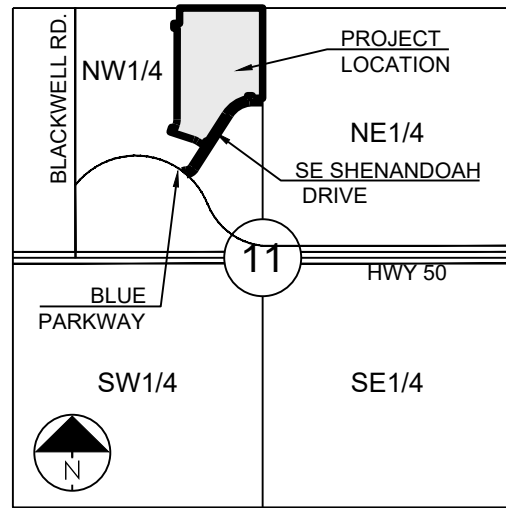


**PUBLIC WATER MAIN PLANS**  
**FOR**  
**REUNION AT BLACKWELL**  
**IN THE CITY OF LEE'S SUMMIT**  
**JACKSON COUNTY, MO**

**LEGEND:**

|            |   |                                     |
|------------|---|-------------------------------------|
| AVE        | - | ACCESS EASEMENT                     |
| BC         | - | BACK OF CURB                        |
| B/B        | - | BACK TO BACK                        |
| BM         | - | BENCHMARK                           |
| BL or B.L. | - | BUILDING LINE                       |
| CO         | - | CLEANOUT                            |
| TJB        | - | TELEPHONE JUNCTION BOX              |
| C&G        | - | CURB AND GUTTER                     |
| D/E        | - | DRAINAGE EASEMENT                   |
| E/E        | - | ELECTRICAL EASEMENT                 |
| EL         | - | ELEVATION                           |
| FL         | - | FLOW LINE                           |
| G/E        | - | Gas LINE EASEMENT                   |
| HDPE       | - | HIGH-DENSITY POLYETHYLENE           |
| L/E        | - | LANDSCAPE EASEMENT                  |
| MSFE       | - | MINIMUM SERVICEABLE FLOOR ELEVATION |
| PVC        | - | POLYVINYL CHLORIDE                  |
| P/L        | - | PROPERTY LINE                       |
| PUB/E      | - | PUBLIC EASEMENT                     |
| RCP        | - | REINFORCED CONCRETE PIPE            |
| ROW or R/W | - | RIGHT-OF-WAY                        |
| S/E        | - | SANITARY SEWER EASEMENT             |
| SL         | - | SERVICE LINE                        |
| S/W        | - | SIDEWALK                            |
| TE         | - | TOP ELEVATION                       |
| U/E        | - | UTILITY EASEMENT                    |
| WSE        | - | WATER SURFACE ELEVATION             |
| W/E        | - | WATERLINE EASEMENT                  |



SECTION 11-47-31

**LOCATION MAP**  
SCALE 1" = 2000'

**UTILITY CONTACTS:**

MISSOURI DEPARTMENT OF  
TRANSPORTATION (MODOT)

Steve Holloway  
600 NE Colbern Road  
Lee's Summit, MO 64086  
(816) 607-2186

## SPIRE

Brent Jones  
3025 SE Clover Drive  
Lee's Summit, MO 64082  
(816) 399-0663 [brent.jones@spireenergy.com](mailto:brent.jones@spireenergy.com)

EVERGY

Philip Ingram  
1300 SE Hamblin Road  
Lee's Summit, MO 64081  
Office: (816) 347-347-4339  
[philip.ingram@evergy.com](mailto:philip.ingram@evergy.com)

## CITY OF LEES SUMMIT PUBLIC WORKS

Dena Mezger  
220 SE Green Street  
Lee's Summit, MO 64063  
(816) 969-1800

AT&T

Mark Manion or Marty Loper  
500 E. 8th Street, Room 370  
Kansas City, MO 64106  
(816) 275-2341 or (816) 275-1550

**COMCAST CABLE**  
John Meadows  
4700 Little Blue Parkway  
Independence, MO 64057  
(816) 795-2257

## CITY OF LEE'S SUMMIT WATER UTILITIES

Mark Schaufler  
1200 SE Hamblen Road  
Lee's Summit, MO 64081  
(816) 969-1900



811 or  
1-800-344-7483  
mo1call.com

## EARTHWORK:

1. It is recommended that a Geotechnical Engineer observe and document all earthwork activities.
2. Contours have been shown at 1-foot or 2-foot intervals, as indicated. Grading shall consist of completing the earthwork required to bring the physical ground elevations of the existing site to the finished grade (or sub-grade) elevations provided on the plans as spot grades, contours or others means as indicated on the plans.
3. The existing site topography depicted on the plans by contouring has been established by aerial photography and field verified by g.p.s. observation near 11/11/2021. The contour elevations provided may not be exact ground elevations, but rather interpretations of such. Accuracy shall be considered to be such that not more than 10 percent of spot elevation checks shall be in error by more than one-half the contour interval provided, as defined by the National Map Accuracy Standards. Any quantities provided for earthwork volumes are established using this topography contour accuracy, and therefore the inherent accuracy of any earthwork quantity is assumed from the topography accuracy.
4. Proposed contours are to approximate finished grade.
5. Unless otherwise noted, payment for earthwork shall include backfilling of the curb and gutter, sidewalk and further manipulation of utility trench spoils. The site shall be left in a movable condition and positive drainage maintained throughout.
6. Unless otherwise noted, all earthwork is considered Unclassified. No additional compensation will be provided for rock or shale excavation, unless specifically stated otherwise.
7. Prior to earthwork activities, pre-disturbance erosion and sediment control devices shall be in place per the Storm Water Pollution Prevention plan or the Erosion and Sediment Control Plan prepared for this site.
8. All fill material shall be stored on the areas to be graded and stockpiled adjacent to the site at an area specified by the project owner or his appointed representative. Vegetation, trash, trees, brush, tree roots and limbs, rock fragments greater than 6-inches and other deleterious materials shall be removed and properly disposed of offsite or as directed by the owner or his appointed representative.
9. Unless otherwise specified in the Geotechnical Report, all fills shall be placed in maximum 6-inch lifts and compacted to 95-percent of maximum density as defined using a standard proctor test (AASHTO T99/ASTM 698).
10. Subgrade for pavements shall be proctor-rolled prior to paving operations utilizing a fully loaded tandem axle dump truck. All areas exhibiting excessive pumping and heaving shall be removed, filled and compacted with suitable materials and retested until acceptable results are achieved and final approval has been obtained from the Geotechnical Engineer.
11. Subgrade for building pad shall include a minimum of 18-inches of Low Volume Change (LVC) material, or as identified in the site specific Geotechnical Report.
12. Fill materials shall be per the Geotechnical Report and shall not include organic matter, debris or topsoil. All fills placed on slopes greater than 6:1 shall be benched.
13. The Contractor shall be responsible for redistributing the topsoil over proposed turf and landscaped areas to a minimum depth of 6-inches below final grade.
14. All areas shall be graded for positive drainage. Unless noted otherwise the following grades shall apply:
  - a. Turf Areas – 2.5% Minimum, 4H:1V Maximum
  - b. Paved Areas – 1.2% Minimum, 5% Maximum
15. A.D.A. parking stalls shall not be sloped greater than 2% in any direction and constructed per A.D.A. requirements.
16. All disturbed areas shall be fertilized, seeded and mulched immediately after earthwork activities have ceased. Seeding shall be per the Erosion and Sediment Control Plan and/or Landscape Plan. If not specified seeding shall be per APWA Section 2400, latest edition. Unless otherwise noted, seeding shall be subsidiary to the contract price for earthwork and grading activities.
17. All disturbed areas in the right-of-way shall be sodded.
18. Underdrains are recommended for all paved areas adjacent to irrigated turf and landscaped beds.
19. Contractor shall adhere to the reporting requirements outlined in the Storm Water Pollution Prevention Plan (SWPPP) prepared for this project. Erosion and Sediment control devices shall be properly maintained and kept clean of silt and debris and in good working order. Additional erosion and sediment control measures shall be installed as required.

**UTILITIES:**

1. Existing utilities have been shown to the greatest extent possible based upon information provided to the Engineer. The contractor is responsible for contacting the respective utility companies and field locating utilities prior to construction and identifying any potential conflicts. All conflicts shall immediately be brought to the attention of the Engineer.
2. The contractor shall be responsible for coordinating any required utility relocations. Utilities damaged through the construction of the project shall be repaired by the contractor.
3. Contractor shall verify flow-lines and structure tops prior to construction, and shall notify Engineer of any discrepancies. Provide shop drawings for all precast and manufactured utility structures for review by the Engineer prior to construction of the structures.
4. Utility Separation: Waterlines shall have a minimum of 10 feet horizontal and 2 feet vertical separation from all sanitary sewer, manholes, and sanitary sewer service laterals, as measured from edge to edge. If minimum separations cannot be obtained, concrete encasement of the sanitary line shall be required 10 feet in each direction of the conflict.
5. Payment for trenching, backfilling, pipe embedment, flowable fill, backfill materials, clean up, seeding, sodding and any other items necessary for the construction of the utility line shall be included in the contract price for the utility installation.
6. The Contractor shall be responsible for contacting respective utility companies 48-hours in advance for the inspection of any proposed utility main extension or service line or service connection to any existing main.
7. The Contractor shall be responsible for the trenching and backfilling of all trenches. The Contractor shall ensure saturation and excess sediment runoff. Unsuitable materials, excess rock and shale, asphalt, concrete, trees, brush etc. shall be properly disposed of offsite. Materials may be wasted onsite at the direction of the Owner or his appointed representative.
8. All excavation is considered unclassified, unless noted otherwise. Unclassified excavation for utility trenching is subsidiary to the unit price provided for the pipe. Any quantity provided for rock excavation is estimated based on the best information provided to the Project Engineer. The Engineer has the authority to identify and estimate the physical characteristics to determine the unit price for rock excavation. The unit price for rock excavation shall be paid at a trench width of the nominal pipe diameter of the installed main plus 18 inches. Contractor is required to dispose of excess rock from their trenches by disposing it in areas as specified by the Project Engineer.

| SUMMARY OF QUANTITIES |   |          |       |
|-----------------------|---|----------|-------|
|                       | ITEM  | QUANTITY | UNITS |
| 1                     | CONNECT TO EXISTING WATER LINE              | 2        | EA    |
| 2                     | 8" C900 DR18 PVC WATER MAIN                 | 2,985    | LF    |
| 3                     | 8" X 8" TEE W/ THRUST BLOCK                 | 5        | EA    |
| 4                     | 8" X 6" TEE W/ THRUST BLOCK                 | 5        | EA    |
| 5                     | 8" 11.25" DIP BEND W/ THRUST BLOCK          | 13       | EA    |
| 6                     | 8" 45" DIP VERTICAL BEND W/ THRUST BLOCK    | 4        | EA    |
| 7                     | 8" PLUG                                     | 3        | EA    |
| 8                     | 8" GATE VALVE                               | 14       | EA    |
| 9                     | FIRE HYDRANT ASSEMBLY                       | 5        | EA    |
| 10                    | END OF LINE TEMPORARY FIRE HYDRANT ASSEMBLY | 2        | EA    |
| 11                    | END OF LINE TEMPORARY 8" X 6" REDUCER       | 2        | EA    |
| 12                    | CONCRETE PIPE ENCASEMENT                    | 50       | LF    |
| 13                    | PERMIT FEE                                  | 1        | LS    |
| 14                    | BOND  | 1        | LS    |

| Sheet List Table |   |
|------------------|---|
| Sheet Number     | Sheet Title                                   |
| 1                | COVER SHEET                                   |
| 2                | GENERAL LAYOUT                                |
| 3                | WATER LINE A - PUBLIC                         |
| 4                | WATER LINE B - PUBLIC                         |
| 5                | WATER LINE F - PUBLIC (STA 0+00 TO 11+00)     |
| 6                | WATER LINE F - PUBLIC (STA 11+00 TO 14+36.87) |
| 7                | DETAILS                                       |
| 8                | DETAILS                                       |

PREPARED BY:



SCHLAGEL &amp; ASSOCIATES, P.A.

**APPROVED BY:**

FOR REVIEW ONLY

CITY ENGINEER  
APPROVED FOR ONE YEAR FROM THIS DATE

**OWNER/DEVELOPER:**

GRIFFIN RILEY PROPERTY GROUP  
 JAKE LOVELESS, VICE PRESIDENT  
 21 SE 29TH TERRACE  
 LEE'S SUMMIT  
 p 816-366-7900  
 JAKE@GRIFFINRILEY.COM

**MO GRS BENCHMARK:**

STATION NAME - JA-90

KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"  
LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD  
LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD  
ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.  
N:1001052.8503, E:2845604.8272

ELEV. 997.045

### PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE  
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE  
INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH  
OF THE CENTERLINE OF BLUE PARKWAY.  
N:996874.9690, E:2840937.1365

ELEV. 1005.719

REUNION AT BLACKWELL  
PUBLIC WATER MAIN PLANS

| REVISION DATE | REVISION PER CITY COMMENTS | DESCRIPTION |
|---------------|----------------------------|-------------|
| 1/03/28/2023  |                            |             |
| 2/            |                            |             |
| 3/            |                            |             |
| 4/            |                            |             |
| 5/            |                            |             |
| 6/            |                            |             |
| 7/            |                            |             |
| 8/            |                            |             |

COVER SHEET

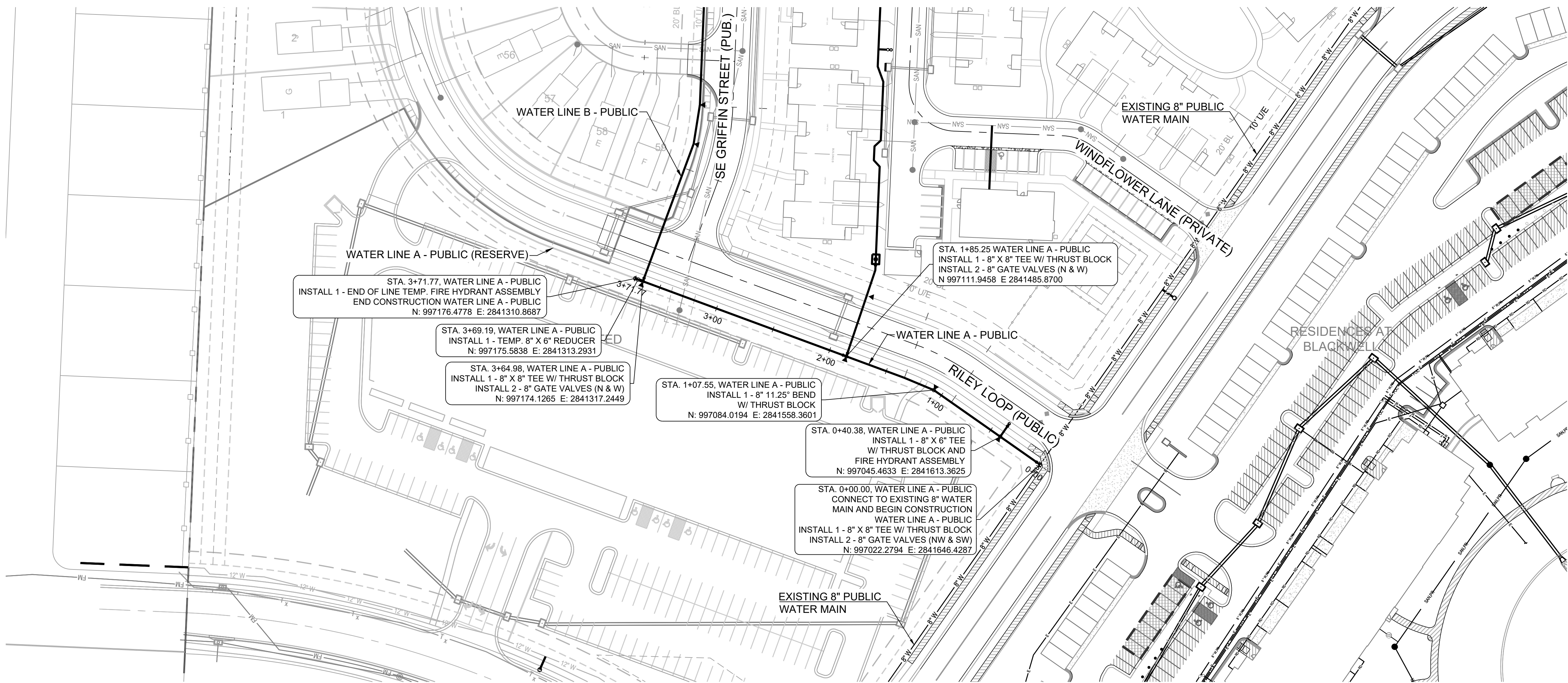
SHEET

1









**MO GRS BENCHMARK:**

STATION NAME - JA-90  
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"  
LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.  
N:1001052.8503, E:2845604.8272

ELEV. 997.045

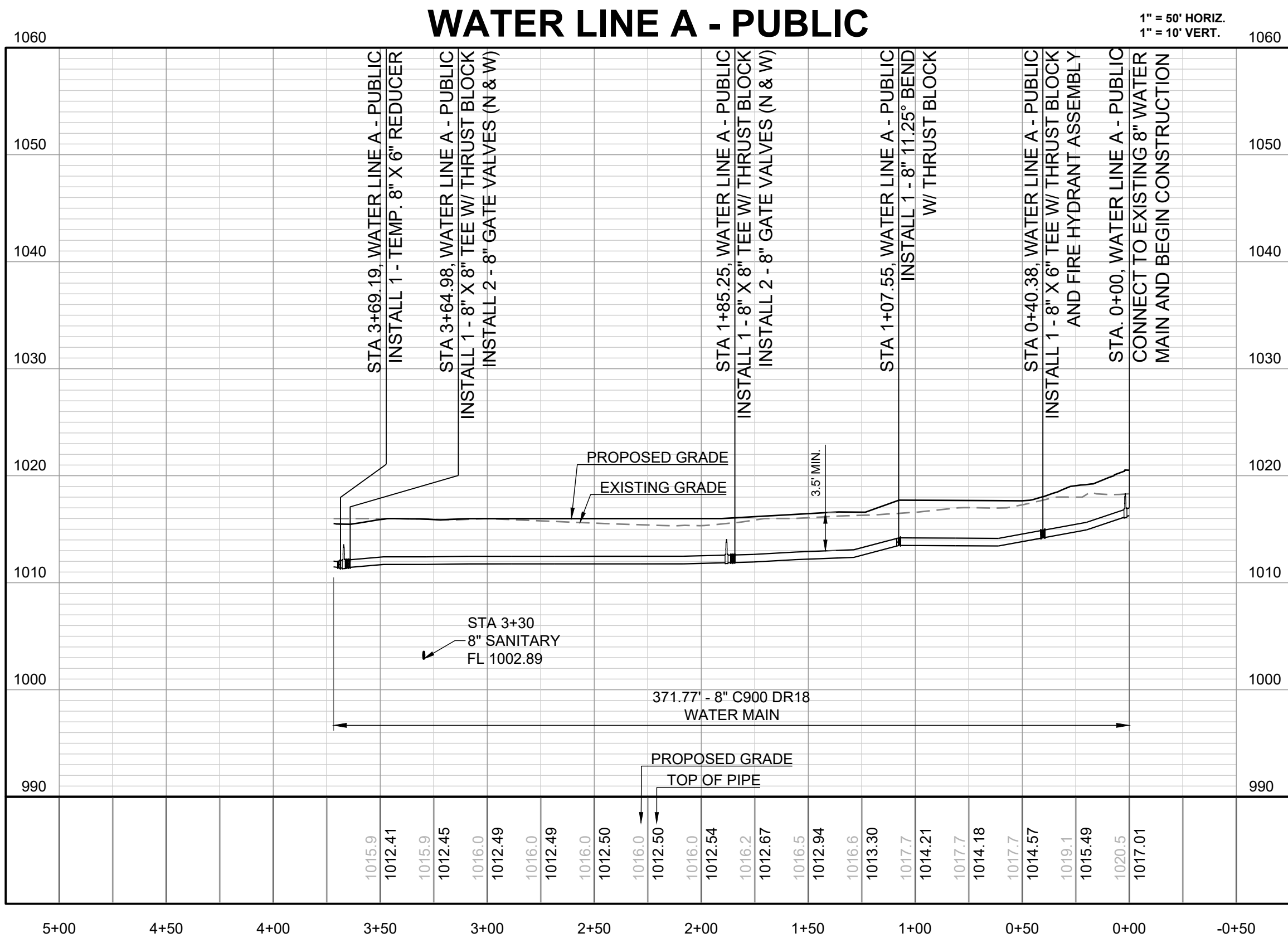
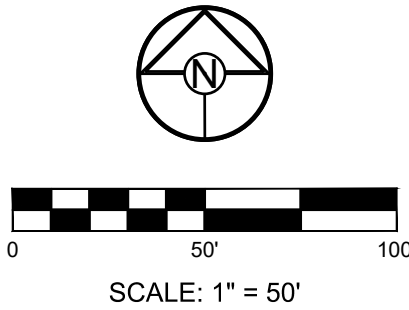
**PROJECT BENCHMARK:**

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE  
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY.  
N:996874.9690, E:2840937.1365

ELEV. 1005.719

**NOTES:**

- ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.



SCHLAGEL

ENGINEERS

PLANNERS

SURVEYORS

LANDSCAPE ARCHITECTS

14920 West 107th Street • Lenexa, Kansas 66215  
(913) 492-5158 • Fax: (913) 492-8400  
WWW.SCHLAGELASSOCIATES.COM  
Missouri State Certificates of Authority  
#E2002003600-F #LAC2001006237 #LS2002008659-F

PREPARED BY:

STATE OF MISSOURI

MARK ALLEN BREUER

PROFESSIONAL ENGINEER

NUMBER RE-2005007268

EXPIRATION DATE 08-25-2023

SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL  
PUBLIC WATER MAIN PLANS

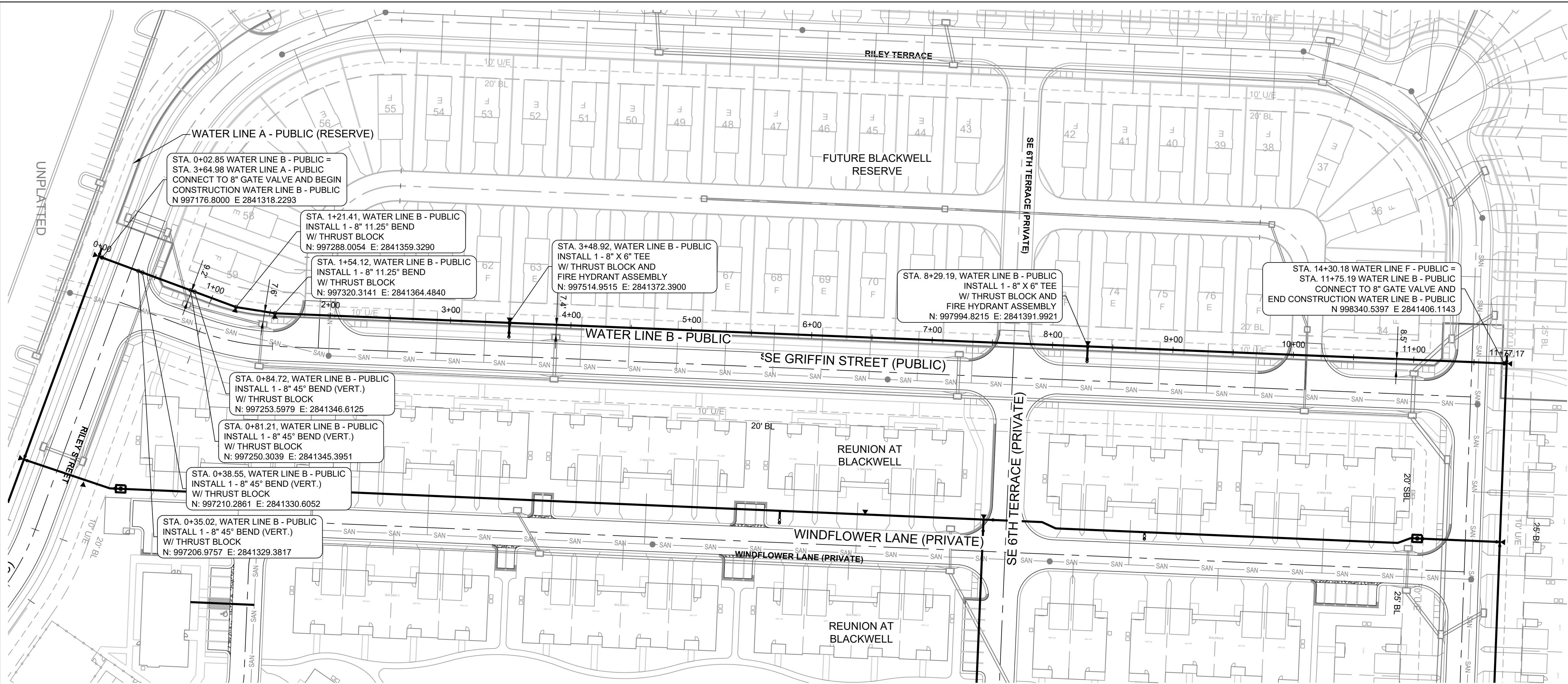
HERITAGE STREET LEE'S SUMMIT, MO

| REVISION DATE | DESCRIPTION              |
|---------------|--------------------------|
| 03/28/2023    | REVISE PER CITY COMMENTS |
| 1             |                          |
| 2             |                          |
| 3             |                          |
| 4             |                          |
| 5             |                          |
| 6             |                          |
| 7             |                          |
| 8             |                          |
| 9             |                          |

|                  |                    |                              |                         |
|------------------|--------------------|------------------------------|-------------------------|
| DRAWN BY:<br>JRJ | CHECKED BY:<br>MAB | DATE PREPARED:<br>03/03/2023 | PROJ. NUMBER:<br>22-597 |
|------------------|--------------------|------------------------------|-------------------------|

WATER LINE A - PUBLIC





**MO GRS BENCHMARK:**

STATION NAME - JA-90  
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"  
LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD  
LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD  
ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.  
N:1001052.8503, E:2845604.8272

ELEV. 997.045

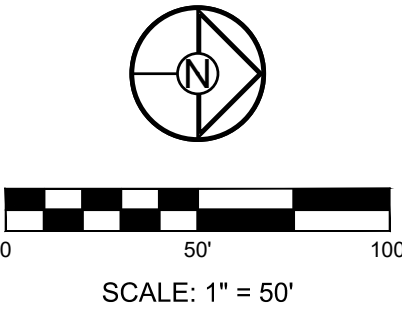
**PROJECT BENCHMARK:**

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE  
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE  
INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH  
OF THE CENTERLINE OF BLUE PARKWAY.  
N:996874.9690, E:2840937.1365

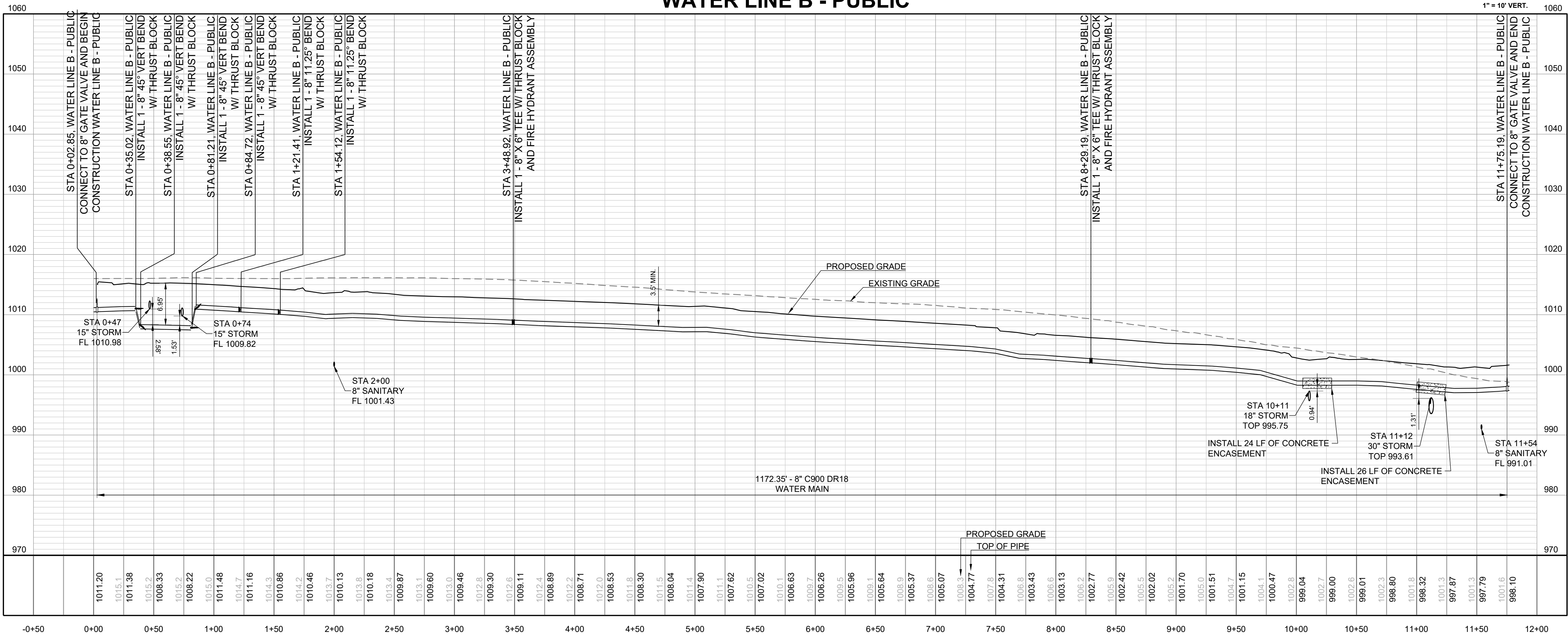
ELEV. 1005.719

**NOTES:**

- ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.



**WATER LINE B - PUBLIC**



**SCHLAGEL**  
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS  
14920 West 107th Street • Lenexa, Kansas 66215  
(913) 492-5158 • Fax: (913) 492-8400  
WWW.SCHLAGELASSOCIATES.COM  
Missouri State Certificates of Authority  
#E2002003600-F #LAC200106237 #LS2002008659-F

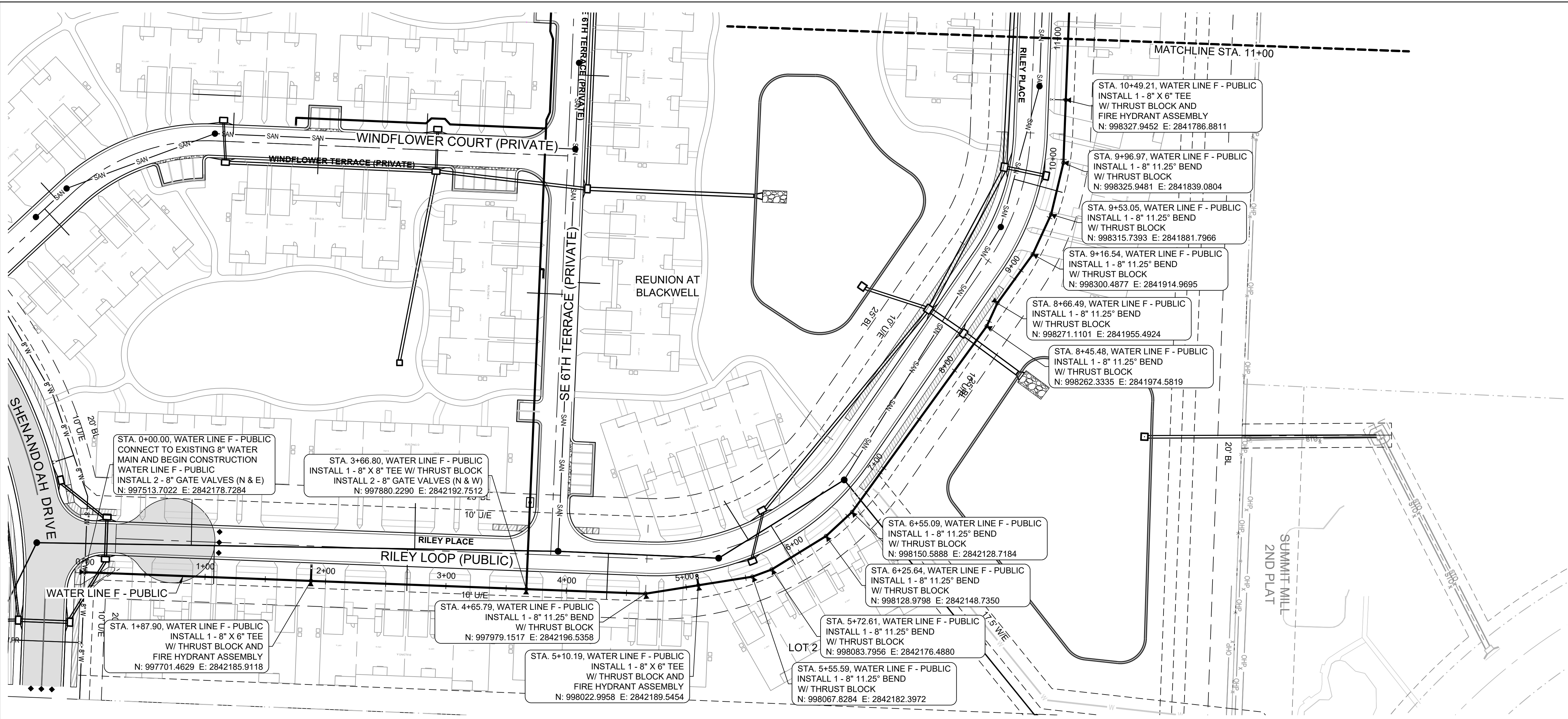
PREPARED BY:  
  
MARK ALLEN BREWER  
PROFESSIONAL ENGINEER  
NO. 2005007268  
EXPIRES 05-25-2023

SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL  
PUBLIC WATER MAIN PLANS  
HERITAGE STREET LEE'S SUMMIT, MO

| SHEET |    | WATER LINE B - PUBLIC |  |  | REVISION DATE | DESCRIPTION | REVISE PER CITY COMMENTS |
|-------|----|-----------------------|--|--|---------------|-------------|--------------------------|
| 4     |    |                       |  |  | 03/28/2023    |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       |    |                       |  |  |               |             |                          |
|       | </ |                       |  |  |               |             |                          |





**MO GRS BENCHMARK:**

STATION NAME - JA-90  
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"  
LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD  
LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD  
ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.  
N:1001052.8503, E:2845604.8272

ELEV. 997.045

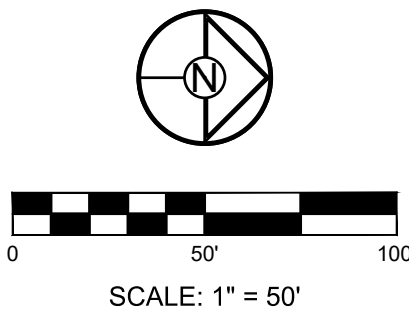
**PROJECT BENCHMARK:**

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE  
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE  
INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH  
OF THE CENTERLINE OF BLUE PARKWAY.  
N:996874.9690, E:2840937.1365

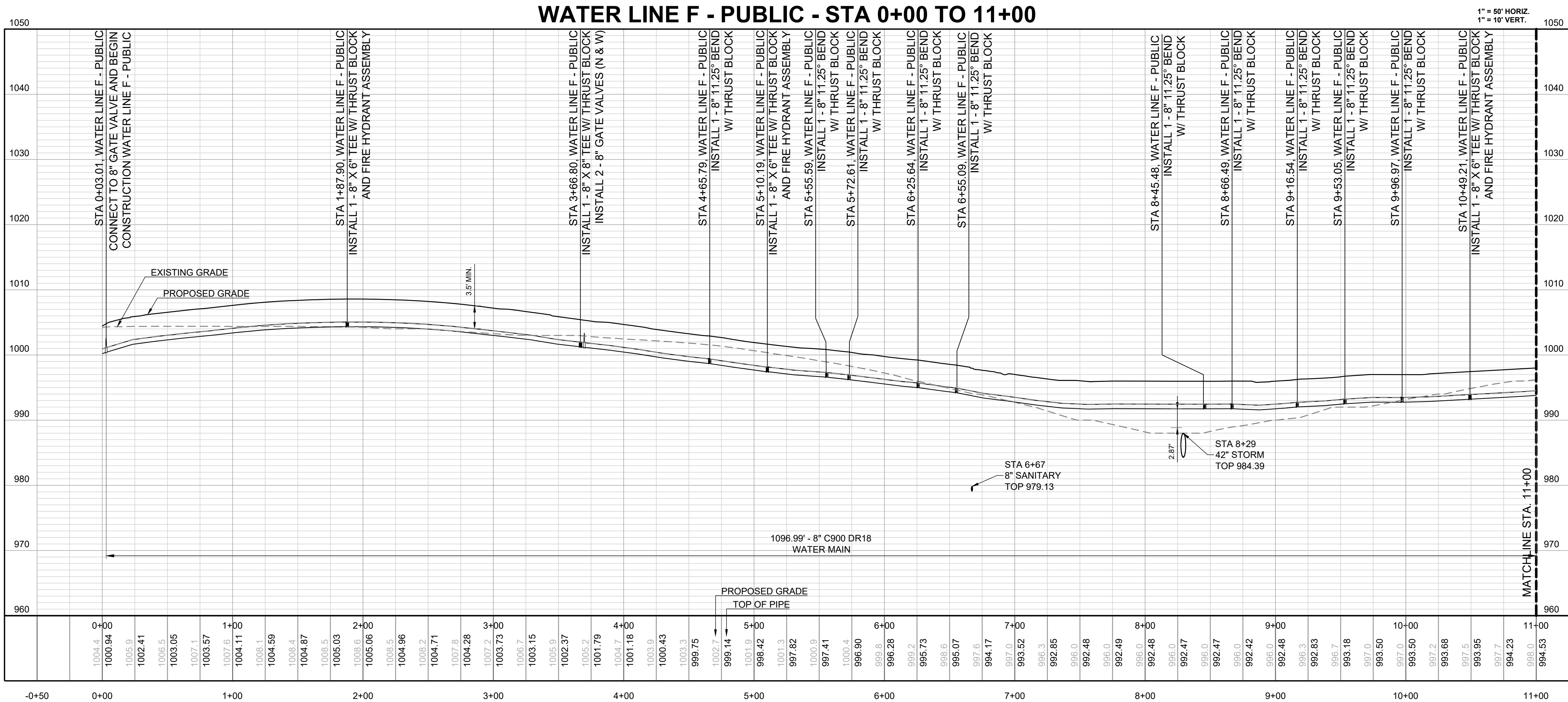
ELEV. 1005.719

**NOTES:**

- ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.



**WATER LINE F - PUBLIC - STA 0+00 TO 11+00**



**SCHLAGEL**  
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS  
14920 West 107th Street • Lenexa, Kansas 66215  
(913) 492-5158 • Fax: (913) 492-8400  
WWW.SCHLAGELASSOCIATES.COM  
Missouri State Certificates of Authority  
#E2002003600-F #LAC2001005237 #LS2002008659-F

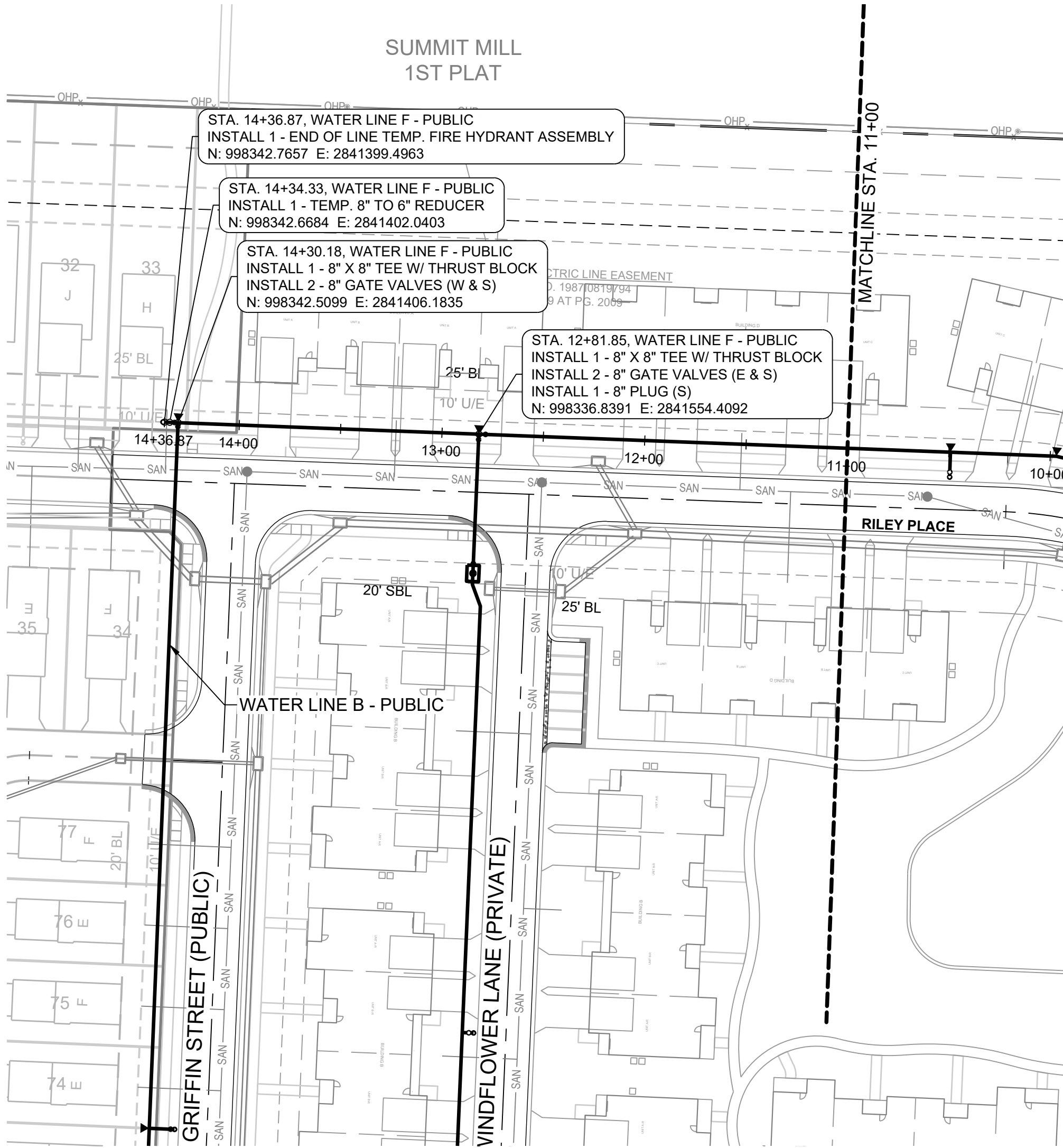
PREPARED BY:  
  
MARK ALLEN BREUER  
NUMBER PE-2005007268  
EXPIRES 05-2023

SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL  
PUBLIC WATER MAIN PLANS  
HERITAGE STREET LEE'S SUMMIT, MO

|   |  |                              |   |
|---|--|------------------------------|---|
| SHEET   |  | 5                            |   |
| WATER LINE F -<br>PUBLIC (STA<br>0+00 TO 11+00) |  | DRAWN BY:<br>JAI             | REVISION DATE<br>A 03/29/2023           |
|   |  | CHECKED BY:<br>MAB           | DESCRIPTION<br>REVISE PER CITY COMMENTS |
|   |  | DATE PREPARED:<br>03/03/2023 |   |
|   |  | PROJ. NUMBER:<br>22-097      |   |





**MO GRS BENCHMARK:**

STATION NAME - JA-90

KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"  
LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD  
LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD  
AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.  
N:1001052.8503, E:2845604.8272

ELEV. 997.045

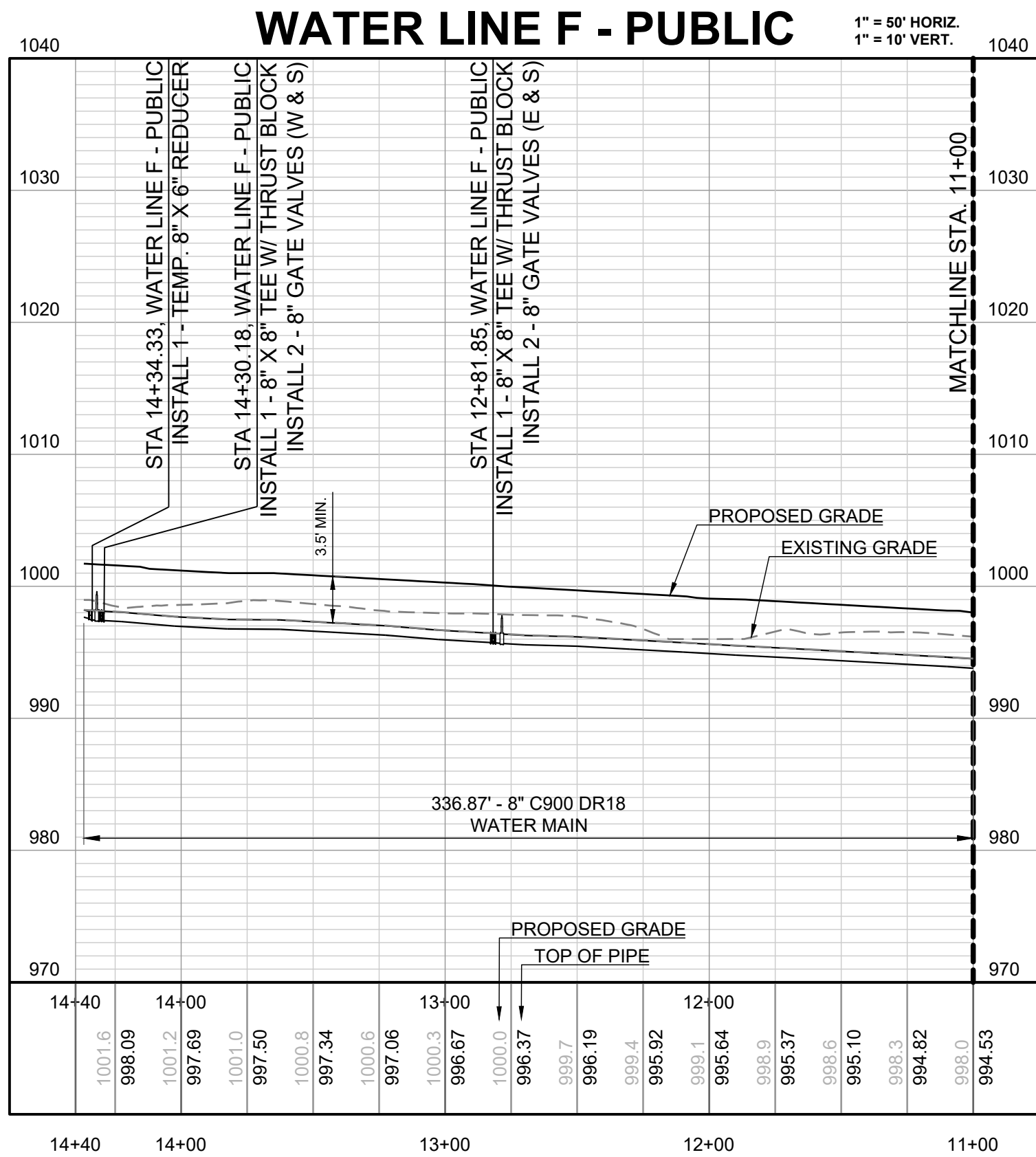
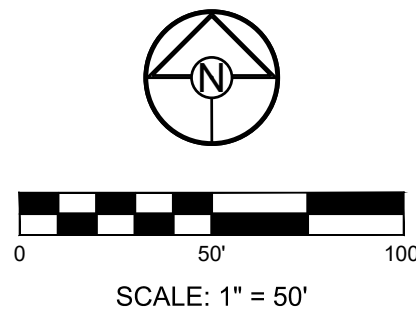
**PROJECT BENCHMARK:**

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE  
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE  
INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH  
OF THE CENTERLINE OF BLUE PARKWAY.  
N:996874.9690, E:2840937.1365

ELEV. 1005.719

**NOTES:**

- ALL CONSTRUCTION ON THIS PROJECT  
SHALL CONFORM TO THE CITY OF LEE'S  
SUMMIT TECHNICAL SPECIFICATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR  
VERIFYING ALL EXISTING UTILITY LOCATIONS  
PRIOR TO EXCAVATION.



PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL  
PUBLIC WATER MAIN PLANS

HERITAGE STREET LEE'S SUMMIT, MO

| REVISION DATE | DESCRIPTION              |
|---------------|--------------------------|
| 03/26/2023    | REVISE PER CITY COMMENTS |
| 1             |                          |
| 2             |                          |
| 3             |                          |
| 4             |                          |
| 5             |                          |
| 6             |                          |
| 7             |                          |
| 8             |                          |
| 9             |                          |

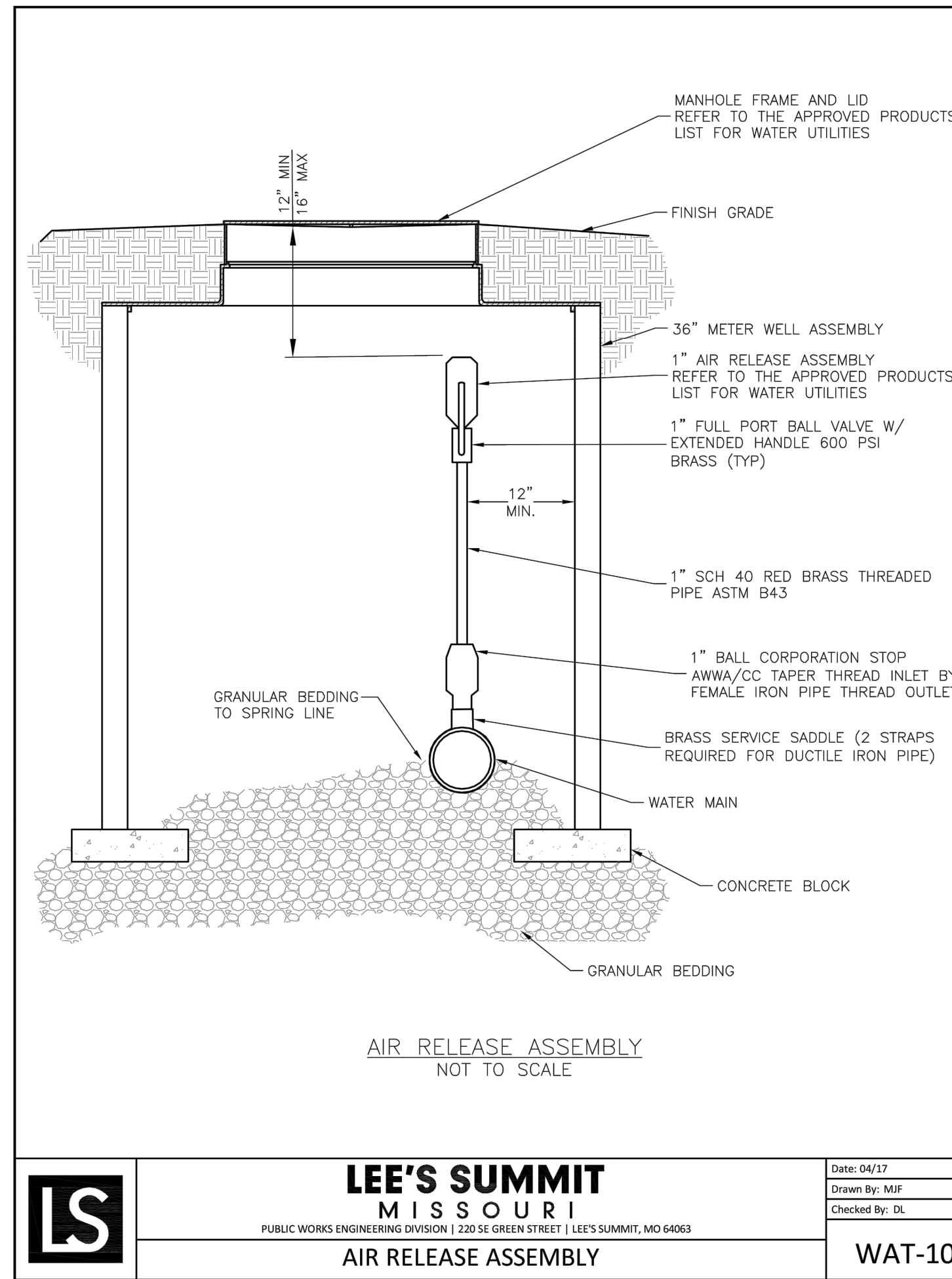
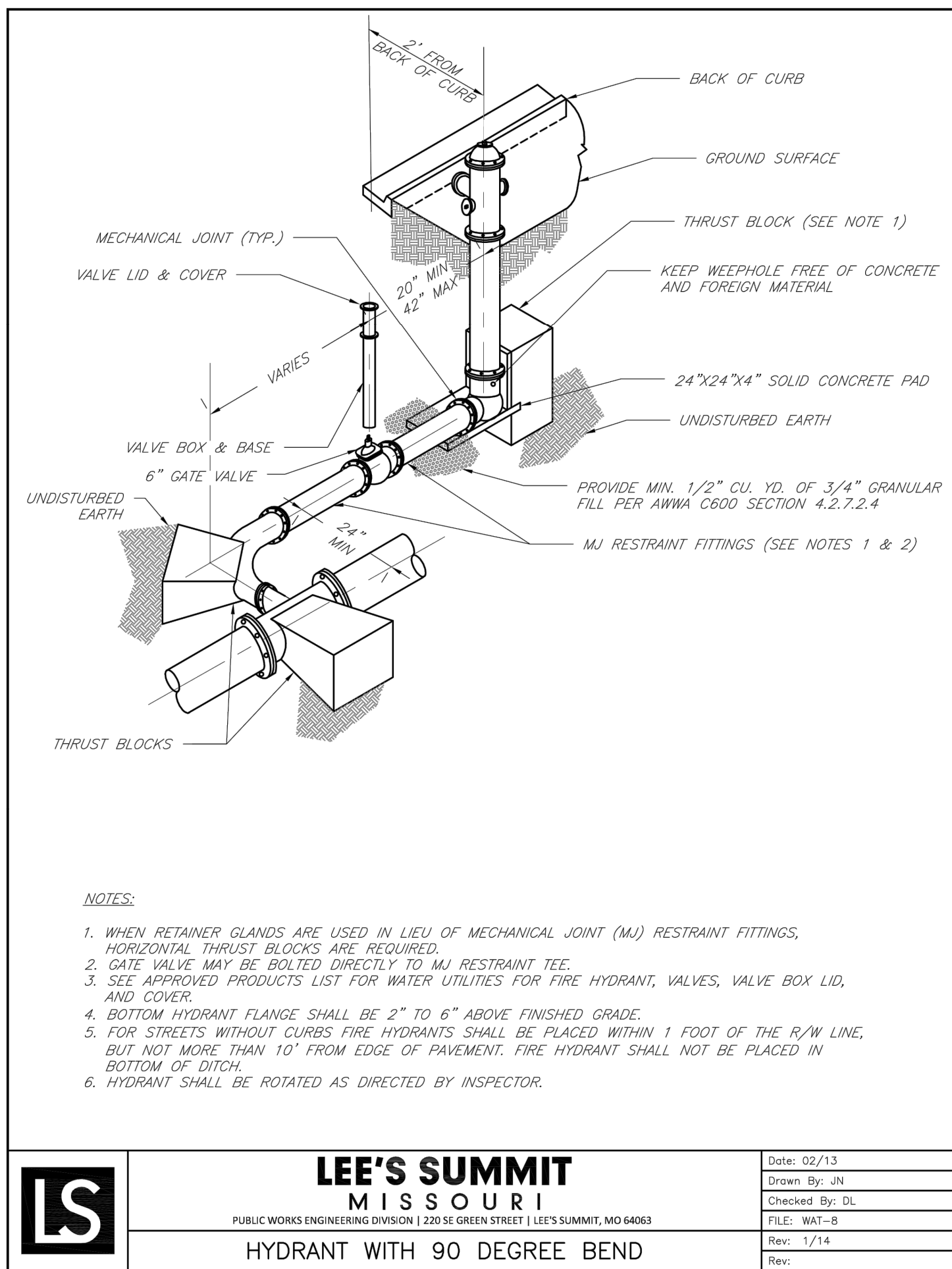
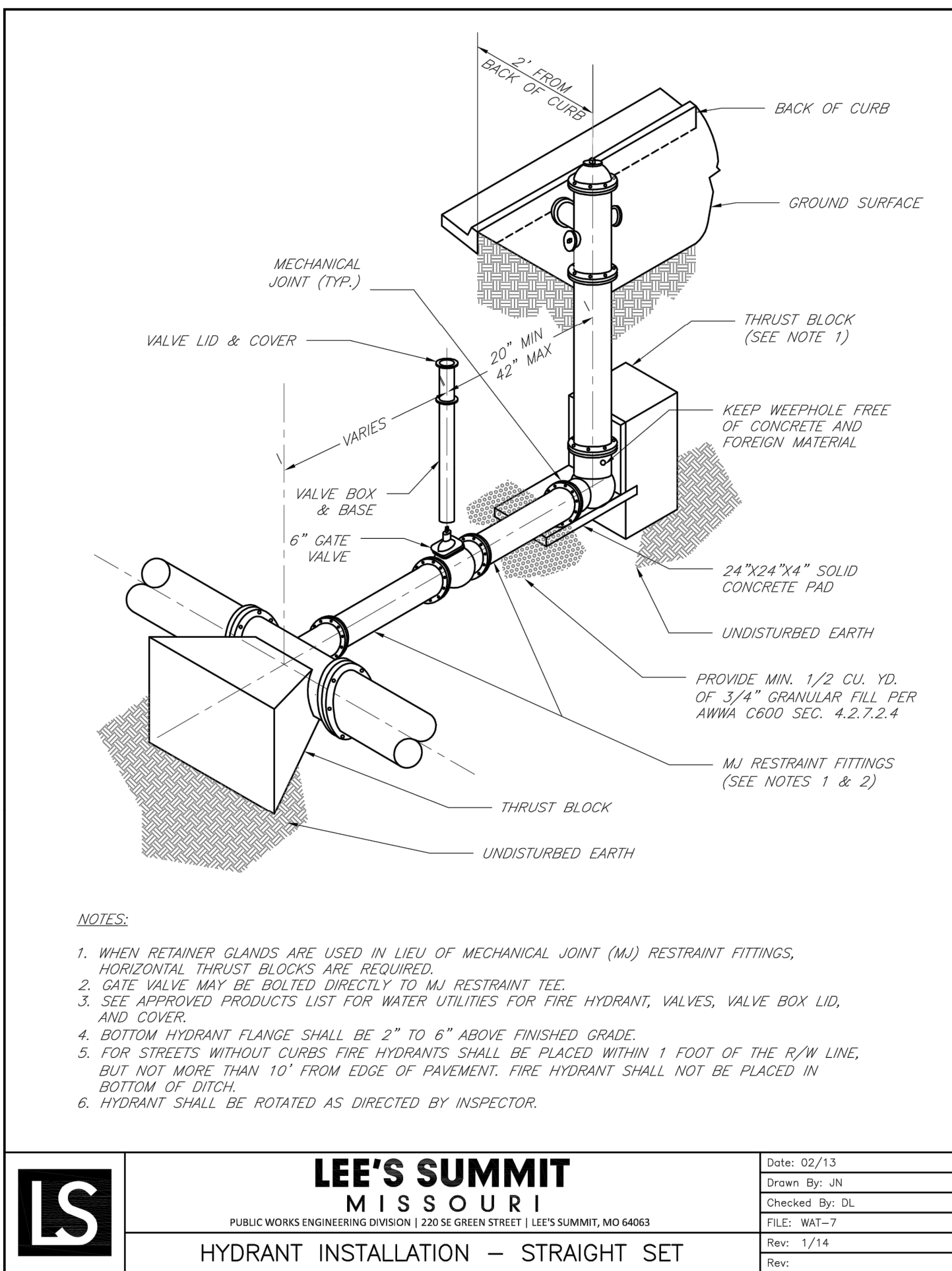
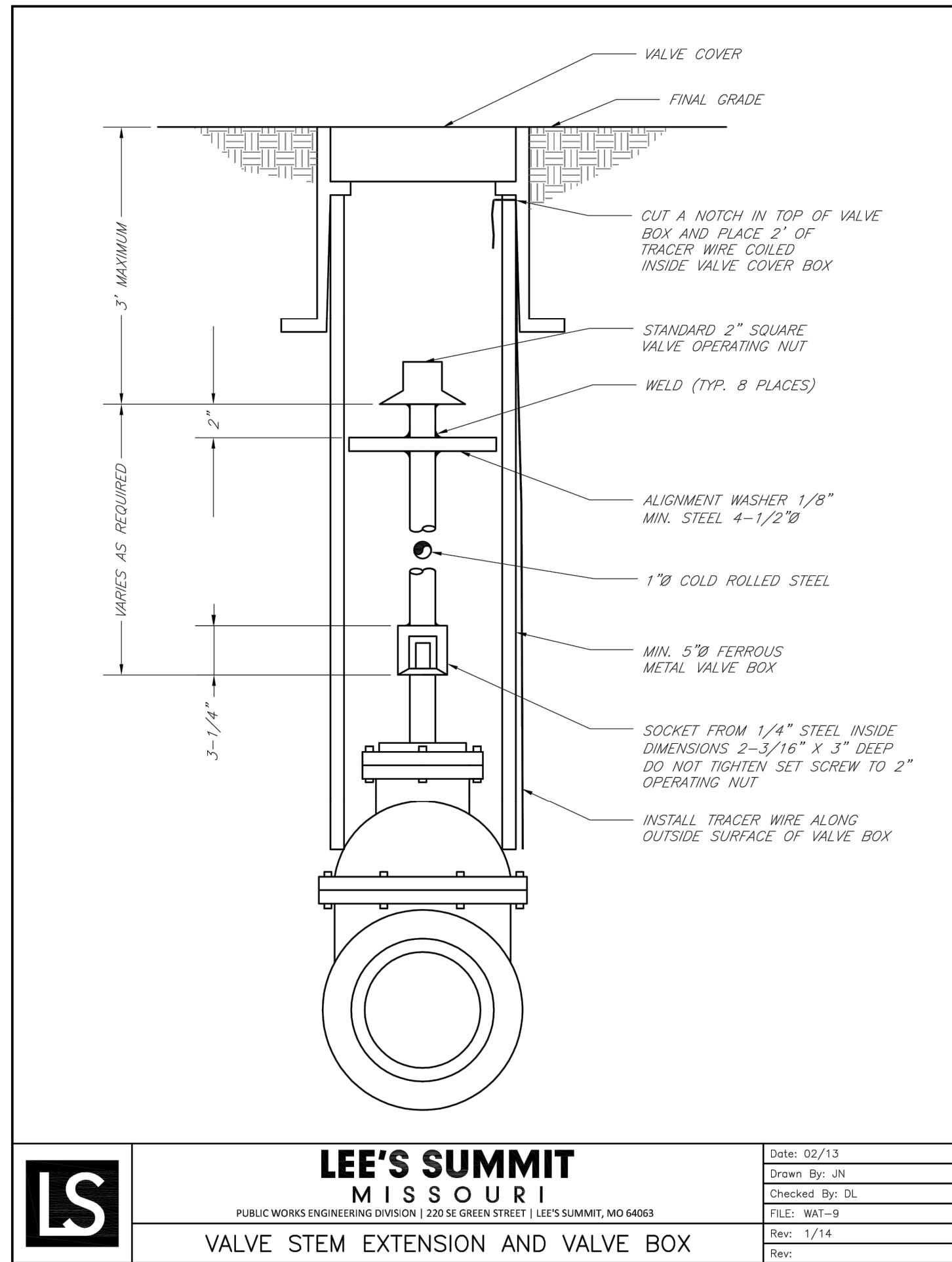
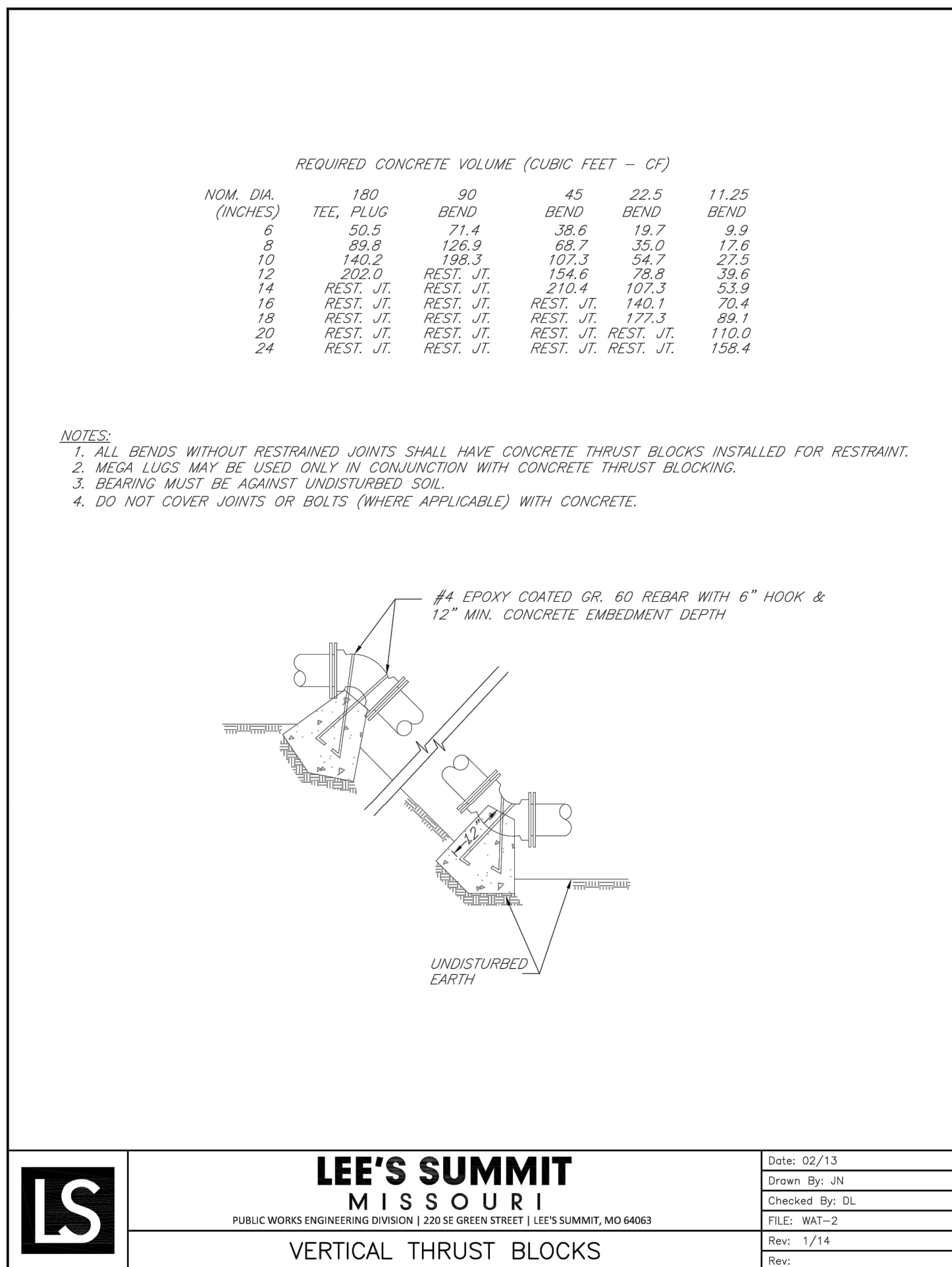
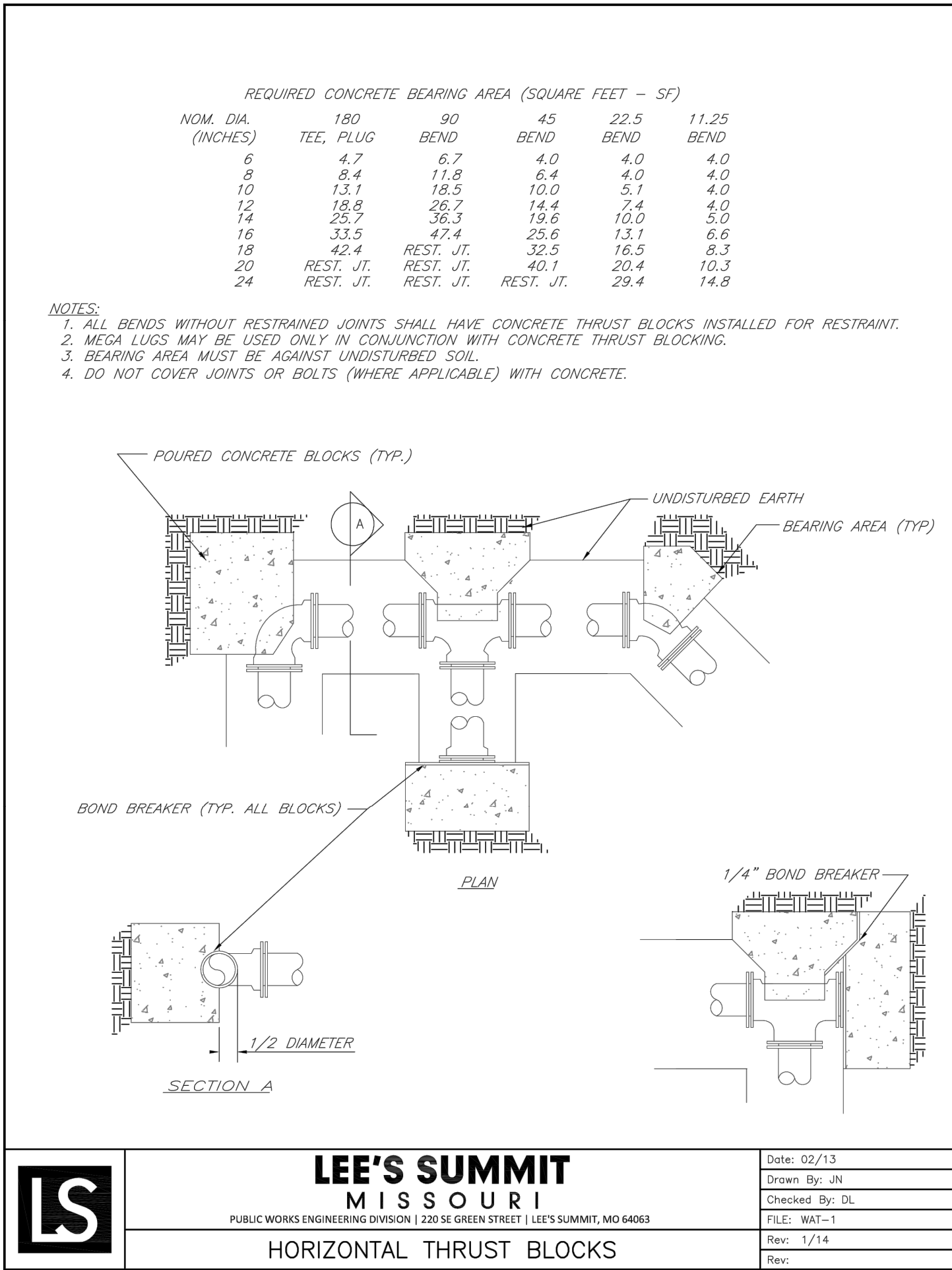
|                  |                    |                              |                         |
|------------------|--------------------|------------------------------|-------------------------|
| DRAWN BY:<br>JRJ | CHECKED BY:<br>MAB | DATE PREPARED:<br>03/23/2023 | PROJ. NUMBER:<br>22-597 |
|------------------|--------------------|------------------------------|-------------------------|

WATER LINE F -  
PUBLIC (STA  
11+00 TO  
14+36.87)

SHEET

6

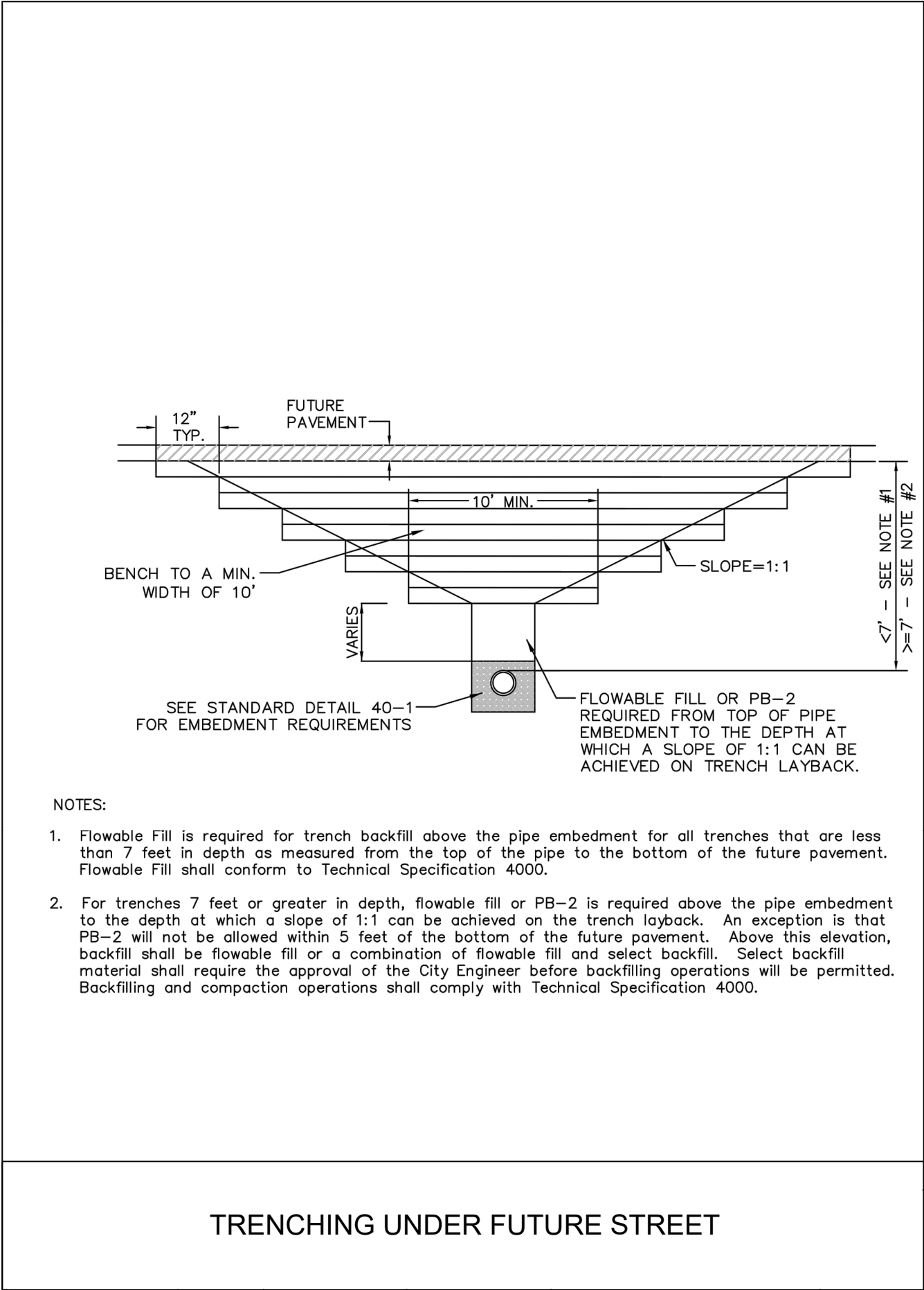




| REVISION DATE | DESCRIPTION | REVISE PER CITY COMMENTS |
|---------------|-------------|--------------------------|
| 03/28/2023    | 1           |                          |
|               | 2           |                          |
|               | 3           |                          |
|               | 4           |                          |
|               | 5           |                          |
|               | 6           |                          |
|               | 7           |                          |
|               | 8           |                          |
|               | 9           |                          |
|               | 10          |                          |

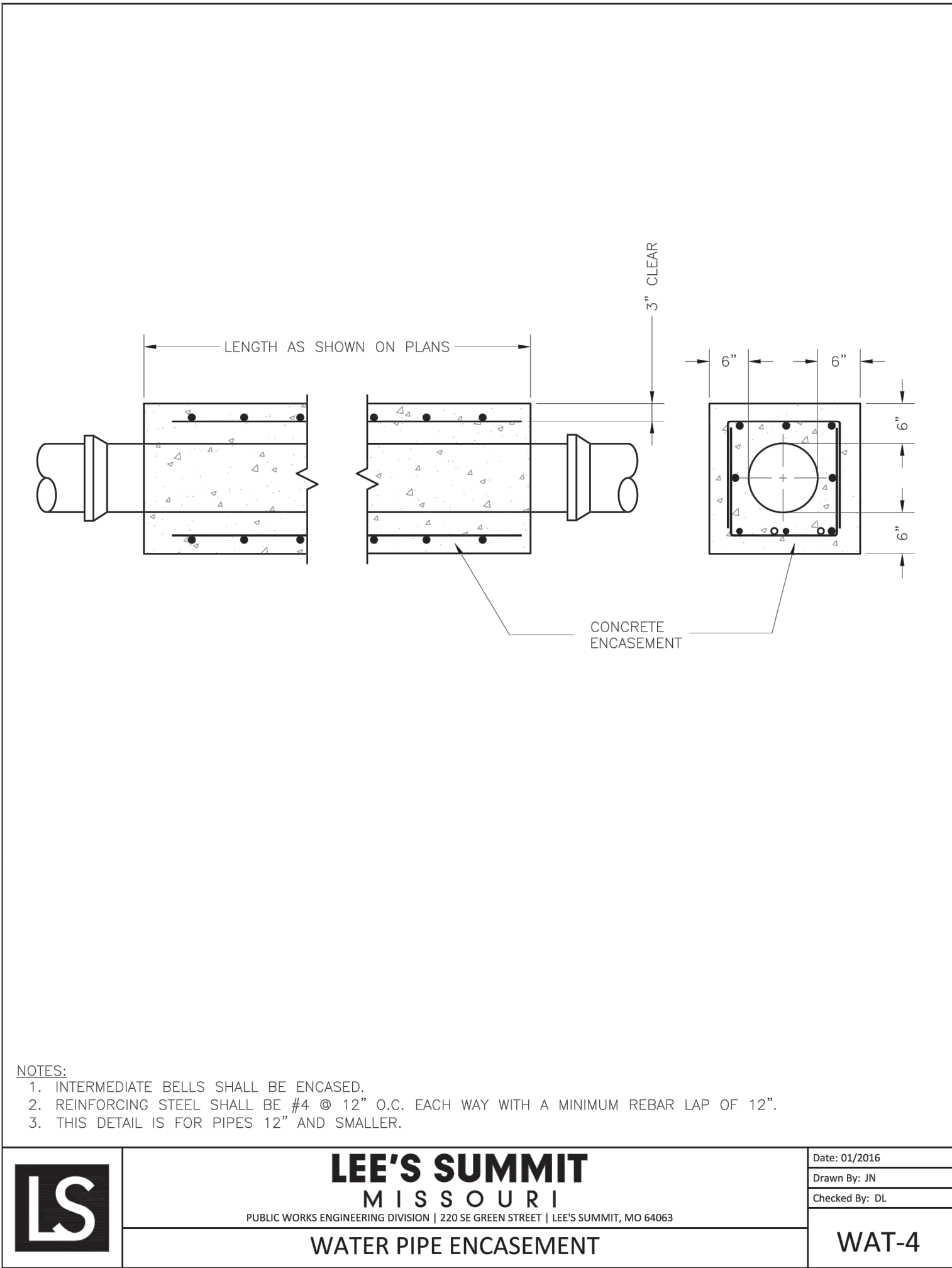
|               |                 |                           |                      |
|---------------|-----------------|---------------------------|----------------------|
| DRAWN BY: JRL | CHECKED BY: MAB | DATE PREPARED: 03/03/2023 | PROJ. NUMBER: 22-587 |
|---------------|-----------------|---------------------------|----------------------|





- NOTES:
- Flowable Fill is required for trench backfill above the pipe embedment for all trenches that are less than 7 feet in depth as measured from the top of the pipe to the bottom of the future pavement. Flowable Fill shall conform to Technical Specification 4000.
  - For trenches 7 feet or greater in depth, flowable fill or PB-2 is required above the pipe embedment to the depth at which a slope of 1:1 can be achieved on the trench layback. An exception is that PB-2 will not be allowed within 5 feet of the bottom of the future pavement. Above this elevation, backfill shall be flowable fill or a combination of flowable fill and select backfill. Select backfill material shall require the approval of the City Engineer before backfilling operations will be permitted. Backfilling and compaction operations shall comply with Technical Specification 4000.

TRENCHING UNDER FUTURE STREET



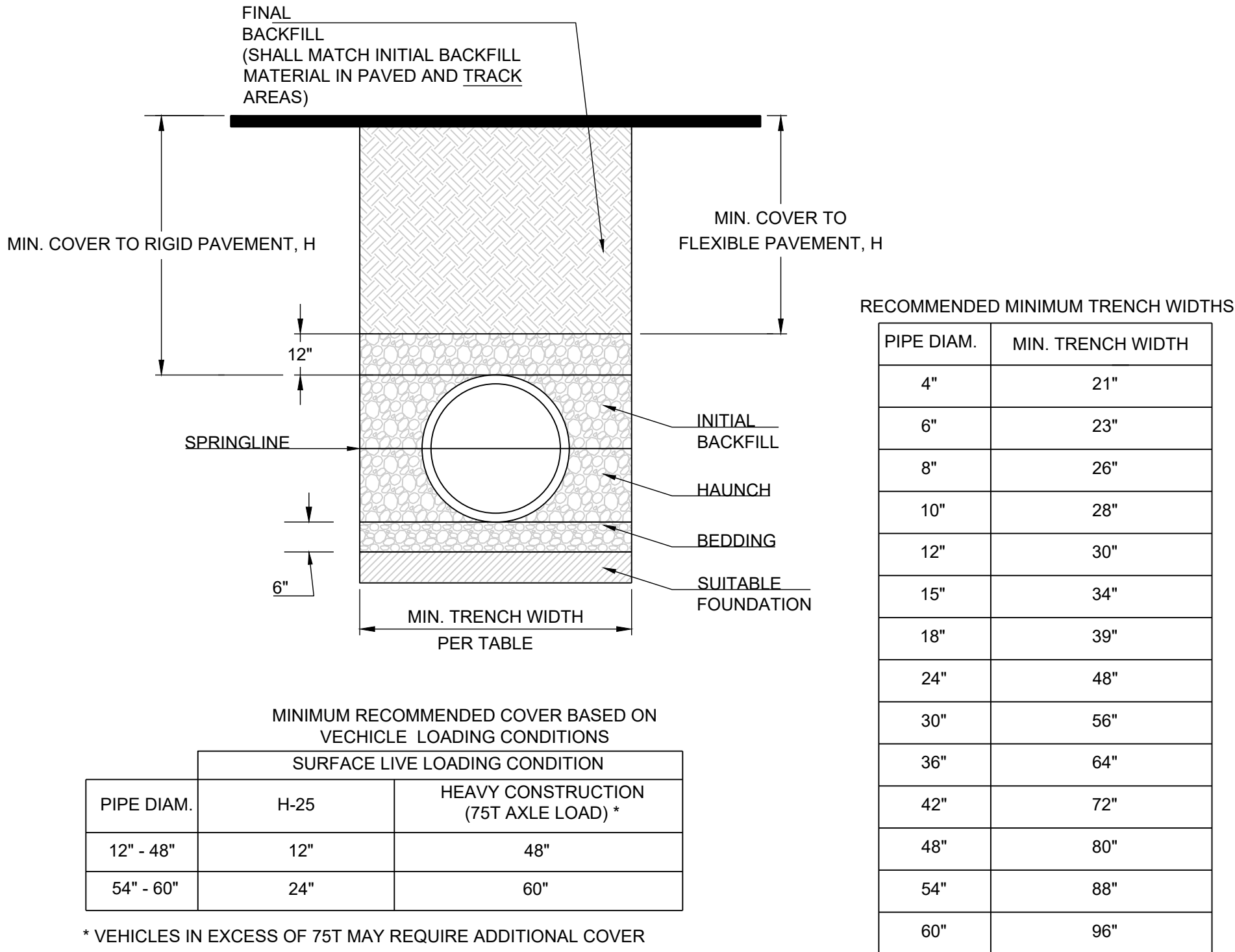
- NOTES:
- INTERMEDIATE BELLS SHALL BE ENCASED.
  - REINFORCING STEEL SHALL BE #4 @ 12" O.C. EACH WAY WITH A MINIMUM REBAR LAP OF 12".
  - THIS DETAIL IS FOR PIPES 12" AND SMALLER.



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

Date: 01/2016  
Drawn By: JN  
Checked By: DL

WAT-4



| PIPE DIAM. | MINIMUM RECOMMENDED COVER BASED ON |   |
|------------|------------------------------------|---|
|            | VEHICLE LOADING CONDITIONS         |   |
|            | SURFACE LIVE LOADING CONDITION     |   |
|            | H-25                               | HEAVY CONSTRUCTION<br>(75T AXLE LOAD) * |
| 12" - 48"  | 12"                                | 48"                                     |
| 54" - 60"  | 24"                                | 60"                                     |

\* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

| PIPE DIAM. | MIN. TRENCH WIDTH |
|------------|-------------------|
| 4"         | 21"               |
| 6"         | 23"               |
| 8"         | 26"               |
| 10"        | 28"               |
| 12"        | 30"               |
| 15"        | 34"               |
| 18"        | 39"               |
| 24"        | 48"               |
| 30"        | 56"               |
| 36"        | 64"               |
| 42"        | 72"               |
| 48"        | 80"               |
| 54"        | 88"               |
| 60"        | 96"               |

NOTES:

- ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION
- MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
- FOUNDATION:** WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER, AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
- BEDDING:** SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 6" (100mm) .
- INITIAL BACKFILL:** SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
- MINIMUM COVER:** MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL  
PUBLIC WATER MAIN PLANS  
HERITAGE STREET LEE'S SUMMIT, MO

| REVISION DATE | DESCRIPTION              |
|---------------|--------------------------|
| 1 03/28/2023  | REVISE PER CITY COMMENTS |
| 2             |                          |
| 3             |                          |
| 4             |                          |
| 5             |                          |
| 6             |                          |
| 7             |                          |
| 8             |                          |
| 9             |                          |
| 10            |                          |
| 11            |                          |
| 12            |                          |
| 13            |                          |
| 14            |                          |
| 15            |                          |
| 16            |                          |
| 17            |                          |
| 18            |                          |
| 19            |                          |
| 20            |                          |
| 21            |                          |
| 22            |                          |
| 23            |                          |
| 24            |                          |
| 25            |                          |
| 26            |                          |
| 27            |                          |
| 28            |                          |
| 29            |                          |
| 30            |                          |
| 31            |                          |
| 32            |                          |
| 33            |                          |
| 34            |                          |
| 35            |                          |
| 36            |                          |
| 37            |                          |
| 38            |                          |
| 39            |                          |
| 40            |                          |
| 41            |                          |
| 42            |                          |
| 43            |                          |
| 44            |                          |
| 45            |                          |
| 46            |                          |
| 47            |                          |
| 48            |                          |
| 49            |                          |
| 50            |                          |
| 51            |                          |
| 52            |                          |
| 53            |                          |
| 54            |                          |
| 55            |                          |
| 56            |                          |
| 57            |                          |
| 58            |                          |
| 59            |                          |
| 60            |                          |
| 61            |                          |
| 62            |                          |
| 63            |                          |
| 64            |                          |
| 65            |                          |
| 66            |                          |
| 67            |                          |
| 68            |                          |
| 69            |                          |
| 70            |                          |
| 71            |                          |
| 72            |                          |
| 73            |                          |
| 74            |                          |
| 75            |                          |
| 76            |                          |
| 77            |                          |
| 78            |                          |
| 79            |                          |
| 80            |                          |
| 81            |                          |
| 82            |                          |
| 83            |                          |
| 84            |                          |
| 85            |                          |
| 86            |                          |
| 87            |                          |
| 88            |                          |
| 89            |                          |
| 90            |                          |
| 91            |                          |
| 92            |                          |
| 93            |                          |
| 94            |                          |
| 95            |                          |
| 96            |                          |
| 97            |                          |
| 98            |                          |
| 99            |                          |
| 100           |                          |

DETAILS

SHEET

8