

THE GROVE AT LEE'S SUMMIT MASS GRADING AND STORMWATER PLAN

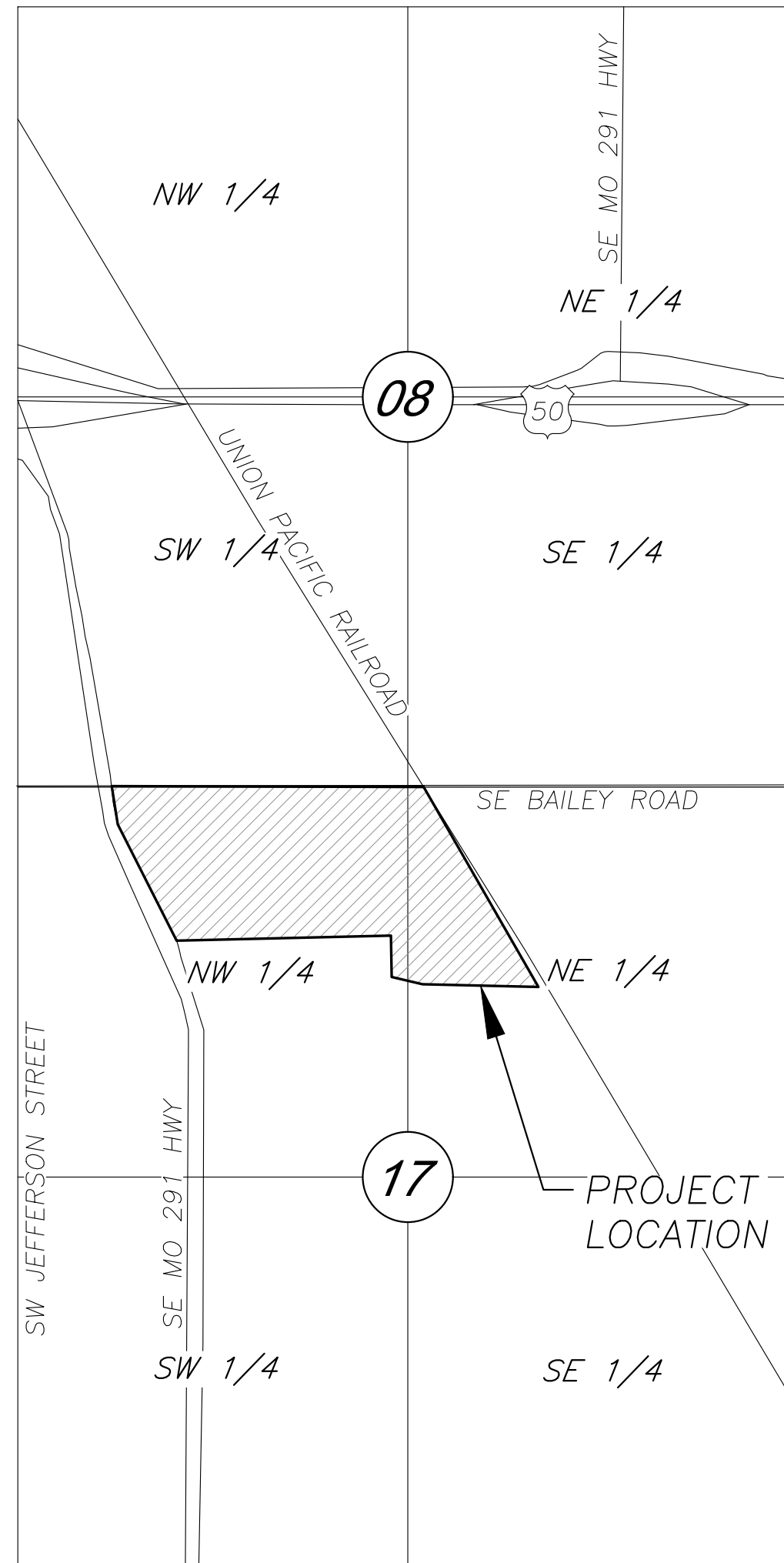
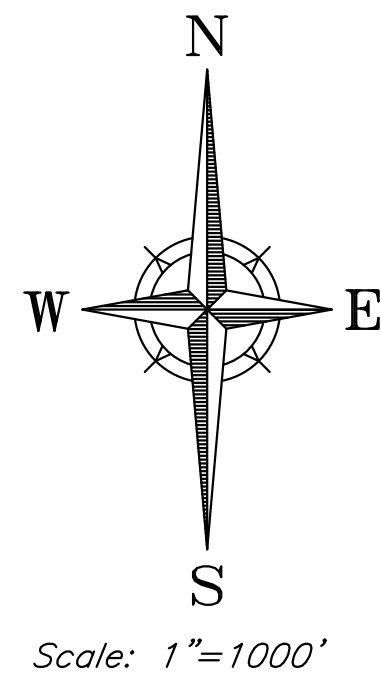
MISSOURI HWY 291 & SE BAILEY RD LEE'S SUMMIT, MISSOURI SECTIONS 8 & 17, TOWNSHIP 47 NORTH, RANGE 31 WEST

GBA
engineers

9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

GENERAL NOTES

- ALL WORK IN PUBLIC EASEMENT AND RIGHT-OF-WAY SHALL BE INSTALLED PER THE REQUIREMENTS AND SPECIFICATIONS OF THE CITY OF LEE'S SUMMIT.
- ALL EXISTING TOPOGRAPHIC, SURVEY, AND UTILITY INFORMATION SHOWN WAS PROVIDED TO GBA IN THE FORM OF A TOPOGRAPHIC SURVEY PREPARED BY BHC RHODES SURVEY AND DATED MARCH 27TH, 2017. GBA MAKES NO GUARANTIES AS TO THE ACCURACY OF THE EXISTING INFORMATION SHOWN HEREON. CONTRACTORS SHALL SATISFY THEMSELVES AS TO THE EXISTING CONDITIONS OF THE SITE AND HAVE ALL UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION.
- THE CONTRACTOR SHALL BE REQUIRED TO OBTAIN ALL FEDERAL, STATE, AND LOCAL PERMITS REQUIRED FOR THIS PROJECT PRIOR TO COMMENCING CONSTRUCTION.
- ANY WORK ADJACENT TO OR CROSSING EXISTING STREETS REQUIRES PROPER TRAFFIC CONTROL DEVICES. TRAFFIC CONTROL DEVICES SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- THE CONTRACTOR SHALL NOT DISRUPT ANY OPERATIONS OF ADJACENT PROPERTIES DURING CONSTRUCTION. IF DISRUPTION IS NECESSARY TO FACILITATE CONSTRUCTION, CONTRACTOR IS TO CONTACT ENGINEER FOR COORDINATION.
- ANY UNFORESEEN CONDITIONS, SITE DISCOVERIES, OR INTERACTION WITH ADJACENT PROPERTY OWNERS OR THE CITY SHALL BE BROUGHT UP WITH THE ENGINEER IMMEDIATELY FOR REMEDY AND DOCUMENTATION. ANY MODIFICATION TO THE PLANS MUST BE AUTHORIZED BY THE ENGINEER WHERE APPLICABLE.
- THE CONTRACTOR SHALL BE REQUIRED TO DEMOLISH, REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, PAVEMENTS, AND FEATURES NECESSARY TO CONSTRUCT THE IMPROVEMENTS SHOWN HEREON. ANY WASTE MATERIALS GENERATED DURING CONSTRUCTION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS GOVERNING SUCH DISPOSAL.
- THE CONTRACTOR SHALL PREVENT ANY TRASH, DEBRIS, OR LIQUID WASTES FROM BEING DISPOSED OF IN SANITARY SEWERS, STORM SEWERS, OR OPEN DRAINAGE SYSTEMS.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DAMAGE CAUSED TO OTHER PROPERTIES DURING CONSTRUCTION. IN THE EVENT OF DAMAGE TO ADJACENT PROPERTY, STRUCTURES, OR IMPROVEMENTS, THE CONTRACTOR SHALL REPAIR OR REPLACE SUCH DAMAGE TO THE PRECONSTRUCTION CONDITION AT THE CONTRACTOR'S EXPENSE.
- CONTRACTORS AT THE SITE SHALL BE SOLELY RESPONSIBLE FOR JOBSITE SAFETY FOR ALL ASPECTS OF WORK SHOWN HEREON.
- ALL WORK AND MATERIALS USED IN THE CONSTRUCTION OF THE IMPROVEMENTS SHOWN HEREON SHALL COMPLY WITH ALL REFERENCED STANDARDS, SPECIFICATIONS, AND PLAN NOTES.
- ALL BUILDINGS ARE SHOWN AS A REFERENCE ONLY. ALL BUILDINGS SHALL BE LOCATED AND CONSTRUCTED PER THE ARCHITECTURAL DRAWINGS PREPARED BY OTHERS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES FOR FIELD LOCATIONS OF UNDERGROUND UTILITIES AFFECTED BY THE CONTRACT. ALL EXISTING UTILITIES INDICATED ON THESE PLANS ARE ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE ENGINEER; HOWEVER, ALL UTILITIES ACTUALLY EXISTING MAY NOT BE SHOWN. UTILITIES DAMAGED THROUGH THE NEGLIGENCE OF THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR.
- ANY AND ALL HAZARDS SHALL BE PROPERLY IDENTIFIED AND BARRICADED FROM ACCESS DURING ALL NON-CONSTRUCTION PERIODS. ALL EXCAVATIONS AND HAZARDOUS AREAS SHALL BE FENCED OFF OR OTHERWISE SECURED AS TO NOT PRESENT A HAZARD TO THE GENERAL PUBLIC, AT A MINIMUM AT THE END OF EACH WORKING DAY. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOBSITE SAFETY.
- UNLESS SPECIFIED OTHERWISE, ALL CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE CITY OF LEE'S SUMMIT STANDARD SPECIFICATIONS, EXCEPT AS MODIFIED BY THESE PLANS.
- PRIVATE EROSION & SEDIMENT CONTROL INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH NPDES SCHEDULE AND REQUIREMENTS. AFTER INSPECTIONS, PROVIDE THE CITY OF LEE'S SUMMIT WITH REPORTS AND DOCUMENTATION.
- A RIGHT-OF-WAY PERMIT IS REQUIRED FROM THE CITY OF LEE'S SUMMIT PUBLIC WORKS DEPARTMENT FOR ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY.
- WORKING HOURS SHALL BE FROM 7AM TO 7PM MONDAY THROUGH SATURDAY, WITH NO WORK ON SUNDAY WITHOUT PRIOR WRITTEN PERMISSION FROM THE CITY OF LEE'S SUMMIT.
- CONTRACTOR SHALL PROVIDE ONE CHEMICALLY-TREATED PORTABLE TOILET FOR EVERY 20 EMPLOYEES ON THE JOB SITE.
- FOLLOWING SUBSTANTIAL COMPLETION OF SITE/BUILDING IMPROVEMENTS, THE CONTRACTOR SHALL CONTACT THE ENGINEER TO PERFORM A CHECKLIST OF SITE IMPROVEMENTS PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
- GRADING PROPOSED IN AREAS UNDER CORPS OF ENGINEERS JURISDICTION SHALL NOT BE PERFORMED UNTIL 404 PERMIT IS ISSUED BY THE CORPS OF ENGINEERS FOR THIS PROJECT.
- CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) A COPY OF WHICH SHALL BE MAINTAINED AND UPDATED ON SITE BY THE CONTRACTOR.
- REFER TO PRELIMINARY SUBSURFACE EXPLORATION - PROPOSED INDUSTRIAL DEVELOPMENT - THE GROVE - LEE'S SUMMIT, MISSOURI, DATED MARCH 10, 2017 PREPARED BY GEOTECHNOLOGY INC. FOR GRADING AND PAVEMENT RECOMMENDATIONS AND BORING LOGS. ALL EARTHWORK SHALL CONFORM TO THE RECOMMENDATIONS OF THE REPORT.



VICINITY MAP
Section 17-T13N-R31W

UTILITIES

SANITARY & WATER
CITY OF LEE'S SUMMIT
JEFF THORN
220 SE GREEN STREET
LEE'S SUMMIT, MO 64063
PHONE (816) 969-1200

AT&T
RONALD GIPFERT
500 E 8TH STREET
KANSAS CITY, MO 64106
PHONE (816) 275-1550

STORM WATER
CITY OF LEE'S SUMMIT
GENE WILLIAMS
220 SE GREEN STREET
LEE'S SUMMIT, MO 64063
PHONE (816) 969-1200

MISSOURI GAS ENERGY
RICHARD FROCK
3025 SW CLOVER DRIVE
LEE'S SUMMIT, MO 64082
PHONE (816) 472-3489

SHEET INDEX

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C1.2	EROSION CONTROL-DEVELOPED
C2.1	SURVEYED INFORMATION (1)
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C4.0	MASS GRADING PLAN
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DEVELOPER

THE GROVE AT LEE'S SUMMIT LLC.
P.O. BOX 57
LEE'S SUMMIT, MISSOURI 64063
CONTACT: ROBERT DUNN

PREPARED & SUBMITTED BY:

GBA
LENEXA, KANSAS

CLINT LOUMASTER, P.E. DATE
MISSOURI P.E. NO. 2011009651

APPROVED BY:

CITY OF LEE'S SUMMIT, MISSOURI

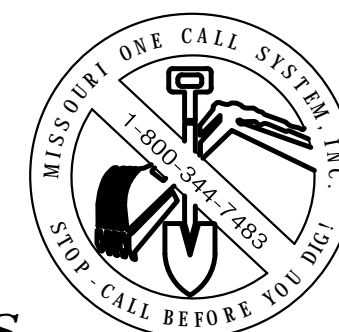
AUTHORIZING POSITION DATE

PROJECT CONTROL POINTS				
CONTROL POINT NO.	GROUND NORTHING	GROUND EASTING	ELEV.	DESC.
10*	993776.70*	2824302.03*	1041.48'	1/2" IRON BAR W/PLASTIC CAP MARKED "CONTROL POINT"
11	993764.02	2825337.32	1030.08'	1/2" IRON BAR W/PLASTIC CAP MARKED "CONTROL POINT"
13	992502.46	2826068.40	1005.93'	1/2" IRON BAR W/PLASTIC CAP MARKED "CONTROL POINT"
139	992864.11	2824688.84	1027.56'	1/2" IRON BAR W/CAP MARKED "ASC MLS76D KLS3" (PROP. COR.)
5162	993565.88	2826359.68	1024.05'	1/2" IRON BAR W/CAP MARKED "SKW LS000008" (PROP. COR.)

*GROUND COORDINATE = STATE PLANE COORDINATE (MISSOURI STATE PLANE, WEST ZONE, NAD83, U.S. SURVEY FEET). ALL OTHER COORDINATES SHOWN ARE GROUND. COMBINED GRID FACTOR: 0.999893. ELEVATIONS ARE NAVD88

FEMA INFORMATION:

THE SITE IS NOT LOCATED WITHIN ANY SPECIAL FLOOD HAZARD AREAS (SFHA) PER FEMA FIRM MAP 29095C0438G-PANEL 438 OF 625; EFFECTIVE DATE OF JANUARY 20, 2017. NO LETTERS OF MAP AMENDMENT OR REVISIONS ARE BEING PROPOSED.



PROPOSED FACILITY FOR:
THE GROVE AT LEE'S SUMMIT
MASS GRADING AND STORMWATER
MISSOURI HWY 291 & 16TH STREET
LEE'S SUMMIT, MISSOURI

Clint Loumaster
Professional Engineer
License No. PE-2011009651

REVISION

PROJECT NUMBER
13958.00

DATE
6/8/18

DESIGNED

DRAWN

REVIEWED

SHEET TITLE

COVER SHEET

SHEET NUMBER

CVR

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Engineering CO# 000133
Architecture CO# 000212
Land Surveying CO# 000059

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Professional Engineer
License No. PE-2011009651

REVISION

PROJECT NUMBER
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DATE
6/8/18

DESIGNED

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REVIEWED

SHEET TITLE

EROSION CONTROL-EXISTING

SHEET NUMBER

C1.1



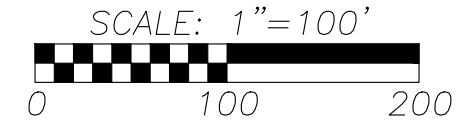
LEGEND

- 980 — EXISTING GRADE 5' CONTOURS
- 980 — EXISTING GRADE 1' CONTOURS
- R/W — R/W — RIGHT-OF-WAY LINE
- P — P — PROPERTY LINE
- [Hatched Box] SEDIMENT BASIN
- [Circle with Dots] TEMPORARY SEDIMENT BASIN RISER
- SF --- SF --- SILT FENCE
- [Cross-hatched Box] CONSTRUCTION ENTRANCE

SEDIMENT BASIN DATA	
DRAINAGE AREA	49.4 AC
MIN. STORAGE AREA	4.08 AC-FT
BERM ELEVATION	1008
TOP OF PIPE RISER ELEV.	1002
RISER DIA. & TYPE	42" CMP
OUTLET PIPE DIA. & TYPE	30" CMP
OUTLET PIPE FL @ BTM OF RISER	997.5
OUTLET PIPE FLOW	997
LENGTH	44
SLOPE	1.14%

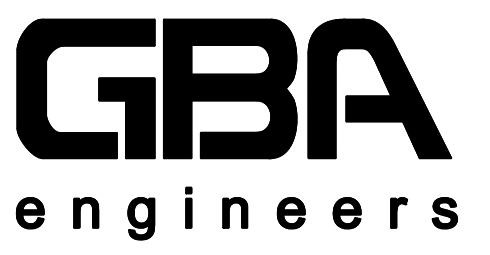
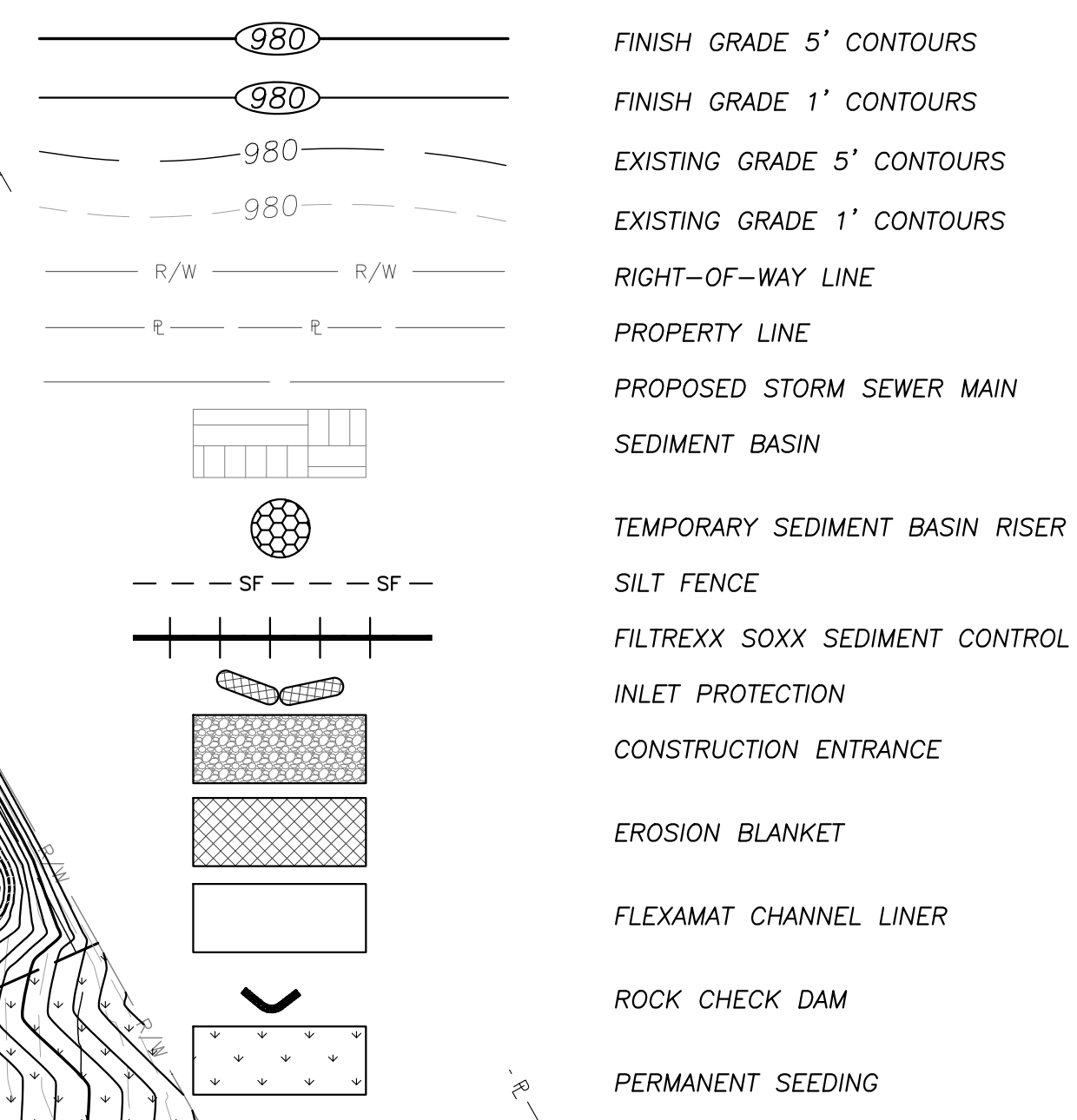
EROSION AND SEDIMENT CONTROL GENERAL NOTES

- Prior to Land Disturbance activities, the contractor shall:
 - Delineate the outer limits of any natural stream corridor designated with construction fencing.
 - Construct a stabilized entrance/parking/delivery area.
 - Install perimeter controls and request the inspection of the pre-construction erosion and sediment control measures designated on the approved erosion and sediment control plan. Land disturbance work shall not proceed until there is a satisfactory inspection.
- The contractor shall comply with all requirements of the Missouri Water Pollution Control and NPDES Stormwater Runoff from Construction Sites General Permit, KC-APWA Specifications Section 2150, including but not limited to:
 - The contractor shall seed, mulch, or otherwise stabilize any disturbed area where the land disturbance activity has ceased for more than 14 days.
 - The contractor shall perform inspections of erosion and sediment control measures at the following minimum intervals:
 - During active construction phases - at least once per week
 - During periods of inactivity - at least once per 14 days
 - After each rainfall event of 1/8 inch or more - within 24 hours of the rain event
 - The contractor shall maintain an inspection log including the inspector's name, date of inspection, observations as to the effectiveness of the erosion and sediment control measures, actions necessary to correct deficiencies, when the deficiencies were corrected, and the signature of the person performing the inspection. The inspection log shall be available for review by the regulatory authority.
 - The contractor shall have the erosion and sediment control plan routinely updated to show all changes and amendments to the plan. A copy of the erosion and sediment control plan shall be kept on site and made available for review by the regulatory authority.
- Unless otherwise noted in the plans, all seeding must conform to Division II—Construction and Materials Specification—Section 2150 published by the Kansas City Metropolitan Chapter of the American Public Works Association dated May 21, 2008. Permanent seeding shall be installed after completion of final grading except when seeding will occur outside of the acceptable seeding season as specified in Section 2150. When temporary seeding is installed, permanent seeding shall be installed at the next seeding season. Temporary seeding shall not be used as a stabilization measure for a period exceeding 12 months. The Permit will not be closed until permanent seeding has been established to a minimum of 70% density over the entire disturbed area.
- The contractor shall maintain installed erosion and sediment control devices in a manner that preserves their effectiveness for preventing sediment from leaving the site or entering a sensitive area such as a natural stream corridor, areas of the site intended to be left undisturbed, a storm sewer, or an on-site drainage channel.
- The contractor is responsible for providing erosion and sediment control for the duration of a project. If the City determines that the BMPs in place do not provide adequate erosion and sediment control at any time during the project, the contractor shall install additional or alternate measures that provide effective control.
- Concrete wash or rinse water from concrete mixing equipment, tools and/or ready-mix trucks, tools, etc. may not be discharged into or be allowed to run directly into any existing water body or storm inlet. One or more locations for concrete wash out will be designated on site, such that discharges during concrete washout will be contained in a small area where waste concrete can solidify in place.
- Chemicals or materials capable of causing pollution may only be stored onsite in their original container. Materials stored outside must be in closed and sealed water-proof containers and located outside of drainage ways or areas subject to flooding. Locks and other means to prevent or reduce vandalism shall be used. Spills will be reported as required by law and immediate actions taken to contain them.
- Silt fences and erosion control BMPs which are shown along the back of curb must be installed within two weeks of curb backfill and prior to placement of base asphalt. Exact locations of these erosion control methods may be field adjusted to minimize conflicts with utility construction; however, anticipated disturbance by utility construction shall not delay installation.
- Interior Silt Fence as necessary during construction. Portions may be limited as vegetation is established and hardscape is installed. Entire length may be installed at the contractor's option to aid in stabilizing slopes.
- Private Erosion & Sediment Control inspections are required in accordance with NPDES schedule and requirements.



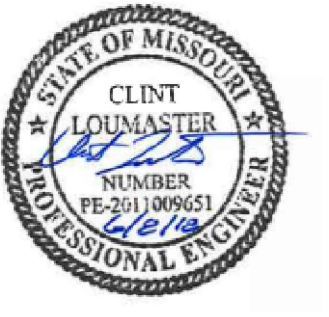
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LEGEND



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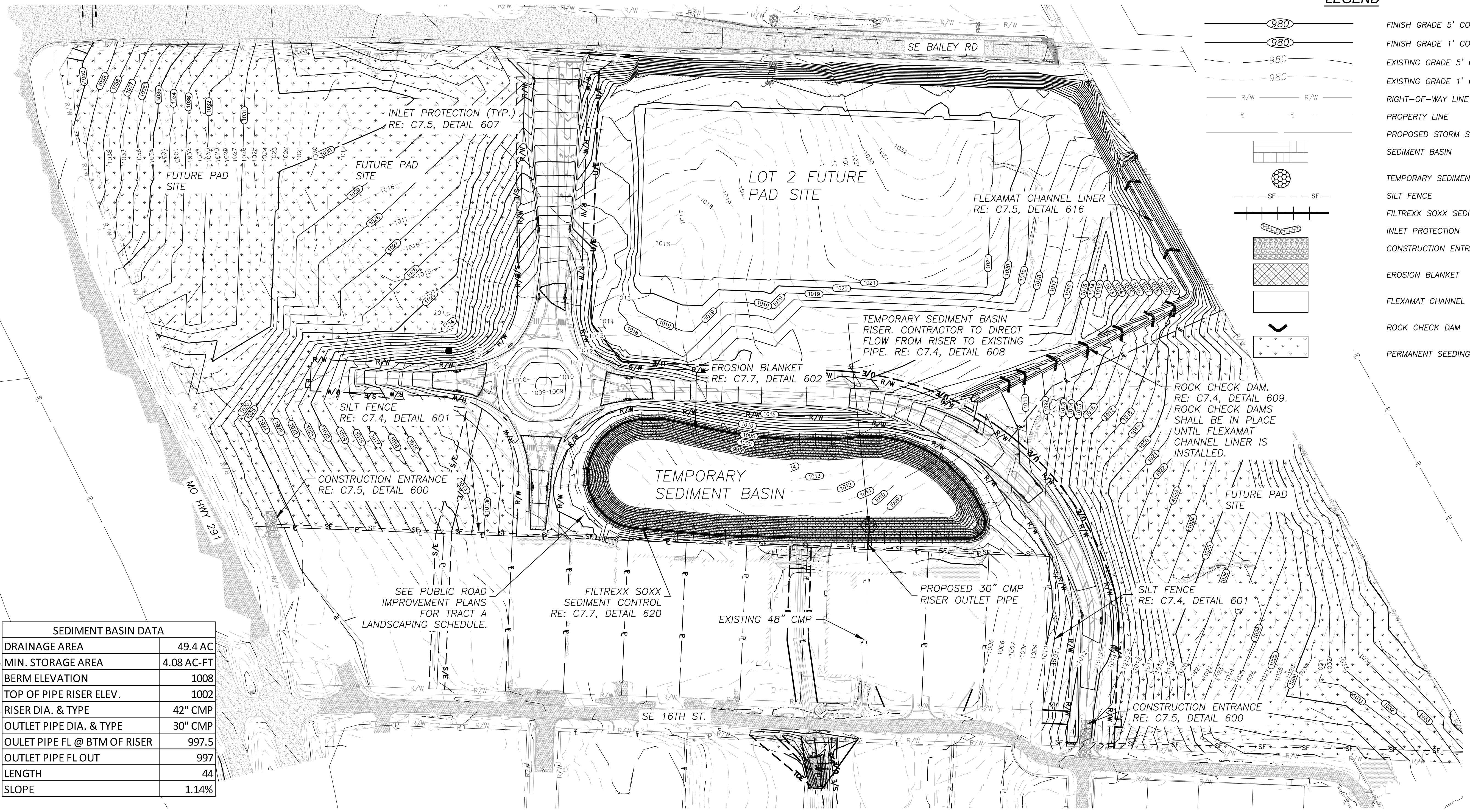
PROPOSED FACILITY FOR:
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 LEE'S SUMMIT, MISSOURI



Clint Loumaster
 Professional Engineer
 License No. PE-2011009651

REVISION	
PROJECT NUMBER	13958.00
DATE	6/8/18
DESIGNED	
DRAWN	
REVIEWED	
SHEET TITLE	EROSION CONTROL-DEVELOPED
SHEET NUMBER	C1.2

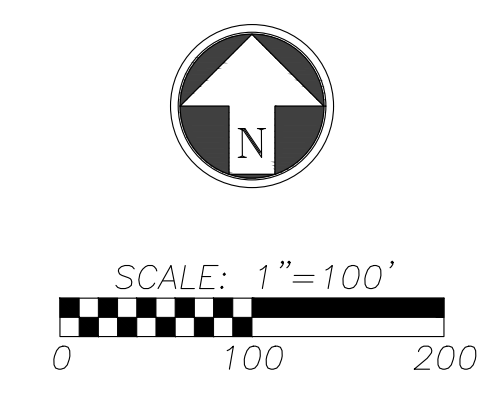
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 Land Surveying CO# 000059



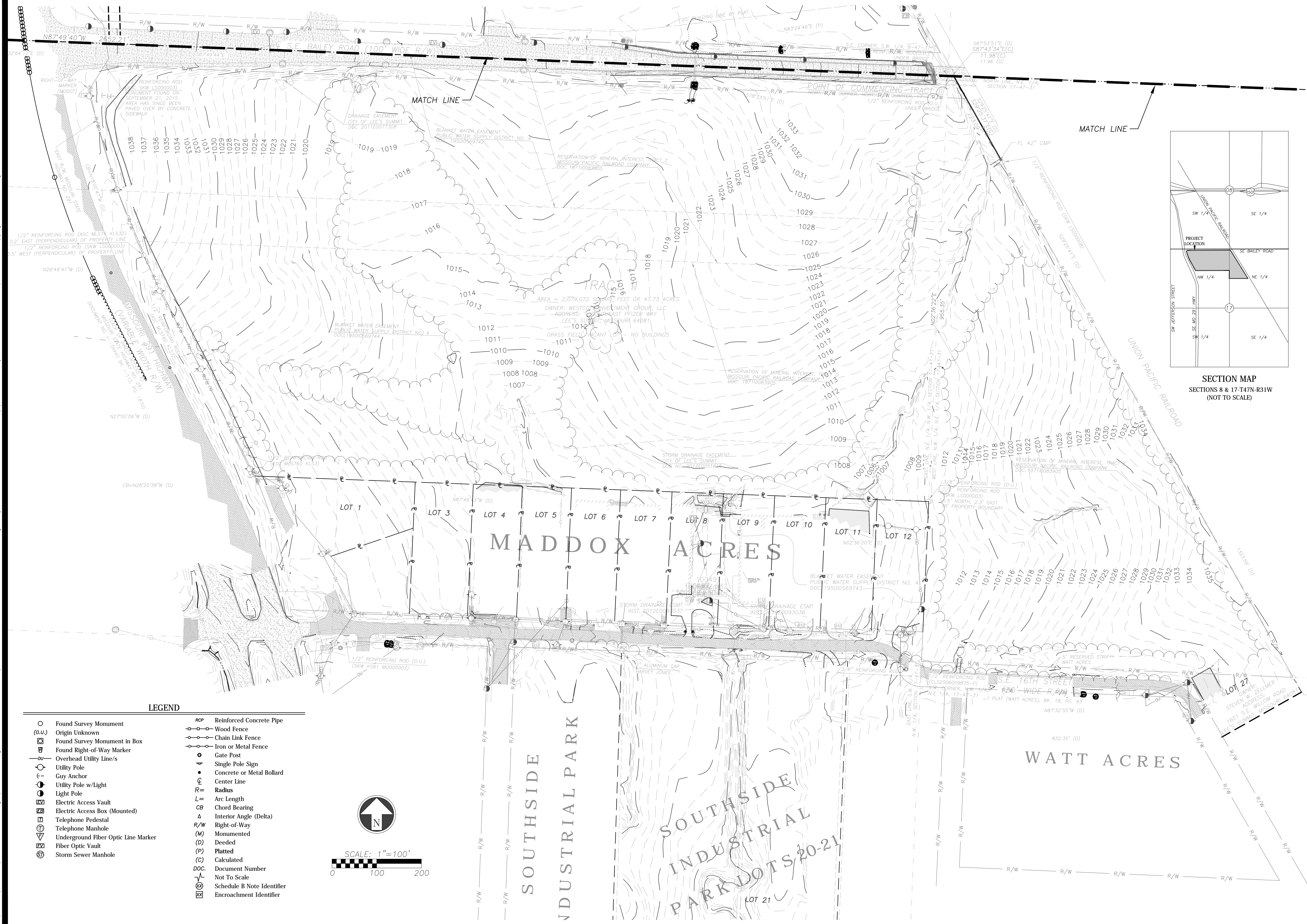
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OUTLET PIPE FL @ BTM OF RISER	997.5
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LENGTH	44
SLOPE	1.14%

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 - Construct a stabilized entrance/parking/delivery area.
 - Install perimeter controls and request the inspection of the pre-construction erosion and sediment control measures designated on the approved erosion and sediment control plan. Land disturbance work shall not proceed until there is a satisfactory inspection.
 - Identify the limits of construction on the ground with easily recognizable indications such as construction staking, construction fencing, and placement of physical barriers or other means acceptable to the City inspector and in conformance with the erosion and sediment control plan.
- The contractor shall comply with all requirements of the Missouri Water Pollution Control and NPDES Stormwater Runoff from Construction Sites General Permit, KC-APWA Specifications Section 2150, including but not limited to:
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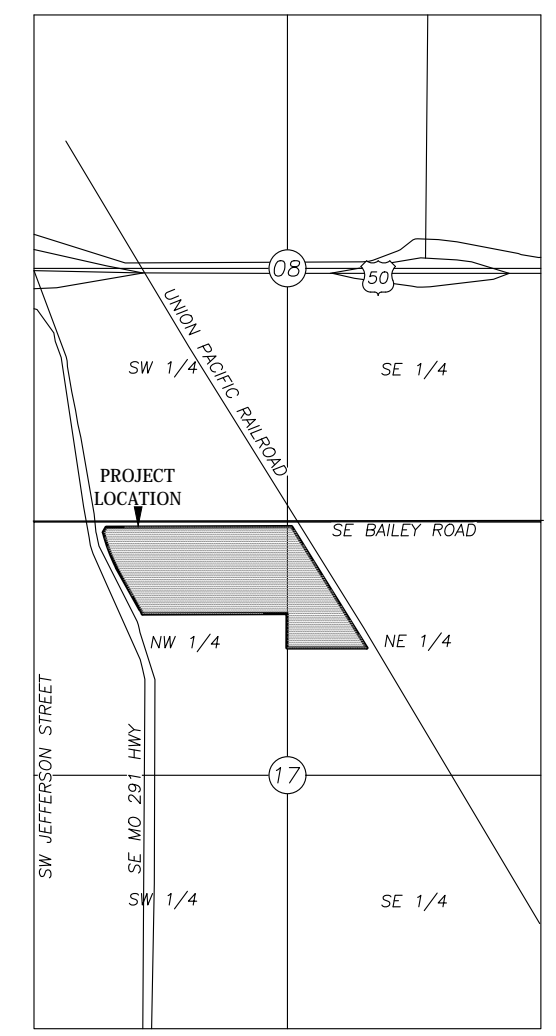
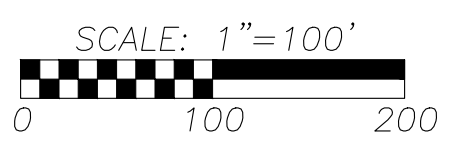
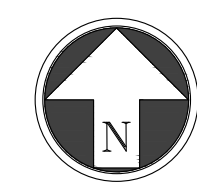


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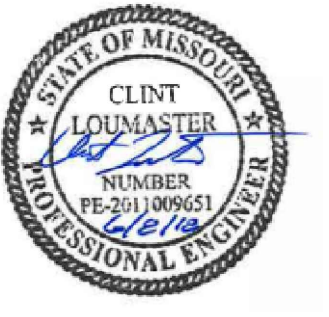
LEGEND

- | | | | |
|----------|-------------------------------------|------|----------------------------|
| ○ (o.u.) | Found Survey Monument | ○ | Reinforced Concrete Pipe |
| □ | Origin Unknown | — | Wood Fence |
| ⊠ | Found Survey Monument in Box | — | Chain Link Fence |
| ⊡ | Found Right-of-Way Marker | — | Iron or Metal Fence |
| — | Overhead Utility Line/s | ○ | Gate Post |
| ○ | Utility Pole | ○ | Single Pole Sign |
| ○ | Guy Anchor | ● | Concrete or Metal Bollard |
| ○ | Utility Pole w/Light | ○ | Center Line |
| ○ | Light Pole | R= | Radius |
| ⊠ | Electric Access Vault | L= | Arc Length |
| ⊡ | Electric Access Box (Mounted) | CB | Chord Bearing |
| ⊠ | Telephone Pedestal | Δ | Interior Angle (Delta) |
| ⊡ | Telephone Manhole | R/W | Right-of-Way |
| ⊠ | Underground Fiber Optic Line Marker | (M) | Monumented |
| ⊡ | Fiber Optic Vault | (D) | Deeded |
| ⊠ | Storm Sewer Manhole | (P) | Platted |
| | | (C) | Calculated |
| | | DOC. | Document Number |
| | | — | Not To Scale |
| | | ⊠ | Schedule B Note Identifier |
| | | ⊠ | Encroachment Identifier |



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Lenexa, Kansas 66219
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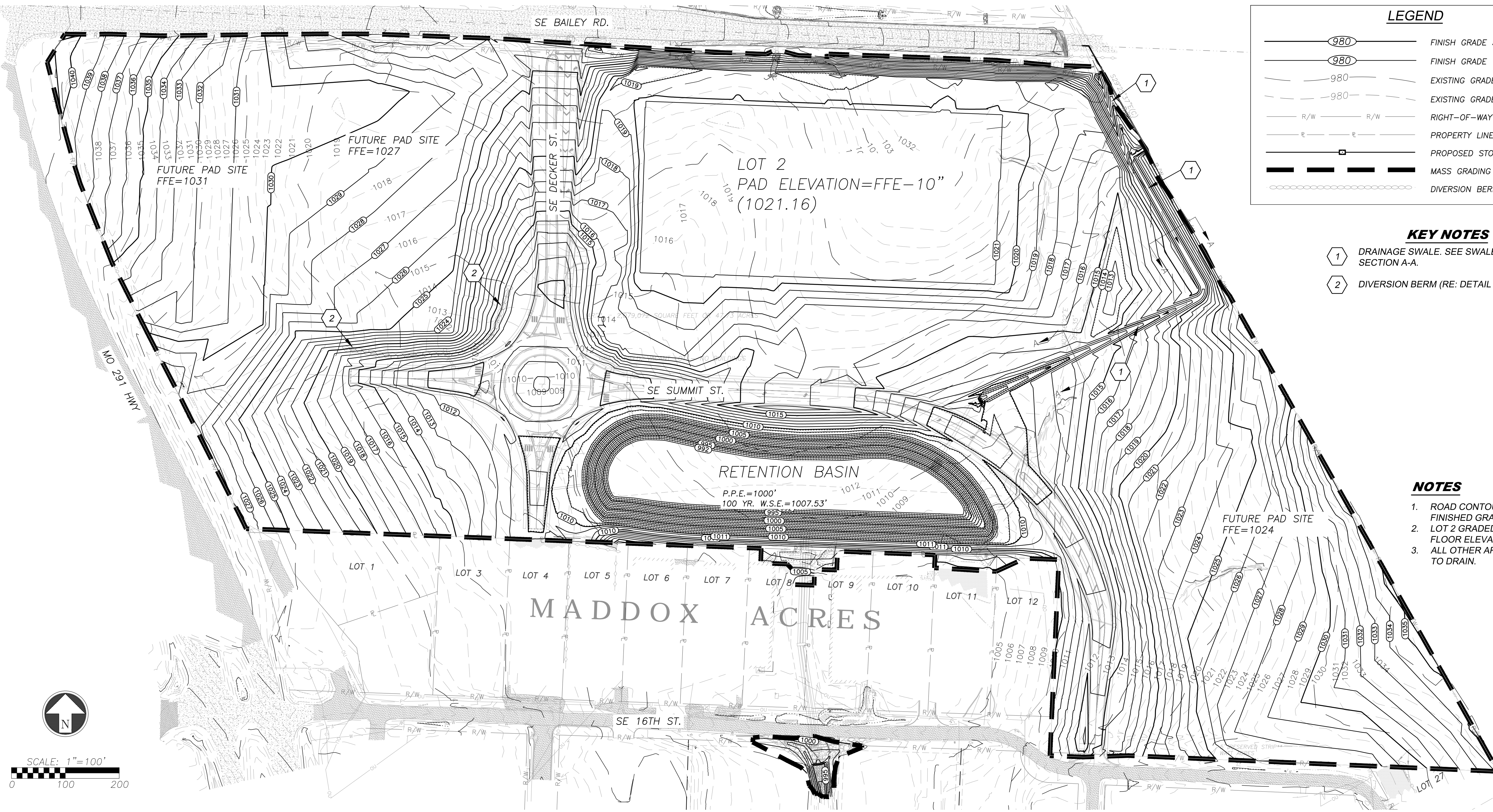
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SHEET TITLE	SURVEYED INFORMATION (2)
SHEET NUMBER	C2.2

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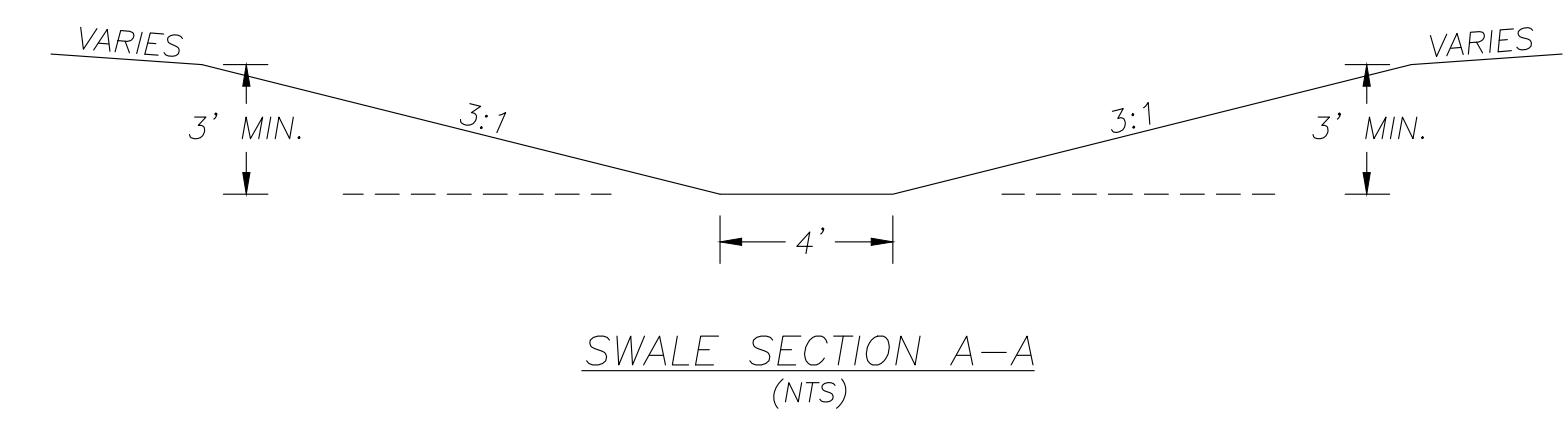


LEGEND

	FINISH GRADE 5' CONTOURS
	FINISH GRADE 1' CONTOURS
	EXISTING GRADE 5' CONTOURS
	EXISTING GRADE 1' CONTOURS
	RIGHT-OF-WAY LINE
	PROPERTY LINE
	PROPOSED STORM SEWER MAIN
	MASS GRADING LIMITS
	DIVERSION BERM

- KEY NOTES**
- ① DRAINAGE SWALE. SEE SWALE TYPICAL SECTION A-A.
 - ② DIVERSION BERM (RE: DETAIL ON SHEET C7.3)

- NOTES**
1. ROAD CONTOURS SHOWN AT FINISHED GRADE MINUS 15.5'.
 2. LOT 2 GRADED TO FINISH FLOOR ELEVATION MINUS 10'.
 3. ALL OTHER AREAS GRADED TO DRAIN.



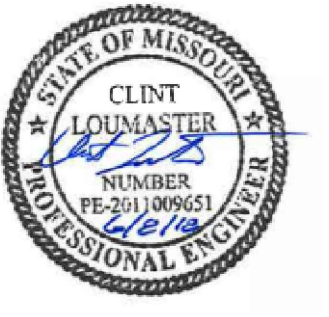
GRADING NOTES

1. CONTRACTOR SHALL OBTAIN A COPY OF THE PRELIMINARY SUBSURFACE EXPLORATION - PROPOSED INDUSTRIAL DEVELOPMENT - THE GROVE - LEE'S SUMMIT, MISSOURI, DATED MARCH 10, 2017 PREPARED BY GEOTECHNOLOGY INC. AND SATISFY HIMSELF AS TO THE EXISTING CONDITIONS AND RECOMMENDATIONS CONTAINED IN THE REPORT.
2. AS DISCUSSED IN THE GEOTECHNICAL REPORT, OVER EXCAVATION OF EXISTING UNSUITABLE SOILS WILL BE REQUIRED UNDER BUILDING AND PAVEMENT AREAS. CONTRACTOR SHALL PERFORM OVER EXCAVATION OF UNSUITABLE SOILS AS A PART OF THIS WORK.
3. ALL MATERIAL UNDER PAVEMENT SURFACES AND BUILDING SLABS SHALL BE REMEDIATED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
4. ALL TOPSOIL, VEGETATION, ROOT STRUCTURES, AND DELETERIOUS MATERIALS SHALL BE STRIPPED FROM THE GROUND SURFACE PRIOR TO THE PLACEMENT OF EMBANKMENTS.
5. ALL DISTURBED AREAS THAT ARE NOT TO BE PAVED (GREEN SPACES) SHALL BE FINISH GRADED WITH A MINIMUM OF SIX INCHES OF TOPSOIL.
6. ALL EXCAVATION AND EMBANKMENTS SHALL COMPLY WITH THE RECOMMENDATIONS PROVIDED BY THE GEOTECHNICAL ENGINEER.
7. PRIOR TO PLACING ANY CONCRETE OR ASPHALT PAVEMENT THE CONTRACTOR SHALL PERFORM A PROOF ROLL OF THE PAVEMENT SUB-GRADE WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK. THE PROOF ROLL SHALL BE CONDUCTED IN THE PRESENCE OF THE ENGINEER AND THE ON-SITE GEOTECHNICAL REPRESENTATIVE. AREAS THAT DISPLAY RUTTING OR PUMPING THAT ARE UNSATISFACTORY TO THE ENGINEER SHALL BE RE-WORKED AND A FOLLOW-UP PROOF ROLL SHALL BE CONDUCTED PRIOR TO ACCEPTANCE OF THE SUB-GRADE FOR PAVING. THE CONTRACTOR MAY, AT ITS OWN EXPENSE, STABILIZE THE SUB-GRADE USING CLASS C FLY ASH OR QUICKLIME.
8. FINISHED GRADES SHALL NOT BE STEEPER THAN 3:1.
9. ALL GRADING WORK SHALL BE CONSIDERED UNCLASSIFIED. NO ADDITIONAL PAYMENTS SHALL BE MADE FOR ROCK EXCAVATION. CONTRACTOR SHALL SATISFY HIMSELF AS TO ANY ROCK EXCAVATION REQUIRED TO ACCOMPLISH THE IMPROVEMENTS SHOWN HEREON.



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PROPOSED FACILITY FOR:
THE GROVE AT LEE'S SUMMIT
MASS GRADING AND STORMWATER
MISSOURI HWY 291 & 16TH STREET
LEE'S SUMMIT, MISSOURI



Clint Loumaster
Professional Engineer
License No. PE-2011009651

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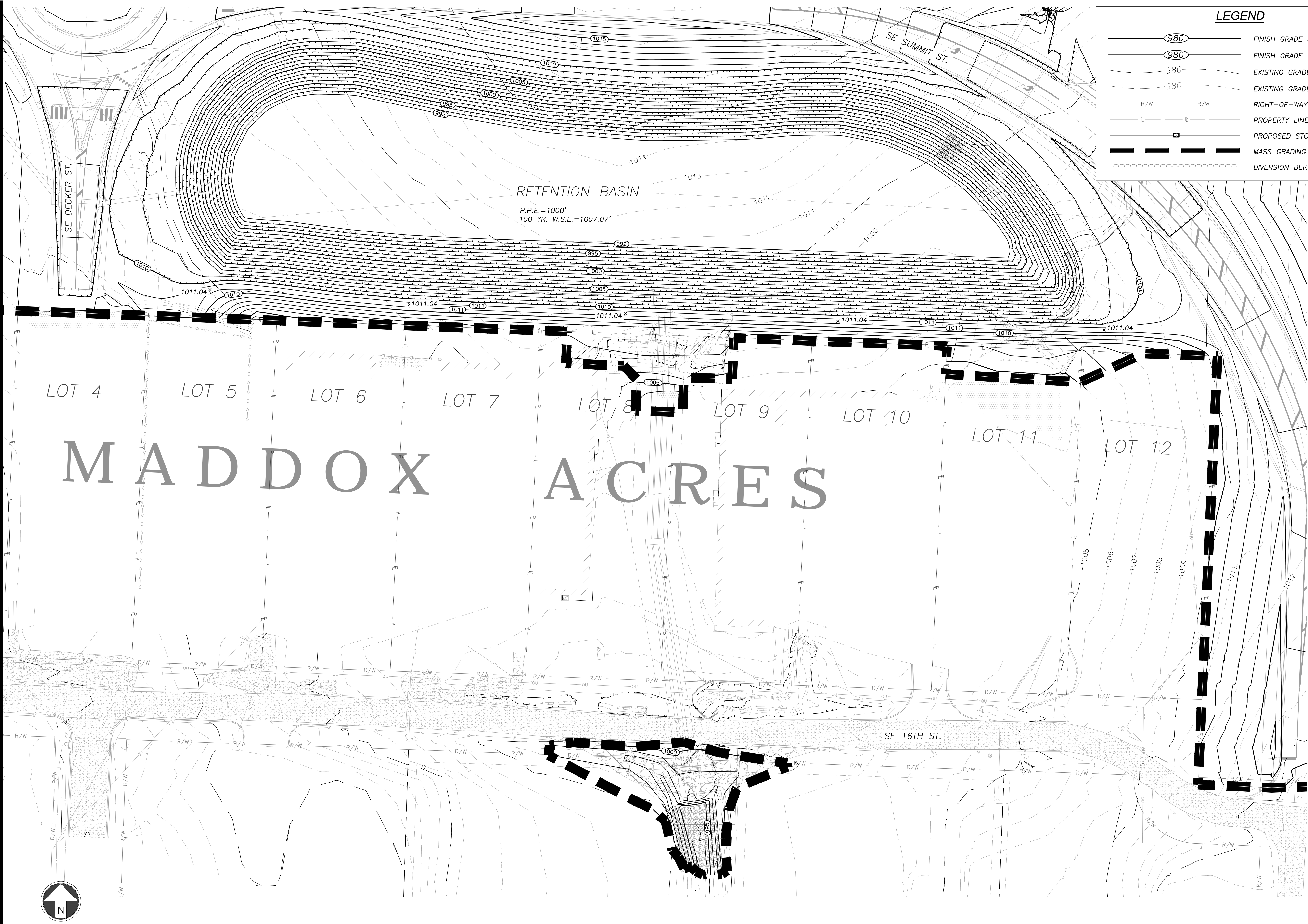
PROJECT NUMBER
13958.00
DATE
6/8/18

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SHEET TITLE
MASS GRADING PLAN

SHEET NUMBER
C4.0

G:\13958\Civil\3D\Production Drawings\Mass Grading and Stormwater Plans\021730-FDP1A-MSSGRAD-SHITS-GRAD.dwg Layout: C4.1 RETENTION BASIN GRADING PLAN -- Friday June 08, 2018, 2:56pm -- Copyright 2018, George Butler Associates, Inc.



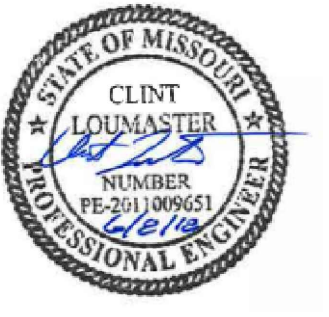
LEGEND

	FINISH GRADE 5' CONTOURS
	FINISH GRADE 1' CONTOURS
	EXISTING GRADE 5' CONTOURS
	EXISTING GRADE 1' CONTOURS
	RIGHT-OF-WAY LINE
	PROPERTY LINE
	PROPOSED STORM SEWER MAIN
	MASS GRADING LIMITS
	DIVERSION BERM



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 LEE'S SUMMIT, MISSOURI



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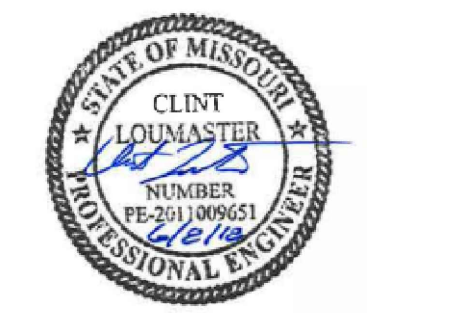
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 SHEET TITLE

RETENTION BASIN GRADING PLAN

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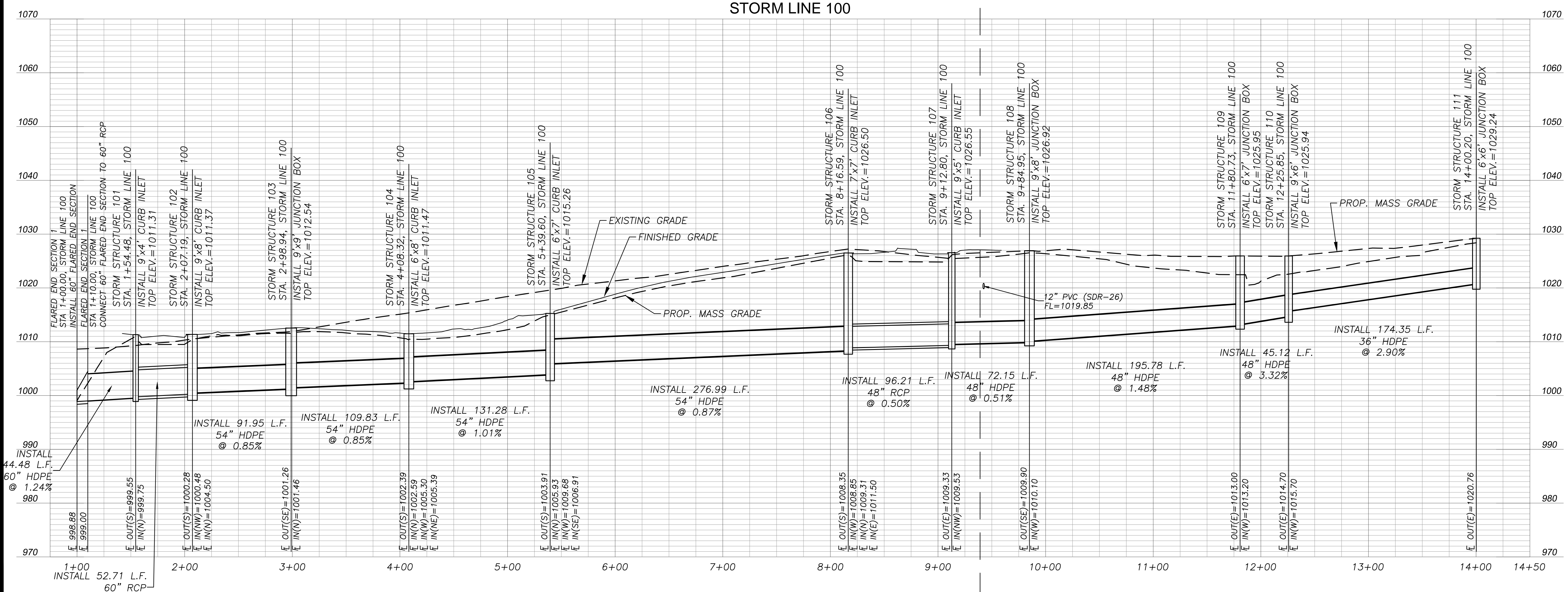
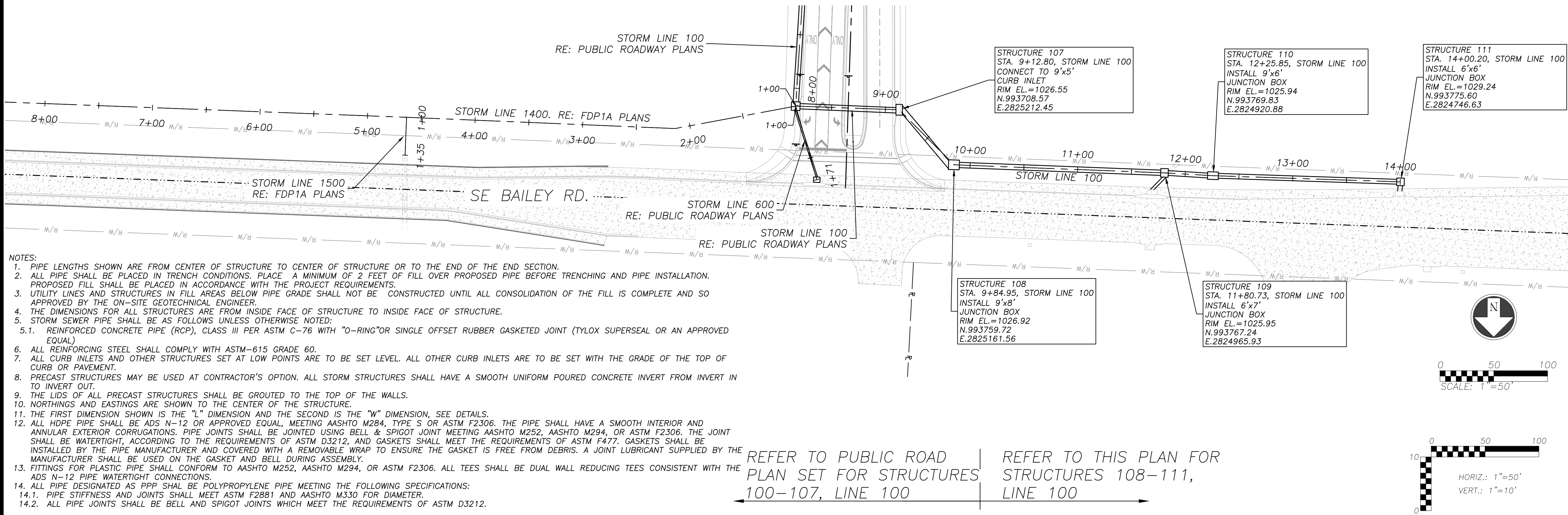
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SHEET TITLE
STORM PLAN AND PROFILE (1)

SHEET NUMBER
C5.1





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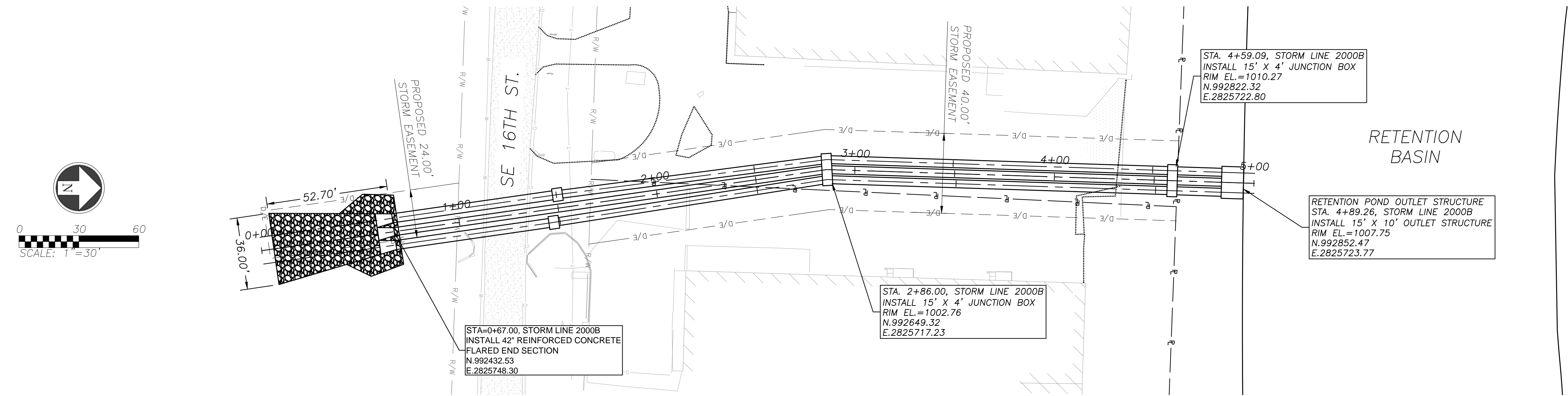
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SHEET TITLE
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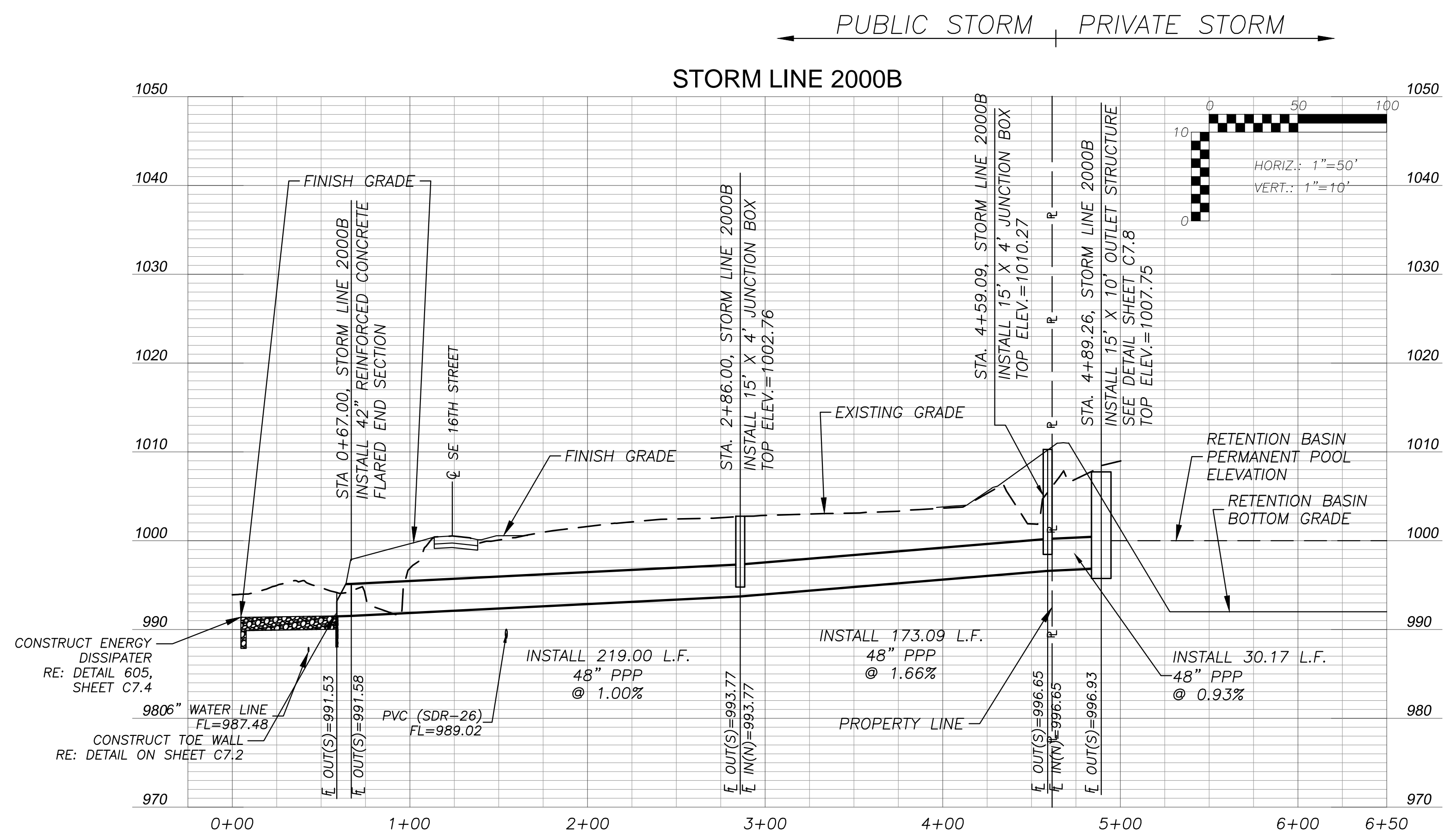
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C5.3

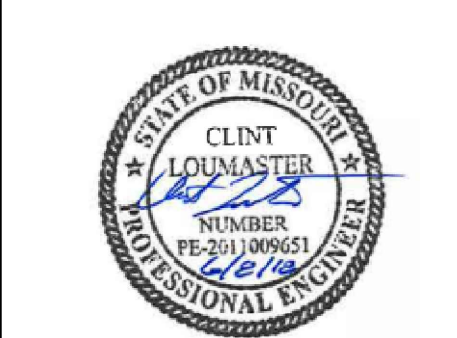
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- NOTES:
- PIPE LENGTHS SHOWN ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE OR TO THE END OF THE END SECTION. ALL PIPES SHALL BE FIELD STAKED TO THE INSIDE WALL FACE OF THE STRUCTURE.
 - ALL PIPE SHALL BE PLACED IN TRENCH CONDITIONS. PLACE A MINIMUM OF 2 FEET OF FILL OVER PROPOSED PIPE BEFORE TRENCHING AND PIPE INSTALLATION. PROPOSED FILL SHALL BE PLACED IN ACCORDANCE WITH THE PROJECT REQUIREMENTS.
 - UTILITY LINES AND STRUCTURES IN FILL AREAS BELOW PIPE GRADE SHALL NOT BE CONSTRUCTED UNTIL ALL CONSOLIDATION OF THE FILL IS COMPLETE AND SO APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER.
 - THE DIMENSIONS FOR ALL STRUCTURES ARE FROM INSIDE FACE OF STRUCTURE TO INSIDE FACE OF STRUCTURE.
 - STORM SEWER PIPE SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED:
 1. REINFORCED CONCRETE PIPE (RCP), CLASS III PER ASTM C-76 WITH "O-RING" OR SINGLE OFFSET RUBBER GASKETED JOINT (TYLOX SUPERSEAL OR AN APPROVED EQUAL)
 2. ALL REINFORCING STEEL SHALL COMPLY WITH ASTM-615 GRADE 60.
 3. ALL CURB INLETS AND OTHER STRUCTURES SET AT LOW POINTS ARE TO BE SET LEVEL. ALL OTHER CURB INLETS ARE TO BE SET WITH THE GRADE OF THE TOP OF CURB OR PAVEMENT.
 4. PRECAST STRUCTURES MAY BE USED AT CONTRACTOR'S OPTION. ALL STORM STRUCTURES SHALL HAVE A SMOOTH UNIFORM POURED CONCRETE INVERT FROM INVERT TO INVERT OUT.
 5. THE LIDS OF ALL PRECAST STRUCTURES SHALL BE GROUTED TO THE TOP OF THE WALLS.
 6. NORTHINGS AND EASTINGS ARE SHOWN TO THE CENTER OF THE STRUCTURE.
 7. THE FIRST DIMENSION SHOWN IS THE "L" DIMENSION AND THE SECOND IS THE "W" DIMENSION. SEE DETAILS.
 8. ALL HDPE PIPE SHALL BE ADS N-12 OR APPROVED EQUAL, MEETING AASHTO M284, TYPE S OR ASTM F2306. THE PIPE SHALL HAVE A SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS. PIPE JOINTS SHALL BE JOINTED USING BELL & SPIGOT JOINT MEETING AASHTO M252, AASHTO M294, OR ASTM F2306. THE JOINT SHALL BE WATERTIGHT, ACCORDING TO THE REQUIREMENTS OF ASTM D3212, AND GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477. GASKETS SHALL BE INSTALLED BY THE PIPE MANUFACTURER AND COVERED WITH A REMOVABLE WRAP TO ENSURE THE GASKET IS FREE FROM DEBRIS. A JOINT LUBRICANT SUPPLIED BY THE MANUFACTURER SHALL BE USED ON THE GASKET AND BELL DURING ASSEMBLY.
 9. FITTINGS FOR PLASTIC PIPE SHALL CONFORM TO AASHTO M252, AASHTO M294, OR ASTM F2306. ALL TEES SHALL BE DUAL WALL REDUCING TEES CONSISTENT WITH THE ADS N-12 PIPE WATERTIGHT CONNECTIONS.
 10. ALL PIPE DESIGNATED AS PPP SHALL BE POLYPROPYLENE PIPE MEETING THE FOLLOWING SPECIFICATIONS:
 11. PIPE STIFFNESS AND JOINTS SHALL MEET ASTM F2881 AND AASHTO M330 FOR DIAMETER.
 12. ALL PIPE JOINTS SHALL BE BELL AND SPIGOT JOINTS WHICH MEET THE REQUIREMENTS OF ASTM D3212.



SCALE: 1"=30'



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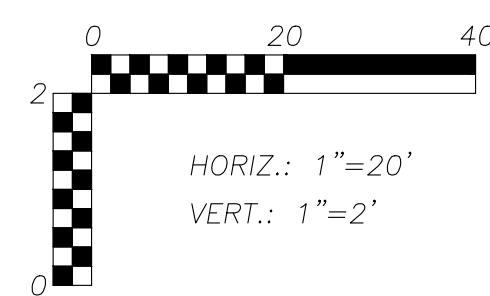
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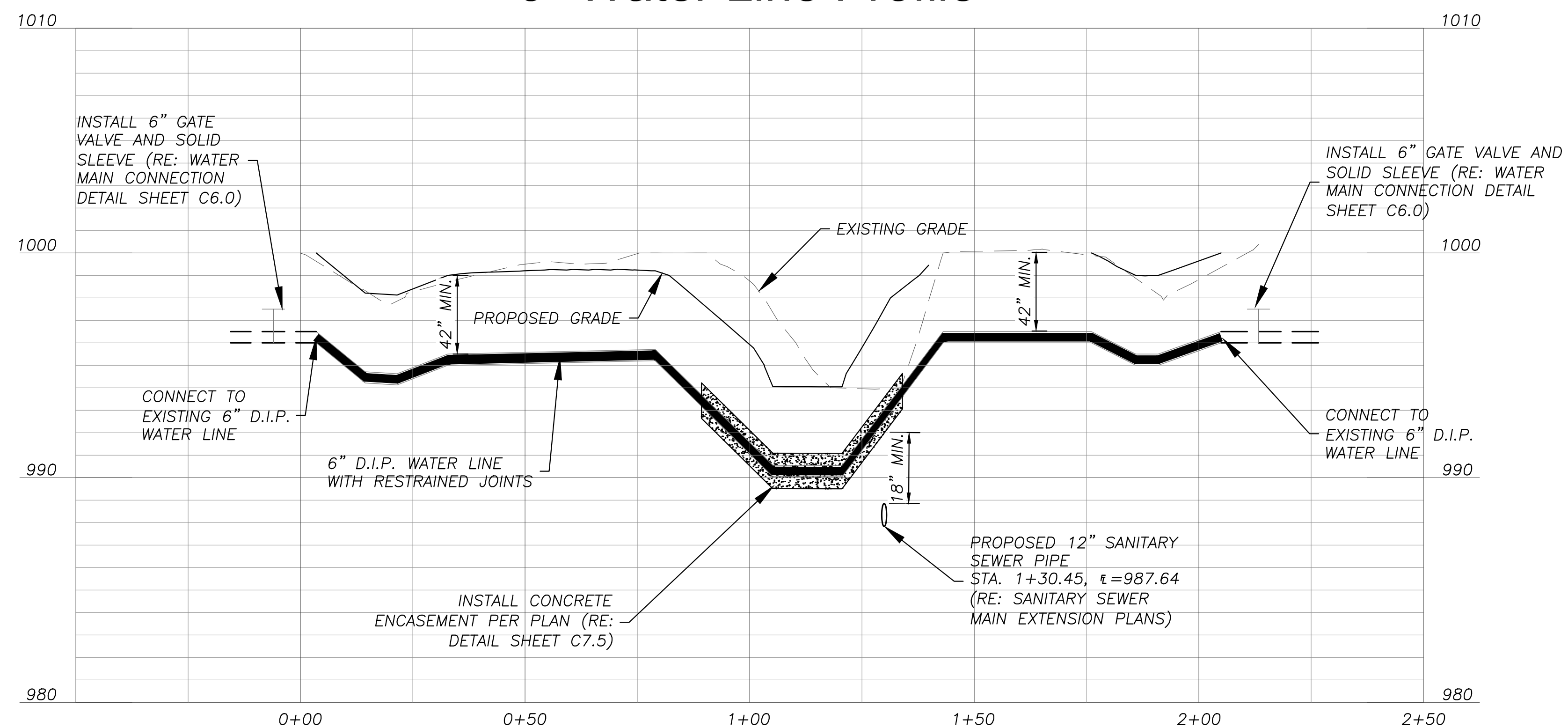
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WATER LINE RELOCATION PROFILE

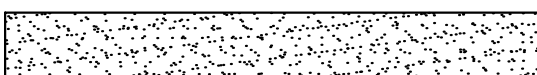





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C6.1



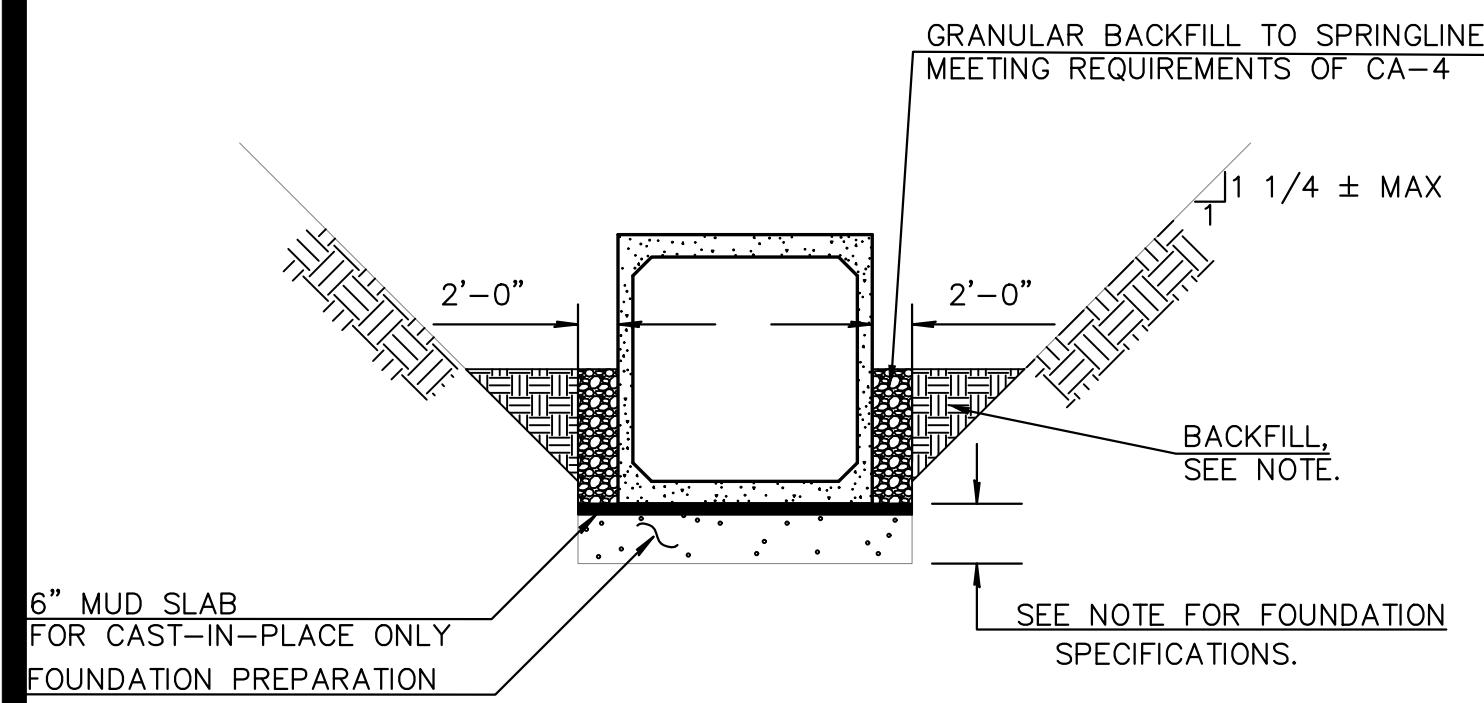
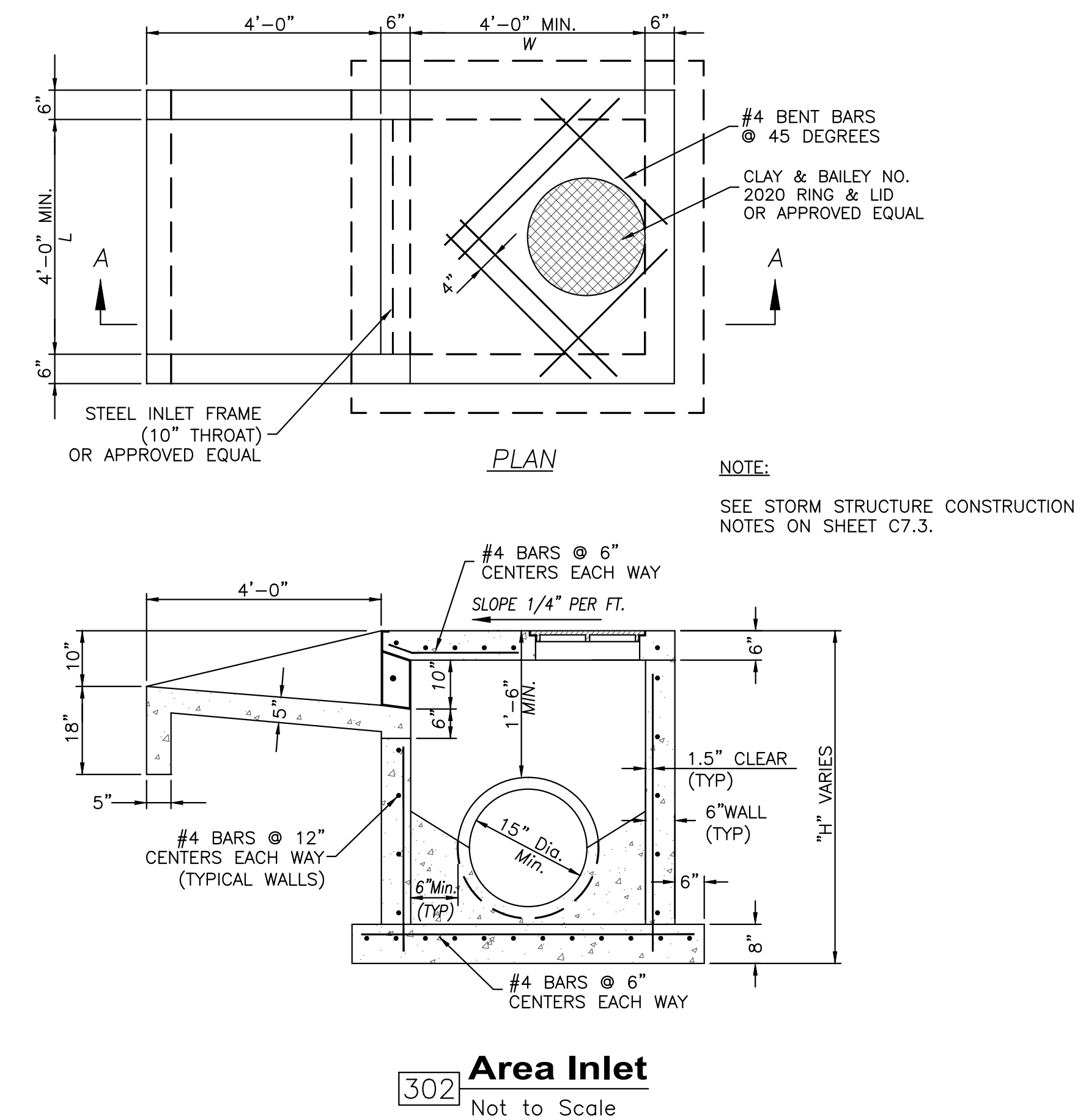
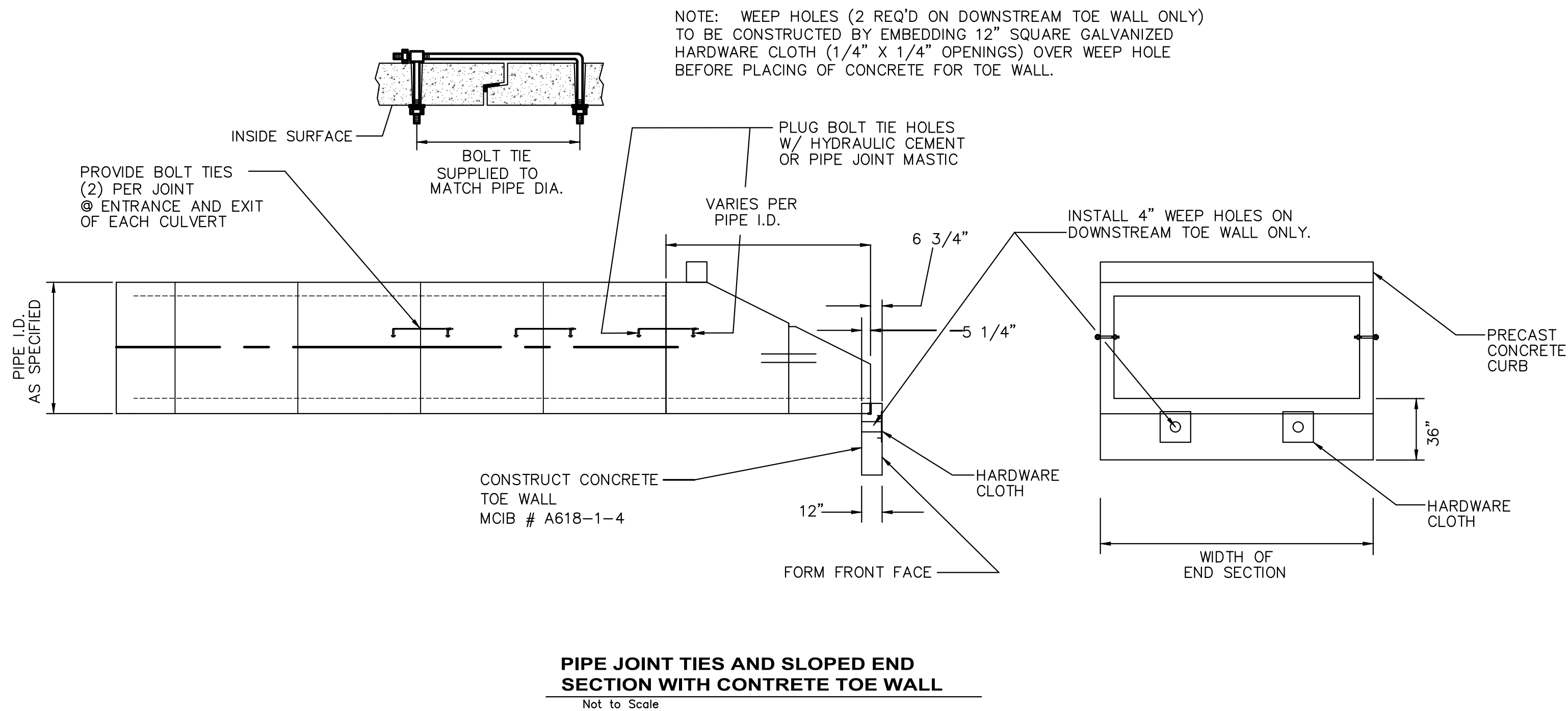
6" Water Line Profile



LEGEND

-  CONCRETE ENCASEMENT
-  ENERGY DISSIPATER (RE: DETAIL 605, C7.4)
-  FINISH GRADE 5' CONTOURS
-  FINISH GRADE 1' CONTOURS
-  EXISTING GRADE 5' CONTOURS
-  EXISTING GRADE 1' CONTOURS

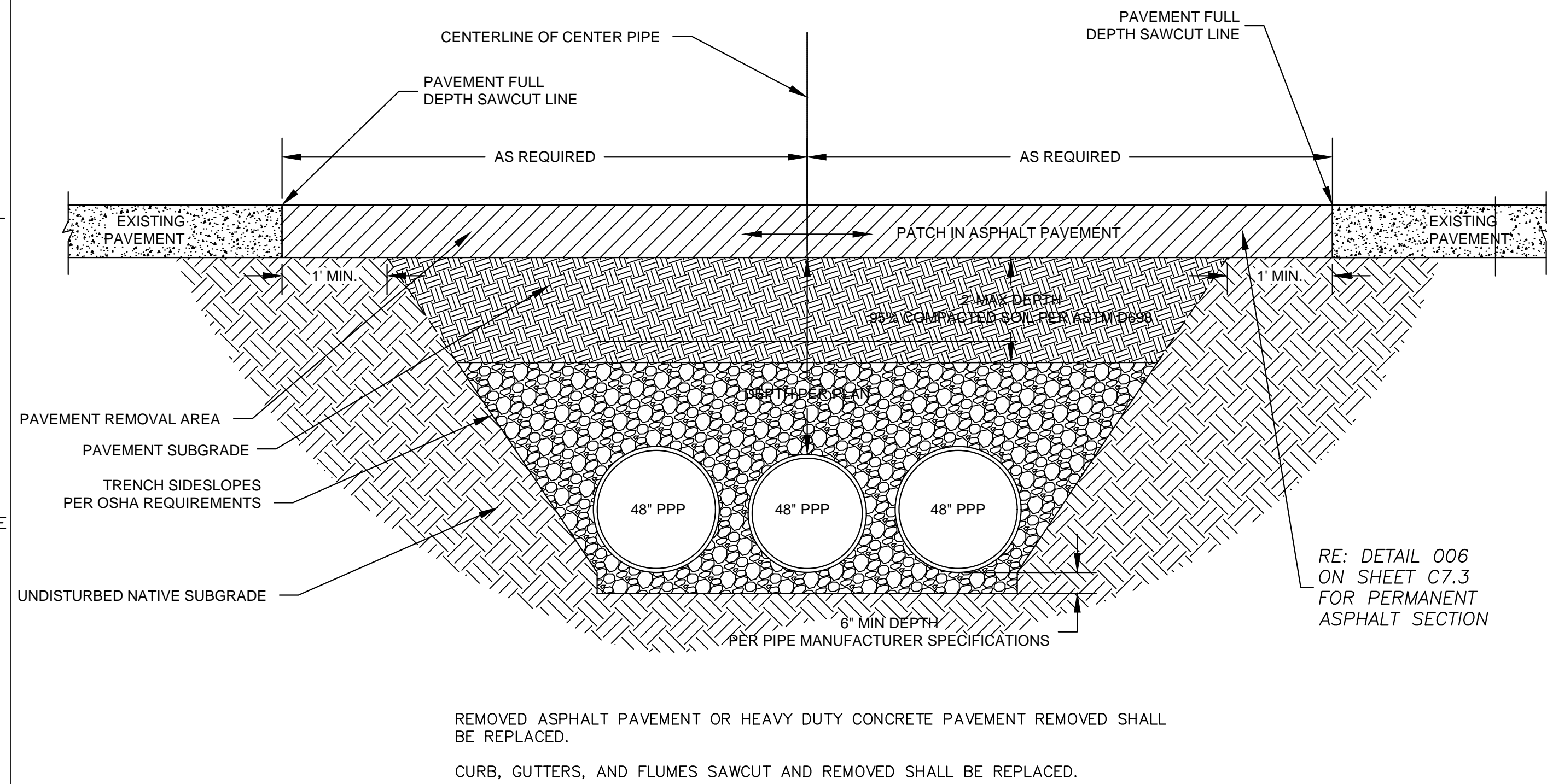
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- GENERAL NOTES**
- FOUNDATION PREPARATION:**
- SUBGRADE OF MUD SLAB SHALL MEET THE REQUIREMENTS OF THE INITIAL SITE PREPARATION FOR UNDERCUTTING, PROOFROLLING, COMPACTION AND MOISTURE CONDITIONING AS SPECIFIED FOR RECEIVING STRUCTURAL FILL.
 - ONSITE GEOTECHNICAL ENGINEER SHALL APPROVE LEVEL TO WHICH UNDERCUTTING IS REQUIRED.
 - THE EXPOSED GRADE SHOULD BE SCARIFIED TO A DEPTH OF 9 INCHES AND MOISTURE CONDITIONED TO 0 TO 4 PERCENT OF THE MATERIAL'S MAXIMUM DRY DENSITY AND COMPACTED TO A MINIMUM OF 95 PERCENT OF THE STANDARD PROCTOR DENSITY.
 - STRUCTURAL FILL MEETING BACKFILL REQUIREMENTS SHALL BE BROUGHT FROM THE UNDERCUT ELEVATION UP TO THE BASE OF THE MUD SLAB.
- BACKFILL:**
- BACKFILL SHOULD BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE STANDARD PROCTOR DENSITY. THE MOISTURE CONTENT AT TIME OF COMPACTION SHOULD BE WITHIN A RANGE OF 0 TO 4 PERCENT ABOVE OPTIMUM MOISTURE CONTENT AS DEFINED BY THE STANDARD PROCTOR COMPACTION PROCEDURE.
- PRECAST DESIGN NOTE:**
- HL-93 DESIGN LOADING.
 - DRY UNIT WEIGHT OF SOIL ±99.6 LBS/CU. FT.

R.C.B. FOUNDATION & BACKFILL DETAIL

Not to Scale



PAVEMENT TRENCH REPAIR

Not to Scale



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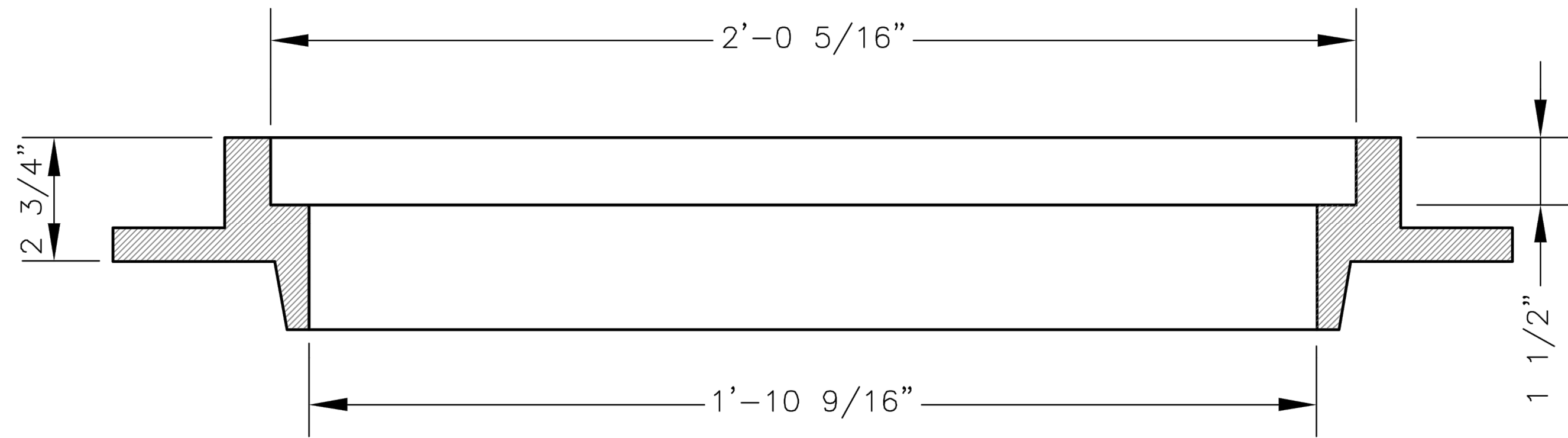
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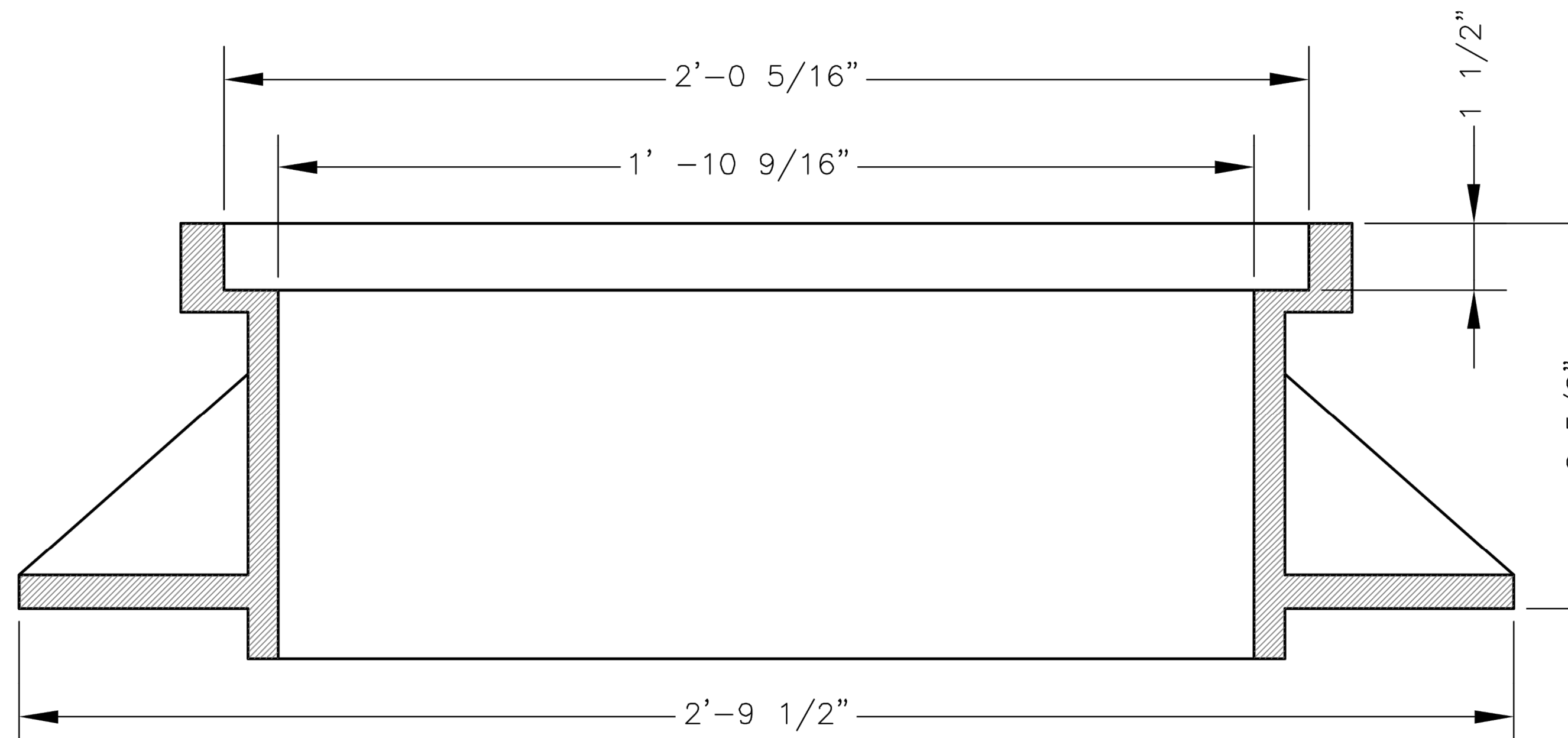
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C7.2

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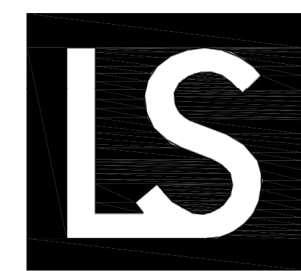


SLAB MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS103A
MINIMUM WEIGHT = 145 LB



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.

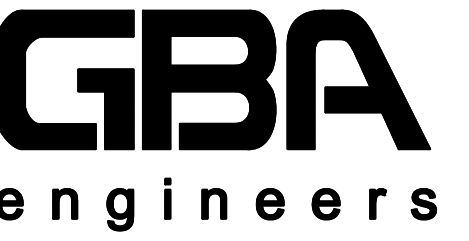


LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STORM MANHOLE FRAME DETAIL

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

STM-7



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PROPOSED FACILITY FOR:
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MISSOURI HWY 291 & 16TH STREET
LEE'S SUMMIT, MISSOURI



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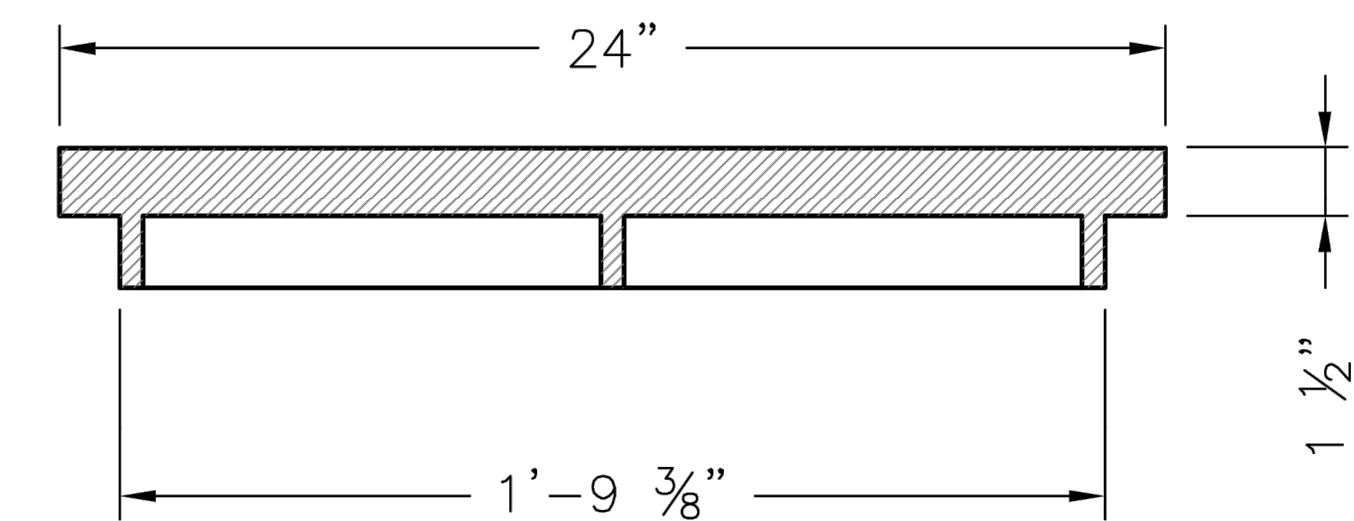
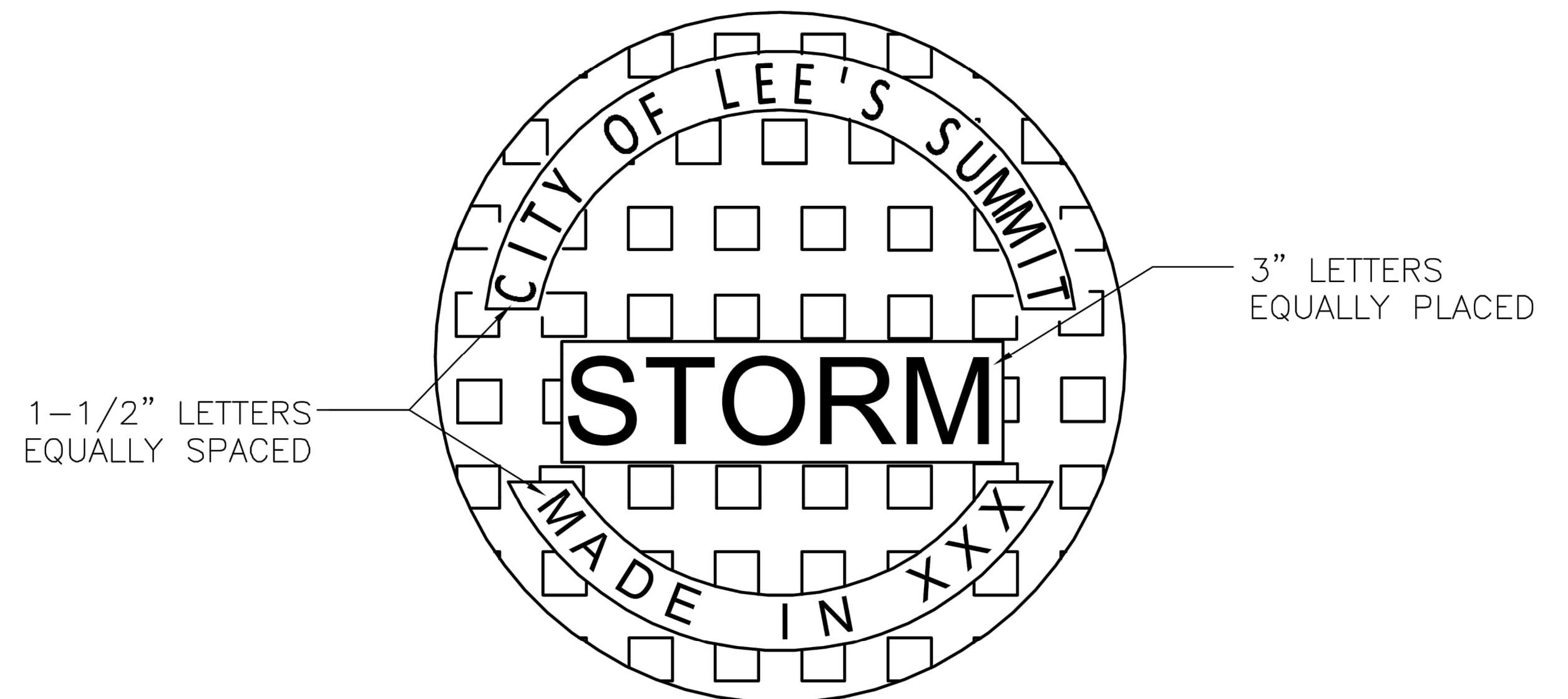
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CIVIL DETAILS (6)

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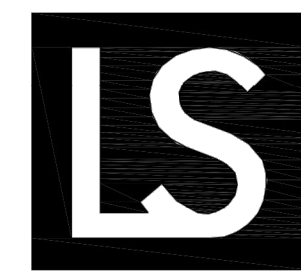
C7.6

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Architecture CO# 000212
Land Surveying CO# 000059



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.



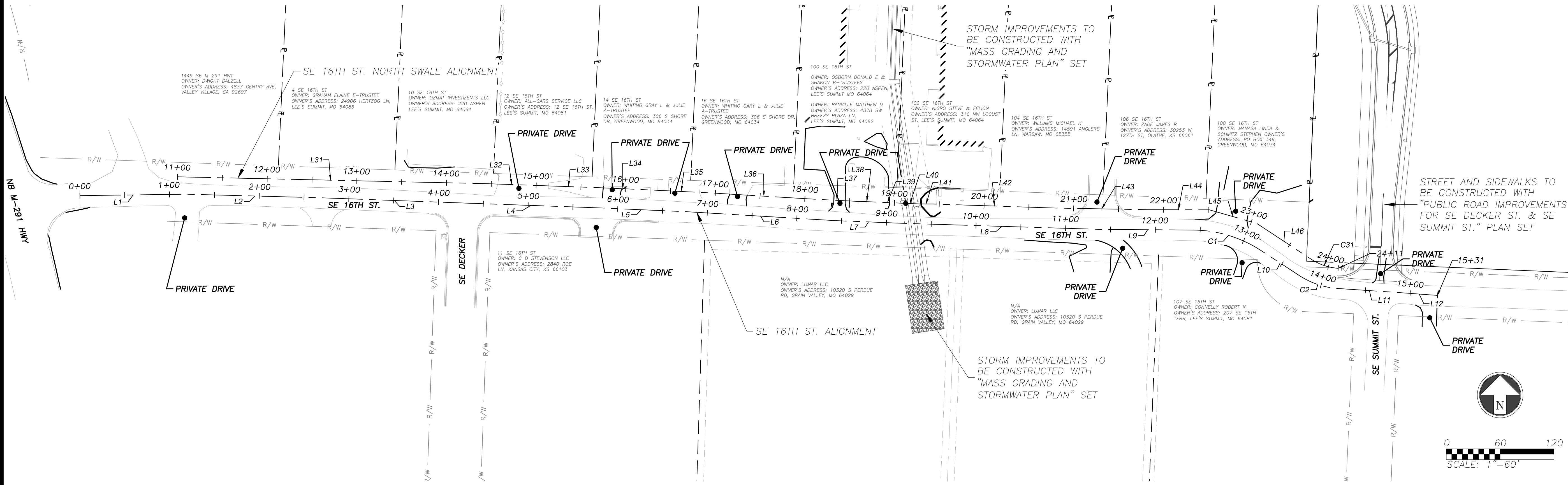
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STORM MANHOLE COVER DETAIL

Date: 04/17
Drawn By: MJF
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STM-6

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SE 16TH ST.									
NUMBER	LENGTH	RADIUS	LINE/CHORD DIRECTION	START STATION	START NORTHING	START EASTING	END STATION	END NORTHING	END EASTING
L1	118.86		N89° 14' 54.57"E	0+00.00	992522.26	2824811.14	1+18.86	992523.82	2824930.00
L2	152.40		S88° 28' 15.50"E	1+18.86	992523.82	2824930.00	2+71.26	992519.75	2825082.34
L3	159.05		S87° 53' 32.44"E	2+71.26	992519.75	2825082.34	4+30.31	992513.90	2825241.28
L4	145.44		S87° 57' 05.94"E	4+30.31	992513.90	2825241.28	5+75.76	992508.71	2825386.63
L5	100.52		S87° 29' 58.65"E	5+75.76	992508.71	2825386.63	6+76.27	992504.32	2825487.05
L6	166.60		S86° 34' 25.50"E	6+76.27	992504.32	2825487.05	8+42.87	992494.36	2825653.36
L7	74.18		S87° 42' 47.56"E	8+42.87	992494.36	2825653.36	9+17.06	992491.40	2825727.48
L8	223.65		S88° 14' 05.13"E	9+17.06	992491.40	2825727.48	11+40.70	992484.51	2825951.02
L9	101.40		S89° 37' 11.41"E	11+40.70	992484.51	2825951.02	12+42.11	992483.84	2826052.42
C1	80.20	140.00	S73° 12' 33.56"E	12+42.11	992483.84	2826052.42	13+22.30	992460.99	2826128.15
L10	50.96		S56° 47' 55.71"E	13+22.30	992460.99	2826128.15	13+73.26	992433.08	2826170.80
C2	46.13	90.00	S71° 28' 53.09"E	13+73.26	992433.08	2826170.80	14+19.39	992418.59	2826214.06
L11	70.25		S86° 09' 52.09"E	14+19.39	992418.59	2826214.06	14+89.64	992413.89	2826284.15
L12	40.91		S85° 49' 01.85"E	14+89.64	992413.89	2826284.15	15+30.55	992410.91	2826324.95

SE 16TH ST. NORTH SWALE									
NUMBER	LENGTH	RADIUS	LINE/CHORD DIRECTION	START STATION	START NORTHING	START EASTING	END STATION	END NORTHING	END EASTING
L31	341.41		S88° 43' 59.32"E	11+00.00	992543.25	2824920.00	14+41.41	992535.70	2825261.33
L32	62.75		S87° 57' 05.93"E	14+41.41	992535.70	2825261.33	15+04.16	992533.46	2825324.04
L33	63.52		S87° 57' 05.95"E	15+04.16	992533.46	2825324.04	15+67.69	992531.19	2825387.53
L34	58.23		S87° 29' 58.65"E	15+67.69	992531.19	2825387.53	16+25.92	992528.65	2825445.70
L35	71.83		S87° 09' 48.61"E	16+25.92	992528.65	2825445.70	16+97.75	992525.09	2825517.45
L36	113.00		S86° 31' 12.30"E	16+97.75	992525.09	2825517.45	18+10.75	992518.23	2825630.24
L37	50.13		S87° 09' 58.14"E	18+10.75	992518.23	2825630.24	18+60.88	992515.76	2825680.31
L38	16.34		S87° 58' 46.29"E	18+60.88	992515.76	2825680.31	18+77.22	992515.18	2825696.63
L39	29.94		S87° 25' 24.77"E	18+77.22	992515.18	2825696.63	19+07.16	992513.83	2825726.55
L40	20.34		S87° 41' 17.50"E	19+07.16	992513.83	2825726.55	19+27.50	992513.01	2825746.87
L41	15.53		S89° 32' 14.77"E	19+27.50	992513.01	2825746.87	19+43.03	992512.89	2825762.40
L42	137.19		S88° 06' 39.16"E	19+43.03	992512.89	2825762.40	20+80.21	992508.37	2825899.51
L43	102.01		S88° 58' 20.34"E	20+80.21	992508.37	2825899.51	21+82.22	992506.54	2826001.50
L44	69.06		S89° 52' 30.85"E	21+82.22	992506.54	2826001.50	22+51.29	992506.39	2826070.57
L45	55.02		S73° 58' 33.72"E	22+51.29	992506.39	2826070.57	23+06.31	992491.20	2826123.45
L46	72.57		S56° 38' 19.45"E	23+06.31	992491.20	2826123.45	23+78.88	992451.29	2826184.06
C31	32.21	62.50	S71° 24' 05.77"E	23+78.88	992451.29	2826184.06	24+11.09	992441.13	2826214.25

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STREET ALIGNMENT PLAN

SHEET NUMBER

C8.0