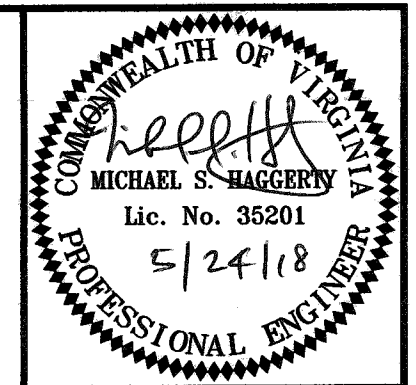




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COVER SHEET

FILLMORE STREET SEWER EXTENSION

CITY OF STAUNTON, VIRGINIA

REVISIONS	
05/15/18	PER CITY COMMENTS
DESIGNED BY: MSH	
DRAWN BY: JYG	
CHECKED BY: EEB	
SCALE: NOT TO SCALE	
DATE: 3-29-2018	
PROJECT NUMBER: 17020930-010303	
1	
1 OF 9	

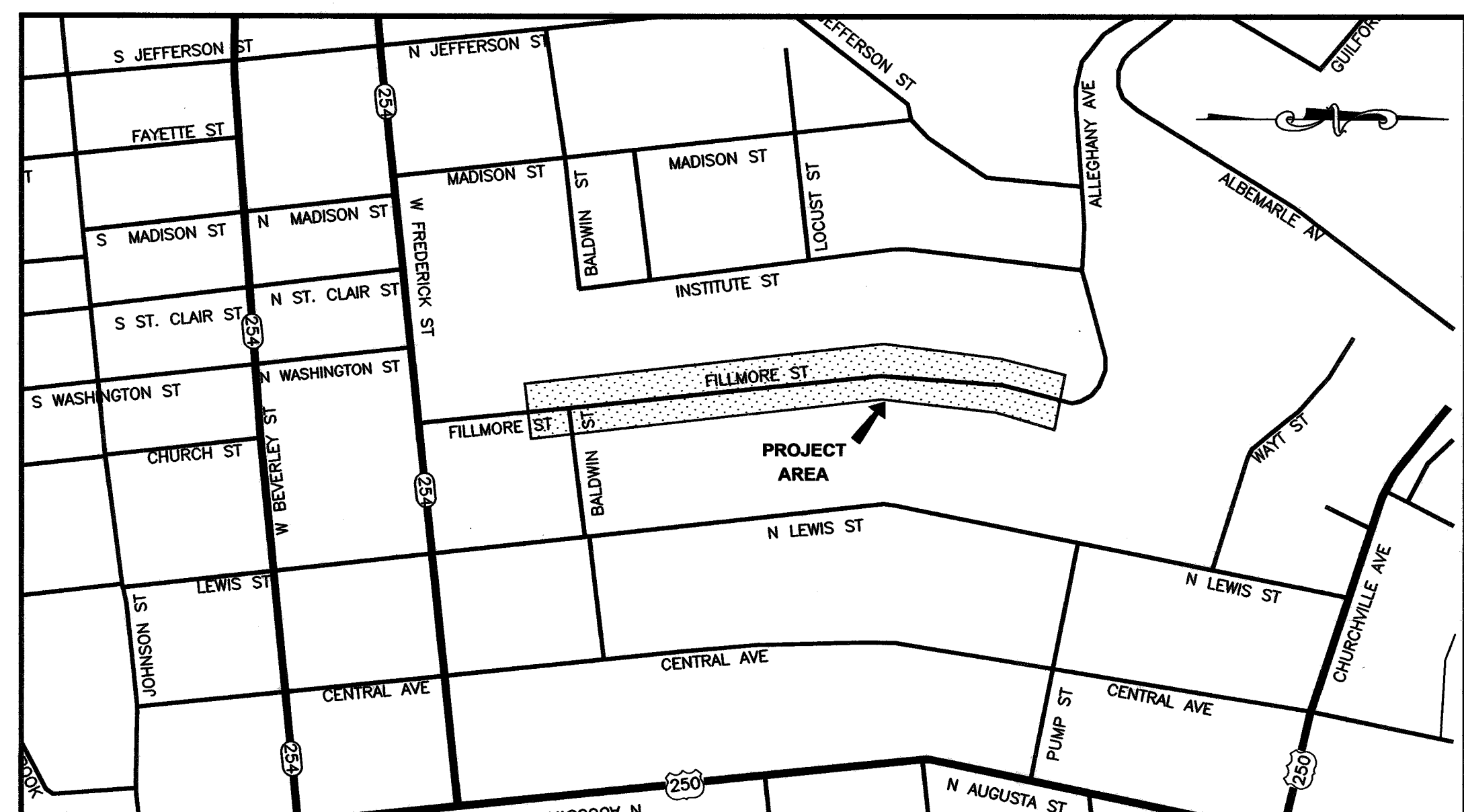
FILLMORE STREET SEWER EXTENSION

CITY OF STAUNTON, VIRGINIA

APRIL 2018

PROJECT# 17020930-010303

LEGEND	
EXISTING FEATURES:	NEW FEATURES:
DROP INLET & STORM SEWER	NEW SANITARY SEWER
STORM SEWER MANHOLE	NEW MANHOLE
SANITARY SEWER & MANHOLE	SANITARY SEWER TO BE ABANDONED
CLEANOUT	NEW LATERAL AND CLEANOUT
WATER MAIN	
WATER VALVE	
WATER METER	
CHECK VALVE	
FIRE HYDRANT	
WELL (POTABLE)	
GAS LINE	
GAS VALVE	
GAS DRIP	
POWER POLE	
LIGHT POLE / STREET LAMP	
MONITORING WELL	
OVERHEAD TELEPHONE LINE	
OVERHEAD POWER LINE	
OVERHEAD COMMUNICATION LINE	
CONTOUR LINE	
TREE LINE	
UNDERGROUND TELEPHONE	
UNDERGROUND POWER	
EDGE OF PAVEMENT	
BOLLARD	
WOODEN POST	
METAL POST	
BENCHMARK	
UTILITY DATA ACCORDING TO RECORD (NOT FIELD LOCATED)	
LIMITS OF ACTUAL TOPOGRAPHIC FIELD SURVEY	

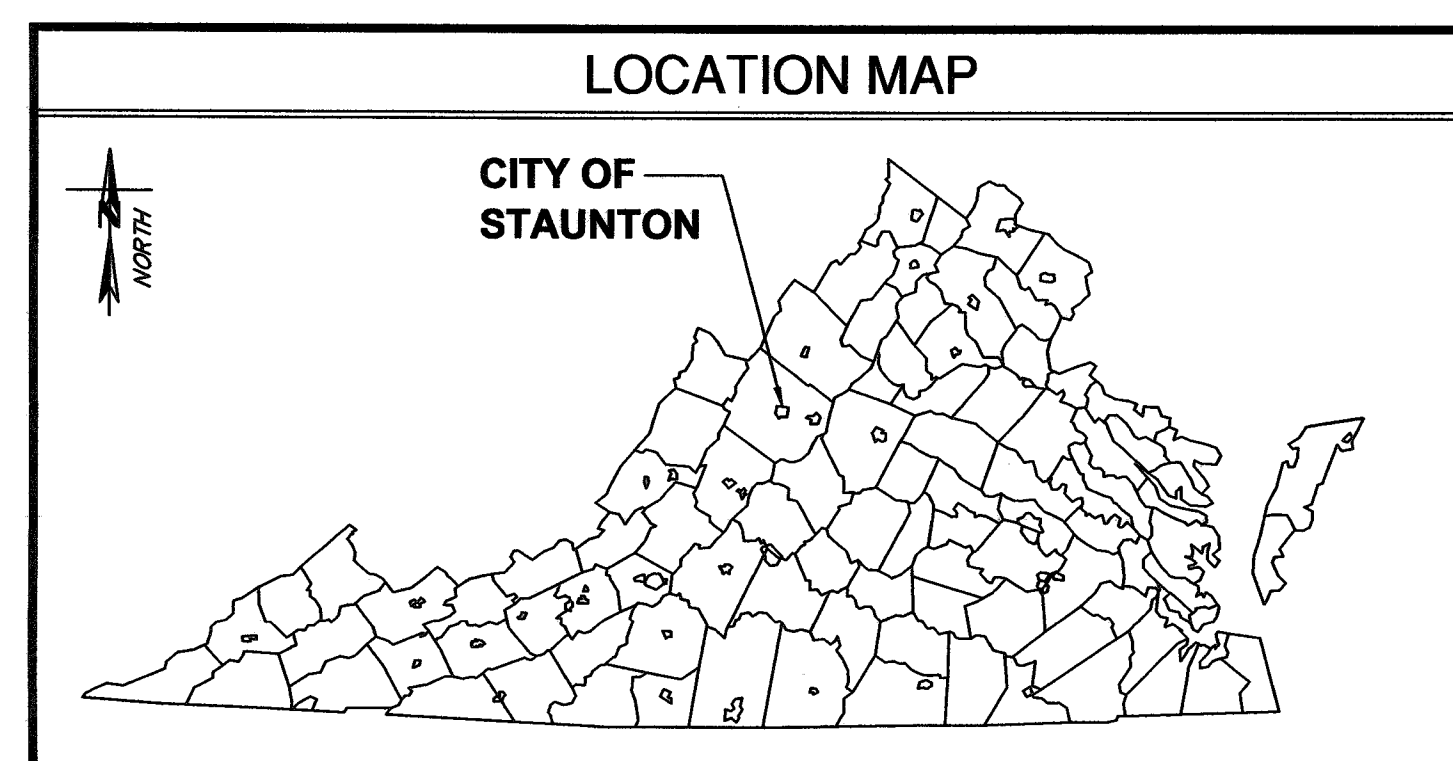


VICINITY MAP

"NOT TO SCALE"

DRAWING LIST	
NO.	DESCRIPTION
1	COVER SHEET
2	NOTES
3	INDEX SHEET
4-5	PLAN AND PROFILE
6	TRAFFIC CONTROL PLAN - TYPICAL WORK ZONES
7	TRAFFIC CONTROL PLAN
8-9	DETAILS

DRAPER ADEN ASSOCIATES REVIEW			
THESE PLANS HAVE BEEN SUBJECT TO TECHNICAL AND QUALITY REVIEWS BY:			
JAMEI Y. GIBSON		5-29-18	
NAME: PRINTED	SIGNATURE	DATE	
PROJECT DESIGNER			
MICHAEL S. HAGGERTY, P.E.		5/24/18	
NAME: PRINTED	SIGNATURE	DATE	
PROJECT MANAGER			
EDWARD BUCHANAN, P.E.		MAY 29, 2018	
NAME: PRINTED	SIGNATURE	DATE	
QUALITY REVIEWER			



LOCATION MAP

These documents, including drawings and specifications, were prepared by Draper Aden Associates, Consulting Engineers, pursuant to a contract by and between Draper Aden Associates and City of Staunton, Virginia with respect to the project described in said contract. Any reuse or modification of said documents (whether hard copy or electronic) without written verification or adaptation by Draper Aden Associates for the specific purpose intended will be at the sole risk of the individual or entity utilizing said documents, drawings and specifications and such use is without the authorization of Draper Aden Associates. Draper Aden Associates, Consulting Engineers, shall have no legal liability resulting from any and all claims, damages, losses, and expenses, including attorney's fees arising out of the unauthorized use of these documents, drawings, specifications, reports, and studies prepared as a result of the aforesaid contract.



NOTE: CONTRACTOR TO CONTACT MISS UTILITY (811) IN ADVANCE OF PLANNED WORK. ADVANCE TIME PERIOD SHALL BE IN ACCORDANCE WITH CURRENT MISS UTILITY GUIDELINES (www.missutilityofvirginia.com).

This project's existing topographic information and utility data was completed under the direct and responsible charge of ADAM R. STEVENS, from an actual ground or ☐ airborne survey made under my supervision; that the imagery and/or original data was obtained in March 2018; and that this plat, map or geospatial data including metadata meets minimum accuracy standards unless otherwise noted.

SIGNATURE

NAME (PRINT)

DATE

Data shown outside the limits of the actual field survey was obtained thus:

City of Staunton GIS Database on APRIL 2018

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE DRAWINGS, THE ACCOMPANYING PROJECT MANUAL AND THE LATEST EDITION OF THE CITY OF STAUNTON (CITY) INFRASTRUCTURE DESIGN & CONSTRUCTION STANDARDS AVAILABLE AT: [WWW.CI.STAUNTON.VA.US/DEPARTMENTS/ENGINEERING-DIVISION/DESIGN-CONSTRUCTION-STANDARDS](#). ADDITIONALLY, THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE VDOT ROAD & BRIDGE STANDARDS, VIRGINIA DEPARTMENT OF HEALTH WATERWORKS REGULATIONS, VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY SEWAGE COLLECTION AND TREATMENT (SCAT) REGULATIONS, AND ANY OTHER APPLICABLE STANDARDS.
2. ALL MATERIALS USED ON THIS PROJECT SHALL BE NEW AND COMPLY WITH THE LATEST REVISION OF THE APPLICABLE AMERICAN SOCIETY FOR TESTING & MATERIALS (ASTM), AMERICAN WATERWORKS ASSOCIATION (AWWA), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AND VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD & BRIDGE STANDARDS & SPECIFICATIONS UNLESS OTHERWISE NOTED.
3. AN APPROVED SET OF PLANS AND PERMITS SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES.
4. HORIZONTAL DATUM IS VIRGINIA STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD 83. VERTICAL DATUM IS NAVD 88.
5. THE CONTRACTOR SHALL HAVE A VALID MISS UTILITY TICKET PRIOR TO EXCAVATION. CONTACT MISS UTILITY AT 811 AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION.
6. THE LOCATION OF EXISTING UTILITIES, INCLUDING UNDERGROUND UTILITIES, IS INDICATED ON THE DRAWINGS INSOFAR AS THEIR EXISTENCE AND LOCATION WERE KNOWN AT THE TIME OF PREPARATION OF THE DRAWINGS. HOWEVER, NOTHING IN THESE CONTRACT DOCUMENTS SHALL BE CONSTRUED AS A GUARANTEE THAT SUCH UTILITIES ARE IN THE LOCATION INDICATED OR THAT THEY ACTUALLY EXIST, OR THAT OTHER UTILITIES ARE NOT WITHIN THE AREA OF OPERATIONS. THE CONTRACTOR SHALL MAKE ALL NECESSARY INVESTIGATIONS TO DETERMINE THE EXISTENCE AND LOCATIONS OF SUCH UTILITIES FAR ENOUGH IN ADVANCE TO ALLOW FOR ADJUSTMENT DUE TO CONFLICTS IN THE HORIZONTAL AND VERTICAL LOCATION OF THE PIPE. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO AND FOR MAINTENANCE AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES.
7. THE CONTRACTOR SHALL DIG AND LOCATE EXISTING UTILITIES IN ADVANCE OF PIPE LAYING TO ALLOW FOR HORIZONTAL AND VERTICAL ALIGNMENT ADJUSTMENTS IF NECESSARY.
8. FIELD CHANGES SHALL BE APPROVED BY THE CITY OF STAUNTON'S ENGINEERING DEPARTMENT PRIOR TO SUCH CONSTRUCTION.
9. PRIOR TO COMMENCING WORK, THE CONTRACTOR'S CERTIFIED RESPONSIBLE LAND DISTURBER SHALL OBTAIN AN EROSION AND SEDIMENT CONTROL PERMIT FOR THE PROJECT FROM THE LOCAL GOVERNING JURISDICTION. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND SHALL BE INSTALLED PRIOR TO CONSTRUCTION.
10. CONTRACTOR SHALL CONTINUOUSLY MAINTAIN RECORD DRAWINGS DURING THE PROGRESS OF THE WORK.
11. CONTRACTOR SHALL RECORD PRE-CONSTRUCTION AND POST-CONSTRUCTION VIDEOS TO DOCUMENT SITE CONDITIONS.
12. THE CONTRACTOR SHALL MAKE PROVISIONS TO PROVIDE ACCESS TO ALL PROPERTIES DURING CONSTRUCTION AND SHALL MAINTAIN ACCESSIBILITY TO FIRE HYDRANTS AT ALL TIMES.
13. SITE IS LOCATED IN A RESIDENTIAL AREA. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO MINIMIZE DISTURBANCES TO ADJACENT PROPERTIES, INCLUDING PREVENTION OF DUST/DEBRIS INTRUSIONS ONTO PROPERTIES.
14. CONSTRUCTION DEBRIS SHALL BE CONTAINERIZED IN ACCORDANCE WITH THE VIRGINIA LITTER CONTROL ACT.
15. ALL SALVAGE ITEMS REMOVED FROM THE PROJECT SHALL BE DEPOSITED AT THE CITY SALVAGE YARD.
16. FELLED TREES WITHIN THE CONSTRUCTION LIMITS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
17. UNREPAIRED ROADWAYS OPENED TO TRAFFIC SHALL HAVE, AT A MINIMUM, COMPACTED AGGREGATE MATERIAL VDOT 21A FLUSH WITH THE ADJACENT ROADWAY SURFACE AND SHALL BE INSPECTED AND REPAIRED ON A DAILY BASIS.
18. OPEN TRENCHES ARE LIMITED TO 100'. ALL TRENCHES SHALL BE BACKFILLED OR PLATED AT THE END OF EACH WORK DAY OR WHEN THE CONTRACTOR IS NOT ON SITE.
19. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED TO PRECLUDE THE PONDING OF WATER.
20. MAINTAIN 18" VERTICAL SEPARATION AT ALL SANITARY SEWER CROSSINGS AND 12" SEPARATION AT ALL STORM SEWER CROSSINGS. MAINTAIN 10' HORIZONTAL DISTANCE BETWEEN WATERLINES AND SANITARY SEWER LINES AND MANHOLES UNLESS OTHERWISE NOTED OR SHOWN ON THE PLANS.
21. UTILITY SERVICES SHALL BE UNINTERRUPTED UNLESS PRIOR APPROVAL IS GIVEN BY THE CITY ENGINEER. THE CONTRACTOR IS REQUIRED TO HANG (CITY PROVIDED) NOTICES ON ALL CUSTOMER DOORS 24 HOURS PRIOR TO UTILITY SHUT-OFFS.
22. COORDINATE WITH THE CITY OF STAUNTON ENGINEERING DEPARTMENT FOR EQUIPMENT STAGING AND STORAGE LOCATIONS PRIOR TO MATERIALS BEING DELIVERED TO THE SITE.

EROSION CONTROL NARRATIVE

A. PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE INSTALLATION OF APPROXIMATELY 975 LINEAR FEET OF NEW 8" GRAVITY SEWER AND ALL ASSOCIATED APPURTENANCES (SEWER LATERALS, MANHOLES).

THE WORK SHALL TAKE PLACE WITHIN THE RIGHT-OF-WAY OF FILLMORE STREET AND BALDWIN STREET. THE TOTAL TEMPORARY DISTURBED AREA FOR THIS PROJECT IS APPROXIMATELY 0.11 ACRES.

B. EXISTING SITE CONDITIONS

THE PROJECT SITE IS WITHIN THE PAVED AREAS OF FILLMORE STREET AND BALDWIN STREET.

THERE WILL BE NO CHANGES TO EXISTING DRAINAGE PATTERNS AS A RESULT OF THIS PROJECT. ALL AREAS EXCAVATED DURING INSTALLATION OF THE NEW GRAVITY SEWER AND APPURTENANCES WILL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS.

C. ADJACENT PROPERTY

THIS PROJECT IS COMPLETELY WITHIN THE CITY OF STAUNTON, VIRGINIA AND IS ENTIRELY WITHIN THE RIGHT-OF-WAY OF FILLMORE STREET BETWEEN BALDWIN STREET AND ALLEGHANY AVENUE.

D. PLANNED OFF-SITE ACTIVITIES

NO OFF-SITE ACTIVITIES ARE PLANNED.

E. CRITICAL EROSION AREAS

THERE ARE NO GROUND SLOPES ALONG THE NEW GRAVITY SEWER ALIGNMENT THAT ARE 3:1 OR STEEPER. SILT FENCE INSTALLED AS PART OF THIS PROJECT SHALL BE CHECKED REGULARLY TO ENSURE THEY ARE FUNCTIONING PROPERLY.

F. EROSION AND SEDIMENT CONTROL MEASURES

1. **SILT FENCING – 3.05**
SILT FENCE SEDIMENT BARRIERS WILL BE INSTALLED DOWN SLOPE OF MINIMAL GRADED AREAS TO FILTER SEDIMENT LADEN RUNOFF.
2. **STORM DRAIN INLET PROTECTION – 3.07**
STORM DRAIN INLET PROTECTION SHALL BE INSTALLED AT ALL STORM DRAINS WHERE THERE IS A POTENTIAL FOR SEDIMENT LADEN RUNOFF TO PREVENT SEDIMENT FROM ENTERING, ACCUMULATING IN, AND BEING TRANSFERRED BY THE STORM DRAIN SYSTEM.
- G. **VEGETATIVE PRACTICES GENERAL:**
A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED BY CONCRETE OR PAVEMENT. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION. NEW VEGETATION SHALL BE MAINTAINED FOR ONE FULL YEAR AFTER PLANTING. NEW SEEDING SHALL BE SUPPLIED WITH ADEQUATE MOISTURE, ESPECIALLY LATE IN THE SEASON, AND IN ABNORMALLY HOT OR DRY WEATHER. STABILIZATION PRACTICES SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE APPROPRIATE VESCH STANDARD AND SPECIFICATION, AND AS PER EROSION AND SEDIMENT CONTROL PLAN. SELECTION OF THE APPROPRIATE SEED MIXTURE FOR TEMPORARY SEEDING WILL DEPEND UPON THE TIME OF YEAR IT IS APPLIED.

1. **TEMPORARY SEEDING – 3.31**
TEMPORARY SEEDING SHALL BE APPLIED OVER CLEARED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE WITHIN 14 DAYS. TEMPORARY SEEDING MIXES SHALL BE AS DESCRIBED IN VESCH STANDARD AND SPECIFICATION 3.31.
- SEQUENCE OF INSTALLATION: WHEN CLEARED AREAS WILL NOT BE BROUGHT TO FINAL GRADE WITHIN 14 DAYS.
 - MAINTENANCE: REFER TO STANDARD & SPECIFICATION 3.31; AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION ARE TO BE RESEDED.
 - REMOVAL EVENT: AS NEEDED FOR FINAL GRADING.
2. **PERMANENT SEEDING – 3.32**
PERMANENT SEEDING SHALL ALSO BE USED ON ALL AREAS THAT ARE NOT AT FINAL GRADE AND THAT WILL BE LEFT DORMANT FOR A PERIOD OF MORE THAN 1 YEAR. IF CONFLICTS EXIST BETWEEN THE PROJECT SPECIFICATIONS AND THE VESCH STANDARD & SPECIFICATION 3.32, THE MORE STRINGENT REQUIREMENT SHALL APPLY. PERMANENT SEEDING MIXES AND RATES ARE FOUND IN THE VESCH STANDARD & SPECIFICATION 3.32.
- SEQUENCE OF INSTALLATION: WITHIN 7 DAYS OF ACHIEVING FINAL GRADE.
 - SOIL TESTING REQUIREMENTS: REFER TO STANDARD & SPECIFICATION 3.32.
 - MAINTENANCE: REFER TO STANDARD & SPECIFICATION 3.32; AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION ARE TO BE IMMEDIATELY RESEDED, FOLLOWING IDENTIFICATION OF THE CAUSE OF POOR GERMINATION.

H. MULCHING – 3.35

APPLICATION OF PLANT RESIDUES OR OTHER SUITABLE MATERIALS TO THE SOIL SURFACE TO PREVENT EROSION BY PROTECTING THE SOIL SURFACE FROM RAINDROP IMPACT AND REDUCING THE VELOCITY OF OVERLAND FLOW. IT IS ALSO USED TO FOSTER THE GROWTH OF VEGETATION BY INCREASING AVAILABLE MOISTURE AND PROVIDING INSULATION AGAINST EXTREME HEAT AND COLD.

I. MAINTENANCE

PRIOR TO ANY LAND DISTURBING ACTIVITY, CONTRACTOR SHALL PROVIDE THE NAME, CERTIFICATION INFORMATION, AND CONTACT INFORMATION OF THE DESIGNATED RESPONSIBLE LAND DISTURBER (RLD) TO DOR. IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED AT LEAST EVERY TWO WEEKS AND/OR AFTER EACH SIGNIFICANT RAINFALL. DURING CONSTRUCTION, THE CONTRACTOR'S DESIGNATED RLD WILL BE RESPONSIBLE TO INSPECT AND REPAIR DAMAGED EROSION/SEDIMENT CONTROL MEASURES. THE FOLLOWING ITEMS WILL BE CHECKED IN PARTICULAR:

1. THE SILT FENCE BARRIER WILL BE CHECKED REGULARLY FOR UNDERMINING OR DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT DEPOSITION REACHES HALF WAY TO THE TOP OF BARRIER.
2. THE SEEDED AREAS WILL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED AND RESEDED AS NEEDED. REFER TO ESC TECHNICAL BULLETIN #4.
3. PROVIDE REMEDIAL STABILIZATION AND SEEDING FOR A PERIOD OF ONE YEAR AFTER CONSTRUCTION.

EROSION AND SEDIMENT CONTROL NOTES

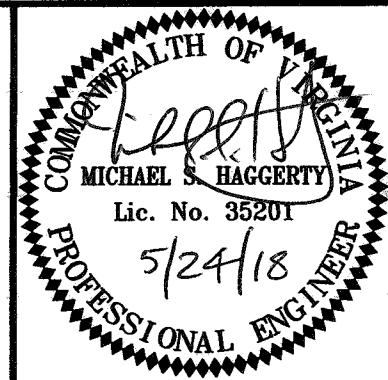
1. **ES-1**, UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, AND VIRGINIA REGULATIONS VR 4VAC50-30 EROSION AND SEDIMENT CONTROL REGULATIONS.
2. **ES-2**, THE CITY OF STAUNTON MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
3. **ES-3**, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING, GRADING OR LAND-DISTURBING AND SEQUENCE OF CONSTRUCTION APPROVED.
4. **ES-4**, A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
5. **ES-5**, PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
6. **ES-6**, INSTALL ADDITIONAL EROSION CONTROL MEASURES AS NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE DIVISION OF SOIL AND WATER CONSERVATION OF THE DEPARTMENT OF CONSERVATION AND RECREATION.
7. **ES-7**, ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT, UNTIL FINAL STABILIZATION IS ACHIEVED.
8. **ES-8**, DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
9. **ES-9**, THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES AT LEAST EVERY TWO WEEKS AND/OR AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY. MAINTAIN A LOG OF INSPECTIONS, MAINTENANCE PERFORMED AND REPAIRS MADE FOR INSPECTION BY THE OWNER AND THE DEPARTMENT OF CONSERVATION AND RECREATION/DIVISION OF SOIL AND WATER CONSERVATION.
10. **MS-1**, PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
11. **MS-2**, DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. COORDINATE & MAINTAIN TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
12. **MS-3**, A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT, IN THE OPINION OF THE DIVISION OF SOIL AND WATER CONSERVATION OF THE DEPARTMENT OF CONSERVATION AND RECREATION, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
13. **MS-4**, SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
14. **MS-5**, STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
15. **MS-6**, SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND STRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.
- A. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.
- B. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A TWENTY-FIVE YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OF THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.
16. **MS-7**, CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
17. **MS-8**, CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
18. **MS-9**, WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
19. **MS-10**, ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
20. **MS-11**, BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
21. **MS-16**, UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
- A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME UNLESS OTHERWISE NOTED.
- B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
22. **MS-17**, WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.
23. **MS-18**, ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
24. **MS-19**, PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA:
- A. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
- B. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
- (1) THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR
- (2) (a) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS; AND
- (b) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND
- (c) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
- C. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
- (1) IMPROVE THE CHANNEL TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL BED OR BANKS; OR
- (2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES; OR
- (3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
- (4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN-APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.
- D. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
- E. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT OF THE SUBJECT PROJECT.
- F. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE LOCALITY OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
- G. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
- H. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
- I. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
- J. IN APPLYING THESE STORMWATER RUNOFF CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
- K. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.

GENERAL EROSION CONTROL NOTES

1. RETAIN A COPY OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, 3RD EDITION ON SITE AT ALL TIMES.
2. ADHERE TO THE STANDARDS LISTED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, 3RD EDITION.

SEEDING NOTES

1. SEEDING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
2. WHEN PERMANENT SEEDING CANNOT OCCUR AT THE PROPER TIME, TEMPORARY SEEDING WILL BE PERFORMED TO BE FOLLOWED BY PERMANENT SEEDING.



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NOTES

REVISIONS

05/15/18
PER CITY COMMENTS

DESIGNED BY: MSH

DRAWN BY: JYG

CHECKED BY: EEB

SCALE: NOT TO SCALE

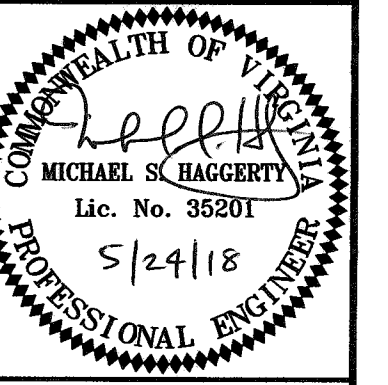
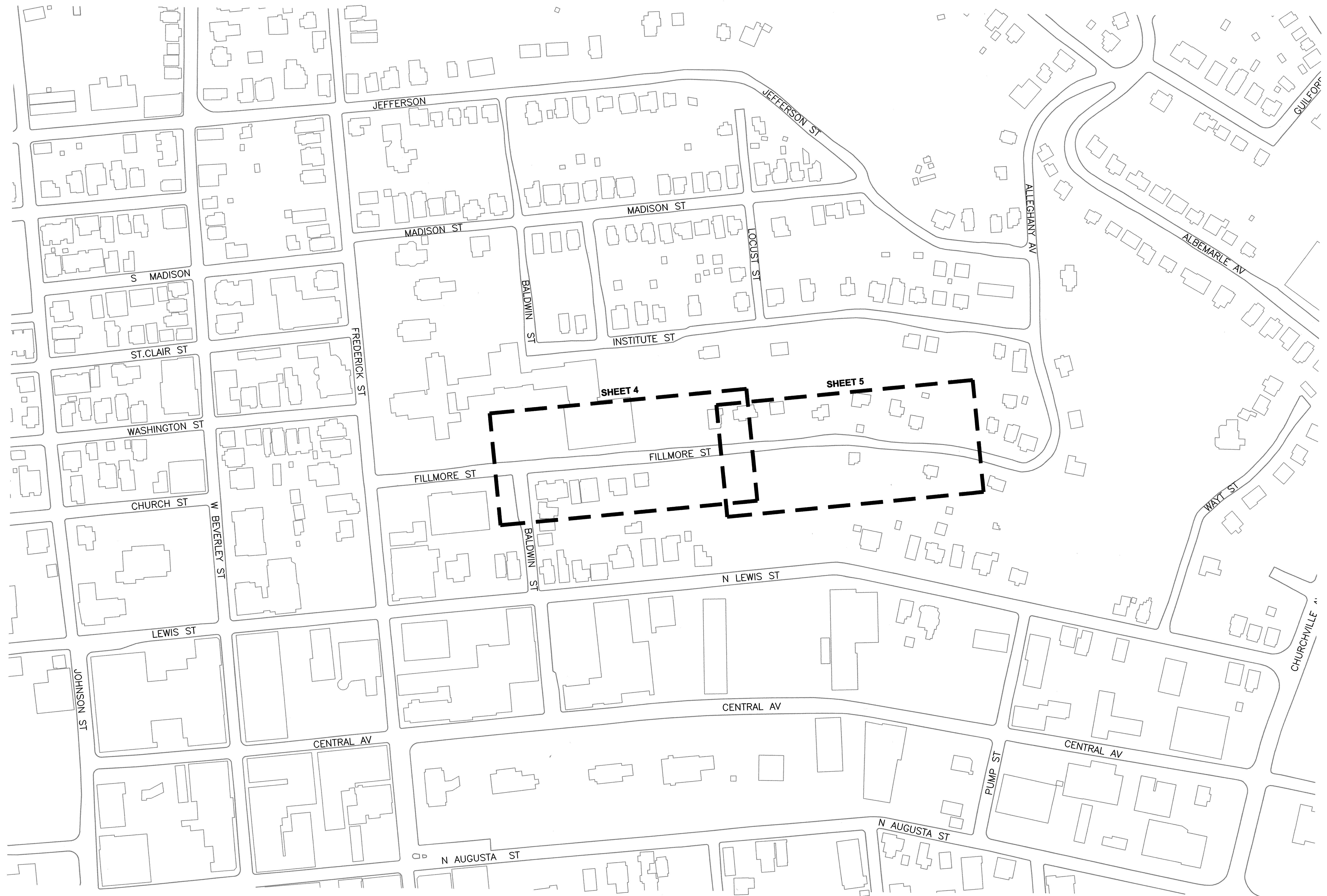
DATE: 3-29-2018

PROJECT NUMBER: 17020930-010303

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FILLMORE STREET SEWER EXTENSION

CITY OF STAUNTON, VIRGINIA



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INDEX SHEET

FILLMORE STREET SEWER EXTENSION

REVISIONS

05/15/18
PER CITY COMMENTS

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DRAWN BY: MO

CHECKED BY: **EEB**

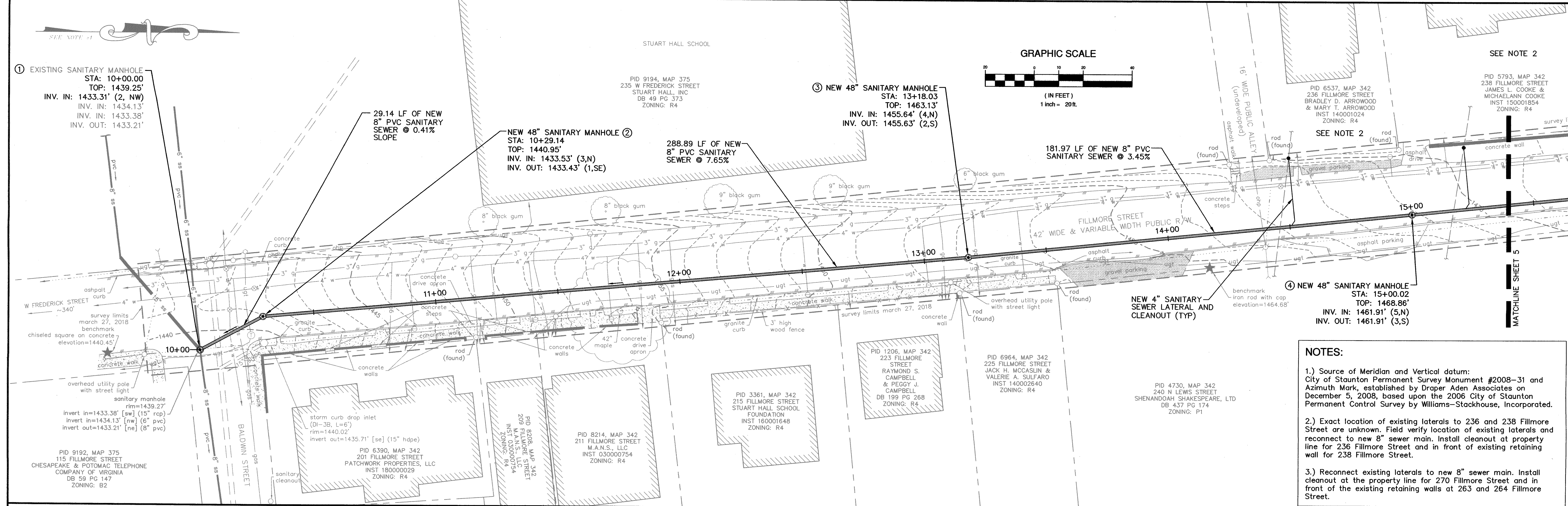
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PROJECT NUMBER:
17020930-010303

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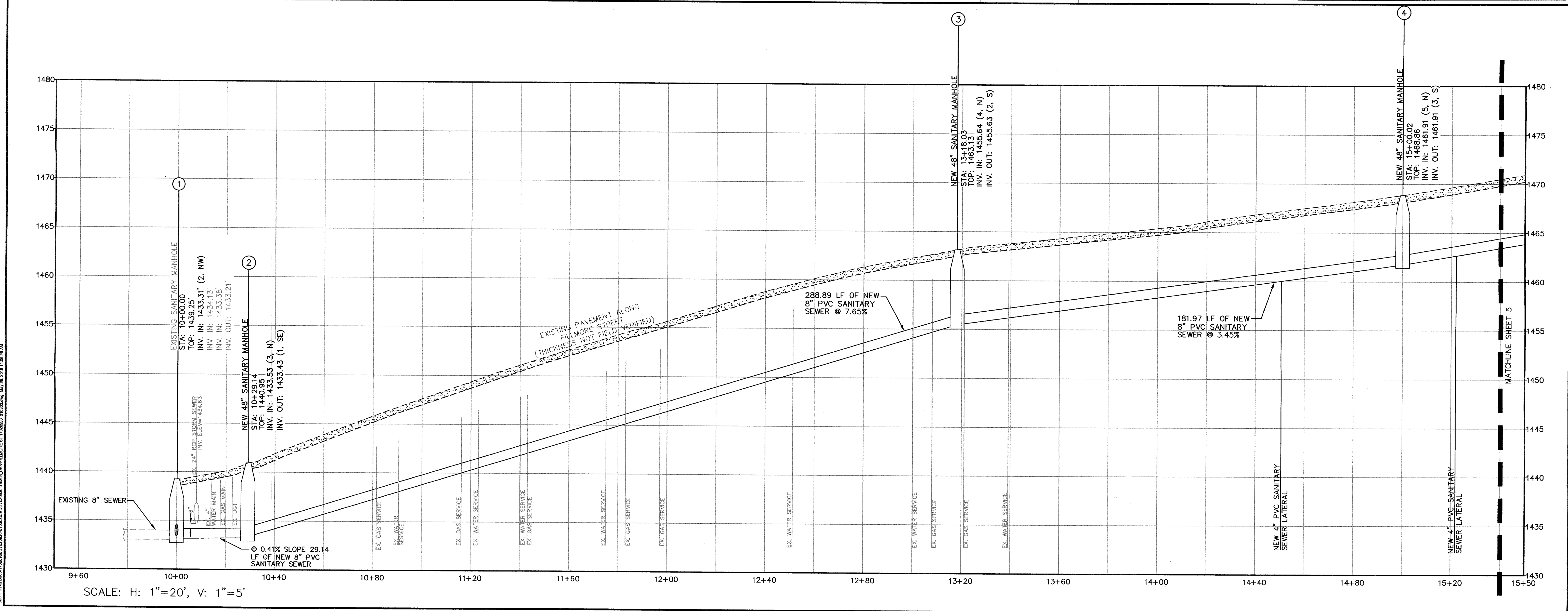


NOTES:

1.) Source of Meridian and Vertical datum:
City of Staunton Permanent Survey Monument #2008-31 and Azimuth Mark, established by Draper Aden Associates on December 5, 2008, based upon the 2006 City of Staunton Permanent Control Survey by Williams-Stockhouse, Incorporated.

2.) Exact location of existing laterals to 236 and 238 Fillmore Street are unknown. Field verify location of existing laterals and reconnect to new 8" sewer main. Install cleanout at property line for 236 Fillmore Street and in front of existing retaining wall for 238 Fillmore Street.

3.) Reconnect existing laterals to new 8" sewer main. Install cleanout at the property line for 270 Fillmore Street and in front of the existing retaining walls at 263 and 264 Fillmore Street.



COMMONWEALTH OF VIRGINIA

PROFESSIONAL ENGINEER

5/2/18

MICHAEL S. HARGREAVES

Lic. No. 35201

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PLAN AND PROFILE

FILLMORE STREET SEWER EXTENSION

CITY OF STAUNTON, VIRGINIA

REVISIONS

05/15/18
PER CITY COMMENTS

05/23/18
PER CITY COMMENTS

DESIGNED BY:

MSH

DRAWN BY:

JYG

CHECKED BY:

EEB

SCALE:

1"=20'

PROFILE SCALE:

H: 1"=20' V: 1"=5'

DATE:

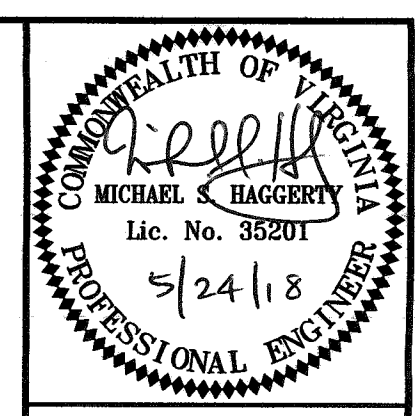
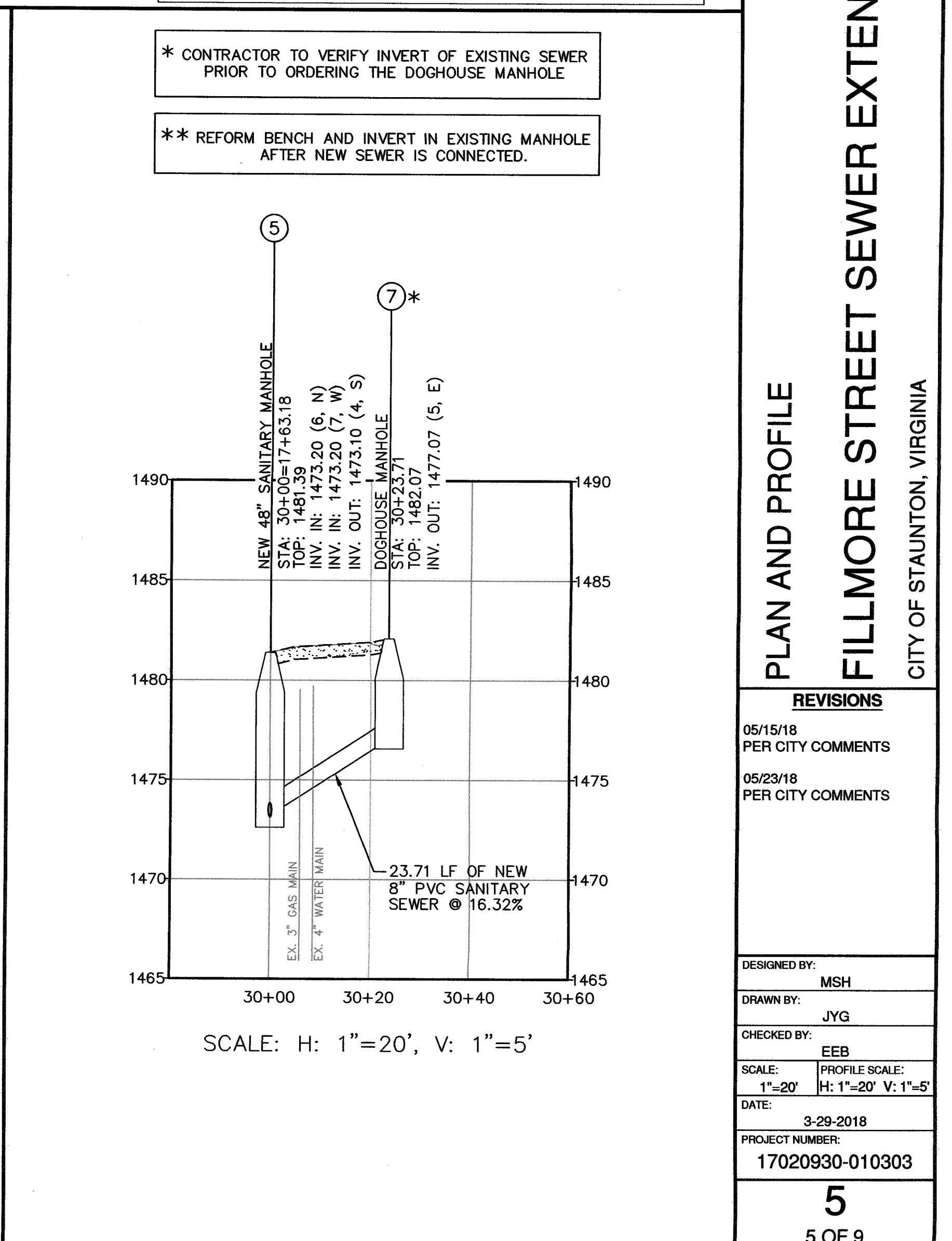
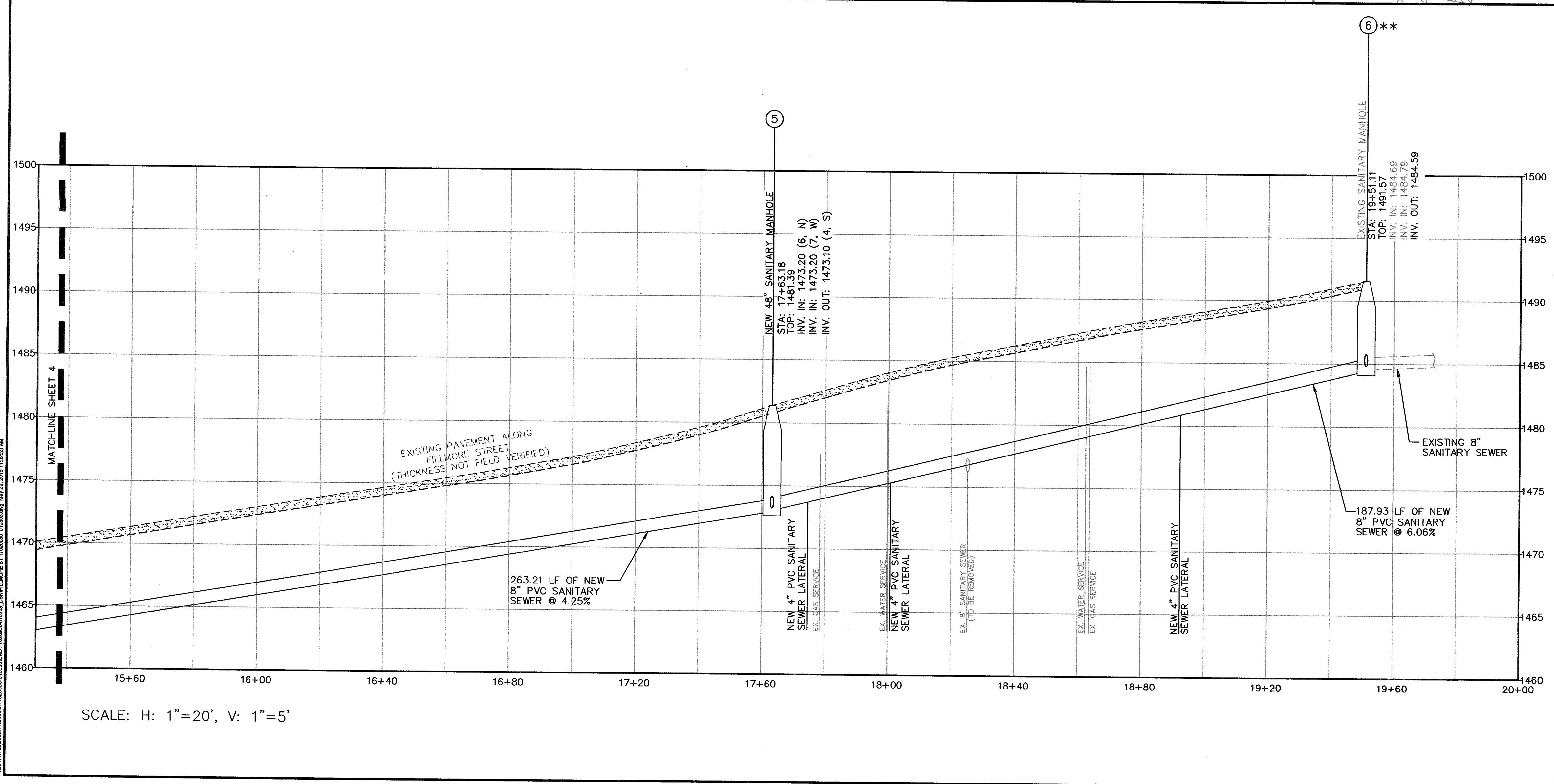
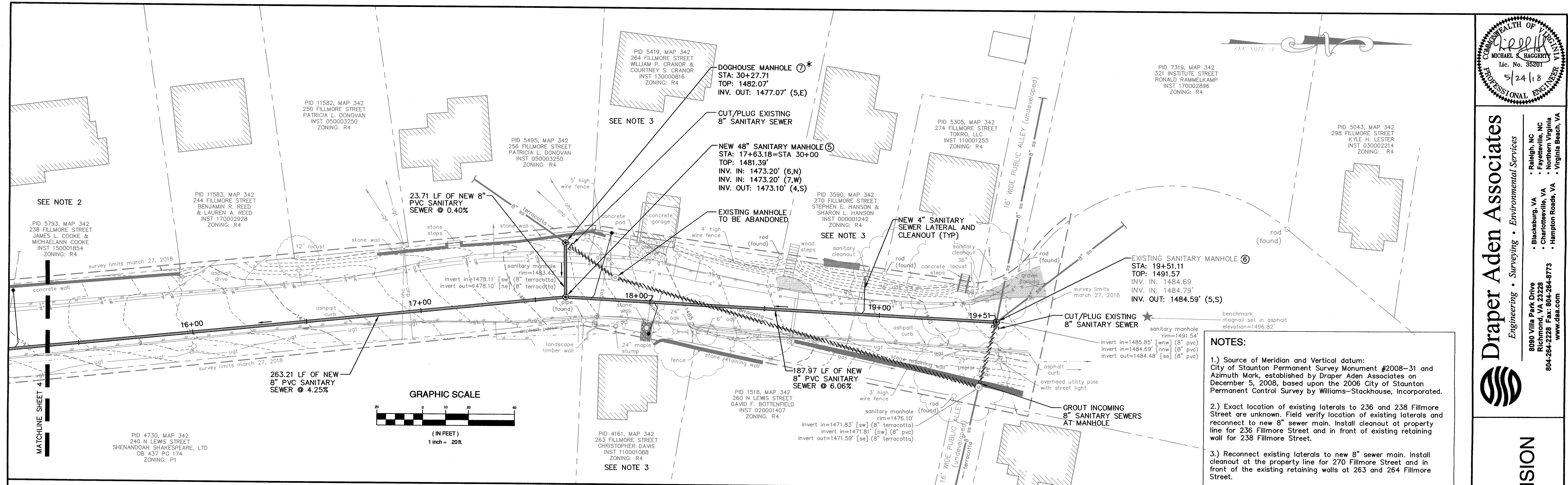
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PLAN AND PROFILE
FILLMORE STREET SEWER EXTENSION
 CITY OF STAUNTON, VIRGINIA

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05/23/18	PER CITY COMMENTS
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DRAWN BY: JYG	
CHECKED BY: EEB	
SCALE: 1"=20'	PROFILE SCALE: 1"=5'
DATE: 3-29-2018	
PROJECT NUMBER: 17020930-010303	
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TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL MEASURES SHALL COMPLY WITH THE LATEST EDITIONS OF THE VIRGINIA WORK PROTECTION MANUAL (VWAPM), THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AND CITY SPECIFICATION SECTION 102 - TRAFFIC CONTROL.
2. CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC THROUGHOUT THE PROJECT AREA.
3. CONTRACTOR SHALL STAGE WORK TO MINIMIZE THE CLOSURE OF DRIVEWAYS.
4. ALL SIGNAGE AND TRAFFIC CONTROL SHALL BE SUBJECT TO THE CITY'S APPROVAL.

REVISIONS
05/15/18
PER CITY COMMENTS
05/23/18
PER CITY COMMENTS

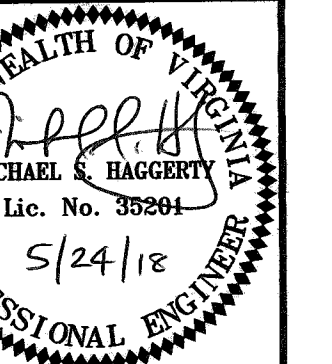
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CHECKED BY: EEB
SCALE: 1" = 40'
DATE: 3-29-2018
PROJECT NUMBER: 17020930-010303

TRAFFIC CONTROL PLAN FILLMORE STREET SEWER EXTENSION CITY OF STAUNTON, VIRGINIA

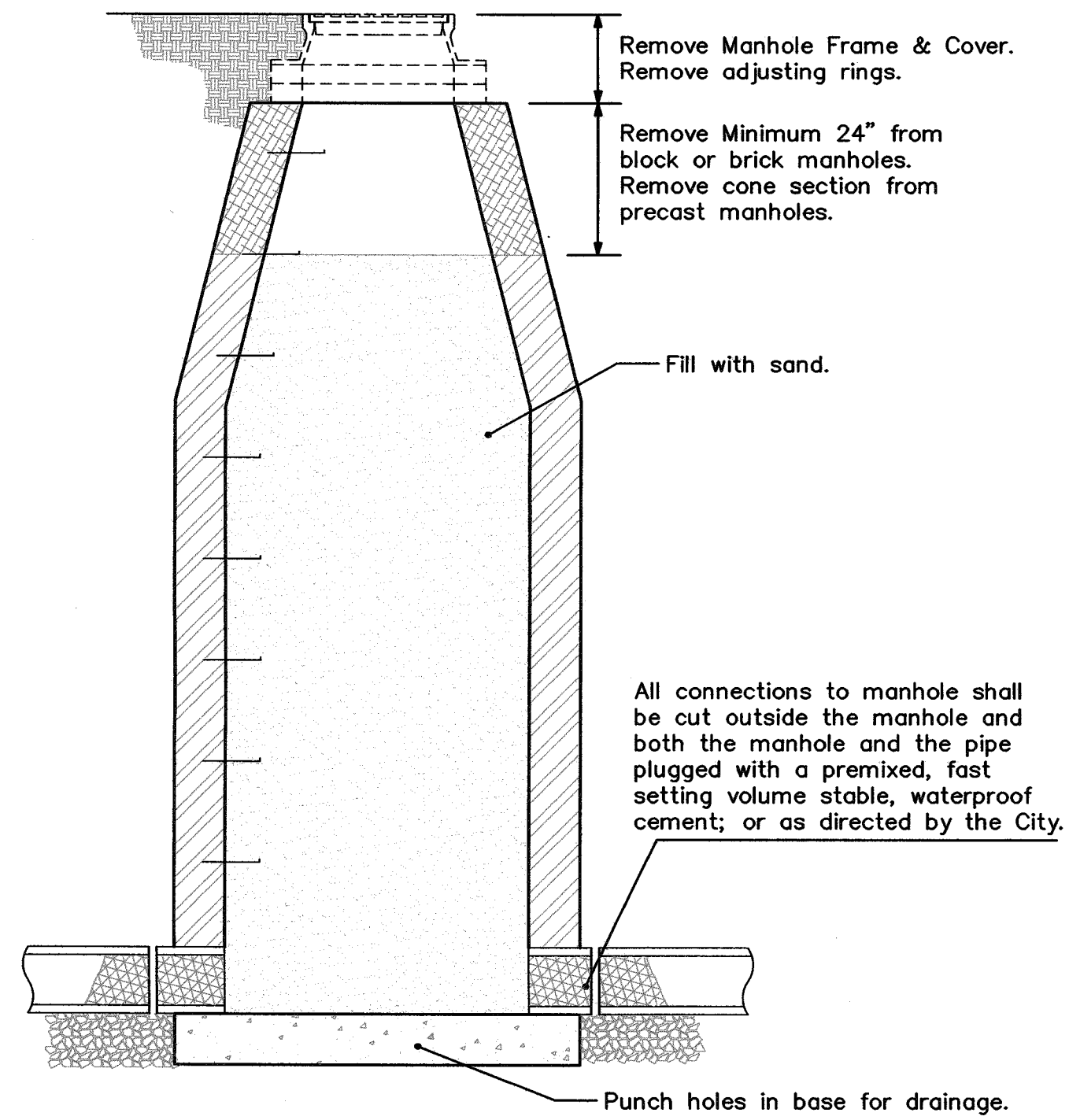


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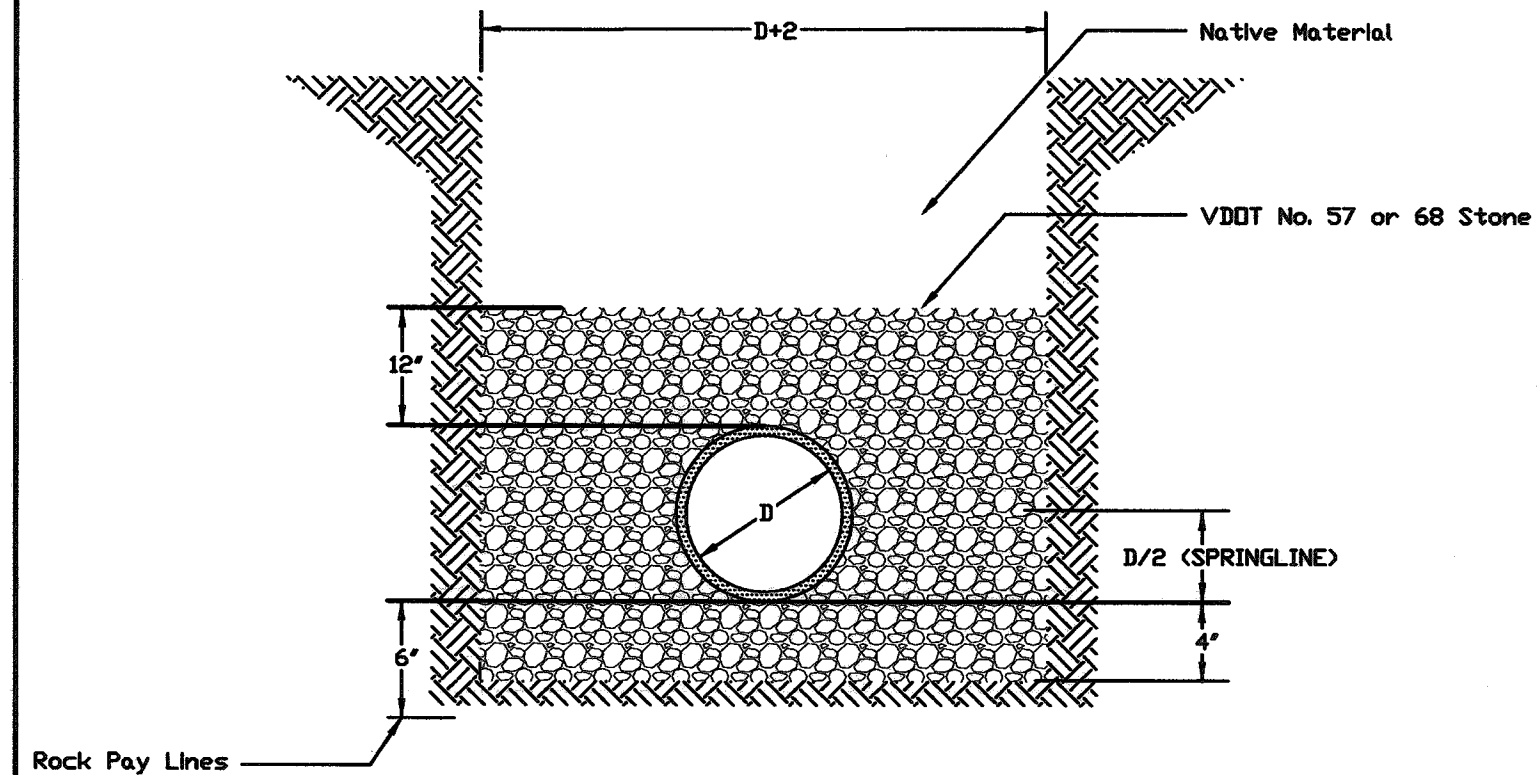
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Where manhole is located in pavement, pavement will be restored in accordance with City Standards.
For manholes not located in pavement, area will be graded and restored similar to surrounding conditions.



ABANDONMENT OF MANHOLES
NOT TO SCALE



BACKFILL SHALL BE PLACED IN 6" LAYERS FROM THE BOTTOM OF THE TRENCH TO A POINT AT LEAST 6" ABOVE THE PIPE AND THOROUGHLY TAMPED BY HAND OR PNEUMATIC TAMPER, HOWEVER DO NOT TAMP DIRECTLY OVER THE PIPE

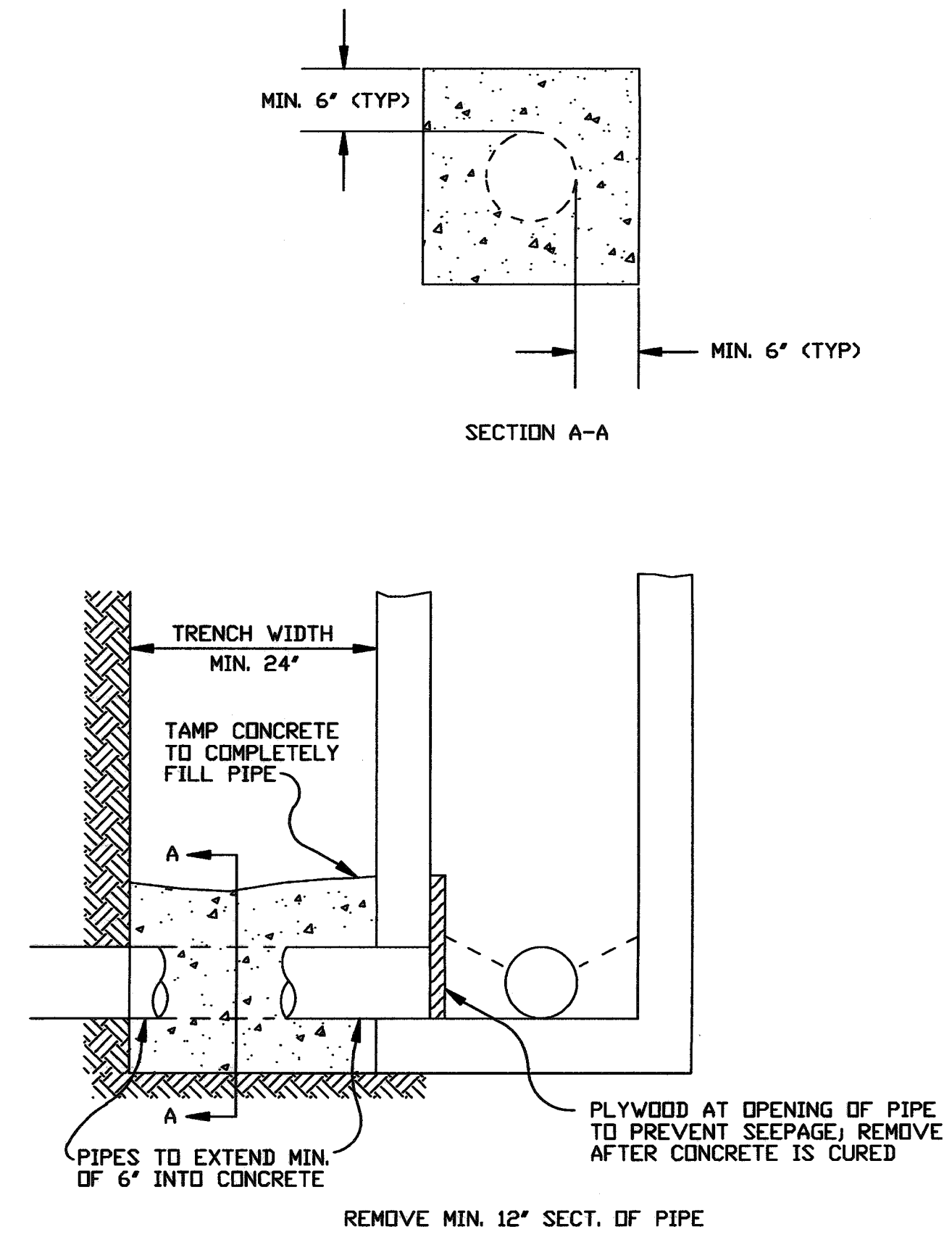
FINAL BACKFILL MAY BE PLACED IN LAYER THICKNESSES WHICH WILL PERMIT COMPACTION TO A DENSITY OF AT LEAST 95%

REINFORCED CONCRETE AND DUCTILE IRON PIPE SHALL BE BACKFILLED V/57 OR 68 TO SPRINGLINE ONLY

CITY OF
STAUNTON, VA

SEWER PIPE INSTALLATION

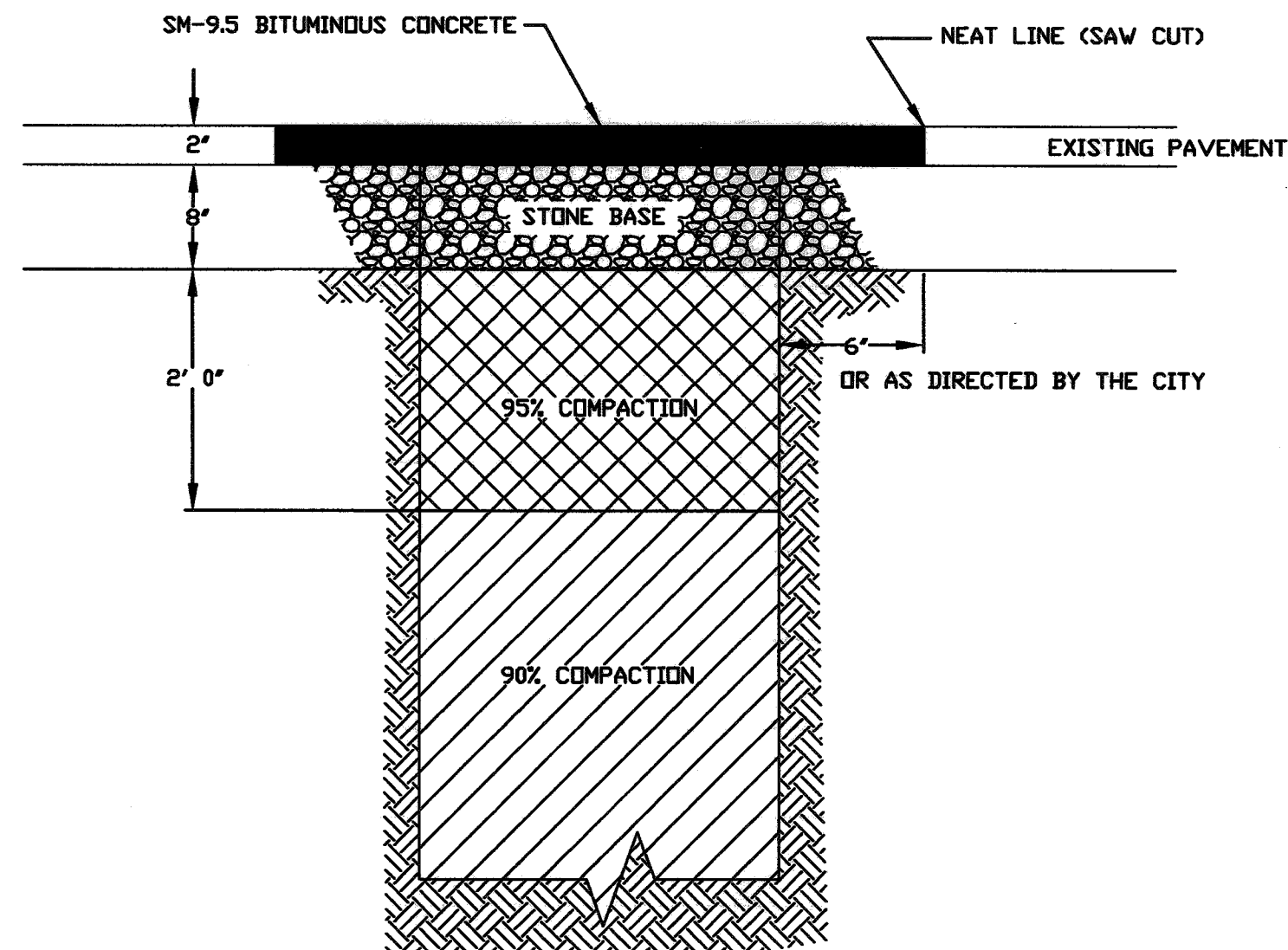
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S-8



CITY OF
STAUNTON, VA

**PLUGGING ABANDONED
LINE AT MANHOLE**

Draw No.
8-12

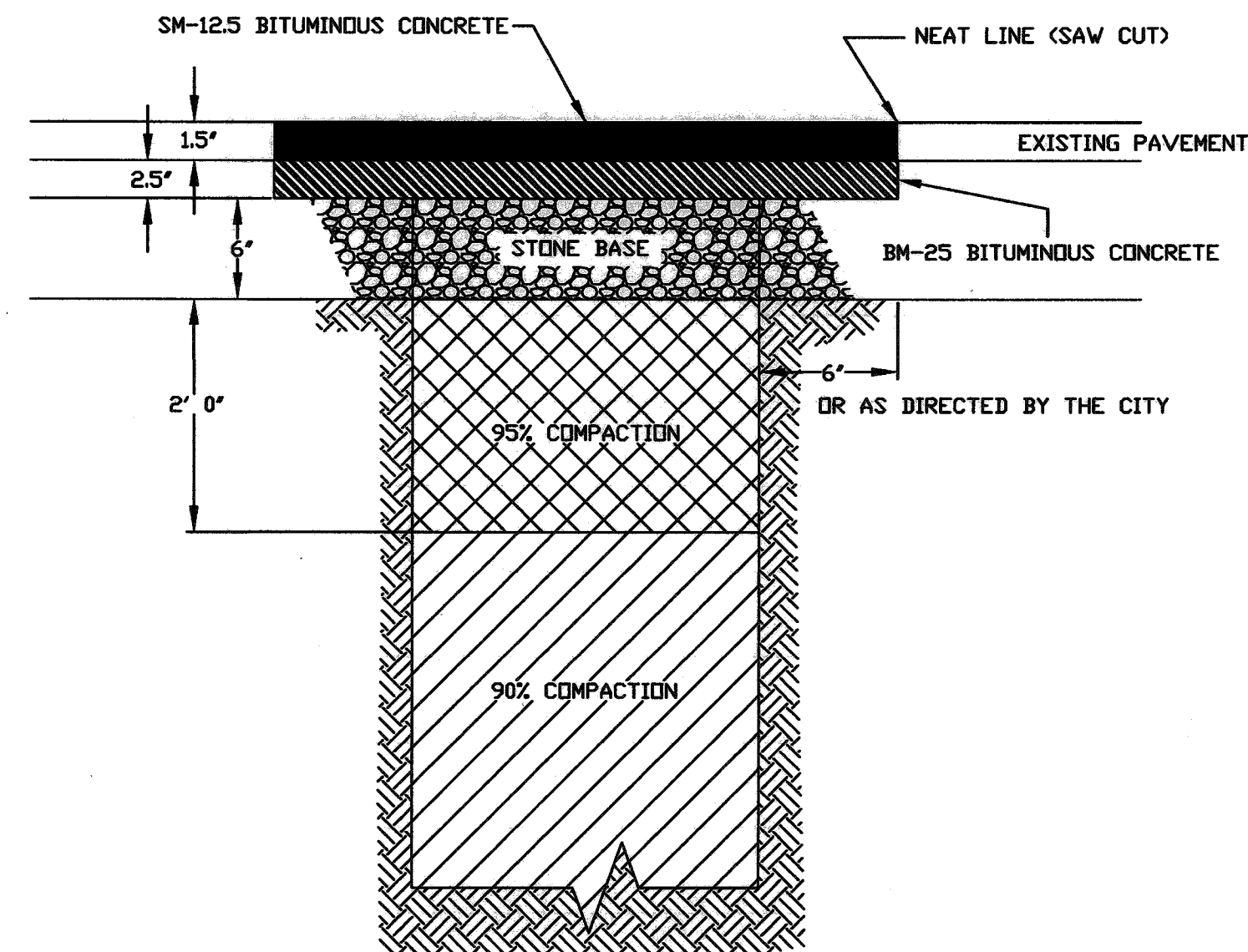


NOTE:
1. COMPLETED PATCH TO BE FLUSH WITH
EXISTING PAVEMENT

CITY OF
STAUNTON, VA

**STANDARD PATCH
FOR ASPHALT PAVEMENT**

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M-5

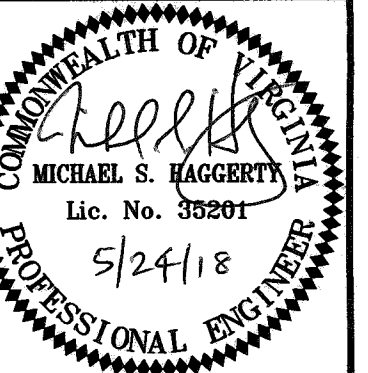


NOTE:
1. COMPLETED PATCH TO BE FLUSH WITH
EXISTING PAVEMENT

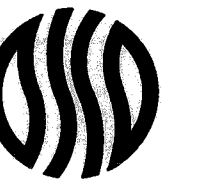
CITY OF
STAUNTON, VA

**HEAVY DUTY PATCH
FOR ASPHALT PAVEMENT**

Draw No.
M-5(H)



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DETAILS
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