hdesigngroup

Addendum

Addendum Number:	ADD-02
Addendum Date:	04.24.26
Project Number:	25-060
Project Name:	Town & Country Maintenance Annex
Owner:	City of Town & Country, MO

Brent Stevens

Digitally signed by Brent Stevens
DN: C=US, E=brent@hdesigngroup.com, O=H Design Group, OU=Architect, CN=Brent Stevens
Date: 2026.04.24 14:00:46-05'00'

Documents:

1. TCMA Bidding RFI Responses 04.24.26
    a. Refer to attached requests for information received from bidding contractors through 04.22.26 with corresponding responses.

Specifications:

1. 102800 – Toilet Bath & Laundry Accessories
    a. Revised specification header to reflect the correct project.

2. 074113 – Metal Roof Panels
    a. FM Global testing requirements removed.

3. 087100 – Compressed Air Vehicle Service Equipment
    a. Revised specification header to reflect the correct project.

4. 111129 – Vehicle Shop Equipment
    a. Revised specification header to reflect the correct project.

Drawings:

1. G001 – Cover Sheet
    a. Added sheet C9.3 to Drawing Index
    b. Removed sheets C12.0, C13.0, C13.1 from Drawing Index
2. C1.0 – Title & Index Sheet
    a. Sheet C9.3 added to the sheet index, and sheets C12.0, C13.0, and C13.1 removed.
    b. Sanitary flow callout has been emphasized for MSD review.
3. C5.0 – Site & Grading Plan
    a. Utility notes revised; gravity sewer extended to existing sewer line.
4. C6.0 – Site Utility Plan
    a. Utility notes revised; gravity sewer extended to existing sewer line.
5. C6.1 – Off-Site As-Built Sewer Plan
    a. Utility notes revised; gravity sewer extended to existing sewer line.
6. C8.0 – Profiles & Details
    a. Gravity sewer profile updated to include extended portion to existing sewer line.

THIS ADDENDUM AMENDS THE DRAWINGS AND SPECIFICATIONS OF THE ABOVE-REFERENCED PROJECT AND IS HEREBY INCORPORATED INTO THE CONTRACT DOCUMENTS AS A PART THEREOF.

7. C9.0 – Construction Details
    a. Retaining Wall Note #3 revised to state, “Wall system to be split face block with natural grey color, subject to Owner review and approval.”
    b. Note #8 added to retaining wall notes.
    c. Fence/guardrail/retaining wall detail added.
    d. Callout for the 12” pipes on wall profile has been revised to include “with concrete collar.”
8. C9.3 – Water Service Details
    a. Water meter details and profile added.
9. C10.0 – Existing Drainage Area Map
    a. Drainage Areas updated per MSD review.
10. C11.0 – Drainage Area Map - Hydraulics
    a. Drainage Areas updated per MSD review.
11. C12.0, C13.0, C13.1
    a. Sheets to be removed from project

Attachments:

Documents
TCMA Bidding RFI Responses 04.24.26

Specifications
102800, 074113, 087100, 111129

Drawings
G001, C1.0, C5.0, C6.0, C6.1, C8.0, C9.0, C9.3, C10.0, C11.0

TCMA Bidding RFI Responses 04.24.26

1. Is builders risk required?
    - Yes, Builder's Risk is required per bid specifications.
2. Is bid bond required at 5% or 10%?
    - A 5% Bid Bond is required.
3. What is your budget for bid bond purposes?
    - An approximate $2.5M project estimate has been establish.
4. Please provide a detail or the height of the trench drain. (Keynote A1 on sheet A101).
    - Trench is to be minimum of 8" deep at ends and slope 1/8" per 12" down toward center drain.
5. Please provide a detail or the height of fiberglass platform. (Keynote A12 on sheet A101).
    - Platform requirement information can be found in specification section 134401.
6. Please provide a retaining wall spec.
    - The wall profile information is for concept only. Actual design of retaining wall shall be by a licensed professional engineer & submitted to Stock and Associates for general compliance with grading plan.
7. Is the Rockwood Block an acceptable material for the retaining wall?
    - Contractor to provide material submittal for Owner review and approval.
8. Could you define the Endicott Brick to be used for the project?
    - Endicott Brick is the basis of design but alternate manufacturers may be considered. As noted in specifications, brick color, size and texture to match as closely as possible to adjacent existing building brick.
9. Could the exterior CMU wall at the East elevation be defined? Is this a standard smooth limestone color? Is the wall to be painted?
    - All CMU to be standard smooth gray as specified. Exterior faces to be sealed and interior faces to be painted per specifications.
10. Could the specifications for the crane/trolley hoist shown on S301 and F/S402 please be provided?
    - As noted in Addendum 01 RFI Responses, basis of design for hoist to be Coffing Hoists EC 1/2 Ton 32 FPM 15' Lift Universal Motorized Trolley with a lift capacity of 1,000 lbs, an approximate weight of 201 lbs, and dimensions of 24" L x 12" W x 19" H. Hoist to be Owner Furnished & Owner Installed equipment.

11. Please advise if we are to follow the S001 deflection criteria that states the frame drift is to be H/180 or the Specification 133419 H/400.

    - H/400 is the criteria when PEMB frame supports CMU/masonry or similar brittle systems likely to crack under high deflections, this should be consistent between spec and S001.

12. Please advise if we are to follow Specification 133419 2.5 that states the roof insulation is to be 6" WMP-VR & the wall insulation 4" WMP-10 or the note on 8F/A501 that states both insulations are to be min R-25 vinyl-faced PEMB insulation. If the R-25, what type of insulation system is required?

    - As noted in Addendum 01 RFI Responses, provide insulation as defined in specifications 072100 Thermal Insulation which notes 8" thick R-25 for both the roof and walls.

13. Can you please define what FM uplift rating is required (FM 1-60, FM 1-90, etc) and is the FM uplift rating required for both the main building and the t-shed?

    - The FM Global testing reference has been removed and is not required.

14. Does the 20 year No Dollar Limit weather tightness warranty on the roof system apply to both the main building and the t-shed?

    - This warranty only applies to the main building and not the storage canopy.

15. Could you advise if the interior metal liner is needed per specification 133419 2.9E?

    - Please disregard, interior metal liner panels are not noted in the drawings or required.

16. The architectural floorplan shows 2 end wall columns on each end wall (gridlines 1 & 7). Can those column spacings be provided?

    - These columns are for reference only. Spacing, size, location etc. of all PEMB framing shall be determined by a licensed professional engineer from the PEMB supplier & submitted review.

17. Can you confirm the S001 "Basis For Design" building code to be IBC2022?

    - This has been updated to IBC 2024. Design criteria does not change, this was only a typo reading 2022 instead of 2024.

18. Would channels for the panel and trim attachments for the PEMB be acceptable?

    - Panel and trim attachments for the PEMB to comply with the building and panel manufacturer's requirements in order to be considered acceptable and to maintain the warranty.

19. Can you please provide what type the oil/grease interceptor should be?

    - The oil/grease interceptor was specified by the civil engineer on sheet C9.2.

20. Will the programming of the equipment for specification 271000 2.06 Networking Equipment be included within the proposal?

- True Engineering Group simply specified the equipment as explicitly called for by Brett Ellsworth with the City of Town & Country. We do not have any specific programming requirements.

21. Please confirm if the following specifications with the Title Block “Clayton Municipal Maintenance Facility, Clayton, MO, Project No: 24-038” are to be used for the current project.

    - Headers for Specification sections 102800, 111113, 111129 have been revised to reflect the correct project.

22. Spec calls for a modular sized Endicott brick, A501 Section Keynotes say Utility size brick and the plans scale to a utility size. What size should be bid this at?

    - Please provide utility size brick to properly course as indicated in drawings.

SECTION 074113 - METAL ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Standing-seam metal roof panels.
2. Snow/ice guard system.

B. Related Sections:
1. Division 07 Section "Sheet Metal Roofing" for custom-fabricated and on-site, roll-formed sheet metal roofing.

1.2 PERFORMANCE REQUIREMENTS

A. U.L. Class 90 Rating: The roof system shall carry a U.L. wind uplift classification Class 90 as determined according to UL 580 Tests for Uplift Resistance of Roof Assemblies to ensure structural integrity and possible reduction of insurance rates.

B. ASTM E 1592: The roof system shall be tested according to ASTME 1592 Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air pressure difference. See structural plans for wind, snow and deflection limits

C. Air Inflitration per ASTM E1680

D. Water Penetration per ASTM E1646

E. Class A Fire Rating when tested in accordance with test procedure ASTM E108

1.3 SUBMITTALS

A. Product Data: For product indicated.

B. Shop Drawings: Show fabrication and installation layouts of metal roof panels; details of edge conditions, side-seam and endlap joints, panel profiles, corners, anchorages, trim, flashings, closures, and accessories; and special details. Distinguish between factory- and field-assembled work.

C. Coordination Drawings: Roof plans, drawn to scale, based on input from installers of the items involved.

D. Warranties: Samples of special warranties.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

B. Fire-Resistance Ratings: Where indicated, provide metal roof panels identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency. Identify

products with appropriate markings of applicable testing agency.
1. Combustion Characteristics: ASTM E 136.

C. Preinstallation Conference: Conduct conference at project site.

1.5 WARRANTY

A. Weather Tightness Warranty: Provide a single source manufacturers 20 year warranty with, “no dollar limit”. For a period of 20 years from the date of substantial completion certified by the architect, the roof panel manufacturer shall warrants the building owner that the roof panels, flashin, and relatd items tuse to fasten the roof panels and flashing (including roof jacks and curb attachments pre-approved, in writing by Manufacturer)to the roof structure will not allow the intrusion of water from the exterior of the Manufacturer Roof System into the building envelope, when exposed to ordinary weather conditions and ordinary wear and usage.

B. Exterior Material and Finish Warranty: Provide manufacturers 20 year finish warranty.

1.6 PANEL MATERIALS

A. Roof Panel
1. Roof panel shall be equal to factory roll-formed VSR II roof system panel as manufactured by Butler Manufacturing Company; 16" wide, with 2 major corrugations, 2" high, 16” on center and with minor longitudinal striations in the flat of the panel.
2. Panel material as specified shall be 24-gauge galvanized steel, G90 coating, ASTM A 653, G90. Paint with exterior colors of “Butler-Cote” finish system, full-strength, 70 percent “Kynar 500” or “Hylar 5000” fluoropolymer (PVDF) coating. PVDF Coating Warranty: Metal building system manufacturer shall warrant coating for 25 years.
3. Panel of maximum possible length shall be used to minimize endlap; eave panel shall extend beyond the structural line of the sidewall
4. Panel shall be factory prepunched at panel end to match prepunched holes in the eave structural member. Panel end splice shall be factory prepunched and prenotched. Panel end splice shall be floating and allow the roof panel to expand and contract with roof panel temperature change.
5. Ridge assembly shall be designed to allow roof panels to move lengthwise with expansion/contraction as the roof panel temperature changes. Parts shall be factory prepunched for correct field assembly. Panel closure and interior reinforcing strap shall be installed to seal the panel end at the ridge. The attachment fasteners shall not be exposed on the weather side. A lockseam plug shall be used to seal the lockseam portion of the panel. A hi-tensile steel ridge cover shall span from panel closure to panel closure and flex as the roof system expands and contracts

B. Approved Equals: Conforming to the requirements specified in this specifications section the following manufactures are approved.
1. Berridge Metal Roofing
2. DMI (Dimensional Metals, Inc)- SPAN-LOCK SL25
3. Englert, Inc.
4. PAC-CLAD Peterson Aluminum:
5. MBCI
6. Varco Pruden Building

C. Panel Sealants:
1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing; 1/2 inch wide and 1/8 inch thick.

2. Joint Sealant: ASTM C 920; as recommended in writing by metal roof panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

D. Fasteners:
1. Connection of roof system panel-to-structural member, except at eave, shall be made with clips with movable stainless steel tabs that are seamed into the standing seam sidelap..
2. Panel clip shall be fastened to structural member with Scrubolt™ fastener as per manufacturer's erection drawings, using factory prepunched hole in structural member. Scrubolt fastener shall contain a metal backed rubber washer which serves as a torque indicator.
3. Roof system panel-to-panel connection shall be made with a positive, field-formed standing double-lock seam, formed by a special seaming machine. The machine field forms the final 180 degrees of a 360 degree Pittsburgh double-lock standing seam; all sidelap sealant shall be factory applied.

E. Accessories
1. Thermal blocks: Provide 25 psi ¾”x4” pre-engineered thermal blocks at top of roof purlins as manufactured by Chardan Specialities (419) 636-6900. Install thermal blocks continuous at top of purlins with adhesive as recommended by manufacturers.

1.7 FIELD-INSTALLED THERMAL INSULATION

A. Refer to Division 07 Section "Thermal Insulation."

1.8 STANDING-SEAM METAL ROOF PANELS

A. General: All components of the roof system paneling shall be designed in accordance with sound engineering methods and practices.

B. Roof system paneling shall be designed in accordance with AISI "Specifications for the Design of Light-Gage, Cold-Formed Steel Structural Members" or CAN/CSAS136 "Cold-Formed Steel Structural Members" - latest edition.

C. All endwall trim and roof transition flashing shall allow the roof panel to move relative to the wall panel and/or the parapet as the roof expands and contracts with temperature change.

D. Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

E. The roof shall provide for thermal expansion/contraction without detrimental effect to the roof panel when there is a ±100°F. temperature difference between the inside structural framework of the building and the temperature of the roof panels.

F. Provision for thermal expansion movement of the MR-24 roof system panel shall be accomplished by the use of clips with a movable tab. The stainless steel tab shall be factory centered on the roof clip when installed to assure full movement in either direction. A force of no more than 8 pounds will be required to initiate tab movement. Each clip shall accommodate a minimum of 1.25" in either direction.

1.9 FABRICATION

A. Fabricate and finish metal roof panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes and as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Fabricate metal roof panel side laps with factory-installed captive gaskets or separator strips that provide a tight seal and prevent metal-to-metal contact, in a manner that will seal weathertight and minimize noise from movements within panel assembly.

D. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.

PART 2 - EXECUTION

2.1 PREPARATION

A. Miscellaneous Framing: Install subpurlins, eave angles, furring, and other miscellaneous roof panel support members and anchorage according to metal roof panel manufacturer's written instructions.

2.2 METAL ROOF PANEL INSTALLATION

A. Lap-Seam Metal Roof Panels: Fasten metal roof panels to supports with fasteners at each lapped joint at location and spacing recommended by manufacturer.
   1. Apply panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
   2. Lap ribbed or fluted sheets one full rib corrugation.
   3. Provide metal-backed neoprene or EPDM washers under heads of exposed fasteners bearing on weather side of metal roof panels.
   4. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.
   5. Install screw fasteners with power tools having controlled torque adjusted to compress washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
   6. Provide sealant tape at lapped joints of metal roof panels and between panels and protruding equipment, vents, and accessories.
   7. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps, and on side laps of nesting-type panels; on side laps of corrugated nesting-type, ribbed, or fluted panels; and elsewhere as needed to make panels weatherproof to driving rains.
   8. At panel end splices, nest panels with minimum 6-inch end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.

B. Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended by manufacturer.
   1. Install clips to supports with self-drilling-fasteners.
   2. Install pressure plates at locations indicated in manufacturer's written installation

instructions.

3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
4. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.

2.3 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
   1. Install components required for a complete metal roof panel assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
   2. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
   3. Provide elbows at base of downspouts to direct water away from building.

2.4 CLEANING

A. Remove temporary protective coverings and strippable films, if any, as metal roof panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of metal roof panel installation, clean finished surfaces as recommended by metal roof panel manufacturer. Maintain in a clean condition during construction.

END OF SECTION 074113

SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Restroom accessories.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each finish specified, full size.

1. Approved full-size Samples will be returned and may be used in the Work.

C. Delegated Design Submittal: For grab bars .

1. Include structural design calculations indicating compliance with specified structural-performance requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Sample warranties.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

B. Manufacturer's Special Warranty for Hand Dryers: Manufacturer agrees to repair or replace hand dryers that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 WASHROOM ACCESSORIES

A. Grab Bar :

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick Washroom Equipment, Inc; B-6806 or comparable product by one of the following:
   a. American Specialties, Inc. (ASI).
   b. Brey-Krause Manufacturing Co.
   c. GAMCO Specialty Accessories; a division of Bobrick.
2. Mounting: Flanges with concealed fasteners.
3. Material: Stainless steel, 0.05 inch thick.
   a. Finish: Smooth, ASTM A480/A480M No. 4 finish (satin) on ends and slip-resistant texture in grip area.
4. Outside Diameter: 1-1/2 inches.
5. Configuration and Length: As indicated on Drawings .
   a. Behind Toilet, Horizontal: Straight, 36 inches long.
   b. Beside Toilet, Horizontal, 42 inches long.
   c. Beside Toilet, Vertical: Straight, 18 inches long.

B. Mirror Unit :

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick Washroom Equipment, Inc; B-1658 or comparable product by one of the following:
   a. American Specialties, Inc. (ASI).
   b. Brey-Krause Manufacturing Co.
   c. GAMCO Specialty Accessories; a division of Bobrick.
2. Size: As indicated on Drawings .
3. Hangers: Manufacturer's standard rigid, tamper and theft resistant .

C. Shower Base Ramp :

1. Basis-of-Design Product: Subject to compliance with requirements, provide Inpro; Prism Solid Surface Ramp
2. Material and Finish: Solid Surface

2.3 FABRICATION

A. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

1. Remove temporary labels and protective coatings.

B. Grab Bars: Install to comply with specified structural-performance requirements.

C. Shower Seats: Install to comply with specified structural-performance requirements.

END OF SECTION 102800

SECTION 111113 - COMPRESSED AIR VEHICLE SERVICE EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. The General Provisions of the Contract, including General and Special Conditions and the requirements of Division 1, apply to the Work in this Section.

1.2 WORK INCLUDED

A. Equipment items as listed below by Equipment Identifier:
   1. COMPRESSOR, AIR, SCREW, ROTARY, 5 HP, HORIZONTAL
      RECEIVER, WITH INTEGRAL AIR DRYER

B. Roughing-in, installation of equipment, and final connection of utilities, with labor, services, and incidentals necessary for complete and operational equipment installation.

C. Piping, wiring, and switching between equipment and utilities.

D. Design-build team shall verify sizes of all compressors and receivers and modify as necessary to provide operable systems.

1.3 RELATED SECTIONS

A. Section 22 05 48 – Vibration and Seismic Controls Plumbing Piping Equipment

1.4 REFERENCES

A. ASME Code for Unfired Pressure Vessels

1.5 DEFINITIONS

A. Actual Air: Air delivered at air-compressor outlet. Flow rate is compressed air delivered and measured in acfm.

B. Standard Air: Free air at 68 deg and 1 atmosphere (before compression or expansion and measured in scfm).

1.6 QUALITY ASSURANCE

A. Experience: Equipment shall be produced by a manufacturer of established reputation with a minimum of five years' experience supplying specified equipment.

B. Manufacturer's Representative:
   1. Installation: Provide a qualified manufacturer's representative with a minimum of 5 years' experience at site to supervise work related to equipment installation, check out, and start up. Maintenance service technician must be based within 100 miles radius of installation.
   2. Training: Provide a qualified manufacturer's representative to provide training to Owner's maintenance personnel in operation and maintenance of specified equipment.

1.7 STANDARD AND REGULATORY REQUIREMENTS

A. Equipment indicated within this specification section shall comply with all applicable national, state and local codes and regulations, including seismic, fire, and racking codes and regulations. Additional, more specific compliance requirements may be listed under individual equipment headings.

1.8 SUBMITTALS

A. Product Data:
   1. Submit Product Data in accordance with Division 1 - General Requirements of these specifications.
   2. Restrict submitted material to pertinent data. For instance, do not include manufacturer's complete catalog when pertinent information is contained on a single page. Include certified data for each unit and accessory system indicating the following:
      a. Air compressor performance curves at summer design condition
      b. Intercooler performance at summer design condition
      c. Air dryer performance at 38 degrees F, dew point at 175 PSIG
   3. Indicate components, assembly, dimensions, weights and loadings, required clearances, location and size of field connections, intake air filter outline, blow-off silencer outline, main motor drive data, aftercoolers, control panel, and electrical pneumatic schematics.
   4. All Product Data submittals shall identify proposed project specific items marked by arrow, circle, underline, reproducible highlight, or other markings clearly discernable by the reviewer, to show which specific items, parts and accessories are being submitted for the project product data review. Non-marked or generic product data submittals with no marks indicating specific items, parts and accessories shall be a cause for rejection.

B. Shop Drawings:
   1. Submit Shop Drawings in accordance with of Division 1 - General Requirements of these specifications.
   2. Submitted shop drawings shall be project specific and shall include a minimum 1/8 inch to 1 foot scaled (or larger standard architectural imperial scale), dimensioned, graphical representation of the size, orientation, and location for the submitted equipment. The drawings shall further include dimensions from structural elements or architectural grid

lines, operational clearances, locations of any utility service connection points, mounting requirements, and structural supports required for the submitted equipment.

3. Include plans, elevations, sections, and mounting details.
4. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
5. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.
6. Include diagrams for power, signal, and control wiring.

C. Operations and Maintenance Manual:
   1. Assemble and provide copies of manual 8-1/2 by 11 inch format. Foldout diagrams and illustrations are acceptable. Manual to be reproducible by dry copy method. Provide copies per provisions of Division 1 - General Requirements.
   2. Submit Operations and Maintenance Manuals in accordance with Division 1- General Requirements of these specifications.
   3. Provide a Complete parts list, operating instructions, and maintenance manual covering equipment at time of installation including, but not limited to:
      a. Description of system and components.
      b. Schematic diagrams of electrical, plumbing and compressed air systems.
      c. Manufacturer’s printed operating instructions.
      d. Printed listing of periodic preventive maintenance items and recommended frequency required to validate warranties. Failure to provide maintenance information shall indicate that preventive maintenance is not a condition for validation of warranties.
      e. List of original manufacturer's parts, including suppliers' part numbers and cuts, recommended spare parts stockage quantity and local parts and service source.

1.9 INFORMATIONAL SUBMITTALS

A. Seismic Qualification Certificates: For air compressors, accessories, and components from manufacturer.
   1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculations.
   2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
   3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

B. Field quality-control reports.

1.10 PRODUCT SUBSTITUTIONS

A. Follow requirements specified in Division 1 - General Requirements.

B. Additional costs resulting from substitution of products other than those specified, by model number, including drawing changes and construction, shall be at the expense of the Contractor.

C. Substitution Approval: Prior to delivery or installation, submittals for each equipment item by Equipment Identifier shall be provided in accordance with Division 1 - General Requirements. Acceptance shall be based on the technical requirements herein as determined by Owner and Architect.

1.11 WARRANTY

A. Warrant work specified herein for at least one year from substantial completion against defects in materials, functions, and workmanship.

B. Warranty shall include materials and labor necessary to correct defects.

C. Defects shall include, but not be limited to noisy, rough or substandard operation; loose, damaged, and missing parts; and abnormal deterioration of finish. Defects shall not include damage due to neglect, misuse, or situations resulting from non-performance of a manufacturer's recommended preventive maintenance schedule.

1.12 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver equipment in manufacturer's containers, appropriately packaged and/or crated for protection during domestic shipment and storage in humid and/or dusty conditions.
   1. Indelibly label all containers, including those contained in others, on outside with item description(s) per title and Equipment Identifier of this specification.

B. Provide equipment and material specified complete in one shipment for each equipment item. Split or partial shipments are not permissible.

1.13 LABELING

A. Manufacturer shall securely attach in a prominent location, on each major item of equipment, a non-corrosive nameplate showing manufacturer's name, address, model number, serial number, and pertinent utility or operating data.

B. All electrical equipment and materials shall be new and shall be listed by Underwriter's Laboratories, Inc. (UL) in categories for which standards have been set by that agency and labeled as such in the manufacturer's plant.

C. Provide air receivers meeting requirements of ASME Code for Unfired Pressure Vessels and carry ASME approval stamp.

1.14 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design compressed-air equipment mounting.

1.15 GENERAL REQUIREMENTS FOR AIR COMPRESSORS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Description: Factory-assembled, -wired, -piped, and -tested; electric-motor-driven; air-cooled; continuous-duty air compressors, dryers, and receivers that deliver air of quality equal to intake air.

C. Control Panels: Automatic control station with load control and protection functions. Comply with NEMA ICS 2, UL 508 and UL 508A.
   1. Enclosure: NEMA ICS 6, Type 12 control panel unless otherwise indicated.
   2. Motor Controllers: Full-voltage, combination-magnetic type with undervoltage release feature and motor-circuit-protector-type disconnecting means and short-circuit protective device.
   3. Control Voltage: 120V AC or less, using integral control power transformer.
   4. Motor Overload Protection: Overload relay in each phase.
   5. Starting Devices: Hand-off-automatic selector switch in cover of control panel, plus pilot device for automatic control.
   6. Automatic control switches to alternate lead-lag air compressors for duplex air compressors.
   7. Instrumentation: Include discharge-air and receiver pressure gages, air-filter maintenance indicator, hour meter, air-compressor discharge-air and coolant temperature gages, and control transformer.
   8. Controls shall interface with building automation system.

D. Receivers: Steel tank constructed according to ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.
   1. Pressure Rating: At least as high as highest discharge pressure of connected air compressors and bearing appropriate code symbols.
   2. Exterior Finish: Epoxy coating.

3. Accessories: Include safety valve, pressure gauge, automatic drain, and pressure regulator.

PART 2 - PRODUCTS

2.1 COMPRESSOR, AIR, SCREW, ROTARY, 5 HP, HORIZONTAL RECEIVER, WITH INTEGRAL AIR DRYER

A. Manufacturer's Reference:
1. Prime manufacturer: Specifications are based on equipment identified herein by manufacturer's name and model to establish acceptable standards of quality, performance, features, and construction.
a. Manufacturer: KAESER COMPRESSORS, INC. - Fredericksburg, VA (540) 898-5500
b. Model: SX5-T SIMPLEX AIRCENTER
2. Alternate manufacturers: *Contingent upon compliance with these specifications* and documentation requirements set forth in SUBMITTALS, equipment produced by other manufacturers, including the following, *may* be considered as equal.
a. ALT #1 INGERSOLL RAND - Davidson, NC (704) 655-4000
b. ALT #2 QUINCY COMPRESSOR – Quincy, IL (217) 222-7700

B. General Description: A single stage, fluid-injected, air-cooled rotary screw compressor completely pre-piped with a pre-wired control system panel. Provide integral refrigerated dryer with moisture separator and automatic condensate drain. Provide package pre-mounted on receiver tank with moisture separator and automatic no-loss, pneumatic condensate drain.

C. Capacities/Dimensions:
1. Length: 43”
2. Width: 23”
3. Height: 62”
4. Weight: 639 lbs
5. Motor: 5 HP
6. Receiver: 53 gallons
7. Rating: Conform to CAGI/ISO 1217
8. Speed: 3,600 RPM
9. Temperature: Unit shall be suitable for use in a 40 to 115 degree F ambient temp. range.
10. Output valve: ½ inch NPT

D. Features/Performance/Construction:
   1. Compressor construction:
      a. Unit shall be completely enclosed within a steel frame assembly, including bottom.
      b. Unit shall have doors and/or removable access panels for easy access to compressor for maintenance.
      c. Unit shall include safety interlock switches on doors or front access panel for protection of operators and maintenance personnel.
      d. Enclosure shall be heavily sound insulated, and compressor shall have a maximum full-load noise of 66 dB(A).
      e. Ambient air shall enter enclosure through a 40 micron filter mat.
   2. Airend(s):
      a. Compressor shall be fitted with an air inlet filter rated at 1 micron or better.
      b. Rotors shall be precision-machined from cast iron. Airend drive shaft shall be tapered for easy removal of airend pulley.
      c. Airend casing shall be cast iron construction.
      d. Airend rotors shall be supported on both ends by cylindrical roller bearings to carry radial loads.
   3. Drive:
      a. Motor shall have TEFC enclosure.
      b. Motor winding shall be 100 percent copper (aluminum is not acceptable).
      c. Motor speed shall not exceed 3,600 RPM.
      d. Compressor drive shall be multi V-belt drive for reliability and drive shall include automatic V-belt tensioning device with visual adjustment indicator.
      e. Drive shall include a system that will maintain proper belt tension to ensure efficient power transfer from motor to airend.
      f. Drive belt shall be 100 percent oil resistant.
   4. Lubrication/cooling system:
      a. Compressor shall have a differential pressure fluid circulation system. Compressor shall be factory filled with semi-synthetic or optional full synthetic lubricant.
      b. Fluid filter shall be spin-on type capable of removing particles down to 10 microns.
      c. Fluid coolers and aftercooler shall be easily accessible for ease of maintenance, Air cooled aftercooler and flid cooler shall be integrally mounted to the compressor enclosure.
      d. The aftercooler shall include an integral moisture separator of stainless steel construction with automatic condensate drain.
      e. Compressor shall have an ASME separator tank with integral fluid separator element and a minimum of 160 PSIG working pressure. Separation system shall be three-stage consisting of mechanical separation as the first and a two-stage coalescing filter.
   5. Receiver tank:
      a. External connections from the compressor to the receiver tank shall be flexible pipe to ensure no transmission of vibration between components.
      b. Air receiver tank shall be a minimum working pressure rating of 150 PSIG.
      c. Air receiver tank shall meet all applicable ASME specifications and codes.
      d. Air receiver tank shall be fitter with pressure safety relief valve, liquid-filled pressure gauge, and automatic no-loss pneumatic drain.

e. Pressure safety valves shall be sized to prevent over-pressurization of air receiver tank beyond its specified ASME rating.

6. Refrigerated air dryer:
   a. Dryer shall be fully integrated to the compressor package and be capable of providing a pressure dew point as low as 38 degrees F.
   b. Dryer shall be rated for 230 PSIG maximum working pressure with a pressure drop not to exceed 3.2 PSID.
   c. Moisture separator and electronic demand condensate drain trap shall be mounted internal to the package.

E. Controls and Instrument Panel:
   1. Starter:
      a. SFC drive shall have “soft start” starter system for unlimited motor starts.
      b. Starter system shall be integrally mounted and wired in the compressor package and located in the drive enclosure.
      c. SFC drive shall have auto re-start after loss of power.
   2. Instrument panel shall consist of Sigma Control II system as a standard or an approved equal. Control system shall be suitable for use in a 4 degree F to 140 degree F ambient temperature range. Controls system shall meet or exceed NEMA 12 and/or IP54 standard for environmental protection. Control system shall monitor direction of rotation, discharge pressure, emergency stop button, airend discharge temperatures, motor overload relay, and refrigerated dryer.
   3. Pressure switch to cut in at 100 (adjustable) PSI with minimum differential of 20 PSI (adjustable).
   4. Compressor shall start and automatically load if system demands. Compressor shall have adjustable time delay to shut down the compressors after running unloaded for a pre-determined period of time to avoid excessive motor starting. Compressor shall shut doen in the event of a motor overload, high airend temperature, incorrect rotation, or loss of drive.

F. Control Cabinet:
   1. Control cabinet shall have NEMA 12 and/or IP54 protection.
   2. Electrical components shall be UL and/or CSA approved and labeled as required.
   3. Starters shall be integrally mounted and wired in the compressor package and located in the control enclosure.

G. Accessories:

Description	Manufacturer	Model No.	Qty.
CLEAN AIR TREATMENT (FILITER)	KAISER	No. F46KB	1
OIL-WATER SEPERATOR	KAISER	No. AQUATMAT CF6	1

H. Finish: Durable powder coat in manufacturer's standard color.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate location of rough-in work and utility stub-outs to assure match with equipment to be installed.

B. Check equipment for damage from shipping and exposure to weather. Compare delivered equipment with packing lists and specifications to assure receipt of all equipment items and specified accessories.

3.2 INSTALLATION

A. Perform work under direct supervision of Foreman of Construction Superintendent with authority to coordinate installation of scheduled equipment with Architect.

B. Install equipment in accordance with plans, shop drawings, and manufacturer's instructions:
   1. Positioning: Place equipment in accordance with any noted special positioning requirements generally level (or slight slope as required by instructions), plumb, and at right angles to adjacent work.
   2. Fitting: Where field cutting or trimming is necessary, perform in a neat, accurate, professional manner without damaging equipment or adjacent work.
   3. Anchorage: Attach equipment as detailed or directed by Architect or designated representative. Installation fasteners shall be installed to avoid scratching or damaging adjacent surfaces. Install compressed-air equipment to allow maximum headroom unless specific mounting heights are indicated.
   4. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.
   5. Install equipment to allow right of way for piping installed at required slope.
   6. Install the following devices on compressed-air equipment:
      a. Thermometer, Pressure Gauge, and Safety Valve: Install on each compressed-air receiver.
      b. Pressure Regulators: Install downstream from air compressors, dryers, and filter assemblies.
      c. Drain Valves: Install on aftercoolers, receivers, and dryers. Discharge condensate over nearest floor drain.

7. Air compressor and dryer system:
    a. Install compressor unit on concrete foundation with sole plates and isolators. Level, grout, and bolt in place.
    b. Make air cock and drain connection on horizontal casing.
    c. Install line size ball valve and anti-return valve on compressor discharge.
    d. Install replaceable cartridge type filter silencer of adequate capacity for each compressor.
    e. Install condensate filter between compressor and dryer
    f. Connect condensate drains to nearest floor drain.
    g. Install valved bypass around air dryer. Factory insulate inlet and outlet connections.
    h. Install takeoffs to outlets from top of main with shutoff valve after takeoff.

C. Upon completion of work, finish surfaces shall be free of tool marks, scratches, blemishes, and stains.

3.3 CONNECTIONS

A. Install piping adjacent to equipment to allow service and maintenance.

B. Install piping from equipment drain connection to nearest floor drain. Piping shall be at least full size of connection. Provide an isolation valve(s) if required.

C. Connect piping to equipment with moving parts, except safety relief valve connections, with flexible connectors of materials suitable for service.

D. Connect compressed air and fluid tappings with shutoff valve and union or flange at each connection.

E. Install piping from safety relief valves to nearest floor drain.

F. Install electrical devices furnished with equipment but not specified to be factory mounted.

G. Ground equipment according to Division 26.

H. Install control wiring, in conduit, to field-mounted electrical devices. Connect wiring according to Division 26.

3.4 IDENTIFICATION

A. Identify compressed-air equipment system components. Comply with requirements for identification specified in Division 22.

3.5 CLEANUP

A. Touch-up damage to painted finishes.

B. Wipe and clean equipment of any oil, grease, and solvents, and make ready for use.

C. Clean area around equipment installation and remove packing and installation debris from job site.

D. Notify Architect or designated representative for final acceptance.

3.6 TESTING

A. A factory output test shall be based on the CAGI / ISO 1217 rating, and the calculated time to fill the receiver tank from zero pressure full output pressure. Then by actual test the time to fill the tank shall be performed to check the calculated time. The actual time shall be +/- 3% of the calculated time. The time shall be verified after final installation and recorded in the final acceptance of the compressor.

B. After final connections are made and prior to authorizing payment, specified equipment shall be tested for compliance with specifications in the presence of the Architect or designated representative using acceptance procedures provided by the manufacturer. Startup and testing report shall be submitted to the Architect or designated representative.
   1. Replace damaged and malfunctioning controls and equipment.
   2. Test and adjust controls and safeties.
   3. Testing Certification: Certify that specified tests, inspections, and procedures have been performed and certify report results. Include the following:

      a. Inspections performed.
      b. Procedures used.
      c. Test methods used.
      d. Results of tests.

C. Components shall be considered defective if they do not pass tests and inspections.

D. Prepare test and inspection reports.

END OF DOCUMENT 111113

SECTION 111129 - VEHICLE SHOP EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. The General Provisions of the Contract, including General and Special Conditions and the requirements of Division 1, apply to the Work in this Section.

1.2 WORK INCLUDED

A. Equipment items as listed below by Equipment Identifier:
   1. REEL, HOSE, HIGH VOLUME
   2. WASHER, HIGH PRESSURE, HOT WATER, NG, 8 GPM

B. Roughing-in, installation of equipment, and final connection of utilities, with labor, services, and incidentals necessary for complete and operational equipment installation.

C. Piping, wiring, and switching between equipment and utilities.

1.3 QUALITY ASSURANCE

A. Equipment shall be produced by a manufacturer of established reputation with a minimum of five years' experience supplying specified equipment.

B. Manufacturer's Representative:
   1. Installation: Provide a qualified manufacturer's representative at site to supervise work related to equipment installation, check out, and start up.
   2. Training: Provide technical representative to provide training to Owner's maintenanc e personnel in operation and maintenance of specified equipment.

1.4 SUBMITTALS

A. Product Data:
   1. Submit Product Data in accordance with Division 1 - General Requirements of these specifications.
   2. Restrict submitted material to pertinent data. For instance, do not include manufacturer's complete catalog when pertinent information is contained on a single page.

B. Operations and Maintenance Manual:
   1. Submit Operations and Maintenance Manuals in accordance with Division 1- General Requirements of these specifications.
   2. Provide complete parts, operating, and maintenance manual covering equipment at

time of installation.

3. Description of system and components.
4. Schematic diagrams of electrical, plumbing, and compressed air system.
5. Manufacturer's printed operating instructions.
6. Printed listing of periodic preventive maintenance items and recommended frequency to validate warranties. Failure to provide maintenance information shall indicate that preventive maintenance is not a condition for validation of warranties.

C. Shop Drawings:
1. Submit Shop Drawings in accordance with of Division 1 - General Requirements of these specifications.
2. Submit site specific installation drawings and procedures.

1.5 PRODUCT SUBSTITUTIONS

A. Follow requirements specified in Division 1 - General Requirements.

B. Additional costs resulting from substitution of products other than those specified, by model number, including drawing changes and construction, shall be at the expense of the Contractor.

C. Substitution Approval: Prior to delivery or installation, submittals for each equipment item by Equipment Identifier shall be provided in accordance with Division 1 - General Requirements . Acceptance shall be based on the technical requirements herein as determined by Owner and Architect.

1.6 WARRANTY

A. Warrant work specified herein for one year from substantial completion against defects in materials, functions, and workmanship.

B. Warranty shall include materials and labor necessary to correct defects.

C. Defects shall include, but not be limited to noisy, rough or substandard operation; loose, damaged, and missing parts; and abnormal deterioration of finish.

D. Submit warranties in accordance with Division 1 - General Requirements of these specifications.

E. All parts shall be readily available locally in the United States.

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver equipment in manufacturer's containers, appropriately packaged and/or crated for protection during domestic shipment and storage in humid and/or dusty conditions.

B. Indelibly label all containers, including those contained in others, on outside with item description(s) per title and Equipment Identifier of this specification.

C. Provide equipment and materials specified complete in one shipment for each equipment item. Split or partial shipments are not permissible.

1.8 LABELING

A. Manufacturer shall securely attach in a prominent location, on each major item of equipment, a non-corrosive nameplate showing manufacturer's name, address, model number, serial number, and pertinent utility or operating data.

B. All electrical equipment and materials shall be new and shall be listed by Underwriter's Laboratories, Inc. (UL) in categories for which standards have been set by that agency and labeled as such in the manufacturer's plant.

PART 2 - PRODUCTS

2.1 REEL, HOSE, HIGH VOLUME Equipment

A. Manufacturer's Reference:

1. Prime manufacturer: Specifications are based on equipment identified by manufacturer's name and model to establish acceptable standards of quality, performance, features and construction.

	Manufacturer	City	State	Phone
	COXREELS	TEMPE	AZ	(800) 269-7335
	Model No.: 1185-1524-C			

2. Alternate manufacturers: *Contingent upon compliance with these specification* and documentation requirements set forth in SUBMITTALS equipment produced by other manufacturers, including the following, are considered as equal.

	Manufacturer	City	State	Phone
ALT #1	UNIQUE HOSEREELS	MISSISSAUGA	ON	(905) 564-9962

B. Capacities/Dimensions:

1. Overall dimensions, weight, and capacity:

Overall Dimensions		
Length	Width	Height
29"	26"	24"
Weight	**Capacity**	
136 lb	0 lb	

2. Weight:
   a. Reel: 84 pounds
   b. Hose: 52 pounds
3. Reel inlet:
   a. Water: 1-1/2 inch NPT(F) 90 degrees
   b. Maximum pressure: 600 PSI
4. Hose:
   a. Water:
      1) Length: 50 feet
      2) Inside diameter: 1-1/2 inch
      3) Working pressure: 200 PSI

C. Features/Construction:
1. Reel shall be a bevel crank type.
2. Construction: Frames, discs, drum, and swivel joint shall be fabricated of heavy gauge steel.
3. Nozzle shall have a 1-1/2 inch D handle shutoff and pistol grip.
4. Rollers: Rollers shall be constructed of steel or hardened plastic, and position mounted for smooth reel operation.
5. Hose: Hose shall be an industrial reinforced rubber hose that is kink and abrasion resistant.
6. Hose shall be coupled with NST and NH threads.

D. Utility Requirements: Contractor shall provide water piping from high-volume pump to point of connection for each reel specified herein.

E. Finish: Durable enamel in manufacturer's standard color or stainless steel.

2.2 WASHER, HIGH PRESSURE, HOT WATER, NG, 8

A. Manufacturer's Reference:
1. Prime manufacturer: Specifications are based on equipment identified herein by manufacturer's name and model to establish minimum acceptable standards of quality, features, performance, and construction.

Manufacturer	City	State	Phone
HOTSY CORPORATION	AURORA	CO	(800) 525-1976
Model No.: 5735SS			

2. Alternate manufacturers: *Contingent upon compliance with these specifications* and documentation requirements set forth in SUBMITTALS, equipment produced by other manufacturers, including the following, *may* be considered as equal.

	Manufacturer	City	State	Phone
ALT #1	LANDA INC.	AURORA	CO	(877) 526-3235
ALT #2	ALKOTA CLEANING SYSTEMS, INC.	ALCESTER	SD	(800) 255-6823

B. Capacities/Dimensions:

1. Overall dimensions, weight, and capacity:

Overall Dimensions		
Length	Width	Height
51"	31"	63 1/2"
Weight	**Capacity**	
1471 lb		

2. Operating pressure: 3,000 PSI
3. Maximum discharge capacity: 8 GPM

C. Features/Performance/Construction:

1. Burner: NG fired, AGA-listed gas controls, ring type with aspirating spuds, natural draft.
2. All open flames and fire rings shall be mounted at minimum of 18 inches above the finished floor.
3. Heating coil: Vertically-fired; one inch outside diameter, hydrostatic -pressure tested; 14,900 PSI burst-rated.
4. Water pump: Triplex water pump with positive displacement, ceramic plungers, brass manifold, and oil bath crankcase.
5. Fabrication: Welded angle iron frame shall have heavy gauge tank and cabinet.
6. Supplier shall provide 1/2 inch outside diameter ASTM-A-312 Schedule 80 stainless steel piping. Provide ANSI/ASME B 31.3 stainless steel fittings. Provide piping from high - pressure wash unit to each trigger gun wand for a complete and operable system.
7. Manufacturer shall supply all necessary soap system equipment including piping, fittings,
distribution hose, and connections for a complete and operable soap distribution system.
8. Programmable smart relay feature shall control over run time, auto start/stop and shut down functionality.

D. Controls: Adjustable temperature controller, safety pressure relief valve, pressure switch, ON/OFF electric motor switch with overload protection, unloader, water heater switch, detergent valve and automatic, non-contaminating float valve.

E. Accessories:

Description	Manufacturer	Model No.	Qty.
TRIGGER GUN (ONE EACH PER HOSE REEL)	HOTSY CORPORATION	8741710	1
36 INCH WAND (ONE EACH PER HOSE REEL)	HOTSY CORPORATION	87112690	1
NOZZLE (ONE EACH PER HOSE REEL)	HOTSY CORPORATION	87087020	1
QUICK COUPLER (ONE EACH PER HOSE REEL)	HOTSY CORPORATION	NSRP-HOTSY	1
SOAP SOLENOID AND SWITCH (ONE EACH PER HOSE REEL)	HOTSY CORPORATION	89169880	1
REPLACEMENT NOZZLE (PACK OF FOUR, 4-12 MM WITH QUICK DISCONNECT) (ONE EACH PER HOSE REEL)	HOTSY CORPORATION	87087140	1
DRAFT DIVERTER (12 INCHES) (ONE EACH PER HOSE REEL)	HOTSY CORPORATION	87177300	1
BREAKTHROUGH DETERGENT (55 GALLON) (ONE EACH PER HOSE REEL)	HOTSY CORPORATION	52650	1
POWERSHINE DETERGENT (55 GALLON) (ONE EACH PER HOSE REEL)	HOTSY CORPORATION	51800	1
REEL (SIX INCH HOSE WITH 360 DEGREE RANGE) (ONE EACH PER LOCATION SHOWN ON DRAWINGS)	HOTSY CORPORATION	87504780	1
50 FOOT HOSE ASSEMBLY (ONE EACH PER HOSE REEL)	HOTSY CORPORATION	38X501WGR	1
SCABBARD (ONE EACH PER PLAN)	HOTSY CORPORATION	DU-NP711BS	1
REPLACEMENT NOZZLE HOLDER (ONE EACH PER WASHER)	FABRICATED		1
REMOTE STARTER (ONE EACH PER HOSE REEL)	HOTSY CORPORATION	89169890	1

F. Utility Requirements:

Electrical				
Voltage	Phase	HP	Amperage	Connection Type
460	3	20	21.00	DISCONNECT

PLUMBING		
Domestic Water		
Connection (IN)	Flow Rate(CFM)	Capacity (PSI)
1"	8.00	30.00

Natural Gas			
Connection (IN)	Capacity (BTU/Hr)	Pressure (PSI)	
		Minimum	Maximum
1 1/2"	720450	6.00	14.00

Mechanical					
Flue		**Exhaust**			
Size (IN)	Pressure (PSI)	Width (IN)	Height (IN)	Diameter (IN)	Flow (CFM)
12"					

G. Finish: Durable enamel in manufacturer's standard color.

PART 3 - EXECUTION

3.1 INSPECTION

A. Coordinate location of rough-in work and utility stub-outs to assure match with equipment to be installed.

B. Inspect delivered equipment for damage from shipping and exposure to weather.

C. Compare delivered equipment with packing lists and specifications to assure receipt of all equipment items.

3.2 INSTALLATION

A. Perform work under direct supervision of Foreman of Construction Superintendent with authority to coordinate installation of scheduled equipment with Architect or designated representative.

B. Install equipment in accordance with plans, shop drawings, and manufacturer's instructions:
   1. Positioning: Place equipment in accordance with any noted special positioning requirements generally level (or slight slope as required by instructions), plumb, and at right angles to adjacent work.
   2. Fitting: Where field cutting or trimming is necessary, perform in a neat, accurate, professional manner without damaging equipment or adjacent work.
   3. Anchorage: Attach equipment as directed by Architect or designated representative. Installation fasteners shall be installed to avoid scratching or damaging adjacent surfaces.

C. Upon completion of work, finish surfaces shall be free of tool marks, scratches, blemishes, and stains.

3.3 TESTING

A. After final connections are made and prior to authorizing payment, specified equipment shall be tested for compliance with specifications in the presence of the Architect or designated representative using acceptance procedures provided by the manufacturer. Testing report shall be submitted to the Architect or designated representative.

3.4 CLEANUP

A. Touch-up damage to painted finishes.

B. Wipe and clean equipment of any oil, grease, and solvents, and make ready for use.

C. Clean area around equipment installation and remove packing and installation debris from job site.

D. Notify Architect or designated representative when installation and cleanup is 100% complete and ready for final observation (punchlist).

3.5 TRAINING

A. Direct the technical representative to provide specified hours of training to designated Owner's maintenance personnel in operation and maintenance of the following equipment. Coordinate, with Owner, training schedule and list of personnel to be trained.
   1. WASHER, HIGH PRESSURE, HOT WATER, NG, 8 GPM; 2 hours min

B. Obtain, from technical representative, a list of Owner's personnel trained in equipment operations and maintenance.

END OF SECTION 111129

TOWN & COUNTRY MAINTENANCE ANNEX

849 SALT MILL ROAD
TOWN & COUNTRY, MO 63017

*ARTIST'S DEPICTION/RENDERING OF PROJECT FOR GRAPHICAL PURPOSES ONLY - DO NOT CONSTRUCT FROM THIS DEPICTION

CONSTRUCTION DOCUMENT SET: 04.02.26

DRAWING INDEX

GENERAL CONDITIONS

DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT INCLUDING "AIA DOCUMENT A201-2017 - GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION" APPLY TO ALL AREAS OF THESE CONSTRUCTION DOCUMENTS.

ALL APPLICABLE INDUSTRY STANDARDS, ASTM CLASSIFICATIONS, MANUFACTURER'S SPECIFICATIONS, INSTITUTE CRITERIA, CODE REQUIREMENTS, AND CURRENT PUBLISHED MANUFACTURER OR INSTITUTE INSTALLATION INSTRUCTIONS AND SPECIFICATIONS SHALL BE APPLICABLE TO MATERIALS SPECIFIED IN THE FOLLOWING HEADINGS.

THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR CHECKING CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY AND CONFIRMING THAT ALL WORK IS BUILDABLE AS SHOWN BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY DISCREPANCIES OR OMISSIONS WHICH WOULD INTERFERE WITH SATISFACTORY COMPLETION OF THE WORK, THE GENERAL CONTRACTOR SHALL OBTAIN A CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK IN QUESTION.

THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL VISIT THE SITE, THOROUGHLY REVIEW THE DRAWINGS AND SPECIFICATIONS, SO AS TO BE SURE ALL ANCILLARY COSTS HAVE BEEN COVERED IN THE BID. THE OWNER WILL NOT ENTERTAIN REQUESTS FOR EXTRA COMPENSATION FOR WORK THAT SHOULD HAVE REASONABLY BEEN ANTICIPATED OR OBSERVED.

THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE MEANS, METHODS, AND TECHNIQUES, OF CONSTRUCTION, SAFETY PRECAUTIONS IN CONNECTION WITH THE WORK, AND FOR THE ACTS AND OMISSIONS OF THE SUBCONTRACTORS.

THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL NOT SCALE THE DRAWINGS TO DETERMINE ANY DIMENSION. USE ONLY THE DIMENSIONS AS SHOWN ON THE DRAWINGS. SHOULD THERE BE A CRITICAL DIMENSION OMITTED OR AN UNCERTAINTY WITH THE DIMENSIONS SHOWN, VERIFY WITH THE ARCHITECT BEFORE PROCEEDING.

DRAWINGS ARE NOT SET UP SPECIFICALLY ACCORDING TO THE TRADE AND EACH CONTRACTOR AND SUB-CONTRACTOR OR TRADE IS REQUIRED TO REVIEW THE DRAWINGS AS A WHOLE AND PROVIDE ANY MISCELLANEOUS ITEMS, MATERIALS, WORK, ETC. REQUIRED TO COMPLETE THE WORK AS SHOWN ON ALL DOCUMENTS. ALL TRADES SHALL ADHERE TO THIS REQUIREMENT. STRUCTURAL, MECHANICAL, ELECTRICAL AND PLUMBING REQUIREMENTS AND RELATED WORK ARE INDICATED THROUGHOUT THE SET OF DRAWINGS AND SHOULD BE REVIEWED WITH THE SPECIFIC MECHANICAL, ELECTRICAL, PLUMBING AND STRUCTURAL DRAWINGS FOR OVERALL SCOPE OF WORK.

THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, FEE INSPECTIONS AND APPROVALS REQUIRED FOR CONSTRUCTION BY ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER. EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR PERMITS, FEES, ETC. AS RELATED TO THEIR SPECIFIC PORTION OF THE WORK.

THE VARIOUS MECHANICAL, ELECTRICAL, AND PLUMBING SUBCONTRACTORS SHALL BE RESPONSIBLE FOR ALL MECHANICAL, PLUMBING, AND ELECTRICAL REQUIRED BY LOCAL, STATE AND FEDERAL CODES.

THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL PURCHASE AND MAINTAIN CERTIFICATIONS OF INSURANCE WITH RESPECT TO WORKMEN'S COMPENSATION, PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE LIMITS AS REQUIRED BY LAW, OR OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS IN CONNECTION WITH THE WORK.

EACH SUBCONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS (UNLESS NOTED OTHERWISE) EQUIPMENT, TOOLS, UTILITIES, INSURANCE, TAXES, TRANSPORTATION AND MISCELLANEOUS SERVICES REQUIRED FOR THE CONSTRUCTION OF THEIR PORTION OF THE SUBCONTRACT FOR THIS PROJECT AS INDICATED IN THESE DOCUMENTS, WHETHER TEMPORARY OR PERMANENT.

ALL SUBCONTRACTORS MUST COMPLY WITH RULES AND REGULATIONS OF AGENCIES HAVING JURISDICTION AND SHALL CONFORM TO ALL CITY, STATE, AND FEDERAL CONSTRUCTION SAFETY AND SANITARY LAWS, CODES, STATUTES AND ORDINANCES.

ALL INSTALLED PLUMBING, MECHANICAL AND ELECTRICAL EQUIPMENT SHALL OPERATE QUIETLY AND FREE FROM EXCESS VIBRATION.

ALL ROOF PENETRATIONS, EQUIPMENT SUPPORTS, PITCH PANS, FLASHING, CURBING AND ROOFING REPAIRS SHALL BE ENGINEERED AND INSTALLED IN ACCORDANCE WITH STANDARD PROJECT ROOFING DETAILS, FACTORY MUTUAL INSURANCE ASSOCIATION'S SPECIFICATIONS, AND GUIDELINES PUBLISHED BY THE NATIONAL ROOFING CONTRACTORS ASSOCIATION.

THE GENERAL CONTRACTOR SHALL NOTIFY SUBCONTRACTORS WHEN TELEPHONE SERVICE IS REQUIRED AT JOB SITE FOR WIRE OF PHONE EQUIPMENT.

SHOULD A DISCREPANCY BETWEEN CONTRACT DOCUMENTS AND SPECIFICATIONS OCCUR, CONTRACTOR SHOULD IMMEDIATELY NOTIFY ARCHITECT FOR RESOLUTION BEFORE PROCEEDING WITH WORK.

ALL MATERIALS SHALL BE NEW, UNUSED AND OF THE HIGHEST QUALITY IN EVERY RESPECT, UNLESS OTHERWISE NOTED OR TO BE USED FOR FORMS AND/OR TEMPORARY STRUCTURES.

ALL SURFACES SHALL BE PROPERLY PREPARED BEFORE THE APPLICATION OF FINISH MATERIALS.

TO BEGIN THE APPLICATION OF A FINISH MATERIAL MEANS THAT THE SUBCONTRACTOR ACCEPTS THE SURFACE AND SUBSEQUENT RESPONSIBILITY FOR THE APPEARANCE OF THE FINAL FINISH.

ALL MATERIALS, FINISHES AND EQUIPMENT REQUIRED FOR THE COMPLETION OF THIS PROJECT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS, AS WELL AS GUIDELINES SET FORTH IN THESE DOCUMENTS.

IT SHALL BE THE SUBCONTRACTORS RESPONSIBILITY TO OBTAIN AND SUBMIT TO THE GENERAL CONTRACTOR TO FORWARD TO THE ARCHITECT FOR REVIEW ANY SHOP DRAWINGS, MATERIAL SAMPLES AND MANUFACTURER'S PRINTED MATERIAL NECESSARY FOR AN ACCURATE COMPARISON TO BE MADE ON ANY ITEM SUBMITTED FOR INSTALLATION AND/OR SUBSTITUTION. ALL FINAL SELECTIONS SHALL BE MADE BY THE ARCHITECT.

MILLWORK CONSTRUCTION SHALL CONFORM WITH AWI STANDARDS FOR PREMIUM MILLWORK. DRAWINGS SHALL INDICATE MILLWORK DESIGN INTENT ONLY. FABRICATOR IS RESPONSIBLE FOR PROPER EXECUTION AND SHALL SUBMIT SHOP DRAWINGS FOR DESIGN REVIEW.

ALL MATERIALS, EQUIPMENT, AND LABOR SHALL CARRY A MINIMUM OF ONE (1) YEAR WRITTEN WARRANTY/ GUARANTEE AGAINST DEFECT STARTING FROM THE DATE OF APPROVAL FOR FINAL PAYMENT.

THE SUBCONTRACTORS SHALL BE RESPONSIBLE FOR SUPPLYING THE ARCHITECT AND THE OWNER WITH ALL MAINTENANCE AND OPERATION MANUALS, WARRANTIES, AND GUARANTEES ON ALL EQUIPMENT AND MATERIALS.

THE CONSTRUCTION SITE SHALL AT ALL TIMES BE KEPT FREE FROM DEBRIS, WASTE AND RUBBISH. THE PREMISES SHALL BE MAINTAINED IN A MANNER TO PROVIDE A SAFE ENVIRONMENT FOR WORKERS AND THE PUBLIC. CONDUCT CLEANING AND DISPOSAL OPERATIONS TO COMPLY WITH ALL LOCAL ORDINANCES AND ANTI-POLLUTION LAWS.

ALL WORK BY ALL TRADES SHALL CONFORM TO AND BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, STANDARDS OR RESTRICTIONS WHETHER INDICATED ON DRAWINGS OR NOT. THE MORE STRINGENT TO GOVERN DISCREPANCIES BETWEEN CONTRACT DOCUMENTS AND CODES SHALL BE BROUGHT TO THE ARCHITECTS ATTENTION PROMPTLY AND RESOLUTION OBTAINED BEFORE PROCEEDING.

UPON COMPLETION OF THE WORK, REMOVE ALL WASTE MATERIALS, EQUIPMENT, DEBRIS AND CLEAN ALL SIGHT-EXPOSED SURFACES, TOUCH-UP PAINTING OF MARRED SURFACES AND REPAIR OF ALL DAMAGES LEAVING THE PROJECT READY FOR OCCUPANCY. TRASH SHALL BE REMOVED FROM PROJECT SITE AT SUBCONTRACTOR'S EXPENSE. IF THE SUBCONTRACTOR FAILS TO HAVE THE SITE READY FOR OCCUPANCY, THE GENERAL CONTRACTOR MAY HIRE AN OUTSIDE AGENCY FOR THIS SERVICE AND THE COST MAY BE CHARGED TO THE CONTRACTOR.

UPON COMPLETION OF THE PROJECT, A "PUNCH LIST" WILL BE COMPILED BY THE ARCHITECT, WHICH WILL CONSIST OF ITEMS IN NEED OF CORRECTION AND UNSATISFACTORY AND/OR INCOMPLETE WORK. FINAL PAYMENT WILL BE CONTINGENT UPON THE CORRECTION AND SUBSEQUENT APPROVAL OF THESE ITEMS.

THE GENERAL CONTRACTOR SHALL OBTAIN CERTIFICATE FOR OCCUPANCY FROM THE APPROPRIATE REGULATORY AGENCY BUILDING DEPARTMENT. ONE (1) COPY OF THE CERTIFICATE WILL BE SUBMITTED TO THE ARCHITECT WITH FINAL APPLICATION FOR PAYMENT.

ALL CHANGES, OMISSIONS OR ADDITIONS TO THE SCOPE OF WORK DESCRIBED IN THESE CONTRACT DRAWINGS AND SPECIFICATIONS MUST BE APPROVED IN WRITING BY THE ARCHITECT.

UNLESS NOTED OTHERWISE, ALL WORK SHALL INCLUDE NECESSARY APPURTENANCES AND ACCESSORIES TO PROVIDE COMPLETE OPERATING ASSEMBLIES, WHETHER OR NOT SHOWN OR DETAILED.

SPECIAL NOTICE

UNAUTHORIZED CHANGES DISCLAIMER: ANY CHANGES, REVISIONS, SUBSTITUTIONS, OR DEVIATIONS TO THE APPROVED PLANS, SPECIFICATIONS, OR OTHER CONSTRUCTION DOCUMENTS MADE WITHOUT THE PRIOR WRITTEN CONSENT OF THE DESIGN PROFESSIONAL ARE AT THE SOLE RISK OF THE CLIENT AND/OR CONTRACTOR. THE DESIGN PROFESSIONAL SHALL HAVE NO RESPONSIBILITY OR LIABILITY FOR THE CONSTRUCTION, PERFORMANCE, OR OUTCOME OF SUCH CHANGES. SHOP DRAWINGS, SUBMITTALS, OR FIELD MODIFICATIONS DO NOT CONSTITUTE APPROVED DESIGN CHANGES UNLESS EXPRESSLY APPROVED IN WRITING BY THE DESIGN PROFESSIONAL. TO THE FULLEST EXTENT PERMITTED BY LAW, THE CLIENT AGREES TO DEFEND, INDEMNIFY, AND HOLD THE DESIGN PROFESSIONAL HARMLESS FROM AND AGAINST ANY AND ALL CLAIMS, DAMAGES, LIABILITIES, OR COSTS (INCLUDING REASONABLE ATTORNEYS' FEES AND COSTS OF DEFENSE) ARISING OUT OF OR RELATED TO SUCH UNAUTHORIZED CHANGES OR SUBSTITUTIONS. THE CLIENT EXPRESSLY WAIVES ANY RIGHT TO MAKE OR PURSUE CLAIMS AGAINST THE DESIGN PROFESSIONAL FOR DAMAGES OR LOSSES ARISING FROM SUCH UNAUTHORIZED CHANGES.

LOCATION MAP

hdesigngroup

5039 S National Avenue | Springfield, MO 65810 | 417.887.6595

Missouri Certificate of Authority: #2001015115

OWNER

THE CITY OF TOWN & COUNTRY
1011 MUNICIPAL CENTER DRIVE
TOWN & COUNTRY, MO 63131

PROJECT TEAM

CIVIL ENGINEER
STOCK & ASSOCIATES
257 CHESTERFIELD BUSINESS PKWY
CHESTERFIELD, MO 63005
636.530.9100

STRUCTURAL ENGINEER
METTEMEYER ENGINEERING
2225 CHESTERFIELD BLVD SUITE 300
SPRINGFIELD, MO 65807
417.890.8002

MEP ENGINEER
TRUE ENGINEERING GROUP
1200 E WOODHURST DR SUITE P
SPRINGFIELD, MO 65804
417.708.7025

INTERIOR DESIGN
GRAY DESIGN GROUP
349 MARSHALL AVENUE, SUITE 100
SAINT LOUIS, MO 63119
314.646.0400

REVISIONS

NO.	DESCRIPTION	DATE
2	ADD 02	04.24.26

PROJECT NO.: 25-060 DRAWN BY: HDG
DATE: 04.02.26 REVIEWED BY: HDG

PROFESSIONAL SEAL

BRENT STEVENS, AIA
PROFESSIONAL TITLE: ARCHITECT
LICENSE: A-2000151419

STATE OF MISSOURI
BRENT M. STEVENS
NUMBER A-2000151419
ARCHITECT

Brent Stevens
Digitally signed by Brent Stevens
DN: C=US, E=brent@hdesigngroup.com, O=H Design Group, OU=Architect, CN=Brent Stevens
Date: 2026.04.24 12:11:22-05'00'

PROJECT TITLE

TOWN & COUNTRY MAINTENANCE ANNEX

PROJECT ADDRESS:
849 SALT MILL ROAD
TOWN & COUNTRY, MO 63017

COVER SHEET

SHEET
G001

CITY OF TOWN & COUNTRY MAINTENANCE ANNEX

A TRACT OF LAND LOCATED IN SECTION 13,
TOWNSHIP 45 NORTH, RANGE 4 EAST OF THE 5TH PRINCIPAL MERIDIAN
CITY OF TOWN AND COUNTRY, ST. LOUIS COUNTY, MISSOURI

SITE IMPROVEMENT PLANS

LEGEND

ELECTRIC MANHOLE
EXISTING SANITARY SEWER
EXISTING STORM SEWER
EXISTING TREE
EXISTING BUILDING
EXISTING CONTOUR — 650
SPOT ELEVATION — 650.00
EXISTING UTILITIES — G — W — T — E
PROPOSED CONTOUR — 650
PROPOSED SPOT — 650.25
PROPOSED STORM SEWER
PROPOSED SANITARY SEWER — SS
FOUND 1/2" IRON PIPE
SET IRON PIPE
FOUND CROSS
FOUND STONE
FIRE HYDRANT
LIGHT STANDARD
BUSH
NOTES PARKING SPACES — 18
GUY WIRE
POWER POLE
WATER MANHOLE — W
WATER VALVE
DENOTES RECORD INFORMATION — ( )
HANDICAPPED PARKING
PHONE MANHOLE — P
OVERHEAD ELECTRIC — OE
UNDERGROUND TELEPHONE — UT
CONCRETE — CONC
ASPHALT — ASPH
POLYVINYL CHLORIDE — PVC
DENOTES WITH — W/
TRANSFORMER — T
SANITARY — SAN
MANHOLE — MH
FLOW LINE — FL
SWALE
SILT FENCE — SF

ABBREVIATIONS

A.T.G.	– ADJUST TO GRADE
C.O.	– CLEANOUT
DB.	– DEED BOOK
DND	– DO NOT DISTURB
DS	– DOWNSPOUT
E	– ELECTRIC
EX	– EXISTING
FL	– FLOWLINE
FT	– FEET
FND.	– FOUND
G	– GAS
L.L.	– LOWER LEVEL
M.B.	– MAILBOX
M.H.	– MANHOLE
N.I.C.	– NOT IN CONTRACT
N/F	– NOW OR FORMERLY
PB.	– PLAT BOOK
PG.	– PAGE
PR	– PROPOSED
PUMI	– PRIVATE UNDER MSD INSPECTION
P.V.C.	– POLYVINYL CHLORIDE PIPE
R.C.P.	– REINFORCED CONCRETE PIPE
RD	– ROOF DRAIN
RF	– REVERSE FILTER
RG	– RAIN GARDEN
S.B.	– SIGNAL BOX
SQ.	– SQUARE
T	– TELEPHONE CABLE
T.B.R.	– TO BE REMOVED
T.B.R.&R.	– TO BE REMOVED AND REPLACED
T.B.R.B.O.	– TO BE REMOVED BY OTHERS
U.I.P.	– USE IN PLACE
V.C.P.	– VETRIFIED CLAY PIPE
W	– WATER
Y.D.	– YARD DRAIN
(86'W)	– RIGHT–OF–WAY WIDTH
GV	– GAS VALVE
GM	– GAS METER
WV	– WATER VALVE
WF	– WATER FAUCET
CO	– CLEAN OUT
EB	– ELECTRIC BOX
	– LIGHT STANDARD
TS	– TRAFFIC SIGNAL
EYL	– ELECTRIC YARD LIGHT
	– BORING LOCATION
	– FIRE HYDRANT
	– SIGN
	– ACCESSIBLE SPACE
TP	– TEST PIT LOCATION
	– POWER POLE

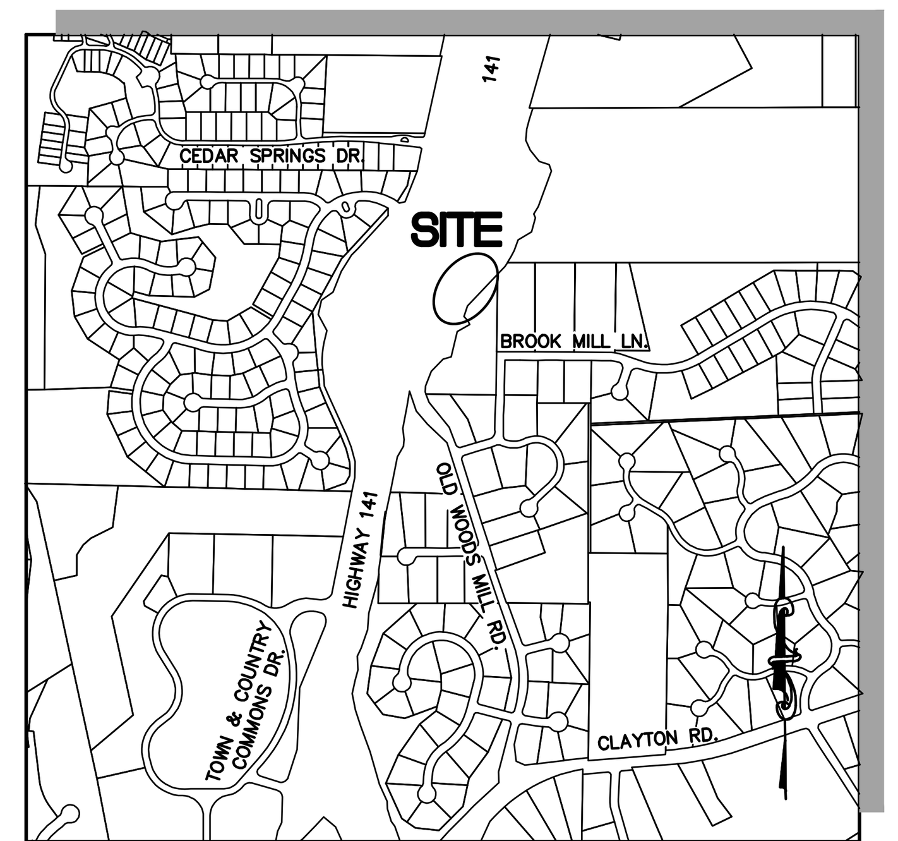
PROJECT DATA

OWNER	= CITY OF TOWN & COUNTRY DB. 8346 PG. 233
SITE ADDRESS	= 849 SALT MILL ROAD TOWN & COUNTRY, MISSOURI 63131
WUNNENBURG	= PG 22 GRID AA–20
WATERSHED	= CREVE COEUR CREEK
SCHOOL DISTRICT	= PARKWAY DISTRICT
WATER DISTRICT	= MISSOURI AMERICAN WATER CO.
FIRE DISTRICT	= WEST COUNTY EMS & FIRE
ELECTRIC SERVICE	= AMEREN–MISSOURI
FEMA FIRM PANEL	= 29189C0170K

SHEET INDEX

STORMWATER MANAGEMENT FUTURE DISTURBANCE NOTE:
PROJECT DISTURBANCE = ± 0.55 ACRES
PROJECT DIFFERENTIAL RUNOFF = + 0.33 CFS

ANY FUTURE LAND DISTURBANCE AND/OR INCREASE IN IMPERVIOUS AREA ON THIS SITE MAY REQUIRE ADDITIONAL STORM WATER MANAGEMENT PER MSD REGULATIONS IN PLACE AT THAT TIME (INCLUDING TOTAL LAND DISTURBANCE AND/OR IMPERVIOUSNESS ADDED ON THIS PLAN 26MSD-00092).



LOCATION MAP
(NOT TO SCALE)

SANITARY PEAK FLOW

PROPOSED PEAK FLOW = 50 GPM
(PER MEP INFORMATION)

NOTES

1. BOUNDARY AND TOPOGRAPHIC SURVEY BY STOCK & ASSOCIATES CONSULTING ENGINEERS, INC.
2. GRADING AND DRAINAGE PER CITY OF TOWN AND COUNTRY, M.S.D. AND ST. LOUIS COUNTY STANDARDS AND SPECIFICATIONS. STORM WATER TO DISCHARGE AT AN ADEQUATE NATURAL DISCHARGE POINT. SINKHOLES ARE NOT ADEQUATE NATURAL DISCHARGE POINTS.
3. NO SLOPE GREATER THAN 3:1 ALLOWED WITHOUT CITY AND GEOTECH APPROVAL. GRADING SHALL FOLLOW GEOTECHNICAL RECOMMENDATIONS.
4. SANITARY SEWER TO MEET THE CURRENT CITY OF TOWN AND COUNTRY AND M.S.D. STANDARDS AND SPECIFICATIONS ON SITE.
5. ALL UTILITY SERVICES SHALL BE UNDERGROUND
6. UTILITY INFORMATION PER SURVEY PROVIDED AND AVAILABLE RECORD INFORMATION.
7. ALL PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED TO THE CITY OF TOWN & COUNTRY STANDARDS AND SPECIFICATIONS.
8. TOTAL SITE AREA = 111,346 S.F. (2.556 Ac.)
9. ALL SEWER CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE METROPOLITAN ST. LOUIS SEWER DISTRICT STANDARD CONSTRUCTION SPECIFICATION FOR SEWER AND DRAINAGE FACILITIES, 2009.
10. SUBJECT PROPERTY LIES WITHIN FLOOD ZONE X (AREAS OF MINIMAL FLOOD HAZARD) ACCORDING TO THE NATIONAL FLOOD INSURANCE RATE MAP NUMBER 29189C0170K WITH AN EFFECTIVE DATE OF 02/04/2015.

COMPACTED FILL REQUIREMENTS:

A REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER WILL VERIFY THAT ALL COMPRESSIBLE MATERIAL HAS BEEN REMOVED PRIOR TO FILL PLACEMENT AND THAT ALL FILL, AND FILLED AREAS, INCLUDING TRENCH BACKFILLS, UNDER BUILDINGS AND UNDER SANITARY AND STORM SEWER LINES CONSTRUCTED ABOVE THE ORIGINAL GROUND SURFACE, HAS BEEN COMPACTED TO 90% MODIFIED PROCTOR. FILL IS TO BE PLACED IN A MAXIMUM OF NINE-INCH (9") LIFTS. TESTS SHALL BE TAKEN AT A MAXIMUM OF FIFTY-FEET (50') WIDE INTERVALS ALONG THE ROUTE OF THE PIPE, AT A MAXIMUM INTERVAL, OF TWO FEET (2'), VERTICALLY AND LATERALLY ON EACH SIDE OF THE PIPE, AT A DISTANCE EQUAL TO THE DEPTH OF FILL OVER THE PIPE. A COPY OF THESE RESULTS WILL BE SUBMITTED TO MSD PRIOR TO PLACEMENT OF THE SEWER PIPE.

CONSTRUCTION SITE RUNOFF:

CONSTRUCTION SITE RUNOFF SHALL NOT FLOW INTO BMP AREAS. ALL STORMWATER FLOW TO BMP AREAS SHALL BE DIVERTED, PLUGGED OR DISCONNECTED UNTIL THE CONSTRUCTION SITE IS STABLE AND THE MSD INSPECTOR PROVIDES APPROVAL TO PLACE THE BMP ON-LINE.

DETAIL DRAWINGS:

THE DETAIL DRAWINGS SHOWN HERE ARE ONLY FOR PRIVATE CONSTRUCTION THAT IS NOT UNDER MSD PERMITS. REFER TO MSD STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD DETAILS FOR PUBLIC SEWER CONSTRUCTION OR PRIVATE CONSTRUCTION UNDER MSD PERMITS.

PIPE JOINTS WITH ADAPTERS AND COUPLIINGS NOTE:

NOTE - PIPE JOINTS WITH ADAPTERS AND COUPLINGS SHALL BE SUPPLIED AND INSTALLED WITH 316 STAINLESS STEEL NUT AND BOLT CLAMPS (T-BOLT) CONFIGURATION; AND WITH STAINLESS STEEL SHEAR BANDS, BEING A MINIMUM OF TWELVE (12) MILS (MSD STD. CONST. SPECS. PT. 2, SUBSECTION H_11). WORM DRIVE HOSE CLAMPS AND CONCRETE BACKFILLING (CAUSTICITY) WILL NO LONGER BE ALLOWED AT THOSE JOINTS. GRANULAR BACKFILL SHOULD BE USED. IF FLOWABLE FILL IS REQUIRED, THE CONTRACTOR SHALL WRAP AND TAPE THE ADAPTERS AND COUPLINGS WITH A SIX (6) MIL POLYETHYLENE SHEET.

SANITARY LATERALS:

LATERALS TO BE 6-INCH PVC AND CONSTRUCTED AT 2.0% MINIMUM SLOPE.

PUBLIC SEWER MAINTENANCE:

MAINTENANCE OF THE SEWERS DESIGNATED "PUBLIC" SHALL BE THE RESPONSIBILITY OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT UPON DEDICATION OF THE SEWERS TO THE DISTRICT.

SHOP DRAWINGS:

THE PROJECT ENGINEER SHALL PROVIDE SHOP DRAWINGS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN MISSOURI FOR APPROVAL TO MSD PRIOR TO CONSTRUCTION OF THESE STRUCTURES. STRUCTURES SHALL BE DESIGNED TO SUSTAIN HS-20 LOADS. PLEASE CONTACT THE DISTRICT'S CONSTRUCTION MANAGEMENT DIVISION AT (314) 335-2072 FOR QUESTIONS.

LIMITS OF DISTURBANCE:

THE CONTRACTOR SHALL STAY WITHIN THE LIMITS OF DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE DISTURBANCE WITHIN THE WORK AREA WHEREVER POSSIBLE.

C-900 SANITARY PIPE:

PVC GRAVITY SANITARY SEWER PIPE SIZES 4" THROUGH 15" SHALL BE AWWA C-900, CLASS 15 WITH DR18. PIPE TO BE LAID IN 20 FOOT LENGTHS WITH JOINTS WRAPPED 3 TIMES WITH FILTER FABRIC. EXTEND FILTER FABRIC 3 FEET EACH SIDE OF THE JOINT. ALL FITTINGS FOR PVC PIPE SHALL BE OF THE SAME MATERIAL AND STRENGTH REQUIREMENTS AS THE SEWER PIPE.

PREVAILING WAGE NOTE:

NOTICE TO CONTRACTOR: THIS PROJECT INCLUDES CONSTRUCTION OF GREEN INFRASTRUCTURE OR RELOCATION, ALTERATION, OR RECONSTRUCTION OF EXISTING MSD FACILITIES. IN ACCORDANCE WITH THE MSD GREEN INFRASTRUCTURE PROGRAM AND MSD RESOLUTION 3263, THE DISTRICT REQUIRES THE WAGE RATE TO BE AT LEAST EQUAL TO THE MISSOURI PREVAILING WAGE RATE AT THE TIME OF CONSTRUCTION START. AN AFFIDAVIT CERTIFYING THAT THE MISSOURI PREVAILING WAGE RATE AT THE TIME OF CONSTRUCTION START HAS BEEN PAID FOR ALL WORK RELATED TO GREEN INFRASTRUCTURE OR RELOCATION, ALTERATION, OR RECONSTRUCTION OF EXISTING MSD FACILITIES IS REQUIRED PRIOR TO MSD CONSTRUCTION APPROVAL OF THIS PROJECT.

CONTRACTOR'S INSURANCE (OFFSITE):

PRIOR TO OBTAINING A CONSTRUCTION PERMIT FROM THE METROPOLITAN ST. LOUIS SEWER DISTRICT, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE DISTRICT WITH A COPY OF AN EXECUTED CERTIFICATE OF INSURANCE INDICATING THAT THE PERMITTEE HAS OBTAINED AND WILL CONTINUE TO CARRY COMMERCIAL GENERAL LIABILITY AND COMPREHENSIVE AUTO LIABILITY INSURANCE. THE REQUIREMENTS AND LIMITS SHALL BE AS STATED IN THE RULES AND REGULATIONS AND ENGINEERING DESIGN REQUIREMENTS FOR SANITARY AND STORMWATER DRAINAGE FACILITIES, FEBRUARY 2006, SECTION 10.090.

CONTACTS

CITY OF TOWN AND COUNTRY
PLANNING AND DEVELOPMENT
1011 MUNICIPAL CENTER DRIVE
TOWN AND COUNTRY, MO 63131
CONTACT: MR. RYAN SPENCER
PH: (314) 587-2820
EMAIL: SPENCERR@TOWN-AND-COUNTRY.ORG

PUBLIC WORKS
1011 MUNICIPAL CENTER DRIVE
TOWN AND COUNTRY, MO 63131
CONTACT: MR. TIM RANDICK
EMAIL: RANDICKT@TOWN-AND-COUNTRY.ORG

MoDOT:
2620 ADIE ROAD
MARYLAND HEIGHTS, MO 63043
CONTACT: MR. JAY-JAY BRADEN
PH: (636) 628-5867
EMAIL: JOHN.BRADEN@MODOT.MO.GOV

COMMUNICATIONS SERVICES:
AT&T
13075 MANCHESTER ROAD, 3RD FLOOR
DES PERES, MO 63131
CONTACT: MS. TOSHA HURST
PH: (636) 795-3754
EMAIL: TH9527@ATT.COM

CHARTER COMMUNICATIONS
815 CHARTER COMMONS
TOWN & COUNTRY, MO 63017
EMAIL: DLCENTRALSTATES CONSTRUCTION@CHARTER.COM
CONTACT: MR. KEN OBERKROM
EMAIL: CSKMAESCALATIONS@CHARTER.COM

EVERSTREAM SOLUTIONS
PH: (866) 624-8624 (#1)
TICKET # 393757
CONTACT: STEVE MASSMANN
PH:
EMAIL: SMASSMANN@EVERSTREAM.NET

MCI / VERIZON
500 TECHNOLOGY RD.
WELDON SPRING, MO 63304
CONTACT: ANDY GOTTO
PH: (636) 577-7429
EMAIL: ANDREW.GOTTO@ONE.VERIZON.COM

ELECTRIC SERVICE:
AMEREN MISSOURI
12121 DORSETT ROAD
ST. LOUIS, MO 63043
CONTACT: MR. JEREMY SCHINDLER
PH: (314) 562-7905
EMAIL: JSCHINDLER@AMEREN.COM

GAS SERVICE:
SPIRE ENERGY
4118 SHREWSBURY AVENUE
ST. LOUIS, MO 63119
CONTACT: MR. NICK EGGERT
PH: (314) 330-5720
EMAIL: NICHOLAS.EGGERT @SPIREENERGY.COM
CONTACT: BRIAN LANGENBACHER
PH: (314) 713-6572
EMAIL: BRIAN.LANGENBACHER @SPIREENERGY.COM

SEWER DISTRICT:
METROPOLITAN ST. LOUIS SEWER DISTRICT
2350 MARKET STREET
ST. LOUIS, MO 63103
CONTACT: MR. ROBERT MILLER
PH: (314) 335-2053
EMAIL: RAMILL@STLMSD.COM

WATER SERVICE:
MISSOURI AMERICAN WATER COMPANY
727 CRAIG ROAD
ST. LOUIS, MO 63141
CONTACT: MR. DAVE PRUITT
PH: (314) 996-2396
EMAIL: DAVE.PRUITT@AMWATER.COM
CONTACT:
PH:
EMAIL:

ST. LOUIS COUNTY BENCHMARK

BENCHMARK# 12302
NAVD88 Elev = 641.22
Cut "L" on the southwest corner of the concrete base of a traffic signal control box 0.5 feet above grade roughly 55 feet north of the center concrete median in Clayton Road, 0.2 miles west of Highway 141, 135 feet west of the double yellow stripe in South Woods Mill Road, and 160 feet south of the southern building in a strip center addressed #1091 South Woods Mill Road.

STOCK AND ASSOCIATES CONSULTING ENGINEERS, INC. AND THE UNDERSIGNED ENGINEER HAVE NO RESPONSIBILITY FOR SERVICES PROVIDED BY OTHERS TO IMPLEMENT THE IMPROVEMENTS SHOWN ON THIS PLAN AND ALL OTHER DRAWINGS WHERE THE UNDERSIGNED ENGINEER'S SEAL APPEARS. THE CONSTRUCTION MEANS AND METHODS ARE THE SOLE RESPONSIBILITY OF THE OWNER AND CONTRACTOR. STOCK AND ASSOCIATES CONSULTING ENGINEERS, INC. HAS NO RESPONSIBILITY TO VERIFY FINAL IMPROVEMENTS AS SHOWN ON THIS PLAN UNLESS SPECIFICALLY ENGAGED AND AUTHORIZED TO DO SO BY THE OWNER OR CONTRACTOR.

PREPARED FOR:
H DESIGN GROUP
5039 S NATIONAL AVE.
SPRINGFIELD, MO. 65810
CONTACT: BRYON OSTER
PHONE: (417) 887–6595 x 106
EMAIL: BRYON@HDESIGNGROUP.COM

UTILITY NOTE:

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, RECORDS AND INFORMATION, AND , THEREFORE DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NON–EXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE FACILITIES, STRUCTURES AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS. THE UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319 RSMo.

MISSOURI ONE CALL SYSTEM, INC. — STOP CALL BEFORE YOU DIG

UTILITY LOCATES

MISSOURI ONE-CALL:
811 OR
1-800-344-7483

CONTRACTOR NOTE:

THE CONTRACTOR SHALL ASSUME COMPLETE RESPONSIBILITY FOR CONTROLLING ALL SILTATION AND EROSION OF THE PROJECT AREA. THE CONTRACTOR SHALL USE WHATEVER MEANS NECESSARY TO CONTROL EROSION AND SILTATION INCLUDING, BUT NOT LIMITED TO, SILTATION FABRIC FENCES (POSSIBLE METHODS OF CONTROL ARE DETAILED IN THE PLAN). CONTROL SHALL COMMENCE WITH GRADING AND BE MAINTAINED THROUGHOUT THE PROJECT UNTIL ACCEPTANCE OF THE WORK BY THE OWNER AND/OR THE CITY OF CHESTERFIELD AND/OR ST. LOUIS COUNTY AND/OR MODOT. THE CONTRACTOR'S RESPONSIBILITIES INCLUDE ALL DESIGN AND IMPLEMENTATION AS REQUIRED TO PREVENT EROSION AND THE DEPOSITING OF SILT. THE OWNER AND/OR THE CITY OF CHESTERFIELD AND/OR ST. LOUIS COUNTY AND/OR MODOT MAY AT THEIR OPTION DIRECT THE CONTRACTOR IN HIS METHODS AS DEEMED FIT TO PROTECT PROPERTY AND IMPROVEMENTS. ANY DEPOSITING OF SILT OR MUD ON NEW OR EXISTING PAVEMENT SHALL BE REMOVED IMMEDIATELY. ANY DEPOSITING OF SILT OR MUD IN NEW OR EXISTING STORM SEWERS OR SWALES SHALL BE REMOVED AFTER EACH RAIN AND AFFECTED AREAS CLEANED TO THE SATISFACTION OF THE OWNER AND/OR THE CITY OF CHESTERFIELD AND/OR ST. LOUIS COUNTY AND/OR MODOT.

OWNER S.W.P.P.P. CERTIFICATION

THE CITY OF TOWN & COUNTRY HEREBY CERTIFIES THAT THEY ARE FAMILIAR WITH THE SWPPP AND ASSUMES FULL RESPONSIBILITY FOR THE PERFORMANCE AND MAINTENANCE OF THE SWPPP AS STATED ON THE APPROVED PLANS. HE WILL ENSURE THAT ALL CONTRACTORS UNDERSTAND AND ARE FAMILIAR WITH THE SWPPP FOR THE SITE AND THAT EACH CONTRACTOR AGREES TO IMPLEMENT AND PROTECT ELEMENTS OF THE SWPPP AS THEY RELATE TO HIS WORK. CITY OF TOWN & COUNTRY ONSITE REPRESENTATIVE SHALL BE RESPONSIBLE FOR THE PERFORMANCE AND MAINTENANCE OF THE SWPPP. IN ADDITION, THE UNDERSIGNED CITY OF TOWN & COUNTRY ASSURES THAT ALL CITY PROPERTY OR ROADS WILL BE ADEQUATELY PROTECTED.

OWNER REPRESENTATIVE (PRINT): ______________________ DATE: ____________

PREPARED BY:
STOCK & ASSOCIATES Consulting Engineers, Inc.
257 Chesterfield Business Parkway
St. Louis, MO 63005 PH. (636)
530-9100 FAX (636) 530-9130
e-mail: general@stockassoc.com
Web: www.stockassoc.com

SITE IMPROVEMENT PLANS FOR:
CITY OF TOWN & COUNTRY MAINTENANCE ANNEX
849 SALT MILL ROAD
TOWN & COUNTRY, MISSOURI

STATE OF MISSOURI — GEORGE MICHAEL STOCK — NUMBER PE-25116 — PROFESSIONAL ENGINEER
4/24/2026
GEORGE M. STOCK E–25116
CIVIL ENGINEER
CERTIFICATE OF AUTHORITY
NUMBER: 000996

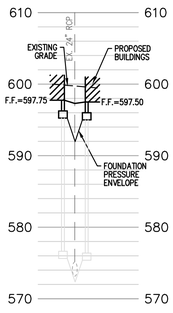
REVISIONS:

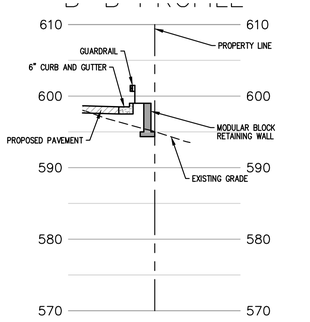
1	2026–03–19 – REVIEW SET
2	2026–04–02 – CD SET
3	2026–04–13 – MSD REVIEW
4	2026–04–24 – ADDENDUM 2

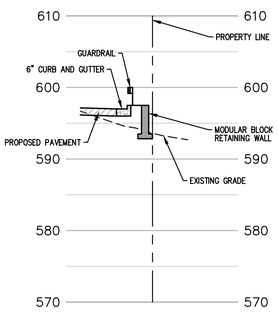
DRAWN BY: Z.P.S.	CHECKED BY: G.M.S.
DATE: 03/04/2026	JOB NO: 223–7551.1
M.S.D. #: 26MSD–00092	BASE MAP #: 20Q1
S.L.C. H&T #: –	H&T S.U.P. #: –
M.D.N.R. #: MORA–	

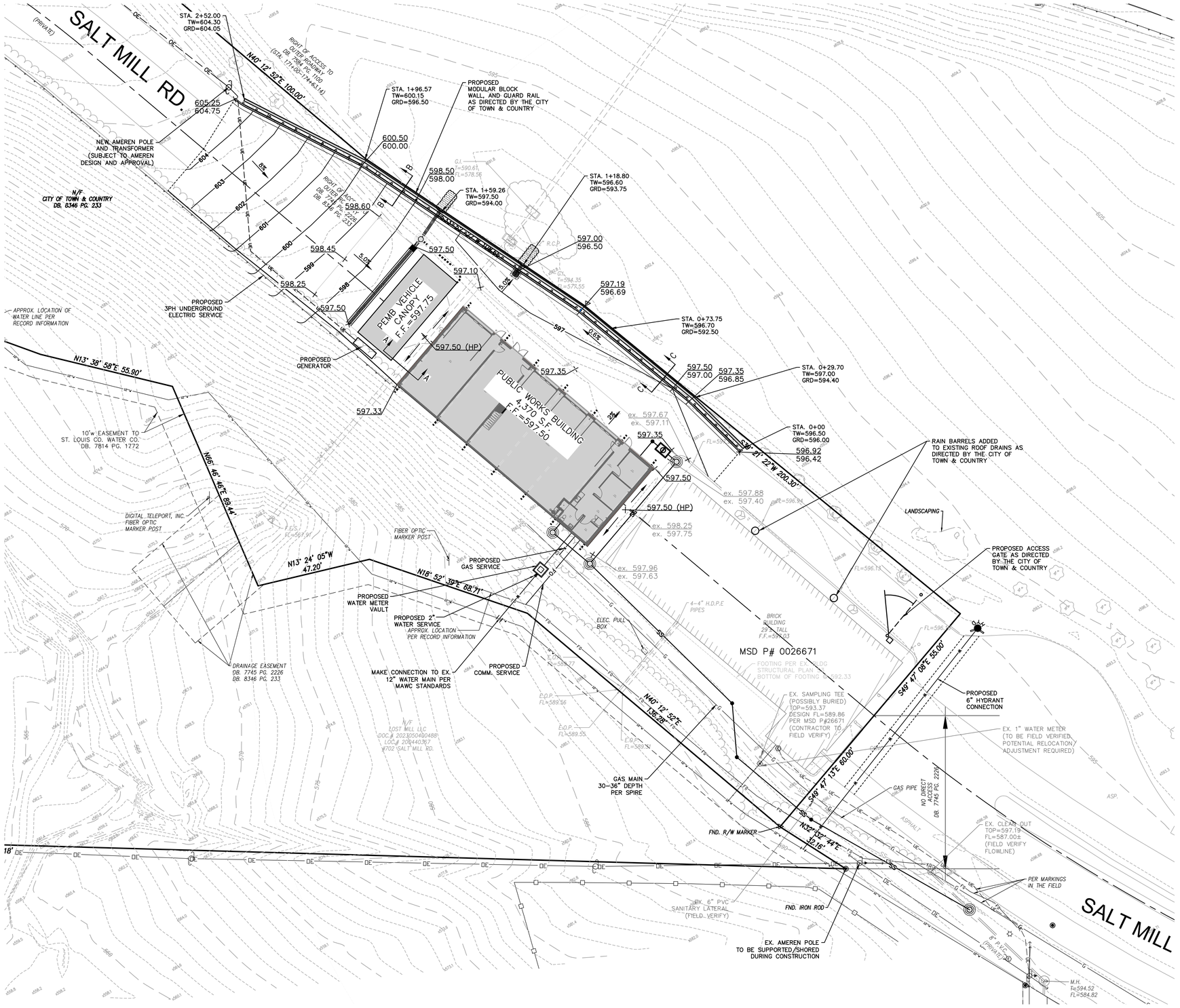
SHEET TITLE: TITLE AND INDEX SHEET

SHEET NO.: C1.0









PRESSURE ENVELOPE SECTION A–A

HORIZ. SCALE: 1"=30'
VERT. SCALE: 1"=10'

RETAINING WALL SECTION B–B

HORIZ. SCALE: 1"=10'
VERT. SCALE: 1"=10'

RETAINING WALL SECTION C–C

HORIZ. SCALE: 1"=10'
VERT. SCALE: 1"=10'

PREPARED BY:

STOCK & ASSOCIATES
Consulting Engineers, Inc.

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SITE IMPROVEMENT PLANS FOR:

CITY OF TOWN & COUNTRY MAINTENANCE ANNEX

849 SALT MILL ROAD
TOWN & COUNTRY, MISSOURI

GEORGE MICHAEL STOCK
NUMBER PE-25116

4/24/2026

GEORGE M. STOCK E–25116
CIVIL ENGINEER
CERTIFICATE OF AUTHORITY
NUMBER: 000996

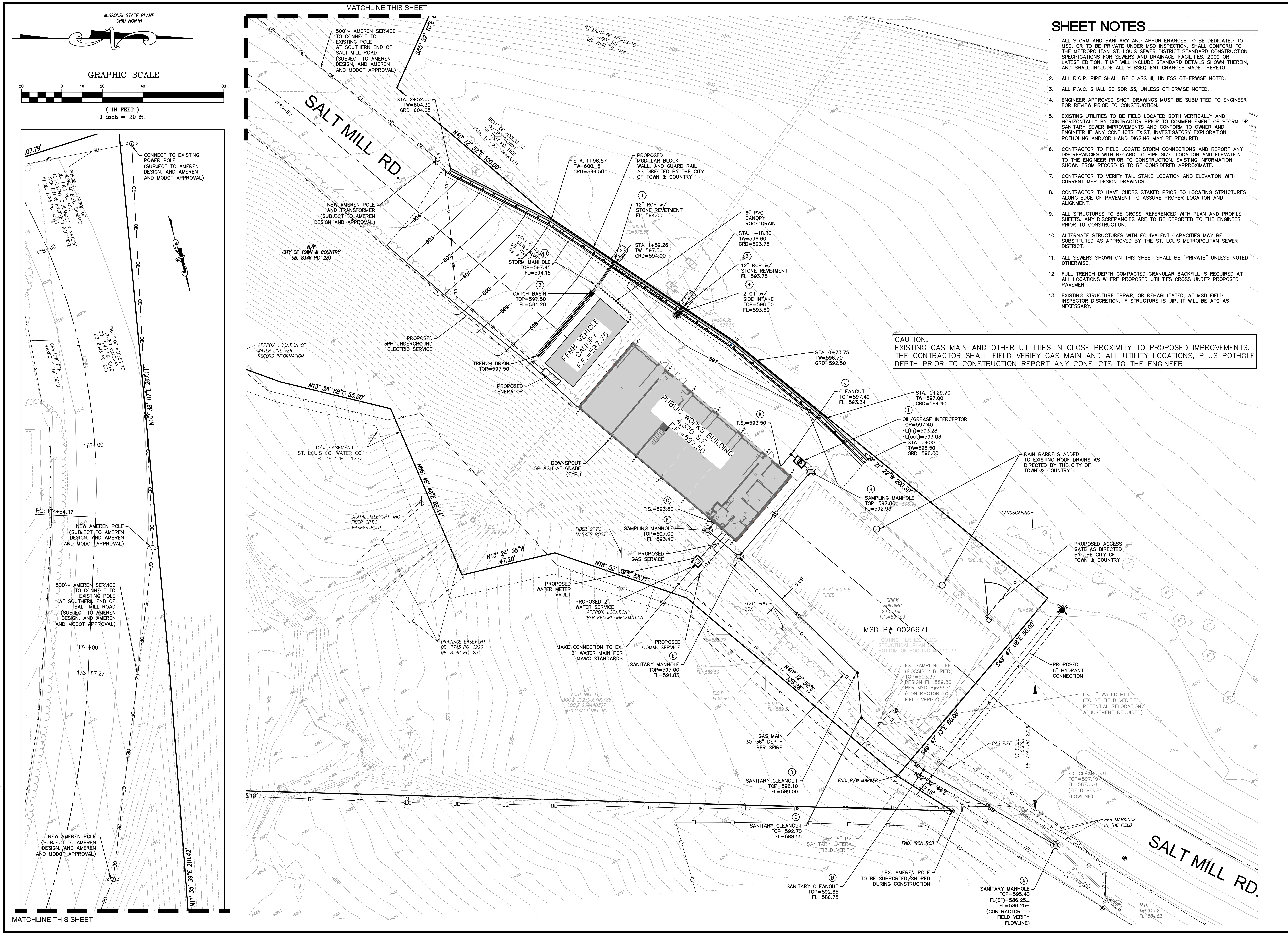
REVISIONS:

1 2026–03–19 – REVIEW SET
2 2026–04–02 – CD SET
3 2026–04–13 – MSD REVIEW
4 2026–04–24 – ADDENDUM 2

DRAWN BY: Z.P.S.	CHECKED BY: G.M.S.
DATE: 03/04/2026	JOB NO: 223–7551.1
M.S.D. #: 26MSD–00092	BASE MAP #: 20Q1
S.L.C. H&T #: –	H&T S.U.P. #: –
M.D.N.R. #: MORA–	

SHEET TITLE:
SITE AND GRADING PLAN

SHEET NO.:
C5.0



SHEET NOTES

1. ALL STORM AND SANITARY AND APPURTENANCES TO BE DEDICATED TO MSD, OR TO BE PRIVATE UNDER MSD INSPECTION, SHALL CONFORM TO THE METROPOLITAN ST. LOUIS SEWER DISTRICT STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, 2009 OR LATEST EDITION. THAT WILL INCLUDE STANDARD DETAILS SHOWN THEREIN, AND SHALL INCLUDE ALL SUBSEQUENT CHANGES MADE THERETO.
2. ALL R.C.P. PIPE SHALL BE CLASS III, UNLESS OTHERWISE NOTED.
3. ALL P.V.C. SHALL BE SDR 35, UNLESS OTHERWISE NOTED.
4. ENGINEER APPROVED SHOP DRAWINGS MUST BE SUBMITTED TO ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.
5. EXISTING UTILITIES TO BE FIELD LOCATED BOTH VERTICALLY AND HORIZONTALLY BY CONTRACTOR PRIOR TO COMMENCEMENT OF STORM OR SANITARY SEWER IMPROVEMENTS AND CONFORM TO OWNER AND ENGINEER IF ANY CONFLICTS EXIST. INVESTIGATORY EXPLORATION, POTHOLING AND/OR HAND DIGGING MAY BE REQUIRED.
6. CONTRACTOR TO FIELD LOCATE STORM CONNECTIONS AND REPORT ANY DISCREPANCIES WITH REGARD TO PIPE SIZE, LOCATION AND ELEVATION TO THE ENGINEER PRIOR TO CONSTRUCTION. EXISTING INFORMATION SHOWN FROM RECORD IS TO BE CONSIDERED APPROXIMATE.
7. CONTRACTOR TO VERIFY TAIL STAKE LOCATION AND ELEVATION WITH CURRENT MEP DESIGN DRAWINGS.
8. CONTRACTOR TO HAVE CURBS STAKED PRIOR TO LOCATING STRUCTURES ALONG EDGE OF PAVEMENT TO ASSURE PROPER LOCATION AND ALIGNMENT.
9. ALL STRUCTURES TO BE CROSS-REFERENCED WITH PLAN AND PROFILE SHEETS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION.
10. ALTERNATE STRUCTURES WITH EQUIVALENT CAPACITIES MAY BE SUBSTITUTED AS APPROVED BY THE ST. LOUIS METROPOLITAN SEWER DISTRICT.
11. ALL SEWERS SHOWN ON THIS SHEET SHALL BE "PRIVATE" UNLESS NOTED OTHERWISE.
12. FULL TRENCH DEPTH COMPACTED GRANULAR BACKFILL IS REQUIRED AT ALL LOCATIONS WHERE PROPOSED UTILITIES CROSS UNDER PROPOSED PAVEMENT.
13. EXISTING STRUCTURE TBR&R, OR REHABILITATED, AT MSD FIELD INSPECTOR DISCRETION. IF STRUCTURE IS UIP, IT WILL BE ATG AS NECESSARY.

CAUTION:
EXISTING GAS MAIN AND OTHER UTILITIES IN CLOSE PROXIMITY TO PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL FIELD VERIFY GAS MAIN AND ALL UTILITY LOCATIONS, PLUS POTHOLE DEPTH PRIOR TO CONSTRUCTION REPORT ANY CONFLICTS TO THE ENGINEER.

PREPARED BY:
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SITE IMPROVEMENT PLANS FOR:
CITY OF TOWN & COUNTRY MAINTENANCE ANNEX
849 SALT MILL ROAD
TOWN & COUNTRY, MISSOURI

STATE OF MISSOURI GEORGE MICHAEL STOCK NUMBER PE-25116 PROFESSIONAL ENGINEER
4/24/2026
GEORGE M. STOCK E-25116
CIVIL ENGINEER
CERTIFICATE OF AUTHORITY
NUMBER: 000996

REVISIONS:

1	2026-03-19 – REVIEW SET
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DRAWN BY: Z.P.S.	CHECKED BY: G.M.S.
DATE: 03/04/2026	JOB NO: 223-7551.1
M.S.D. #: 26MSD-00092	BASE MAP #: 20Q1
S.L.C. H&T #: –	H&T S.U.P. #: –
M.D.N.R. #: MORA–	

SHEET TITLE: SITE UTILITY PLAN

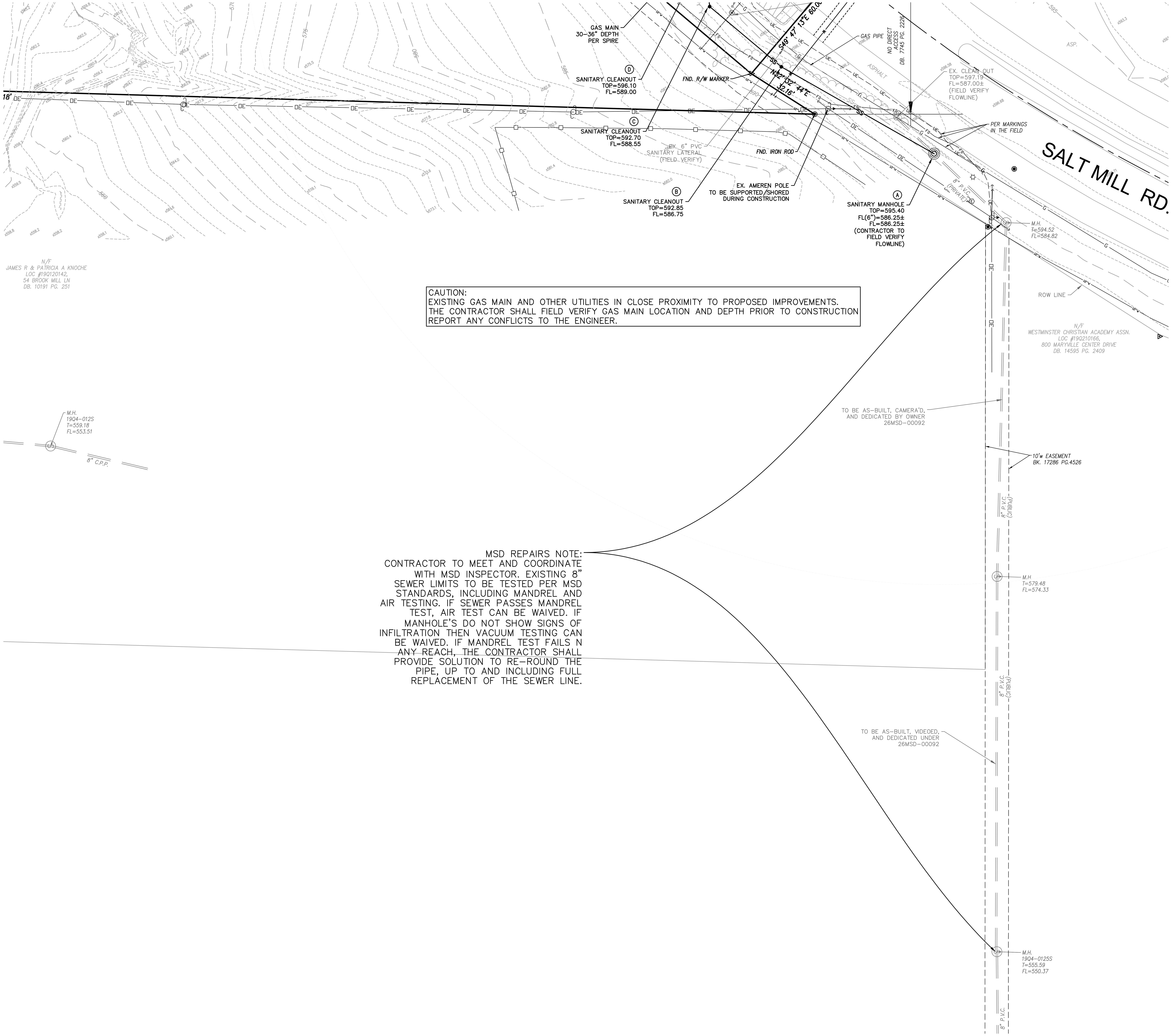
SHEET NO.: C6.0

MISSOURI STATE PLANE
GRID NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



CAUTION:
EXISTING GAS MAIN AND OTHER UTILITIES IN CLOSE PROXIMITY TO PROPOSED IMPROVEMENTS.
THE CONTRACTOR SHALL FIELD VERIFY GAS MAIN LOCATION AND DEPTH PRIOR TO CONSTRUCTION.
REPORT ANY CONFLICTS TO THE ENGINEER.

MSD REPAIRS NOTE:
CONTRACTOR TO MEET AND COORDINATE WITH MSD INSPECTOR. EXISTING 8" SEWER LIMITS TO BE TESTED PER MSD STANDARDS, INCLUDING MANDREL AND AIR TESTING. IF SEWER PASSES MANDREL TEST, AIR TEST CAN BE WAIVED. IF MANHOLE'S DO NOT SHOW SIGNS OF INFILTRATION THEN VACUUM TESTING CAN BE WAIVED. IF MANDREL TEST FAILS N ANY REACH, THE CONTRACTOR SHALL PROVIDE SOLUTION TO RE-ROUND THE PIPE, UP TO AND INCLUDING FULL REPLACEMENT OF THE SEWER LINE.

PREPARED BY:

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SITE IMPROVEMENT PLANS FOR:
CITY OF TOWN & COUNTRY MAINTENANCE ANNEX
849 SALT MILL ROAD
TOWN & COUNTRY, MISSOURI

STATE OF MISSOURI
GEORGE MICHAEL STOCK
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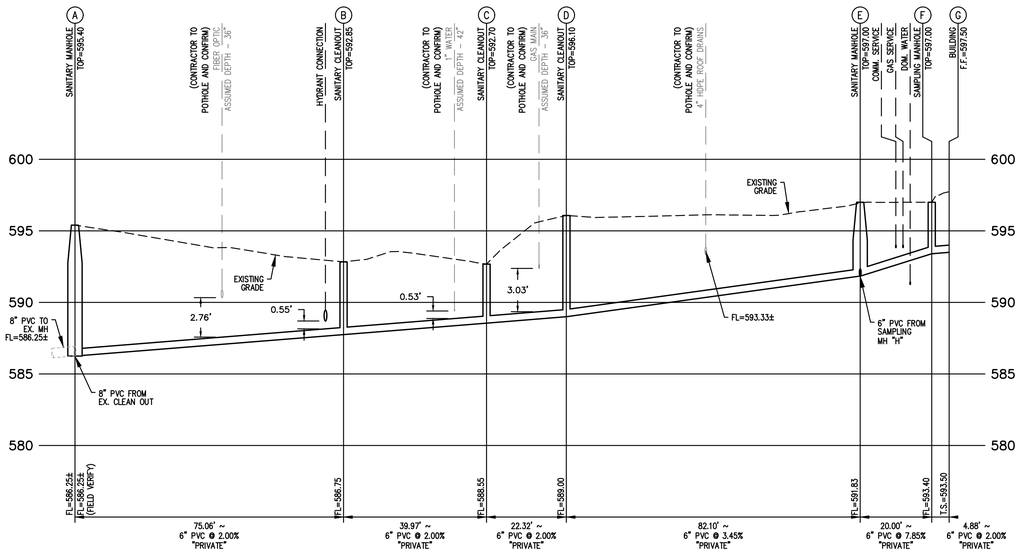
S.L.C. H&T #: –	H&T S.U.P. #: –
M.D.N.R. #: MORA-	

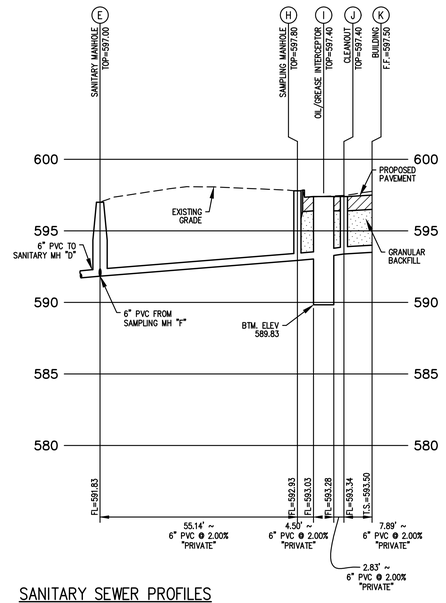
SHEET TITLE:
OFF-SITE AS-BUILT SEWER PLAN

SHEET NO.:
C6.1



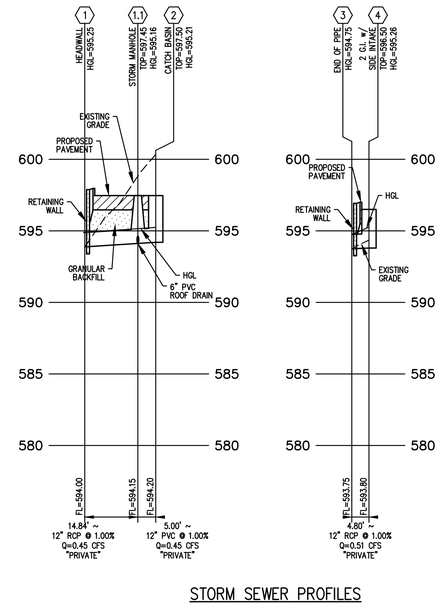
SANITARY SEWER PROFILES

HORIZ. SCALE: 1"=20'
VERT. SCALE: 1"=5'



SANITARY SEWER PROFILES

HORIZ. SCALE: 1"=20'
VERT. SCALE: 1"=5'



STORM SEWER PROFILES

HORIZ. SCALE: 1"=20'
VERT. SCALE: 1"=5'

Project name: *Public Works Salt Facility* — **Calculated By:** *Z.P.S.*
Project number: *223-7551.1* — **Checked By:** *G.M.S.*
Project Location: *St. Louis County, MO* — **Date:** *3/3/2026*

15-year / 20-minute Pipe Hydraulics

Bend Coefficients :

$5^0 = 0.06$	$20^0 = 0.24$	$35^0 = 0.4$	$50^0 = 0.50$	$65^0 = 0.57$	$80^0 = 0.65$
$10^0 = 0.11$	$25^0 = 0.30$	$40^0 = 0.43$	$55^0 = 0.52$	$70^0 = 0.60$	$85^0 = 0.67$
$15^0 = 0.18$	$30^0 = 0.35$	$45^0 = 0.47$	$60^0 = 0.55$	$75^0 = 0.62$	$90^0 = 0.70$

Revisions:

	LINE		FLOW LINE ELEVATIONS													HEAD LOSS					Hydraulic Elevations								
Structure Number	Upper structure	Lower structure	Upper structure	Lower Structure	Length (ft)	Flowline Grade ft/ft	Pipe Size (in.)	Full Flow Cap. (cfs)	Total (Q) (cfs)	Mean Full Flow Vel.(V) (ft/s)	Bend Coef.	Curve Coef.	Velocity Head (V_h) (ft)	QV_h (ft^4/s)	Pipe Coef. (n)	H_f (ft)	Junction (ft)	Bend (ft)	Curve (ft)	Total H_{mt}	Upper F.L + Dia.	Lower H.E. $+H_f$	Lower H.E.	Structure Upper H.E. + H_{mt}	Top/Sill Structure Elevation	Free Board	Structure Number	Remarks	Velocity Mannings Formula (ft/s)
2	2	2	594.20	594.15	5.00	0.0100	12	3.57	0.45	0.57	0.00	0.00	0.01	0.00	0.013	0.00	0.01	0.00	0.00	0.01	595.20	595.16	595.16	**595.21**	597.50	2.29	2	Trench Drain	4.55
1.1	1.1	1	594.15	594.00	14.84	0.0101	12	3.59	0.45	0.57	0.00	0.00	0.01	0.00	0.013	0.00	0.01	0.00	0.00	0.01	595.15	595.00	595.00	**595.16**	597.45	2.29	1.1	Trench Drain	4.58
1	1		594.00																				Top of Pipe Elev =	**595.00**			1	Headwall	
4	4	3	593.80	593.75	4.80	0.0104	12	3.65	0.51	0.65	0.00	0.00	0.01	0.00	0.013	0.00	0.01	0.00	0.00	0.01	594.80	595.00	595.00	**595.01**	596.50	1.49	4	2 G.I. w/S.I.	4.64
3	3		593.75																				Top of Pipe Elev =	**594.75**			3	Headwall	

MEAN FULL FLOW VELOCITY: $V = Q_{ACT.}/A_{PIPE}$
FRICTION LOSS (H_f) : $Hf = 2.87\ n^2\ (LV^2/d^{1.33})$
VELOCITY HEAD : $V_h = V^2/2g$

JUNCTION LOSES (JUNC.) = $[\ Q_{out}Vh_{out} - \text{Sum}\ (Q_{in}V_{in})]x1.33/[Q_{out}]$
BEND LOSES (BEND) = (V^h) * ANGLE COEFFICIENT
CURVE LOSS=V_h*CURVE COEFFICIENT

Note:
1. IF MORE THAN ONE INCOMING LINE, CALC. EACH BEND LOSS AND ADD TOGETHER.
2. NO STRUCTURE LOSES TO BE CALCULATED AT A DROP
3. IF $QV_{h(in)} > QV_{h(out)}$, NO JUNCTION LOSES TO BE CALCULATED.

Note(s):

Project name: *Public Works Salt Facility* — **Calculated By:** *Z.P.S.*
Project number: *223-7551.1* — **Checked By:** *G.M.S.*
Project Location: *St. Louis County, MO* — **Date:** *3/3/2026*

100-year / 20-minute Pipe Hydraulics

Bend Coefficients :

$5^0 = 0.06$	$20^0 = 0.24$	$35^0 = 0.4$	$50^0 = 0.50$	$65^0 = 0.57$	$80^0 = 0.65$
$10^0 = 0.11$	$25^0 = 0.30$	$40^0 = 0.43$	$55^0 = 0.52$	$70^0 = 0.60$	$85^0 = 0.67$
$15^0 = 0.18$	$30^0 = 0.35$	$45^0 = 0.47$	$60^0 = 0.55$	$75^0 = 0.62$	$90^0 = 0.70$

Revisions:

	LINE		FLOW LINE ELEVATIONS													HEAD LOSS					Hydraulic Elevations								
Structure Number	Upper structure	Lower structure	Upper structure	Lower Structure	Length (ft)	Flowline Grade ft/ft	Pipe Size (in.)	Full Flow Cap. (cfs)	Total (Q) (cfs)	Mean Full Flow Vel.(V) (ft/s)	Bend Coef.	Curve Coef.	Velocity Head (V_h) (ft)	QV_h (ft^4/s)	Pipe Coef. (n)	H_f (ft)	Junction (ft)	Bend (ft)	Curve (ft)	Total H_{mt}	Upper F.L + Dia.	Lower H.E. $+H_f$	Lower H.E.	Structure Upper H.E. + H_{mt}	Top/Sill Structure Elevation	Free Board	Structure Number	Remarks	Velocity Mannings Formula (ft/s)
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1.1	1.1	1	594.15	594.00	14.84	0.0101	12	3.59	0.60	0.76	0.00	0.00	0.01	0.01	0.013	0.00	0.01	0.00	0.00	0.01	595.15	595.00	595.00	**595.16**	597.45	2.29	1.1	Trench Drain	4.58
1	1		594.00																				Top of Pipe Elev =	**595.00**			1	Headwall	
4	4	3	593.80	593.75	4.80	0.0104	12	3.65	0.68	0.87	0.00	0.00	0.01	0.01	0.013	0.00	0.02	0.00	0.00	0.02	594.80	595.16	595.16	**595.18**	596.50	1.32	4	2 G.I. w/S.I.	4.64
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FRICTION LOSS (H_f) : $Hf = 2.87\ n^2\ (LV^2/d^{1.33})$
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Note(s):

SHEET NOTES

1. ALL STORM AND SANITARY AND APPURTENANCES TO BE DEDICATED TO MSD, OR TO BE PRIVATE UNDER MSD INSPECTION, SHALL CONFORM TO THE METROPOLITAN ST. LOUIS SEWER DISTRICT STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, 2009 OR LATEST EDITION. THAT WILL INCLUDE STANDARD DETAILS SHOWN THEREIN, AND SHALL INCLUDE ALL SUBSEQUENT CHANGES MADE THERETO.
2. ALL R.C.P. PIPE SHALL BE CLASS III, UNLESS OTHERWISE NOTED.
3. ALL P.V.C. SHALL BE SDR 35, UNLESS OTHERWISE NOTED.
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5. EXISTING UTILITIES TO BE FIELD LOCATED BOTH VERTICALLY AND HORIZONTALLY BY CONTRACTOR PRIOR TO COMMENCEMENT OF STORM OR SANITARY SEWER IMPROVEMENTS AND CONFORM TO OWNER AND ENGINEER IF ANY CONFLICTS EXIST. INVESTIGATORY EXPLORATION, POTHOLING AND/OR HAND DIGGING MAY BE REQUIRED.
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13. EXISTING STRUCTURE TBR&R, OR REHABILITATED, AT MSD FIELD INSPECTOR DISCRETION. IF STRUCTURE IS UIP, IT WILL BE ATG AS NECESSARY.

LINETYPE LEGEND

EXISTING GRADE......	— — — — — —
PROPOSED GRADE...	———————
HYDRAULIC GRADE...	—··—··—··—
PROPOSED PAVEMENT....	▨
GRANULAR BACKFILL...........	▨
COMPACTED FILL.................	▨

UTILITY CONFLICT NOTE:

CONTRACTOR SHALL NOTIFY THIS ENGINEER IMMEDIATELY OF ANY POTENTIAL UNDERGROUND UTILITY CONFLICT AT TIME OF EXCAVATION.

ALL DETAILS SHOWN ON THESE PLANS ARE FOR THE CONVENIENCE OF THE CONTRACTOR. THE DETAILS ARE TO BE VERIFIED PER MSD'S STANDARD CONSTRUCTION SPECIFICATIONS, 2009. ALL METHODS, MEANS AND MATERIALS SHALL CONFORM TO MSD CURRENT STANDARD CONSTRUCTION SPECIFICATION, 2009.

PREPARED BY:

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SITE IMPROVEMENT PLANS FOR:
CITY OF TOWN & COUNTRY MAINTENANCE ANNEX
849 SALT MILL ROAD
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GEORGE MICHAEL STOCK
NUMBER PE-25116
4/24/2026

GEORGE M. STOCK E–25116
CIVIL ENGINEER
CERTIFICATE OF AUTHORITY
NUMBER: 000996

REVISIONS:

1	2026–03–19 – REVIEW SET
2	2026–04–02 – CD SET
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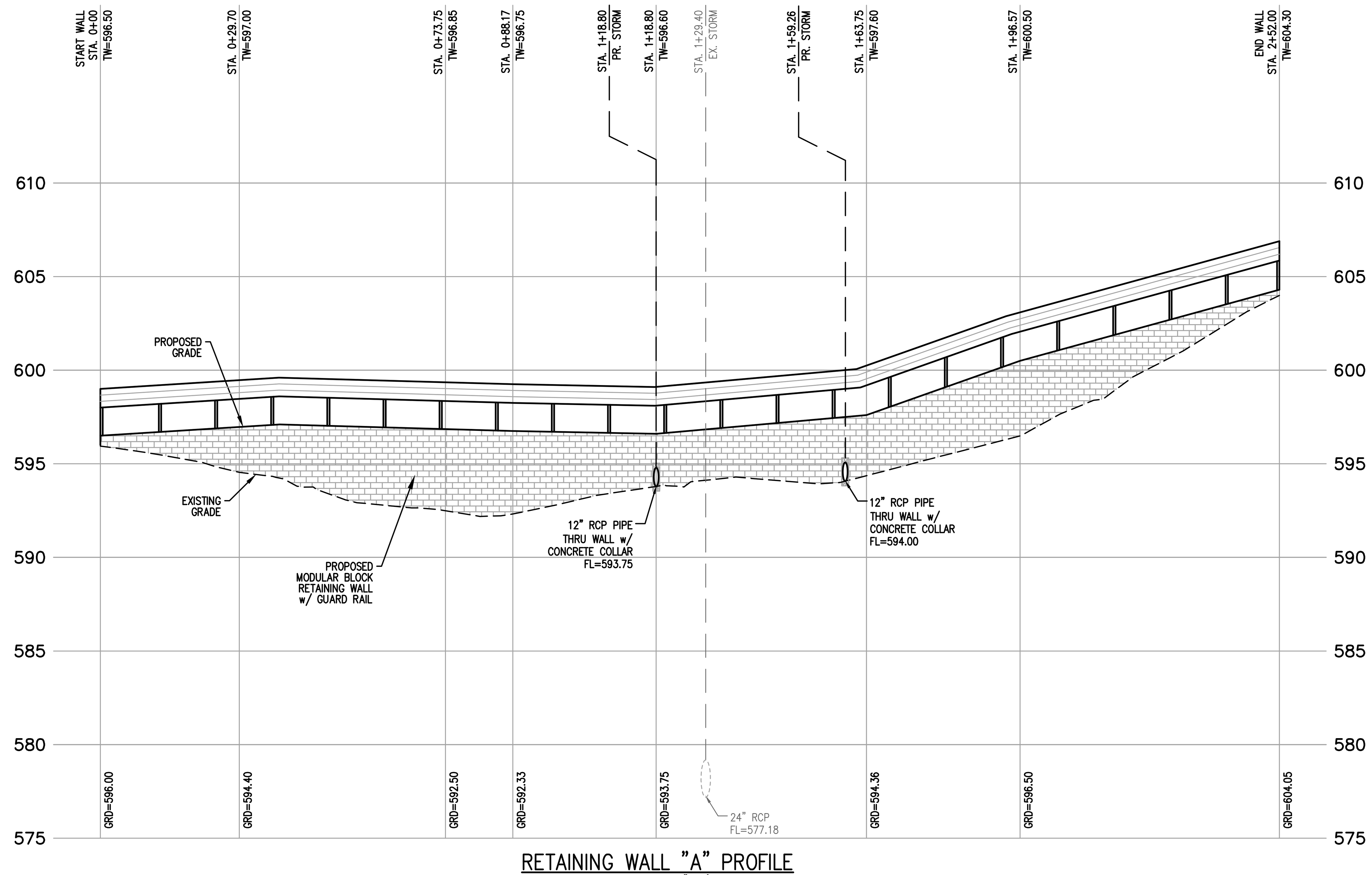
4	2026–04–24 – ADDENDUM 2

DRAWN BY: Z.P.S.	CHECKED BY: G.M.S.
DATE: 03/04/2026	JOB NO: 223–7551.1
M.S.D. #: 26MSD–00092	BASE MAP #: 20Q1
S.L.C. H&T #: –	H&T S.U.P. #: –
M.D.N.R. #: MORA–	

SHEET TITLE:
PROFILES AND DETAILS

SHEET NO.:
C8.0

DRAWING FILE: O:\DRAW7500\20237551\Civil\IPlans\7551-base.dwg LAYOUT: C08-0-Prof PLOTTED: Apr 24, 2026 - 8:26am PLOTTED BY: zachary.stutz



RETAINING WALL "A" PROFILE
HORIZ. SCALE: 1"=20'
VERT. SCALE: 1"=5'

RETAINING WALL NOTES:

1.) ALL CONSTRUCTION SHALL BE PER THE MANUFACTURERS RECOMMENDATION.

2.) SHOP DRAWINGS BEARING THE SEAL OF A REGISTERED ENGINEER IN THE STATE OF MISSOURI TO BE SUPPLIED TO THIS ENGINEER FOR APPROVAL.

3.) WALL SYSTEM FACE SHALL BE SPLIT FACE BLOCK AND NATURAL GREY IN COLOR, SUBJECT TO OWNER REVIEW AND APPROVAL.

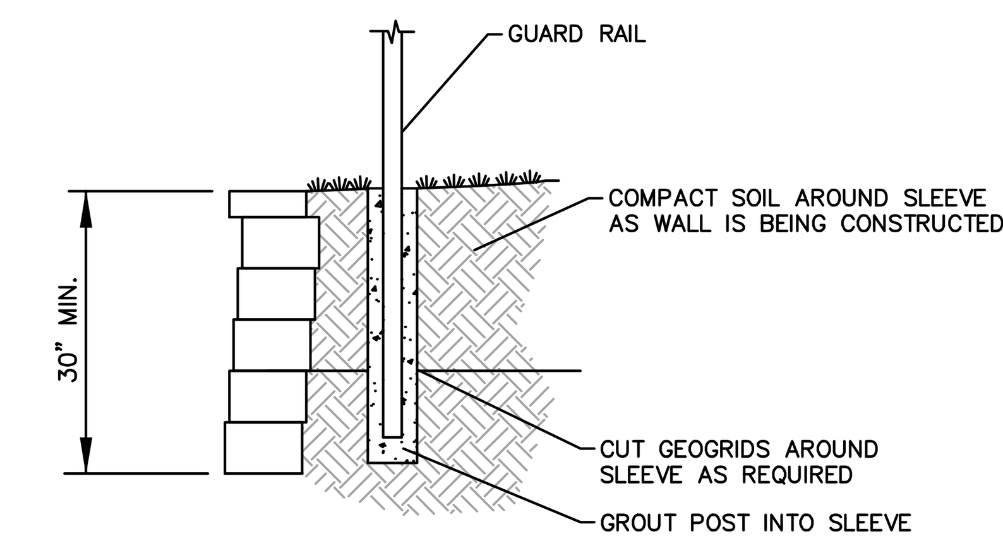
4.) TW= TOP OF RETAINING WALL, GRD= GRADE AT BASE OF WALL.

5.) RETAINING WALL DESIGN WILL BE SUBMITTED TO THE GOVERNING AGENCY.

6.) THE WALL PROFILE INFORMATION IS FOR CONCEPT ONLY. ACTUAL DESIGN OF RETAINING WALL SHALL BE BY A LICENSED PROFESSIONAL ENGINEER & SUBMITTED TO STOCK AND ASSOCIATES FOR GENERAL COMPLIANCE W/ GRADING PLAN.

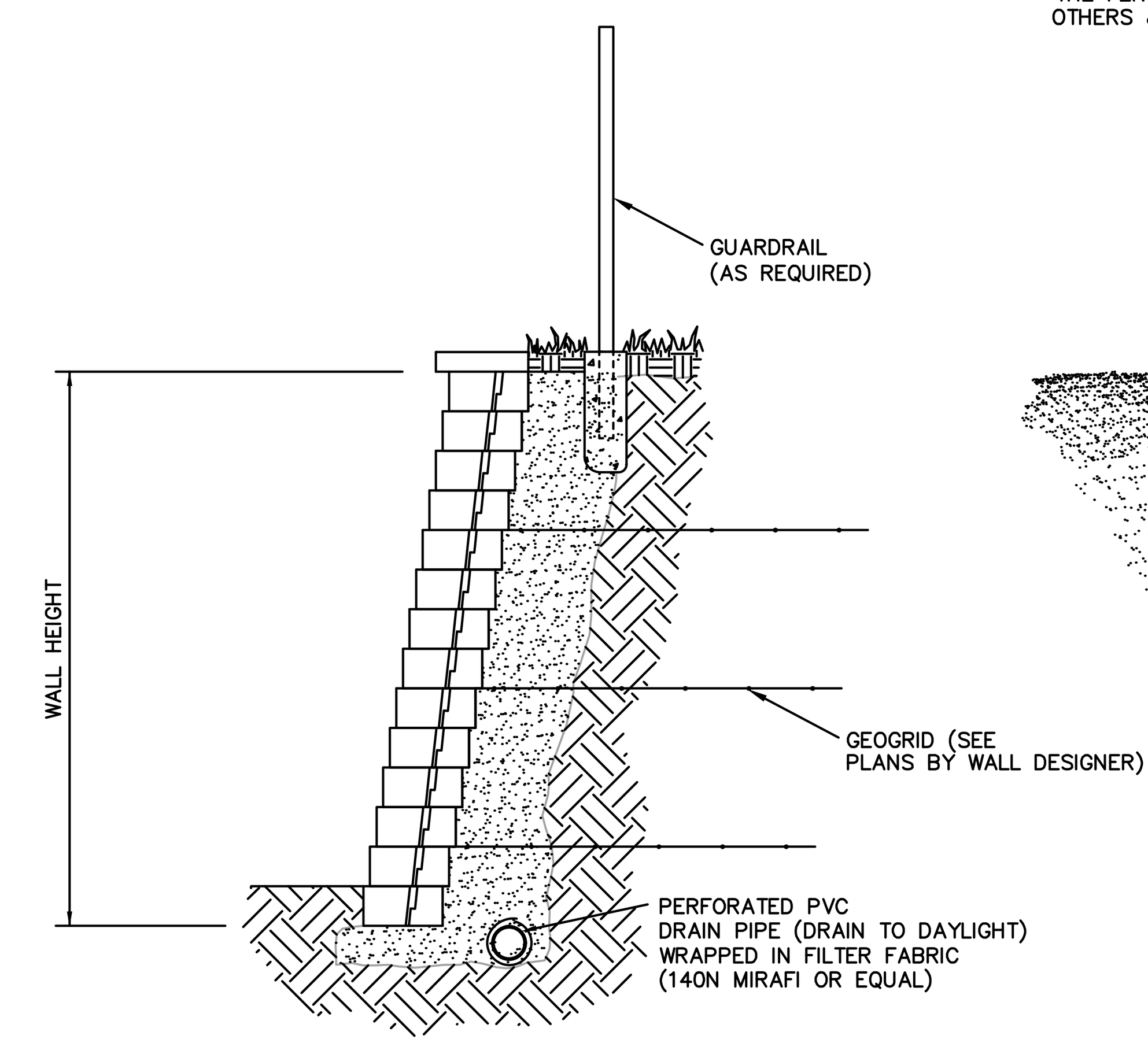
7.) THE WALL DESIGNER SHALL INCLUDE A "GLOBAL STABILITY ANALYSIS" WITH THE SUBMISSION OF PERMIT PLANS.

8.) WALL BATTER DESIGN SUBJECT TO WALL DESIGN, INCLUDING ZERO BATTER, AS MAY BE REQUIRED PER FIELD CONDITIONS.

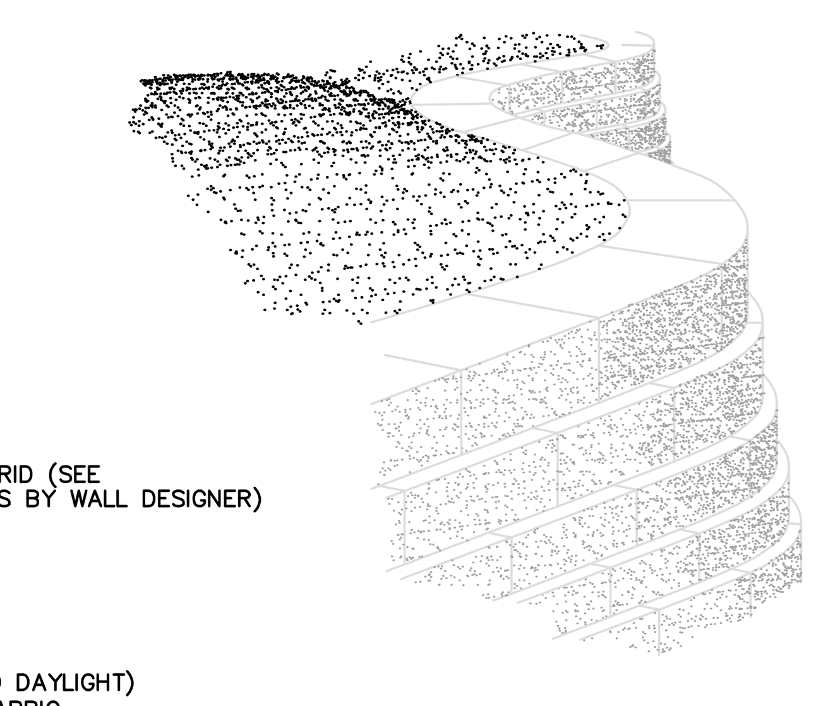


–PLACE SONOTUBE IN FILL AS BACKFILL IS BEING COMPACTED.
–THE FENCE DESIGN AND SUITABILITY IS THE RESPONSIBILITY OF OTHERS & SHALL BE PART OF WALL SHOP DRAWINGS.

FENCE DETAIL
NOT TO SCALE

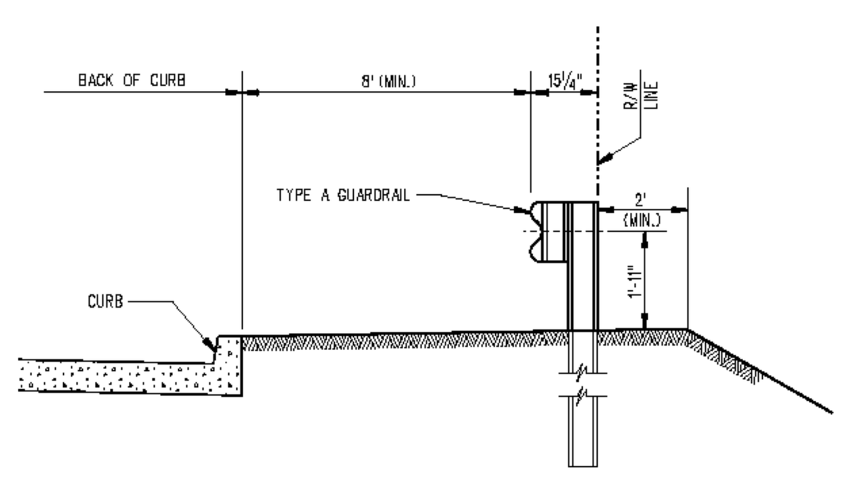


TYPICAL SECTION

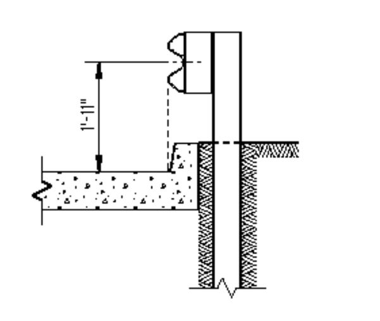


ISOMETRIC VIEW

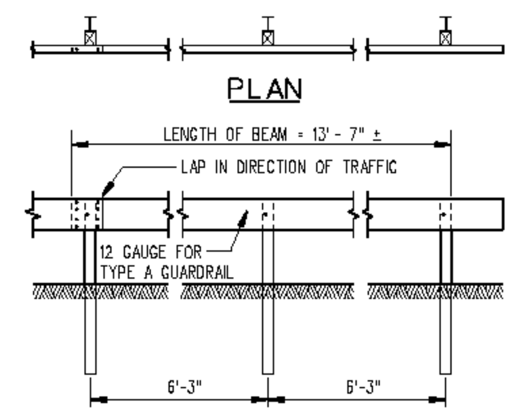
MODULAR BLOCK RETAINING WALL



TYPICAL SECTION
GUARDRAIL LOCATED BEHIND CURB

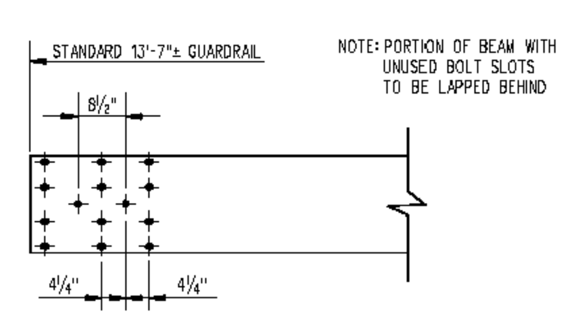


TYPICAL SECTION
GUARDRAIL LOCATED AT CURB FACE

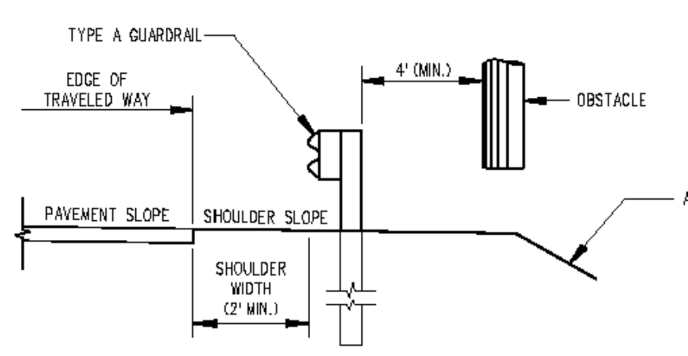


PLAN

ELEVATION



BEAM DETAILS SHOWING LOCATION OF ADDITIONAL BOLT SLOTS NECESSARY TO OBTAIN GUARDRAIL OFFSET



LATERAL PLACEMENT OF TYPE A GUARDRAIL
(LOCATION OTHER THAN ℄ MEDIAN)

1) WHERE OBSTACLE IS LESS THAN 4 FEET, BUT NOT LESS THAN 2 FEET, SEE DRAWING C606.03.

2) THE MINIMUM OFFSET TO THE OBSTACLE CAN BE ELIMINATED COMPLETELY BY ATTACHING THE RAIL TO A BRIDGE ANCHOR SECTION.

GENERAL NOTES

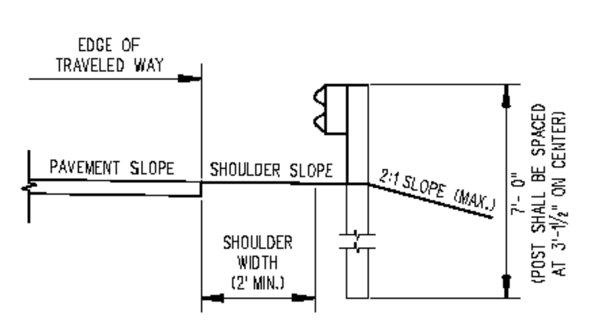
1) DO NOT SCALE DRAWING, FOLLOW DIMENSIONS.

2) THE DETAILS SHOWN ARE ADAPTED FROM THE MISSOURI DEPARTMENT OF TRANSPORTATION (MoDOT) STANDARD DRAWINGS.

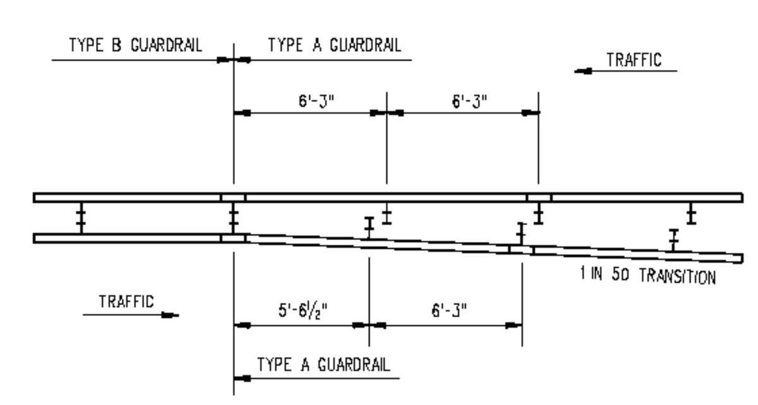
3) THE MINIMUM LENGTH OF THE "LENGTH OF NEED" SHALL BE 25 FEET.

4) FOR GUARDRAIL REQUIREMENTS, REFER TO THE CONSTRUCTION DETAILS FOR "GUARDRAIL", STANDARD DRAWINGS C606.01 THROUGH C606.06.

5) WHERE GUARDRAIL IS INSTALLED ADJACENT TO THE CURB, THE FACE OF THE GUARDRAIL SHALL BE FLUSH WITH THE FACE OF CURB OR SET BACK A MINIMUM OF 8 FEET FROM THE BACK OF CURB.



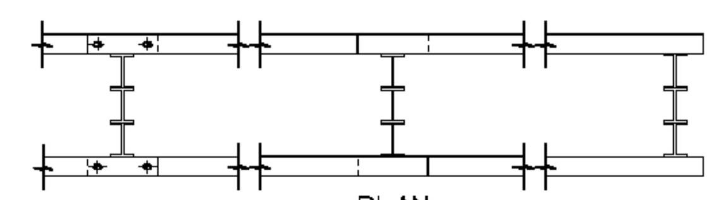
ALTERNATE TYPICAL SECTION AT SLOPE BREAKPOINT



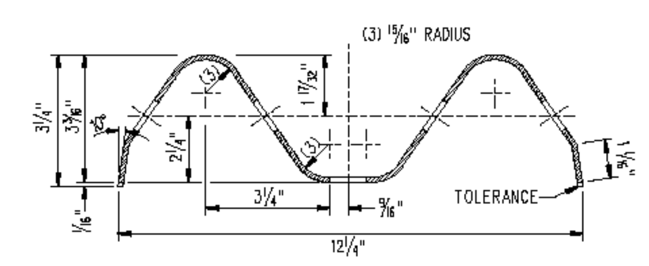
DETAIL FOR TRANSITIONING BETWEEN TYPE A AND TYPE B GUARDRAIL

ISSUE DATE	THIS IS NOT A CERTIFIED DOCUMENT	Saint Louis COUNTY TRANSPORTATION 1050 NORTH LINDBERGH BLVD. ST. LOUIS, MISSOURI 63132	GUARDRAIL CONSTRUCTION DETAILS
03/09/2020			GUARDRAIL
REVISIONS			

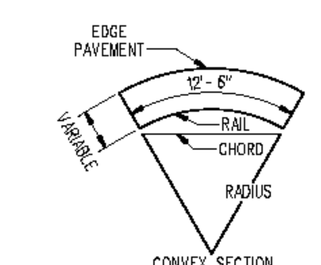
EFFECTIVE	SHEET	DRAWING
05/01/2020	1 OF 1	C606.01



PLAN



SECTION THRU BEAM



RADIUS FEET	CHORD FT. - INCHES
20	12' - 3-1/2"
25	12' - 4-1/2"
30	12' - 4-7/8"
35	12' - 5-1/4"
40	12' - 5-3/8"
45	12' - 5-1/2"
50	12' - 5-5/8"
55-70	12' - 5-3/4"
80-100	12' - 5-7/8"
105-150	12' - 5-15/16"

LENGTH OF CHORDS FOR 12'-6" ARC
(WITH VARIOUS RADII)

GENERAL NOTES

1) DO NOT SCALE DRAWING, FOLLOW DIMENSIONS.

2) THE DETAILS SHOWN ARE ADAPTED FROM THE MISSOURI DEPARTMENT OF TRANSPORTATION (MoDOT) STANDARD DRAWINGS.

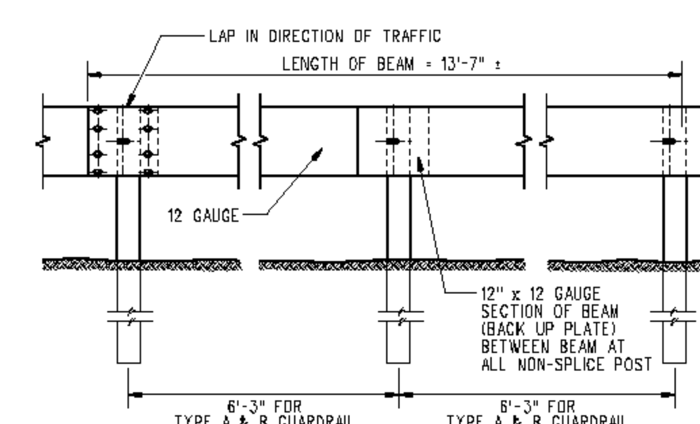
3) WASHERS SHALL BE OMITTED ON ALL CONNECTIONS ON TYPE A & TYPE B GUARDRAIL.

4) CONCRETE WHERE REQUIRED SHALL BE CLASS B OR OF A COMMERCIAL MIXTURE MEETING THE REQUIREMENTS OF THE STANDARS SPECIFICATIONS. NO DIRECT PAYMENT WILL BE MADE FOR THIS CONCRETE OR ANY ADDITIONAL WORK INVOLVED.

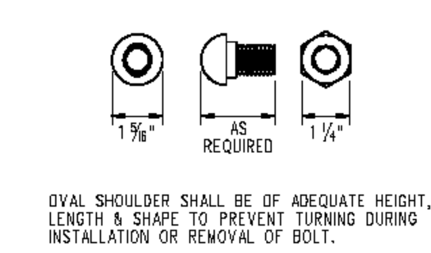
5) ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCE IS SHOWN.

6) HOLES IN SOLID ROCK SHALL PROVIDE A DIAMETER OF NOT LESS THAN 2 INCHES OR GREATER THAN THE MAXIUM TRANSVERSE DIMENSION OF THE POST SECTION.

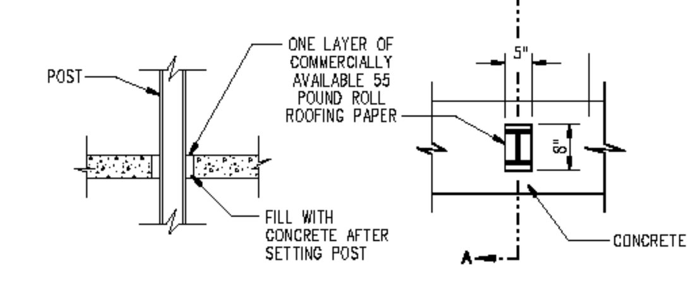
7) POST MAY BE SHORTENED WHERE PLACED IN 2 FEET OF SOLID ROCK. STEEL POSTS MAY BE FLAME OR SAW CUT. REPAIR OF CUTS SHALL BE IN ACCORDANCE WITH SECTION 712.14 OF THE STANDARD SPECIFICATIONS.



ELEVATION

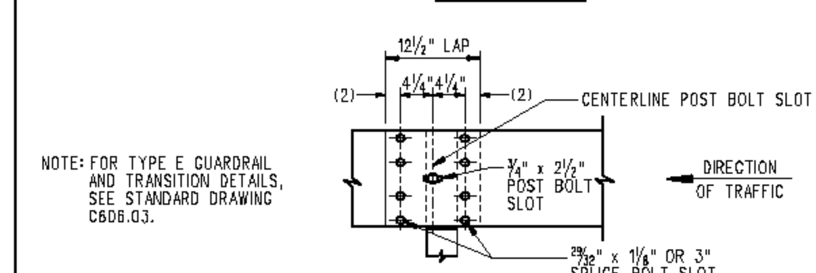


5/8" POST OR SPLICE BOLT

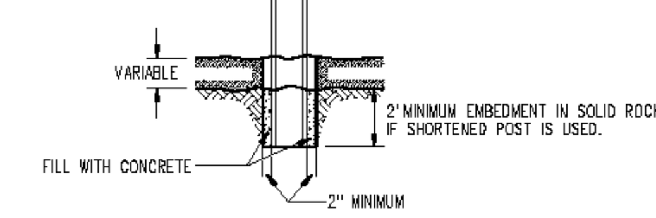


SECTION A-A PLAN

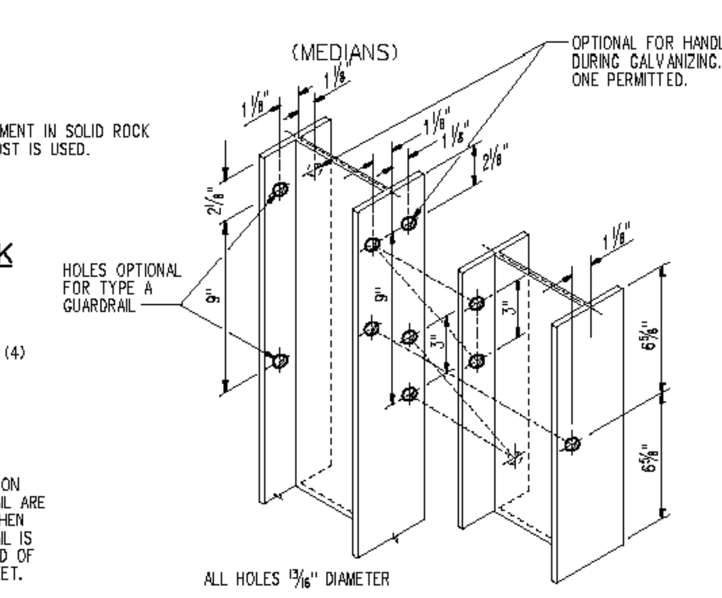
SETTING POST THRU CONCRETE



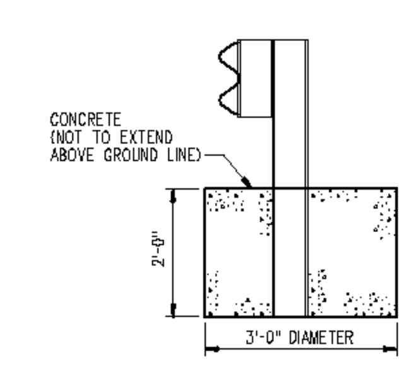
BEAM SPLICE AT POST
(TYPE A & B GUARDRAIL)



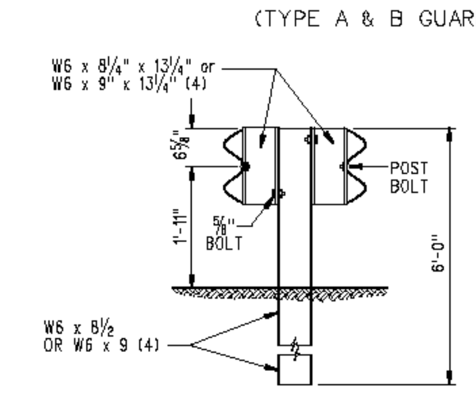
SETTING POST IN SOLID ROCK



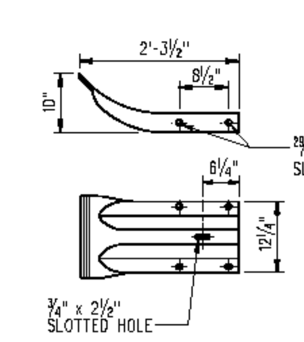
HOLE PUNCHING DETAIL
(FOR STEEL POSTS & BLOCKS)



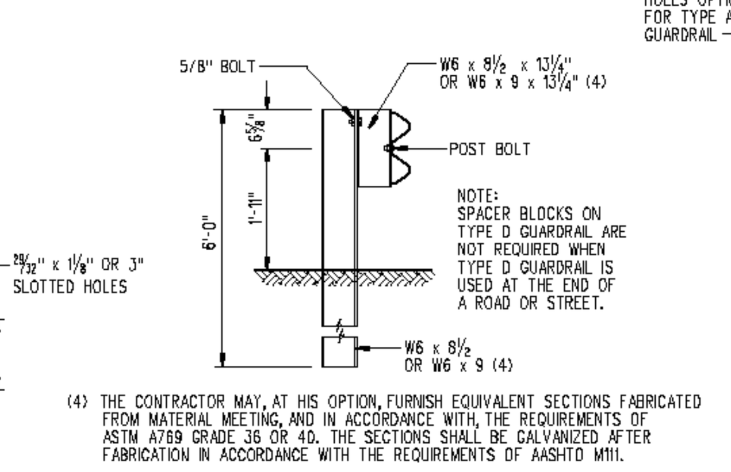
SETTING POST AT OBSTRUCTIONS
(WHERE POST CANNOT BE SET TO REQUIRED DEPTH DUE TO OBSTRUCTIONS)



TYPE B GUARDRAIL
(STEEL POST & BLOCK)



END SECTION
(12 GAUGE)



TYPE A GUARDRAIL
(STEEL POST & BLOCK)

ISSUE DATE	THIS IS NOT A CERTIFIED DOCUMENT	Saint Louis COUNTY TRANSPORTATION 1050 NORTH LINDBERGH BLVD. ST. LOUIS, MISSOURI 63132	GUARDRAIL CONSTRUCTION DETAILS
03/09/2020			GUARDRAIL
REVISIONS			

EFFECTIVE	SHEET	DRAWING
05/01/2020	1 OF 1	C606.02

PREPARED BY:
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e-mail: general@stockassoc.com
Web: www.stockassoc.com

SITE IMPROVEMENT PLANS FOR:
CITY OF TOWN & COUNTRY MAINTENANCE ANNEX
849 SALT MILL ROAD
TOWN & COUNTRY, MISSOURI

STATE OF MISSOURI
GEORGE MICHAEL STOCK
NUMBER PE-25116
PROFESSIONAL ENGINEER
4/24/2026
GEORGE M. STOCK E-25116
CIVIL ENGINEER
CERTIFICATE OF AUTHORITY
NUMBER: 000996

REVISIONS:

1	2026-03-19 – REVIEW SET
2	2026-04-02 – CD SET
3	2026-04-13 – MSD REVIEW
4	2026-04-24 – ADDENDUM 2

DRAWN BY: Z.P.S.	CHECKED BY: G.M.S.
DATE: 03/04/2026	JOB NO: 223-7551.1
M.S.D. #: 26MSD-00092	BASE MAP #: 20Q1
S.L.C. H&T #: –	H&T S.U.P. #: –
M.D.N.R. #: MORA–	

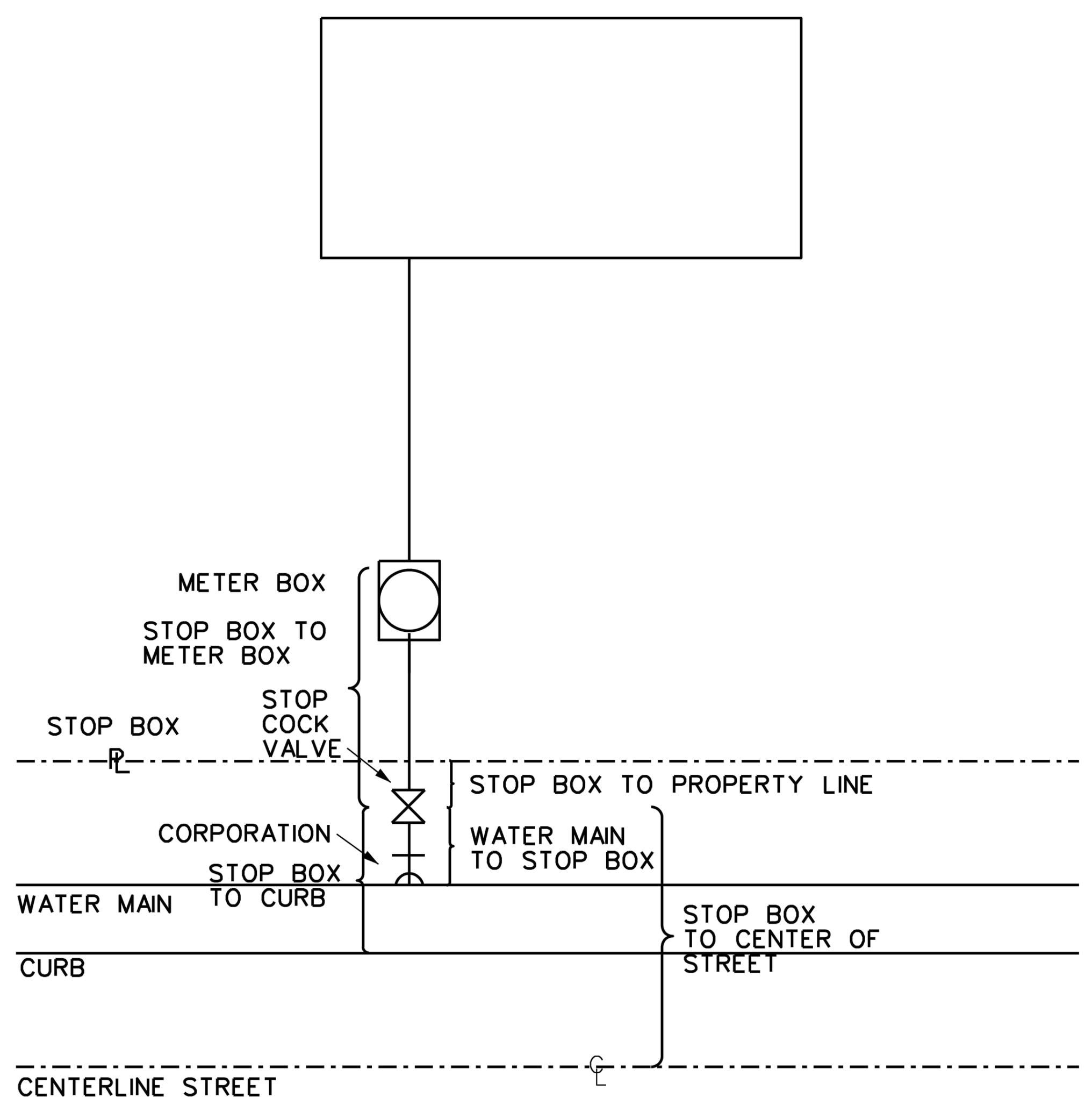
SHEET TITLE:
CONSTRUCTION DETAILS

SHEET NO.:
C9.0

MISSOURI AMERICAN WATER

ST. LOUIS COUNTY OPERATIONS

FILE NO. ______
INDEX NO. ______
ISSUED DATE 08-2020
AMENDED DATE ______



SUBJECT TO REVISION WITHOUT NOTICE 08/28/2020

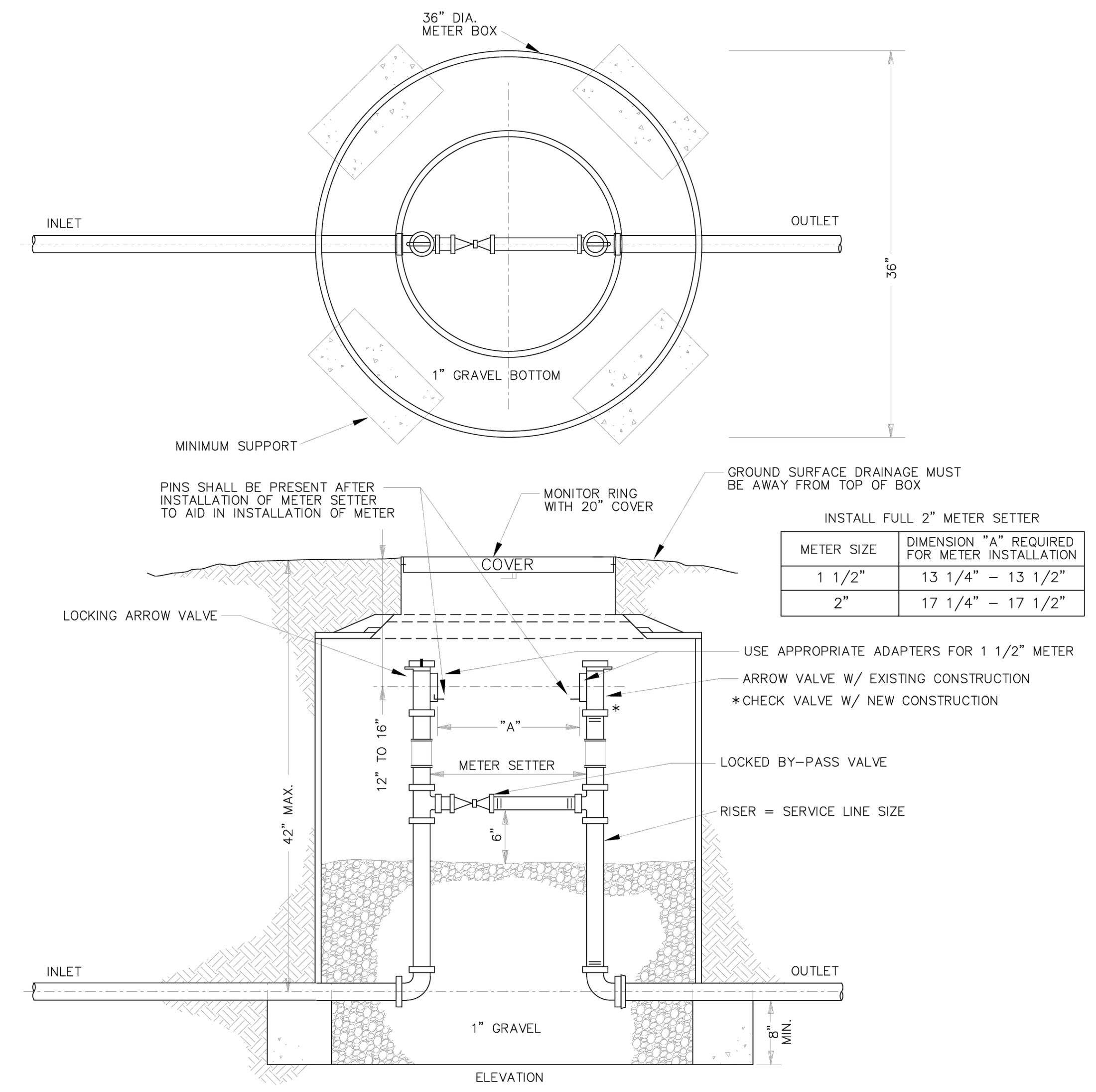
PRINT AND READ DISCLAIMER WITH ALL MAWC DRAWINGS

DOMESTIC SERVICE TAP INFORMATION

CAD /DISTRIB/DETAILS/SERVICES/SERVICE_20200828.DGN

MISSOURI AMERICAN WATER

FILE NO. ______
INDEX NO. ______
ISSUED DATE 04-2021
AMENDED DATE ______



INSTALL FULL 2" METER SETTER

METER SIZE	DIMENSION "A" REQUIRED FOR METER INSTALLATION
1 1/2"	13 1/4" – 13 1/2"
2"	17 1/4" – 17 1/2"

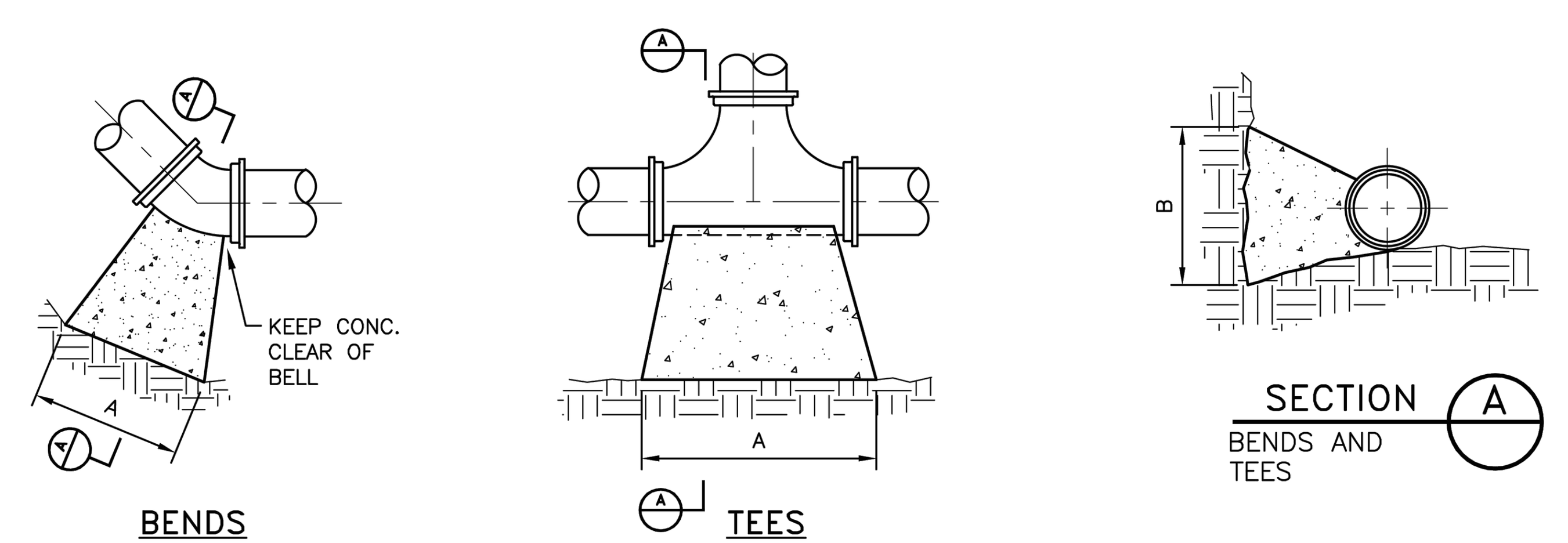
1. LIDS AND FRAMES OF OPENING TO BE SET IN PLACE NOT IN CONCRETE
2. METER SETTER MUST BE STAKED AND BANDED ON EACH END TO PROVIDE ADEQUATE SUPPORT
3. METER BOX TO BE LOCATED IN AREA OTHER THAN TRAFFICWAY AND WHERE SURFACE WATER WILL NOT DRAIN INTO IT.
4. COPPER OR HDPE (AS APPROVED BY MAWC) MUST EXTEND A MIN. OF 4' FROM OUTLET SIDE OF BOX.
5. SERVICE CONNECTION TO PUBLIC WATER MAIN WILL NOT BE MADE BEFORE METER PIT AND PIPING ARE COMPLETE UNLESS APPROVED BY AN AUTHORIZED COMPANY REPRESENTATIVE.
6. IF HDPE IS APPROVED AND UTILIZED, THE CORRECT METER SETTER TO BE USED WITH HDPE PIPING.

SUBJECT TO REVISION WITHOUT NOTICE 04-22-2021

PRINT AND READ DISCLAIMER WITH ALL MAWC DRAWINGS

METER BOX FOR 1 1/2"-2" RESIDENTIAL & COMMERCIAL SERVICES

CAD /DISTRIB/DETAILS/METERBOX/METERBOX_20200821.DWG



NOTES:

1. COVER OVER TOP OF PIPE SHALL BE 42". IF GRADING PLANS RECEIVED BY THE ENGINEER/OWNER WITH THE REQUEST FOR WATER MAIN LAYOUT, INDICATE ADJUSTMENTS TO EXISTING GRADE, THEN PIPE SHALL BE INSTALLED TO MEET MINIMUM AND MAXIMUM COVER FROM PROPOSED GRADES SHOWN ON SAID PLANS. TOP OF FINISH CONCRETE TO BE A MINIMUM OF 26" FROM FINISH GRADE.
2. THRUST BLOCKS SHALL BE BUILT AGAINST UNDISTURBED SOIL TO PREVENT MOVEMENT OF FITTING.
3. NO THRUST BLOCKS TO BE PLACED IN SEWER LATERAL DITCHES,.
4. THRUST BLOCKING MUST FIT IN EASEMENT, IN SOME CASES ADDITIONAL RESTRAINT MAY BE REQUIRED.
5. POLYETHYLENE ENCASEMENT ON ALL D.I. PIPE AND FITTINGS.
6. PIPE JOINTS AND BOLTS MUST BE ACCESSIBLE.
7. ALLOW SUFFICIENT CLEARANCE BETWEEN CONCRETE AND BOLTS FOR FUTURE MAINTENANCE.
8. ALL BOLTS SHALL BE PTFE POLYMER COATED BOLTS (EX. XYLAN, FLUOROKOTE #1), MINIMUM 1/2" DIAMETER. COAT EXPOSED ROD WITH APPROVED COATING AFTER CONCRETE HAS SET.
9. THRUST BLOCKING DETAILS ARE SHOWN HERE FOR TYPICAL INSTALLATIONS. IN SOME CASES, ADDITIONAL RESTRAINT MAY BE REQUIRED.
10. PORTLAND CEMENT CONCRETE USED FOR THRUST BLOCKS SHALL BE MIN 3000 PSI CONCRETE.
11. FOR UNSTABLE SOIL CONDITIONS, CHECK WITH ENGINEER FOR THRUST BLOCK DIMENSIONS.
12. FOR MAIN SIZES GREATER THAN 12", SEE ENGINEER FOR THRUST BLOCK DIMENSIONS.

REQUIRED MINIMUM BEARING AREA ON UNDISTURBED SOIL

	90 DEGREE BENDS	45 DEGREE BENDS	22.5 DEGREE BENDS	11.25 DEGREE BENDS	TEES/PLUGS
PIPE SIZE	AREA (SQ. FT.)	AREA (SQ. FT.)	AREA (SQ. FT.)	AREA (SQ. FT.)	AREA (SQ. FT.)
6	8.0	4.5	2.0	1.0	6.0
8	14.0	7.5	4.0	2.0	10.0
10	20.5	11.0	6.0	3.0	14.5
12	29.0	16.0	8.0	4.0	20.5

NOTES:

1. BEARING TABLE AREA IS BASED ON 200 PSI MAXIMUM WITH SOIL BEARING CAPACITY OF 2000 LBS/SQUARE FOOT WITH A 1.5 SAFETY FACTOR.
2. FOR HIGHER WATER PRESSURES OR LOWER SOIL PRESSURES, CONSULT ENGINEER FOR ADJUSTMENTS.
3. A SAFETY FACTOR AND ADDITIONAL BEARING AREA MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.
4. FOR DEVELOPER LAY PROJECTS, THE DEVELOPER SHALL VERIFY SOIL BEARING CAPACITIES.
5. SEE DWG. NO. 0201-0601-SD19 AND DWG. NO. 0201-0601-SD20 FOR ADDITIONAL BLOCKING INFORMATION.

REVISIONS

MISSOURI AMERICAN WATER STANDARD
CIVIL
THRUST BLOCK
DETAILS

MISSOURI AMERICAN WATER
ST. LOUIS, MO. 63141

MISSOURI AMERICAN WATER ENGINEERING
727 CRAIG ROAD
ST. LOUIS, MO. 63141

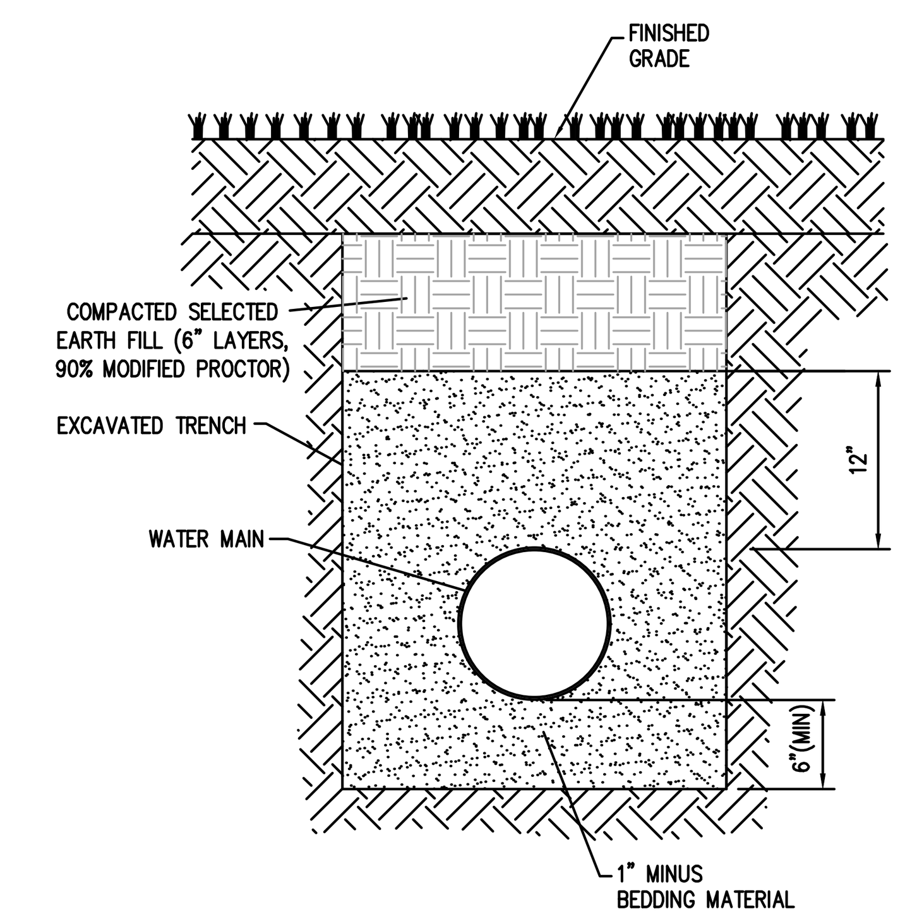
DRAWN BY KKM
PROJECT ENG'R
APPROVED
DATE 09-16-11
PROJECT IP

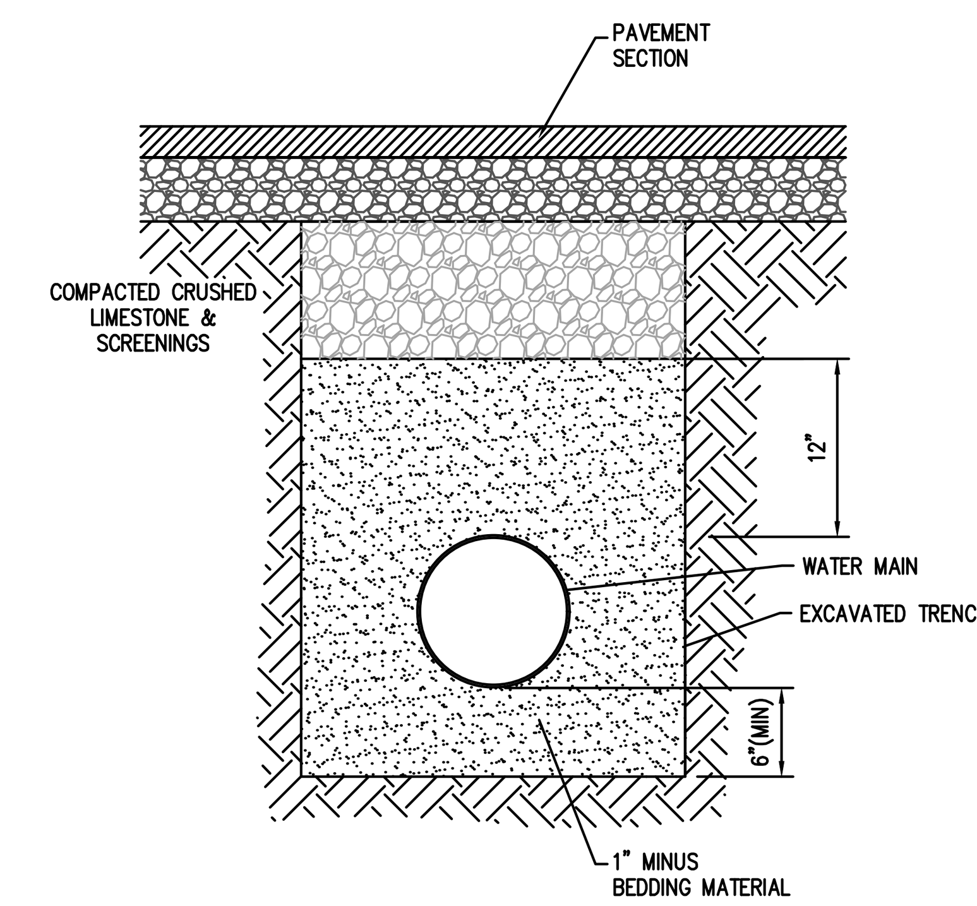
AMERICAN WATER
USE DIMENSIONS ONLY
SCALE N.T.S.

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

0201-0601-SD6

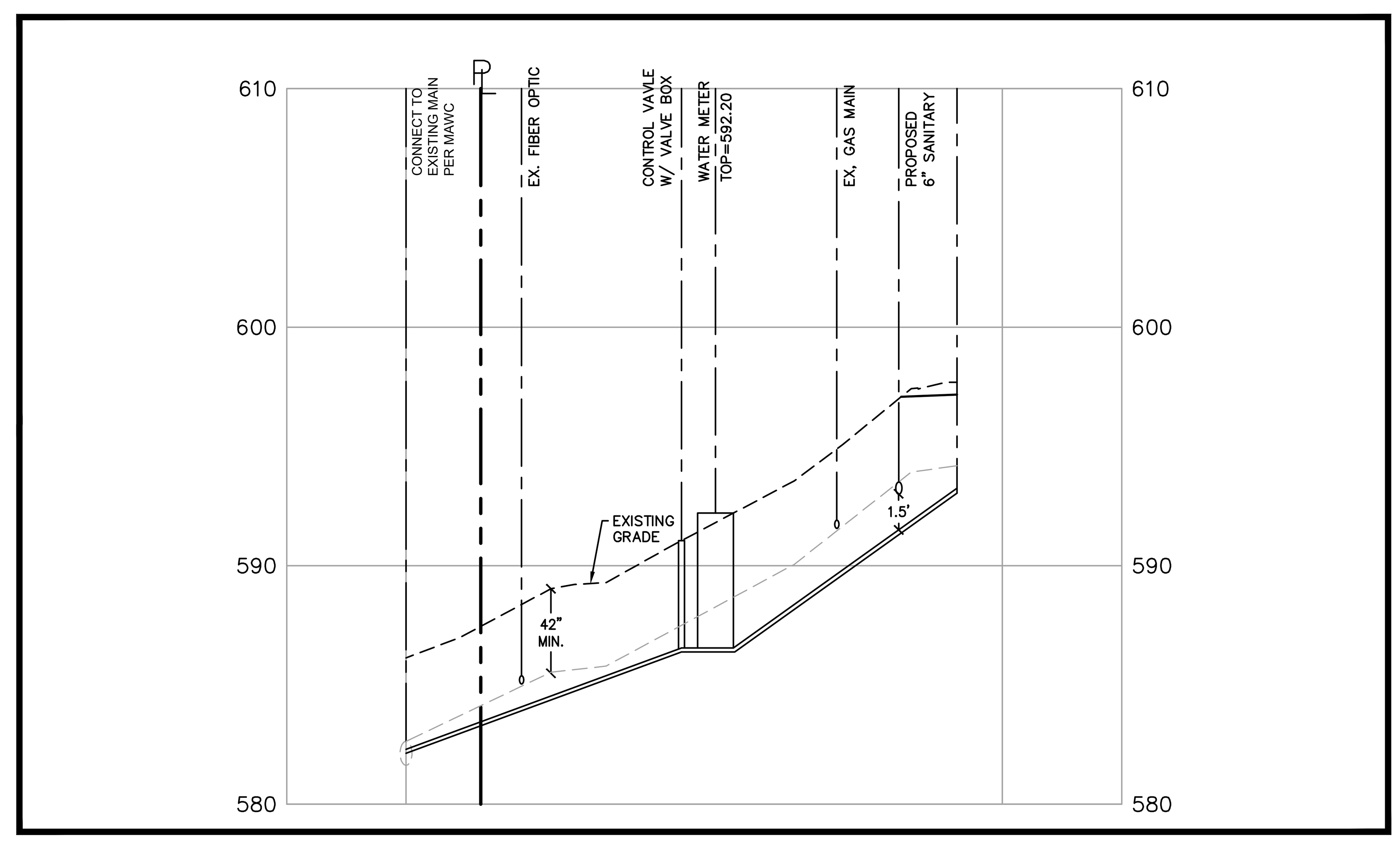
0201-0601-SD6





WATER SERVICE PIPE BEDDING DETAIL

(N.T.S.)
(NOT FOR USE IN MODOT R/W)



WATERLINE TAP PROFILE VIEW

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=20'

PREPARED BY:
STOCK & ASSOCIATES
Consulting Engineers, Inc.
257 Chesterfield Business Parkway
St. Louis, MO 63005 PH. (636) 530-9100 FAX (636) 530-9130
e-mail: general@stockassoc.com
Web: www.stockassoc.com

SITE IMPROVEMENT PLANS FOR:

CITY OF TOWN & COUNTRY MAINTENANCE ANNEX

849 SALT MILL ROAD
TOWN & COUNTRY, MISSOURI

STATE OF MISSOURI
GEORGE MICHAEL STOCK
NUMBER PE-25116
PROFESSIONAL ENGINEER
4/24/2026

GEORGE M. STOCK E-25116
CIVIL ENGINEER
CERTIFICATE OF AUTHORITY
NUMBER: 000996

REVISIONS:

1	2026-03-19 – REVIEW SET
2	2026-04-02 – CD SET
3	2026-04-13 – MSD REVIEW
4	2026-04-24 – ADDENDUM 2

DRAWN BY: Z.P.S.	CHECKED BY: G.M.S.
DATE: 03/04/2026	JOB NO: 223-7551.1
M.S.D. #: 26MSD-00092	BASE MAP #: 20Q1
S.L.C. H&T #: –	H&T S.U.P. # –
M.D.N.R. #: MORA-	

SHEET TITLE:
WATER SERVICE DETAILS

SHEET NO.:
C9.3

MISSOURI STATE PLANE GRID NORTH

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

DIFFERENTIAL RUNOFF SUMMARY (15 YR/20 MIN.)			
PRE-DEVELOPED SITE (2000 AERIAL)			
	ACRES	PI FACTOR	Q (CFS)
PERVIOUS	1.63	1.70	2.77
IMPERVIOUS	0.93	3.54	3.29
		TOTAL =	6.06

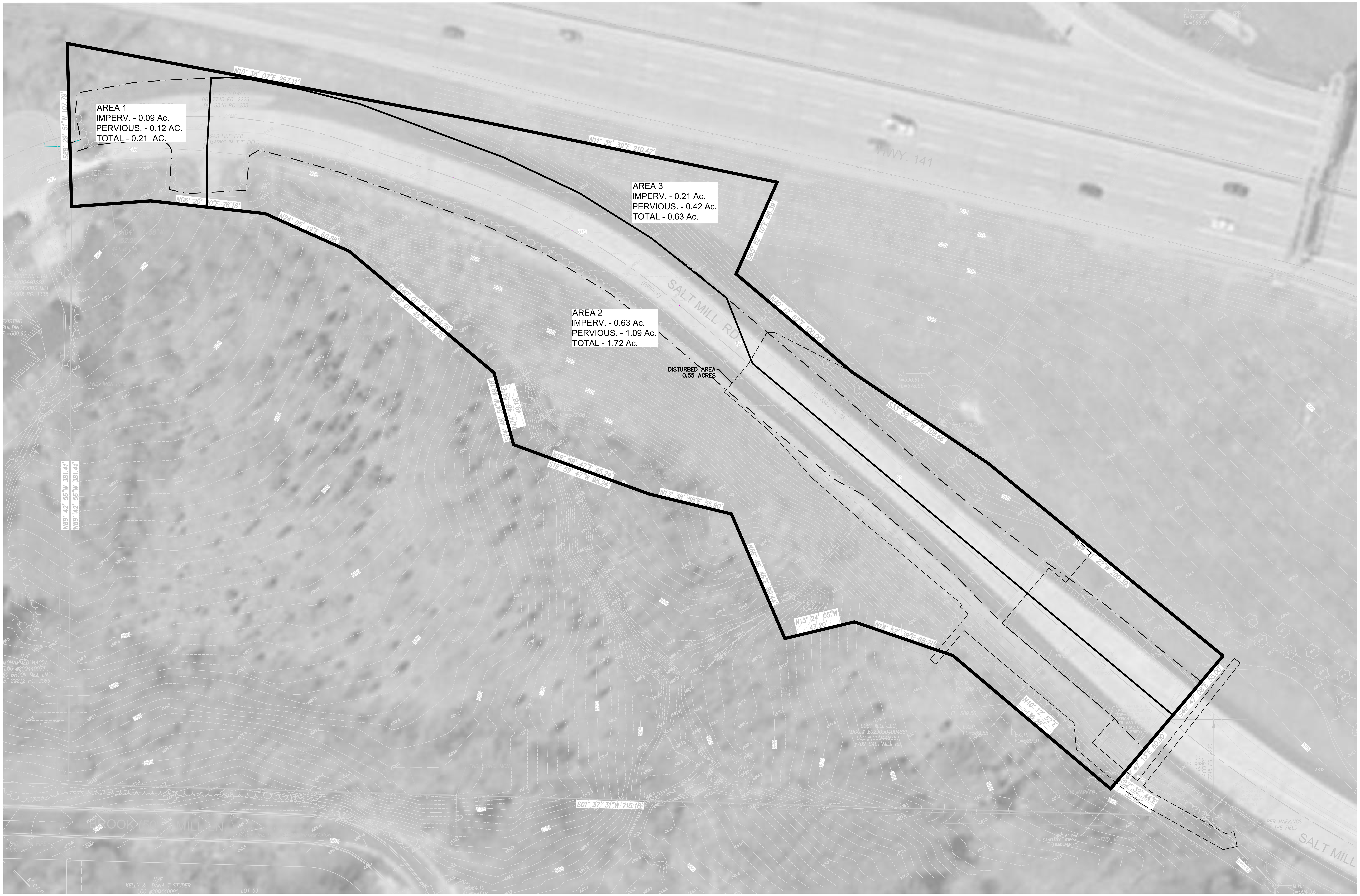
STORMWATER MANAGEMENT NOTE

PROJECT DISTURBANCE = 0.55 ACRES±
PROJECT RUNOFF DIFFERENTIAL = +0.33 CFS

ANY FUTURE LAND DISTURBANCE AND/OR INCREASE IN IMPERVIOUS AREA ON THIS SITE MAY REQUIRE ADDITIONAL STORMWATER MANAGEMENT PER MSD REGULATIONS IN PLACE AT THAT TIME (INCLUDING TOTAL LAND DISTURBANCE AND/OR IMPERVIOUSNESS ADDED TO THIS PLAN, 26MSD-00092)

EXISTING CONDITIONS NOTE

THE EXISTING AERIAL SHOWN PER 2000 AERIAL INFORMATION FROM ST. LOUIS COUNTY GIS SERVICES.



PREPARED BY:
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e-mail: general@stockassoc.com
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SITE IMPROVEMENT PLANS FOR:
CITY OF TOWN & COUNTRY MAINTENANCE ANNEX
849 SALT MILL ROAD
TOWN & COUNTRY, MISSOURI

STATE OF MISSOURI
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S.L.C. H&T #: –	H&T S.U.P. #: –
M.D.N.R. #: MORA–	

SHEET TITLE:
EXISTING DRAINAGE AREA MAP

SHEET NO.:
C10.0

MISSOURI STATE PLANE
GRID NORTH

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

DIFFERENTIAL RUNOFF SUMMARY (15 YR/20 MIN.)			
PRE-DEVELOPED SITE (2000 AERIAL)			
	ACRES	PI FACTOR	Q (CFS)
PERVIOUS	1.63	1.70	2.77
IMPERVIOUS	0.93	3.54	3.29
		TOTAL =	6.06
POST-DEVELOPED SITE			
	ACRES	PI FACTOR	Q (CFS)
PERVIOUS	1.45	1.70	2.47
IMPERVIOUS	1.11	3.54	3.93
		TOTAL =	6.39
DIFFERENTIAL = 0.33 CFS (INCREASE)			

Public Works Salt Facility 223-7551

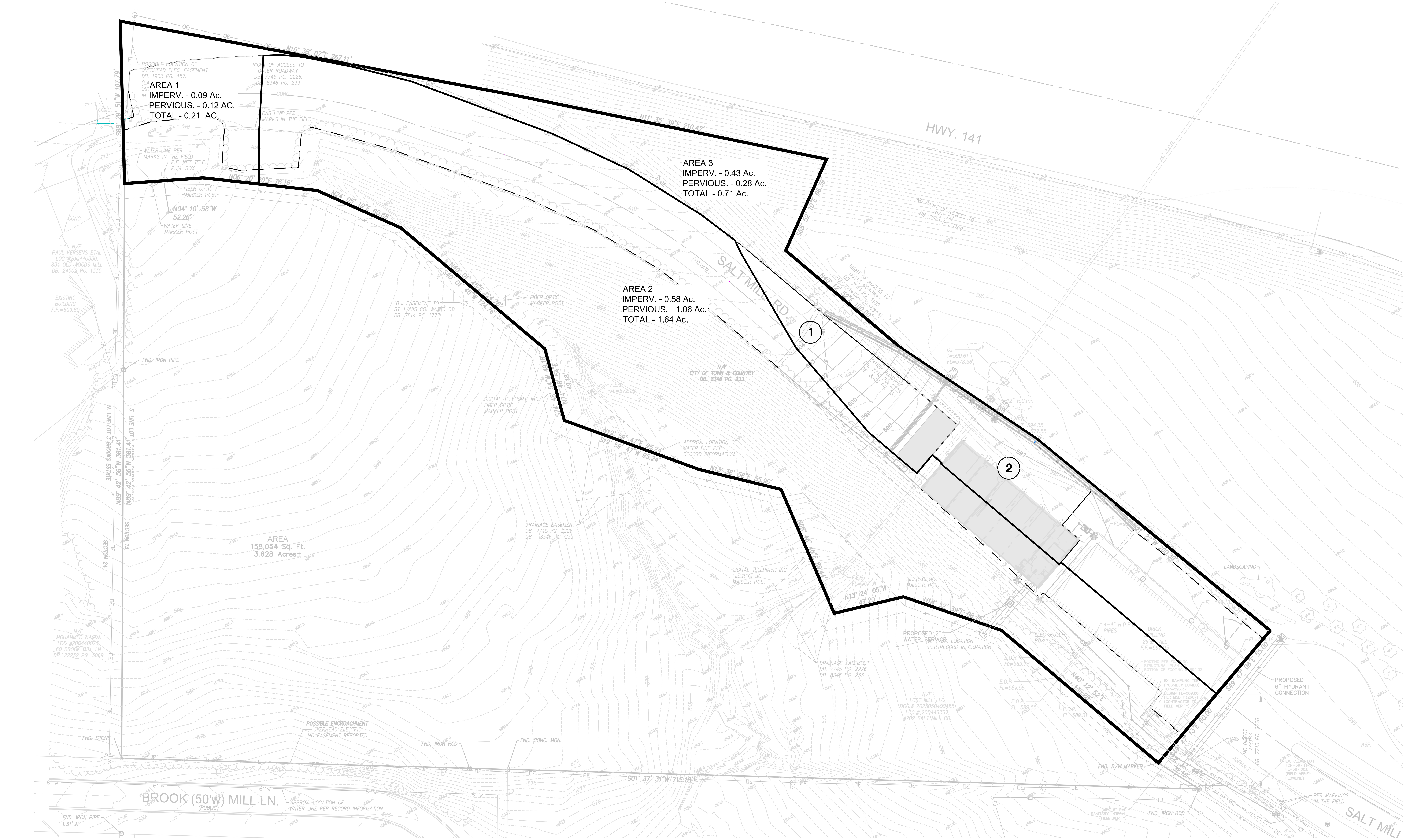
STORMWATER RUNOFF CALCULATIONS

15 YEAR P.I. FACTORS (CFS/ACRE)
Q(15) 5% = 1.70
Q(15) 100% (PAVEMENT) = 3.54
Q(15) 100% (ROOF) = 4.20

100 YEAR P.I. FACTORS (CFS/ACRE)
Q(100) 5% = 2.29
Q(100) 100% (PAVEMENT) = 4.77
Q(100) 100% (ROOF) = 5.64

POST-DEVELOPMENT RUNOFF Tc = 20 min.

SUBAREA	AREA (SQ FT) PERVIOUS	AREA (SQ FT) IMPERVIOUS	TOTAL AREA SQ FT	TOTAL AREA AC	PERVIOUS ACREAGE	PI (15) FACTOR	Q(15)	PI (100) FACTOR	Q(100)	IMPERVIOUS ACREAGE	PI(15) FACTOR	Q(15)	PI (100) FACTOR	Q(100)	TOTAL Q(15)	TOTAL Q(100)
1	0	5,500	5,500	0.13	0.00	1.70	0.00	2.29	0.00	0.13	3.54	0.45	4.77	0.60	0.45	0.60
2	0	6,225	6,225	0.14	0.00	1.70	0.00	2.29	0.00	0.14	3.54	0.51	4.77	0.68	0.51	0.68
	0	11,725		0.27											0.95	1.28



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SITE IMPROVEMENT PLANS FOR:
CITY OF TOWN & COUNTRY
MAINTENANCE ANNEX
849 SALT MILL ROAD
TOWN & COUNTRY, MISSOURI

STATE OF MISSOURI
GEORGE MICHAEL STOCK
NUMBER PE-25116
PROFESSIONAL ENGINEER
4/24/2026

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CIVIL ENGINEER
CERTIFICATE OF AUTHORITY
NUMBER: 000996

REVISIONS:

1	2026-03-19 – REVIEW SET
2	2026-04-02 – CD SET
3	2026-04-13 – MSD REVIEW
4	2026-04-24 – ADDENDUM 2

DRAWN BY: Z.P.S.	CHECKED BY: G.M.S.
DATE: 03/04/2026	JOB NO: 223-7551.1
M.S.D. #: 26MSD-00092	BASE MAP #: 20Q1
S.L.C. H&T #: –	H&T S.U.P. #: –
M.D.N.R. #: MORA–	

SHEET TITLE:
DRAINAGE AREA MAP - HYDRAULICS

SHEET NO.:
C11.0