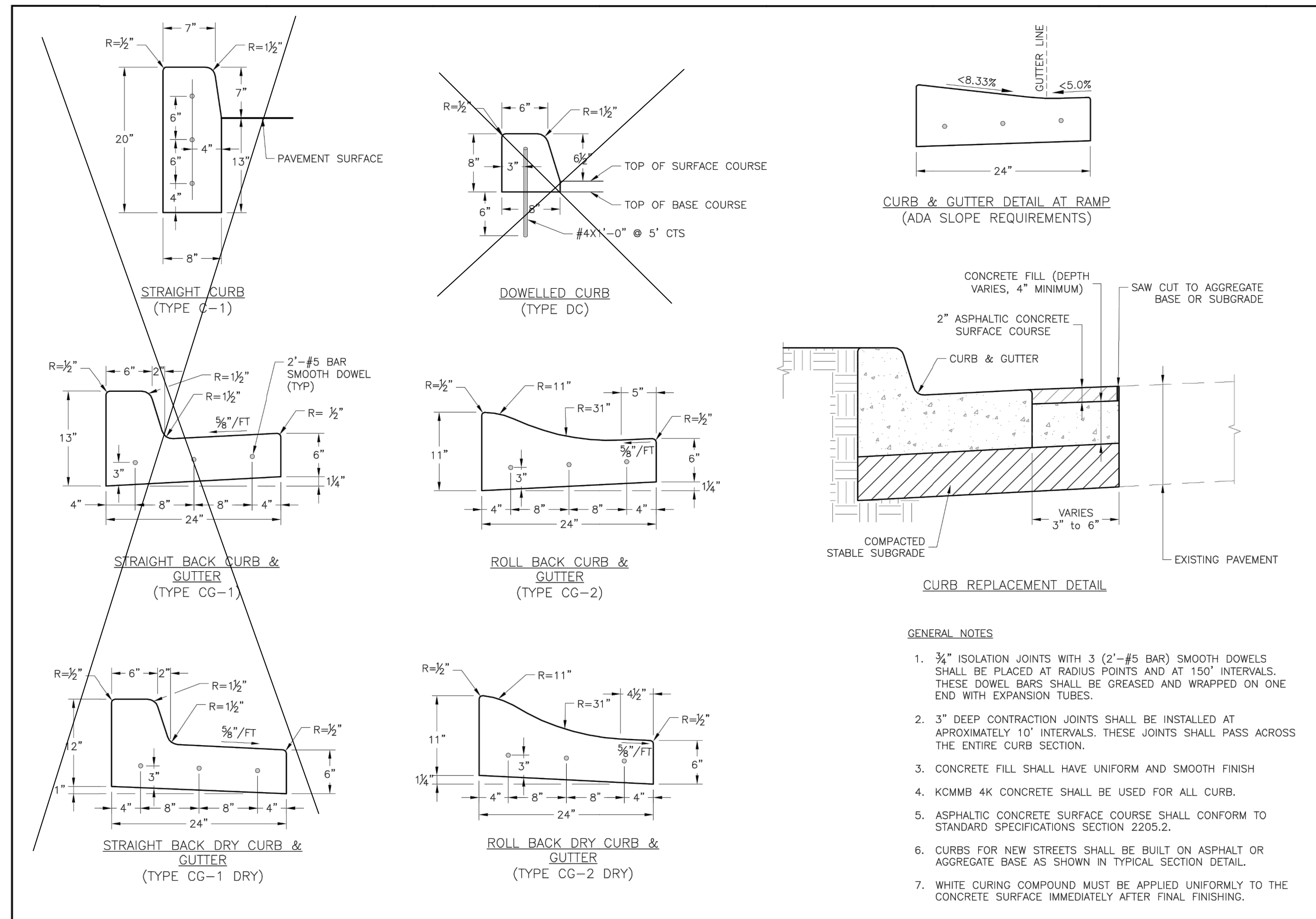
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Checked By: DL
Date: 04/17
Scale: 1/8" = 1'-0"



LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64083

GEN-2
SIDEWALK/SHARED-USE PATH DETAIL

Drawn By: MIF
Checked By: DL
Date: 04/17
Scale: 1" = 1'-0"

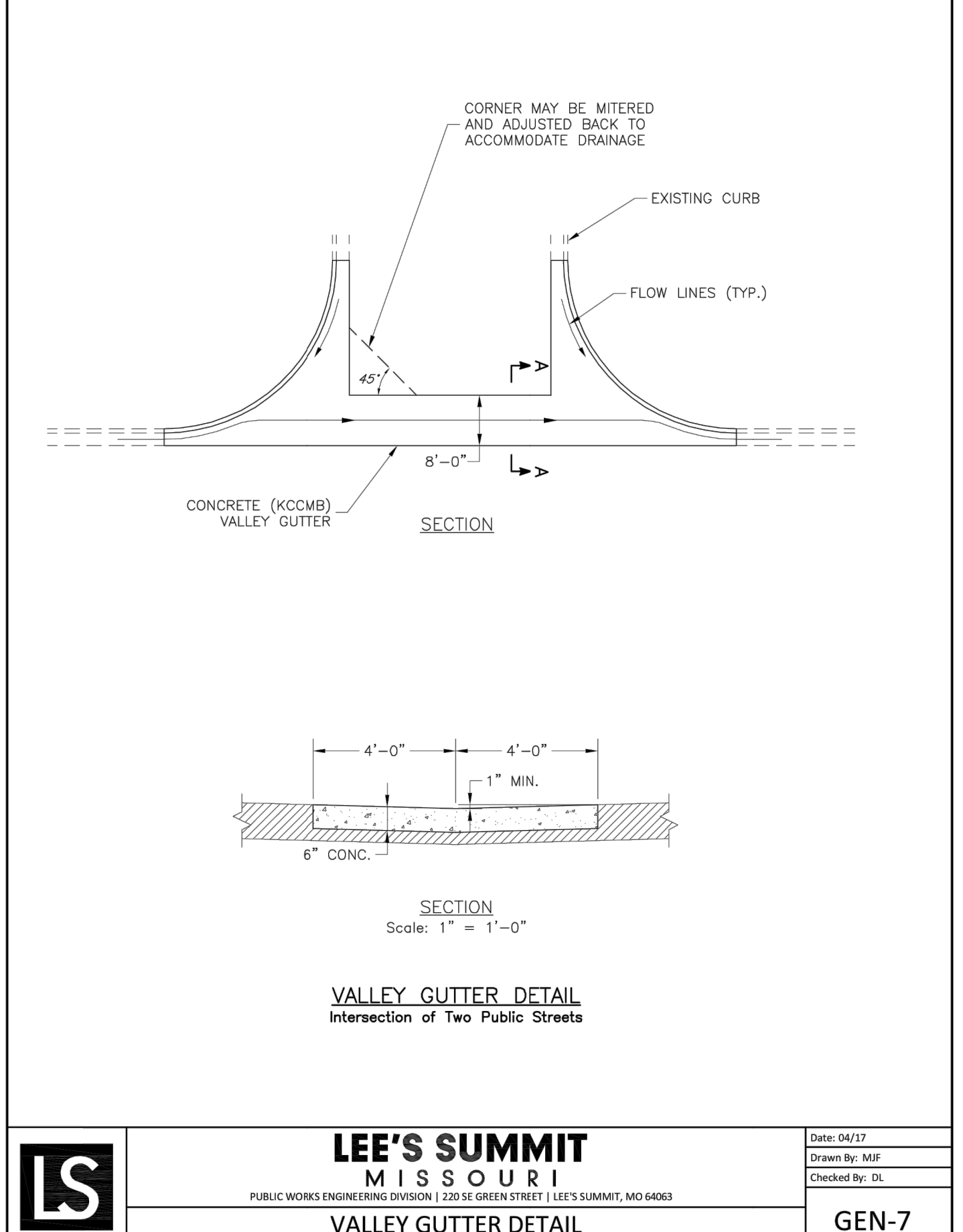


LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64083

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

GEN-4
CURB & GUTTER DETAIL

Drawn By: MIF
Checked By: DL
Date: 04/17
Scale: 1/8" = 1'-0"



LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64083

GEN-7
VALLEY GUTTER DETAIL

Drawn By: MIF
Checked By: DL
Date: 04/17
Scale: 1" = 1'-0"

NO.	BY	DATE	REVISION
1	JGD	06/11/20	ORIGINAL SUBMISSION
2	JGD	06/11/20	PER CITY COMMENT
3	JGD	08/15/20	PER CITY COMMENT
4	JGD	10/01/20	PER CITY COMMENT

Renaissance Infrastructure Consulting

1815 MCGEE STREET, SUITE 200
KANSAS CITY, MISSOURI 64108
816.800.0950
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NO.	BY	DATE	REVISION
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2	JGD	MES 06/11/20	PER CITY COMMENT
3	JGD	MES 05/08/20	ORIGINAL SUBMISSION

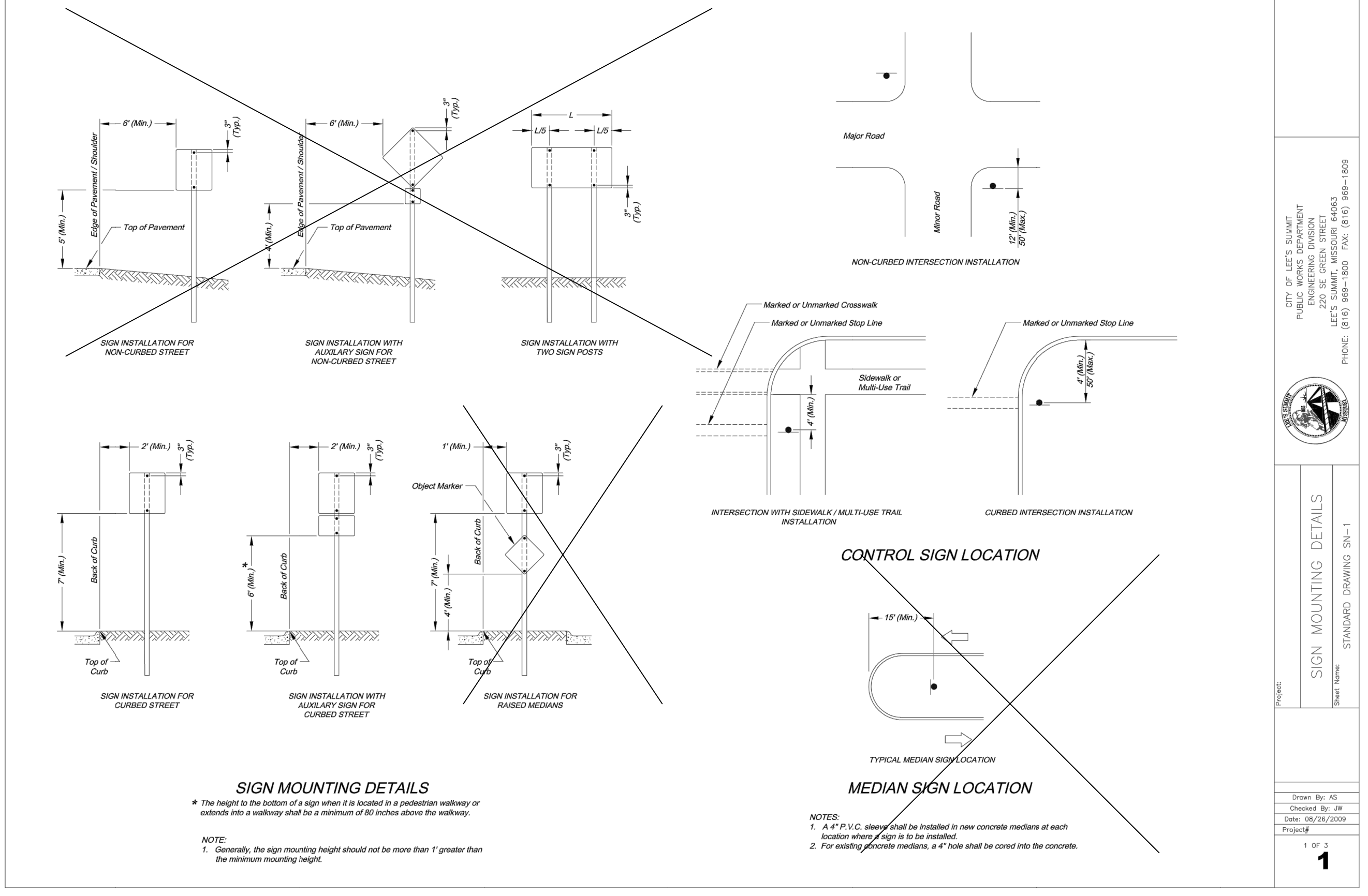
PROJECT	18-0251
DRAWING NO.	SD-1
DATE	08/28/2009
SCALE	AS SHOWN

PROJECT	18-0251
DRAWING NO.	SD-1
DATE	08/28/2009
SCALE	AS SHOWN

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PE-2002003418
MICHHELL E. SLUTTER

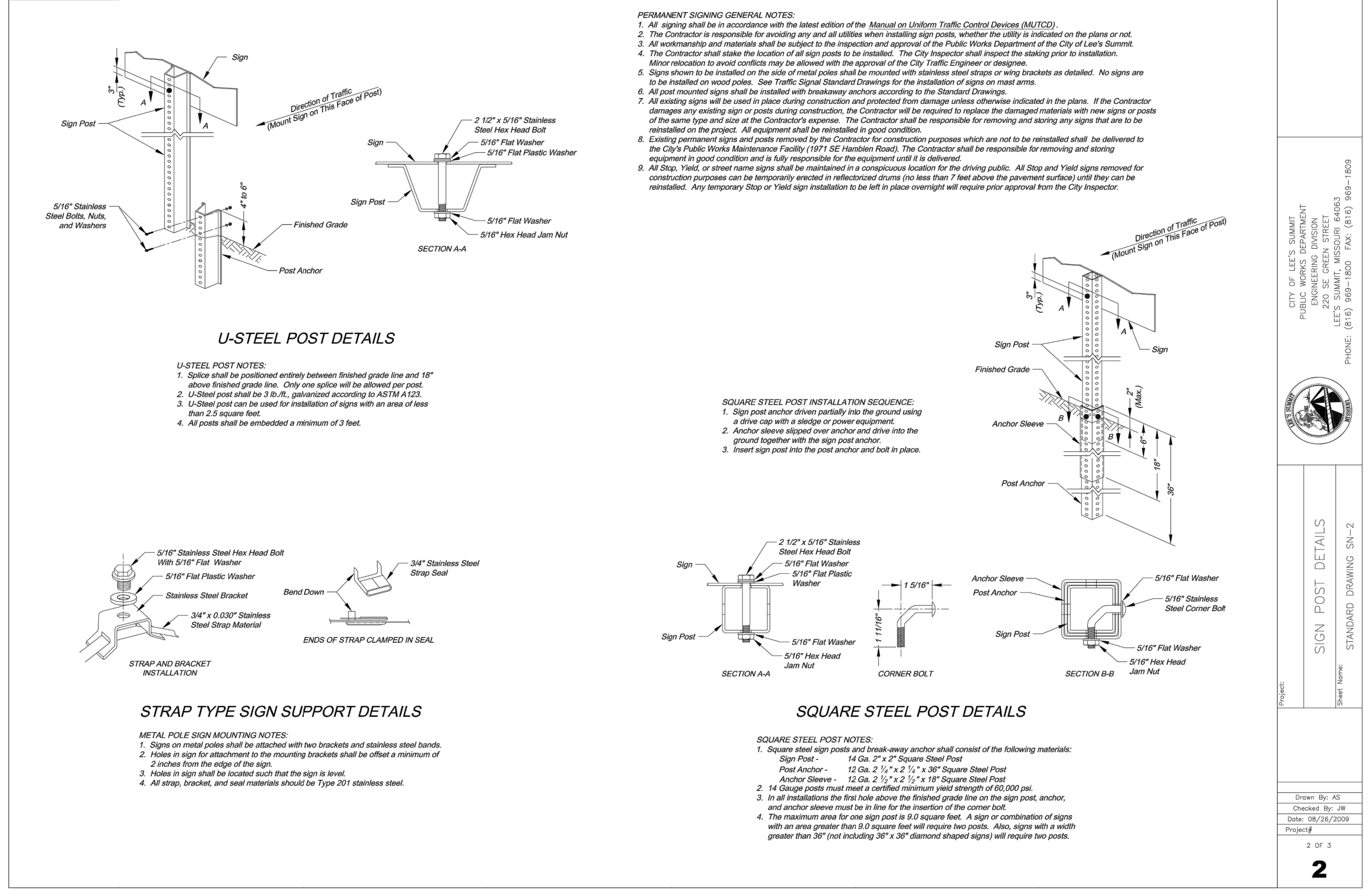


CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 999-1800 FAX: (816) 999-1809

Project: SIGN MOUNTING DETAILS
Sheet Name: STANDARD DRAWING SN-1

Drawn By: JGD
Checked By: JWG
Date: 08/28/2009
Project: 18-0251

1 OF 1

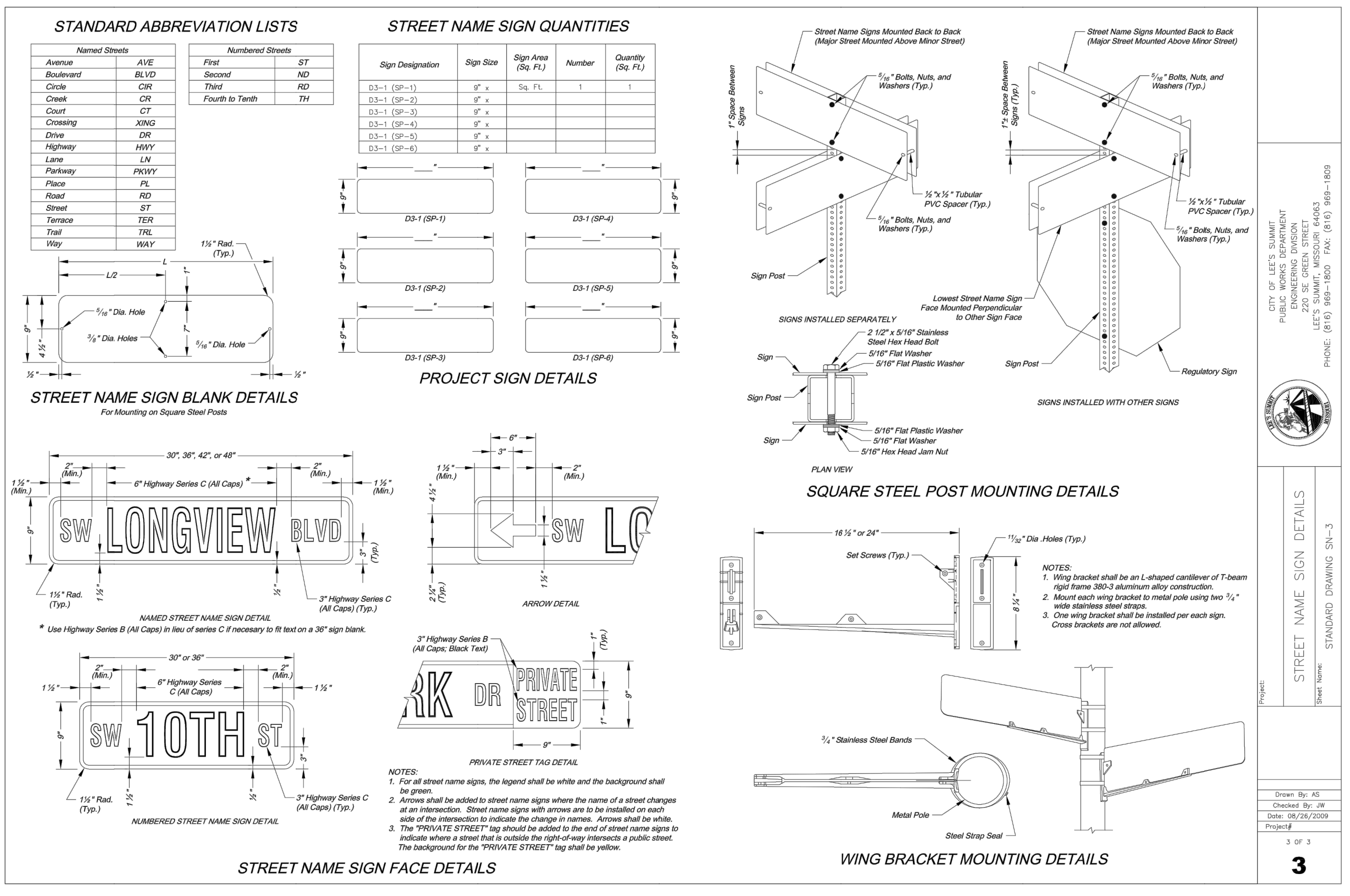


CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 999-1800 FAX: (816) 999-1809

Project: SIGN POST DETAILS
Sheet Name: STANDARD DRAWING SN-2

Drawn By: JGD
Checked By: JWG
Date: 08/28/2009
Project: 18-0251

2 OF 2



CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 999-1800 FAX: (816) 999-1809

Project: STREET NAME SIGN DETAILS
Sheet Name: STANDARD DRAWING SN-3

Drawn By: JGD
Checked By: JWG
Date: 08/28/2009
Project: 18-0251

3 OF 3