Town of Haymarket Planning Commission

Regular Meeting

~ AGENDA ~

Emily Kyriazi, Town Planner
http://www.townofhaymarket.org/

15000 Washington Street, Suite 100
Haymarket, VA 20169

Monday, March 20, 2023 | 7:00 PM | Council Chambers

I. Call To Order

II. Pledge of Allegiance

III. Citizens Time

IV. Minute Approval

1. Planning Commission - Regular Meeting - Feb 22, 2023 7:00 PM

V. Agenda Items

1. Town Center Site Plan

VI. Old Business

VII. New Business

1. CBPA Comprehensive Plan Language Update

VIII. ARB Updates

IX. Town Council Updates

X. Adjournment

Town of Haymarket Planning Commission

Regular Meeting
~ MINUTES ~

Emily Kyriazi, Town Planner
http://www.townofhaymarket.org/
15000 Washington Street, Suite 100
Haymarket, VA 20169

Wednesday, February 22, 2023 | 7:00 PM | Council Chambers

A Regular Meeting of the Planning Commission of the Town of Haymarket, VA, was held this evening in the Council Chambers, commencing at 7:00 PM.

Chairman Alexander Beyene called the meeting to order.

I. Call To Order

Councilman Bob Weir: Present, Commissioner Robert Hallet: Present, Chairman Alexander Beyene: Present, Commissioner Robert Chrisman: Absent, Commissioner Sandy Freeman: Present.

II. Pledge of Allegiance

Chairman Alexander Beyene invited everyone to stand for the Pledge of Allegiance.

III. Citizens Time

There were no citizens present wishing to address the Planning Commission at this evening's meeting.

IV. Minute Approval

1. Planning Commission - Regular Meeting - Jan 17, 2023 7:00 PM

Commissioner Hallet moved to approve the Planning Commission minutes for January 17, 2023. Commissioner Freeman seconded the motion. The motion carried.

RESULT:	**ACCEPTED [UNANIMOUS]**
MOVER:	Robert Hallet, Commissioner
SECONDER:	Sandy Freeman, Commissioner
AYES:	Bob Weir, Robert Hallet, Alexander Beyene, Sandy Freeman
ABSENT:	Robert Chrisman

V. Agenda Items

1. Site Plan Review - Masonic Lodge

Town Planner Thomas Britt shared that in 2015 the Haymarket Charitable Foundation submitted a final site plan that did not go through the complete sign off process. He shared that the organization has since resubmitted the application. He continued to state that location is on the Tobaccology parking lot not on the Masonic Lodge parking lot itself. Mr. Britt introduced Ron Minor, the representative to Masonic Lodge and the Haymarket Charitable Foundation, and invited him to the podium for any questions from the Planning Commission. Mr. Britt presented the site plan for the Planning Commission to view.

Council Member Weir asked several questions regarding the site plans. Mr. Minor shared that the drawings have not change. Mr. Weir also asked questions regarding the lighting. Mr. Weir shared that the historic overlay map was not completed at the last Zoning Text Amendment as originally thought. He stated that since this would likely be his last meeting since being elected to the Prince William County Board of Supervisors, he would advise that the Planning Commission make the Historic Overlay map a priority. He stated that he was not sure if this property was within the Historic Overlay which would affect the design features going forward.

Chairman Beyene asked about the parking spaces. Mr. Minor shared that they would be paving an existing gravel parking lot and adding 5 parking lot lights.

Commissioner Freeman inquired about the Haymarket Charitable Foundation. Mr. Minor shared the history about the Foundation and their mission.

DRAFT

Minutes Acceptance: Minutes of Feb 22, 2023 7:00 PM (Minute Approval)

Council Member Weir moved to approve the final site plan for the Haymarket Charitable Foundation lot at 6710 Madison Street. Commissioner Freeman seconded the motion. The motion carried by a roll call vote.

RESULT:	**ADOPTED [UNANIMOUS]**
MOVER:	Bob Weir, Councilman
SECONDER:	Sandy Freeman, Commissioner
AYES:	Bob Weir, Robert Hallet, Alexander Beyene, Sandy Freeman
ABSENT:	Robert Chrisman

2. Site Plan Review - 14750 Jordan Lane

Town Planner Thomas Britt shared information on the site plan review for 14750 Jordan Lane. He shared that since the site plan was submitted in late 2022, he was given a new grading plan. He shared this was the only second submission information that he was given. A short discussion followed on the subject. Without objection, Council Member Weir directed the Staff to complete the application process and for the Planning Commission to defer this item until the comments are addressed and the application process is complete.

3. Site Plan Review - Haymarket Town Center

Town Planner Thomas Britt shared that this was the third submission on the Town Center Plan which redevelops the area at the corner of Washington and Jefferson Street. He shared that staff is waiting to hear comments back from a couple of outside agencies. Mr. Britt stated that this was a status update not a request to move forward. A short discussion followed.

VI. Old Business

Town Planner Thomas Britt gave a brief update on other site plans that have started to come in. There was a brief discussion on the timeline of when these particular site plans would come to the Planning Commission for consideration. There was also a discussion of the role of the Town Planner as to when he could administratively approve the site plans. Council Member Weir shared that the Zoning Ordinance states that minor site plans can be approved administratively by staff. However, major site plans would need to be approved by the Planning Commission. He gave examples of a minor and a major site plan but suggested that the interpretation be cleared with the Town Manager on a case by case basis.
Mr. Britt also brought the subject of the Historic Overlay map to the attention of the Planning Commission. He shared that he and the Town Clerk reviewed all minutes from ARB, Planning Commission and the Town Council on the subject. He stated that he did not find that a map was provided yet for approval. A short discussion followed on the subject.
Lastly, Mr. Britt stated that he is working the Town Manager on the Comp Plan updates and should be able to present those at the March meeting.

VII. New Business

Town Planner Thomas Britt shared about an undeveloped parcel adjacent to the Crossroads Village Center is being considered for a new dentist office. He stated that this parcel will be part of the Crossroads Village Center development since the same person owns both properties and but will be bringing a separate site plan for that parcel. There were questions about the Lidl Grocery Store construction. Mr. Britt stated that Lidl will be before the ARB for a revised sign application.

VIII. ARB Updates

Commissioner Rob Hallet gave the ARB Updates. He shared that the Board approved two sign applications; Cookies and Cream and Thrive Medical Spa.

IX. Town Council Updates

Council Member Weir shared that the Town Council held a public hearing for the second quarter budget amendment at their last meeting. Lastly, Mr. Weir stated that he would be resigning from the Planning Commission and Town Council because of being elected to Prince William County Board of Supervisors during a special election the day before.

X. Adjournment

With no further business before the Planning Commission, Council Member Weir moved to adjourn with a second by Commissioner Freeman. The motion carried.

Minutes Acceptance: Minutes of Feb 22, 2023 7:00 PM (Minute Approval)

1. Motion to Adjourn

RESULT:	**ADOPTED [UNANIMOUS]**
MOVER:	Bob Weir, Councilman
SECONDER:	Sandy Freeman, Commissioner
AYES:	Bob Weir, Robert Hallet, Alexander Beyene, Sandy Freeman
ABSENT:	Robert Chrisman

Submitted: Approved:

_____ _____

Kimberly Henry, Clerk of the Council Alexander Beyene, Chairman

DRAFT

Minutes Acceptance: Minutes of Feb 22, 2023 7:00 PM (Minute Approval)

Town of Haymarket
15000 Washington Street, #100
Haymarket, VA 20169
703-753-2600

Thomas Britt
Town Planner

MEMORANDUM

TO: Planning Commission
FROM: Thomas Britt, Town Planner
DATE: March 13, 2023
SUBJECT: Haymarket Town Center

Background: The third submission for the final site plan of the Haymarket Town Center has been given to the Town Planner and Town Engineer. The review status for each application in other departments is as follows:

- DEQ: approved
- PWCSA: waiting for comments on resubmission
- VDOT: waiting for comments on resubmission, Access Management Exception request for the Jefferson St entrance included
- PWC Fire Marshal: fire lane permit review process to start after VDOT approval

Attachment: 01 Haymarket Town Center Redevelopment Introduction Memo (6052 : Town Center Site Plan)

GENERAL NOTES

1. This site has been addressed by the Prince William County Mapping Office as: *15000, 15004, 15010, 15020, AND 15026 WASHINGTON ST.* (addresses for
2. Addresses assigned are for the layout of individual businesses or dwelling units and are for exterior doors as shown on this plan only. Any deviation in design or layout will require that a revised plan be submitted to the Office of Mapping for re-addressing. It is the responsibility of the developer to inform the County Office of Mapping before a change in layout occurs and to submit complete and accurate information for re-addressing. Prince William County does not assume any responsibility where re-addressing is required even though tenants have already occupied a portion of the building.
3. Methods and materials used in the construction of the improvements herein shall conform to the current Town of Haymarket construction standards and specifications and/or current VDOT standards and specifications.
4. The contractor or developer is required to notify the Town of Haymarket Engineer in writing three (3) days prior to the beginning of the construction and specifically request inspection before beginning -- 703-753-2600.
   - A. Installation of approved erosion control devices.
   - B. Clearing and Grading
   - C. Subgrade excavation.
   - D. Installing storm sewers or culverts.
   - E. Setting curb and gutter forms.
   - F. Placing curb and gutter.
   - G. Placing other concrete.
   - H. Placing gravel base.
   - I. Placing any bituminous surfacing.
   - *J. Installing water mains outside the Service Authority's boundaries.
   - *K. Installing sanitary sewer outside the Service Authority's boundaries.
5. Measures to control erosion and siltation, including detention ponds serving as silt basins during construction, must be provided prior to issuance of the site development permit. The approval of these plans in no way relieves the developer or his agent of the responsibilities contained in the Virginia Erosion and Sediment Control Handbook.
6. A permit must be obtained from the Office of the Resident Engineer, Virginia Department of Transportation (VDOT) Prince William County, prior to construction in existing State right-of-way, 366-1900.
7. Approval of this plan does not guarantee issuance of an entrance permit by VDOT when such permit is required under State law.
8. The exact location of all guard rails will be determined by VDOT personnel. "A joint inspection will be held with the Developer, Town of Haymarket Representatives, and Representatives, of the Virginia Department of Transportation (VDOT) to determine if and where guard rail and/or paved ditches will be needed. The developer will be responsible for providing guardrail and paved ditches as determined by this joint inspection." Refer to Virginia Department of Transportation (VDOT) Guard Rail and Paved Ditch Specifications.
9. An approved set of plans and all applicable permits must be available at the construction site. Also, a representative of the developer must be available at all times.
10. Warning signs, markers, barricades or flagmen should be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).
11. All unsuitable material shall be removed from the construction limits of the roadway before placing embankment.
12. All pavement sections on the approved plans are based on a minimum CBR value of 10. CBR tests are to be performed by the engineer and submitted to the Town of Haymarket for review prior to placement of base material. CBR values less than 10 will require submittal of revised pavement section.
13. All roadside ditches at grades of more than 5% shall be paved with cement concrete to the limits indicated on the plans and as required at the field inspection.
14. All springs shall be capped and piped to the nearest storm sewer manholes or curb inlet. The pipe shall be minimum 150 mm (6") diameter and conform to VDOT standard SB-1.
15. All standard street name signs, traffic control devices, and street lights shall be installed by the developer when the first building unit is occupied.
16. Construction debris shall be containerized in accordance with the Virginia Litter Control Act; no less than one litter receptacle shall be provided at the construction site
17. The contractor shall provide adequate means of cleaning mud from trucks and/or other equipment prior to entering public streets, and it is the contractors responsibility to clean streets, allay dust, and to take whatever measures are necessary to insure that the streets are maintained in a clean, mud and dust free condition at all times.
18. * Notification shall be given to the appropriate utility Company (Service Authority, Virginia-American Water Company, or Dale Service Corporation) prior to construction of water and/or sanitary sewer lines. Information should also be obtained from the appropriate authority concerning permits, cut sheets, and connections to existing lines.
19. All sanitary sewers and water mains and appurtenances shall be constructed in accordance with the current standards and specifications of Prince William County Service Authority.
20. The developer and/or contractor shall be responsible to supply all utility companies with copies of plans that have been approved by the Town of Haymarket and advising them that all grading shall conform to the approved plans, and further that the utility companies shall be responsible for honoring these plans and the finished grades in the installation of their utility lines.
21. Contractors shall notify operators who maintain underground utility lines in the area of proposed excavating or blasting at least two (2) working days, but not more than ten (10) working days, prior to commencement of excavation or demolition. Names and telephone numbers of the operators underground utility lines in Prince William County appear below. These numbers shall also be used to serve in an emergency condition.

x	Washington Gas Light Co. Virginia Power Co. Northern Virginia Electric Co-op Columbia Gas of Virginia Continental Telephone of VA Colonial Pipeline Co. Transcontinental Gas Pipe Line Corp.	MISS UTILITY 1-800-257-7777	Service Authority 335-7900 (After hours-Emergency 335-7990) Virginia-American Water 491-2136 Dale Service Corporation 494-4161

22. Deleted per request of PWCSA.
23. The location of existing utilities shown in these plans are taken from existing records. It shall be the contractors responsibility to verify the exact horizontal and vertical location of all existing utilities as needed prior to construction. The contractor shall inform the engineer of any conflicts arising from his existing utility verification and the proposed construction.
24. The developer will be responsible for any damage to the existing streets and utilities which occurs as a result of his construction project within or contiguous to the existing right-of-way.
25. All utilities placed under existing streets shall be bored or jacked.
26. When grading is proposed within easements of utilities, letters of permission from all involved companies must be provided to the Town of Haymarket prior to issuance of grading and/or site development permits.
27. The developer will be responsible for the relocation of any utilities which is required as a result of his project. The relocation should be done prior to construction.
28. Before burning, blasting, transportation or storage of explosives in the Town of Haymarket, a permit shall be obtained from the Town of
29. Fire and Rescue Services must be notified immediately in the event that unusual items such as tanks, cylinders, unidentified containers, etc. which could contain potentially hazardous materials are discovered or observed. All activities must cease and not be resumed until authorization to proceed is given by the Town of Haymarket.
30. Sidewalk underdrains shall be installed per the Town of Haymarket.
31. All walkways outside of the right-of-way limits will be maintained by the homeowners association.
32. Maintenance of the Storm Drainage or Storm Water Management facilities located therein shall be pursuant to the Town of Haymarket Zoning Ordinance.
33. If units shown on this plan will be occupied in phases, a phasing plan must be approved by the engineering inspection branch prior to the issuance of any occupancy permits. (Detached single family subdivision exempt.)
34. These plans identify the location of all known gravesites. Gravesites shown on this plan will be protected in accordance with state law. In the event gravesites are discovered during construction, the Town of Haymarket must be notified immediately. All activities must cease and not be resumed until authorization to proceed is given by the Town of Haymarket.
35. Roof top mechanical equipment, if any, must be enclosed within a wall or similar screening barrier, designed in harmony with the building.
36. Individual sign permits will be required from the Town of Haymarket for all free standing and facade signs prior to erecting the signs.
37. All buffer areas shall be screened according to the Town of Haymarket Zoning Ordinance.
38. For proffers statement and proffers analysis, see section(s) *N/A* of *N/A* .
39. For waivers see SHEET *C.44*
40. Anticipated sewage flows: *0.21 GPD/SF OF BUILDING x 20,968 = 4,403 GPD x 4.0 PEAK FACTOR = 17,613 GPD*
41. Anticipated fire flows: *FLOW=2,500 GPM @ 48.5 PSI*
42. Distance to nearest existing school or proposed school site: *0.1 MILES TO SAINT PAUL'S SCHOOL*

LEGEND

EXISTING INTERMEDIATE CONTOUR — 33
EXISTING INDEX CONTOUR — 32.5
PROPOSED CONTOUR — 20
EXISTING EDGE OF PAVEMENT — EX. E/P
PROPOSED EDGE OF PAVEMENT — PROP. E/P
EXISTING CURB AND GUTTER — EX. C & G
PROPOSED CURB AND GUTTER — CG-6
TRANSITION FROM CG-6 TO CG-6R — CG-6 CG-6R
EXISTING TELEPHONE LINE — T T
PROPOSED TELEPHONE LINE — T
EXISTING STORM SEWER — EX. 375 mm (15") RCP
PROPOSED STORM SEWER — PROP. 375 mm (15") RCP
EXISTING SANITARY SEWER
PROPOSED SANITARY SEWER
EXISTING ELECTRIC SERVICE — E E
PROPOSED ELECTRIC SERVICE — E
EXISTING GAS LINE — G G
PROPOSED GAS LINE — G
PROPERTY LINE
EASEMENT LINE
CENTERLINE
LIMITS OF CLEARING AND GRADING
EXISTING SPOT ELEVATION — 12.0
PROPOSED SPOT ELEVATION — 12
EXISTING TREE DRIP LINE
EXISTING TREE — 375 mm (15") OAK
PROPOSED TREE — OAK

FLOW LINE
FENCELINE — x
EXISTING UTILITY POLE
PROPOSED UTILITY POLE
EXISTING WATERLINE W/ TEE — W
PROPOSED WATERLINE W/ TEE — W
EXISTING FIRE HYDRANT
PROPOSED FIRE HYDRANT
EXISTING WATER VALVE — W
PROPOSED WATER VALVE — W
PROPOSED WATER METER — W
EXISTING REDUCER — W
PROPOSED REDUCER — W
STOP SIGN
HANDICAP RAMP (CG-12A)
DENOTES LOCATION OF STD VDOT CG-12 AND/OR JURISDICTIONAL STANDARD RAMP CONSTRUCTION
PARKING INDICATOR — 12
INDICATES THE NUMBER OF TYPICAL PARKING SPACES
TEST PIT LOCATION
CRITICAL SLOPE
SLOPES TO BE STABILIZED PURSUANT TO VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK
VEHICLES PER DAY COUNT — 200 VPD
PROPOSED BUILDING ENTRANCE
EXISTING STREET LIGHT
PROPOSED STREET LIGHT
PROPOSED STREET NAME SIGN
PROPOSED SANITARY LATERAL CLEANOUT
SANITARY MANHOLE INDENTIFIER — 12
STORM DRAIN STRUCTURE IDENTIFIER — 18

1. NO HISTORIC SITES OR CEMETERIES ARE KNOWN TO EXIST WITHIN THE PROJECT LIMITS SHOWN ON THIS PLAN.

2. THE DEVELOPER/BUILDER SHALL CONTACT THE PRINCE WILLIAM COUNTY SERVICE AUTHORITY TO DISCUSS UTILITY PERMIT REQUIREMENTS FOR INSTALLATION OF WATER AND SANITARY SEWER AVAILABILITY PRIOR TO ISSUANCE OF A BUILDING PERMIT. PERMIT REQUIREMENTS FOR INSTALLATION OF WATER AND SANITARY SEWER AVAILABILITY PRIOR TO ISSUANCE OF A BUILDING PERMIT.

THIS PLAN COMPLIES WITH THE NEW PRINCE WILLIAM COUNTY SERVICE AUTHORITY UTILITY STANDARDS MANUAL, WHICH WENT INTO EFFECT ON NOVEMBER 2022. ALL UTILITY PERMITS ISSUED AFTER THIS DATE MUST COMPLY WITH THE CONSTRUCTION CRITERIA IN THE NEW MANUAL, INCLUDING ANY REVISIONS WHICH HAVE BEEN ISSUED.

DESIGNATED PLANS EXAMINER CERTIFICATE

1ST SUBMISSION REVIEWED AND RECOMMENDED FOR SUBMISSION

DESIGNATED PLANS EXAMINER _____ REG. NUMBER _____ DATE _____

2ND SUBMISSION REVIEWED AND RECOMMENDED FOR SUBMISSION

DESIGNATED PLANS EXAMINER _____ REG. NUMBER _____ DATE _____

BOND ESTIMATE

ITEM	TOWN BOND	VDOT BOND
TOTAL CONSTRUCTION COST	$451,073.00	$95,571.50
ADMINISTRATIVE COST	$45,107.30	$9,557.15
INFLATION COST	$13,532.19	$2,867.15
TOTAL PERFORMANCE BOND AMOUNT	$509,712.49	$107,995.80
TOTAL EROSION & SEDIMENT CONTROL ESCROW	$42,253.20	N/A
LANDSCAPING ESCROW	$41,097.00	N/A

SURVEY INFORMATION

1. Horizontal and vertical control surveys were performed by *Rinker Design Associates* in *2014 and 2022* (Year).
2. All elevations are based on the 1988 adjustment.
3. Source of topographic mapping is *Rinker Design Associates*, dated *2014 and 2022* .
4. Boundary survey was performed by *Rinker Design Associates*, dated *2014* .
5. The application of the professional's seal and signature as required by Section 1.14 of the STATE BOARD OF ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS AND CERTIFIED LANDSCAPE ARCHITECTS RULES AND REGULATIONS shall be evidence that the boundary data is correct to the best of the land surveyor's knowledge, and complies with the minimum standards and procedures of the said Board; the topographic information is accurate to within one-half of the contour interval, as shown. Application of the seal and signature indicates acceptance of responsibility

SOILS MAP

SCALE 1: (1"=) *1"=200'*

SOIL #	SOIL NAME	SOIL CAT.	SURFACE RUNOFF	EROSION HAZARD	DEPTH TO BEDROCK	SHRINK-SWELL	FLOODING	SLOPES
4B	ARCOLA SILT LOAM	2	MEDIUM	SEVERE	20-40" SOFT	LOW	NONE	2-7%
35B	MANASSAS SILT LOAM	3	MEDIUM	MODERATE	>60"	LOW	RARE	2-7%

REVISIONS

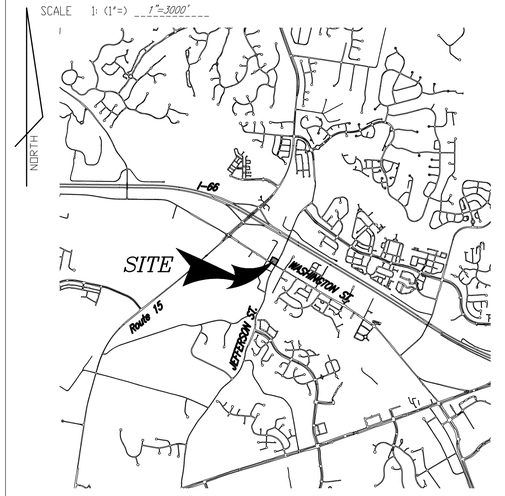
DATE	DESIGNER

REVIEWED BY: _____ APPROVED BY: _____

This plan has been reviewed and has been found to be in general conformance with the requirements of Prince William County. The developer is hereby authorized to obtain all necessary land development permits, subject to all designs, procedures, materials and workmanship being in compliance with lawful requirements. If not bonded or permitted (if applicable) within five (5) years of the authorized date or lawfully extended, this authorization will expire. A valid agreement and bond with Prince William County must be maintained to assure plan and permit validity.

VICINITY MAP

SCALE 1: (1"=) *1"=3000'*



SHEET INDEX

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COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 063821
1/26/2023
PROFESSIONAL ENGINEER

PROFESSIONAL SEAL & SIGNATURE

THESE PLANS ARE IN CONFORMANCE WITH TOWN OF HAYMARKET STANDARDS AND ORDINANCES. ANY DEVIATION OR CHANGE IN THESE PLANS SHALL BE APPROVED BY THE DIRECTOR OF PLANNING PRIOR TO CONSTRUCTION.

TOWN OF HAYMARKET

COVER SHEET

Project Name: *HAYMARKET TOWN CENTER REDEVELOPMENT*
Project Number: *SA2017-0303*

Subdivision or Site Plan Name: *HAYMARKET TOWN CENTER REDEVELOPMENT*
Market Name:
Plan Number: *SP20220324*
Plan Type: *SITE PLAN*
Revision Number: *0*

Magisterial District: *N/A*
Present Zoning & Use: *B-1, OFFICE*
Date of Plan: (Month, Day, Year) *JANUARY 26, 2023*

Owner: *TOWN OF HAYMARKET* Address, Including Zip Code & Telephone No. *15000 WASHINGTON STREET, SUITE #100 HAYMARKET, VA 20169* *CONTACT: EMILY KYRIAZI* *PHONE: 703-753-2600 EXT. 204*

Developer: *TOWN OF HAYMARKET* Address, Including Zip Code & Telephone No. *15000 WASHINGTON STREET, SUITE #100 HAYMARKET, VA 20169* *CONTACT: EMILY KYRIAZI* *PHONE: 703-753-2600 EXT. 204*

Name, Address & Telephone No. of Engineer Architect or Surveyor certifying Plan: *RINKER DESIGN ASSOCIATES, P.C.* *11100 ENDEAVOR COURT, SUITE 200, MANASSAS, VA 20109* *CONTACT: SCOTT WOODARD* *PHONE: 703-368-7373*

Parcel Identification Number: *C.P.I.N. 7298-80-8614, 7298-80-9226, 7298-80-9407, 7298-90-0102, 7298-90-0216*

Total Area: *1.50 ACRES* Project Area: *1.60 ACRES* Disturbed Area: *1.60 ACRES* Impervious Area: *1.20 ACRES* BMP Storage/Acre: *156.80* cf/ac.

Related Plans Tracking Numbers (Including Rez. & S.U.P.): *RELATED PLANS TRACKING NUMBERS: SP2017-003; SA2019-0380; VDOT: 0055-233-045*

Revised: June 1997 **Sheet C.01**

14096-02

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

Town of Haymarket File Number: SP20220324 Subdivision/Site Plan Name: HAYMARKET TOWN CENTER REDEVELOPMENT

SITE TABULATIONS
(FOR THIS PLAN ONLY)

G.P.I.N. _____ 7298-90-0216, 7298-80-8614, 7298-80-9407, 7298-90-0102, AND 7298-80-9226
ZONE _____ B-1 (TOWN CENTER DISTRICT)
SITE ADDRESS _____ 15000, 15004, 15010, 15020, AND 15026 WASHINGTON ST.
TOTAL SITE AREA _____ 1.50 ACRES (65,368 SF)
AREA OF PROPOSED ROW _____ 2,026 SF
REMAINING SITE AREA _____ 63,342 SF
PROJECT AREA _____ 1.60 ACRES (DISTURBED)
MINIMUM LOT SIZE _____ N/A

NOTE: ALL SITE COMPUTATIONS BELOW REPRESENT PHASE 2 DEVELOPMENT CONDITIONS

BUILDING SETBACKS

FRONT: 5' OF ANY STREET RIGHT-OR-WAY

SIDE/REAR: IF ABUTTING ANY STREET RIGHT-OR-WAY: 5'
IF ABUTTING COMMERCIAL/OFFICE DISTRICT: 0'
IF ABUTTING AGRICULTURAL/RESIDENTIAL DISTRICT: 25'

BUFFER REQUIREMENTS

25' WIDE BUFFER WITH AN OPAQUE SCREENING (ADJACENT TO RESIDENTIAL)
- SEE LANDSCAPING PLAN AND DETAILS (SHEETS C.22-C.23)

10' WIDE BUFFER WITH NO SCREENING (ADJACENT TO COMMERCIAL)
- SEE LANDSCAPING PLAN AND DETAILS (SHEETS C.22-C.23)

PROJECT PHASING NARRATIVE

THE SITE TABULATIONS BELOW REPRESENT THE ULTIMATE PROPOSED BUILD-OUT (SITE PLAN PHASE 2) IMPROVEMENTS SHOWN ON THIS PLAN. SITE PLAN PHASE 1 CONSISTS OF SITE UTILITY, PARKING, AND PEDESTRIAN IMPROVEMENTS, BUT DOES NOT MODIFY ANY BUILDINGS. SITE PLAN PHASE 2 INCLUDES ALL OF THE PHASE 1 IMPROVEMENTS, PLUS AN ADDITION TO THE EXISTING TOWN HALL BUILDING.

MAXIMUM LOT COVERAGE

ALLOWED: 85% (53,841 SF)
PROVIDED: 48% (30,715 SF)

OPEN SPACE (MINIMUM REQUIREMENTS)

REQUIRED: 15% (9,501 SF)
PROVIDED: 52% (32,628 SF)

*NOTE: ALL INTERIOR AND PERIPHERAL PARKING LOT LANDSCAPING AND TREE CANOPY COVER REQUIREMENTS HAVE BEEN MET.

FAR

MAX. FAR: N/A
FAR PROVIDED: 20,968 SF / 63,342 SF = 0.33

LANDSCAPING TABULATION

SEE LANDSCAPING PLAN AND DETAILS (SHEETS C.22-C.23)

BUILDING HEIGHT

ALLOWED (PER ZONING): 50' MAX.
NEW ADDITION TO MUNICIPAL BUILDING HEIGHT: APPROX. 32'

BUILDING AREA

APPROXIMATE SQUARE FOOTAGE OF EXISTING USES TO REMAIN: 19,886 SF
PROPOSED SQUARE FOOTAGE OF BUILDING ADDITION: 1,082 SF (2 STORY)
TOTAL PROPOSED SQUARE FOOTAGE: 20,968 SF

BUILDING USES

OFFICE BUILDING (#15014 & #15000 WASHINGTON ST., #15020 WASHINGTON ST.): EX. 2-STORY BUILDING w/PROP. 2-STORY ADDITION, EX. 2-STORY BUILDING
FIRST FLOOR = 6,105 SF (EX. BLDG.) + 629 SF (PROP. ADDITION) = 6,734 SF
SECOND FLOOR = 6,105 SF (EX. BLDG) + 453 SF (PROP. ADDITION) = 6,558 SF
FIRST FLOOR (#15020) = 1,814 SF
TOTAL = 15,106 SF
RETAIL (#15026 WASHINGTON ST. & #6630 JEFFERSON ST.): EX. 2-STORY & 1- STORY BUILDINGS
#15026 = 4,238 SF
#6630 = 1,624 SF
TOTAL = 5,862 SF

PARKING TABULATION

EXISTING PARKING: 53 SPACES
49 STANDARD SPACES
4 ADA ACCESSIBLE SPACES
REQUIRED PARKING:
OFFICE (#15020, #15014, & #15000):
1 SPACE/300 SF = (15,106 SF)/300 = 50.4 SPACES
RETAIL (#15026 & #6630):
1 SPACE/250 SF = (5,862 SF)/250 = 23.5 SPACES
TOTAL REQUIRED = 73.9 SPACES (PROVIDE 74)
PROPOSED PARKING: 60 SPACES (TOTAL) (WAIVER REQUESTED)
55 STANDARD SPACES
5 ADA ACCESSIBLE SPACES

ESTIMATED EXISTING TRAFFIC VOLUME
TRIPS GENERATED PER ITE TRIP GENERATION MANUAL, 10TH EDITION.

(710) GENERAL OFFICE (PER 1,000 SF GFA) LN(TRIPS)=0.97xLN(14,024/1,000)+2.50 = 158 TRIPS
(890) FURNITURE STORE (PER 1,000 SF GFA) TRIPS=10.33x(4,238/1,000)+13.99 = 58 TRIPS
(939) BREAD SHOP (PER 1,000 SF GFA) TRIPS= 114 TRIPS (NO EQUATION GIVEN)

TOTAL SITE TRIPS: 158 VPD + 58 VPD + 114 VPD = 330 VPD

ESTIMATED PROPOSED TRAFFIC VOLUME
TRIPS GENERATED PER ITE TRIP GENERATION MANUAL, 10TH EDITION.

(710) GENERAL OFFICE (PER 1,000 SF GFA) LN(TRIPS)=0.97xLN(15,106/1,000)+2.50 = 170 TRIPS
(890) FURNITURE STORE (PER 1,000 SF GFA) TRIPS=10.33x(4,238/1,000)+13.99 = 58 TRIPS
(939) BREAD SHOP (PER 1,000 SF GFA) TRIPS= 114 TRIPS (NO EQUATION GIVEN)

TOTAL SITE TRIPS: 170 VPD + 58 VPD + 114 VPD = 342 VPD

PHASE 2 OF THIS DEVELOPMENT ESTIMATES AN ADDITIONAL 12 VPD IN AND OUT OF THE SITE.

GENERAL NOTES

1. THE PROPERTY SHOWN HEREON IS NOW IN THE NAME OF "TOWN OF HAYMARKET VA" AS RECORDED IN DB 2892 OP 1537 AMONG THE LAND RECORDS OF PRINCE WILLIAM COUNTY, VIRGINIA.
2. THE BOUNDARY INFORMATION SHOWN HEREON IS BASED ON A FIELD RUN SURVEY BY RINKER DESIGN ASSOCIATES, P.C. IN OCTOBER 2014.
3. CONTOUR INTERVAL = 1 FOOT TAKEN FROM TOPOGRAPHIC SURVEY BY THIS OFFICE IN 2014, 2016, AND 2022 ON NGVD 1983 DATUM.
4. ACCORDING TO FEMA'S FLOOD INSURANCE RATE MAP FOR PRINCE WILLIAM COUNTY, VIRGINIA AND INCORPORATED AREAS DATED JANUARY 5, 1995 ON COMMUNITY PANELS NO. 51153C 0059D AND 51153C 0067D, THE PROPERTIES SHOWN HEREON LIE IN A FLOOD ZONE "X", WHICH IS AN AREA DETERMINED TO BE OUTSIDE THE 500-YEAR FLOODPLAIN. THERE ARE NO MAPPED PRINCE WILLIAM COUNTY 100-YEAR FLOODPLAINS OR FLOOD HAZARD AREAS LOCATED WITHIN THE SITE.
5. THERE ARE NO MAPPED RESOURCE PROTECTION AREAS (RPA) LOCATED WITHIN THE SITE.
6. A SOILS REPORT HAS BEEN PREPARED FOR THIS PROJECT BY DMV ENGINEERING CONSULTANTS, INC.
7. THERE ARE NO KNOWN GRAVE SITES, CULTURAL OR HISTORICAL RESOURCES WITHIN THE LIMITS OF THE PROJECT.
8. TO THE BEST OF OUR KNOWLEDGE, NO HAZARDOUS WASTES, TOXIC SUBSTANCES OR PETROLEUM PRODUCTS HAVE BEEN GENERATED, UTILIZED, STORED, TREATED OR DISPOSED OF ON THIS SITE.
9. THE REQUIREMENTS OF THE TOWN'S CHESAPEAKE BAY PRESERVATION ORDINANCE AND DETENTION REQUIREMENTS HAVE BEEN MET ON-SITE BY THE USAGE OF ADS STORMTECH ISOLATER ROW CHAMBERS AND CONTECH JELLYFISH FILTER UNITS.
10. BUILDING PADS / FOUNDATIONS SHALL NOT BE BUILT INSIDE ANY EASEMENT.
11. "INLET SHAPING" TO BE PERFORMED ON ALL STORM DRAINAGE INLETS PRIOR TO FINAL PAVING. NO GUTTER PAN IS TO BE BUILT ADJACENT TO THE INLETS PRIOR TO FINAL PAVING IN ORDER TO ALLOW FOR PROPER WATER FLOW INTO INLETS. PLACE SILT FENCE ONLY AS NECESSARY ALONG OUTSIDE OF CURB TO PREVENT SILTATION AND CONCENTRATED FLOWS ON STREETS.
12. THE ENGINEER SHALL NOT HAVE CONTROL OVER OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK SHOWN ON THESE PLANS. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S SCHEDULES OR FAILURES TO CARRY OUT THE WORK. THE ENGINEER IS NOT RESPONSIBLE FOR ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, OR THEIR AGENTS OR EMPLOYEES, OR ANY OTHER PERSONS PERFORMING PORTIONS OF THE WORK.
13. THE SUBJECT PARCELS ARE LOCATED WITHIN THE OLD AND HISTORIC HAYMARKET DISTRICT OVERLAY.
14. SIDEWALK PROPOSED ALONG WASHINGTON STREET AND JEFFERSON STREET TO BE STAMPED CONCRETE AND STAINED TO RESEMBLE BRICK.
15. SITE LIGHTING SHALL COMPLY WITH THE TOWN OF HAYMARKET ZONING ORDINANCE.
16. SIGN CONSTRUCTION SHALL COMPLY WITH THE TOWN OF HAYMARKET ZONING ORDINANCE ARTICLE XV.

ROAD NOTES

V1. A PERMIT MUST BE OBTAINED FROM THE OFFICE OF THE RESIDENT ENGINEER, VIRGINIA DEPARTMENT OF TRANSPORTATION AND THE TOWN OF HAYMARKET BEFORE ANY CONSTRUCTION IS STARTED ON WASHINGTON STREET AND JEFFERSON STREET. ENTRANCE PERMITS ARE REQUIRED FOR STATE ROADS. APPROVAL OF THIS PLAN DOES NOT GUARANTEE ISSUANCE OF AN ENTRANCE PERMIT BY VDOT WHEN SUCH PERMIT IS REQUIRED UNDER STATE LAW.

V2. A SMOOTH GRADE SHALL BE MAINTAINED FROM THE CENTERLINE OF THE EXISTING ROAD TO THE SHOULDER, TO PRECLUDE THE FORMING OF FALSE GUTTERS AND/OR THE PONDING OF ANY WATER ON THE ROADWAY.

V3. STANDARD GUARDRAILS AND/OR HANDRAILS SHALL BE INSTALLED AT HAZARDOUS LOCATIONS AS DESIGNATED DURING FIELD REVIEW BY THE COUNTY INSPECTOR OR VDOT.

V4. ADDITIONAL DITCH LININGS OR SILTATION AND EROSION CONTROL MEASURES SHALL BE PROVIDED, AT THE DEVELOPER'S EXPENSE, AS DETERMINED NECESSARY BY VDOT OR PRINCE WILLIAM COUNTY DURING FIELD REVIEW. ALL COSTS SHALL BE ASSUMED BY THE DEVELOPER.

V5. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING ROADS, SIDEWALKS, AND UTILITIES WHICH OCCUR AS A RESULT OF PROJECT CONSTRUCTION WITHIN OR CONTIGUOUS TO EXISTING RIGHT OF WAY.

V6. OPEN CUTTING OF PAVED OR SURFACE TREATED ROADS IS NOT PERMITTED. ALL UTILITIES, WHICH WILL BE PLACED UNDER EXISTING STREETS ARE TO BE BORED OR JACKED. ANY EXCEPTIONS, DUE TO EXTENUATING CIRCUMSTANCES, ARE TO BE ADDRESSED AT THE PERMIT STAGE.

V7. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL. THE CONTRACTOR SHALL SUBMIT A SIGNAGE, STRIPING AND/OR SIGNALIZATION PLAN TO VDOT A MINIMUM OF THIRTY DAYS PRIOR TO PERMIT APPLICATION. THE CONTRACTOR SHALL NOT COMMENCE CONSTRUCTION OF ANY PAVEMENT COURSE WITHIN A R.O.W. WITHOUT AN APPROVED STRIPING PLAN.

V8. OVERLAY OF EXISTING PAVEMENT, IF REQUIRED, SHALL BE MINIMUM OF 1.5" DEPTH; ANY COSTS ASSOCIATED WITH PAVEMENT OVERLAY, OR THE MILLING OF EXISTING PAVEMENT TO OBTAIN REQUIRED DEPTH, SHALL BE ASSUMED BY THE CONTRACTOR.

V9. WHEN POSSIBLE, ALL LIGHTS ARE TO BE KEPT OUT OF THE ROADWAY "CLEAR ZONE" PER VDOT REQUIREMENTS. IF ANY LIGHTS OR OTHER SIGN POSTS ARE PLACED WITHIN THE "CLEAR ZONE" THEY SHALL BE REQUIRED TO MEET NCHRP 350 CRASH CRITERIA.

V10. NO PARKING PERMITTED ON PUBLIC ROADS.

V11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADEQUATELY PROTECT THE PUBLIC FROM ONGOING CONSTRUCTION OPERATIONS AND PROVIDE A SAFE WORK ENVIRONMENT IN ACCORDANCE WITH OSHA AND OTHER FEDERAL, STATE, AND LOCAL ORDINANCES.

V.12 ALL RIGHT-OF-WAY DEDICATED FOR PUBLIC USE SHALL BE CLEAR AND UNENCUMBERED.

CONSTRUCTION NOTES

C1. ALL CONSTRUCTION, METHODS, AND MATERIALS SHALL CONFORM TO THE CURRENT TOWN OF HAYMARKET, PRINCE WILLIAM COUNTY SERVICE AUTHORITY, AND VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS EXCEPT AS MODIFIED BY NOTES OR DETAILS HEREON.

C2. GENERAL DIMENSIONS:
ALL RADII AND DIMENSION LINES ARE TO BE FROM THE FACE OF CURB, UNLESS OTHERWISE NOTED.
ALL SPOT ELEVATIONS ARE TO THE TOP OF CURB UNLESS OTHERWISE NOTED.
ALL RADII SHALL BE 5.0' UNLESS OTHERWISE NOTED.
REFER TO ARCHITECTURAL DRAWINGS FOR DETAILED BUILDING DIMENSIONS.
ALL STANDARD PARKING SPACES SHALL BE 8.5 FEET WIDE BY 18 FEET DEEP UNLESS OTHERWISE NOTED.

C3. ALL ACCESSIBLE SPACES SHALL CONFORM WITH THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT. H.C. SPACES SHALL BE A MINIMUM OF 8' WIDE. H.C. ACCESS AISLE SHALL BE A MINIMUM 8' WIDE FOR VAN ACCESSIBLE SPACES AND 5' WIDE FOR ALL OTHER ACCESS AISLES. SEE DETAILS ON SHEET C.19.

C4. THE CURB & GUTTER SHALL HAVE UNIFORM SECTIONS, APPROXIMATELY TEN (10) FEET IN LENGTH, AND NO SECTION SHALL BE LESS THAN SIX (6) FEET IN LENGTH.

C5. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE TOWN OF HAYMARKET SIGN ORDINANCE REQUIREMENTS AND REQUIRE A SEPARATE REVIEW & PERMIT.

C6. ALL EROSION CONTROL DEVICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE LATEST VERSION OF THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK."

C7. SUBBASE DEPTH AND PAVEMENT CROSS-SECTION MAY BE REVISED ONCE THE SUBGRADE SOIL TESTS ARE COMPLETED.

C8. AT LEAST ONE (1) COPY OF THE APPROVED PLANS, WITH REVISIONS AND ALL APPLICABLE PERMITS, MUST BE KEPT ON SITE AT ALL TIMES.

C9. ADJUST AND/OR RECONSTRUCT ALL UTILITY COVERS (SUCH AS MANHOLE FRAMES AND COVERS, VALVE BOX COVERS, ETC.) TO MATCH THE FINISHED GRADES IN THE AREAS AFFECTED BY THE CONSTRUCTION.

C10. NOTIFY THE OWNER AND THE ENGINEER OF ANY CHANGES OR CONDITIONS ATTACHED TO PERMITS OBTAINED FROM THE VIRGINIA DEPARTMENT OF TRANSPORTATION, THE TOWN OF HAYMARKET, OR ANY OTHER AUTHORITY ISSUING PERMITS.

C11. THE APPROVAL OF THESE PLANS SHALL IN NO WAY RELIEVE THE OWNER OF COMPLYING WITH OTHER APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS.

C12. CONSTRUCTION DEBRIS SHALL BE CONTAINED IN ACCORDANCE WITH THE VIRGINIA LITTER CONTROL ACT. NO LESS THAN ONE LITTER RECEPTACLE SHALL BE PROVIDED AT THE CONSTRUCTION SITE.

C13. WARNING SIGNS, MARKERS, BARRICADES OR FLAGMEN SHOULD BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND VIRGINIA WORK AREA PROTECTION MANUAL (WAPM).

C14. ALL UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE CONSTRUCTION LIMITS OF ROADWAY, DRIVES, BUILDINGS, OR OTHER STRUCTURAL AREAS BEFORE PLACING CONTROLLED FILL.

C15. PROVIDE ADEQUATE MEANS OF CLEANING MUD FROM TRUCKS AND/OR OTHER EQUIPMENT PRIOR TO ENTERING PUBLIC STREETS. CLEAN STREETS, ALLAY DUST, AND TAKE WHATEVER MEASURES ARE NECESSARY TO INSURE THAT THE STREETS ARE MAINTAINED IN A CLEAN, MUD AND DUST FREE CONDITION AT ALL TIMES.

C16. PROTECT THE PUBLIC FROM ONGOING CONSTRUCTION OPERATIONS AND PROVIDE A SAFE WORK ENVIRONMENT IN ACCORDANCE WITH OSHA AND OTHER FEDERAL, STATE, AND LOCAL ORDINANCES.

C17. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL REQUIRED PERMITS AND ENSURING THAT ALL APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS APPROVED BY ALL THE PERMITTING AUTHORITIES AND CONDUCTED A SITE VISIT TO VERIFY THAT EXISTING CONDITIONS HAVE NOT CHANGED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CHANGES TO THE EXISTING SITE CONDITIONS THAT VARIES FROM THE EXISTING CONDITION INFORMATION SHOWN ON THE PLAN.

C18. UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR OWN CONSTRUCTION STAKING.

C19. ALL TOPSOIL SHALL BE REMOVED AND STOCKPILED IN AN AREA APPROVED BY THE OWNER OR DISPOSED OF AT A SUITABLE LANDFILL. UPON COMPLETION OF CONSTRUCTION, TOPSOIL, A MINIMUM OF SIX (6) INCHES IN DEPTH, SHALL BE SPREAD OVER AREAS DISTURBED BY CONSTRUCTION.

C20. ALL DEBRIS FROM REMOVAL OPERATIONS SHALL BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED. STOCKPILING OF SOIL WILL BE ALLOWED IN APPLICABLE LOCATIONS.

C21. DURING CONSTRUCTION AND UNTIL SUCH A TIME VEGETATION IS REESTABLISHED, THE CONTRACTOR SHALL KEEP EXPOSED DIRT AREAS WITHIN THE LIMITS OF CONSTRUCTION AND STOCKPILE AREAS, DAMPENED TO PREVENT BLOWING AND PROVIDE DUST CONTROL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION AND FOLLOWING CONSTRUCTION, UNTIL SUCH TIME AS PROPER VEGETATION IS REESTABLISHED.

C22. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER AND/OR ENGINEER IF ANY DISCREPANCIES EXIST, PRIOR TO PROCEEDING WITH CONSTRUCTION, FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSION OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH A NOTIFICATION HAS NOT BEEN GIVEN.

C23. IF CONSTRUCTION IS PHASED THE CONSTRUCTION ENTRANCE WILL REMAIN FUNCTIONAL OR BE RELOCATED WITHIN THE SITE AT THE DIRECTION OF THE INSPECTOR TO MAINTAIN ADEQUATE E&S MEASURES TO PREVENT SEDIMENT FROM ENTERING JEFFERSON STREET.

C24. ALL STANDARD STREET NAME SIGNS, TRAFFIC CONTROL DEVICES, AND STREET LIGHTS SHALL BE PROVIDED BY THE CONTRACTOR.

C25. A SEPARATE REVIEW AND PERMIT IS REQUIRED FOR RETAINING WALL ABOVE 2 FEET PRIOR TO CONSTRUCTION. A BUILDING PERMIT SHALL BE OBTAINED FROM THE BUILDING DIVISION IN ACCORDANCE WITH DCSM SECTION 710.06 PRIOR TO CONSTRUCTION OF THE RETAINING WALL.

CONTROLLED FILLS

A. CONTROLLED COMPACTION SHALL OCCUR IN ALL FILL SECTIONS FOR PAVEMENT, TRENCHES FOR UTILITIES, AND IN ANY AREA OTHERWISE DESIGNATED ON THE DRAWINGS.

B. CONTROLLED FILLS MUST BE COMPACTED AND CONDITIONED AS DETERMINED IN THE GEOTECHNICAL SPECIFICATIONS AND VERIFIED BY A QUALIFIED SOILS ENGINEER.

C. CONTROLLED FILLS SHALL BE COMPACTED IN HORIZONTAL LOOSE LIFTS NOT EXCEEDING 8 INCHES IN THICKNESS, MOISTURE CONDITIONED TO WITHIN ±2% OF OPTIMUM MOISTURE CONTENT AND COMPACTED TO NOT LESS THAN 95% RELATIVE COMPACTION OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR (ASTM D-698) TEST, UNLESS OTHERWISE SPECIFIED BY THE GEOTECHNICAL ENGINEER.

D. THE SURFACE AREA DIRECTLY BENEATH AREAS TO RECEIVE CONTROLLED FILLS OF LESS THAN 5 FEET IN DEPTH IS TO BE DENUDED OF ALL VEGETATION AND SCARIFIED AND COMPACTED TO A DEPTH OF 6 INCHES TO THE SAME DENSITY AS THE CONTROLLED FILL TO BE PLACED THEREON.

E. THE TOP 12 INCHES OF STRUCTURAL FILL BELOW ANY PROPOSED PAVEMENT OR SLAB AREAS SHALL BE COMPACTED TO NOT LESS THAN 100% RELATIVE COMPACTION OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE VTM-1 PROCTOR TEST UNLESS OTHERWISE SPECIFIED BY THE GEOTECHNICAL ENGINEER. DENSITY MUST BE VERIFIED BY A QUALIFIED REGISTERED PROFESSIONAL ENGINEER.

F. SLOPE STABILITY ANALYSIS IS PROVIDED IN THE GEOTECHNICAL REPORT FOR SLOPES IN EXCESS OF 3:1.

G. UNLESS OTHERWISE STATED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SOIL TESTING. THE RESULTS OF THE TESTS SHALL BE FORWARDED TO THE OWNER FOR THEIR REVIEW AND APPROVAL. THE GEOTECHNICAL ENGINEER SHALL DETERMINE THE SUITABILITY OF EXISTING ONSITE MATERIAL PRIOR TO BEGINNING ANY FILL OPERATIONS.

UTILITY NOTES

U1. VERIFY LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF, DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER/TOWN INSPECTOR TO DETERMINE IF THE UTILITY SHOULD REMAIN ACTIVE OR BE REMOVED OR ABANDONED AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE CONTINUANCE OF SERVICE IF IT IS TO REMAIN. ALL UTILITIES, INCLUDING ALL POLES, ARE TO BE RELOCATED AT THE DEVELOPER'S EXPENSE, PRIOR TO CONSTRUCTION, IF REQUIRED.

U2. NOTIFY THE MISS UTILITY NOTIFICATION CENTER OF EXCAVATION, DEMOLITION, OR BLASTING AT LEAST TWO WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION, DEMOLITION, BLASTING, CONSTRUCTION IN ACCORDANCE WITH THE VIRGINIA UNDERGROUND UTILITY DAMAGE PREVENTION ACT. CONTACT "MISS UTILITY" AT 1-800-257-7777 OR 811.

U3. THE OWNER AND/OR CONTRACTOR ARE RESPONSIBLE FOR COORDINATION AND RELOCATION OF ANY AND ALL UTILITIES IN CONFLICT WITH THE DESIGN AND PREPARATION OF ANY RELOCATION EASEMENT DOCUMENTS.

U4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COST INCURRED FOR THE RELOCATION OF OR DAMAGE TO ANY PUBLIC UTILITIES BECAUSE OF CONSTRUCTION.

U5. TEST PITS SHALL BE REQUESTED A MINIMUM OF 48 HOURS IN ADVANCE FOR THOSE UTILITIES REQUIRING THEM.

U6. THIS SITE WILL BE SERVED BY PUBLIC WATER AND SEWER.

U7. NO PRIVATE SIGNS, BUILDINGS, FENCES, TREES, LANDSCAPING OR SIMILAR STRUCTURES WILL BE CONSTRUCTED WITHIN A WATERLINE, SANITARY SEWER OR STORM DRAINAGE EASEMENT UNLESS AN ENCROACHMENT AGREEMENT HAS BEEN EXECUTED BETWEEN THE OWNER AND THE PRINCE WILLIAM COUNTY SERVICE AUTHORITY (WATERLINE/SANITARY SEWER) OR THE TOWN OF HAYMARKET (STORM DRAINAGE).

U8. WATER METERS ARE THE PROPERTY OF THE PRINCE WILLIAM COUNTY SERVICE AUTHORITY (PWCSA).

U9. ALL CONNECTIONS TO EXISTING SANITARY MANHOLES WILL BE CORE BORED AND INSTALLED WITH A RUBBER BOOT.

U10. CLEAN OUT TOPS IN ROADWAYS AND SIDEWALKS TO BE FLUSH WITH THE SURFACE. CLEAN OUT TOPS IN PAVEMENT TO BE ABLE TO WITHSTAND VEHICULAR TRAFFIC.

U11. ALL ROOF LATERALS LOCATED ONSITE ARE TO BE PRIVATELY MAINTAINED.

U12. SHOULD WATER WELLS AND OR SEPTIC TANKS BE FOUND ON THE PROPERTY THEY MUST BE PROPERLY ABANDONED VIA PERMITS FROM THE PRINCE WILLIAM HEALTH DISTRICT. PLEASE CONTACT THE DISTRICT AT 703-792-6310 X2 TO DISCUSS THOSE REQUIREMENTS.

U13. OTHER UTILITIES (INCLUDING BUT NOT LIMITED TO CABLE, ELECTRIC, GAS, TELEPHONE, COMMUNICATIONS) SHALL BE GRANTED SEPARATE EASEMENTS BY THE OWNER.

U14. MAINTAIN A MINIMUM VERTICAL CLEARANCE OF ONE (1) FOOT SIX (6) INCHES BETWEEN CROSSING OF ALL UTILITY LINES UNLESS OTHERWISE NOTED.

U15. ALL UTILITIES PLACED UNDER EXISTING STREETS SHALL BE BORED OR JACKED.

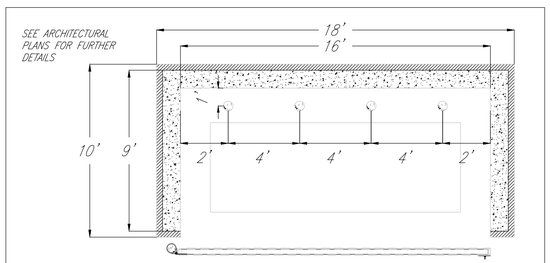
U16. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.

U17. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.

U18. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.

U19. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.

U20. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH MS-19 STANDARDS.



DUMPSTER SCREENING PLAN

Project Number	SP20220324	
Project Name	Haymarket Town Center Redevelopment	
	Acres	% of Total Site Area
Total Site Area	1.50	100%
Easement Area		
Waterline	0.10	6.67%
Building Area		
1	0.02	1.33%
2	0.14	9.33%
3	0.05	3.33%
4	0.01	0.67%
5	0.02	1.33%
Total	0.24	16.00%
Parking Lot Area	0.50	33.33%
SWM Area	0.05	3.33%
Sidewalk Area	0.20	13.33%

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA SCOTT WOODARD Lic. No. 053821 1/26/2023 PROFESSIONAL ENGINEER

NOTES & DETAILS

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.02

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

(1) Ex. Catch Basin
Ex. Top=366.70
Ex. Inv. Out=361.50(15" Conc.)

(2) Ex. Catch Basin
Ex. Top=366.72
Ex. Inv. In=361.36(From-1)
Ex. Inv. In=360.40(From-3)
Ex. Inv. Out=360.30(30" Conc.)

(3) Ex. Storm MH
Ex. Top=366.13
Ex. Inv. In=360.40
Ex. Inv. Out=360.35(27" Conc.)

(4) Ex. Storm MH
Ex. Top=366.18
Unable to open structure

(5) Ex. Catch Basin
Ex. Top=366.60
Ex. Inv. In=361.05
Ex. Inv. Out=360.95(18" Conc.)

(6) Ex. Catch Basin
Ex. Top=366.40
Ex. Inv. In=361.28
Ex. Inv. Out=361.20(30"x19" Conc.)

(7) Ex. Storm MH
Ex. Top=366.43
Ex. Inv. In=362.60(From-9)
Ex. Inv. In=362.05(From-8)
Ex. Inv. Out=361.70(30"x19" Conc.)

(8) Ex. Storm Grate
Ex. Top=365.78
Ex. Inv. In=361.95
Ex. Inv. Out=361.88(6" CCP)

(9) Ex. Catch Basin
Ex. Top=366.68
Ex. Inv. Out=362.67(15" Conc.)

(10) Ex. Storm Grate
Ex. Top=367.48
Ex. Inv. In=362.30(Direction Unknown)
Ex. Inv. Out=362.20(24" PVC)

(11) Ex. Storm Grate
Ex. Top=366.50
Ex. Inv. In=364.80(6" DIP)
Ex. Inv. In=364.70(10" DIP)
Ex. Inv. Out=364.65(10" DIP)
Pipe directions unknown

(12) Ex. Catch Basin
Ex. Top=364.87
Ex. Inv. In=359.23
Ex. Inv. Out=359.05(24" Conc.)

(13) Ex. Catch Basin
Ex. Top=361.05
Ex. Inv. In=358.60
Ex. Inv. Out=Ditch

(14) Ex. Catch Basin
Ex. Top=372.38
Ex. Inv.=360.68(15" Conc.)

(15) Ex. Storm Grate
Ex. Top=357.15
Ex. Inv. In=353.85

(16) Ex. Storm MH
Ex. Top=359.75
Ex. Inv. In=354.90
Ex. Inv. Out=354.60(30" Conc.)

(17) Ex. Catch Basin
Ex. Top=365.27
Ex. Inv. In=358.78(From-18)
Ex. Inv. In=361.44(From-19)
Ex. Inv. Out=358.54(30" Conc.)

(18) Ex. Storm MH
Ex. Top=365.62
Ex. Inv. In=360.08(From-20)
Ex. Inv. In=359.44(From-22)
Ex. Inv. Out=359.40(27" Conc.)

(19) Ex. Catch Basin
Ex. Top=365.45
Ex. Inv. In=362.07
Ex. Inv. Out=362.01(18" Conc.)

(20) Ex. Catch Basin
Ex. Top=365.65
Ex. Inv. In=361.12(12" Conc.)
Ex. Inv. Out=360.61(15" Conc.)

(21) Ex. Catch Basin
Ex. Top=365.55
Ex. Inv. Out=362.45(15" Conc.)

(22) Ex. Catch Basin
Ex. Top=365.88
Ex. Inv. In=360.25(22" Conc.)
Ex. Inv. Out=359.78(24" Conc.)

(EX.MH 078-7) Ex. San MH
Ex. Top=369.86
Ex. Inv. In=360.46
Ex. Inv. Out=360.20(8")

(EX.MH 078-6) Ex. San MH
Ex. Top=367.70
Ex. Inv. In=357.00
Ex. Inv. Out=356.80(8")

(EX.MH 091-3.3) Ex. San MH
Ex. Top=366.35
Ex. Inv. In=356.15(From-C)
Ex. Inv. In=354.55(From-E)
Ex. Inv. Out=354.45(8")

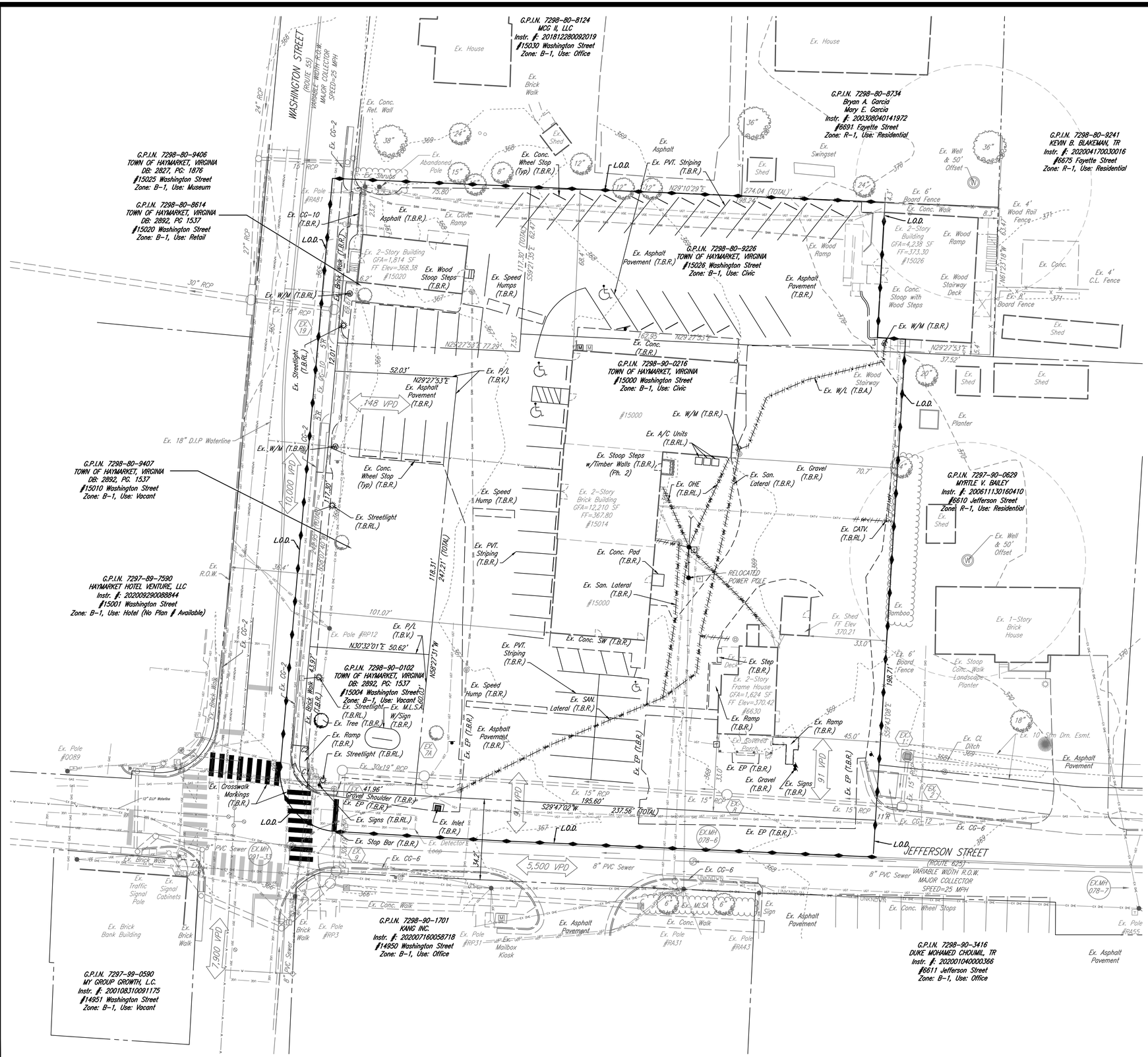
CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	13.40'	15.35'	8.64'	14.53'	S88°35'15"W	65°38'02"
C2	5711.98'	4.26'	2.13'	4.26'	N58°08'57"W	0°02'34"
C3	5711.98'	3.70'	1.85'	3.67'	S58°08'47"E	0°02'14"
C4	14.50'	13.47'	7.27'	12.99'	S55°11'01"W	53°13'34"

ABBREVIATIONS LEGEND:
T.B.RL. – DENOTES "TO BE RELOCATED"
T.B.R. – DENOTES "TO BE REMOVED"
T.B.V. – DENOTES "TO BE VACATED"
T.B.A. – DENOTES "TO BE ABANDONED"
T.B.RP. – DENOTES "TO BE REPLACED"

VCS NORTH 1983

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.



Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

EXISTING CONDITIONS & DEMOLITION PLAN

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.03

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	13.40'	15.35'	8.64'	14.53'	S88°35'15"W	65°38'02"
C2	5711.98'	4.26'	2.13'	4.26'	N58°08'57"W	0°02'34"
C3	5711.98'	3.70'	1.85'	3.67'	S58°08'47"E	0°02'14"
C4	14.50'	13.47'	7.27'	12.99'	S55°11'01"W	53°13'34"

ABBREVIATIONS

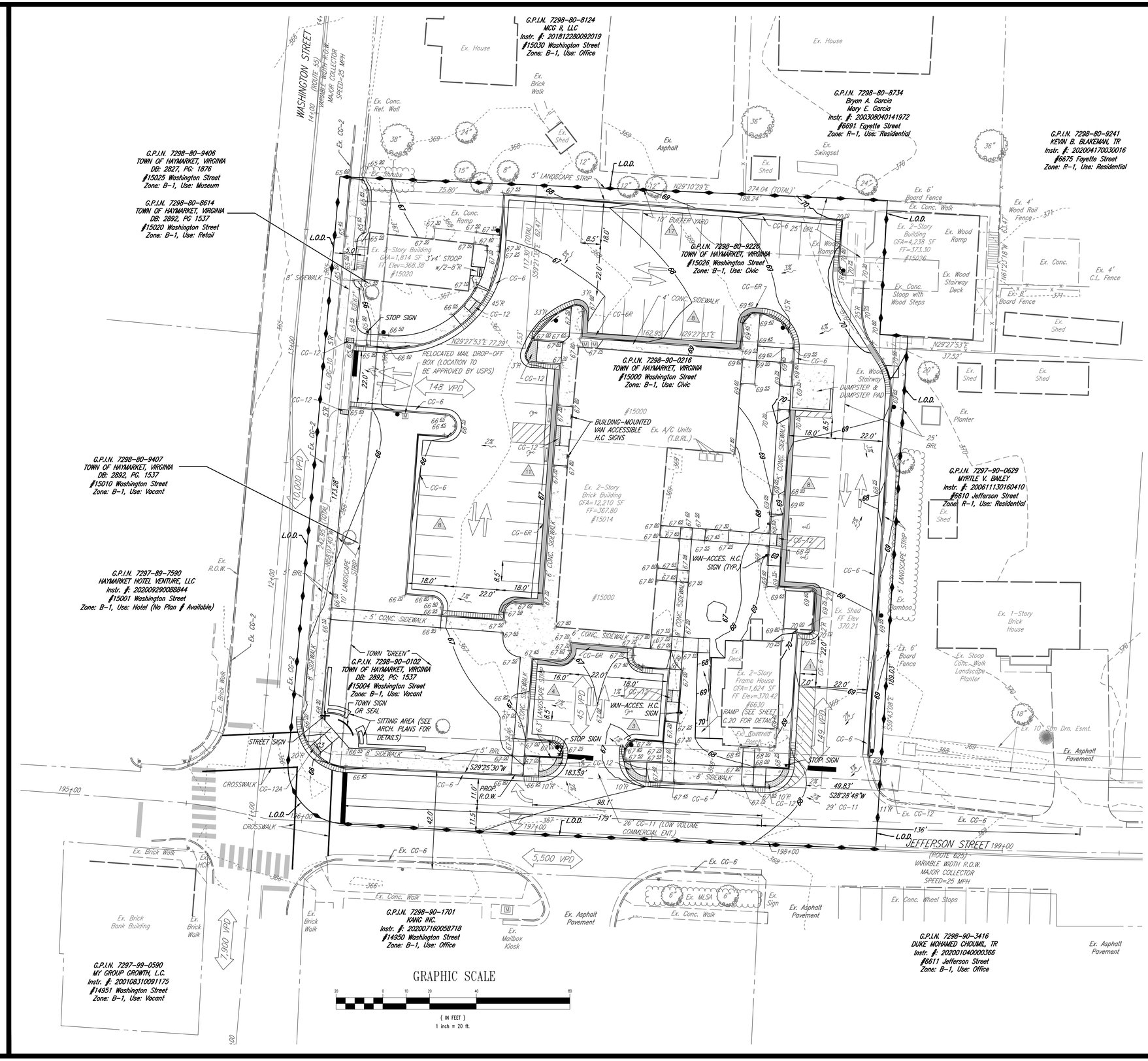
APPROX.	– APPROXIMATE
A=	– ARC LENGTH
B.O.V.	– BLOW OFF VALVE
B.R.L.	– BUILDING RESTRICTION LINE
℄	– CENTER LINE
C.O.	– CLEAN OUT
CONC.	– CONCRETE
C&G	– CURB AND GUTTER
D.B.	– DEED BOOK
DRN.	– DRAINAGE
D.I.P.	– DUCTILE IRON PIPE
ESMT.	– EASEMENT
E.P.	– EDGE OF PAVEMENT
ENT.	– ENTRANCE
EX.	– EXISTING
ELEV.	– ELEVATION
F.C.	– FACE OF CURB RADIUS
F.H.	– FIRE HYDRANT
H.C.	– HANDICAPPED
H.H.	– HAND HOLE
INSTR.#	– INSTRUMENT NUMBER
INV.	– INVERT
LAT.	– LATERAL
L.P.	– LIGHT POLE
L.D.	– LOADING DOCK
L.S.	– LOADING SPACE
M.H.	– MAN HOLE
MEP	– MECHANICAL/ELECTRICAL/PLUMBING
M.L.S.A	– MULCHED LANDSCAPE AREA
N/F	– NOW/FORMERLY
O.D.	– OVERHEAD DOOR
PG.	– PAGE
PVMT.	– PAVEMENT
PVC.	– POLYVINYL CHLORIDE
PROP.	– PROPOSED
RCP	– REINFORCED CONCRETE PIPE
RET. WALL	– RETAINING WALL
R/W	– RIGHT OF WAY
SAN.	– SANITARY
SEW.	– SEWER
S/W	– SIDEWALK
SF	– SQUARE FEET
STM.	– STORM
T.M.	– TAX MAP
TEMP.	– TEMPORARY
T.B.A	– TO BE ABANDONED
T.B.R.	– TO BE REMOVED
TYP.	– TYPICAL
V.A.	– VAN ACCESSIBLE
W/L	– WATERLINE
W/M	– WATER METER

LEGEND

PROPOSED	EXISTING	DESCRIPTION
○	Ⓢ	SANITARY MANHOLE
MH#	Ⓢ#	SANITARY STRUCTURE NUMBER
CP	CP	SANITARY CLEAN OUT NUMBER
○	◎	SANITARY CLEANOUT
T	T	TELEPHONE MANHOLE
☼	☼	LIGHT POLE
⊗	⊗	WATER VALVE
✱	✱	FIRE HYDRANT
◎	◎	WATER METER
▼	▼	STREET SIGN
•	•	BOLLARD
	E/S#	STORM SEWER STRUCTURE NUMBER
♿	♿	HANDICAP SPACE
~	~	FLOW ARROW
		GUY WIRE
+22.83	+22.95	SPOT ELEVATION
W	W	WATERLINE
		LIMITS OF DISTURBANCE
		PROPERTY LINE
		EDGE OF PAVEMENT
		CURB & GUTTER (CG-6)
		STORM SEWER DRAIN
		ITEMS TO BE REMOVED
		TREE LINE
	○	UTILITY POLE
230 VPD		VEHICLES PER DAY COUNT
		TEST PIT REQUIRED
+		PROPOSED TREE

NOTES:
1. ALL CURB RADII ARE MEASURED FROM THE FACE OF CURB. ALL CURB RADII ARE 5' UNLESS INDICATED OTHERWISE.
2. THIS SHEET SHOWS ONLY THE PHASE 1 PROPOSED PLAN IMPROVEMENTS.
3. TOWN OF HAYMARKET SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE SIDEWALK AND LIGHTS ALONG JEFFERSON AND WASHINGTON STREETS ON THE SITE FRONTAGE.
4. MAINTENANCE OF ALL PROPOSED SIDEWALK AND HANDICAP RAMPS SHOWN ON THIS PLAN ARE THE RESPONSIBILITY OF THE TOWN OF HAYMARKET.

VCS NORTH 1983



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 065821
PROFESSIONAL ENGINEER
1/26/2023

SITE PLAN – PHASE 1

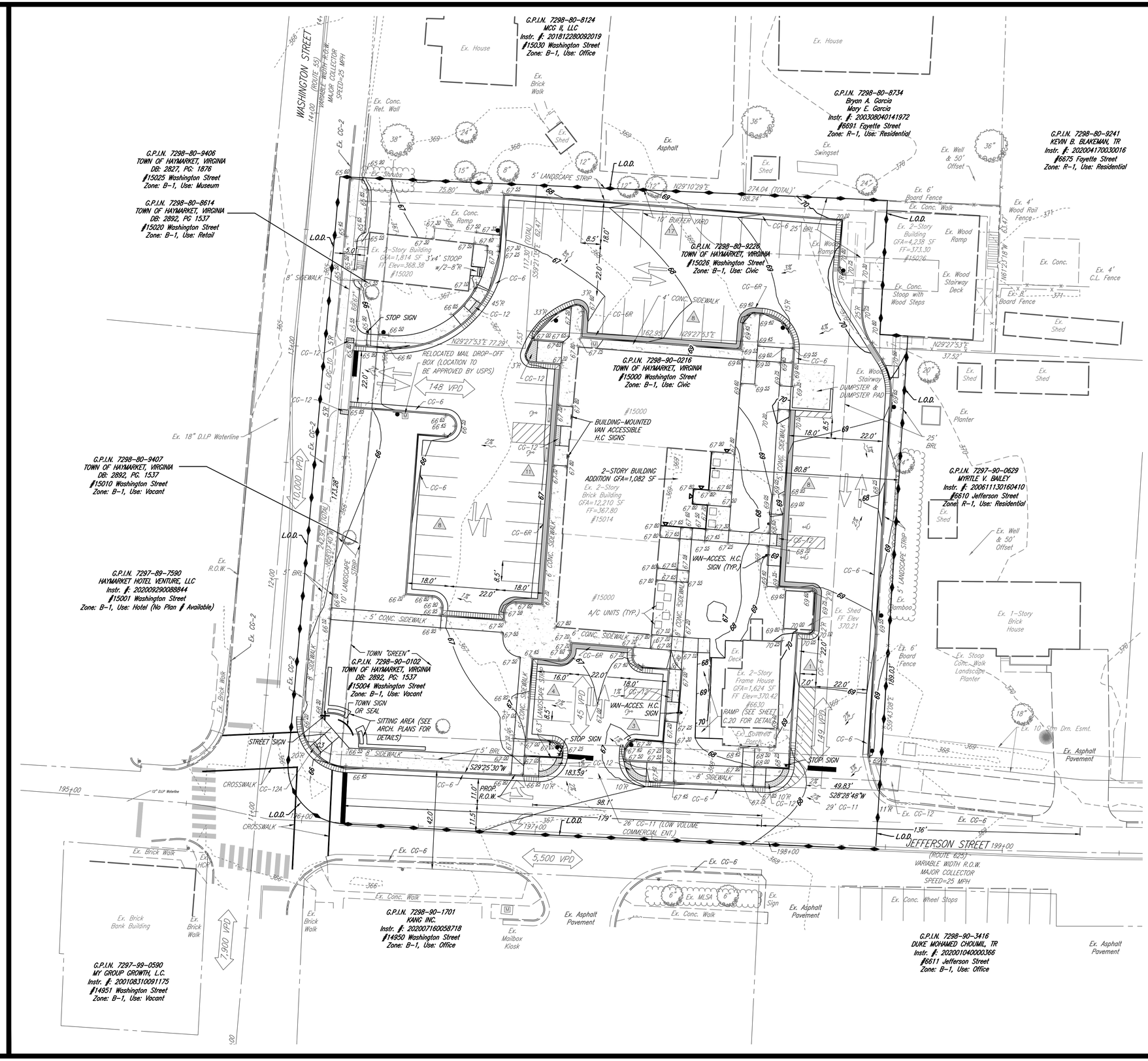
HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE:	JANUARY 26, 2023
DESIGN BY:	JLK, SAW
CHECKED BY:	JLK, SAW
ARCHITECT:	N/A
JURISDICTIONAL PLAN NO.	SP20220324
RDA PLAN #:	14096-002
SHEET NUMBER:	C.04

Attachment: 02. SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



NOTES:
1. ALL CURB RADII ARE MEASURED FROM THE FACE OF CURB. ALL CURB RADII ARE 5' UNLESS INDICATED OTHERWISE.
2. THIS SHEET SHOWS ONLY THE PHASE 2 PROPOSED PLAN IMPROVEMENTS.
3. MAINTENANCE OF ALL PROPOSED SIDEWALK AND HANDICAP RAMPS SHOWN ON THIS PLAN ARE THE RESPONSIBILITY OF THE TOWN OF HAYMARKET.
4. PRIOR TO THE IMPLEMENTATION OF THE JEFFERSON STREET LANE MARKINGS SHOWN ON THIS SHEET, A TRAFFIC SIGNAL MODIFICATION PLAN SHALL BE PREPARED AND APPROVED BY VDOT, INCLUDING AN EVALUATION OF ANY NECESSARY RECEIVING ALIGNMENT CHANGES ACROSS WASHINGTON STREET.

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Lic. No. 065821
PROFESSIONAL ENGINEER
1/26/2023

SITE PLAN - PHASE 2

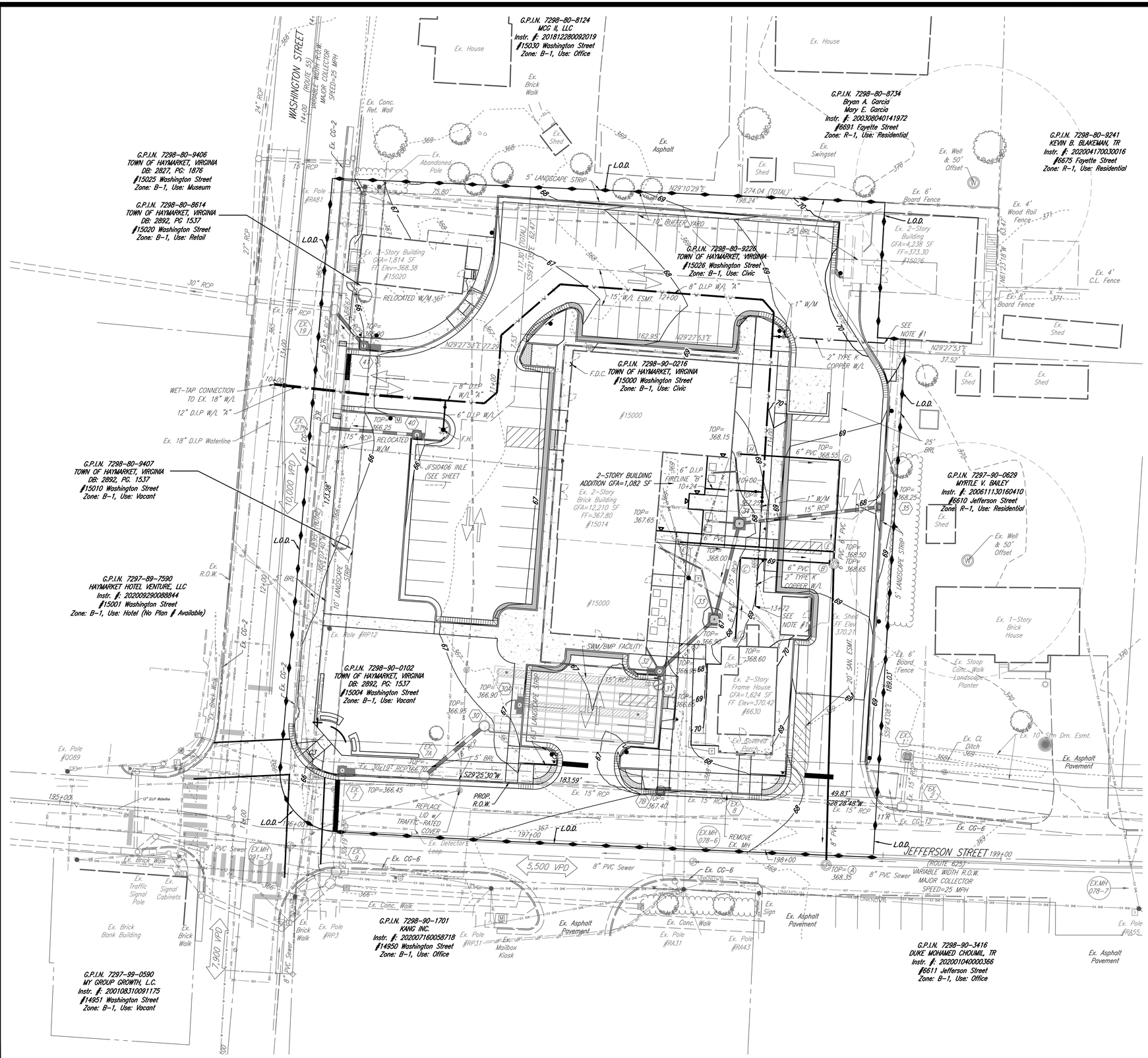
HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE:	JANUARY 26, 2023
DESIGN BY:	JLK, SAW
CHECKED BY:	JLK, SAW
ARCHITECT:	N/A
JURISDICTIONAL PLAN NO.	SP20220324
RDA PLAN #:	14096-002
SHEET NUMBER:	C.05

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



NOTE:
1. CONTRACTOR TO RECONNECT SERVICE TO EXISTING BUILDINGS.
2. THIS SHEET SHOWS BOTH THE PHASE 1 AND PHASE 2 IMPROVEMENTS. THE CONTRACTOR SHALL ONLY CONSTRUCT THE 8"x6" TEE AND 6" VALVE FOR THE 6" FIRELINE WITH THE PHASE 1 IMPROVEMENTS. A RESTRAINED PLUG AND CONCRETE KICKER SHALL BE INSTALLED BEHIND THE 6" VALVE, WHICH SHALL BE REMOVED WHEN THE 6" FIRELINE IS CONTRUCTED WITH THE PAHSE 2 IMPROVEMENTS.
3. SEE SHEET C.13 FOR ROOF DRAIN DETAILS.
4. THE CONTRACTOR SHALL COORDINATE ALL REQUIRED DRY UTILITY RELOCATIONS WITH EACH UTILITY OWNER FOR THEIR DESIGN AND APPROVAL.
5. PRIOR TO THE IMPLEMENTATION OF THE JEFFERSON STREET LANE MARKINGS SHOWN ON THIS SHEET, A TRAFFIC SIGNAL MODIFICATION PLAN SHALL BE PREPARED AND APPROVED BY VDOT, INCLUDING AN EVALUATION OF ANY NECESSARY RECEIVING ALIGNMENT CHANGES ACROSS WASHINGTON STREET.

VCS NORTH 1983

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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SCOTT WOODARD
Lic. No. 063821
PROFESSIONAL ENGINEER
1/26/2023

SITE PLAN – UTILITIES

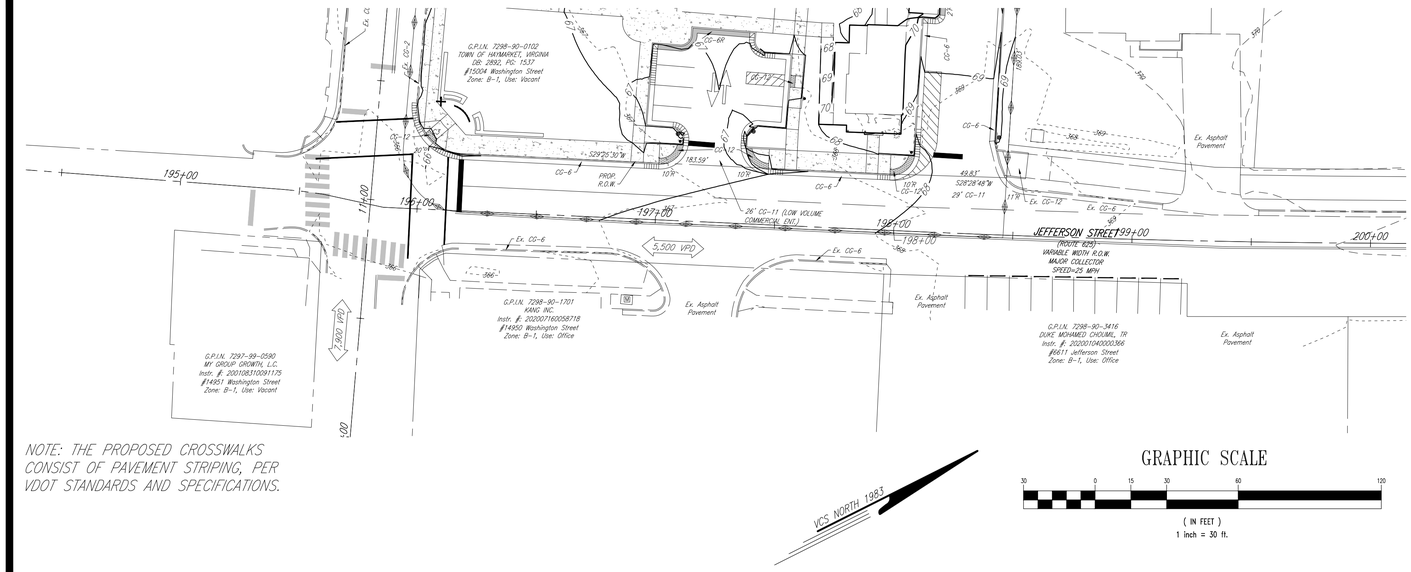
HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.06

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



NOTE: THE PROPOSED CROSSWALKS CONSIST OF PAVEMENT STRIPING, PER VDOT STANDARDS AND SPECIFICATIONS.

VCS, NORTH 1983

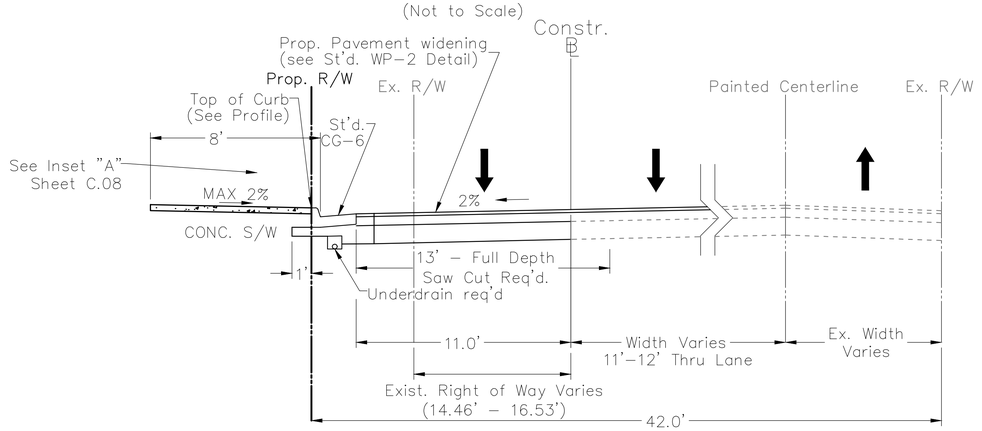
GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

Jefferson Street, Route 625

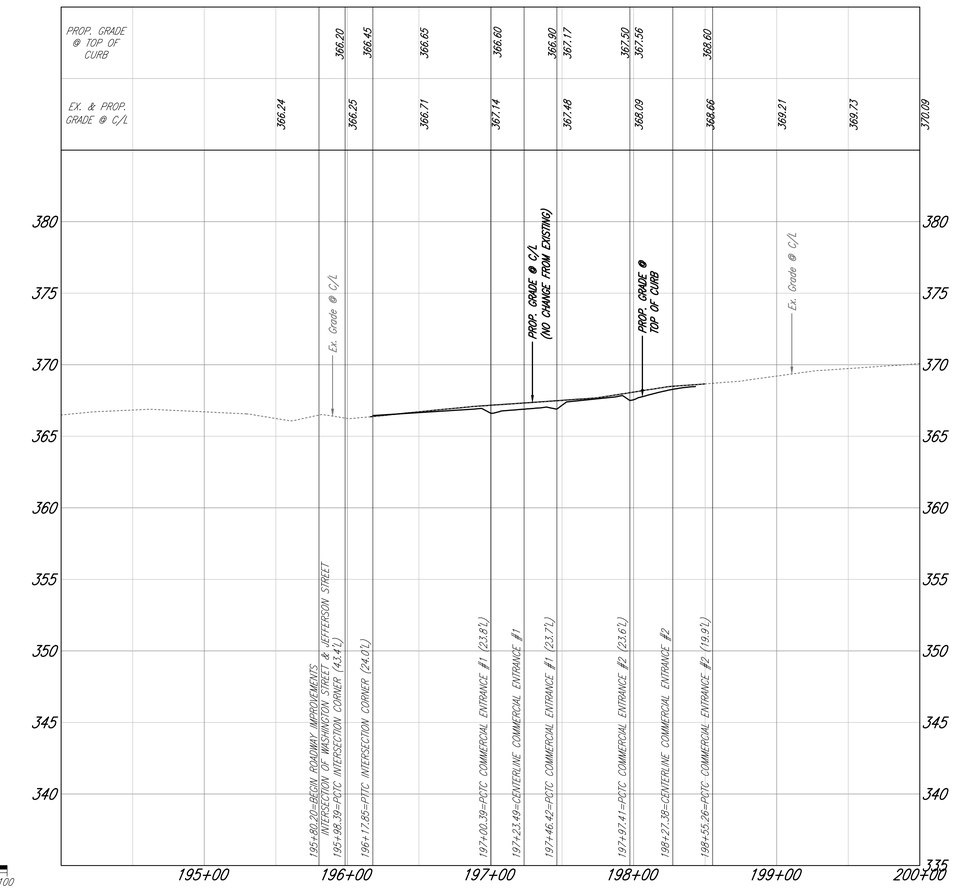
TYPICAL SECTION
Phase 1 & Phase 2 Development
VDOT St'd. GS-8: V=25 MPH
(Not to Scale)



LOCATION	STATION	TO	STATION
Jefferson Street Posted Speed 25 MPH	196+12.64		198+43.26

NOTE: NO ALIGNMENT CHANGES OR WIDENING ARE REQUIRED ACROSS WASHINGTON STREET (RT. 55).

JEFFERSON ST CENTERLINE ALIGNMENT



PROFILE VIEW
GRAPHIC SCALE
1"=50' (H)
1"=5' (V)
0 2.5 5
0 25 50 75 100

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1/26/2023

ROAD PROFILES

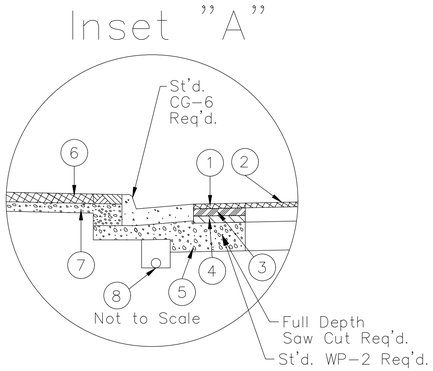
HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE:	JANUARY 26, 2023
DESIGN BY:	JLK, SAW
CHECKED BY:	JLK, SAW
ARCHITECT:	N/A
JURISDICTIONAL PLAN NO.	SP20220324
RDA PLAN #:	14096-002
SHEET NUMBER:	C.07

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



INSET DESIGN LEGEND

1. Surface Course – (2") Asph. Conc., Type SM-9.5A @ 220 lbs/sq. yd.
2. Mill & Overlay – Milled to depth of (2") and replaced W/ (2") Asph. Conc., Type SM-9.5A @ 220 lbs/sq. yd.
3. Intermediate Course – (2") Asph. Conc., Type IM-19.0A @ 220 lbs/sq. yd.
4. Base Course – (5") Asph. Conc., BM-25.0A
5. Sub-Base Course – 4" Aggr. Base Material, Type 1, Size No. 21B extended 12" from the back of curb (Min. 6" base below curb) connected to UD-4 edge drains beneath C&G.
6. Surface Course – (4") Asph. Conc. Type SM-9.5A @ 220 lbs/sq. yd.
7. (4") Aggr. Base Material, Type 1, Size No. 21B.
8. Modified UD-4 Req'd.

Typical Section General Notes

1. Contractor is required to match the existing depth of pavement and to ensure positive drainage to proposed UD-4. All quantities associated to match existing pavement are to be included in Contractor's bid.

GENERAL NOTES FOR ROAD CONSTRUCTION / WIDENING

1. SEE ROAD NOTES ON SHEET C.02.
2. ALL ST'D VDOT ITEMS TO BE BUILT IN ACCORDANCE WITH THE LATEST ROAD & BRIDGE STANDARDS AND SPECIFICATIONS.
3. INTERSECTION SIGHT DISTANCE SHALL BE A MINIMUM FOR A DESIGN SPEED OF 25 MPH.
4. STOPPING SIGHT DISTANCE IS BASED UPON 3.5' HEIGHT OF EYE AND 3.5' HEIGHT OF OBJECT.
5. CONSTRUCTION PROVIDED FOR PARTIAL SECTION (SEE PLAN). VERIFY EDGE OF PAVEMENT AND CENTERLINE GRADES PRIOR TO FINAL CONSTRUCTION.
6. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE TOWN AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE CONTINUANCE OF SERVICE.
7. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF HAYMARKET AND VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.
8. TEST PITS SHALL BE REQUESTED A MINIMUM OF 48 HOURS IN ADVANCE FOR THOSE UTILITIES REQUIRING THEM.
9. PROVIDE UNDERDRAINS IN ACCORDANCE WITH VDOT ROAD AND BRIDGE SPECIFICATIONS IF REQUIRED FOR ALL TYPICAL SECTIONS.
10. THE CONTRACTOR SHALL OBTAIN PAVEMENT CORES TO VERIFY THE EXISTING JEFFERSON & WAHINGTON STREET THICKNESS AND MATERIALS.
11. ALL R/W DEDICATED TO PUBLIC USE SHALL BE CLEAR AND UNENCUMBERED.
12. PER LOCATION OF EXISTING UTILITY PEDESTALS AND MARKERS IN THE GENERAL AREA OF THE WIDENING, UTILITIES THAT CONFLICT WITH THE PROPOSED CONSTRUCTION MAY HAVE TO BE ADJUSTED OR RELOCATED. FINAL PLANS FOR THE RELOCATION OF DRY UTILITIES WILL BE COORDINATED BETWEEN THE CONTRACTOR, THE TOWN OF HAYMARKET, AND UTILITY COMPANIES PRIOR TO CONSTRUCTION.
13. ALL PAVEMENT WIDENING SHALL BE PERFORMED IN ACCORDANCE WITH VDOT'S WP-2 DETAIL.
14. CONNECT UNDERDRAINS (UD-4) TO EXISTING STORM STRUCTURES 7 AND 7A.

VDOT STANDARD NOTES REVISED 10/9/19

1. THESE PLANS WERE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF (SELECT ONE):
   - [X] VDOT SECONDARY STREET ACCEPTANCE REQUIREMENTS (SSAR 24VAC-30-92, EFFECTIVE FEBRUARY 1, 2012 AND VDOT ROAD DESIGN MANUAL APPENDIX B1).
   - [ ] VDOT SECONDARY STREET ACCEPTANCE REQUIREMENTS (SSAR 24VAC-30-92 EFFECTIVE FEBRUARY 1, 2012 AND VDOT ROAD DESIGN MANUAL APPENDIX B2 AS APPROVED FOR USE IN DESIGNATED HIGH DENSITY DEVELOPMENT AREAS).
2. VDOT APPROVED EXCEPTIONS/WAIVERS (MUST BE INCORPORATED IN THE PLAN):
   ACCESS MANAGEMENT – DATE OF APPROVAL: PENDING
   SSAR– DATE OF APPROVAL: N/A
   DESIGN WAIVER – DATE OF APPROVAL: N/A
   OTHER: N/A DATE OF APPROVAL: N/A
3. SSAR CONNECTIVITY SUMMARY (PROVIDE A CHECK MARK ☐ WHERE APPLICABLE OR WRITE N/A):
   CONNECTIONS IN MULTIPLE DIRECTIONS (FIRST CONNECTION MUST BE TO A VDOT MAINTAINED ROAD, THE SECOND CONNECTION MAY EITHER BE TO A VDOT ROAD OR TO A STUB OUT) N/A
   STUB OUT CONNECTION (THE PROP. RIGHT OF WAY TERMINATES AT PARCEL ABUTTING THE DEVELOPMENT AND CONSISTS OF A SHORT SEGMENT THAT IS INTENDED TO SERVE CURRENT AND FUTURE DEVELOPMENT; THE APPLICANT MUST VERIFY THAT CONNECTION WITH A FUTURE STREET IS FEASIBLE) N/A
   NETWORK ADDITIONS PROVIDING DIRECT ACCESS TO (I) MORE THAN 200 DWELLING UNITS OR (II) LOTS WHOSE TRIP GENERATION IS EXPECTED TO BE OVER 2,000 VPD MAY BE ACCEPTED INTO THE SECONDARY SYSTEM OF STATE HIGHWAYS IF THE NETWORK ADDITION PROVIDES AN ADDITIONAL EXTERNAL CONNECTION BEYOND THAT REFERENCED ABOVE. N/A
4. ALL WORK ON THIS PROJECT SHALL CONFORM TO THE CURRENT EDITIONS OF AND LATEST REVISIONS TO THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD AND BRIDGE SPECIFICATIONS AND STANDARDS, THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS, AND ANY OTHER APPLICABLE STATE, FEDERAL OR LOCAL REGULATIONS. IN CASE OF A DISCREPANCY OR CONFLICT BETWEEN THE STANDARDS OR SPECIFICATIONS AND REGULATIONS, THE MOST STRINGENT SHALL GOVERN.
5. ALL RIGHT OF WAY DEDICATED TO PUBLIC USE SHALL BE CLEAR AND UNENCUMBERED.
6. ALL UTILITIES, INCLUDING ALL POLES, ARE TO BE RELOCATED AT THE DEVELOPER'S EXPENSE, PRIOR TO CONSTRUCTION.
7. THE DEVELOPER IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING ROADS AND UTILITIES WHICH OCCUR AS A RESULT OF PROJECT CONSTRUCTION WITHIN OR CONTIGUOUS TO EXISTING RIGHT OF WAY.
8. OPEN CUTTING OF PAVED OR SURFACE TREATED ROADS IS NOT PERMITTED. ALL UTILITIES WHICH WILL BE PLACED UNDER EXISTING STREETS ARE TO BE BORED OR JACKED. ANY EXCEPTIONS, DUE TO EXTENUATING CIRCUMSTANCES, ARE TO BE ADDRESSED AT THE PERMIT STAGE.
9. THE PAVEMENT DESIGN IS BASED ON AN ASSUMED CBR VALUE OF 10 (USE A CBR VALUE OF 6 IN LOUDOUN CO.). SOIL TESTS OF SUBGRADE MUST BE SUBMITTED FOR THE ACTUAL DETERMINATION OF THE REQUIRED THICKNESS OF THE PAVEMENT INCLUDING LAYERS OF ASPHALT AND SUBBASE PRIOR TO SUBBASE PLACEMENT.
10. PAVEMENT DESIGN SHALL BE PROVIDED IN ACCORDANCE WITH THE PAVEMENT DESIGN GUIDE FOR SUBDIVISION AND SECONDARY ROADS IN VIRGINIA. FOR PRIMARY ROADS AND INTERSTATE HIGHWAYS WHERE TRUCK TRAFFIC EXCEEDS 5%, PAVEMENT DESIGN SHALL BE PROVIDED IN ACCORDANCE WITH AASHTO GUIDELINES. TYPICAL PAVEMENT SECTIONS SHALL DEPICT THE TOP 6" OF THE SUBGRADE IMMEDIATELY UNDER THE PAVEMENT STRUCTURE COMPACTED TO 100% OF THE THEORETICAL MAXIMUM DRY DENSITY.
11. ALL UNTREATED AGGREGATE USED IN BASE OR SUBBASE COURSES SHALL BE 21B, EXCEPT ON ROADS WITH AN ADT OF 1000 VPD OR LESS, WHERE 21A AGGREGATE MAY BE USED. WHEN 21B AGGREGATE IS USED, UD-4 UNDERDRAINS MUST BE PROVIDED.
12. A 4"(MIN.) LAYER OF STONE IS REQUIRED BENEATH CURB AND GUTTER (MAY BE SHOWN ON TYPICAL SECTION IN LIEU OF A NOTE).
13. THE ENTIRE SURFACE OF THE ROADWAY (OLD AND NEW PORTIONS) SHALL BE OVERLAID AND RE-STRIPED AS REQUIRED BY VDOT PERSONNEL. OVERLAY OF EXISTING PAVEMENT SHALL BE A MINIMUM OF 1.25" DEPTH; ANY COSTS ASSOCIATED WITH PAVEMENT OVERLAY, OR THE MILLING OF EXISTING PAVEMENT TO OBTAIN REQUIRED DEPTH, SHALL BE ASSUMED BY THE DEVELOPER.
14. A SMOOTH GRADE SHALL BE MAINTAINED FROM THE CENTERLINE OF THE EXISTING ROAD TO THE PROPOSED EDGE OF PAVEMENT TO PRECLUDE THE FORMING OF FALSE GUTTERS AND/OR THE PONDING OF ANY WATER IN THE ROADWAY.
15. ASPHALT PAVEMENT WIDENING SHALL CONFORM TO VDOT STANDARD WP-2.
16. ANY TYPE OF REVERSE CURB (SPILL CURB, CG-6R, ETC.) AND TRANSITION TO THESE CURBS SHALL NOT BE USED WITHIN THE PUBLIC RIGHT OF WAY.
17. THE COUNTY/TOWN SHALL OBTAIN A PERMIT FOR ALL SIDEWALKS/CROSSWALKS WITHIN THE RIGHT OF WAY THAT DO NOT QUALIFY FOR VDOT MAINTENANCE.
18. ADDITIONAL DITCH LININGS OR SILTATION AND EROSION CONTROL MEASURES SHALL BE PROVIDED, AT THE DEVELOPER'S EXPENSE, AS DETERMINED NECESSARY BY VDOT AND/OR THE COUNTY/TOWN DURING FIELD REVIEW. ALL COSTS SHALL BE ASSUMED BY THE DEVELOPER.
19. STANDARD GUARDRAILS AND/OR HANDRAILS SHALL BE INSTALLED AT HAZARDOUS LOCATIONS AS DESIGNATED DURING FIELD REVIEW BY THE COUNTY/TOWN INSPECTOR OR VDOT.
20. A LANDSCAPING AND IRRIGATION SYSTEMS PLAN SHALL BE SUBMITTED FOR VDOT APPROVAL PRIOR TO INSTALLING ANY LANDSCAPING AND IRRIGATION SYSTEMS WITHIN THE PUBLIC RIGHT OF WAY.
21. FLOWERS, SHRUBS, TREES, AND IRRIGATION SHALL NOT BE PLACED WITHIN STATE MAINTAINED RIGHT OF WAY LIMITS WITHOUT AN APPROVED SET OF PLANS AND AN APPROVED PLANTING AGREEMENT. NO IRRIGATION (SPRINKLER) SYSTEMS, BRICK COLUMNS, END WALLS, AND/OR BRICK MAILBOXES WILL BE CONSTRUCTED OR INSTALLED WITHIN STATE MAINTAINED RIGHT OF WAY LIMITS WITHOUT A PERMIT. ANY OF THE ABOVE ITEMS FOUND IN THE RIGHT OF WAY WITHOUT A PERMIT WILL BE REMOVED, AND ALL COSTS OF THE REMOVAL WILL BE BORNE BY THE OWNER AND/OR DEVELOPER.
22. TRAFFIC CONTROL DEVICES OR ADVISORY SIGNS, SUCH AS MULTIWAY STOPS, SPEED LIMITS, WATCH FOR CHILDREN, PEDESTRIAN TRAFFIC ETC., SHALL NOT BE INSTALLED UNLESS SPECIFICALLY APPROVED BY VDOT TRAFFIC ENGINEERING SECTION. SHOULD UNAPPROVED SIGNS BE NOTED AT THE TIME OF VDOT INSPECTION, THE ROAD ACCEPTANCE PROCESS SHALL BE TERMINATED IMMEDIATELY AND NOT RECOMMENCED UNTIL A DETERMINATION IS MADE REGARDING THE APPROVAL OF ANY ADDITIONAL SIGNS. IMMEDIATE REMOVAL OF SUCH SIGNS SHALL NOT NEGATE THE NEED FOR THE SUBMISSION OF A REVISION.
23. A SPEED STUDY CERTIFIED BY A PROFESSIONAL ENGINEER SHALL BE SUBMITTED FOR VDOT APPROVAL PRIOR TO THE STREET ACCEPTANCE FOR ANY ROAD TO BE POSTED OTHER THAN THE STATUTORY SPEED LIMIT.
24. THE DEVELOPER IS RESPONSIBLE FOR ALL TRAFFIC CONTROL. THE DEVELOPER SHALL SUBMIT A SIGNING, STRIPING AND/OR SIGNALIZATION PLAN TO THE VDOT LAND DEVELOPMENT SECTION PRIOR TO PERMIT APPLICATION. THE DEVELOPER SHALL NOT COMMENCE CONSTRUCTION OF ANY PAVEMENT COURSE WITHOUT AN APPROVED STRIPING PLAN.
25. THE DEVELOPER IS RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ANY TRAFFIC SIGNAL INSTALLATION OR MODIFICATION WHICH WILL BE NECESSARY AS A RESULT OF THE DEVELOPMENT OF THIS SITE.
26. DURING CONSTRUCTION, THE MAINTENANCE OF TRAFFIC SHALL CONFORM TO THE REQUIREMENTS IN THE MOST RECENT VERSION OF THE VIRGINIA WORK AREA PROTECTION MANUAL AND THE MUTCD.
27. PAVEMENT WIDENING, AND MILL AND OVERLAY ASSOCIATED WITH THE PLAN SHALL BE DONE PER VDOT DETAIL WP-2.

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 065821
PROFESSIONAL ENGINEER
1/26/2023

ROAD DETAILS

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.08

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

7A-2

CHECKLIST

FOR EROSION AND SEDIMENT CONTROL PLANS

C.09 Minimum Standards - All applicable Minimum Standards must be addressed.

NARRATIVE

C.09 Project description - Briefly describes the nature and purpose of the land-disturbing activity, and the area (acres) to be disturbed.

C.09 Existing site conditions - A description of the existing topography, vegetation and drainage.

C.09 Adjacent areas - A description of neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance.

C.09 Off-site areas - Describe any off-site land-disturbing activities that will occur (including borrow sites, waste or surplus areas, etc.). Will any other areas be disturbed?

C.01 Soils - A brief description of the soils on the site giving such information as soil name, mapping unit, erodibility, permeability, depth, texture and soil structure.

C.09 Critical areas - A description of areas on the site which have potentially serious erosion problems (e.g., steep slopes, channels, wet weather/ underground springs, etc.).

C.09 Erosion and sediment control measures - A description of the methods which will be used to control erosion and sedimentation on the site. (Controls should satisfy minimum standards in Chapter 3.)

C.09 & C.10 Permanent stabilization - A brief description, including specifications, of how the site will be stabilized after construction is completed.

C.43 Stormwater runoff considerations - Will the development site cause an increase in peak runoff rates? Will the increase in runoff cause flooding or channel degradation downstream? Describe the strategy to control stormwater runoff.

C.31-C.32&C.43 Calculations - Detailed calculations for the design of temporary sediment basins, permanent stormwater detention basins, diversions, channels, etc. Include calculations for pre- and post-development runoff.

SITE PLAN

C.01 Vicinity map - A small map locating the site in relation to the surrounding area. Include any landmarks which might assist in locating the site.

C.04-C.05 Indicate north - The direction of north in relation to the site.

C.04-C.05 Limits of clearing and grading - Areas which are to be cleared and graded.

C.03 Existing contours - The existing contours of the site.

C.04-C.05 Final contours - Changes to the existing contours, including final drainage patterns.

C.03 Existing vegetation - The existing tree lines, grassed areas, or unique vegetation.

C.01 Soils - The boundaries of different soil types.

C.11, C.31 Existing drainage patterns - The dividing lines and the direction of flow for the different drainage areas. Include the size (acreage) of each drainage area.

N/A Critical erosion areas - Areas with potentially serious erosion problems. (See Chapter 6 for criteria.)

C.04-C.05 Site Development - Show all improvements such as buildings, parking lots, access roads, utility construction, etc.

C.11-C.12 Location of practices - The locations of erosion and sediment control and stormwater management practices used on the site. Use the standard symbols and abbreviations in Chapter 3 of the E&S Handbook.

N/A Off-site areas - Identify any off-site land-disturbing activities (e.g., borrow sites, waste areas, etc.). Show location of erosion controls. (Is there sufficient information to assure adequate protection and stabilization?)

C.10 Detail drawings - Any structural practices used that are not referenced to the E&S Handbook or local handbooks should be explained and illustrated with detail drawings.

C.09 Maintenance - A schedule of regular inspections and repair of erosion and sediment control structures should be set forth.

TEMPORARY SEEDING REQUIREMENTS –

1. LIMING: AN EVALUATION SHALL BE CONDUCTED TO DETERMINE IF LIME IS NECESSARY FOR TEMPORARY SEEDING. IN MOST SOILS, IT TAKES UP TO 6 MONTHS FOR A PH ADJUSTMENT TO OCCUR FOLLOWING THE APPLICATION OF LIME. THEREFORE, IT MAY BE DIFFICULT TO JUSTIFY THE COST OF LIMING A TEMPORARY SITE, ESPECIALLY WHEN THE SOIL WILL LATER BE MOVED AND REGRADED. TABLE 3.31A (THIS SHEET) MAY BE USED TO DETERMINE THAT ACTUAL NEED ALONG WITH SUGGESTED APPLICATION RATES.
2. FERTILIZER: SHALL BE APPLIED AT 600 LBS./AC. OF 10-20-10 OR EQUIVALENT NUTRIENTS. LIME AND FERTILIZER SHALL BE INCORPORATED INTO THE TOP 2 TO 4 INCHES OF THE SOIL.
3. SEEDING: SEEDING SHALL BE APPLIED WITH A BROADCAST SEEDER, DRILL, CULTIPACKER SEEDER OR HYDROSEEDER. SMALL GRAINS SHALL BE PLANTED NO MORE THAN ONE INCH DEEP. GRASSES AND LEGUMES SHALL BE PLANTED WITH NO LESS THAN ¼" SOIL COVER. FOR SEED SELECTION AND RATES SEE TABLE 3.31-B (THIS SHEET).
4. MULCHING: SEEDINGS MADE IN FALL FOR WINTER COVER AND DURING HOT AND DRY SUMMER MONTHS SHALL BE MULCHED ACCORDING TO MULCHING, STD. & SPEC. 3.35 (TABLE 3.35-A PROVIDED THIS SHEET), EXCEPT THAT HYDROMULCHES (FIBER MULCH) WILL NOT BE CONSIDERED ADEQUATE. STRAW MULCH SHALL BE USED DURING THESE PERIODS. TEMPORARY SEEDINGS MADE UNDER FAVORABLE SOIL AND SITE CONDITIONS DURING OPTIMUM SPRING AND FALL SEEDING DATES MAY NOT REQUIRE MULCH.

PERMANENT SEEDING REQUIREMENTS –

1. LIMING & FERTILIZING: LIME AND FERTILIZER NEEDS SHALL BE DETERMINED BY SOILS TESTS. SOIL TESTS MAY BE PERFORMED BY THE COOPERATIVE EXTENSION SERVICE SOIL TESTING LABORATORY AT VPI&SU, OR BY A REPUTABLE COMMERCIAL LABORATORY. INFORMATION CONCERNING THE STATE SOIL TESTING LABORATORY IS AVAILABLE FROM COUNTY EXTENSION AGENTS. IF SOIL TESTS ARE NOT POSSIBLE DUE TO UNUSUAL CONDITIONS, SEE THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK SECTION 3.32 FOR LIMING AND FERTILIZER NEEDS.
2. SEEDING: SEEDING SHALL BE APPLIED WITH A BROADCAST SEEDER, DRILL, CULTI-PACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE SEEDBED. SEEDING DEPTH SHALL BE ¼ TO ½ INCH. FOR SEED SELECTION AND RATES SEE TABLE 3.32-D C.10.
3. MULCHING: ALL PERMANENT SEEDING MUST BE MULCHED IMMEDIATELY UPON COMPLETION OF SEED APPLICATION. REFER TO MULCHING, STD. & SPEC. 3.35 (TABLE 3.35-A, C.10)

9VAC25-840-40 MINIMUM STANDARDS

AN EROSION AND SEDIMENT CONTROL PROGRAM ADOPTED BY A DISTRICT OR LOCALITY MUST BE CONSISTENT WITH THE FOLLOWING CRITERIA, TECHNIQUES AND METHODS:

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 FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
2. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOILS STOCKPILES ONSITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
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, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
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.
5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
6. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.
   A. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE 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 OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.
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.
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.
9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
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.
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.
12. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
13. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
14. ALL APPLICABLE FEDERAL, STATE, AND LOCAL CHAPTERS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IS COMPLETED.
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.
   B. EXCAVATED MATERIAL SHALL BE PLACED ON UPHILL SIDE OF TRENCHES.
   C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
   D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
   E. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
   F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
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.
18. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
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. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS:
   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:
      B.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;
      B.2. OR
      B.2.A. (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.
      B.2.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
      B.2.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:
      C.1. IMPROVE THE CHANNELS TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO CHANNEL THE BED OR BANKS; OR
      C.2. IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;
      C.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 PREDEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MANMADE CHANNEL; OR
      C.4. PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP 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 CONDITION OF THE SUBJECT PROJECT.
   F. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP 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 MANAGEMENT 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.
   L. ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO
      L.1. DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS;
      L.2. DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24- HOUR STORM; AND
      L.3. REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 10.1-562 OR 10.1-570 OF THE ACT.
   M. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 10.1-561 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 10.1-603.2 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH 4VAC50-60-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS.
   N. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 4VAC50-60-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF MINIMUM STANDARD 19.

EROSION/SEDIMENT CONTROL NARRATIVE:

PROJECT DESCRIPTION – THE PROJECT PROPOSES TO REDEVELOP THE EXISTING TOWN CENTER AND ASSOCIATED PARKING, UTILITIES, AND LANDSCAPING. THE PROJECT ALSO PROPOSES THE DEMOLITION OF EXISTING ASPHALT, EXISTING GRAVEL, AND RELOCATION OF EXISTING UTILITIES. THE TOTAL DISTURBED AREA IS 1.60 ACRES.

EXISTING SITE CONDITIONS – THIS SITE IS LOCATED AT THE INTERSECTION OF WASHINGTON STREET AND JEFFERSON STREET IN THE TOWN OF HAYMARKET. THE SITE IS DEVELOPED WITH 5 EXISTING BUILDINGS AND IS GENERALLY IMPERVIOUS WITH SMALL AMOUNTS OF GRASS. THE SITE DRAINS TO TWO DIFFERENT LOCAL STORM SEWER OUTFALL POINTS, WHICH ULTIMATELY DRAIN TO CATLETTS BRANCH-BROAD RUN AND LITTLE BULL RUN, RESPECTIVELY. THE EXISTING TOPOGRAPHY IS GENERALLY FLAT WITH SLOPES RANGING FROM 1% TO 4% AND DRAINAGE GENERALLY FLOWING TO THE SOUTH ACROSS THE SITE. THERE ARE EXISTING DRAINAGE ISSUES DUE TO THE FLAT SITE ELEVATIONS AND RUNOFF BEING DIRECTED TOWARDS BUILDINGS WITH LIMITED OVERLAND RELIEF.

ADJACENT PROPERTY – THE SITE IS BORDERED ON THE NORTH AND WEST BY EXISTING RESIDENTIAL DEVELOPMENT, ON THE SOUTH BY COMMERCIAL AND RESIDENTIAL DEVELOPMENT, AND ON THE EAST BY COMMERCIAL DEVELOPMENT.

OFF-SITE AREAS – ANY OFF SITE BORROW AREAS WILL HAVE EROSION & SEDIMENT MEASURES AS REQUIRED.

SOILS – REFER TO SOILS MAP ON SHEET C.01 AND THE GEOTECHNICAL REPORT FOR SOILS INFORMATION.

CRITICAL EROSION AREAS – NO WETLANDS, RPA, OR 100 YEAR FLOODPLAINS EXIST ON SITE.

EROSION/SEDIMENT CONTROL MEASURES – UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, COMMONWEALTH OF VIRGINIA E&S CONTROL REGULATIONS, AND TO THE TOWN OF HAYMARKET ZONING AND SUBDIVISION ORDINANCE. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL COMPLETE AND ADEQUATE STABILIZATION IS ACHIEVED. ALL EROSION CONTROL MEASURES SHOWN ON THE APPROVED PLAN MUST BE IN PLACE, INSPECTED, AND APPROVED BY THE INSPECTOR PRIOR TO CLEARING, STRIPPING OF TOPSOIL OR GRADING.

STRUCTURAL PRACTICES –

1. SAFETY FENCE-3.01
   SAFETY FENCE SHALL BE INSTALLED AROUND THE LIMITS OF DISTURBANCE. THE LOCATION OF THE SAFETY FENCE MAY BE ADJUSTED AND/OR REMOVED IN SOME LOCATIONS TO ALLOW FOR CONSTRUCTION ACTIVITIES TO TAKE PLACE. CHANGES IN LOCATION OR REMOVAL OF PORTIONS OF THE FENCE SHALL BE COORDINATED WITH THE INSPECTOR.
2. CONSTRUCTION ENTRANCE-3.02
   A TEMPORARY CONSTRUCTION ENTRANCE WITH A WASH RACK SHALL BE INSTALLED AT THE SITE ENTRANCE LOCATED ON DISCOVERY BOULEVARD. DURING MUDDY CONDITIONS, DRIVERS OF CONSTRUCTION VEHICLES SHALL BE REQUIRED TO WASH THEIR WHEELS BEFORE ENTERING THE STREET TO PREVENT SEDIMENT FROM ENTERING THE STATE ROADWAY SYSTEM.
3. SILT-FENCE BARRIER-3.05/SUPER SILT FENCE
   SILT FENCE SEDIMENT BARRIERS SHALL BE INSTALLED DOWN SLOPE OF AREAS WITH MINIMAL GRADES TO FILTER SEDIMENT-LADEN RUNOFF FROM SHEET FLOW.
4. STORM DRAIN INLET PROTECTION-3.07
   ALL STORM SEWER INLETS SHALL BE PROTECTED DURING CONSTRUCTION. SEDIMENT-LADEN WATER SHALL BE FILTERED BEFORE ENTERING THE STORM SEWER INLETS. DETAIL 3.07-4 SHALL BE IMPLEMENTED AS DENOTED ON THE E&S PHASE 2 PLAN.
5. TREE PROTECTION-3.38
   TREE PROTECTION SIGNS ALONG WITH SAFETY FENCE SHALL BE LOCATED TO IDENTIFY TREE PRESERVATION AREAS AND SHALL BE PLACED PRIOR TO CONSTRUCTION. THESE SIGNS SHALL ALTERNATE EVERY 30 FEET IN SPANISH AND ENGLISH.

VEGETATIVE PRACTICES –

1. TEMPORARY SEEDING-3.31
   ALL DENUDED AREAS WHICH WILL BE LEFT DORMANT FOR A PERIOD LONGER THAN 14 DAYS SHALL BE SEEDED WITH FAST GERMINATING TEMPORARY VEGETATION WITHIN 7 DAYS OF GRADING ACTIVITIES. TEMPORARY SEEDING SHALL BE APPLIED TO ALL DENUDED AREAS WHENEVER FINAL GRADE HAS BEEN REACHED ON ANY PORTION OF THE SITE. SELECTION OF THE SEEDING MIXTURE WILL DEPEND ON THE TIME OF THE YEAR IT IS APPLIED.
2. PERMANENT SEEDING-3.32
   PERMANENT SOIL STABILIZATION SHALL BE APPLIED ON ROUGH-GRADED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A YEAR OR MORE OR WHERE PERMANENT, LONG-LIVED VEGETATIVE COVER IS NEEDED ON FINE-GRADED AREAS. PERMANENT SEEDING SHALL CONSIST OF PERENNIAL VEGETATIVE COVER AND SHALL BE DETERMINED BY THE SLOPES, SOIL TYPES, AND MAINTENANCE REQUIREMENTS.

MANAGEMENT STRATEGIES –

1. CONSTRUCTION SHOULD BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
2. SEDIMENT TRAPPING MEASURES SHALL BE INSTALLED AS A FIRST STEP IN GRADING AND WILL BE SEEDED AND MULCHED IMMEDIATELY FOLLOWING INSTALLATION.
3. TEMPORARY SEEDING OR OTHER STABILIZATION SHALL FOLLOW IMMEDIATELY AFTER GRADING.
4. AREAS WHICH ARE NOT TO BE DISTURBED, INCLUDING RPA, FLOOD PLAIN, AND WETLAND LIMITS SHALL BE CLEARLY MARKED BY FLAGS, SIGNS, ETC. ALL EXISTING WETLAND AREAS SHALL BE FIELD STAKED AND BE PROTECTED BY ORANGE SAFETY FENCE PRIOR TO MOBILIZATION ON SITE AND INSTALLATION OF REMAINING EROSION PROTECTION MEASURES.
5. THE REGISTERED LAND DISTURBER (RLD) SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES, INCLUDING THOSE REQUIRED BY THE TOWN INSPECTOR IN THE FIELD THAT MAY BE IN ADDITION TO THOSE SHOWN ON THIS PLAN. THE CONTRACTOR AND/OR RLD HAVE THE OPTION OF INSTALLING, AT THEIR EXPENSE, ADDITIONAL EROSION AND SEDIMENT CONTROL PRACTICES THAT THEY DEEM NECESSARY DURING CONSTRUCTION TO PREVENT THE RUNOFF OF SEDIMENT-LADEN WATER.
6. WHEN SEDIMENT IS TRANSPORTED ONTO A PAVED ROAD SURFACE, THE ROAD 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 WILL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.
7. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER ADEQUATE SITE STABILIZATION AND AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, AS AUTHORIZED BY THE INSPECTOR. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES WILL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

PERMANENT STABILIZATION –

ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING WITHIN 7 DAYS OF FINISHED GRADING. SEEDING WILL BE DONE IN ACCORDANCE WITH SEED MIXTURES SPECIFIED IN THE STD. AND SPEC. 3.32 OF THE VA. E&S CONTROL HANDBOOK. PLEASE REFER TO THIS SHEET FOR SITE SPECIFIC SEEDING MIXTURES FOR THE PIEDMONT AREA. PERMANENTLY SEEDED AREAS SHALL BE PROTECTED DURING ESTABLISHMENT WITH STRAW MULCH. (TEMPORARY SEEDING IS REQUIRED WITHIN 7 DAYS OF ROUGH GRADING IF THE DISTURBED AREA IS NOT BROUGHT TO FINISH GRADE WITHIN THE 14 DAYS.) PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

STORMWATER MANAGEMENT –

SEE SHEETS C.31-C.43

CALCULATIONS –

N/A

PHASE 1 SEDIMENT AND EROSION CONTROL PROGRAM –

THE FIRST PHASE OF THE PROGRAM IS DEVELOPED TO INSTALL ALL PERIMETER CONTROLS. THE LIMITS OF CLEARING IS LIMITED TO THE AREA ONLY NEEDED TO ACCOMPLISH THIS.

1. THE CONTRACTOR SHALL SCHEDULE AND HOLD A PRE-CONSTRUCTION MEETING WITH THE INSPECTOR PRIOR TO ANY WORK OR PLACING ANY CONTROLS.
2. INSTALL CONSTRUCTION ENTRANCE IN THE LOCATIONS SHOWN ON THE PLANS. THE CONSTRUCTION ENTRANCE SHALL BE INSTALLED UTILIZING A WASH RACK. THE CONSTRUCTION ENTRANCE SHALL REMAIN IN PLACE THROUGHOUT THE DURATION OF CONSTRUCTION. W

TABLE 3.35-A

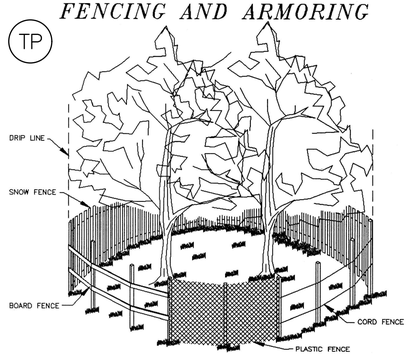
ORGANIC MULCH MATERIALS AND APPLICATION RATES

MULCHES:	RATES: Per Acre	RATES: Per 1000 sq. ft.	NOTES:
Straw or Hay	1½ - 2 tons (Minimum 2 tons for winter cover)	70 - 90 lbs.	Free from weeds and coarse matter. Must be anchored. Spread with mulch blower or by hand.
Fiber Mulch	Minimum 1500 lbs.	35 lbs.	Do not use as mulch for winter cover or during hot, dry periods.* Apply as slurry.
Corn Stalks	4 - 6 tons	185 - 275 lbs.	Cut or shredded in 4-6" lengths. Air-dried. Do not use in fine turf areas. Apply with mulch blower or by hand.
Wood Chips	4 - 6 tons	185 - 275 lbs.	Free of coarse matter. Air-dried. Treat with 12 lbs nitrogen per ton. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.
Bark Chips or Shredded Bark	50 - 70 cu. yds.	1-2 cu. yds.	Free of coarse matter. Air-dried. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.

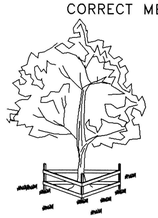
* When fiber mulch is the only available mulch during periods when straw should be used, apply at a minimum rate of 2000 lbs./ac. or 45 lbs./1000 sq. ft.

FENCING AND ARMORING

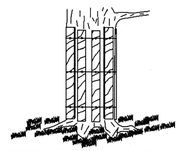
TP



CORRECT METHODS OF TREE FENCING



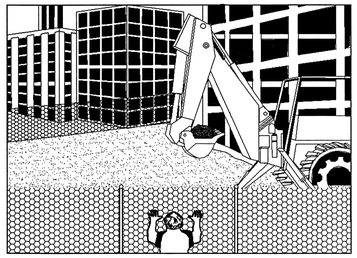
TRIANGULAR BOARD FENCE



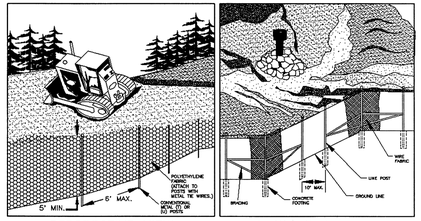
CORRECT TRUNK ARMORING

SAFETY FENCE

SAF



PERSPECTIVE VIEW

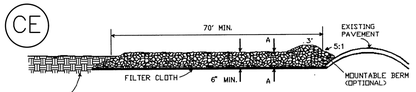


PERSPECTIVE VIEW
PLASTIC FENCE

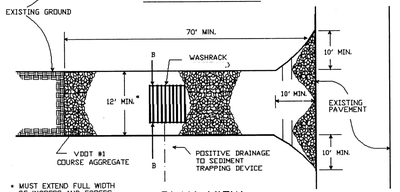
PERSPECTIVE VIEW
METAL FENCE

STONE CONSTRUCTION ENTRANCE

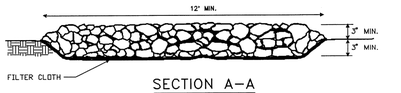
CE



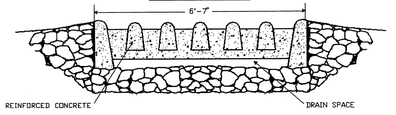
SIDE ELEVATION



PLAN VIEW



SECTION A–A



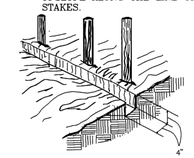
SECTION B–B

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)

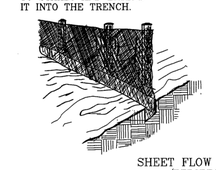
SF

1. SET THE STAKES.

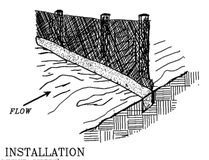
2. EXCAVATE A 4"X 4" TRENCH UPSLOPE ALONG THE LINE OF STAKES.



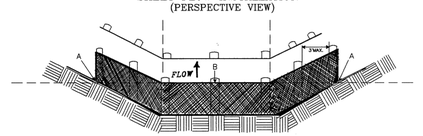
3. STAPLE FILTER MATERIAL TO STAKES AND EXTEND IT INTO THE TRENCH.



4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)

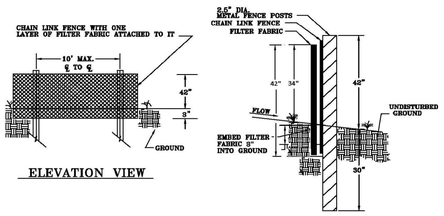


POINTS A SHOULD BE HIGHER THAN POINT B.

DRAINAGEWAY INSTALLATION
(FRONT ELEVATION)

Super Silt Fence

SSF



ELEVATION VIEW

SECTION VIEW

SUPER SILT FENCE
NO SCALE

FENCING

Chain link fence shall be 34" above grade with 8" embedded for a total fabric width of 42". The post shall be 42" above grade with 30" placed below grade (without concrete) for a total length of 72".

NOTES

1. Chain link fence shall be fastened securely to fence posts with wire ties.
2. Filter fabric shall be fastened securely to chain link fence with ties spaced horizontally 24" at the top and midsection.
3. Physical properties of the filter fabric shall conform to the latest edition of THE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK.
4. When two sections of filter fabric adjoin each other, they shall be overlapped by 6" and folded.
5. Maintenance shall be performed as needed and material shall be removed when sediment build-up reaches 50% of the height of the super silt fence.

TABLE 3.32-D

SITE SPECIFIC SEEDING MIXTURES FOR PIEDMONT AREA

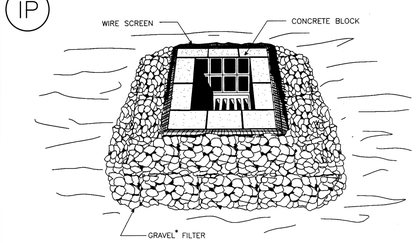
	Total Lbs. Per Acre
Minimum Care Lawn	
- Commercial or Residential	175-200 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	95-100%
- Improved Perennial Ryegrass	0-5%
- Kentucky Bluegrass	0-5%
High-Maintenance Lawn	200-250 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	100%
General Slope (3:1 or less)	
- Kentucky 31 Fescue	128 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
	150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	
- Kentucky 31 Fescue	108 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
- Crownvetch **	20 lbs.
	150 lbs.

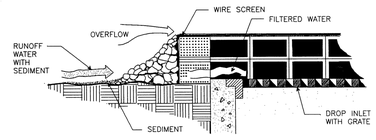
* Use seasonal nurse crop in accordance with seeding dates as stated below:
February 16th through April ..... Annual Rye
May 1st through August 15th ..... Foxtail Millet
August 16th through October ..... Annual Rye
November through February 15th ..... Winter Rye

** Substitute Sericea lespedeza for Crownvetch east of Farmville, Va. (May through September use hulled Sericea, all other periods, use unhulled Sericea). If Flatpea is used in lieu of Crownvetch, increase rate to 30 lbs./acre. All legume seed must be properly inoculated. Weeping Lovegrass may be added to any slope or low-maintenance mix during warmer seeding periods; add 10-20 lbs./acre in mixes.

BLOCK AND GRAVEL DROP INLET SEDIMENT FILTER

IP





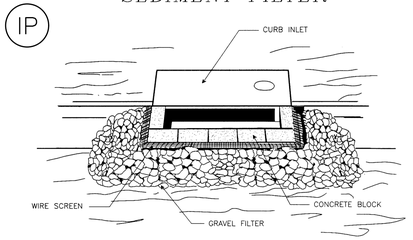
SPECIFIC APPLICATION

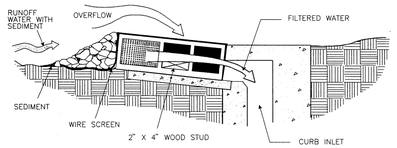
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED AND WHERE AN OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE.

* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE.

BLOCK & GRAVEL CURB INLET SEDIMENT FILTER

IP





SPECIAL APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE.

* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE

TABLE 3.31-A

LIMING REQUIREMENTS FOR TEMPORARY SITES

pH Test	Recommended Application of Agricultural Limestone
below 4.2	3 tons per acre
4.2 to 5.2	2 tons per acre
5.2 to 6	1 ton per acre

Source: Va. DSWC

TABLE 3.31-B

ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS

"QUICK REFERENCE FOR ALL REGIONS"

Planting Dates	Species	Rate (lbs./acre)
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 - 100
Feb. 16 - Apr. 30	Annual Ryegrass (Lolium multi-florum)	60 - 100
May 1 - Aug 31	German Millet (Setaria italica)	50

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA — SCOTT WOODARD — Lic. No. 065821 — 1/26/2023 — PROFESSIONAL ENGINEER

E&S NOTES & DETAILS

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.10

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

NOTES:

1. DUE TO THE COMPLEXITY OF THE SITE AND THE REQUIREMENTS FOR ACCESS TO THE BUILDINGS TO REMAIN OPEN DURING CONSTRUCTION, IN ADDITION TO ONLY EXISTING HARD SURFACES ALONG THE JEFFERSON STREET SITE FRONTAGE, SAFETY FENCE AND SILT FENCE ARE NOT SPECIFICALLY SHOWN IN THOSE AREAS, THE CONTRACTOR SHALL PROVIDE SAFETY FENCE AND SILT FENCE AROUND THEIR ACTIVE CONSTRUCTION AREAS AT ALL TIMES TO PREVENT SEDIMENT FROM LEAVING THEIR WORK AREAS AND TO PREVENT ACCESS TO WORK AREAS BY THE PUBLIC, THESE MEASURES SHALL BE COORDINATED WITH THE SITE INSPECTOR THROUGHOUT CONSTRUCTION.
2. THE CONTRACTOR SHALL DOUBLE PROTEECT EXISTING INLET 11 DURING CONSTRUCTION WITH SUPER SILT FENCE AND STANDARD DROP INLET PROTECTION. THE EXISTING SITE LIMITATIONS DO NOT ALLOW FOR RE-DIRECTION OF THE RUNOFF FROM UPSTREAM OF THE SITE TO REDUCE THE INLET DRAINAGE AREA. DUE TO THE NEED FOR THE SITE TO REMAIN IN USE AS MUCH AS POSSIBLE DURING CONSTRUCTION AND THE SMALL SITE AREA, MEASURES SUCH AS A DIVERSION OR SEDIMENT TRAP ARE NOT PRACTICABLE. IT IS OUR OPINION THAT THE MEASURES SHOWN ON THIS PLAN MEET THE INTENT OF THE EROSION AND SEDIMENT CONTROL LAWS, WHILE CONSIDERING THE SITE LIMITATIONS AND PRACTICABILITY OF IMPLEMENTING AND MAINTAINING THE MEASURES.

LEGEND

NO.	TITLE	KEY	SYMBOL
3.01	SAFETY FENCE	SAF	SAF
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	CE
3.05	SILT FENCE	SF	X—X—X
3.07	STORM DRAIN INLET PROTECTION	IP	IP
3.31	TEMPORARY SEEDING	TS	TS
3.38	TREE PRESERVATION AND PROTECTION	TP	TP
	SUPER SILT FENCE	SSF	XX—XX

DENOTES LIMITS OF DISTURBANCE (LOD)

– DENOTES DRAINAGE DIVIDES

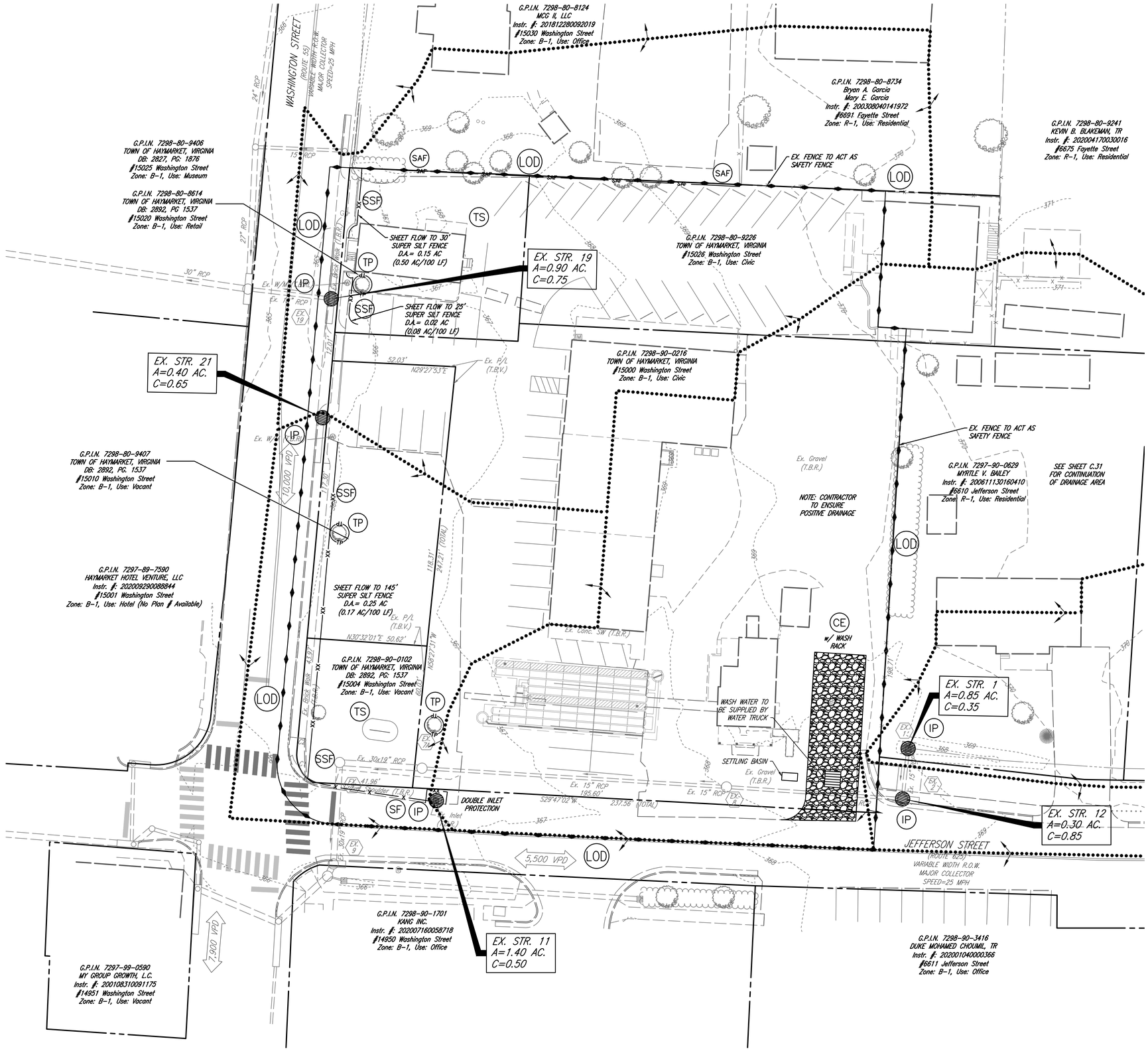
"THIS SHEET IS FOR E&S PHASE 1 ONLY!!!"

VCS NORTH 1983

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



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Telephone: (703) 368-7373 www.rdacivil.com
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COMMONWEALTH OF VIRGINIA SCOTT WOODARD Lic. No. 053821 PROFESSIONAL ENGINEER 1/26/2023

E&S PHASE 1

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE:	JANUARY 26, 2023
DESIGN BY:	JLK, SAW
CHECKED BY:	JLK, SAW
ARCHITECT:	N/A
JURISDICTIONAL PLAN NO.	SP20220324
RDA PLAN #:	14096-002
SHEET NUMBER:	C.11

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

NOTES:

1. DUE TO THE COMPLEXITY OF THE SITE AND THE REQUIREMENTS FOR ACCESS TO THE BUILDINGS TO REMAIN OPEN DURING CONSTRUCTION, IN ADDITION TO ONLY EXISTING HARD SURFACES ALONG THE JEFFERSON STREET SITE FRONTAGE, SAFETY FENCE AND SILT FENCE ARE NOT SPECIFICALLY SHOWN IN THOSE AREAS. THE CONTRACTOR SHALL PROVIDE SAFETY FENCE AND SILT FENCE AROUND THEIR ACTIVE CONSTRUCTION AREAS AT ALL TIMES TO PREVENT SEDIMENT FROM LEAVING THEIR WORK AREAS AND TO PREVENT ACCESS TO WORK AREAS BY THE PUBLIC. THESE MEASURES SHALL BE COORDINATED WITH THE SITE INSPECTOR THROUGHOUT CONSTRUCTION.
2. THE CONTRACTOR SHALL PREVENT SEDIMENT FROM ENTERING THE STORM SEWER SYSTEM AND SPECIFICALLY THE ADS SWM/BMP FACILITY AND THE CONTECH JELLYFISH INLET. BOTH OF THOSE FACILITIES SHALL NOT BE PLACED ONLINE UNTIL ALL UPSTREAM AREAS IN THE CONTRIBUTING DRAINAGE AREA FOR EACH FACILITY HAS ACHIEVED FINAL STABILIZATION. THE CONTRACTOR SHALL PROVIDE ADDITIONAL PROTECTION MEASURES SUCH AS SILT FENCE AROUND THE FACILITIES AND ADEQUATE INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING EITHER OF THE FACILITIES.
3. SEE SHEET C.13 FOR OVERLAND RELIEF COMPUTATIONS. THE HATCH BELOW DENOTES THE APPROXIMATE 100-YEAR OVERLAND RELIEF PONDING LIMITS.

LEGEND

NO.	TITLE	KEY	SYMBOL
3.01	SAFETY FENCE	SAF	SAF
3.05	SILT FENCE	SF	X—X—X
3.07	STORM DRAIN INLET PROTECTION	IP	
3.32	PERMANENT SEEDING	PS	PS
3.38	TREE PRESERVATION AND PROTECTION	TP	TP
	SUPER SILT FENCE	SSF	XX-XX

DENOTES LIMITS OF DISTURBANCE (LOD)

– DENOTES DRAINAGE DIVIDES

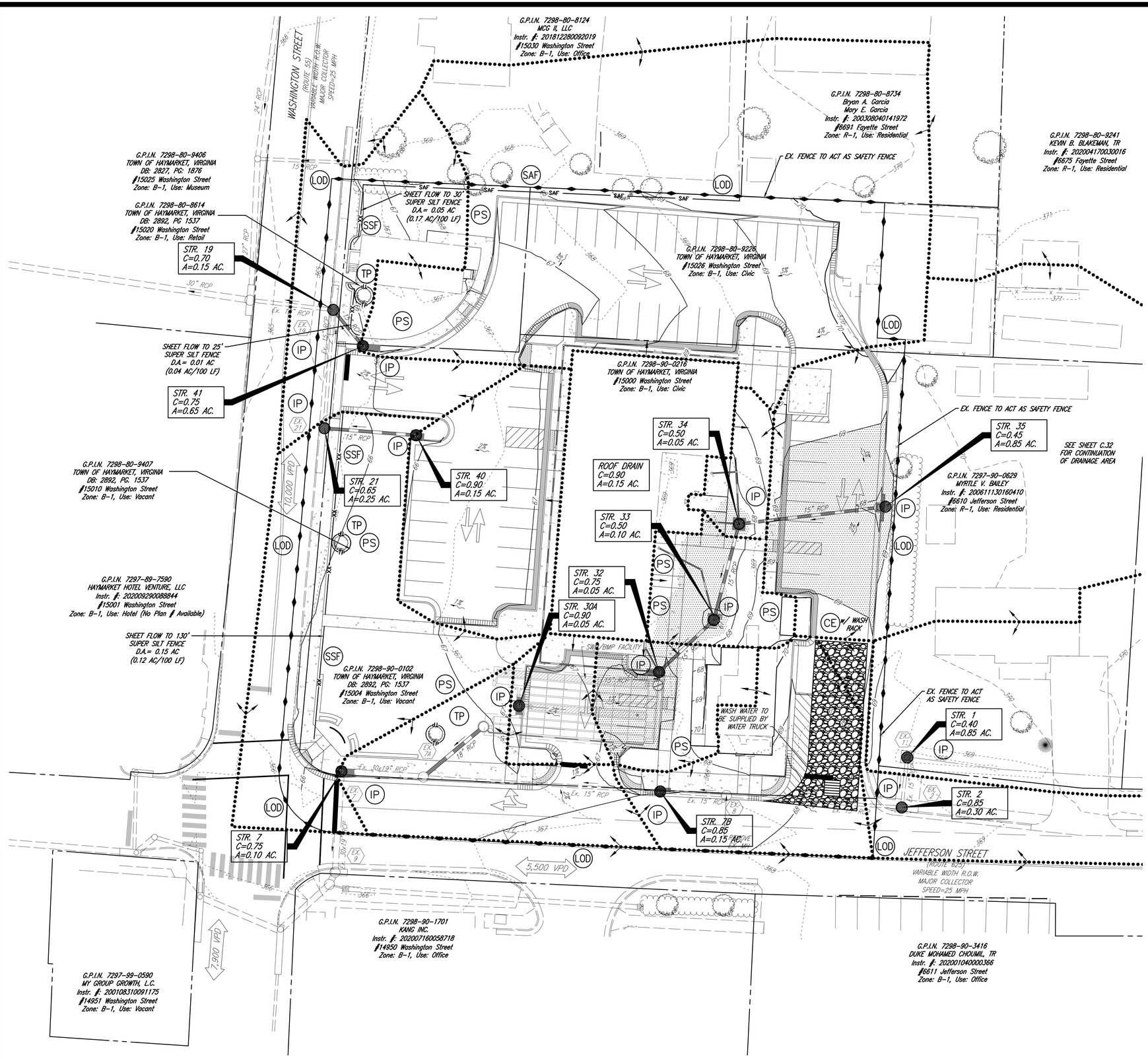
"THIS SHEET IS FOR PHASE 2 EROSION & SEDIMENT CONTROL AND DRAINAGE DIVIDE INFORMATION PURPOSES ONLY!!!"

VCS NORTH 1983

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



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COMMONWEALTH OF VIRGINIA SCOTT WOODARD Lic. No. 053821 PROFESSIONAL ENGINEER 1/26/2023

E&S PHASE 2

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE:	JANUARY 26, 2023
DESIGN BY:	JLK, SAW
CHECKED BY:	JLK, SAW
ARCHITECT:	N/A
JURISDICTIONAL PLAN NO.	SP20220324
RDA PLAN #:	14096-002
SHEET NUMBER:	C.12

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

HYDRAULIC GRADE LINE COMPUTATIONS

Inlet #	Outlet Water surface elev	Do	Qo	Lo	Sfo	Hf	Junction loss Vo	Ho	Qi	Vi	Qi|Vi	Vi^2/2g	Hi	Angle	Hd	Ht	1.3Ht	0.5Ht	Final H	Inlet water surface elev	Rim elev
7	363.55	2.00	7.10	42.77	0.0006	0.02	4.87	0.09	6.77	4.81	32.56	0.36	0.05	90	0.25	0.40	0.52	0.26	0.28	363.83	366.45
7A	363.87	2.00	6.77	34.75	0.0005	0.02	4.81	0.09	3.35	4.87	16.31	0.37	0.06	0	0.00	0.15	0.19	0.09	0.11	363.98	366.70
									3.44	4.42	15.20										
7B	363.98	1.25	3.35	100.45	0.0016	0.16	4.87	0.09	2.76	4.46	12.31	0.31	0.05	0	0.00	0.14	0.18	0.09	0.25	364.23	367.40
8	364.60	1.25	2.76	28.13	0.0011	0.03	4.46	0.08	2.78	4.95	13.76	0.38	0.06	0	0.00	0.13	0.17	0.09	0.12	364.72	367.25
2	364.90	1.25	2.78	74.36	0.0011	0.08	4.95	0.10	4.63	4.95	22.92	0.38	0.06	90	0.27	0.42	0.54	0.27	0.35	365.25	368.65
1	365.70	1.25	4.63	21.34	0.0030	0.06	4.95	0.10	0.00	0.00	0.00	0.00	0.00	0	0.00	0.10	0.12	0.06	0.13	365.83	367.30
30	363.98	1.50	3.44	33.21	0.0006	0.02	4.42	0.08	0.00	0.00	0.00	0.00	0.00	0	0.00	0.08	0.10	0.05	0.07	364.05	366.95
32	365.64	1.25	3.09	5.67	0.0014	0.01	2.52	0.02	5.04	2.37	11.94	0.09	0.01	75	0.05	0.09	0.12	0.06	0.07	365.71	366.95
33	365.71	1.25	5.04	32.00	0.0036	0.12	2.37	0.02	2.32	1.89	4.38	0.06	0.01	30	0.02	0.05	0.06	0.03	0.15	365.86	366.90
34	365.86	1.25	2.32	42.00	0.0008	0.03	1.89	0.01	1.97	3.99	7.86	0.25	0.04	70	0.15	0.20	0.26	0.13	0.16	366.02	367.25
35	366.02	1.25	1.97	59.66	0.0006	0.03	3.99	0.06	0.00	0.00	0.00	0.00	0.00	0	0.00	0.06	0.08	0.04	0.07	366.09	368.25
21	363.10	1.25	1.52	50.26	0.0003	0.02	3.89	0.06	0.69	2.94	2.03	0.13	0.02	90	0.09	0.17	0.22	0.11	0.13	363.23	365.58
40	363.55	1.25	0.69	38.92	0.0001	0.00	2.94	0.03	0.00	0.00	0.00	0.00	0.00	0	0.00	0.03	0.04	0.02	0.02	363.57	366.25
41	363.10	1.25	2.51	18.49	0.0009	0.02	4.57	0.08	0.00	0.00	0.00	0.00	0.00	0	0.00	0.08	0.11	0.05	0.07	363.17	365.90

NOTES:
1. 30"x19" ELLIPTICAL PIPE EQUIVALENT IS A 24" PIPE. THE HGL COMPUTATIONS FOR 7-9 AND 7A-7 WERE COMPUTED ACCORDINGLY.

STORM SEWER DESIGN COMPUTATIONS

String Label	Upstream Node	Downstream Node	Area (Acres)	Inlet C	Inlet CA (Acres)	Accumulative CA (Acres)	System Intensity (in/hr)	Total System Flow (cfs)	Up Invert (ft)	Down Invert (ft)	Length (ft)	Constructed Slope (ft/ft)	Section Size (in)	Capacity (cfs)	Average Velocity (ft/s)	System Flow Time (min)	Up Ground Elevation (ft)
41-19	41	19	0.65	0.75	0.49	0.488	5.10	2.51	362.25	362.10	18.49	0.0081	15	5.82	4.57	15.00	365.90
40-21	40	21	0.15	0.90	0.14	0.135	5.10	0.69	362.80	362.55	38.92	0.0064	15	5.18	2.94	15.00	366.25
21-19	21	19	0.25	0.65	0.16	0.298	5.08	1.52	362.45	362.07	50.26	0.0076	15	5.62	3.89	15.22	365.58
35-34	35	34	0.85	0.45	0.38	0.382	5.10	1.97	364.75	364.35	59.66	0.0067	15	5.29	3.99	15.00	368.25
34-33	34	33	0.10	0.70	0.07	0.452	5.08	2.32	364.25	364.00	42.00	0.0060	15	4.98	1.89	15.27	367.25
33-32	33	32	0.15	0.63	0.09	0.572	5.04	2.91	363.90	363.70	32.00	0.0062	15	5.11	2.37	15.64	366.90
32-31	32	31	0.05	0.75	0.04	0.610	5.02	3.09	363.60	363.55	5.67	0.0088	15	6.07	2.52	15.86	366.95
30-7A	30	7A	0.00	0.00	0.00	0.000	7.27	3.44	362.75	362.55	33.21	0.0060	18	8.15	4.42	0.00	366.95
1-2	1	2	0.85	0.40	0.34	0.340	4.64	1.59	364.85	364.70	21.34	0.0070	15	5.42	3.84	20.00	367.30
2-8	2	8	0.30	0.85	0.26	0.595	4.63	2.78	364.60	363.90	74.36	0.0094	15	6.27	4.95	20.09	368.65
8-7B	8	7B	0.00	0.00	0.00	0.595	4.61	2.76	363.80	363.60	28.13	0.0071	15	5.45	4.46	20.34	367.25
7B-7A	7B	7A	0.15	0.85	0.13	0.723	4.60	3.35	363.60	362.80	100.45	0.0080	15	5.76	4.87	20.45	367.40
7A-7	7A	7	0.00	0.00	0.00	0.723	4.57	6.77	362.45	362.27	34.75	0.0052	30x19	15.69	4.81	20.79	366.70
7-9	7	9	0.10	0.75	0.08	0.798	4.55	7.10	362.17	361.95	42.77	0.0051	30x19	15.64	4.87	20.91	366.45

100-YEAR OVERLAND RELIEF COMPUTATIONS

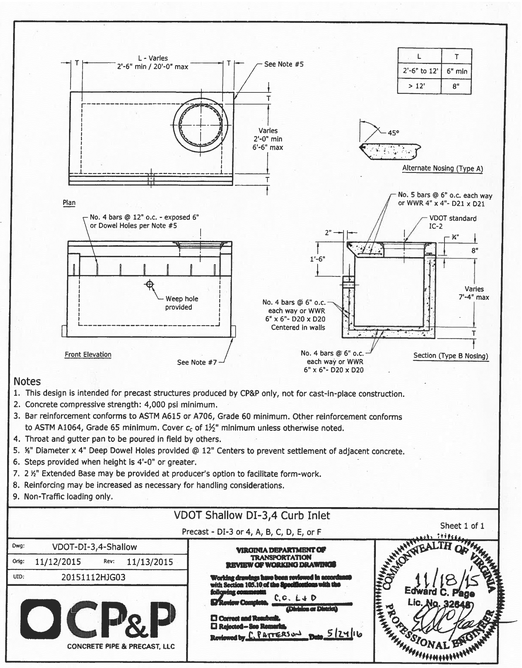
Structure	Structure Area	Structure C-Value	Structure Intensity	Structure Intensity (1.25 Modification Factor)	Structure Flow	Weir Elevation (min.)	Ponding Depth	Ponding Elevation
35	0.85	0.45	7.05	8.81	3.37	368.65	0.31	368.96
34	0.9	0.45	7.05	8.81	3.57	367.30	0.27	367.57
33	1.00	0.45	7.05	8.81	3.97	367.10	0.37	367.47
32	1.05	0.45	7.05	8.81	4.16	367.00	0.14	367.14

NOTES:
1. SEE SHEET C.12 FOR THE LIMITS OF PONDING.
2. THE OVERLAND RELIEF COMPUTATIONS WERE COMPLETED USING AN IRREGULAR WEIR THAT MATCHES THE LENGTHS AND ELEVATIONS OF THE SPILL POINTS.

STORM SEWER INLET COMPUTATIONS

Inlet No.	Inlet Type	Length (ft) or Type	Station	Drainage Area (Ac)	C	CA	Weighted CA	I (in/hr)	Q incr (cfs)	Q Carry-over (cfs)	Qt Gutter Flow	S Gutter Slope (ft/ft)	Sx Cross Slope (ft/ft)	T= (spread)	W (ft)	W/T	Sw (ft/ft)	Sw/Sx	Eo(#10)	a	Sw=a/(12W)	Sw(ft/ft)=Sw*Sx*Eo	L|Ll OR P effect length ft	L|Ll OR d (ft)	E(#16) OR h (ft)	Q interc-epted cfs OR d/h	Qb Carry-over cfs OR T= spread @sag(ft)	Remarks: (Two Inches of local depression assumed at all inlets	Inlet No.
40	DI-3B	4	-	0.15	0.90	0.135	0.135	4.00	0.54	0.00	0.54	0.0070	0.0220	3.19	-	-	-	-	-	-	-	-	9.60	0.10	0.46	0.22	4.47	SUMP	40
35	DI-2	10	-	0.85	0.45	0.383	0.383	4.00	1.53	0.00	1.53	0.0220	0.0100	7.19	-	-	-	-	-	-	-	-	9.60	0.13	0.46	0.28	13.36	SUMP	35
32	DI-3B	6	-	0.05	0.75	0.038	0.038	4.00	0.15	0.00	0.15	0.0100	0.0100	1.35	-	-	-	-	-	-	-	-	9.60	0.04	0.46	0.09	3.58	SUMP	32
30A	DI-3C	6	-	0.05	0.90	0.045	0.045	4.00	0.18	0.00	0.18	0.0070	0.0160	1.54	-	-	-	-	-	-	-	-	9.60	0.04	0.46	0.09	2.43	SUMP	30A
Ex. 19	DI-3C	20	-	0.15	0.70	0.105	0.105	4.00	0.42	0.00	0.42	0.0020	0.0150	2.55	-	-	-	-	-	-	-	-	9.60	0.05	0.46	0.53	3.04	SUMP	Ex. 19
34	DI-7	I	-	0.05	0.50	0.025	0.025	7.27	0.18	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	-	-	***	***W.S.E.= 367.28	34
34	DI-7	I	-	0.05	0.50	0.025	0.025	9.84	0.25	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	-	-	***	***W.S.E.= 367.29	34
33	DI-7	I	-	0.10	0.50	0.050	0.050	7.27	0.36	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	-	-	***	***W.S.E.= 366.95	33
33	DI-7	I	-	0.10	0.50	0.050	0.050	9.84	0.49	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	-	-	***	***W.S.E.= 366.97	33
Ex. 1	DI-5	III	-	0.85	0.40	0.340	0.340	7.27	2.47	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	0.19	-	-	***	***W.S.E.= 367.54	Ex. 1
Ex. 1	DI-5	III	-	0.85	0.40	0.340	0.340	9.84	3.35	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	0.24	-	-	***	***W.S.E.= 367.59	Ex. 1
41	DI-3B	10	-	0.65	0.75	0.488	0.488	4.00	1.95	0.00	1.95	0.0100	0.0260	6.17	2.00	0.32	0.0833	3.21	0.77	3.4	0.140	0.130	8.99	1.11	0.94	1.95	0.00	ON GRADE	41
7B	DI-2	6	-	0.15	0.85	0.128	0.128	4.00	0.51	0.00	0.51	0.0150	0.0200	1.97	2.00	1.01	0.0833	4.20	1.00	3.5	0.147	0.167	5.10	1.18	1.00	0.51	0.00	ON GRADE	7B
Ex. 21	DI-3B	20	-	0.25	0.65	0.163	0.163	4.00	0.65	0.00	0.65	0.0060	0.0150	4.79	2.00	0.42	0.0833	5.60	0.92	3.6	0.152	0.154	4.50	4.44	1.00	0.65	0.00	ON GRADE	Ex. 21
Ex. 7	DI-3B	6	-	0.10	0.75	0.075	0.075	4.00	0.30	0.00	0.30	0.0090	0.0200	1.78	2.00	1.12	0.0833	4.20	1.00	3.5	0.147	0.167	3.50	1.71	1.00	0.30	0.00	ON GRADE	Ex. 7
Ex. 2	DI-3B	8	-	0.30	0.85	0.255	0.255	4.00	1.02	0.00	1.02	0.0110	0.0143	5.56	2.00	0.36	0.0833	5.80	0.87	3.7	0.152	0.147	6.70	1.19	1.00	1.02	0.00	ON GRADE	Ex. 2

Pipe Table			
Pipe Name	Size	Length	Slope
RD6-RD4	6	5.58	1.79%
RD1-32	6	11.43	1.31%
RD9-RD8	6	73.62	1.09%
RD8-RD7	6	134.69	1.00%
RD4-34	6	22.09	1.13%
RD5-RD4	6	10.32	1.45%
RD10-34	6	13.66	1.10%
RD3-RD2	6	20.00	1.25%
RD2-33	6	22.00	1.14%
RD7-32	6	50.57	1.09%



Notes
1. This design is intended for precast structures produced by CP&P only, not for cast-in-place construction.
2. Concrete compressive strength: 4,000 psi minimum.
3. Bar reinforcement conforms to ASTM A615 or A706, Grade 60 minimum. Other reinforcement conforms to ASTM A1064, Grade 65 minimum. Cover c_c of 1½" minimum unless otherwise noted.
4. Throat and gutter pan to be poured in field by others.
5. ¾" Diameter x 4" Deep Dowel Holes provided @ 12" Centers to prevent settlement of adjacent concrete.
6. Steps provided when height is 4'-0" or greater.
7. 2 ½" Extended Base may be provided at producer's option to facilitate form-work.
8. Reinforcing may be increased as necessary for handling considerations.
9. Non-Traffic loading only.

VDOT Shallow DI-3,4 Curb Inlet

Sheet 1 of 1

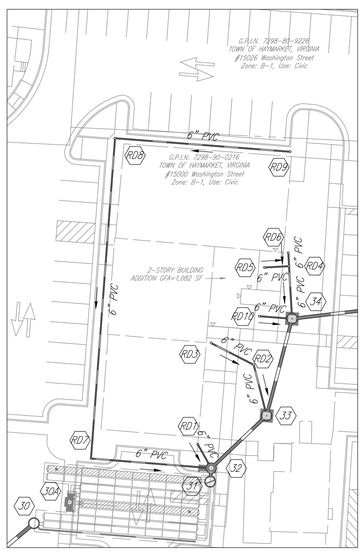
Dwg: VDOT-DI-3,4-Shallow
Orig: 11/12/2015 Rev: 11/13/2015
STD: 20151112HJG03

CP&P
CONCRETE PIPE & PRECAST, LLC

VIRGINIA DEPARTMENT OF TRANSPORTATION
REVIEW OF WORKING DRAWINGS
Working drawings have been reviewed in accordance with Section 102.10 of the Specifications with the following comments:
C. C. L & D
Review Complete. (Deletion or Limits)
☐ Correct and Resubmit.
☐ Rejected—See Remarks.
Reviewed by C. Patterson Date 5/24/16

COMMONWEALTH OF VIRGINIA
11/18/15
Edward C. Page
Lic. No. 32848
PROFESSIONAL ENGINEER

ROOF DRAIN PLAN

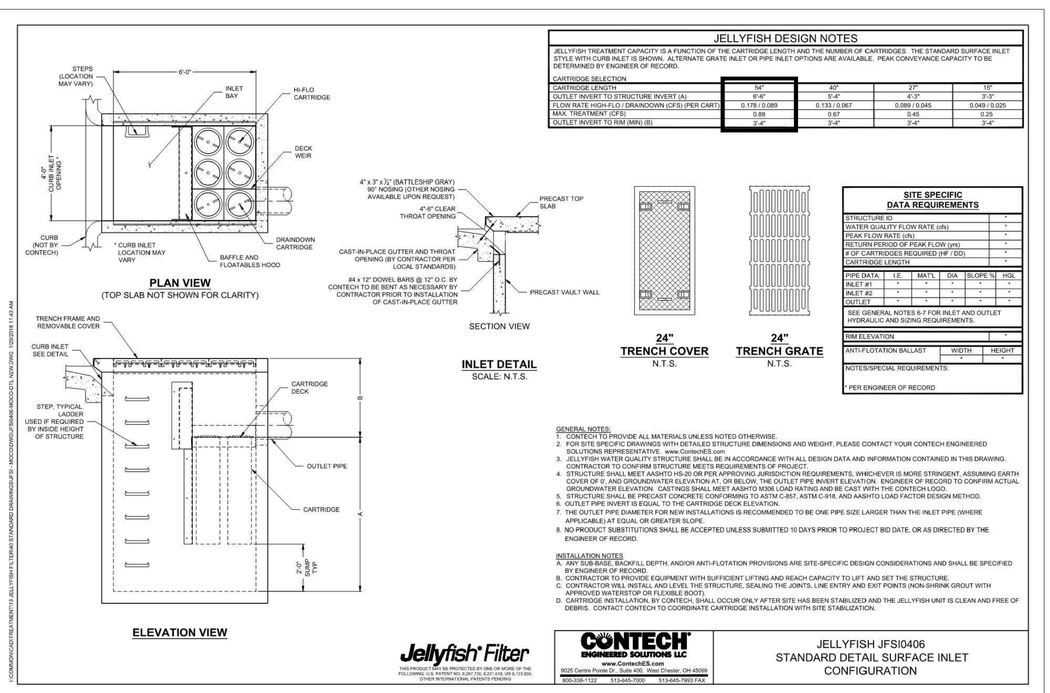


Structure Table	
Structure Name	Structure Details
RD6	RIM = 368.00 SUMP = 366.00 RD6-RD4 INV OUT = 366.00
RD1	RIM = 367.75 SUMP = 365.75 RD1-32 INV OUT = 365.75
RD9	RIM = 369.55 SUMP = 367.55 RD9-RD8 INV OUT = 367.55
RD8	RIM = 368.27 SUMP = 366.75 RD9-RD8 INV IN = 366.75 RD8-RD7 INV OUT = 366.75
RD7	RIM = 367.55 SUMP = 365.40 RD8-RD7 INV IN = 365.40 RD7-32 INV OUT = 365.40
RD5	RIM = 367.80 SUMP = 366.05 RD5-RD4 INV OUT = 366.05
RD4	RIM = 367.95 SUMP = 365.90 RD6-RD4 INV IN = 365.90 RD5-RD4 INV IN = 365.90 RD4-34 INV OUT = 365.90
RD3	RIM = 367.77 SUMP = 366.25 RD3-RD2 INV OUT = 366.25
RD2	RIM = 367.52 SUMP = 366.00 RD3-RD2 INV IN = 366.00 RD2-33 INV OUT = 366.00

NOTES:
1. STORM SEWER DESIGN COMPUTATIONS SHOWN HEREON ARE THE RESULTS OF BENTLEY'S STORMCAD COMPUTER PROGRAM.
2. STORMCAD COMPUTES RUNOFF "Q" AS Q=CIAR, WHERE R=1.008 AC-IN./HR. PER C.F.S.
3. INLET TIME FOR ALL STRUCTURES IS 5 MINUTES UNLESS NOTED OTHERWISE.
4. INLET COMPUTATIONS SHOWN HEREON ARE THE RESULTS OF QHEC-12 COMPUTER PROGRAM.
5. DI-7 INLETS WERE MODELED AS HALF-CLOGGED.
6. ALL RCP STORM SEWER SHALL BE CLASS III UNLESS OTHERWISE NOTED.
7. PIPE BEDDING AND TRENCHING SHALL BE IN ACCORDANCE WITH PRINCE WILLIAM COUNTY AND VDOT STANDARDS FOR STORM SEWER.
8. ALL CONSTRUCTION METHODS, AND MATERIALS SHALL CONFORM TO CURRENT PRINCE WILLIAM COUNTY AND VDOT STANDARDS AND SPECIFICATIONS.
9. INVERT SHAPING (VDOT IS-1) SHALL BE PERFORMED AT ALL STRUCTURES.

GRAPHIC SCALE

30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.



JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD SURFACE INLET STYLE WITH CURB INLET IS SHOWN. ALTERNATE GRATE INLET OR PIPE INLET OPTIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	0.89	0.67	0.45	0.25
OUTLET INVERT TO RIM (MIN) (B)	3'-4"	3'-4"	3'-4"	3'-4"

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	*
CARTRIDGE LENGTH	*

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE, www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-478, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE (WHERE APPLICABLE) AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish Filter
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NOS. 8,287,730; 8,221,618; 9,173,930; OTHER INTERNATIONAL PATENTS PENDING

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFSI0406
STANDARD DETAIL SURFACE INLET
CONFIGURATION

NOTE: THE JELLYFISH FILTER IS LOCATED WITHIN A CURB INLET AND IS A STRUCTURE MANUFACTURED BY CONTECH. THE RUNOFF ENTERS THE INLET, IS ROUTED THROUGH THE FILTER SYSTEM, THEN EXITS THE FILTER SYSTEM THROUGH THE PIPE OUT OF THE INLET, OUTFALLING IN THE DOWNSTREAM STORM SEWER SYSTEM.

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

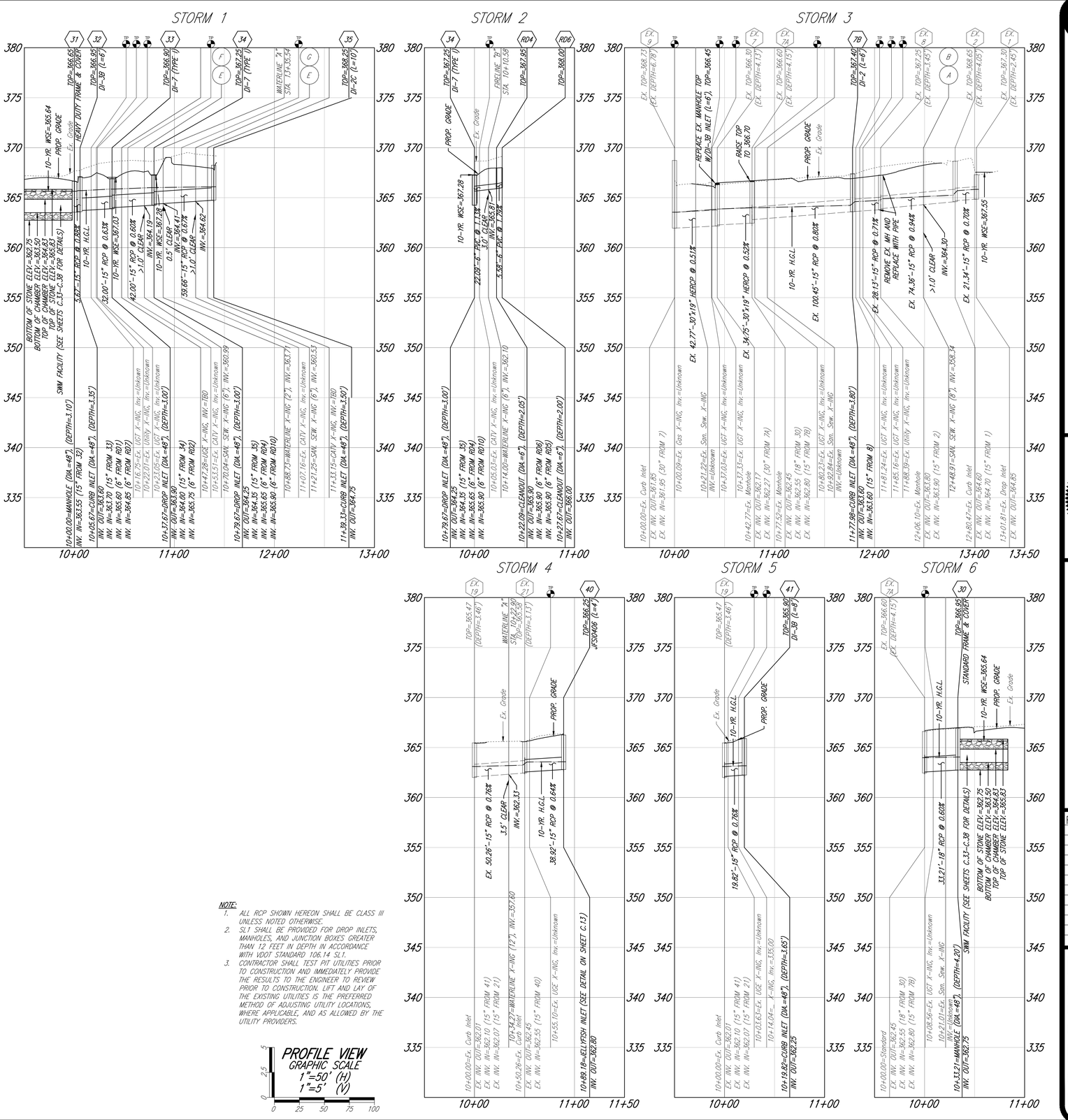
STORM SEWER COMPUTATIONS

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.13

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



NOTE:

1. ALL RCP SHOWN HEREON SHALL BE CLASS III UNLESS NOTED OTHERWISE.
2. SLT SHALL BE PROVIDED FOR DROP INLETS, MANHOLES, AND JUNCTION BOXES GREATER THAN 12 FEET IN DEPTH IN ACCORDANCE WITH VDOT STANDARD 106.14 SLT.
3. CONTRACTOR SHALL TEST PIT UTILITIES PRIOR TO CONSTRUCTION AND IMMEDIATELY PROVIDE THE RESULTS TO THE ENGINEER TO REVIEW PRIOR TO CONSTRUCTION. LIFT AND LAY OF THE EXISTING UTILITIES IS THE PREFERRED METHOD OF ADJUSTING UTILITY LOCATIONS, WHERE APPLICABLE, AND AS ALLOWED BY THE UTILITY PROVIDERS.

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 063821
PROFESSIONAL ENGINEER
1/26/2023

STORM SEWER PROFILES

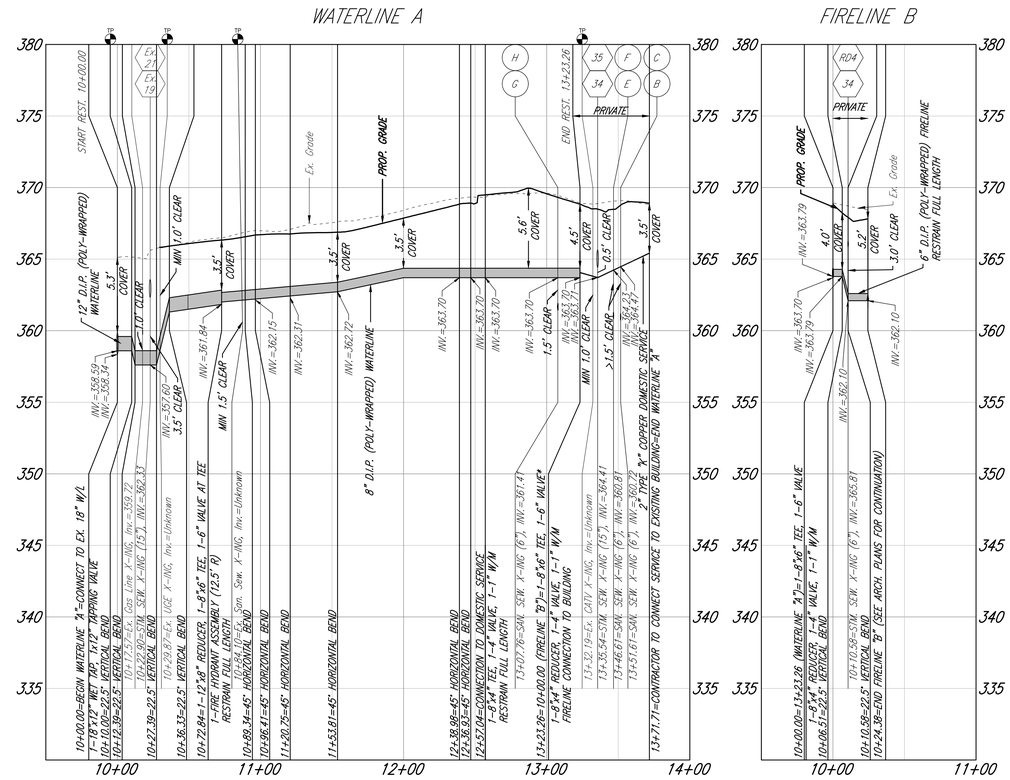
HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE:	JANUARY 26, 2023
DESIGN BY:	JLK, SAW
CHECKED BY:	JLK, SAW
ARCHITECT:	N/A
JURISDICTIONAL PLAN NO.	SP20220324
RDA PLAN #:	14096-002
SHEET NUMBER:	C.14

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



NOTES:

1. ALL WATERLINE SHALL BE CLASS 52 DUCTILE IRON UNLESS OTHERWISE NOTED.
2. TRENCHING, BEDDING AND BACKFILL FOR SANITARY SEWER AND WATERLINE SHALL BE DONE IN ACCORDANCE WITH P.W.C.S.A. STANDARDS AND SPECIFICATIONS.
3. ALL WATERLINES NEED TO BE RESTRAINED (REST.) TO A MINIMUM OF THE FIRST JOINT ALONG THE RUN WHEN A TEE IS PROPOSED, THE BRANCH RESTRAINED JOINT LENGTH WILL BE SHOWN ON THE PROFILES HEREON.
4. ALL WATERLINE RESTRAINT SYSTEMS SHALL BE IN THE FORM OF MECHANICAL RESTRAINT.
5. THE FIRE PROTECTION LINES SHALL HAVE A VALVE AT THEIR CONNECTIONS TO THE MAIN, SHALL MAINTAIN 42" OF COMPACTED SOIL COVER DEPTH AND SHALL MAINTAIN A PERIMETER CLEAR OF OTHER UTILITIES AND OTHER NON-COMPACTED SOIL FOR A MINIMUM OF 36" AROUND THE PIPES AND AVOID EXPOSURE TO TEMPERATURES BELOW 40°F.
6. *CONTROLLED FILL – THE SOIL SHALL BE PLACED IN LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS, MOISTURE CONDITIONED TO WITHIN ±2% OF THE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DENSITY OBTAINED IN ACCORDANCE WITH ASTM SPECIFICATION D-698, STANDARD PROCTOR METHOD.
7. *THE CONTRACTOR SHALL ONLY CONSTRUCT THE 8"x6" TEE AND 6" VALVE FOR THE 6" FIRELINE WITH THE PHASE 1 IMPROVEMENTS. A RESTRAINED PLUG AND CONCRETE KICKER SHALL BE INSTALLED BEHIND THE 6" VALVE, WHICH SHALL BE REMOVED WHEN THE 6" FIRELINE IS CONTRUCTED WITH THE PAHSE 2 IMPROVEMENTS.
8. CONTRACTOR SHALL TEST PIT UTILITIES PRIOR TO CONSTRUCTION AND IMMEDIATELY PROVIDE THE RESULTS TO THE ENGINEER TO REVIEW PRIOR TO CONSTRUCTION. LIFT AND LAY OF THE EXISTING UTILITIES IS THE PREFERRED METHOD OF ADJUSTING UTILITY LOCATIONS, WHERE APPLICABLE, AND AS ALLOWED BY THE UTILITY PROVIDERS.

PROFILE VIEW
GRAPHIC SCALE
1"=50' (H)
1"=5' (V)
0 25 50 75 100
0 2.5 5

MID-ATLANTIC UTILITY LOCATING, L.L.C. — TEST HOLE FORM — rover
44200 WAXPOOL RD, SUITE 127 ASHBURN, VA 20147 | 703.378.0100 | WWW.MIDATLANTICLOCATING.COM

Project: M-2842-0201 (Haymarket Town Center)	**Prepared By:** Bryson Ricks	**Date:** 2022-12-21
City: Haymarket	**State:** VA	**Test Hole:** 1 of
General Location: Washington St		
UTILITY INFORMATION		
Utility Size: 18"	**Material:** Ductile Iron	**Good Condition:** YES
Utility Type: Water Line		**Utility Owner:**
ADDITIONAL UTILITY INFORMATION		
Utility Size:	**Material:**	**See Test Hole No.:**
Utility Type: None		**Utility Owner:**
SITE CONDITIONS		
Field Condition: Asphalt	**Pavement thickness:** 12"	
Ground Condition: Brown Soil		
FIRST & SECOND BENCHMARK INFORMATION		
1st Elevation:	**1st Benchmark Description:**	
BM Check:		
2nd Elevation:	**2nd Benchmark Description:**	
Elevation Datum:		
FIELD MARKER INFORMATION		
Type set: Mag Nail	**Elevation:**	
Offset/Direction: Nail is set C/L of the Utility.		
PROFILE VIEW		
Top of utility field measurement: 5.28'	**Elevation:**	
Bottom of utility field measurement: None	**Elevation:** None	
Facing: West	**Utility Width/Spacing:**	
PLAN VIEW	**COORDINATES**	
	Northing:	**Easting:**
	COMMENTS/NOTES	

MID-ATLANTIC UTILITY LOCATING, L.L.C. — TEST HOLE FORM — rover
44200 WAXPOOL RD, SUITE 127 ASHBURN, VA 20147 | 703.378.0100 | WWW.MIDATLANTICLOCATING.COM

Project: M-2842-0201 (Haymarket Town Center)	**Prepared By:** Bryson Ricks	**Date:** 2022-12-21
City: Haymarket	**State:** VA	**Test Hole:** 2 of
General Location: Washington St		
UTILITY INFORMATION		
Utility Size: 4 1/2"	**Material:** P.E.	**Good Condition:** YES
Utility Type: Gas Line		**Utility Owner:**
ADDITIONAL UTILITY INFORMATION		
Utility Size:	**Material:**	**See Test Hole No.:**
Utility Type: None		**Utility Owner:**
SITE CONDITIONS		
Field Condition: Asphalt	**Pavement thickness:** 12"	
Ground Condition: Brown Soil		
FIRST & SECOND BENCHMARK INFORMATION		
1st Elevation:	**1st Benchmark Description:**	
BM Check:		
2nd Elevation:	**2nd Benchmark Description:**	
Elevation Datum:		
FIELD MARKER INFORMATION		
Type set: Mag Nail	**Elevation:**	
Offset/Direction: Nail is set C/L of the Utility.		
PROFILE VIEW		
Top of utility field measurement: 4.99'	**Elevation:**	
Bottom of utility field measurement: None	**Elevation:** None	
Facing: West	**Utility Width/Spacing:**	
PLAN VIEW	**COORDINATES**	
	Northing:	**Easting:**
	COMMENTS/NOTES	

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COMMONWEALTH OF VIRGINIA — SCOTT WOODARD — Lic. No. 053821 — 1/26/2023 — PROFESSIONAL ENGINEER

WATERLINE PROFILES

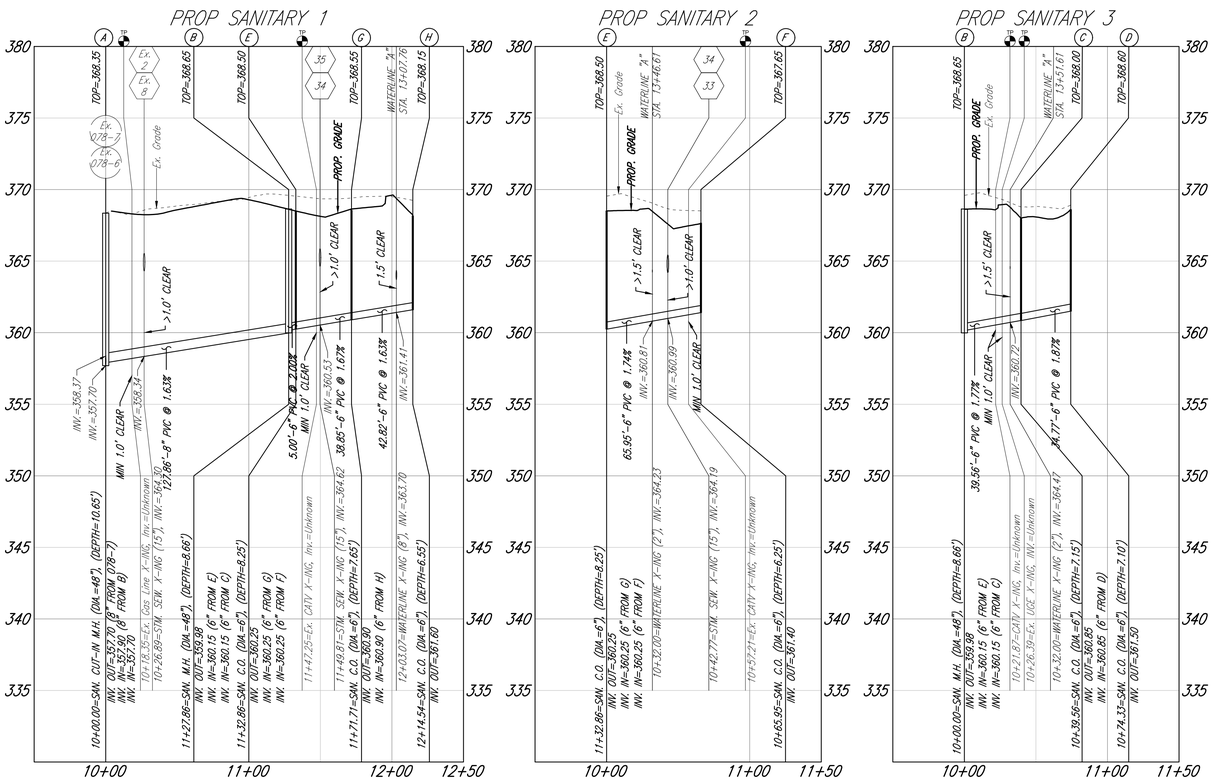
HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

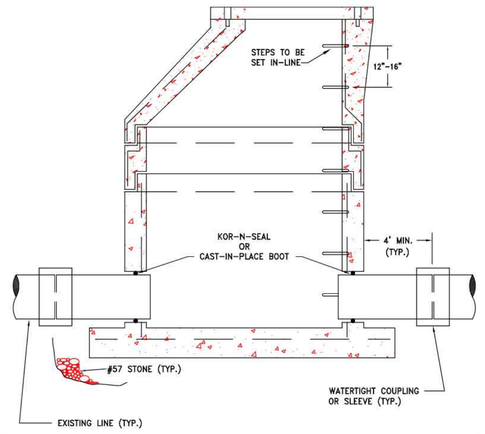
PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.15

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



NOTES:

1. CONTRACTOR MUST HAVE ADEQUATE EQUIPMENT TO PUMP AROUND EXISTING LINE WHILE MANHOLE IS CUT IN.
2. PRECAST CONCRETE MANHOLE SHALL CONFORM IN ALL OTHER RESPECTS TO STANDARD PRECAST CONCRETE MANHOLES.
3. DOG HOUSE MANHOLES ARE NOT PERMITTED WITHOUT WRITTEN PERMISSION FROM THE PWCSA.
4. MANHOLE STEPS TO BE AMERICAN STEP COMPANY ML-10-TDS-SSR OR APPROVED SUBSTITUTE.

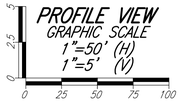


PRECAST CONCRETE CUT-IN MANHOLE
N.T.S.

S-11
REV-2018

NOTES:

1. *TRENCHING, BEDDING AND BACKFILL FOR SANITARY SEWER AND WATERLINE SHALL BE DONE IN ACCORDANCE WITH P.W.C.S.A. STANDARDS AND SPECIFICATIONS.*
2. *ALL SANITARY SEWER MANHOLE TOPS & CLEANOUT COVERS SHALL BE HEAVY DUTY AND TRAFFIC RATED IF LOCATED IN THE PAVEMENT.*
3. *ALL PROPOSED SANITARY SEWERS & LATERALS ARE PVC (C-900 DR-25) UNLESS OTHERWISE SPECIFIED.*
4. *ALL PROPOSED SANITARY SEWERS LATERALS ARE PRIVATELY OWNED AND MAINTAINED.*
5. *CONTRACTOR SHALL TEST PIT UTILITIES PRIOR TO CONSTRUCTION AND IMMEDIATELY PROVIDE THE RESULTS TO THE ENGINEER TO REVIEW PRIOR TO CONSTRUCTION. LIFT AND LAY OF THE EXISTING UTILITIES IS THE PREFERRED METHOD OF ADJUSTING UTILITY LOCATIONS, WHERE APPLICABLE, AND AS ALLOWED BY THE UTILITY PROVIDERS.*



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Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

SANITARY SEWER PROFILES

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE:	JANUARY 26, 2023
DESIGN BY:	JLK, SAW
CHECKED BY:	JLK, SAW
ARCHITECT:	N/A
JURISDICTIONAL PLAN NO.	SP20220324
RDA PLAN #:	14096-002
SHEET NUMBER:	C.16

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

GENERAL PLAN INFORMATION

Project Plan Name: Haymarket Town Center Redevelopment
Prince William County Plan Number:
Engineering Firm: Rinker Design Associates, P.C.
Project Location: The project area is located north of the Jefferson Street and Washington Street intersection.

SERVICE AREA INFORMATION

Pressure Zone: Haymarket
High Hydraulic Grade Line (ft): 535
Low Hydraulic Grade Line (ft): 515

Sewer Shed: North Branch

Local Facility Charge: Not Applicable

Master Plan Utility Adjustment Applicable: No

PROJECT METRICS

WATER MAIN

Size:	Length:	Material:
8-inch	250	
12-inch	73	
16-inch	0	
18-inch	0	

Total Length 323 Feet

GRAVITY SANITARY SEWER MAIN

Size:	Length:	Material:
8-inch	128	
10-inch	0	
12-inch	0	
16-inch	0	

Total Length 128 Feet

LOW PRESSURE FORCE MAIN

Size:	Length:	Material:
1.5-inch	0	
2-inch	0	
2.5-inch	0	
3-inch	0	

Total Length 0 Feet

PUMP STATION FORCE MAIN

Size:	Length:	Material:
4-inch	0	
6-inch	0	
8-inch	0	
12-inch	0	

Total Length 0 Feet

Total Number of 4-inch or 6-inch proposed valves: 4 Each
Total Number of 8-inch or 12-inch proposed valves: 1 Each
Total Number of 16-inch or 24-inch proposed valves: 0 Each

Total Number of Proposed Manholes: 2 Each
Total Number of Proposed Fire Hydrants: 1 Each
Total Number of Proposed Residential Meter Crocks to be Installed: 0 Each
Total Number of 5/8"x 3/4" Residential Meters to be Certified: 0 Each

PIPE TOTALS FOR FEE CALCULATIONS

Pipe Quantity Summary	Total Project Quantities Proposed By This Plan	Quantities Previously Approved & Permitted by Plan #	Net Increase
WATER MAIN INSPECTION	323		
WATER MAIN AS-BUILT	323		
SANITARY SEWER / FORCE MAIN INSP.	128		
SANITARY SEWER/FORCE MAIN AS-BUILT	128		
TV SANITARY SEWER MAIN INPECTION	128		

Minimum water main inspection fee applies for water quantities less than 100 feet: No

Minimum sanitary sewer / force main inspection fee applies for quantities less than 100 linear feet: No

Minimum as-built fee applies when total as-built cost are less than $1000.00: No

Notes:

THRUST RESTRAINT ASSUMPTIONS FOR CALCULATIONS

The profile shall call out the station restraint is to start and the station restraint is end for each fitting, reducer, and dead end.

Pipe Material: DIP - POLYWRAP

Soil Type: Coarse_Grained_Soils — SM - Silty sands, sand silt mixtures

Safety Factor: (1.5 to 1 is typical) 1.5 to 1

Trench Type: (Type 4 is typical for the Service Authority backfill requirements) Type 4

Test Pressure: (100 psi plus them max static pressure, but no less than 200 psi) 200 psi

DESIGNATION OF THE RESPONSIBLE PARTY & AS-BUILT RELEASE OF PLANS

The undersigned Engineer and /or firm, on behalf of itself and its successors, does hereby assume full liability and responsibility for the accuracy of the calculations, selections made, or information presented in this information sheet and agrees to hold harmless the Service Authority from any claim.

The undersigned Engineer and/or firm agrees that the Prince William County Service Authority shall have the right to use these plans and electronic files for the preparation of as-built records, as necessary. The Engineer and/or firm further agrees that the right to use the plans and electronic files shall be provided without cost to the Service Authority.

Signature: Scott Woodard

SCOTT WOODARD, P.E.
(Type or Print)

HYDRAULIC SUMMARY

Maximum static water pressure in the proposed water system: 63.0 psi
Minimum static water pressure in the proposed water system: 64.9 psi
Information above is provided from the hydraulic model with applied maximum day water demands.

FIRE FLOW SUMMARY

Available Fire Flow: 2500 gpm
Lowest Residual Pressure during a fire flow scenario: 48.3 psi
Information above is provided from the hydraulic model with applied maximum day and fire flow water demands.
Are residential fire sprinkler systems proposed?

DELIVERY PRESSURE SUMMARY

High Hydraulic Grade Line 457 feet
Lowest Finished Floor Elevation proposed within the development 370.42 feet
‡Estimated highest static pressure at the finished floor elevation 38 psi

Low Hydraulic Grade Line 437 feet
Highest Finished Floor Elevation proposed within the development 373.3 feet
‡Estimated lowest static pressure at the finished floor elevation 28 psi

‡Estimates are made with an assumed high and low hydraulic grade line and do not take into account the effects of friction loss or water booster pumps in the water system. Actual pressures may vary and delivery pressure are not guaranteed.

International Residential Code P2903.3 Minimum static pressure (as determined by the local water authority) at the building entrance for either public or private water service shall be 40 psi (276 kPa).

International Residential Code P2903.3.1 Maximum pressure. Maximum static pressure shall be 80 psi (551 kPa). When main pressure exceeds 80 psi (551 kPa), an approved pressure-reducing valve conforming to ASSE 1003 shall be installed on the domestic water branch main or riser at the connection to the water-service pipe.

Note: The professional engineer is responsible to account for the effects of friction loss on the delivery pressure at the finished floor elevation from the service line, meter, and other plumbing appurtenances. The Service Authority requires calculations to size the private service lines when delivery pressures are 45 psi or less and the service line is in excess of 70 feet.

☑ The hydraulic design and all finished floor elevations comply with the applicable plumbing code for pressure without a water booster pump or pressure reducing device.

☐ The use of private water booster pumps and/or pressure reducing devices are required for the following lots to comply with applicable plumbing code for pressure.

Lot# or Building ID	Elev. @ Finished Floor	High Hydraulic Grade Line (ft)	Low Hydraulic Grade Line (ft)	Estimated High Pres. (psi)	Estimated Low Pres. (psi)	Private Water Booster P. Needed	Pres. Red. Device Needed
15026	373.3	535	515	70	61	-	-
6630	370.42	535	515	71	63	-	-

AWWA WATER DEMAND ESTIMATE AND METER SIZING USING FIXTURE VALUES

(Based on AWWA M22 Manual, Second Edition)

Building Identifier: Prop. Building 2

Multi-Dwelling Residential or Non-Residential: High Demand (e.g. Non-Residential)

Maximum static water pressure at the meter location: 60 psi
(Obtained from hydraulic study at the meter location)

Fixture or Appliance	Fixture Value (at 60 psi)	Number of Fixtures	Subtotal Fixture Value
Toilet (tank)	4	1	4
Toilet (flush valve)	35		0
Urinal (wall or stall)	16		0
Urinal (flush valve)	35		0
Bidet	2		0
Shower (single head)	2.5		0
Sink / Faucet (Lavatory)	1.5		0
Kitchen Sink	2.2	2	4.4
Utility Sink	4	1	4
Dishwasher	2	2	4
Bathtub	8		0
Clothes Washer	6		0
Hose Connections (with 50 ft of hose)			
1/2 in.	5		0
5/8 in.	9		0
3/4 in.	12		0
Miscellaneous			
Ice Machine	3	1	3
Drinking fountains	2		0
Dental units	2		0

Combined Fixture Value	19.4	
Demand (gpm) from AWWA Curve	39.3	gpm
Pressure Adjustment Factor	1	
Adjusted demand (gpm)	39	gpm
Irrigation Demand (gpm) that will occur simultaneously with normal water use	0	gpm
Water demand for equipment will occur simultaneously with normal water use	0	gpm
Total estimated peak flow	39	gpm

Required AWWA Meter Size: 1-Inch Positive Displacement Meter

METER SCHEDULES

MULTI-DWELLING METER SCHEDULE

Building Identifier	Building Address	Meter Use	Account Type	Number of Dwelling Units	[1]Peak Demand (GPM)	[2&3]ERU Purchase	Meter Size	Meter Type	(Reserved for Future Use)	(Reserved for Future Use)	[4]Non-Binding Estimated Availability Fee
						#N/A					
						#N/A					
						#N/A					
						#N/A					
						#N/A					
						#N/A					
						#N/A					
						#N/A					
						#N/A					

NOTES:
1 *A fixture unit list and meter sizing calculations shall be provided in the plan set for each proposed meter in accordance with the current AWWA M22 standard.*
2 *The number of ERU's for a multi-family building is 80% of the total number of dwelling units associated with the meter and is rounded up to the next full unit.*
3 *For water only accounts, the minimum purchased number of ERU units must match the allocation with the meter size as defined in Table VI: Availability Fees of the Customer Handbook.*
4 *The Availability Fee is not the total fee due. New connections may be subject to the following fees: meter, meter installation, sewer and/or water inspection, application and Local Facility charges. See the Customer Handbook for additional information.*

NON-RESIDENTIAL METER SCHEDULE

Building Identifier	Building Address	Meter Use	Account Type	[1]Est. Max Month Consumption (Gallons)	[2]Peak Demand (GPM)	[3]ERU Purchase	Meter Size	Meter Type	(Reserved for Future Use)	(Reserved for Future Use)	[4]Non-Binding Estimated Availability Fee
Ex. Building 1	15000/15014 Washington Street	Commercial	Water & Sewer	N/A	N/A	FALSE	FALSE	#N/A			#N/A
Ex. Building 2	15020 Washington Street	Commercial	Water & Sewer	N/A	N/A	FALSE	FALSE	#N/A			#N/A
Prop. Building 1	15026 Washington Street	Commercial	Water & Sewer	NOT REQUIRED	40	4	1-Inch	Positive			$ 61,600.00
Prop. Building 2	6630 Jefferson Street	Commercial	Water & Sewer	NOT REQUIRED	39	4	1-Inch	Positive			$ 61,600.00

NOTES:
1 *For meters 2-inch and larger the maximum month water consumption shall be reported. The purchased number of ERU's shall be based on the estimated maximum month consumption, but shall not be less than the allocated number of ERUs allocated meter size. For meters smaller than 2-inch, the maximum month water consumption does not need to be reported.*
2 *A fixture unit list and meter sizing calculations shall be provided in the plan set for each proposed meter in accordance with the current AWWA M22 standard.*
3 *For all meters the minimum purchased number of ERU units must match the allocation with the meter size as defined in Table VI: Availability Fees of the Customer Handbook.*
4 *The Availability Fee is not the total fee due. New connections may be subject to the following fees: meter, meter installation, sewer and/or water inspection, application and Local Facility charges. See the Customer Handbook for additional information.*

DATA CENTER METER SCHEDULE

Building Identifier	Building Address	Meter Use	Account Type	[1]Est. Max Month Consumption (GPD)	[2]Peak Demand (GPM)	[3]ERU Purchase	Meter Size	Meter Type	Meter Manufacturer	Flow Rate (gpm) Minimum	Flow Rate (gpm) Maximum	[4]Non-Binding Estimated Availability Fee

NOTES:
1 *For sewer only meters and 2-inch meters and larger, the purchased number of ERU's shall be based on the estimated maximum month consumption, but shall not be less than the allocated number of ERUs associated with the meter size.*
2 *A fixture unit list and meter sizing calculations shall be provided in the plan set for each proposed meter in accordance with the current AWWA M22 standard.*
3 *For all meters the minimum purchased number of ERU units must match the allocation with the meter size as defined in Table VI: Availability Fees of the Customer Handbook.*
4 *The Availability Fee is not the total fee due. New connections may be subject to the following fees: meter, meter installation, sewer and/or water inspection, application and Local Facility charges. See the Customer Handbook for additional information.*

GENERAL NOTES

1 Methods and materials used in the construction of water mains, sanitary sewer mains, force mains and appurtenances shall be in conformance with the current Prince William County Service Authority (Service Authority) Utility Standards Manual (USM) and the Virginia Department of Health Regulations.

2 Acceptance of these plans by the Service Authority will in no way relieve the owner from complying with the methods, policies or requirements stated in the Service Authority's USM.

3 Service Authority has Local Review Authority for water mains up to and including 18-inch and sanitary sewer mains up to and including 24-inch. Utilities outside the Service Authority's Local Review Authority, including low pressure force mains systems, are subject to the review, approval and permitting process of either the Virginia Department of Health Office of Drinking Water or Department of Environmental Quality. It is the Professional Engineer's responsibility to submit all necessary applications and plans and to secure all applicable plan approvals and permits from the different governing authorities.

4 Trees, fences, monuments, signs, entrance features, sheds, decks, overhanging canopies, or permanent structures shall not be placed in easements dedicated to the Service Authority without written permission from the Service Authority.

5 The contractor shall notify the Service Authority Inspection Manager at least two (2) business days, but not more than ten (10) business days, prior to the commencement of demolition, excavation or blasting in areas with underground water mains, sanitary sewer mains, and/or force mains.

6 All subdivision will require an address listing approved by the Prince William County Mapping Office. The address listing must be presented to the Service Authority at the time the utility permit is issued. Forms are available at the Service Authority. (Fax copies are not acceptable.)

7 Low pressure sewer force main systems are subject to the review and requirements of the Virginia Department of Environmental Quality.

8 The developer is responsible for all costs associated with damages to or relocation of water mains, sanitary sewer mains, force mains or service lines caused by the construction of this project.

9 The contractor shall coordinate all relocation of water mains, sanitary sewer mains and/or force mains with the Service Authority's Field Inspector. Water or sanitary sewer system shutdowns will not be executed without the prior approval of the Service Authority Field Inspector. The Field Inspector shall require the contractor to submit a relocation work plan for Service Authority acceptance prior to the commencement of the relocation work. The work plan will detail how the work will be done and the manpower, materials, and equipment that will be at the site to perform the work.

10 The Service Authority does not guarantee the availability or construction of utilities that are proposed by another entity even if those utilities are shown as existing in this plan set. If needed utilities shown as existing are not available or do not exist, it is the developer's responsibility to acquiring the necessary rights and permits to install on-site and off-site water and sanitary sewer utilities to provide the desired service.

11 Existing unused water service lines shall be exposed at the connection point on the water main and shall be cut and terminated (e.g. crimped) as directed by the Service Authority Field Inspector.

12 Existing unused laterals or sanitary service lines shall be cut and capped at the connection point to the sanitary sewer main or force main as directed by the Service Authority Field Inspector.

13 When an existing water service line, lateral, of sanitary service line will be reused as part of a new development, the Service Authority shall inspect the existing service line to insure that it is acceptable and meets current Service Authority material specifications. Any defects or out-of-date materials shall be repaired or replaced to the satisfaction of the Service Authority to ensure the service line is water tight before the existing service line is placed back in service.

Engineer's Seal & Signature

Service Authority
Prince William County

Water & Sanitary Sewer Information Sheet
Sheet effective as of September 1, 2019

SHEET _____ OF _____

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA — SCOTT WOODARD — Lic. No. 056321 — 1/26/2023 — PROFESSIONAL ENGINEER

PWCSA INFORMATION SHEET

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.17

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

SANITARY SEWER DESIGN & TEST TABLE

"n" factor = 0.013

From MH	To MH	Units or Area	Flow / Unit	Avg. Flow Increament	Avg. Flow Total	Peak Factor	Q Total GPD	Pipe Size (in.)	Slope (%)	Length (ft)	Actual Vel. (fps)	Full Flow Vel. (fps)	Capacity (GPD	q/Q (%)	d/D (%)	PWCSA Use Only: Invert Upper	Inver Lower	Date Line Installed	Date Line Passed Test	MH ID	Date MH passed Vac. Test
B	A	14916	0.21	3132.36	3132.36	4	12,529	8	1.63	127.86	1.53	4.42	997,082	1.26%	7.5%						
078-7	A	16240	0.21	3410.4																	
"	"	3	390	1170	7712.76	4	30,851	8	1.31	187.36	1.84	3.96	893,867	3.45%	12.5%						
A	078-6	0	0	0	7712.76	4	30,851	8	1.31	56.42	1.84	3.96	893867	3.45%	12.5%						

Notes: Flow through B - A is based on the existing and proposed buildings on the site. Flow through 078-7 - A is based on the approximate acreage of Suburban-Low Residential parcels served by the main, along with the additional flow due to existing commercial properties, with the building area per tax records.

SANITARY LATERAL TABLE

From MH B To MH A Slope 1.63%

Ejector Pump Required	Lot Number	Station	Invert at Main	Crown at Main	Length of Lateral	Slope of Lateral (%)	Riser Height	Lateral Elev. At End		Ground Ele. At End	Basement Floor Elev. at End	Difference Basement Floor Elev. To Crown at Main	Lateral Material	PWCSA Use Only: Date Installed	Stub Installed % of Grade
	6630	N/A	359.98	360.65	74.33	1.82	N/A	361.5		368.60	370.42	9.77	C-900		
	15026	N/A	359.98	360.65	70.95	1.76	N/A	361.4		367.65	367.80	7.15	C-900		
	"	N/A	359.98	360.65	81.67	1.65	N/A	361.6		368.15	367.80	7.15	C-900		

AWWA WATER DEMAND ESTIMATE AND METER SIZING USING FIXTURE VALUES

(Based on AWWA M22 Manual, Second Edition)

Building Identifier: Prop. Building 1

Multi-Dwelling Residential or Non-Residential: High Demand (e.g. Non-Residential)

Maximum static water pressure at the meter location: 60 psi
(Obtained from hydraulic study at the meter location)

Fixture or Appliance	Fixture Value (at 60 psi)	Number of Fixtures	Subtotal Fixture Value
Toilet (tank)	4	3	12
Toilet (flush valve)	35		0
Urinal (wall or stall)	16		0
Urinal (flush valve)	35		0
Bidet	2		0
Shower (single head)	2.5		0
Sink / Faucet (Lavatory)	1.5	3	4.5
Kitchen Sink	2.2		0
Utility Sink	4		0
Dishwasher	2		0
Bathtub	8		0
Clothes Washer	6		0
Hose Connections (with 50 ft of hose)			
1/2 in.	5		0
5/8 in.	9	1	9
3/4 in.	12		0
Miscellaneous			
Bedpan washers	10		0
Drinking fountains	2		0
Dental units	2		0

Combined Fixture Value	25.5	
Demand (gpm) from AWWA Curve	40.1	gpm
Pressure Adjustment Factor	1	
Adjusted demand (gpm)	40	gpm
Irrigation Demand (gpm) that will occur simultaneously with normal water use	0	gpm
Water demand for equipment will occur simultaneously with normal water use	0	gpm
Total estimated peak flow	40	gpm

Required AWWA Meter Size: 1-Inch Positive Displacement Meter

Service Authority
Transitional Water Service

ENG - Hydrant Flow Test Report

For Work Order: 608642

General Information

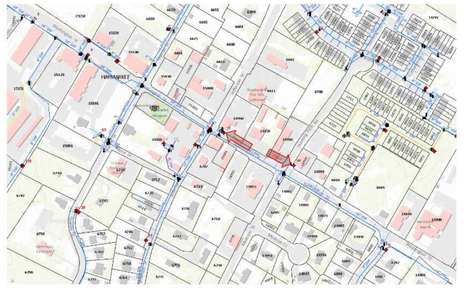
Location: 15000 WASHINGTON ST
Service Level: HAYMARKET
High/Low HGL: 535 / 515
Date: 4/8/2022 1:30:02PM
Test By: Rigby, Thomas

Static Hydrant Information

Static Hydrant ID: 31
Manufacturer: Mueller
Year Manufactured: 1997
Map Number: 091
Static Pressure: 74 psi
Residual Pressure: 70 psi

Flow Hydrant Information

Flow Hydrant ID: 30
Manufacturer: Mueller
Year Manufactured: 1997
Map Number: 091
Flow Rate: 1280 gpm
Pilot Pressure: 58 psi



** The Prince William County Service Authority is not responsible for assumptions , calculations, or designs made based on the results of this test. Please note that the flows available from these hydrants are subject to changes or operational variations in the PWCSA's water system. You are requested to apply these results exercising professional judgment and employing the help of an accurate hydraulic computer model. **

Data pulled for report on: 4/8/2022 at 3:56:26 pm

Page 1 of 1

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11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
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SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

PWCSA INFORMATION SHEET

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

Engineer's Seal & Signature

Service Authority
Prince William County

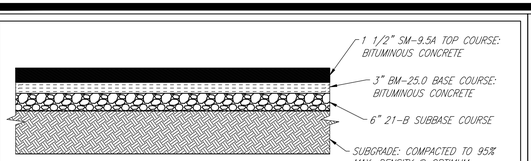
Water & Sanitary Sewer Information Sheet

Sheet effective as of September 1, 2019

SHEET _____ OF _____

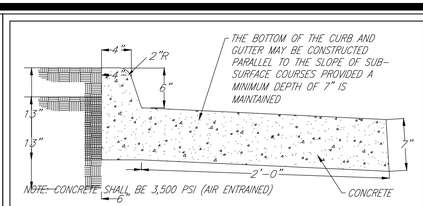
PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.18

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



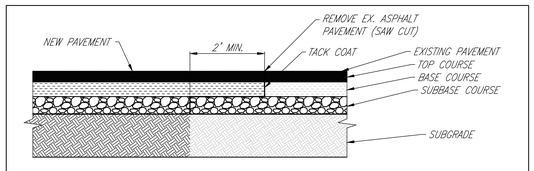
TYPICAL STANDARD ASPHALT PAVEMENT SECTION

(NOT TO SCALE)



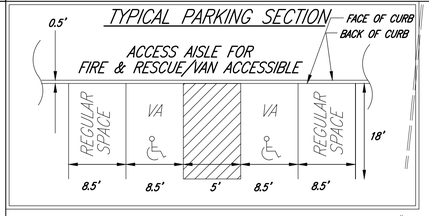
CG-6R DETAIL (TYP.)

(NOT TO SCALE)



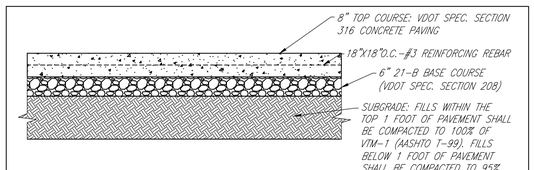
TYPICAL MILL & OVERLAY SECTION

(NOT TO SCALE)



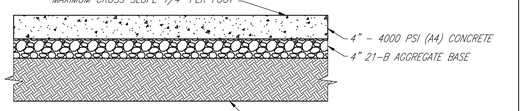
JEFFERSON STREET ASPHALT PAVEMENT SECTION

(SEE SHEET C.08 FOR JEFFERSON STREET TYPICAL SECTION)



REINFORCED CONCRETE PAD PAVEMENT SECTION

(NOT TO SCALE)



TYPICAL CONCRETE SIDEWALK SECTION

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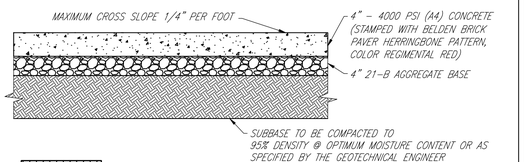
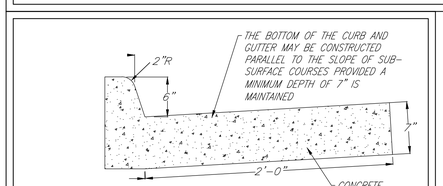


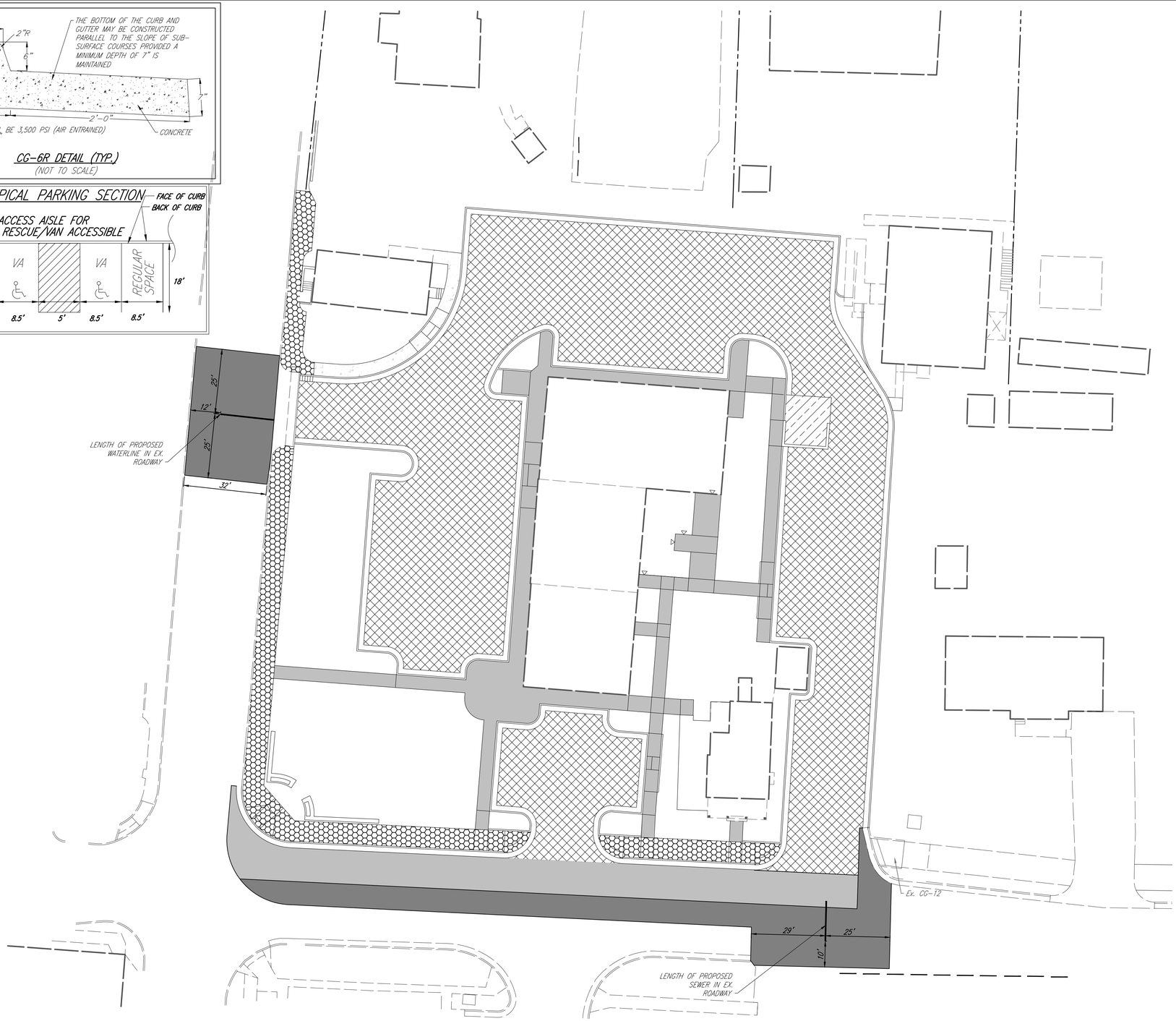
TYPICAL STAMPED CONCRETE SIDEWALK SECTION

(NOT TO SCALE)



CG-6 DETAIL (TYP.)

(NOT TO SCALE)



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11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

PAVEMENT PLAN

HAYMARKET TOWN CENTER REDEVELOPMENT

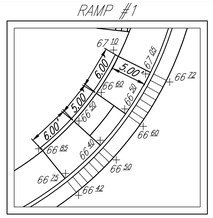
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

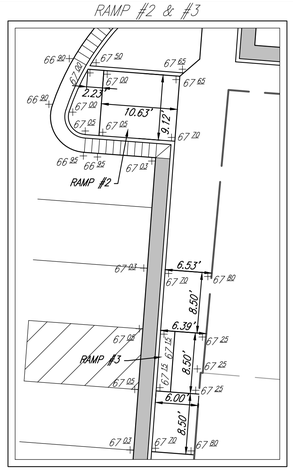
PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.19

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

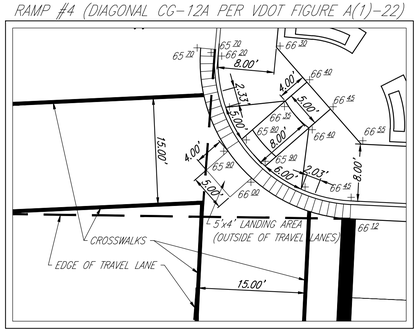
RAMP #1



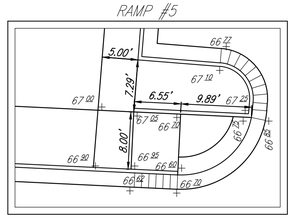
RAMP #2 & #3



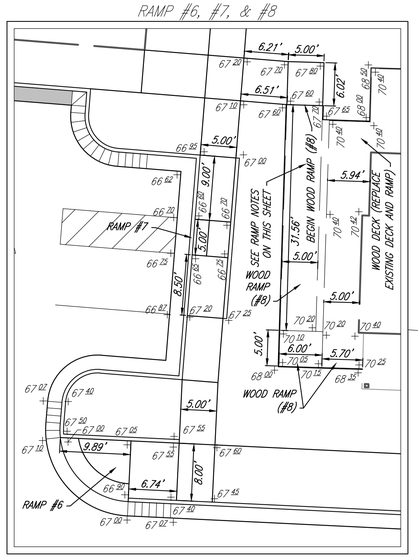
RAMP #4 (DIAGONAL CG-12A PER VDOT FIGURE A(1)-22)



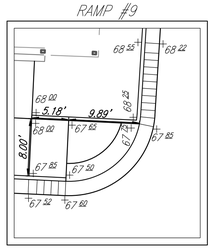
RAMP #5



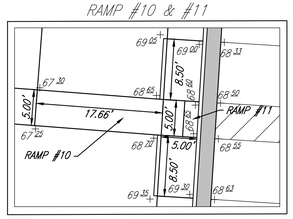
RAMP #6, #7, & #8

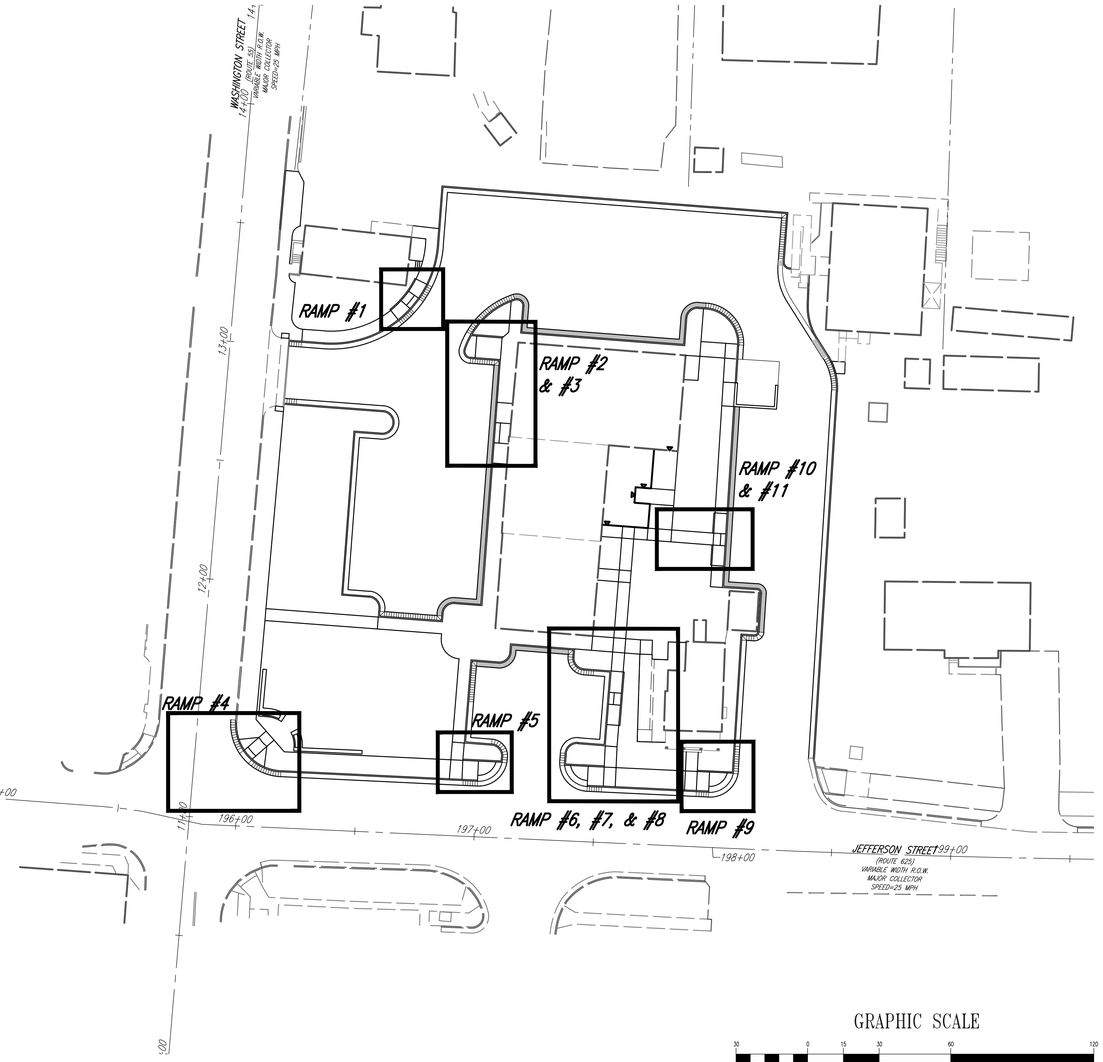


RAMP #9



RAMP #10 & #11





WOOD RAMP NOTES:

1. THE RAMP SHALL MATCH THE EXISTING RAMP STYLE.
2. THE WOOD RAMP WILL TIE INTO THE PROPOSED CONCRETE PAD AT THE 67.70 AND 67.60 ELEVATIONS AS SHOWN, AT WHICH POINT THEE WOOD RAMP WILL INCREASE IN GRADE AS SHOWN ON THIS SHEET.
3. THE EXISTING RAMP WILL BE REMOVED AND REPLACED WITH A WOOD DECK THAT RUNS AROUND THE LENGTH OF THE BUILDING AND ALSO TIES INTO THE EXISTING FRONT PORCH.
4. THE WOOD RAMP WILL TIE INTO THE DECK AND EXISTING FRONT PORCH TO PROVIDE ACCESS TO THE BUILDING.
5. THE AREA UNDERNEATH OF THE WOOD RAMP SHALL BE COVERED WITH RIVER ROCK, OR SIMILAR, TO FACILITATE DRAINAGE AND REDUCE THE POSSIBILITY OF MUD UNDERNEATH OF THE RAMP.
6. GRADING SHALL BE COMPLETED TO THE ELEVATIONS SHOWN AROUND THE EDGES OF THE RAMP.
7. RAILING SHALL BE PROVIDED ALONG THE WOOD RAMP PER ADA REGULATIONS.
8. RAMP SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING OF MATERIALS AND CONSTRUCTION. RAMP SHALL COMPLY WITH ALL ADA RAMP MATERIAL REQUIREMENTS.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

VCS NORTH 1983

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Engineering * Surveying * Transportation * Environmental Services

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SCOTT WOODARD
Lic. No. 053821
1/26/2023
PROFESSIONAL ENGINEER

GRADING DETAILS

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023

DESIGN BY: JLK, SAW

CHECKED BY: JLK, SAW

ARCHITECT: N/A

JURISDICTIONAL PLAN NO. SP20220324

RDA PLAN #: 14096-002

SHEET NUMBER: C.20

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

LEGEND

— DENOTES PROP. FIRE LANE (PAINTED CURB OR PAVEMENT)

Ⓐ Ⓑ Ⓒ – DENOTES PROP. FIRE LANE SIGN LOCATIONS

SIGN TYPE "A"

STANDARD WORDING WITH AN ARROW AT BOTTOM POINTING TO THE RIGHT. ONE SIGN MOUNTED PARALLEL TO THE LINE OF CURBING OR PAVEMENT EDGE AT END OF PAINTED AREA.

Ⓐ

SIGN TYPE "B"

STANDARD WORDING WITH AN ARROW AT BOTTOM POINTING TO THE LEFT AND RIGHT. ONE SIGN MOUNTED PARALLEL TO THE LINE OF CURBING OR PAVEMENT EDGE AT END OF PAINTED AREA.

Ⓑ

SIGN TYPE "C"

STANDARD WORDING WITH AN ARROW AT BOTTOM POINTING TO THE LEFT. ONE SIGN MOUNTED PARALLEL TO THE LINE OF CURBING OR PAVEMENT EDGE AT END OF PAINTED AREA.

Ⓒ

"THIS SHEET IS FOR FIRE LANE DESIGNATION & SIGNAGE INFORMATION PURPOSES ONLY!!!"

FIRE LANE AND SIGN REQUIREMENTS

GENERAL

1. A FIRE DEPARTMENT CONNECTION SHALL BE PROVIDED AS SHOWN ON THIS SHEET AND ON THE ASSOCIATED ARCHITECTURAL PLANS.
2. A KNOX BOX SHALL BE LOCATED ON THE UTILITY ROOM ACCESS DOOR TO ALLOW FIRE DEPARTMENT ACCESS.

SIGN SPECIFICATIONS

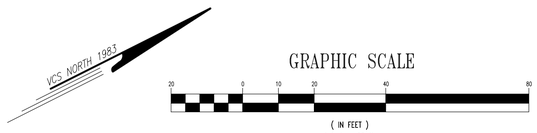
1. METAL CONSTRUCTION, 12"x18".
2. RED LETTERS ON REFLECTIVE WHITE BACKGROUND WITH 3/8" RED TRIM STRIP AROUND ENTIRE OUTER EDGE OF SIGN.
3. LETTERING ON SIGN TO BE: "NO PARKING OR STANDING FIRE LANE".
4. LETTERING SIZE TO BE AS FOLLOWS:
   - 2.5" – "FIRE LANE"
   - 2" – "NO PARKING" & "STANDING"
   - 1" – "OR"
   - 1"x6" – ARROW SHAFT
   - 1-3" WIDE x 3" DEEP – ARROW HEAD
5. SIGNS ARE TO BE MOUNTED 7' FROM THE GROUND TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE OFFICE OF THE FIRE MARSHAL.
6. POSTS FOR SIGNS, WHEN REQUIRED, SHALL BE METAL AND SECURELY MOUNTED, UNLESS WRITTEN PERMISSION FOR ALTERNATIVES IS OBTAINED PRIOR TO INSTALLATION FROM THE OFFICE OF THE FIRE MARSHAL. SIGNS SHOULD BE SPACED AS SHOWN ON APPROVED PLANS WITH A MAXIMUM SPACING DISTANCE OF 100' BETWEEN SIGNS.
7. OTHER SPECIAL SIGNS MAY BE APPROVED BY THE OFFICE OF THE FIRE MARSHAL.

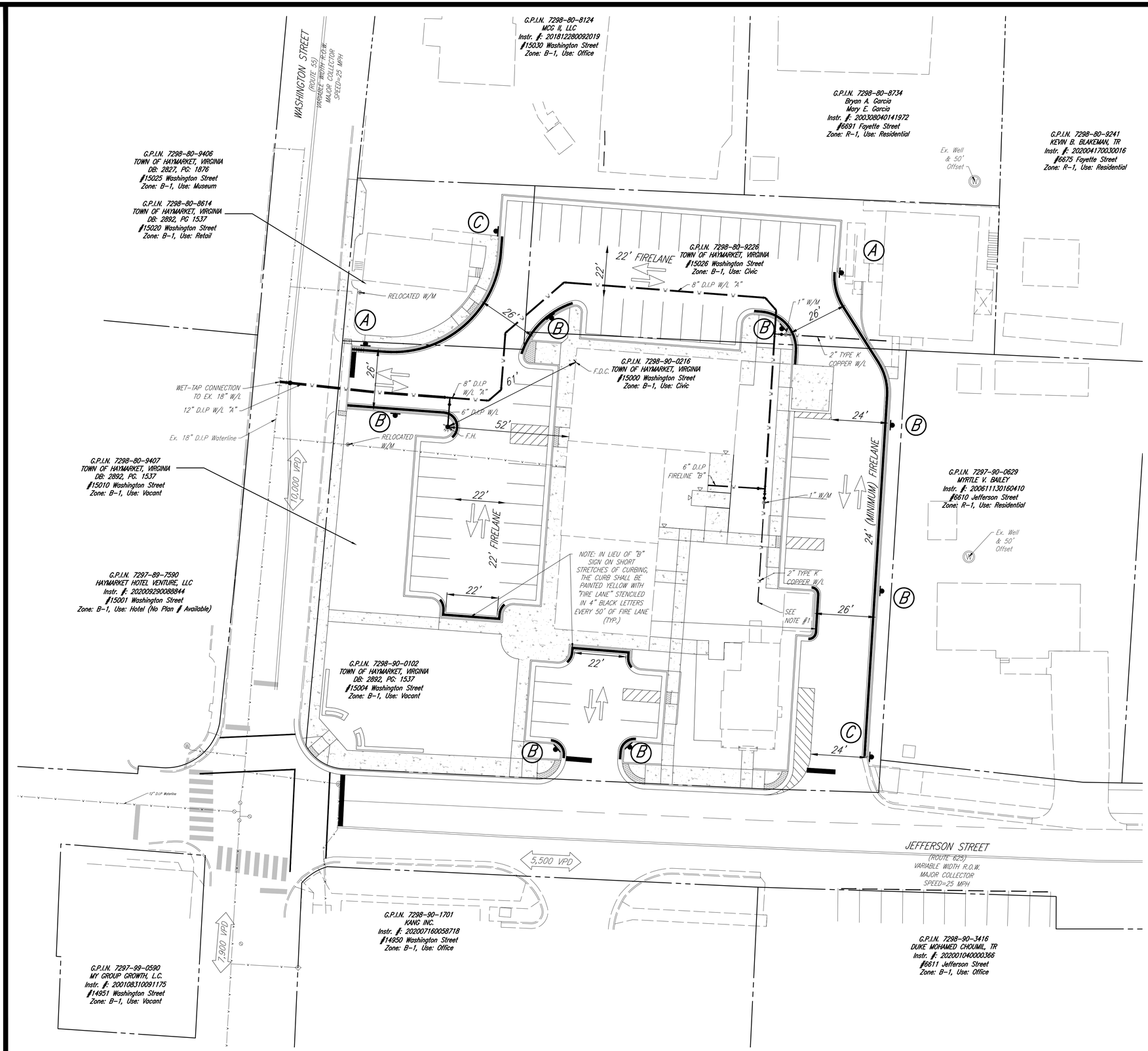
CURB DESIGNATIONS

1. ALL CURBS OR PAVED SPACES DESIGNATED AS FIRE LANES SHALL BE INDICATED BY YELLOW PAINT AS APPROVED BY THE OFFICE OF THE FIRE MARSHAL. IN AREAS WITHOUT CURBING, TWO PARALLEL, 6" WIDE YELLOW STRIPES SHALL BE APPLIED TO THE EDGE OF THE PAVEMENT WITH DIAGONAL INTERSECTING LINES PAINTED AT 3' INTERVALS. PAINT SHALL BE HIGHWAY TRAFFIC GRADE.

WATER SUPPLY SYSTEMS

1. FIRE HYDRANTS SHALL BE COLOR CODED IN ACCORDANCE WITH THE OFFICE OF THE FIRE MARSHAL SPECIFICATIONS.
2. FIRE LINE SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS IN NOTES ON WATERLINE PROFILES, SHEET C.15.





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Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

FIRE LANE PLAN

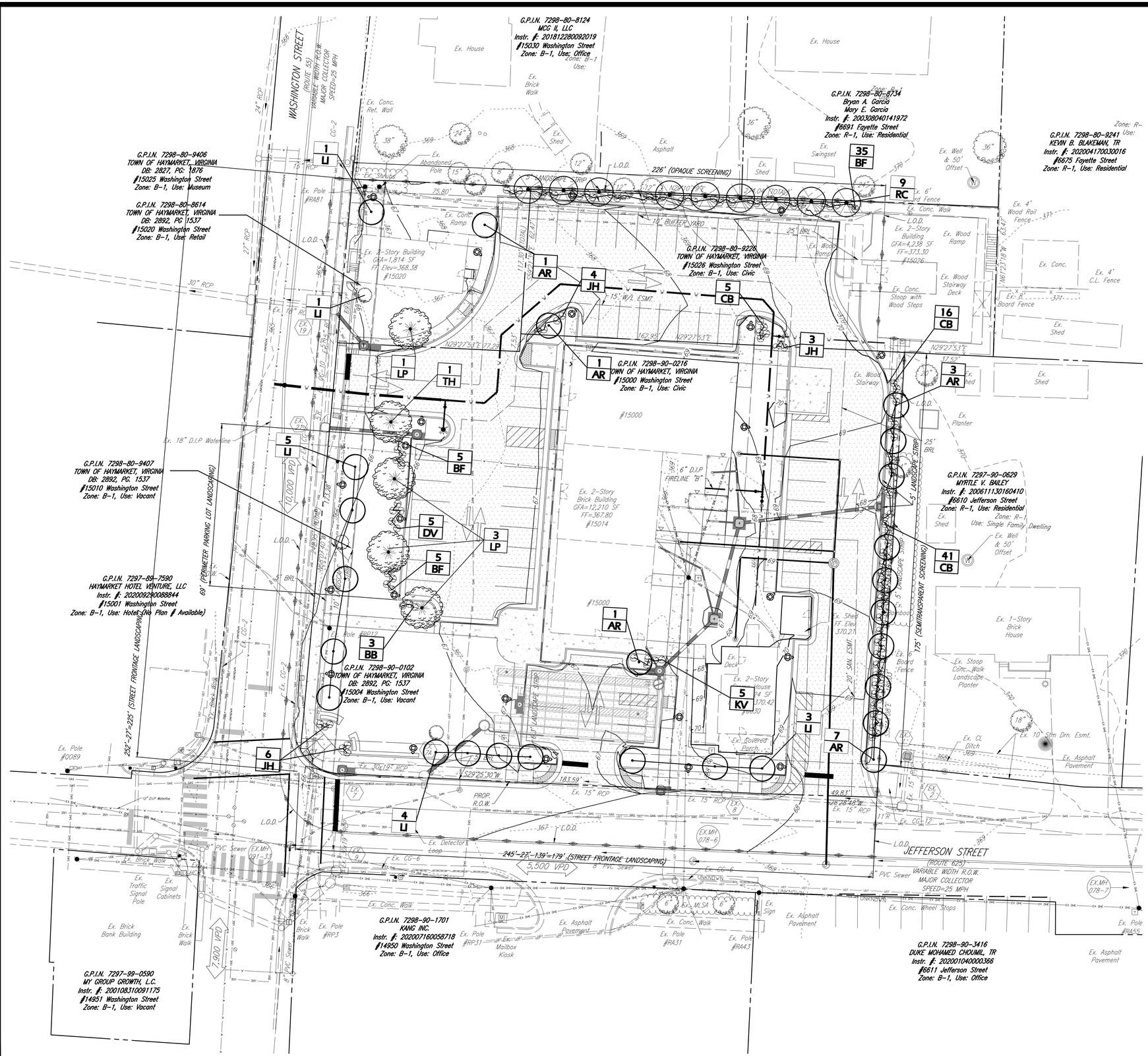
HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE:	JANUARY 26, 2023
DESIGN BY:	JLK, SAW
CHECKED BY:	JLK, SAW
ARCHITECT:	N/A
JURISDICTIONAL PLAN NO.	SP20220324
RDA PLAN #:	14096-002
SHEET NUMBER:	C.21

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



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COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

LANDSCAPE PLAN

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE:	JANUARY 26, 2023
DESIGN BY:	JLK, SAW
CHECKED BY:	JLK, SAW
ARCHITECT:	N/A
JURISDICTIONAL PLAN NO.	SP20220324
RDA PLAN #:	14096-002
SHEET NUMBER:	C.22

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

Planting Notes:

1. *Quality Assurance:*
a. *Landscape planting and related work shall be performed by a firm with a minimum of five years experience specializing in this type and scale of work.*
b. *Applicable Specifications and Standards:*
Loudoun County Zoning Ordinance, American Joint Committee on Horticultural Nomenclature,
American Standard for Nursery Stock, Latest Edition.
American Association of Nurserymen
Landscape Specification Guidelines for Baltimore Washington Metropolitan Areas, latest edition,
Landscape Contractors Association.
2. *Submittals: Submit the following to the Owner's Representative prior to beginning work:*
Copies of manufacturer's data for all materials required.
Samples of required mulch material.
Chemical and mechanical analysis and samples of all existing soil, topsoil, organic matter and soil mix to be used.
Planting schedule showing the dates (earliest and latest) proposed for each type of plant specified, schedule each type of planting within the normal planting seasons for such work. Include requests for any proposed changes in the approved planting season and a list of proposed sources for all plant materials.
List of proposed sources for all plant material,
3. *Delivery, Storage and Handling:*
a. *Deliver packaged materials in manufacturer's unopened containers or bundles, fully identified with name, brand, type, weight, and analysis. Store packaged materials in such a manner as to prevent damage or intrusion of foreign matter.*
b. *Dig balled and burlapped (B&B) plants with firm, natural balls of earth, of a diameter not less than that shown on the plant list nor less than recommended by the American Standard for Nursery Stock, and of sufficient depth to include the fibrous and feeding roots. B&B plants will not be accepted if the ball is cracked or broken before or during planting operation.*
c. *Deliver trees and shrubs after preparations for planting have been completed. Do not bend, bind, or tie trees or shrubs in such a manner as to damage bark, break branches or destroy natural shape. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist by heeling-in bare root stock and covering plant watered and shall not remain unplanted for longer than ten (10) days after delivery.*
d. *Plants shall be lifted and handled from the bottom of the ball only.*
e. *Do not remove container - grown stock from containers until planting time.*
4. *Before planting, determine that areas to receive plant material have adequate subdrainage.*
a. *The landscape contractor is responsible for drainage tests as necessary to identify any problems prior to beginning planting operations. Upon commencement of planting operations the landscape contractor assumes responsibility for soil conditions.*
b. *Dig planting pits to full depth and dimensions indicated on drawings.*
c. *At bottom of planting pit, excavate rectangular pit 12 inches by 12 inches by 18 inches deep. Quickly pour water into small pit to a depth of 6 inches (approximately 3-3 ½ gallon). Note time required for water to be completed absorbed. Divide time noted by 6 to achieve average rate of absorption for 1 inch of water. Where rate of absorption exceeds 60 minutes per inch, notify owner immediately for directions on how to proceed.*
5. *Planting shall be done only within the following dates except as approved by Owner.*
a. *Deciduous Trees and Shrubs: March 1 to May 31 and October 15 to December 15*
b. *Evergreen Trees, Shrubs and Vines: March 1 to May 31 and September 1 to November 15*
6. *All plant material shall be guaranteed by the Contractor for a period of 1 year from the date final acceptance to be in good, healthy and flourishing condition.*
7. *Materials for Planting:*
a. *Mulch shall be double shredded hardwood bark. Submit sample for approval. Material shall be mulching grade, uniform in size and free from foreign matter.*
b. *Leaf Compost shall be screened and free of trash.*
c. *Coir Mesh (geo-textile blanket) shall be natural fiber geo-textile woven mesh composed of 100% coir (spun from coconut fiber) yarn, containing 45% Lignin and 55% Cellulose. Opening in the mesh shall be 1 inch square (nominal) by 0.3 inches thick. Yam count per yard shall be 42 warp x 37 wept. Fabric tensile strength shall be 4.32 lb/ft x 1.38 lb/ft.*
d. *Twelve-Inch hardwood stakes shall be Eco-STAKES by North American Green or equal.*
e. *Fertilizer shall be commercial fertilizer for ornamental trees, shrubs and ground cover. Fertilizer shall be provided in accordance with the recommendations of the soil tests. As a basis for bidding, Contractors shall assume a fertilizer with an analysis of 10% Nitrogen, 6% Phosphorus and 4% Potassium. This fertilizer shall be granular with a minimum of 50% of the total Nitrogen in organic form.*
f. *Topsoil is not available on site, Contractor shall provide topsoil that is a fertile, friable natural loam uniform in composition, free of stones, lumps, plants, and their roots, debris and other extraneous matter over 1" in diameter, capable of sustaining vigorous plant growth. Topsoil shall have a pH range of 6.0 to 6.5. Topsoil must comply with the following volume:*

Organic Content	*3.0 - 3.5%*
Clay	*10 - 15%*
Silt	*15 - 25%*
Sand	*60% Minimum*
Magnesium - Mg	*35 lbs/acre*
Phosphorus - P205	*100 lbs/acre*
Potassium - K20	*85 lbs/acre*
Soluble Salts/ Conductivity	*Not to Exceed 500 ppm*

g. *Composted Pine Bark Fines shall be approved composted ground pine bark, having no particle with a dimension greater than ¼ inch.*
h. *Soil Mix shall consist of ½ existing soil and ½ composted pine bark fines or other approved organic matter, by volume.*
8. *Plant Materials (Refer to the PLANT LIST on the drawings for specific types and quantities of plant(s).*
a. *Plants shall be nursery grown in accordance with good horticultural practices. Plants shall either be obtained from local nurseries and/or others, which have soil (heavy clay) and climatic conditions similar to those in the locality of the project. Plant material grown in sandy, well-drained soil will not be approved for this project.*
b. *Plants shall be true to species and variety and unless specifically noted otherwise, all plants shall be of specimen quality, exceptionally heavy, symmetrical, tightly-kin plants, so trained or favored in their development and appearance as to be unquestionably and outstandingly superior in form, number of branches, compactness and symmetry.*
c. *Plants shall be sound, healthy and vigorous ,well branched and densely foliated when in leaf, free of disease, insect pests, eggs or larvae sond shall have health, well-developed root systems. They shall be free from physical damage or any conditions that would prevent thriving health and the desired appearance.*
d. *Trees, which have a damaged or crooked leader, or multiple leaders, unless specified in the plant list, will be rejected. Trees with abrasion of the bark, sub scald, disfiguring knots, or pruning cuts more than 1 ¼ inch diameter which have not completely callused, will be rejected.*
9. *Plants shall conform to measurements specified in the plant schedules except that plants larger than specified may be used if acceptable to the Landscape Architect. Use of such plants shall not increase the contract price. If larger plants are accepted, the root ball shall be sized for the larger plant.*
a. *Caliper Measurements: Shall be taken at a point on the trunk 6 inches above natural ground line for trees up to 4 inches diameter, and at a point 12 inches above the natural ground line for trees over 4 inches.*
b. *Plants shall be measured when branches are in the normal position. Height and spread dimensions specified refer to the main body of the plant and not from branch tip to tip.*
10. *Preparation of Areas for Planting:*
a. *Stake out all plant material beds and tree locations for approval of Landscape Architect prior to any bed preparation.*
b. *Shrubs, Shrub Beds and Hedges on slopes of 1:3 or less: Loosen soil in the area of entire plant bed or hedgerow to a depth of 6 inches minimum with a rotofiller. Add soil amendments and rotatill again to a depth of 6 inches. Excavate plant pit and hedge trenches a minimum of 12 inches wider than the root ball or bare root on all sides. The depth shall be sufficient to allow shrub to sit 2 inches above finished grade.*
c. *Shrub Beds on Sloped of Greater than 3:1: Amend soil as above. Spread coir mesh across entire area of shrub bed in steep slope area per manufacturer's specifications. Excavate plant pit through coir mesh a minimum of 12 inches wider than the root ball or bare root on all sides. The depth shall be sufficient to allow shrub to sit 2 inches above finished grade.*
d. *Ground Covers and Seasonal Plantings: Loosen soil to a depth of 6 inches minimum with a rotofiller. Add amendments to the soil and/opr specified planting soil mix and rotofill again to a depth of 6". Install plants directly into prepared bed, and firm the soil mix around them.*
e. *Groundcover on Slopes of Greater than 3:1: Amend soil as above or by hand as required. Spread leaf compost to 2 inches in depth immediately prior to placing coir mesh. Spread coir mesh across entire area of groundcover bed in steep slope area per manufacturer's specifications. Each ground cover shall be placed in an individual planting pit planted through the biodegradable netting.*
f. *Trees: Excavate plant pit walls vertical and scarify sides. Plant pit depth shall be sufficient to allow 2 inch maximum of root ball to be above finished grade. Tree pit shall be 12 inches wider than the ball on all sides.*
11. *Erosion Control Material and Planting on Steep Slopes*
a. *Material meeting the requirements of the specification shall be installed and maintained on the designated areas as shown and specified. The areas to be covered shall be prepared and fertilized as specified before the erosion material is placed. Immediately prior to the planting operations, the material shall be laid evenly, smoothly and in contact with the soil throughout.*
b. *Lay erosion control materials with one inch nominal openings in accordance with manufacturer's instructions. Unroll in direction of water flow. Overlap sheets by at least 6 inches. Where strips are to be spliced lengthwise, overlap strips by 8 inches. Upgrade section shall be on top of all splices.*
c. *The Contractor shall maintain and protect the erosion control material until the final inspection. Maintenance shall consist of repairs made necessary by erosion, wind or any other cause. Following the restoration of damaged areas under plant and turf guarantee and establishment requirements for applicable underlying items: the erosion control material shall be repaired or replaced to meet the original requirements and maintained until the final inspection.*
12. *General Plant Installation:*
a. *Excavation: Excavate all tree pits and planting areas to the width and depth shown in the planting details.*
b. *Center plant in pit and orient for the best visual effect. Set plants plumb and hold rigidly in position until soil has been tamped firmly around root ball.*
c. *Mix soil amendments and fertilizers with existing soil in accordance with soil recommendations for plant type, based upon soil test results as approved by Owner. Delay mixing of fertilizer if planting will not occur within a few days.*
d. *Backfill pit with planting soil mix and fertilizer, until two-thirds full. Tamp and water each layer thoroughly to settle soil. After soil settles, fill pit with remaining planting soil mix, water and shape surface so that it slopes to drain from trunk and matches ground at edge of planting pit.*
e. *Mulch within 48 hours after planting and after applying the pre-emergent herbicide, except ground over areas (which shall have organic material placed before planting) with a 2" layer of mulch immediately after planting. All bed lines shall be cut with a smooth consistent edge to a minimum depth of 3 inches. Keep mulch out of the crowns of shrubs and off buildings, sidewalks, light standards, and other structures.*
f. *All planting areas to conform to specified grades after full settlement has occurred and mulch has been applied. Provide saucers around tree pits as shown on planting details. Remove all tags, labels, strings, etc. from all plants.*
13. *Permanent Seeding or Sodding for Grass Areas:*
a. *Lawn Seed or Sod varieties shall be improved variety turf-type tall fescue blend. The landscape contractor shall select from varieties approved by the Maryland or Virginia Department of Agriculture.*
b. *Refer to the Virginia Department of Transportation Erosion and Sediment Control Guidelines, for guidelines, specifications and installation techniques of seed and sod.*
14. *Maintenance shall begin immediately after each plant and lawn area is installed and shall continue until 90 days after final acceptance of the last section.*

STREETSCAPE REQUIREMENTS (PER Z.O. SEC. 58-18.16):
REQUIRED LANDSCAPING: FRONTAGE TO PUBLIC STREETS (WASHINGTON STREET)

1) Linear feet of street frontage, not including driveway entrances: *252-27=225*
2) Total number of plants units required: (1/25' of frontage) *9*
3) Total number of plant units provided: *9*

STREETSCAPE REQUIREMENTS (PER Z.O. SEC. 58-18.16):
REQUIRED LANDSCAPING: FRONTAGE TO PUBLIC STREETS (JEFFERSON STREET)

1) Linear feet of street frontage, not including driveway entrances: *245-27-39=179*
2) Total number of plants units required: (1/25' of frontage) *7*
3) Total number of plant units provided: *7*

PARKING LOT LANDSCAPE STRIP ALONG WASHINGTON STREET (Z.O. 58-1713(c))

1) Linear feet of street frontage, not including driveway entrances: *69*
2) Total number of trees required: (1/30' of frontage) *2*
3) Total number of trees provided: *2*
4) Total number of shrubs provided for screening: *15*

INTERIOR PARKING LOT LANDSCAPING (Z.O. 58-17.13(e))

1) Area of parking: *22,240 FT.*
2) Interior landscaped area required (% and sq. ft.): *5% - 1,112 SQ. FT.*
Interior landscaped area provided (% and sq. ft.): *5% - 1,200 SQ. FT.*
3) Number of trees required (1 tree 10 parking spaces): *6*
Number of trees provided: *6*
3) Number of shrubs required (3 shrubs per 10 parking spaces): *19*
Number of shrubs provided: *20*

OVERALL SITE LANDSCAPING

Tree cover required:
1) Gross site area: *63,401 SQ. FT.*
2) Percent of tree cover required: *10%*
3) Total area of tree cover required: *6,340 SQ. FT.*

Tree cover provided:
4) Tree cover from landscaping: *9,625 SQ. FT.*
5) Tree cover from preservation: *0 SQ. FT. (0%)*
6) Total tree cover provided: *9,625 SQ. FT. (15%)*

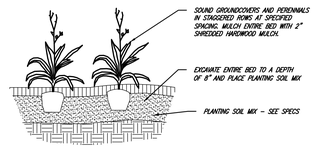
PLANTING SCHEDULE

	KEY	SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	CALIPER	REMARKS	CANOPY COMPUTATIONS 10-YR CANOPY (SQ-FT)	CANOPY COMPUTATIONS TOTAL CANOPY (SQ-FT)
DECIDUOUS TREES	LP		QUERCUS RUBRA	RED OAK	4	3"	B&B	250	1,000
	TH		GLEDITSIA TRIACANTHOS INERMIS	THORNLESS HONEYLOCUST	1	3"	B&B	250	250
			TOTAL # OF DECIDUOUS TREES = 5						1,250
EVERGREEN TREES	RC		JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	9	6'-7'	B&B	125	1,125
			TOTAL # OF EVERGREEN TREES = 9						1,375
ORNAMENTAL TREES	AR		CORNUS FLORIDA	FLOWERING DOGWOOD	13	3"	B&B	250	3,250
	LI		CRAPE MYRTLE "RED ROCKET"	LAGERSTROEMIA INDICA	15*	3"	B&B	250	3,750
			TOTAL # OF ORNAMENTAL TREES = 28						7,000
SHRUBS	BB		EUONYMUS ALATUS	BURNING BUSH	3	18"-24"	B&B		
	CB		COTONEASTER DAMMERI	CORAL BEAUTY COTONEASTER	46	18"-24"	B&B		
	DV		VIBURNUM PLICATUM	DOUBLEFILE VIBURNUM	5	18"-24"	B&B		
	KV		VIBURNUM CARLESII	KOREANSPICE VIBURNUM	5	18"-24"	B&B		
	BF		BORDER FORSYTHIA	FORSYTHIS X INTERMEDIA	45	18"-24"	B&B		
	JH		JAPANESE HOLLY	ILEX CRENATA	13	18"-24"	B&B		
			TOTAL # OF SHRUBS = 117						

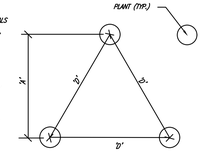
NOTE: TWO CRAPE MYRTLE TREES THAT ARE EXISTING ALONG WASHINGTON STREET ARE INCLUDED IN THE LANDSCAPING TABULATION, BUT ARE NOT PROPOSED DUE TO THEIR EXISTING NATURE. THE CONTRACTOR SHALL PROTECT THE EXISTING TREES DURING CONSTRUCTION AND REPLACE THEM AT THEIR COST, IF DAMAGED BY THEIR FORCES.

NOTES:
1. *REFER TO THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK FOR GUIDELINES, SPECIFICATIONS, AND INSTALLATION TECHNIQUES OF TREES AND GROUND COVER.*
2. *MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER EACH PLANT AND LAWN AREA IS INSTALLED AND SHALL CONTINUE UNTIL 90 DAYS AFTER FINAL ACCEPTANCE OF THE LAST SECTION.*
3. *THE LANDSCAPE CONTRACTOR SHALL HAVE THE OPTION TO SUBSTITUTE PLANTS DURING CONSTRUCTION WITH APPROVAL OF THE SITE INSPECTOR AS LONG AS THE PLANTINGS BEING REPLACED ARE ALLOWED PER THE FWC DCSM AND REPLACE PLANTINGS OF THE SAME SIZE AND 10-YEAR CANOPY COVER IN KIND.*

PLANT SPACING 'D'	ROW 'X'
6" O.C.	6.93" O.C.
10" O.C.	8.66" O.C.
12" O.C.	10.4" O.C.
18" O.C.	13.6" O.C.
24" O.C.	20.8" O.C.
36" O.C.	30.0" O.C.
48" O.C.	31.5" O.C.

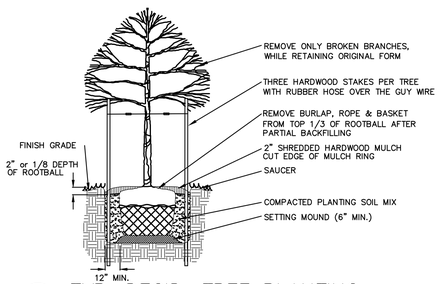


NOTE: GROUNDCOVERS AND PERENNIALS TO BE INSTALLED WITH TRIANGULAR SPACING

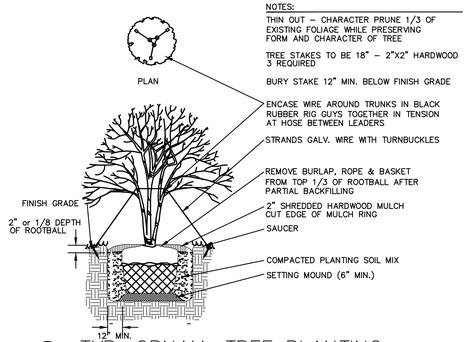


6 GROUNDCOVER PLANTING
N.T.S.

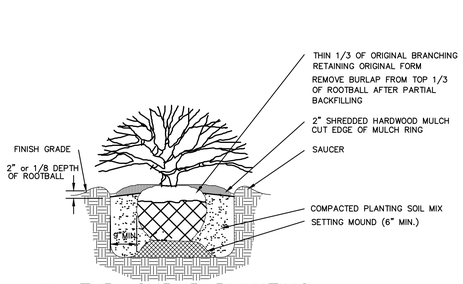
2 TREE PROTECTION DEVICES
N.T.S.



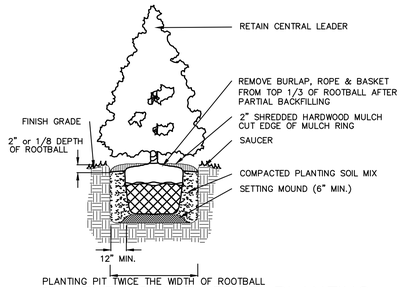
1 TYP. DECID. TREE PLANTING
N.T.S.



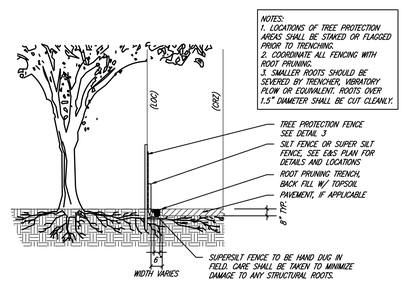
2 TYP. ORNAM. TREE PLANTING
N.T.S.



3 TYP. SHRUB PLANTING
N.T.S.



4 TYP. CONIF. TREE PLANTING
N.T.S.



5 ROOT PRUNING
N.T.S.

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA SCOTT WOODARD Lic. No. 053821 PROFESSIONAL ENGINEER 1/26/2023

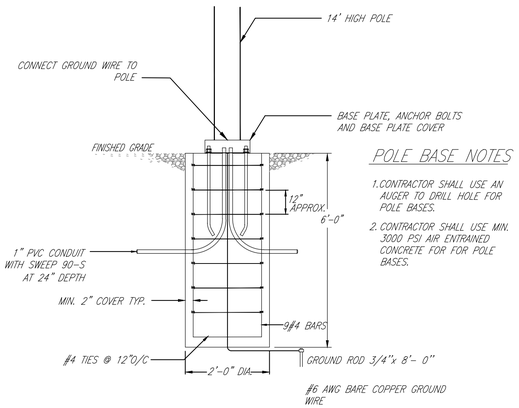
LANDSCAPE PLAN NOTES & DETAILS

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.23

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



POLE BASE NOTES

1. CONTRACTOR SHALL USE AN AUGER TO DRILL HOLE FOR POLE BASES.
2. CONTRACTOR SHALL USE MIN. 3000 PSI AIR ENTRAINED CONCRETE FOR FOR POLE BASES.

POLE BASE DETAIL

NOT TO SCALE

NOTES:

1. ALL LIGHTS SHALL BE WASHINGTON STREET STYLE (FLUTED POST) WITH THE SPECIFIED LUMINAIRE, AT A 14' MOUNTING HEIGHT. THE LIGHT POLE AND BASE SHALL BE HANOVER FOREST GREEN, OR EQUIVALENT, WITH A 17" WIDE METAL BASE TO MATCH THE EXISTING LIGHTS ALONG WASHINGTON STREET.
2. ALTHOUGH THE WALL PACKS ON THE BUILDINGS ARE NOT INCLUDED IN THIS ANALYSIS, THE ONLY TOWN OF HAYMARKET PHOTOMETRIC REQUIREMENT FOR SITES SUCH AS THIS IS TO MAINTAIN A MINIMUM OF AN AVERAGE OF 0.6 FC. SINCE THIS DESIGN PROVIDES AN AVERAGE IN EXCESS OF THAT AMOUNT, ANY ADDITIONAL LIGHTS WOULD ONLY INCREASE THE AVERAGE, STILL MAINTAINING COMPLIANCE WITH THE ZONING ORDINANCE.
3. THE TOWN OF HAYMARKET SHALL BE RESPONSIBLE FOR THE PERMIT, OPERATION, AND ASSOCIATED MAINTENANCE COSTS OF THE PROPOSED LIGHTS. SEE SHEET C.25 FOR LIGHT SPECIFICATIONS.

STATISTICS

Description	Avg	Max	Min	Max/Min	Avg/Min	Max/Avg
Calc Zone #1	1.6	4.5	0.4	11.25	4.00	2.81

LUMINAIRE SCHEDULE

Symbol	Quantity	Type
	23	WAE3-P30-30K-MVOLT-STS-GL3-GN

VCS NORTH 1983

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

LIGHTING PLAN

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

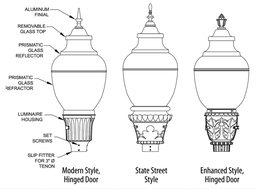
REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.24

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

HOLOPHANE
LEADER IN LIGHTING SOLUTIONS

Catalog Number	
Notes	Type



	Modern Style, Hinged Door	State Street Style	Enhanced Style, Hinged Door
Maximum weight:	65 lbs.	80 lbs.	80 lbs.
Maximum effective projected area:	2.26 sq. ft.	2.26 sq. ft.	2.26 sq. ft.

Buy American

WAE3

Washington Postlite LED3 Series

SPECIFICATIONS

General Description

The Washington Postlite LED 3 Utility is styled to replicate the acorn luminaires that lighted streets in the first half of the 20th century. Designed for superior light control, ease of installation, and maintenance, the Washington Postlite has a precision prismatic glass optical system for true street lighting performance as well as beauty. The large acorn-shaped luminaire, contains a powerful, stalk-mounted Chip-On-Board, LED platform with a precision optical system that maximizes post spacings while maintaining uniform illumination.

Mechanical Specifications

The luminaire housing shall:
- Be heavy grade A360 cast aluminum(aluminum with <1% copper)
- The glass optic is bolted onto to a gasketed top housing plate, using three stainless steel bolts that form an IP66 seal of the optical assembly.
- The housing provides an enclosure for a plug-in electrical module
- The housing accepts 3" high by 2-7/8" to 3-1/8" O.D. pole tenon and offers stainless steel set screws to securely fasten the luminaire to pole tenon

Available in three styles:
- MS Housing: Fluted decorative housing with hinge-door, tool-less entry
- EN Housing: Leaf-styled decorative housing with hinge-door, tool-less entry
- STS Housing: Leaf-styled decorative housing with pop-off door

The finish shall:
- Utilize a polyester power coat paint to ensure maximum durability
- Rigorous multi-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117) on standard and RAL finish options.
- RAL (RALxxxxSDCR) paint colors are Super Durable Corrosion Resistant, 80% gloss.

Electrical Specifications

The driver shall meet the following requirements:
- Certified by UL or CSA for wet locations
- A programmable electronic driver with 0-10V dimming control leads
- LEDs shall have a minimum of 70 CRI and available in 2700K, 3000K, 4000K, and 5000K CCT
- The electrical system shall be designed to meet ANSI/IEEE C62.41.2 and shall offer a 10kV/5kA surge protection, fail off, as standard with an upgradable 20kV/10kA surge protection, fail off with indicator light, option
- Lumen output can be customized prior to manufacturing by way of FPDxx Options
- The electrical components are mounted on an aluminum plate that is removeable with minimum use of tools. A matching five conductor plug connects to the receptacle in the luminaire housing to complete the wiring. For photoelectric operation, the electrical module is provided with an EEI-NEMA twist-lock photocell receptacle.

Optical Specifications

The optical system is IP66 rated and consists of a precisely molded thermal resistant borosilicate glass refractor and top reflector mounted within various decorative ribs and banding configurations. The top reflector redirects over 50% of the upward light into the controlling refractor while allowing a soft up-light component to define the traditional acorn shape of the luminaire. The lower refractor uses precisely molded prisms to maximize pole spacings while maintaining uniform illuminance. Two refractors are available, designed for IES type III and V distributions. Lunar Optics shielding is available for asymmetric and symmetric distributions.

Control Options

The control options shall include, but not limited to, the following:
- Field adjustable output to adjust output to luminaire - AO
- Long life photocontrol, 20 years – PCLL, P34 and P48 with DTL
- 3 and 7 pin receptacles internally in housing (PR3, PR7) or inside glass mounted (PR7E)
- nLight Air rSBOR6 outdoor fixture-mounted motion and photo-sensor, features a dual radio to communicate wirelessly to other nLight Air devices for group response to motion, on/off control in response to daylight and by switch, RSBOR6
- Fixture embedded nLight Air network interface for individual fixture control and dimming, NLTAIR2

Certification and Standards
- Luminaire shall be UL or CSA
- Suitable for operation in an ambient temperature up to 40°C / 105°F per UL or CSA certification
- LM79 compliant
- DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check with the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

BUY AMERICAN

This product is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT. Please refer to www.acuitybrands.com/resources/buy-american for additional information.

Warranty – 5 Years Limited

Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C.

WAE3
Washington Postlite LED3 Series

HOLOPHANE
LEADER IN LIGHTING SOLUTIONS

ORDERING INFORMATION

Example: WAE3 P30 30K MVOLT MS GL3 BK BBR TBK AO

Series	LED Performance Package	LED Color temperature	Voltage	Housing Style
WAE3 Washington Postlite LED3	P10 3,200 nominal lumens	27K 2700K CCT	MVOLT Auto-Sensing 120-277V 50/60 HZ	MS Modern Style, Hinged Door
	P20 5,300 nominal lumens	30K 3000K CCT	HVOLT Auto-Sensing 347-480V 50/60 HZ	EN Enhanced Style, Hinged Door
	P30 8,100 nominal lumens	40K 4000K CCT		STS State Street Style
	P40 11,200 nominal lumens	50K 5000K CCT		
	P50 13,300 nominal lumens			
	P60 16,200 nominal lumens			
	P70 19,100 nominal lumens			

Optics	Housing Color	Trim	Trim Color
GL3 Glass, Type III	BK Black	BD Bud Finial	TBK Black
GL5 Glass, Type V	BZ Bronze	SK Spike Finial	TBZ Bronze
GL3LU Glass, Type III Lunar Optic	GH Graphite	OR Ornate Finial	TGH Graphite
GL5LU Glass, Type V Lunar Optic	GN Green	BBR Bud Finial, Band and Ribs	TGL Gold
	GR Grey	SBR Spike Finial, Band and Ribs	TGN Green
	PP Prime Paint	OBR Ornate Finial, Band and Ribs	TGR Grey
	WH White	BMB Band, Medallions and Bud Finial	TPP Prime Paint
	CMC Custom Match Color Finish	BMS Band, Medallions and Spike Finial	TWH White
	XX Standard finish, TBD	BMO Band, Medallions and Ornate Finial	TCMC Custom Match Color Finish
	RALxxxxSDCR RAL Super Durable Corrosion Resistant, 80% Gloss Paint, replace xxxx with RAL number.		TXX Standard Finish, TBD
			TRALxxxxSDCR RAL Super Durable Corrosion Resistant, 80% Gloss Paint, replace xxxx with RAL number.

Options: *Option Compatibility Matrix on page 3 of 4*

CONTROLS OPTIONS	DRIVER ELECTRICAL OPTIONS	PREWIRED LEAD OPTIONS	COVER OPTIONS
AO Field Adjustable Output	FPDxx Factory Programmed Driver	L1H 1.5 ft prewired leads	FC Full Cover
PR3 NEMA twistlock photocontrol receptacle - 3 pin	20KV Extreme surge protection 20kV/10kA, fail off with indicator light	L03 3 ft prewired leads	SHC Shorewood 1/2 cover
PR7 NEMA twistlock dimming photocontrol receptacle - 7 pin		L10 10 ft prewired leads	
PR7E NEMA twistlock dimming photocontrol receptacle - 7 Pin (Under Glass)		L20 20 ft prewired leads	NEMA LABEL OPTIONS
PCLL Long Life DTL Twistlock Photocontrol for Solid State, MVOLT		L25 25 ft prewired leads	NL1X1 1"X1" ANSI Wattage Label
P34 Long Life DTL Twistlock Photocontrol for Solid State, 347V		L30 30 ft prewired leads	NL 2x2 2"X2" ANSI Wattage Label
P48 Long Life DTL Twistlock Photocontrol for Solid State, 480V			
SH Shorting Cap			
RSBOR6 nLight Motion Sensing Photocontrols			
NLTAIR2 nLight RIO 2.0 Antenna			

Accessories: *Order as separate catalog number.*

HOUSE-SIDE SHIELD OPTIONS

WLEDHS90	House Side Shield solid 90 Degree
WLEDHS12	House Side Shield solid 120 Degree
WLEDHS18	House Side Shield solid 180 Degree
WLEDHS590	House Side Shield solid 90 Degree (lunar)
WLEDHS512	House Side Shield solid 120 Degree (lunar)
WLEDHS518	House Side Shield solid 180 Degree (lunar)

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COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 065821
1/26/2023
PROFESSIONAL ENGINEER

LIGHTING PLAN

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

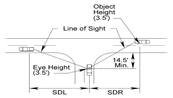
REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096–002
SHEET NUMBER: C.25

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

Intersection Sight Distance

The following table shows intersection sight distance requirements for various speeds along major roads:



SDR = Sight Distance Right (For a vehicle making a left turn)
SDL = Sight Distance Left (For a vehicle making a right or left turn)

Height of Eye 3.5'											Height of Object 3.5'	
Design Speed (mph)**		20	25	30	35	40	45	50	55	60	65	70
SDL=SDR: 2 Lane Major Road	In Feet	225	280	335	390	445	500	555	610	665	720	775
SDR: 4 Lane Major Road (Undivided) or 3 Lane		250	315	375	440	500	565	625	690	750	815	875
SDL: 4 Lane Major Road (Undivided) or 3 Lane		240	295	355	415	475	530	590	650	710	765	825
SDR: 4 Lane Major Road (Divided – 18' Median)		275	340	410	480	545	615	680	750	820	885	955
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SDL: 5 Lane Major Road (continuous two-way turn-lane)		250	315	375	440	500	565	625	690	750	815	875
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SDL: 6 Lane Major Road (Divided – 18' Median)		250	315	375	440	500	565	625	690	750	815	875
SDL: (Where left turns are physically restricted)		210	260	310	365	415	465	515	566	620	670	725

TABLE 2-5 INTERSECTION SIGHT DISTANCE

Source: AASHTO Green Book, Chapter 9, Section 9.5.3

**For all tables, use design speed if available, if not use legal speed.

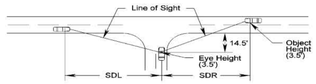


FIGURE 4-1B COMMERCIAL ENTRANCE SIGHT DISTANCE*

SDR = Sight Distance Right (For a vehicle making a left turn)
SDL = Sight Distance Left (For a vehicle making a right or left turn)

All site plans for proposed developments shall show the location of all proposed and existing entrances within the area of the proposed development. The location of all proposed commercial entrances shall be reviewed to determine if proper spacing will be maintained.

Limits of Maintenance Responsibility for Private and Commercial Entrances

See the Access Management Regulations Section 90 for details on private entrance maintenance responsibilities and Section 110 on maintenance responsibilities for commercial entrances.

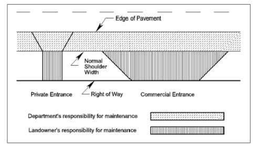


FIGURE 4-2 LIMITS OF RESPONSIBILITY FOR ENTRANCES

Commercial Entrance Separation from an Intersection

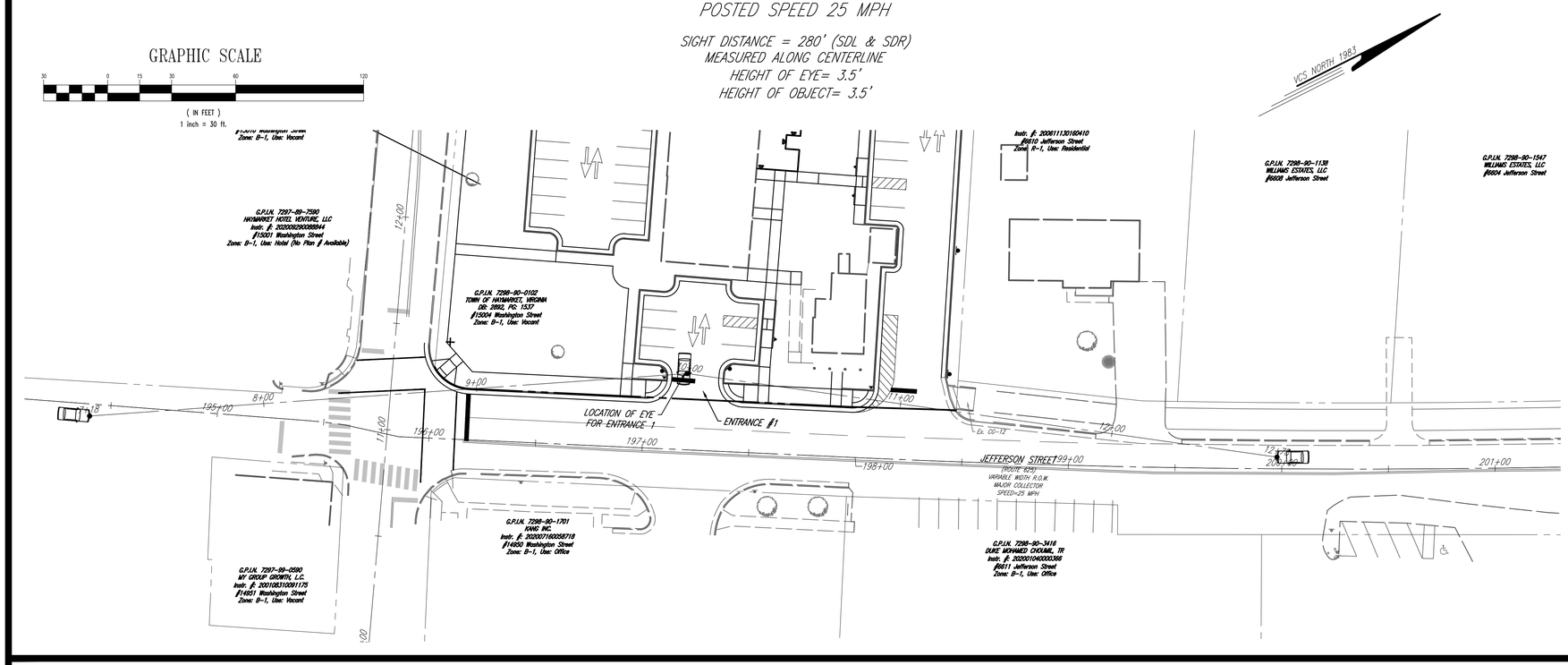
Entrances shall not be placed within the functional area of any intersection. If however, existing entrances are located within the functional area of the intersection Part A of the Waiver Form AM-W shall be completed and submitted to the District Location and Design Engineer for approval. Greater spacing may be required due to stacking requirements of the approaches to the intersection. This can be particularly evident around signalized

* Rev. 1/19

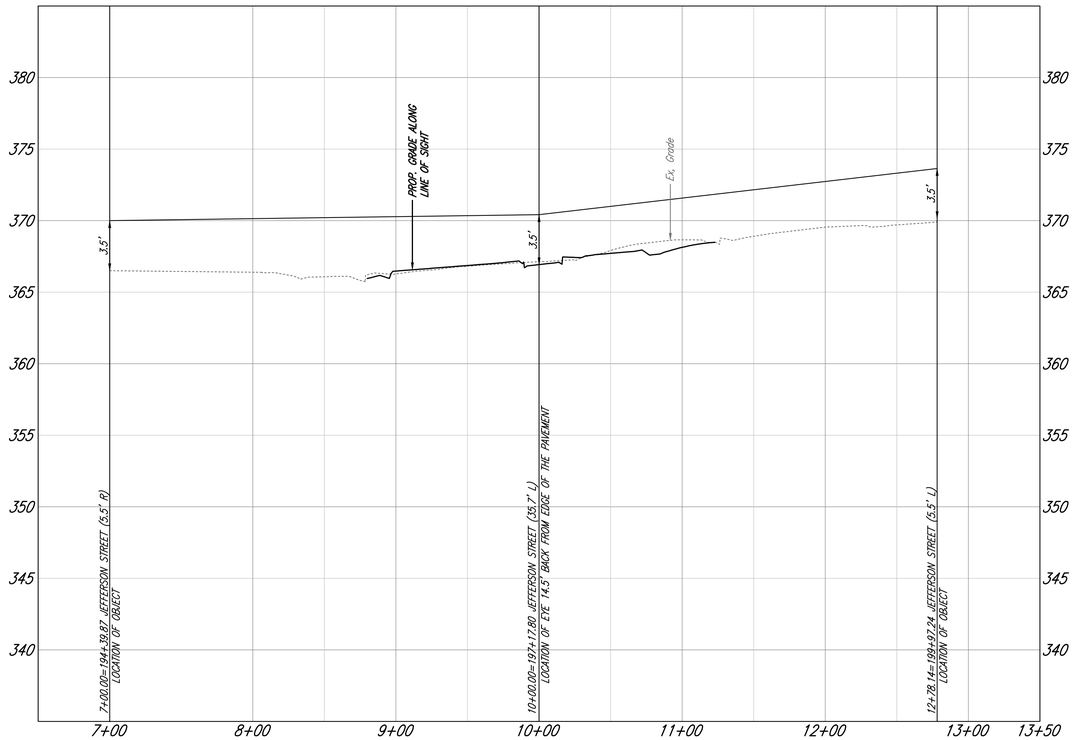
JEFFERSON STREET
2 LANE MAJOR COLLECTOR
POSTED SPEED 25 MPH

SIGHT DISTANCE = 280' (SDL & SDR)
MEASURED ALONG CENTERLINE
HEIGHT OF EYE= 3.5'
HEIGHT OF OBJECT= 3.5'

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.



ENTRANCE 1



PROFILE VIEW
GRAPHIC SCALE
1"=50' (H)
1"=5' (V)
0 2.5 5
0 25 50 75 100

HEIGHT OF EYE & HEIGHT OF OBJECT = 3.5'

"THIS SHEET IS FOR SIGHT DISTANCE INFORMATION PURPOSES ONLY!!!"

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COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 063821
PROFESSIONAL ENGINEER
1/26/2023

SIGHT DISTANCE PROFILES

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

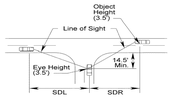
REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.26

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

Intersection Sight Distance

The following table shows intersection sight distance requirements for various speeds along major roads:



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Design Speed (mph)**		20	25	30	35	40	45	50	55	60	65	70
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TABLE 2-5 INTERSECTION SIGHT DISTANCE

Source: AASHTO Green Book, Chapter 9, Section 9.5.3

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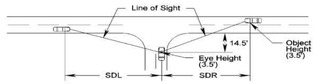

FIGURE 4-1B COMMERCIAL ENTRANCE SIGHT DISTANCE*

SDR = Sight Distance Right (For a vehicle making a left turn)
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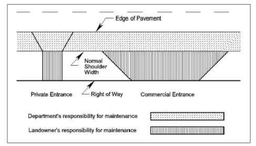

FIGURE 4-2 LIMITS OF RESPONSIBILITY FOR ENTRANCES

Commercial Entrance Separation from an Intersection

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* Rev. 1/19

JEFFERSON STREET
2 LANE MAJOR COLLECTOR
POSTED SPEED 25 MPH

SIGHT DISTANCE = 280' (SDL & SDR)
MEASURED ALONG CENTERLINE
HEIGHT OF EYE= 3.5'
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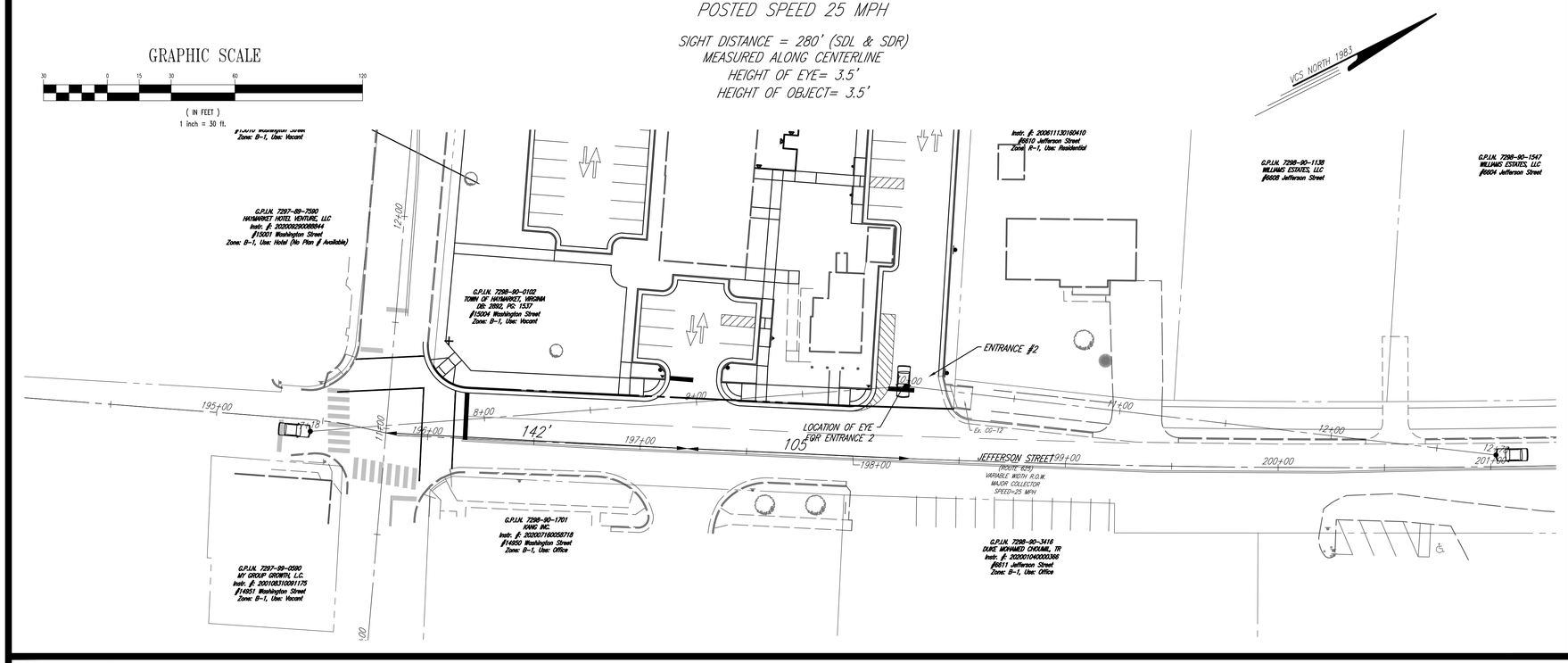
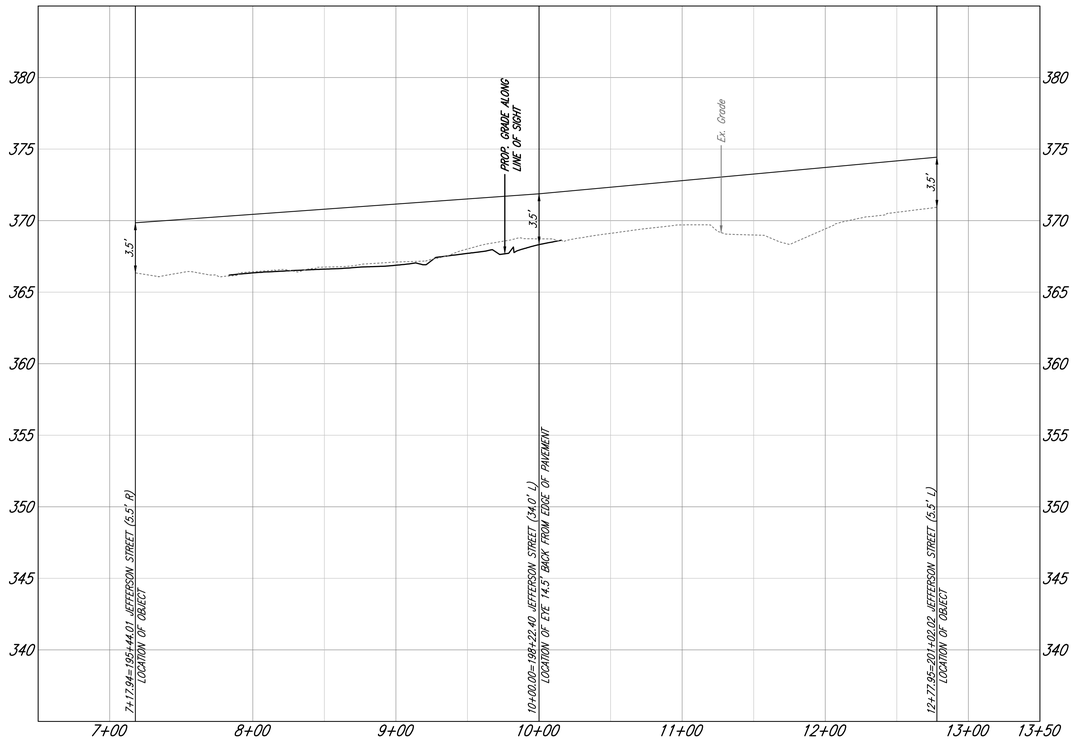
GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.



ENTRANCE 2



PROFILE VIEW
GRAPHIC SCALE
1"=50' (H)
1"=5' (V)
0 2.5 5
0 25 50 75 100

HEIGHT OF EYE & HEIGHT OF OBJECT = 3.5'

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Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 065821
ENGINEER
PROFESSIONAL
1/26/2023

SIGHT DISTANCE PROFILES

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.27

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

Intersection Sight Distance

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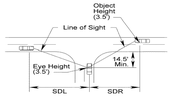

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TABLE 2-5 INTERSECTION SIGHT DISTANCE

Source: AASHTO Green Book, Chapter 9, Section 9.5.3

**For all tables, use design speed if available, if not use legal speed.

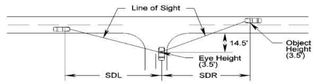

FIGURE 4-1B COMMERCIAL ENTRANCE SIGHT DISTANCE*

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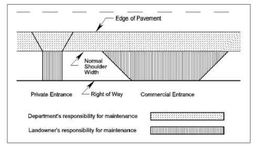

FIGURE 4-2 LIMITS OF RESPONSIBILITY FOR ENTRANCES

Commercial Entrance Separation from an Intersection

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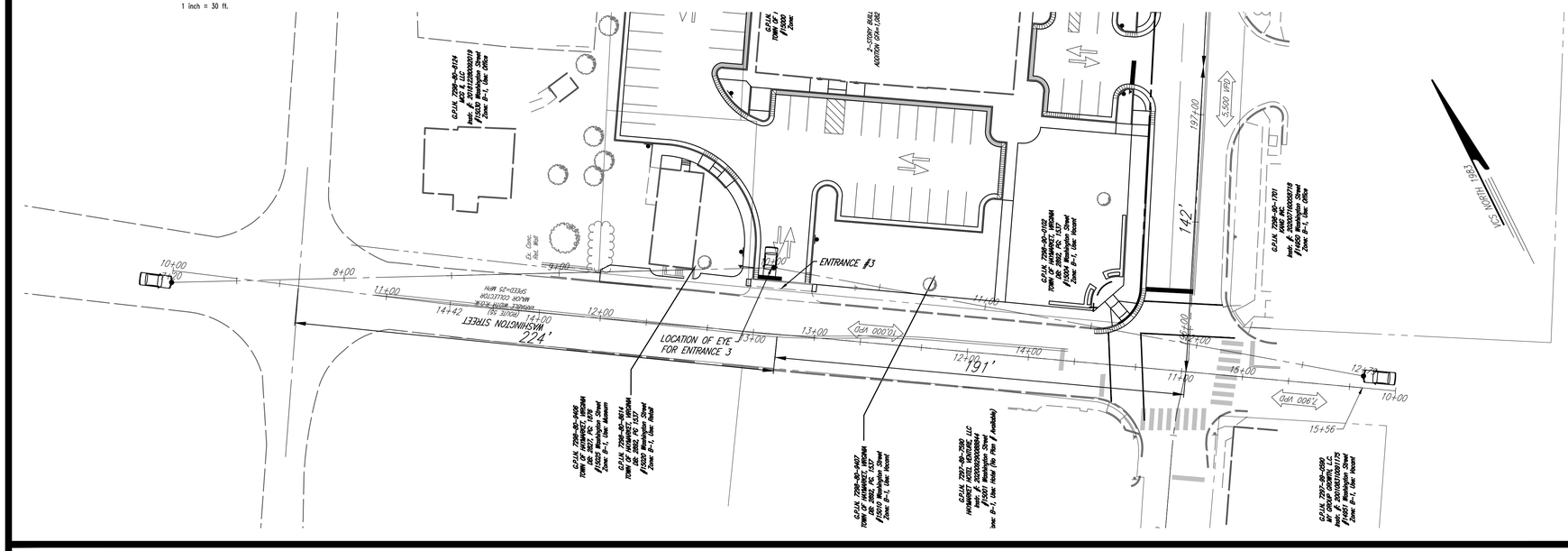
* Rev. 1/19

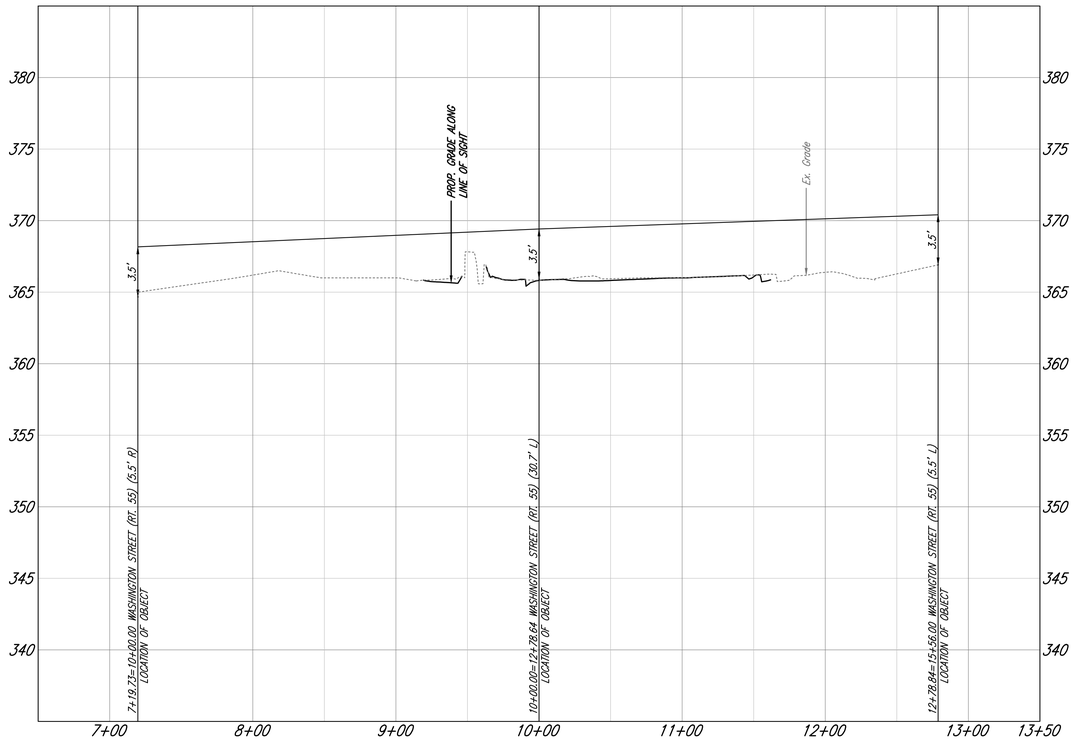
WASHINGTON STREET (RT. 55)
2 LANE MAJOR COLLECTOR
POSTED SPEED 25 MPH

SIGHT DISTANCE = 280' (SDL & SDR)
MEASURED ALONG CENTERLINE
HEIGHT OF EYE= 3.5'
HEIGHT OF OBJECT= 3.5'

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.



ENTRANCE 3



PROFILE VIEW
GRAPHIC SCALE
1"=50' (H)
1"=5' (V)
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0 25 50 75 100

HEIGHT OF EYE & HEIGHT OF OBJECT = 3.5'

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COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

SIGHT DISTANCE PROFILES

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.27A

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

PRE-DEVELOPMENT

MANAGED TURF SITE COVER

UNCONTROLLED MANAGED TURF AREA: 0.30 ACRES

IMPERVIOUS SITE COVER

UNCONTROLLED IMPERVIOUS AREA: 1.30 ACRES

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

VCS NORTH 1983

POST DEVELOPMENT

MANAGED TURF SITE COVER

UNCONTROLLED MANAGED TURF AREA: 0.30 ACRES

DA-A MANAGED TURF AREA: 0.10 ACRES

DA-B MANAGED TURF AREA: 0.00 ACRES

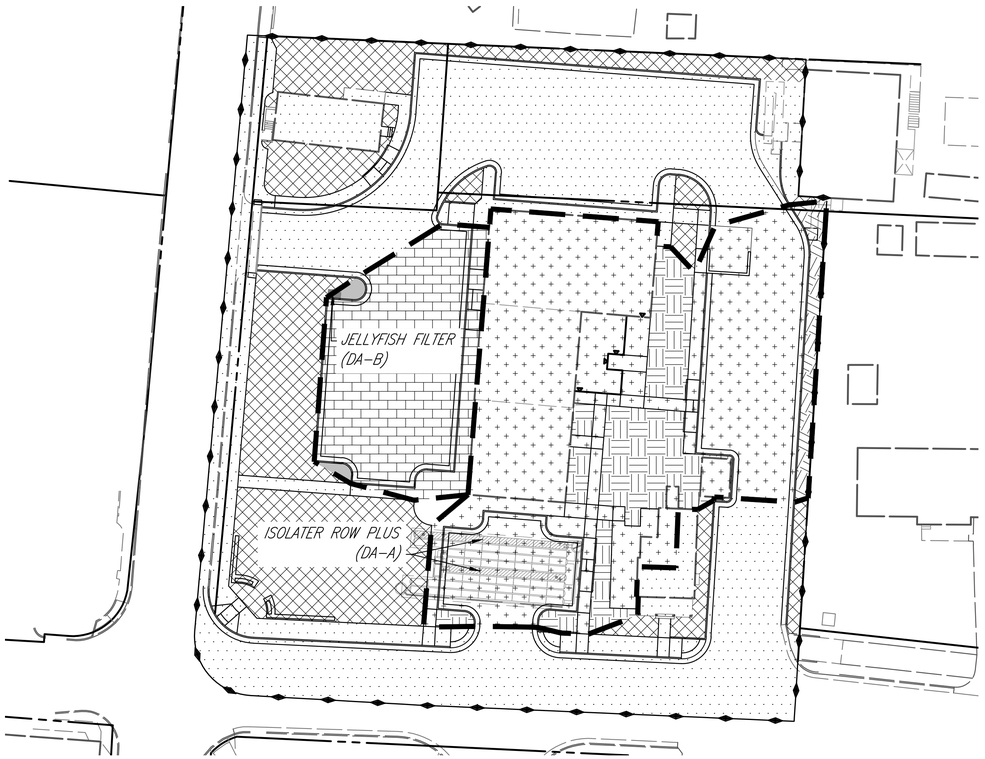
IMPERVIOUS SITE COVER

UNCONTROLLED IMPERVIOUS AREA: 0.65 ACRES

DA-A IMPERVIOUS AREA: 0.40 ACRES

DA-B IMPERVIOUS AREA: 0.15 ACRES

NOTE: THE JELLYFISH FILTER IS LOCATED WITHIN A CURB INLET AND IS A STRUCTURE MANUFACTURED BY CONTECH. THE RUNOFF ENTERS THE INLET, IS ROUTED THROUGH THE FILTER SYSTEM, THEN EXITS THE FILTER SYSTEM THROUGH THE PIPE OUT OF THE INLET, OUTFALLING IN THE DOWNSTREAM STORM SEWER SYSTEM.



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

VCS NORTH 1983

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COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 065821
PROFESSIONAL ENGINEER
1/26/2023

BMP MAP

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE:	JANUARY 26, 2023
DESIGN BY:	JLK, SAW
CHECKED BY:	JLK, SAW
ARCHITECT:	N/A
JURISDICTIONAL PLAN NO.	SP20220324
RDA PLAN #:	14096-002
SHEET NUMBER:	C.28

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

○ 2011 BMP Standards and Specifications ⊙ 2013 Draft BMP Standards and Specifications

Project Name: Haymarket Town Center
Date: 10/21/2022
Linear Development Project? No

CLEAR ALL (Ctrl+Shift+R)

data input cells | constant values | calculation cells | final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 1.60

Maximum reduction required:	*20%*
The site's net increase in impervious cover (acres) is:	*0*
Post-Development TP Load Reduction for Site (lb/yr):	*0.43*

Check:
BMP Design Specifications List: 2013 Draft Stds & Specs
Linear project? No
Land cover areas entered correctly? ✓
Total disturbed area entered? ✓

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be			0.30		0.30
Impervious Cover (acres)			1.30		1.30
					1.60

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be			0.40		0.40
Impervious Cover (acres)			1.20		1.20
Area Check	OK.	OK.	OK.	OK.	1.60

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre		
Pre-ReDevelopment	**Listed**	**Adjusted[1]**
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	0.30	0.30
Weighted Rv(turf)	0.22	0.22
% Managed Turf	19%	19%
Impervious Cover (acres)	1.30	1.30
Rv(impervious)	0.95	0.95
% Impervious	81%	81%
Total Site Area (acres)	**1.60**	**1.60**
Site Rv	**0.81**	**0.81**

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)	
Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.40
Weighted Rv (turf)	0.22
% Managed Turf	25%
Impervious Cover (acres)	1.20
Rv(impervious)	0.95
% Impervious	75%
Final Site Area (acres)	**1.60**
Final Post Dev Site Rv	**0.77**

Land Cover Summary-Post	
Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.40
Weighted Rv (turf)	0.22
% Managed Turf	25%
ReDev. Impervious Cover (acres)	1.20
Rv(impervious)	0.95
% Impervious	75%
Total ReDev. Site Area (acres)	**1.60**
ReDev Site Rv	**0.77**

Land Cover Summary-Post	
Post-Development New Impervious	
New Impervious Cover (acres)	0.00
Rv(impervious)	--

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.1084	0.1084
Pre-ReDevelopment Treatment Volume (cubic feet)	4,723	4,723
Pre-ReDevelopment TP Load (lb/yr)	**2.97**	**2.97**
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	1.85	1.85
Baseline TP Load (lb/yr) (**0.41 lbs/acre/yr** applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		*0.66*

Treatment Volume and Nutrient Load

Final Post-Development Treatment Volume (acre-ft)	0.1023		**Post-ReDevelopment Treatment Volume (acre-ft)**	0.1023	**Post-Development Treatment Volume (acre-ft)**	--
Final Post-Development Treatment Volume (cubic feet)	4,458		**Post-ReDevelopment Treatment Volume (cubic feet)**	4,458	**Post-Development Treatment Volume (cubic feet)**	--
Final Post-Development TP Load (lb/yr)	**2.80**		**Post-ReDevelopment Load (TP) (lb/yr)***	**2.80**	**Post-Development TP Load (lb/yr)**	--
Final Post-Development TP Load per acre (lb/acre/yr)	1.75		Post-ReDevelopment TP Load per acre (lb/acre/yr)	1.75		
			Max. Reduction Required (Below Pre-ReDevelopment Load)	**20%**		
			TP Load Reduction Required for Redeveloped Area (lb/yr)	**0.43**	**TP Load Reduction Required for New Impervious Area (lb/yr)**	**0**

[1] *Adjusted Land Cover Summary:*
Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requriement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	**0.43**

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	21.23
Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	20.04

Drainage Area A

Drainage Area A Land Cover (acres)

CLEAR BMP AREAS

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)			0.10		0.10	0.22
Impervious Cover (acres)			0.40		0.40	0.95
				Total	0.50	

Total Phosphorus Available for Removal in D.A. A (lb/yr) 0.92
Post Development Treatment Volume in D.A. A (ft³) 1,459

Stormwater Best Management Practices (RR = Runoff Reduction)

--Select from dropdown lists-

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft³)	Runoff Reduction (ft³)	Remaining Runoff Volume (ft³)	Total BMP Treatment Volume (ft³)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device-Hydrodynamic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.b. Manufactured Treatment Device-Filtering	0	0.10	0.35	0	0	1,287	1,287	40	0.00	0.81	0.32	0.48	None
14.c. Manufactured Treatment Device-Generic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	

TOTAL IMPERVIOUS COVER TREATED (ac) 0.35 AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac) 0.10 AREA CHECK: OK.

TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr) 0.43

TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr) 0.92
TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.32
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00
TOTAL PHOSPHORUS LOAD REDUCTION ACHIEVED IN D.A. A (lb/yr) 0.32
TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. A (lb/yr) 0.59

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00
NITROGEN REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00
TOTAL NITROGEN REMOVED IN D.A. A (lb/yr) 0.00

NOTE: PER ADS, EACH ISOLATER ROW PLUS CHAMBER CAN TREAT 0.10 CFS. THIS DESIGN PROPOSES 16 ISOLATER ROW PLUS CHAMBERS, WHICH CAN TREAT 1.60 CFS. THE PONDPACK STORM ROUTING FOR THE 1" STORM RESULTS IN AN INFLOW OF 0.17 CFS, MUCH LESS THAN THE ALLOWABLE 1.60 CFS.

Drainage Area B

Drainage Area A Land Cover (acres)

CLEAR BMP AREAS

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)			0.00		0.00	0.00
Impervious Cover (acres)			0.15		0.15	0.95
				Total	0.15	

Total Phosphorus Available for Removal in D.A. B (lb/yr) 0.33
Post Development Treatment Volume in D.A. B (ft³) 517

Stormwater Best Management Practices (RR = Runoff Reduction)

--Select from dropdown lists-

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft³)	Runoff Reduction (ft³)	Remaining Runoff Volume (ft³)	Total BMP Treatment Volume (ft³)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device-Hydrodynamic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.b. Manufactured Treatment Device-Filtering	0	0.00	0.15	0	0	517	517	65	0.00	0.32	0.21	0.11	
14.c. Manufactured Treatment Device-Generic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	

TOTAL IMPERVIOUS COVER TREATED (ac) 0.15 AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac) 0.00 AREA CHECK: OK.

TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr) 0.43

TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. B (lb/yr) 0.33
TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. B (lb/yr) 0.21
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. B (lb/yr) 0.00
TOTAL PHOSPHORUS LOAD REDUCTION ACHIEVED IN D.A. B (lb/yr) 0.21
TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. B (lb/yr) 0.11

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. B (lb/yr) 0.00
NITROGEN REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. B (lb/yr) 0.00
TOTAL NITROGEN REMOVED IN D.A. B (lb/yr) 0.00

NOTE: SEE CONTECH JELLYFISH FILTER CURB INLET SIZING WORKSHEET ON SHEET C.30. SEE SHEET C.13 FOR STRUCTURE DETAILS.

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA SCOTT WOODARD Lic. No. 065821 PROFESSIONAL ENGINEER 1/26/2023

BMP COMPUTATIONS

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.29

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

Site Results (Water Quality Compliance)

Area Checks	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
FOREST/OPEN SPACE (ac)	0.00	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER (ac)	0.40	0.15	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	0.35	0.15	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	0.10	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	0.10	0.00	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft^3) 4,458

Runoff Reduction Volume and TP By Drainage Area

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft^3)	0	0	0	0	0	0
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	0.92	0.33	0.00	0.00	0.00	1.24
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.32	0.21	0.00	0.00	0.00	0.53
TP LOAD REMAINING (lb/yr)	0.59	0.11	0.00	0.00	0.00	0.71
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00

Total Phosphorus

FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	2.80
TP LOAD REDUCTION REQUIRED (lb/yr)	0.43
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.53
TP LOAD REMAINING (lb/yr):	2.27
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.00 **

** TARGET TP REDUCTION EXCEEDED BY 0.11 LB/YEAR **

Total Nitrogen (For Information Purposes)

POST-DEVELOPMENT LOAD (lb/yr)	20.04
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.00
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	20.04

Runoff Volume and Curve Number Calculations

Enter design storm rainfall depths (in):

1-year storm	2-year storm	10-year storm
2.51	3.04	4.67

Use NOAA Atlas 14 (http://hdsc.nws.noaa.gov/hdsc/pfds/)

***Notes (see below):**

[1] The curve numbers and runoff volumes computed in this spreadsheet for each drainage area are limited in their applicability for determining and demonstrating compliance with water quantity requirements. See VRRM User's Guide and Documentation for additional information.

[2] Runoff Volume (RV) for pre- and post-development drainage areas must be in volumetric units (e.g., acre-feet or cubic feet) when using the Energy Balance Equation. Runoff measured in watershed-inches and shown in the spreadsheet as RV(watershed-inch) can only be used in the Energy Balance Equation when the pre- and post-development drainage areas are equal. Otherwise RV(watershed-inch) must be multiplied by the drainage area.

[3] Adjusted CNs are based on runoff reduction volumes as calculated in D.A. tabs. An alternative CN adjustment calculation for Vegetated Roofs is included in BMP specification No. 5.

Drainage Area Curve Numbers and Runoff Depths*

Curve numbers (CN, CNadj) and runoff depths ($RV_{Developed}$) are computed with and without reduction practices.

Drainage Area A		A Soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00
	CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.10	0.00
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	0.00	0.40	0.00
	CN	98	98	98	98

Total Area (acres): 0.50
Runoff Reduction Volume (ft^3): 0

$CN_{(D.A. A)}$ = 93

	1-year storm	2-year storm	10-year storm
$RV_{Developed}$ *(watershed-inch)* with no Runoff Reduction*	1.79	2.29	3.87
$RV_{Developed}$ *(watershed-inch)* with Runoff Reduction*	1.79	2.29	3.87
Adjusted CN*	93	93	93

**See Notes above*

Drainage Area B		A Soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00
	CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.00
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	0.00	0.15	0.00
	CN	98	98	98	98

Total Area (acres): 0.15
Runoff Reduction Volume (ft^3): 0

$CN_{(D.A. B)}$ = 98

	1-year storm	2-year storm	10-year storm
$RV_{Developed}$ *(watershed-inch)* with no Runoff Reduction*	2.28	2.81	4.43
$RV_{Developed}$ *(watershed-inch)* with Runoff Reduction*	2.28	2.81	4.43
Adjusted CN*	98	98	98

**See Notes above*

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

BMP Design Specifications List: **2013 Draft Stds & Specs**

Update Summary Sheet | Print Preview | Print

Site Summary

Project Title: Haymarket Town Center
Date: 44855

Total Rainfall (in):	43
Total Disturbed Acreage:	1.60

Site Land Cover Summary

Pre-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.30	0.00	0.30	19
Impervious Cover (acres)	0.00	0.00	1.30	0.00	1.30	81
					1.60	100

Post-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.40	0.00	0.40	25
Impervious Cover (acres)	0.00	0.00	1.20	0.00	1.20	75
					1.60	100

Site Tv and Land Cover Nutrient Loads

	Final Post-Development (Post-ReDevelopment & New Impervious)	Post-ReDevelopment	Post-Development (New Impervious)	Adjusted Pre-ReDevelopment
Site Rv	0.77	0.77	--	0.81
Treatment Volume (ft^3)	4,458	4,458	--	4,723
TP Load (lb/yr)	2.80	2.80	--	2.97

Pre-ReDevelopment TP Load per acre (lb/acre/yr)	Final Post-Development TP Load per acre (lb/acre/yr)	Post-ReDevelopment TP Load per acre (lb/acre/yr)
1.85	1.75	1.75

Total TP Load Reduction Required (lb/yr)	0.43	0.43	0

	Final Post-Development Load (Post-ReDevelopment & New Impervious)	Pre-ReDevelopment
TN Load (lb/yr)	20.04	21.23

Site Compliance Summary

Maximum % Reduction Required Below Pre-ReDevelopment Load	20%

Total Runoff Volume Reduction (ft^3)	0
Total TP Load Reduction Achieved (lb/yr)	0.53
Total TN Load Reduction Achieved (lb/yr)	0.00
Remaining Post Development TP Load (lb/yr)	2.27
Remaining TP Load Reduction (lb/yr) Required	0.00

** TARGET TP REDUCTION EXCEEDED BY 0.11 LB/YEAR **

Drainage Area Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.10	0.00	0.00	0.00	0.00	0.10
Impervious Cover (acres)	0.40	0.15	0.00	0.00	0.00	0.55
Total Area (acres)	0.50	0.15	0.00	0.00	0.00	0.65

Drainage Area Compliance Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
TP Load Reduced (lb/yr)	0.32	0.21	0.00	0.00	0.00	0.53
TN Load Reduced (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00

CONTECH ENGINEERED SOLUTIONS

Project Name:	Haymarket Town Center		
Site Designation:	Str.40	**Date:**	3/9/22
County or Independent City:	Haymarket	**Design Engineer:**	JLK
State:	VA		

Flow Based Data:

Peak Design Flow (cfs)	TBD
Water Quality Flow (cfs)	0.22
Annual Rainfall (inches)	43
Total Drainage Area, A (ac)	0.15
Post Development Impervious Area, A_i (ac)	0.15
Pervious Area, A_p (ac)	0.00
Impervious Runoff Coefficient, Rv	0.95
Pervious Runoff Coefficient, Rv	0.25
% Impervious	100%
Runoff Coefficient, Rc	0.95

NOTE: SEE CONTECH JELLYFISH FILTER CURB INLET STRUCTURE DETAILS ON SHEET C.13.

Flow Based Filter Sizing:

Filter Type	Jellyfish
Structure Type	Curb Inlet
Cartridge Length	54"
# Hi-Flo Cartridges Required	1
# Draindown Cartridges Required	1
Recommended Model	4'x4' Curb Inlet
Maximum Water Quality Flow	0.27 cfs

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA — PROFESSIONAL ENGINEER — SCOTT WOODARD — Lic. No. 065821 — 1/26/2023

BMP COMPUTATIONS

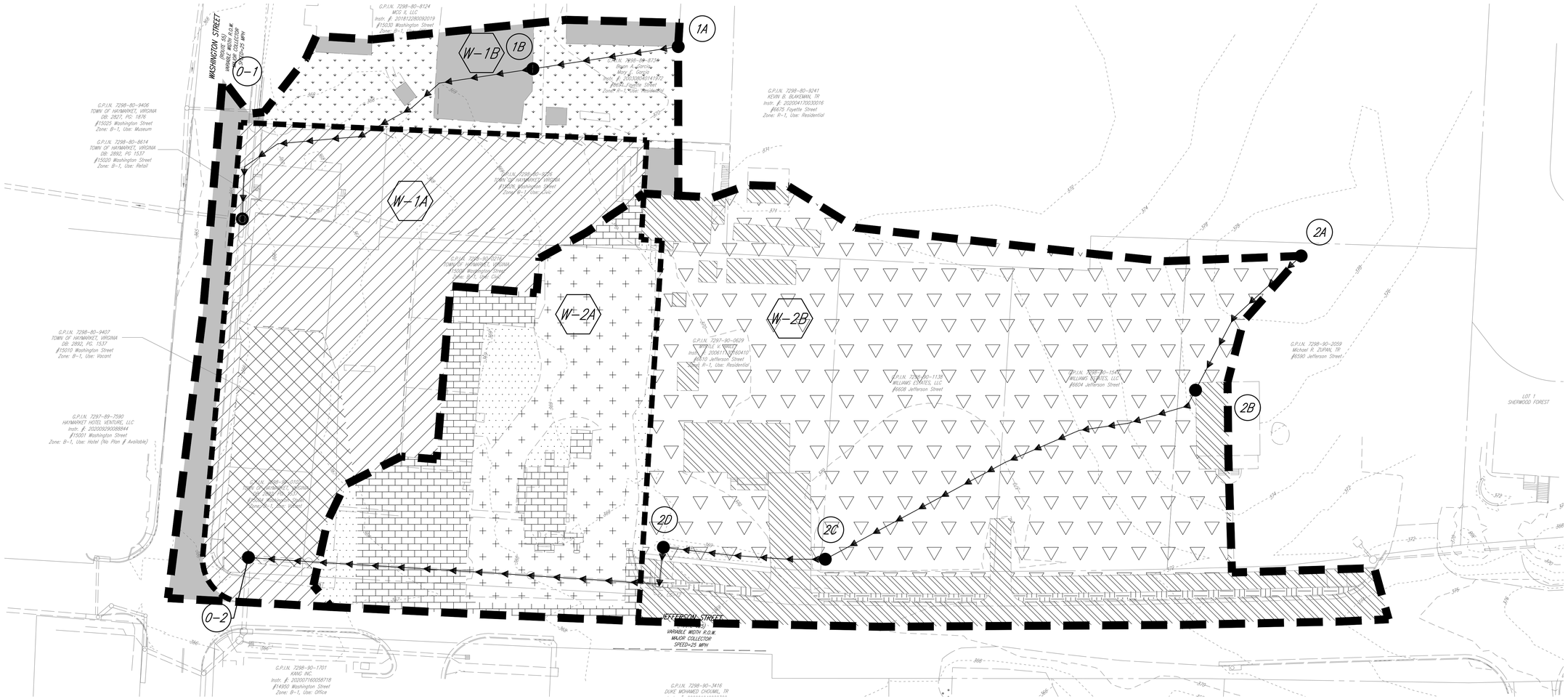
HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.30

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



TIME OF CONCENTRATION CALCULATION

1A to 1B — **OVERLAND FLOW**

Length of Flow	85
Grass Surface	Average
Percent Slope	2
Time of Flow	12.0 Min.

1B to 0-1 — **SHALLLOW FLOW**

Length of flow	210
Slope	2
Land Cover	Paved
Velocity	2.4
Time of Shallow Flow	1.5 Min.

TIME OF CONCENTRATION	**13.5** Min.
DESIGN TOC	15 Min.

TIME OF CONCENTRATION CALCULATION

2A to 2B — **OVERLAND FLOW**

Length of Flow	100
Grass Surface	Average
Percent Slope	0.6
Time of Flow	17.0 Min. *Per Seeyle Chart

2B to 2C — **SHALLLOW FLOW**

Length of flow	240
Slope	3
Land Cover	Unpaved
Velocity	2.8
Time of Shallow Flow	1.4 Min.

2C to 2D — **CHANNEL FLOW**

Length of flow	95
Hydraulic Radius	0.28
Slope	1.0%
Mannings N	0.035
Time of Channel Flow	0.9 Min.

2D to O-2 — **PIPE FLOW**

Length of flow	50
Average Velocity	5.5
Time of Pipe Flow	0.2 Min.

TIME OF CONCENTRATION	**18.6** Min.
DESIGN TOC	20 Min.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

VCS NORTH 1983

LEGEND

- O-1 — DENOTES OUTFALL NUMBER (POA & POD)
- DENOTES OVERALL WATERSHED DIVIDE
- DENOTES SUB-WATERSHED DIVIDE
- W-1A — DENOTES WATERSHED NUMBER
- DENOTES POST-DEVELOPMENT TIME OF CONCENTRATION FLOW LINE

TOTAL UN-CONTROLLED PRE-DEVELOPMENT DRAINAGE AREA TO OUTFALL O-1
A = 1.30 AC
CN = 91
C = 0.70
TC = 15 MIN

W-1A
ON-SITE IMPERVIOUS RUNOFF
A = 0.70 AC
CN = 98
C = 0.90

ON-SITE PERVIOUS RUNOFF
A = 0.20 AC
CN = 74
C = 0.30

W-1B
OFF-SITE IMPERVIOUS RUNOFF
A = 0.20 AC
CN = 98
C = 0.90

OFF-SITE PERVIOUS RUNOFF
A = 0.20 AC
CN = 74
C = 0.30

TOTAL UN-CONTROLLED PRE-DEVELOPMENT DRAINAGE AREA TO OUTFALL O-2
A = 2.55 AC
CN = 83
C = 0.55
TC = 20 MIN

ON-SITE IMPERVIOUS RUNOFF
A = 0.25 AC
CN = 98
C = 0.90

W-2A
ON-SITE GRAVEL RUNOFF
A = 0.35 AC
CN = 89
C = 0.65

ON-SITE PERVIOUS RUNOFF
A = 0.10 AC
CN = 74
C = 0.30

OFF-SITE IMPERVIOUS RUNOFF
A = 0.45 AC
CN = 98
C = 0.90

W-2B
OFF-SITE PERVIOUS RUNOFF
A = 1.40 AC
CN = 74
C = 0.30

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Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

SWM PRE-DEVELOPMENT DRAINAGE MAP

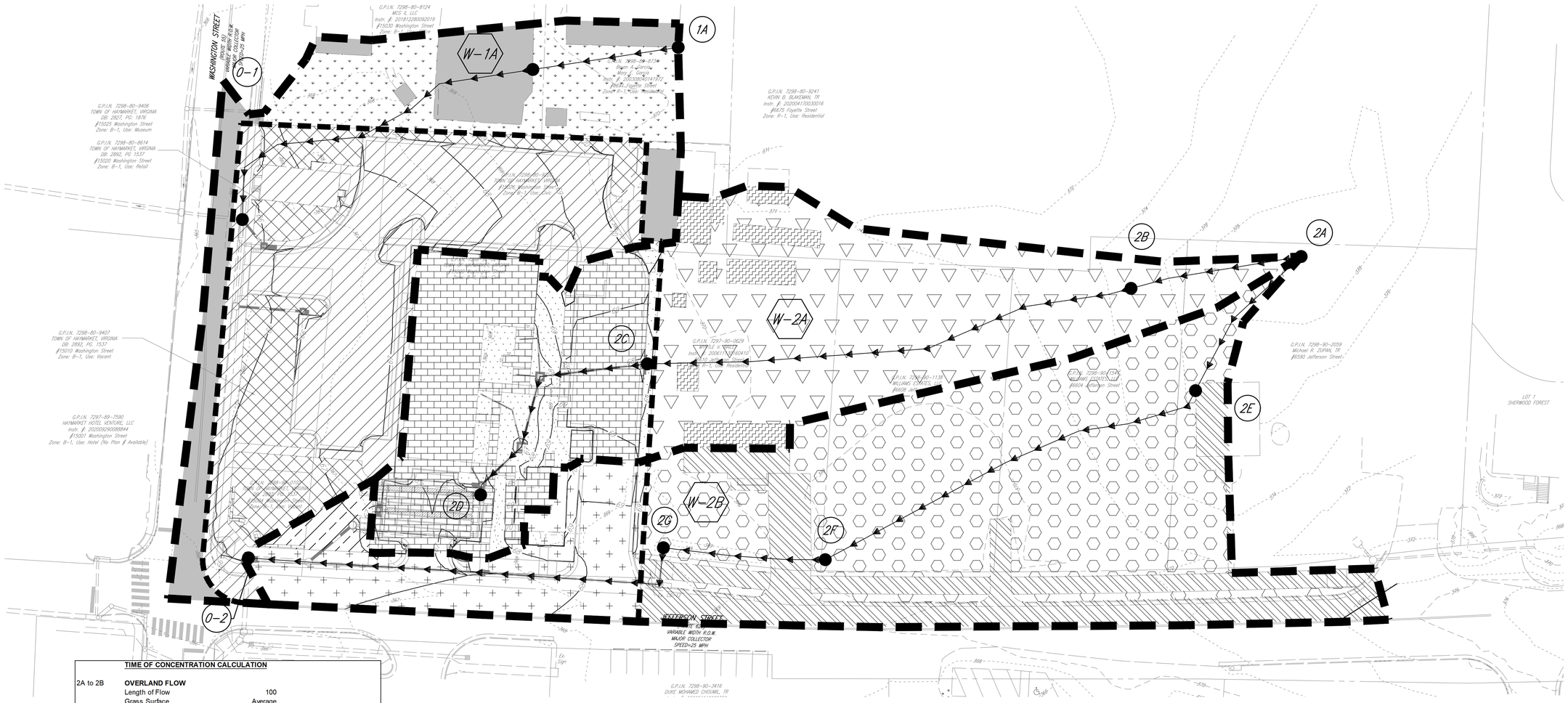
HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.31

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



TIME OF CONCENTRATION CALCULATION

2A to 2B — **OVERLAND FLOW**

Length of Flow	100
Grass Surface	Average
Percent Slope	4
Time of Flow	12.0 Min. *Per Seeyle Chart

2B to 2C — **SHALLLOW FLOW**

Length of flow	285
Slope	1.5
Land Cover	Unpaved
Velocity	2
Time of Shallow Flow	2.4 Min.

2C to 2D — **PIPE FLOW**

Length of flow	140
Average Velocity	4
Time of Pipe Flow	0.6 Min.

TIME OF CONCENTRATION	**15.0** Min.
DESIGN TOC	15 Min.

TIME OF CONCENTRATION CALCULATION

2A to 2E — **OVERLAND FLOW**

Length of Flow	100
Grass Surface	Average
Percent Slope	0.6
Time of Flow	17.0 Min. *Per Seeyle Chart

2E to 2F — **SHALLLOW FLOW**

Length of flow	240
Slope	3
Land Cover	Unpaved
Velocity	2.8
Time of Shallow Flow	1.4 Min.

2F to 2G — **CHANNEL FLOW**

Length of flow	95
Hydraulic Radius	0.28
Slope	1.0%
Mannings N	0.035
Time of Channel Flow	0.9 Min.

2G to 0-2 — **PIPE FLOW**

Length of flow	260
Average Velocity	5.5
Time of Pipe Flow	0.8 Min.

TIME OF CONCENTRATION	**19.2** Min.
DESIGN TOC	20 Min.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

VCS NORTH 1983

LEGEND

- 0-1 — DENOTES OUTFALL NUMBER (POA & POD)
- DENOTES OVERALL WATERSHED DIVIDE
- DENOTES SUB-WATERSHED DIVIDE
- W-1A — DENOTES WATERSHED NUMBER
- DENOTES POST-DEVELOPMENT TIME OF CONCENTRATION FLOW LINE

NOTE: W-1A Tc IS UNCHANGED FROM PRE-DEVELOPMENT CONDITIONS, SEE SHEET C.31 FOR ITS COMPUTATIONS.

W-1A

TOTAL UN-CONTROLLED POST-DEVELOPMENT DRAINAGE AREA TO OUTFALL 0-1
A = 1.20 AC
CN = 90
C = 0.70
TC = 15 MIN

ON-SITE IMPERVIOUS RUNOFF
A = 0.55 AC
CN = 98
C = 0.90

ON-SITE PERVIOUS RUNOFF
A = 0.25 AC
CN = 74
C = 0.35

OFF-SITE IMPERVIOUS RUNOFF
A = 0.20 AC
CN = 98
C = 0.90

OFF-SITE PERVIOUS RUNOFF
A = 0.20 AC
CN = 74
C = 0.30

W-2A

TOTAL CONTROLLED POST-DEVELOPMENT DRAINAGE AREA TO OUTFALL 0-2
A = 1.25 AC
CN = 84
C = 0.55
TC = 15 MIN

ON-SITE IMPERVIOUS RUNOFF
A = 0.40 AC
CN = 98
C = 0.90

ON-SITE PERVIOUS RUNOFF
A = 0.10 AC
CN = 74
C = 0.30

OFF-SITE IMPERVIOUS RUNOFF
A = 0.10 AC
CN = 98
C = 0.90

OFF-SITE PERVIOUS RUNOFF
A = 0.65 AC
CN = 74
C = 0.30

W-2B

TOTAL UN-CONTROLLED POST-DEVELOPMENT DRAINAGE AREA TO OUTFALL 0-2
A = 1.40 AC
CN = 84
C = 0.55
TC = 20 MIN

ON-SITE IMPERVIOUS RUNOFF
A = 0.25 AC
CN = 98
C = 0.90

ON-SITE PERVIOUS RUNOFF
A = 0.05 AC
CN = 74
C = 0.30

OFF-SITE IMPERVIOUS RUNOFF
A = 0.35 AC
CN = 98
C = 0.90

OFF-SITE PERVIOUS RUNOFF
A = 0.75 AC
CN = 74
C = 0.30

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SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

SWM POST-DEVELOPMENT DRAINAGE MAP

HAYMARKET TOWN CENTER REDEVELOPMENT

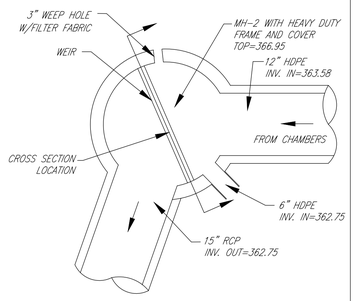
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

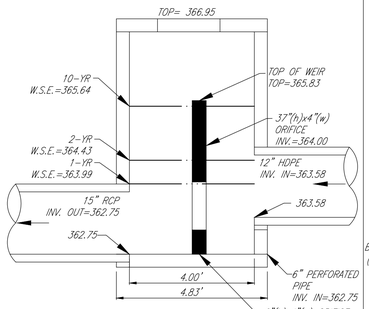
PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.32

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

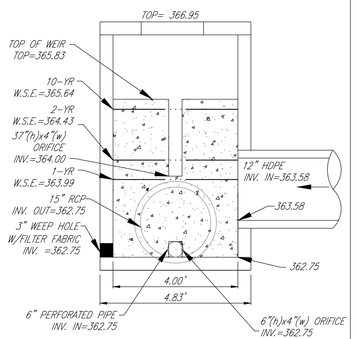
STORM STRUCTURE# 30



PLAN VIEW
(NOT TO SCALE)

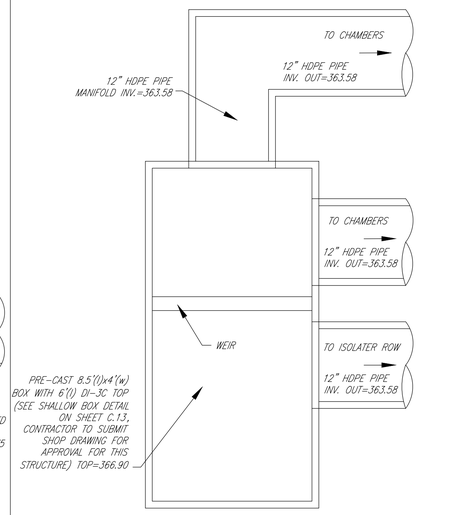


ELEVATION VIEW
(NOT TO SCALE)

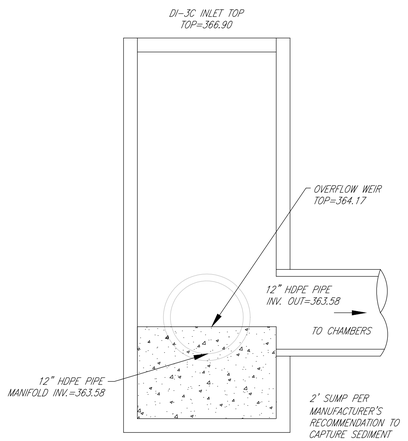


SECTION VIEW
(NOT TO SCALE)

STORM STRUCTURE# 30A

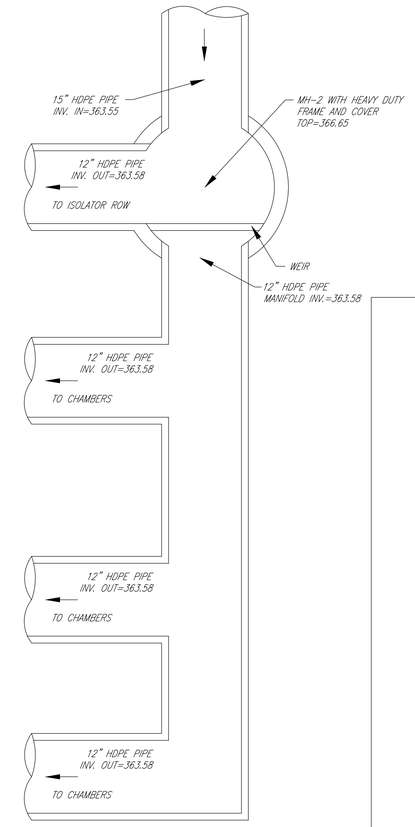


PLAN VIEW
(NOT TO SCALE)

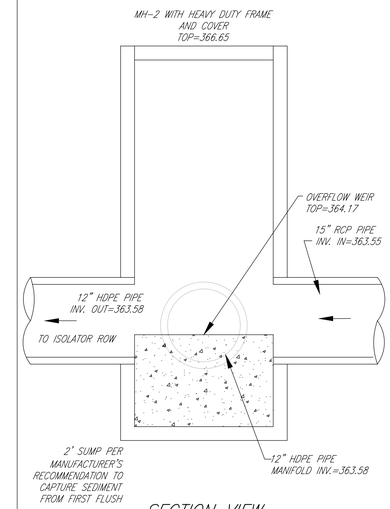


SECTION VIEW
(NOT TO SCALE)

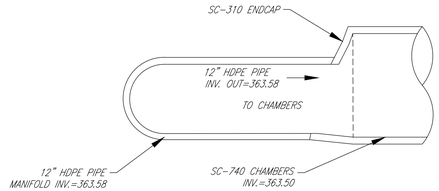
STORM STRUCTURE# 31



PLAN VIEW
(NOT TO SCALE)

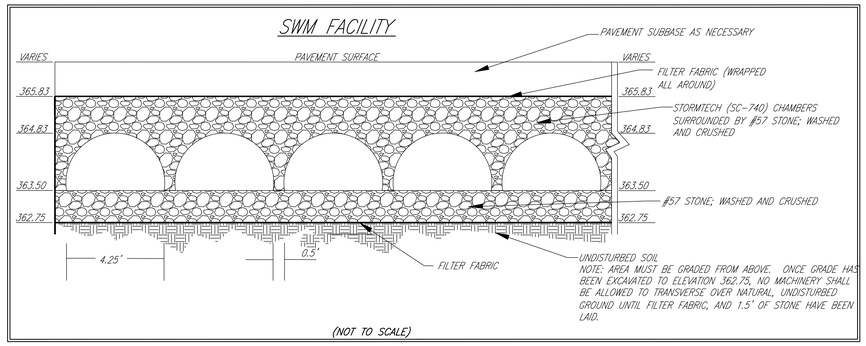


SECTION VIEW
(NOT TO SCALE)



12" HDPE MANIFOLD TO 12" HDPE DETAIL
(NOT TO SCALE)

NOTE: SEE SHEET C.35 FOR OVERALL SWM STRUCTURE AND FACILITY LAYOUT.



(NOT TO SCALE)

PRINCE WILLIAM COUNTY
STORMWATER MANAGEMENT FACT SHEET- SWM FACILITY

SWM FACILITY INFORMATION		DESIGN INFORMATION (*)		MISCELLANEOUS	
Basin Name	CATLETTS BRANCH-BROAD RUN AND LITTLE BULL RUN	Were hydrologic & hydraulic models developed	X Yes No	Is additional storage capacity necessary to correct an existing problem?	
Subbasin #	408	(a) Hydrologic Models	(b) Hydraulic Models	___ Y ___ X N (705.01(E))	
Stream Name	–	HEC-1 TR-20	HEC-1 TR-20	Does the facility incorporate BMP structural controls	X Y ___ N
Drainage Area (acres) draining to the facility	1.25	Other PONDPACK (HAESTAD)	Other PONDPACK (HAESTAD)	(705.02 (D) and 710.00)	
Avg. Basin Slope (ft/ft)	N/A	Method used to develop hydrographs	SCS TYPE II	If no, does the facility regulate the 2-yr storm	
Type of Facility:		Hydrograph routing methodology	SCS TYPE II	X Y ___ N	
(a) Dry Pond		Reservoir routing methodology	LEVEL POOL RESERVOIR ROUTING	Is a description of the operation and maintenance needs of the facility included in the plans	X Y ___ N
(b) Wet Pond		If the facility was not modeled, were Elevations-Discharge-Storage tables developed?	Yes N/A No N/A	(705.02 – (G.11)) SEE SHEET C.37	
(c) Infiltration trench		Outlet structure type	RISER (48" DIA)		
(d) Parking lot storage		Emergency spillway type	N/A		
(e) Underground Storage	X	Were Elev.-Disch tables for the emergency spillway developed?	N/A Yes	Back up data location:	
(f) Porous pavement		Dam height (ft)	N/A Invert Elev UPS 363.50 DWNST 363.50	Plan SP20220324 Sheets C.33 – C.43	
(g) Grass swales		Rainfall Depth (inches)	1-yr 2.51 2-yr 3.04 10-yr 4.67	Report N/A Pages N/A	
(h) Land cover control		Rainfall Duration (hrs)	24 ,Rainfall Distribution TYPE II	SWM Bond Estimate ($)	$ 100,000
(I) Other		Exist Peak Outflows (cfs)	1-yr 2.85 2-yr 3.98 10-yr 7.69		
		Devlp Peak Inflows (cfs)	1-yr 1.70 2-yr 2.35 10-yr 4.45	TO BE COMPLETED BY COUNTY STAFF	
Is the Facility ON – SITE	YES	Devlp Peak Outflow (cfs)	1-yr 0.72 2-yr 1.15 10-yr 3.44	Facility #	– –
Is the Facility OFF – SITE	NO	Water Surface Elev (ft)	1-yr 363.99 2-yr 364.43 10-yr 365.64	Upstream POI	
PWC File #		Reservoir Storage (ac-ft)	1-yr 0.030 2-yr 0.042 10-yr 0.066	Downstream POI	
Development Name	HAYMARKET TOWN CENTER	Surface Areas (acres)	1-yr N/A 2-yr N/A 10-yr N/A	Do the County H&H models need to be updated	Yes ___ No ___
GPIN	7298-90-0216	Normal Pool – Elevation (ft)	N/A Storage (Ac-ft) N/A Area(ac) N/A	Model Updated	/ /
Magisterial District	N/A	BMP – Elevation (ft)	N/A Storage (Ac-ft) X Area(ac) N/A	Fac. Accepted by DPW	
Was a Floodplain Study Prepared	Yes X No	(*) For facilities type (a) and (b). For other types provide rainfall (intensities) data, storage volume and discharges, if applicable.		DPW Inspector	
If Yes, File #				DPW Engineer	
Facility Designed by	RINKER DESIGN ASSOCIATES				

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
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1/26/2023

STORMTECH DETAILS

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.33

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	JIM CLARK 240-463-0124 JAMES.CLARK@ADSPIPE.COM
ADS SALES REP:	TIM GIMPLE 540-235-4519 TIM.GIMPLE@ADSPIPE.COM
PROJECT NO:	S021776

Advanced Drainage Systems, Inc.

ADS SiteAssist™
FOR STORMTECH
INSTALLATION INSTRUCTIONS
VISIT OUR APP

HAYMARKET TOWN CENTER

HAYMARKET, VA

SC-310 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-310.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310 SYSTEM

1. STORMTECH SC-310 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
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COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

STORMTECH DETAILS

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.34

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

PROPOSED LAYOUT

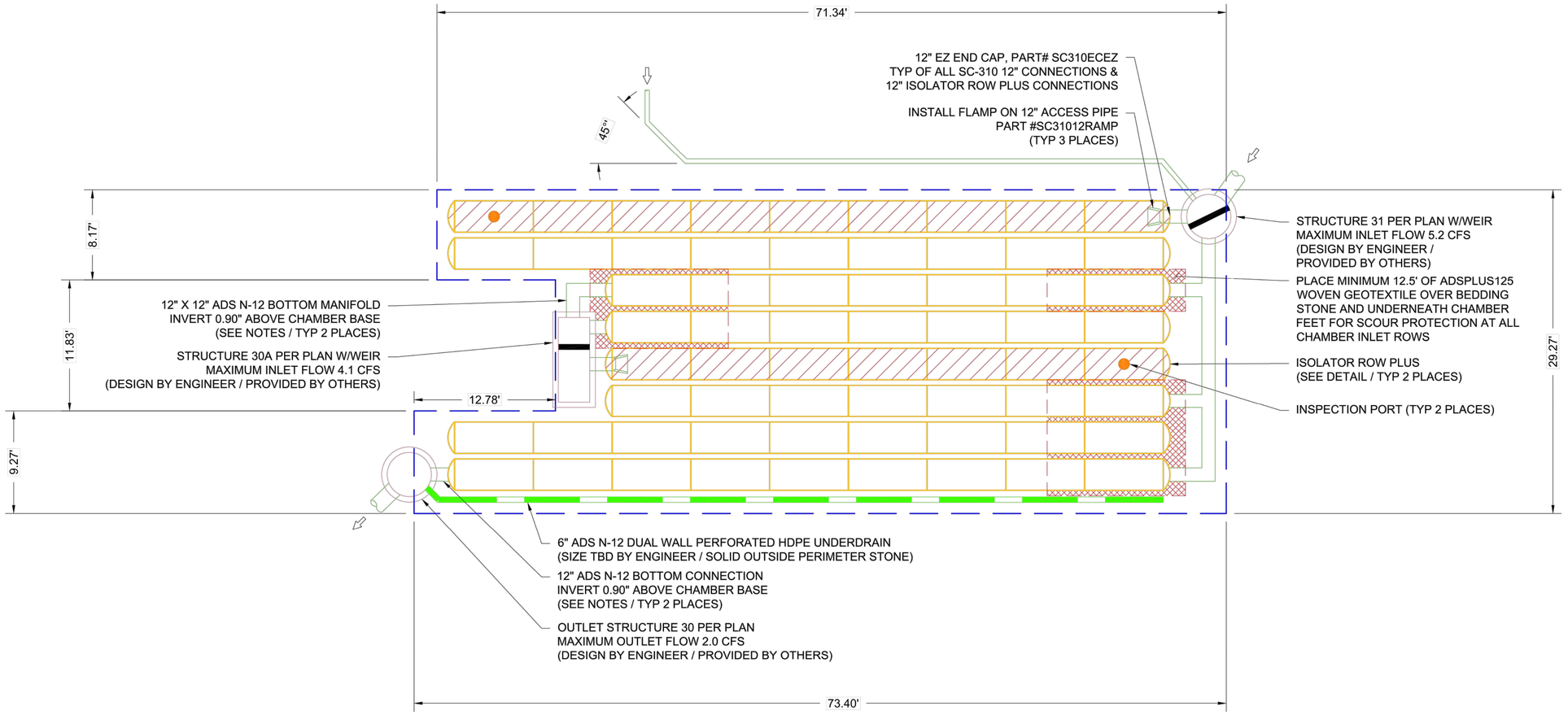
64	STORMTECH SC-310 CHAMBERS
16	STORMTECH SC-310 END CAPS
12	STONE ABOVE (in)
9	STONE BELOW (in)
40	% STONE VOID
3,009	**INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)**
1980	SYSTEM AREA (ft²)
227	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS

372.83	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
366.83	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
366.33	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
366.33	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
366.33	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
365.83	TOP OF STONE
364.83	TOP OF SC-310 CHAMBER
363.58	12" ISOLATOR ROW PLUS CONNECTION INVERT
363.58	12" BOTTOM MANIFOLD / CONNECTION INVERT
363.50	BOTTOM OF SC-310 CHAMBER
362.75	UNDERDRAIN INVERT
362.75	BOTTOM OF STONE

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECHNICAL NOTE 6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.



HAYMARKET TOWN CENTER
HAYMARKET, VA

DATE: 08/05/22 DRAWN: DDW
PROJECT #: S021776 CHECKED: JEK

DATE	DRWN	CHKD	DESCRIPTION
09/14/22	DDW	JEK	SYSTEM RECONFIGURED

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

StormTech®
Chamber System
888-892-2694 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD
HILLIARD, OH 43026

20'
10'
0

SHEET 2 OF 5

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11100 Endeavor Court, Suite 200, Manassas, VA 20109
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STORMTECH DETAILS

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TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

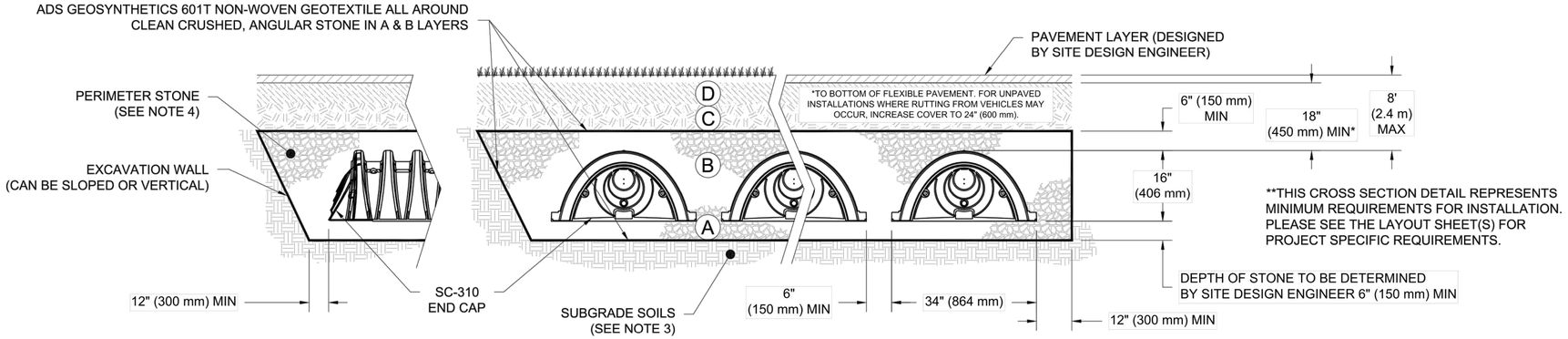
PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.35

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2922 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

HAYMARKET TOWN CENTER
HAYMARKET, VA
DATE: 08/05/22 DRAWN: DDW
PROJECT #: S021776 CHECKED: JEK

DATE	DRWN	CHKD	DESCRIPTION
09/14/22	DDW	JEK	SYSTEM RECONFIGURED

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

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SHEET 3 OF 5

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11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA SCOTT WOODARD Lic. No. 063821 PROFESSIONAL ENGINEER 1/26/2023

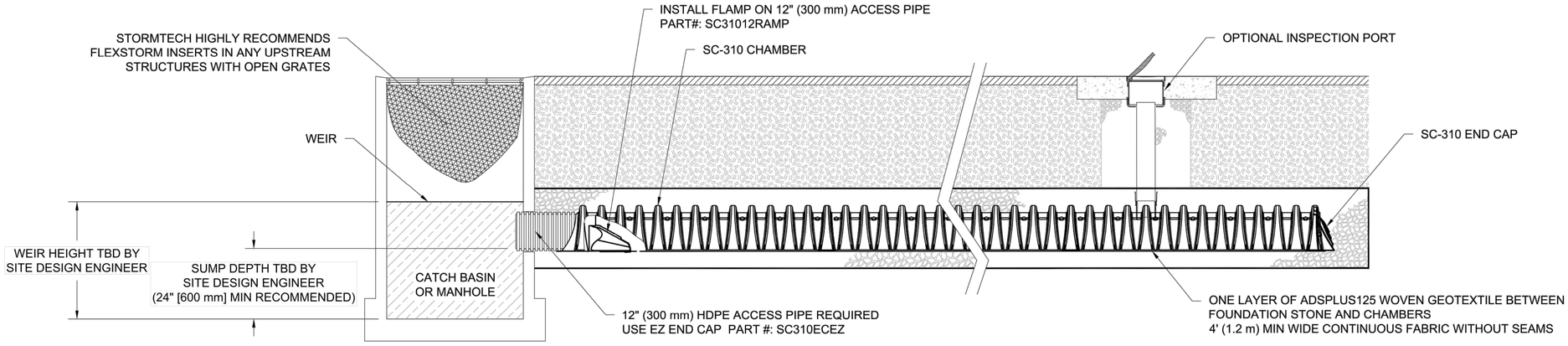
STORMTECH DETAILS

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.36

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)



SC-310 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

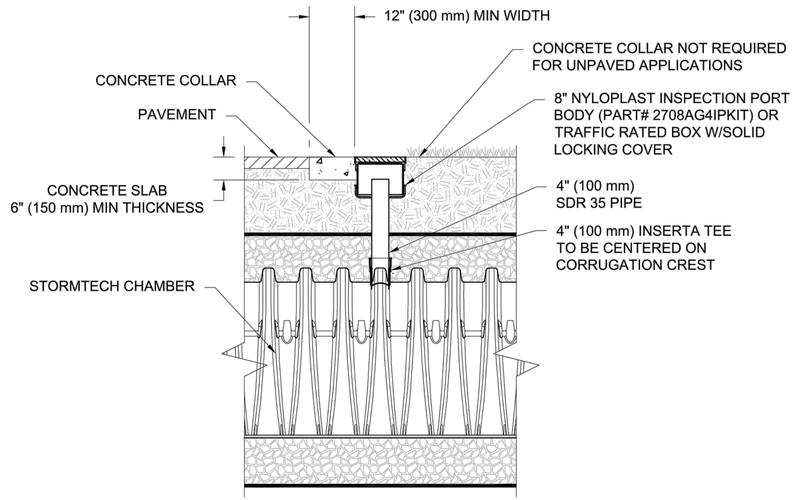
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

4" PVC INSPECTION PORT DETAIL
(SC SERIES CHAMBER)
NTS

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DATE	DRWN	CHKD	DESCRIPTION
09/14/22	DDW	JEK	SYSTEM RECONFIGURED

HAYMARKET TOWN CENTER
HAYMARKET, VA
DATE: 08/05/22 DRAWN: DDW
PROJECT #: S021776 CHECKED: JEK

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COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 063821
PROFESSIONAL ENGINEER
1/26/2023

STORMTECH DETAILS

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

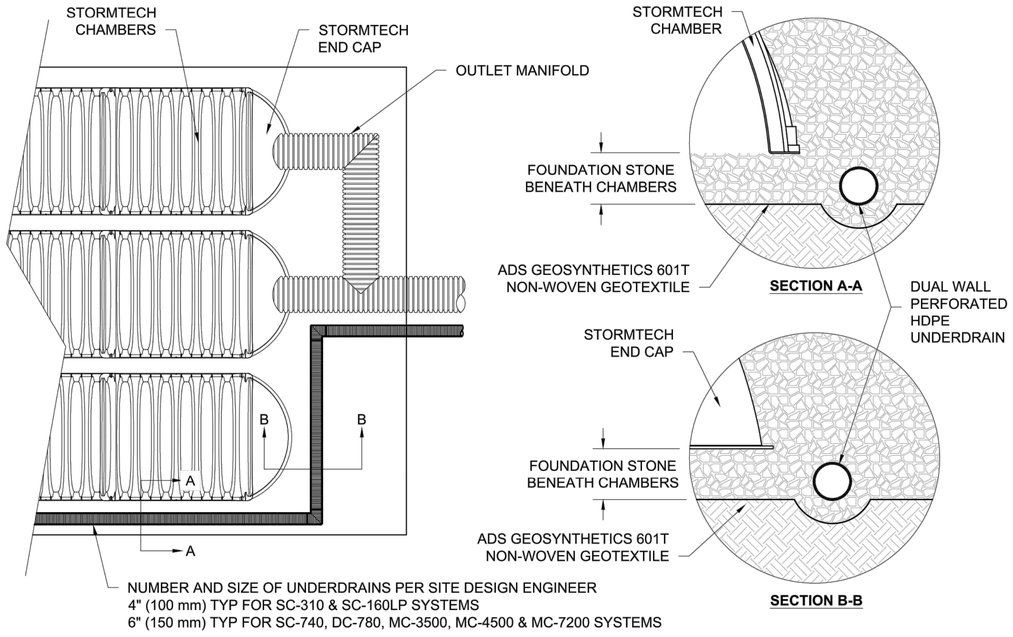
REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.37

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

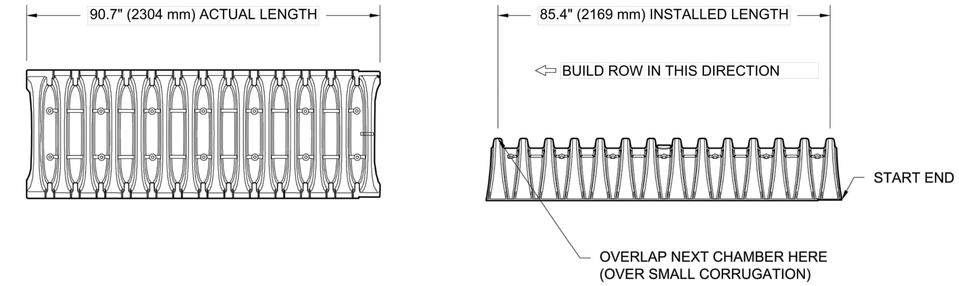
UNDERDRAIN DETAIL

NTS



SC-310 TECHNICAL SPECIFICATION

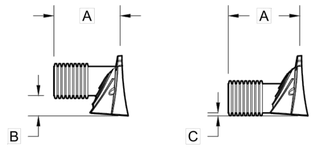
NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	34.0" X 16.0" X 85.4"	(864 mm X 406 mm X 2169 mm)
CHAMBER STORAGE	14.7 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	31.0 CUBIC FEET	(0.88 m³)
WEIGHT	35.0 lbs.	(16.8 kg)

*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE CORED END CAPS END WITH "PC"

PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	---
SC310EPE06B / SC310EPE06BPC			---	0.5" (13 mm)
SC310EPE08T / SC310EPE08TPC	8" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	---
SC310EPE08B / SC310EPE08BPC			---	0.6" (15 mm)
SC310EPE10T / SC310EPE10TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	---
SC310EPE10B / SC310EPE10BPC			---	0.7" (18 mm)
SC310ECEZ*	12" (300 mm)	13.5" (343 mm)	---	0.9" (23 mm)

ALL STUBS, EXCEPT FOR THE SC310ECEZ ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC310ECEZ THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

HAYMARKET TOWN CENTER
HAYMARKET, VA

DATE: 08/05/22 DRAWN: DDW
PROJECT #: S021776 CHECKED: JEK

DATE	DRWN	CHKD	DESCRIPTION
09/14/22	DDW	JEK	SYSTEM RECONFIGURED

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SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

STORMTECH DETAILS

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.38

Attachment: 02 SP20220324 Haymarket Town Center (6052 : Town Center Site Plan) Town Center Redevelopment Planset

PRE-DEVELOPMENT 1-YR RUNOFF SUMMARY

MASTER NETWORK SUMMARY
Santa Barbara Urban Hydrograph Procedure

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*O-1	JCT	1	.175		12.0500	2.51		
*O-2	JCT	1	.227		12.1000	2.85		
W-1A	AREA	1	.134		12.0500	1.90		
W-1B	AREA	1	.042		12.0500	.61		
W-2A	AREA	1	.089		12.1000	1.14		
W-2B	AREA	1	.137		12.1000	1.73		

0-1 PRE-DEVELOPMENT PEAK OUTFLOW
0-2 PRE-DEVELOPMENT PEAK OUTFLOW
0-1 PRE-DEVELOPMENT ON-SITE PEAK OUTFLOW
0-1 PRE-DEVELOPMENT OFF-SITE PEAK OUTFLOW
0-2 PRE-DEVELOPMENT ON-SITE PEAK OUTFLOW
0-2 PRE-DEVELOPMENT OFF-SITE PEAK OUTFLOW

NOTES:
1. THE RESULTS ABOVE PROVIDE THE TOTAL RUNOFF TO BOTH OUTFALL POINTS DURING THE 1-YEAR STORM EVENT (FOR USE IN PROVING FLOOD PROTECTION), SEE THE ANALYSIS ON SHEET C.43.
2. THE RESULTS ABOVE ALSO PROVIDE THE INDIVIDUAL ON-SITE AND OFF-SITE RUNOFF VALUES FOR EACH OUTFALL, WHICH ARE USED IN THE ENERGY BALANCE EQUATION ON SHEET C.43 TO PROVE CHANNEL PROTECTION.

PRE-DEVELOPMENT 2-YR RUNOFF SUMMARY

MASTER NETWORK SUMMARY
Santa Barbara Urban Hydrograph Procedure

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*O-1	JCT	2	.228		12.0500	3.22		
*O-2	JCT	2	.314		12.1000	3.98		
W-1A	AREA	2	.171		12.0500	2.40		
W-1B	AREA	2	.056		12.0500	.82		
W-2A	AREA	2	.117		12.1000	1.49		
W-2B	AREA	2	.196		12.1000	2.49		

0-1 PRE-DEVELOPMENT PEAK OUTFLOW
0-2 PRE-DEVELOPMENT PEAK OUTFLOW

NOTES:
1. THE RESULTS ABOVE PROVIDE THE TOTAL RUNOFF TO BOTH OUTFALL POINTS DURING THE 2-YEAR STORM EVENT (FOR USE IN PROVING FLOOD PROTECTION), SEE THE ANALYSIS ON SHEET C.43.

PRE-DEVELOPMENT 10-YR RUNOFF SUMMARY

MASTER NETWORK SUMMARY
Santa Barbara Urban Hydrograph Procedure

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*O-1	JCT	10	.395		12.0500	5.45		
*O-2	JCT	10	.607		12.1000	7.69		
W-1A	AREA	10	.290		12.0500	3.94		
W-1B	AREA	10	.105		12.0500	1.50		
W-2A	AREA	10	.207		12.1000	2.56		
W-2B	AREA	10	.400		12.1000	5.13		

0-1 PRE-DEVELOPMENT PEAK OUTFLOW
0-2 PRE-DEVELOPMENT PEAK OUTFLOW

NOTES:
1. THE RESULTS ABOVE PROVIDE THE TOTAL RUNOFF TO BOTH OUTFALL POINTS DURING THE 10-YEAR STORM EVENT (FOR USE IN PROVING FLOOD PROTECTION), SEE THE ANALYSIS ON SHEET C.43.

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
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COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

SWM COMPUTATIONS

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.39

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

Project: Haymarket Town Center Redevelopment

StormTech — Detention • Retention • Water Quality — A division of ADS

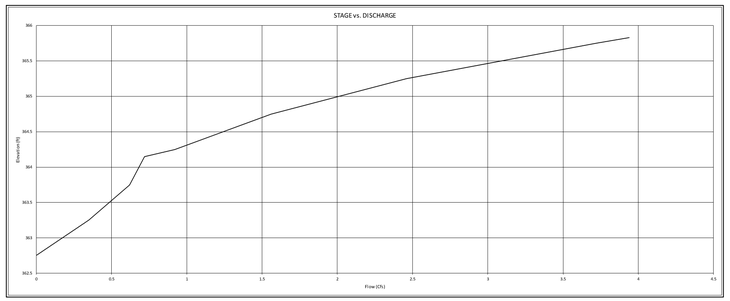
Chamber Model -	SC-310	
Units -	Imperial	Click Here for Metric
Number of chambers -	64	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	362.75	ft
Amount of Stone Above Chambers -	12	in
Amount of Stone Below Chambers -	9	in

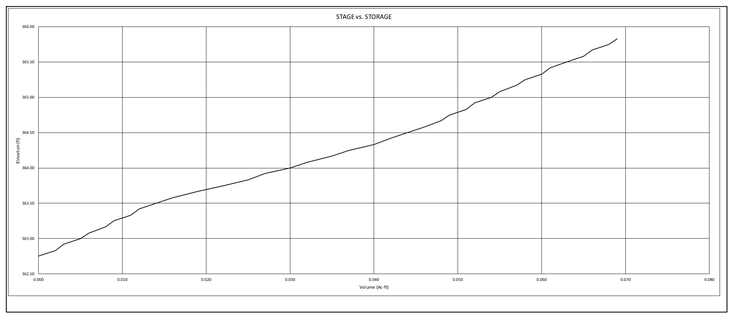
☑ Include Perimeter Stone in Calculations

Area of system - 1980 sf Min. Area - 1518 sf min. area

StormTech SC-310 Cumulative Storage Volumes

Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Total Chamber (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch & St (cubic feet)	Cumulative Chamber (cubic feet)	Elevation (feet)
37	0.00	0.00	66.00	66.00	3008.79	365.83
36	0.00	0.00	66.00	66.00	2942.79	365.75
35	0.00	0.00	66.00	66.00	2876.79	365.67
34	0.00	0.00	66.00	66.00	2810.79	365.58
33	0.00	0.00	66.00	66.00	2744.79	365.50
32	0.00	0.00	66.00	66.00	2678.79	365.42
31	0.00	0.00	66.00	66.00	2612.79	365.33
30	0.00	0.00	66.00	66.00	2546.79	365.25
29	0.00	0.00	66.00	66.00	2480.79	365.17
28	0.00	0.00	66.00	66.00	2414.79	365.08
27	0.00	0.00	66.00	66.00	2348.79	365.00
26	0.00	0.00	66.00	66.00	2282.79	364.92
25	0.06	3.76	64.49	68.26	2216.79	364.83
24	0.15	9.90	62.04	71.94	2148.53	364.75
23	0.27	17.02	59.19	76.21	2076.59	364.67
22	0.54	34.87	52.05	86.92	2000.38	364.58
21	0.70	45.06	47.98	93.04	1913.46	364.50
20	0.82	52.77	44.89	97.66	1820.43	364.42
19	0.92	59.17	42.33	101.50	1722.76	364.33
18	1.01	64.96	40.02	104.98	1621.26	364.25
17	1.09	70.05	37.98	108.03	1516.28	364.17
16	1.15	73.87	36.45	110.32	1408.25	364.08
15	1.21	77.76	34.90	112.65	1297.93	364.00
14	1.27	81.59	33.36	114.96	1185.28	363.92
13	1.32	84.77	32.09	116.86	1070.32	363.83
12	1.36	87.36	31.06	118.42	953.46	363.75
11	1.40	89.92	30.03	119.95	835.04	363.67
10	1.43	91.82	29.27	121.09	715.09	363.58
9	0.00	0.00	66.00	66.00	594.00	363.50
8	0.00	0.00	66.00	66.00	528.00	363.42
7	0.00	0.00	66.00	66.00	462.00	363.33
6	0.00	0.00	66.00	66.00	396.00	363.25
5	0.00	0.00	66.00	66.00	330.00	363.17
4	0.00	0.00	66.00	66.00	264.00	363.08
3	0.00	0.00	66.00	66.00	198.00	363.00
2	0.00	0.00	66.00	66.00	132.00	362.92
1	0.00	0.00	66.00	66.00	66.00	362.83





OUTLET INPUT DATA

Type.... Outlet Input Data — Page 93
Name.... Composite Outlet Structure - 1

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 362.75 ft
Increment = .50 ft
Max. Elev.= 365.83 ft

OUTLET CONNECTIVITY

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Orifice-Area	-1	--->	-1	362.750	365.830
Irregular Weir	-1	--->	-1	364.000	365.830
Culvert-Circular	-1	--->	TW	362.750	365.830
Tailwater Settings					

OUTLET STRUCTURE INPUT DATA

Structure ID = O-1
Structure Type = Orifice-Area

# of Openings = 1
Invert Elev. = 362.75 ft
Area = .1670 sq.ft
Top of Orifice = 363.25 ft
Datum Elev. = 363.00 ft
Orifice Coeff. = .600

Structure ID = W-1
Structure Type = Irregular Weir

# of Openings = 1
WEIR X-Y GROUND POINTS

X, ft	Elev, ft
.00	365.83
1.83	365.83
1.84	364.00
2.16	364.00
2.17	365.00
2.33	365.00
2.34	365.83
4.00	365.83

Lowest Elev. = 364.00 ft

Weir Coeff. = 3.000000

Weir TW effects (Use adjustment equation)

Structure ID = C-1
Structure Type = Culvert-Circular

No. Barrels = 1
Barrel Diameter = 1.5000 ft
Upstream Invert = 362.75 ft
Dnstream Invert = 362.55 ft
Horiz. Length = 33.21 ft
Barrel Length = 33.21 ft
Barrel Slope = .00602 ft/ft

OUTLET CONTROL DATA...
Mannings n = .0130
Ke = .2000 (forward entrance loss)
Kb = .018213 (per ft of full flow)
Kr = .2000 (reverse entrance loss)
HW Convergence = .001 +/- ft

INLET CONTROL DATA...
Equation form = 1
Inlet Control K = .0045
Inlet Control M = 2.0000
Inlet Control c = .03170
Inlet Control Y = .6900
T1 ratio (HW/D) = 1.092
T2 ratio (HW/D) = 1.194
Slope Factor = -.500

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control, interpolate between flows at T1 & T2...
At T1 Elev = 364.39 ft ---> Flow = 7.58 cfs
At T2 Elev = 364.54 ft ---> Flow = 8.66 cfs

Structure ID = TW
Structure Type = Tailwater Settings

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .50 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .50 ft
Min. Q tolerance = .00 cfs
Max. Q tolerance = 10.00 cfs

INDIVIDUAL OUTLET CURVES

Type.... Individual Outlet Curves — Page 97
Name.... Composite Outlet Structure - 1

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = O-1 (Orifice-Area)

Upstream ID = (Pond Water Surface)
DNstream ID = C-1 (Culvert-Circular)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
362.75	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
363.25	.35	363.25 H =.19	363.06	363.06	.001	.000	Free Outfall	
363.75	.62	363.75 H =.59	363.16	363.16	.000	.000	Free Outfall	
364.00	.72	364.00 H =.80	363.20	363.20	.000	.000	Free Outfall	
364.25	.80	364.25 H =.99	363.26	363.26	.000	.000	Free Outfall	
364.75	.93	364.75 H =1.33	363.42	363.42	.002	.000	Free Outfall	
365.25	1.03	365.25 H =1.64	363.61	363.61	.002	.000	Free Outfall	
365.75	1.11	365.75 H =1.92	363.83	363.83	.000	.000	Free Outfall	
365.83	1.13	365.83 H =1.96	363.87	363.87	.000	.000	Free Outfall	

Structure ID = W-1 (Irregular Weir)

Upstream ID = (Pond Water Surface)
DNstream ID = C-1 (Culvert-Circular)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
362.75	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
363.25	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
363.75	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
364.00	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
364.25	.12	364.25 Max.H=.25; Max.Htw=-.74;; W(ft)=.32	363.26	363.26	.000	.000	Free Outfall	
364.75	.63	364.75 Max.H=.75; Max.Htw=-.58;; W(ft)=.33	363.42	363.42	.002	.000	Free Outfall	
365.25	1.43	365.25 Max.H=1.25; Max.Htw=-.39;; W(ft)=.50	363.61	363.61	.002	.000	Free Outfall	
365.75	2.61	365.75 Max.H=1.75; Max.Htw=-.17;; W(ft)=.51	363.83	363.83	.000	.000	Free Outfall	
365.83	2.82	365.83 Max.H=1.83; Max.Htw=-.13;; W(ft)=.51	363.87	363.87	.000	.000	Free Outfall	

Structure ID = C-1 (Culvert-Circular)

Mannings open channel maximum capacity: 8.77 cfs
UPstream ID's= O-1, W-1
DNstream ID = TW (Pond Outfall)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
362.75	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
363.25	.35	363.06 CRIT.DEPTH	Free CONTROL	Free Vh= .075ft	.000 Dcr= .218ft	.001 CRIT.DEPTH	Free Outfall Hev= .00ft	
363.75	.62	363.16 CRIT.DEPTH	Free CONTROL	Free Vh= .102ft	.000 Dcr= .291ft	.000 CRIT.DEPTH	Free Outfall Hev= .00ft	
364.00	.72	363.20 CRIT.DEPTH	Free CONTROL	Free Vh= .110ft	.000 Dcr= .315ft	.000 CRIT.DEPTH	Free Outfall Hev= .00ft	
364.25	.92	363.26 CRIT.DEPTH	Free CONTROL	Free Vh= .126ft	.000 Dcr= .358ft	.000 CRIT.DEPTH	Free Outfall Hev= .00ft	
364.75	1.56	363.42 CRIT.DEPTH	Free CONTROL	Free Vh= .169ft	.000 Dcr= .468ft	.001 CRIT.DEPTH	Free Outfall Hev= .00ft	
365.25	2.46	363.61 CRIT.DEPTH	Free CONTROL	Free Vh= .222ft	.000 Dcr= .593ft	.002 CRIT.DEPTH	Free Outfall Hev= .00ft	
365.75	3.72	363.83 CRIT.DEPTH	Free CONTROL	Free Vh= .288ft	.000 Dcr= .737ft	.003 CRIT.DEPTH	Free Outfall Hev= .00ft	
365.83	3.94	363.87 CRIT.DEPTH	Free CONTROL	Free Vh= .299ft	.000 Dcr= .760ft	.003 CRIT.DEPTH	Free Outfall Hev= .00ft	

COMPOSITE RATING CURVE

Type.... Composite Rating Curve — Page 96
Name.... Composite Outlet Structure - 1

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Converge Elev. ft	Total Q Converge Q cfs	TW Elev ft	Error +/-ft	Notes Contributing Structures
362.75	.00	Free	Outfall	(no Q: O-1,W-1,C-1)
363.25	.35	Free	Outfall	O-1,C-1 (no Q: W-1)
363.75	.62	Free	Outfall	O-1,C-1 (no Q: W-1)
364.00	.72	Free	Outfall	O-1,C-1 (no Q: W-1)
364.25	.92	Free	Outfall	O-1,W-1,C-1
364.75	1.56	Free	Outfall	O-1,W-1,C-1
365.25	2.46	Free	Outfall	O-1,W-1,C-1
365.75	3.72	Free	Outfall	O-1,W-1,C-1
365.83	3.94	Free	Outfall	O-1,W-1,C-1

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA — SCOTT WOODARD — Lic. No. 053821 — ENGINEER — PROFESSIONAL — 1/26/2023

SWM COMPUTATIONS

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.40

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

1-YR MASTER NETWORK SUMMARY

Type.... Master Network Summary Page 143

MASTER NETWORK SUMMARY
(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

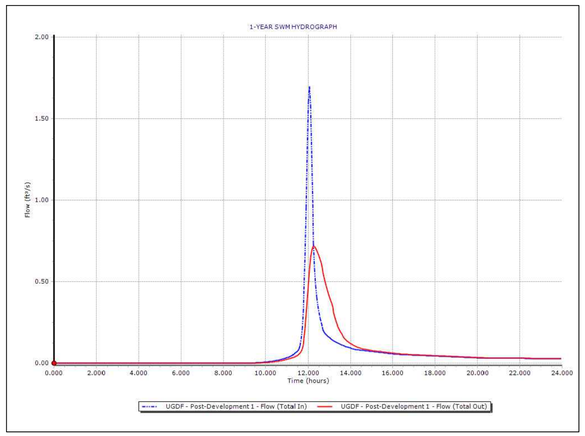
Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Max Qpeak cfs	Max WSEL ft	Pond Storage ac-ft
*O-1	JCT	1	.154		12.0500	2.22		0-1 POST-DEVELOPMENT PEAK OUTFLOW
*O-2	JCT	1	.246		12.1000	2.31		0-2 POST-DEVELOPMENT PEAK OUTFLOW
UGDF IN	POND	1	.117		12.0500	1.70		
UGDF OUT	POND	1	.116		12.2500	.72	363.93	.030 SWM FACILITY W.S.E.
W-1A	AREA	1	.154		12.0500	2.22		
W-2A	AREA	1	.117		12.0500	1.70		
W-2B	AREA	1	.130		12.1000	1.66		

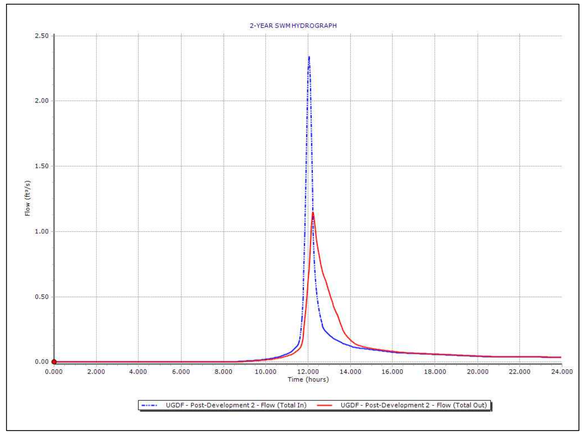
2-YR MASTER NETWORK SUMMARY

Type.... Master Network Summary Page 143

MASTER NETWORK SUMMARY
(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Max Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*O-1	JCT	2	.201		12.0500	2.89		0-1 POST-DEVELOPMENT PEAK OUTFLOW
*O-2	JCT	2	.340		12.1500	3.20		0-2 POST-DEVELOPMENT PEAK OUTFLOW
UGDF IN	POND	2	.161		12.0500	2.35		
UGDF OUT	POND	2	.160		12.2500	1.15	364.43	.042 SWM FACILITY W.S.E.
W-1A	AREA	2	.201		12.0500	2.89		
W-2A	AREA	2	.161		12.0500	2.35		
W-2B	AREA	2	.180		12.1000	2.31		





10-YR MASTER NETWORK SUMMARY

Type.... Master Network Summary Page 143

MASTER NETWORK SUMMARY
(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

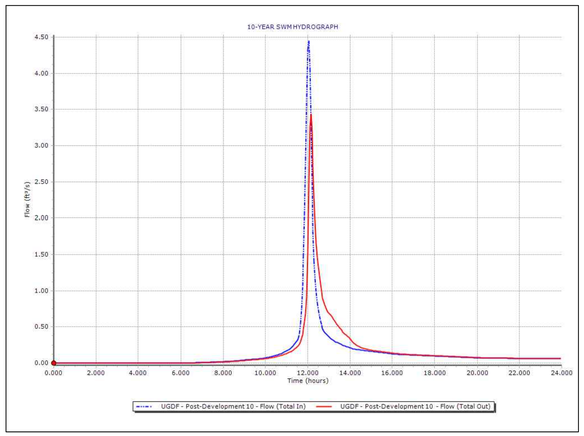
Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Max Qpeak cfs	Max WSEL ft	Pond Storage ac-ft
*O-1	JCT	10	.355		12.0500	4.96		0-1 POST-DEVELOPMENT PEAK OUTFLOW
*O-2	JCT	10	.652		12.1000	7.67		0-2 POST-DEVELOPMENT PEAK OUTFLOW
UGDF IN	POND	10	.308		12.0500	4.45		
UGDF OUT	POND	10	.307		12.1500	3.44	365.64	.066 SWM FACILITY W.S.E.
W-1A	AREA	10	.355		12.0500	4.96		
W-2A	AREA	10	.308		12.0500	4.45		
W-2B	AREA	10	.345		12.1000	4.39		

1" MASTER NETWORK SUMMARY

MASTER NETWORK SUMMARY
(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*O-1	JCT	1	.032		12.0500	.45		
*O-2	JCT	1	.033		12.1500	.24		
UGDF	IN POND	1	.016		12.1000	.17		SWM FACILITY INFLOW
UGDF	OUT POND	1	.016		12.2500	.09	362.88	.002
W-1A	AREA	1	.032		12.0500	.45		
W-2A	AREA	1	.016		12.1000	.17		
W-2B	AREA	1	.018		12.1500	.16		

NOTES:
1. THE RESULTS ABOVE PROVIDE THE 1" RUNOFF TO SWM FACILITY TO PROVE THE ADEQUACY OF THE STORMTECH ISOLATER ROW PLUS TO TREAT THE RUNOFF, SEE THE ANALYSIS ON SHEET C.29.



1-YR STORM COMPUTATIONS

POND INFLOW SUMMARY

Type.... Pond Inflow Summary Page 100
Name.... UGDF IN Event: 1 yr

SUMMARY FOR HYDROGRAPH ADDITION
at Node: UGDF IN

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
A-33	W-2A		W-2A	1

INFLOWS TO: UGDF IN

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	W-2A	1	.117	12.0500	1.70

TOTAL FLOW INTO: UGDF IN

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	UGDF IN	1	.117	12.0500	1.70

TOTAL NODE INFLOW...
HYG file =
HYG ID = UGDF IN
HYG Tag = 1
Peak Discharge = 1.70 cfs
Time to Peak = 12.0500 hrs
HYG Volume = .117 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0500 hrs
Time / hrs / Time on left represents time for first value in each row.

Time / hrs					
5.0000 /	.00	.00	.00	.00	.00
5.2500 /	.00	.00	.00	.00	.00
5.5000 /	.00	.00	.00	.00	.00
5.7500 /	.00	.00	.00	.00	.00
6.0000 /	.00	.00	.00	.00	.00
6.2500 /	.00	.00	.00	.00	.00
6.5000 /	.00	.00	.00	.00	.00
6.7500 /	.00	.00	.00	.00	.00
7.0000 /	.00	.00	.00	.00	.00
7.2500 /	.00	.00	.00	.00	.00
7.5000 /	.00	.00	.00	.00	.00
7.7500 /	.00	.00	.00	.00	.00
8.0000 /	.00	.00	.00	.00	.00
8.2500 /	.00	.00	.00	.00	.00
8.5000 /	.00	.00	.00	.00	.00
8.7500 /	.00	.00	.00	.00	.00
9.0000 /	.00	.00	.00	.00	.00
9.2500 /	.00	.00	.00	.00	.00
9.5000 /	.00	.00	.00	.00	.00
9.7500 /	.00	.00	.00	.00	.00
10.0000 /	.00	.00	.00	.01	.01
10.2500 /	.01	.01	.01	.01	.01
10.5000 /	.02	.02	.02	.02	.02
10.7500 /	.02	.02	.03	.03	.03
11.0000 /	.03	.04	.04	.04	.04
11.2500 /	.05	.05	.06	.06	.07
11.5000 /	.08	.09	.11	.15	.21
11.7500 /	.31	.45	.66	.95	1.31
12.0000 /	1.60	1.70	1.58	1.28	.97
12.2500 /	.73	.58	.48	.40	.35
12.5000 /	.31	.28	.25	.22	.21
12.7500 /	.19	.18	.18	.17	.16
13.0000 /	.16	.15	.15	.14	.14
13.2500 /	.13	.13	.13	.12	.12
13.5000 /	.12	.11	.11	.11	.11
13.7500 /	.10	.10	.10	.10	.09
14.0000 /	.09	.09	.09	.09	.09
14.2500 /	.08	.08	.08	.08	.08
14.5000 /	.08	.08	.08	.08	.08
14.7500 /	.08	.08	.07	.07	.07
15.0000 /	.07	.07	.07	.07	.07
15.2500 /	.07	.07	.07	.07	.07
15.5000 /	.06	.06	.06	.06	.06
15.7500 /	.06	.06	.06	.06	.06
16.0000 /	.06	.06	.06	.05	.05
16.2500 /	.05	.05	.05	.05	.05
16.5000 /	.05	.05	.05	.05	.05
16.7500 /	.05	.05	.05	.05	.05
17.0000 /	.05	.05	.05	.05	.05
17.2500 /	.05	.05	.05	.05	.05
17.5000 /	.05	.05	.05	.05	.05
17.7500 /	.05	.05	.04	.04	.04
18.0000 /	.04	.04	.04	.04	.04
18.2500 /	.04	.04	.04	.04	.04
18.5000 /	.04	.04	.04	.04	.04
18.7500 /	.04	.04	.04	.04	.04
19.0000 /	.04	.04	.04	.04	.04
19.2500 /	.04	.04	.04	.04	.04
19.5000 /	.04	.04	.03	.03	.03
19.7500 /	.03	.03	.03	.03	.03
20.0000 /	.03	.03	.03	.03	.03
20.2500 /	.03	.03	.03	.03	.03
20.5000 /	.03	.03	.03	.03	.03
20.7500 /	.03	.03	.03	.03	.03
21.0000 /	.03	.03	.03	.03	.03
21.2500 /	.03	.03	.03	.03	.03
21.5000 /	.03	.03	.03	.03	.03
21.7500 /	.03	.03	.03	.03	.03
22.0000 /	.03	.03	.03	.03	.03
22.2500 /	.03	.03	.03	.03	.03
22.5000 /	.03	.03	.03	.03	.03
22.7500 /	.03	.03	.03	.03	.03
23.0000 /	.03	.03	.03	.03	.03
23.2500 /	.03	.03	.03	.03	.03
23.5000 /	.03	.03	.03	.03	.03
23.7500 /	.03	.03	.03	.03	.03
24.0000 /	.03				

POND ROUTED HYDROGRAPH

Type.... Pond Routed Hydrograph (total out) Page 117
Name.... UGDF OUT Tag: 1 Event: 1 yr

POND ROUTED TOTAL OUTFLOW HYC...
HYG file =
HYG ID = UGDF OUT
HYG Tag = 1
Peak Discharge = .72 cfs
Time to Peak = 12.2500 hrs
HYG Volume = .116 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0500 hrs
Time / hrs / Time on left represents time for first value in each row.

Time / hrs					
5.0000 /	.00	.00	.00	.00	.00
5.2500 /	.00	.00	.00	.00	.00
5.5000 /	.00	.00	.00	.00	.00
5.7500 /	.00	.00	.00	.00	.00
6.0000 /	.00	.00	.00	.00	.00
6.2500 /	.00	.00	.00	.00	.00
6.5000 /	.00	.00	.00	.00	.00
6.7500 /	.00	.00	.00	.00	.00
7.0000 /	.00	.00	.00	.00	.00
7.2500 /	.00	.00	.00	.00	.00
7.5000 /	.00	.00	.00	.00	.00
7.7500 /	.00	.00	.00	.00	.00
8.0000 /	.00	.00	.00	.00	.00
8.2500 /	.00	.00	.00	.00	.00
8.5000 /	.00	.00	.00	.00	.00
8.7500 /	.00	.00	.00	.00	.00
9.0000 /	.00	.00	.00	.00	.00
9.2500 /	.00	.00	.00	.00	.00
9.5000 /	.00	.00	.00	.00	.00
9.7500 /	.00	.00	.00	.00	.00
10.0000 /	.00	.00	.00	.00	.01
10.2500 /	.01	.01	.01	.01	.01
10.5000 /	.01	.01	.01	.01	.01
10.7500 /	.02	.02	.02	.02	.02
11.0000 /	.02	.02	.03	.03	.03
11.2500 /	.03	.04	.04	.04	.05
11.5000 /	.05	.05	.06	.07	.09
11.7500 /	.11	.15	.21	.30	.39
12.0000 /	.48	.57	.65	.69	.71
12.2500 /	.72	.71	.70	.69	.67
12.5000 /	.66	.64	.62	.59	.56
12.7500 /	.53	.50	.47	.45	.42
13.0000 /	.40	.38	.36	.34	.31
13.2500 /	.28	.26	.24	.22	.21
13.5000 /	.20	.18	.17	.16	.16
13.7500 /	.15	.14	.14	.13	.12
14.0000 /	.12	.12	.11	.11	.11
14.2500 /	.10	.10	.10	.09	.09
14.5000 /	.09	.09	.09	.09	.08
14.7500 /	.08	.08	.08	.08	.08
15.0000 /	.08	.08	.08	.08	.07
15.2500 /	.07	.07	.07	.07	.07
15.5000 /	.07	.07	.07	.07	.07
15.7500 /	.07	.06	.06	.06	.06
16.0000 /	.06	.06	.06	.06	.06
16.2500 /	.06	.06	.06	.06	.06
16.5000 /	.06	.06	.05	.05	.05
16.7500 /	.05	.05	.05	.05	.05
17.0000 /	.05	.05	.05	.05	.05
17.2500 /	.05	.05	.05	.05	.05
17.5000 /	.05	.05	.05	.05	.05
17.7500 /	.05	.05	.05	.04	.04
18.0000 /	.04	.04	.04	.04	.04
18.2500 /	.04	.04	.04	.04	.04
18.5000 /	.04	.04	.04	.04	.04
18.7500 /	.04	.04	.04	.04	.04
19.0000 /	.04	.04	.04	.04	.04
19.2500 /	.04	.04	.04	.04	.04
19.5000 /	.04	.04	.04	.04	.04
19.7500 /	.04	.04	.04	.03	.03
20.0000 /	.03	.03	.03	.03	.03
20.2500 /	.03	.03	.03	.03	.03
20.5000 /	.03	.03	.03	.03	.03
20.7500 /	.03	.03	.03	.03	.03
21.0000 /	.03	.03	.03	.03	.03
21.2500 /	.03	.03	.03	.03	.03
21.5000 /	.03	.03	.03	.03	.03
21.7500 /	.03	.03	.03	.03	.03
22.0000 /	.03	.03	.03	.03	.03
22.2500 /	.03	.03	.03	.03	.03
22.5000 /	.03	.03	.03	.03	.03
22.7500 /	.03	.03	.03	.03	.03
23.0000 /	.03	.03	.03	.03	.03
23.2500 /	.03	.03	.03	.03	.03
23.5000 /	.03	.03	.03	.03	.03
23.7500 /	.03	.03	.03	.03	.03
24.0000 /	.03				

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
JULIE K. WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

SWM COMPUTATIONS

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.41

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

2-YR STORM COMPUTATIONS

POND INFLOW SUMMARY

Type.... Pond Inflow Summary Page 100
Name.... UGDF IN
Event: 2 yr

SUMMARY FOR HYDROGRAPH ADDITION
at Node: UGDF IN

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
A-33	W-2A		W-2A	2

INFLOWS TO: UGDF IN

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	W-2A	2	.161	12.0500	2.35

TOTAL FLOW INTO: UGDF IN

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	UGDF IN	2	.161	12.0500	2.35

TOTAL NODE INFLOW...
HYG file =
HYG ID = UGDF IN
HYG Tag = 2

Peak Discharge = 2.35 cfs
Time to Peak = 12.0500 hrs
HYG Volume = .161 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0500 hrs
Time / hrs / Time on left represents time for first value in each row.

Time / hrs					
5.5000 /	.00	.00	.00	.00	.00
5.7500 /	.00	.00	.00	.00	.00
6.0000 /	.00	.00	.00	.00	.00
6.2500 /	.00	.00	.00	.00	.00
6.5000 /	.00	.00	.00	.00	.00
6.7500 /	.00	.00	.00	.00	.00
7.0000 /	.00	.00	.00	.00	.00
7.2500 /	.00	.00	.00	.00	.00
7.5000 /	.00	.00	.00	.00	.00
7.7500 /	.00	.00	.00	.00	.00
8.0000 /	.00	.00	.00	.00	.00
8.2500 /	.00	.00	.00	.00	.00
8.5000 /	.00	.00	.00	.00	.00
8.7500 /	.00	.00	.00	.00	.00
9.0000 /	.01	.01	.01	.01	.01
9.2500 /	.01	.01	.01	.01	.01
9.5000 /	.01	.01	.01	.01	.01
9.7500 /	.01	.02	.02	.02	.02
10.0000 /	.02	.02	.02	.02	.02
10.2500 /	.03	.03	.03	.03	.03
10.5000 /	.03	.04	.04	.04	.04
10.7500 /	.05	.05	.05	.05	.06
11.0000 /	.06	.07	.07	.07	.08
11.2500 /	.09	.09	.10	.11	.12
11.5000 /	.13	.14	.17	.23	.33
11.7500 /	.48	.68	.97	1.38	1.86
12.0000 /	2.24	2.35	2.17	1.75	1.32
12.2500 /	.99	.78	.64	.54	.47
12.5000 /	.41	.37	.33	.30	.27
12.7500 /	.26	.24	.23	.22	.21
13.0000 /	.21	.20	.19	.19	.18
13.2500 /	.18	.17	.17	.16	.16
13.5000 /	.15	.15	.15	.14	.14
13.7500 /	.14	.13	.13	.13	.12
14.0000 /	.12	.12	.12	.11	.11
14.2500 /	.11	.11	.11	.11	.11
14.5000 /	.10	.10	.10	.10	.10
14.7500 /	.10	.10	.10	.10	.10
15.0000 /	.09	.09	.09	.09	.09
15.2500 /	.09	.09	.09	.09	.09
15.5000 /	.08	.08	.08	.08	.08
15.7500 /	.08	.08	.08	.08	.08
16.0000 /	.07	.07	.07	.07	.07
16.2500 /	.07	.07	.07	.07	.07
16.5000 /	.07	.07	.07	.07	.07
16.7500 /	.07	.07	.07	.07	.06
17.0000 /	.06	.06	.06	.06	.06
17.2500 /	.06	.06	.06	.06	.06
17.5000 /	.06	.06	.06	.06	.06
17.7500 /	.06	.06	.06	.06	.06
18.0000 /	.06	.06	.06	.06	.06
18.2500 /	.06	.05	.05	.05	.05
18.5000 /	.05	.05	.05	.05	.05
18.7500 /	.05	.05	.05	.05	.05
19.0000 /	.05	.05	.05	.05	.05
19.2500 /	.05	.05	.05	.05	.05
19.5000 /	.05	.05	.05	.04	.04
19.7500 /	.04	.04	.04	.04	.04
20.0000 /	.04	.04	.04	.04	.04
20.2500 /	.04	.04	.04	.04	.04
20.5000 /	.04	.04	.04	.04	.04
20.7500 /	.04	.04	.04	.04	.04
21.0000 /	.04	.04	.04	.04	.04
21.2500 /	.04	.04	.04	.04	.04
21.5000 /	.04	.04	.04	.04	.04
21.7500 /	.04	.04	.04	.04	.04
22.0000 /	.04	.04	.04	.04	.04
22.2500 /	.04	.04	.04	.04	.04
22.5000 /	.04	.04	.04	.04	.04
22.7500 /	.04	.04	.04	.04	.04
23.0000 /	.04	.04	.04	.04	.04
23.2500 /	.04	.04	.04	.04	.04
23.5000 /	.04	.04	.04	.04	.04
23.7500 /	.04	.04	.04	.04	.04
24.0000 /	.04				

POND ROUTED HYDROGRAPH

Type.... Pond Routed Hydrograph (total out) Page 117
Name.... UGDF OUT
Tag: 2 Event: 2 yr

POND ROUTED TOTAL OUTFLOW HYG...
HYG file =
HYG ID = UGDF OUT
HYG Tag = 2

Peak Discharge = 1.15 cfs
Time to Peak = 12.2500 hrs
HYG Volume = .160 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0500 hrs
Time / hrs / Time on left represents time for first value in each row.

Time / hrs					
5.5000 /	.00	.00	.00	.00	.00
5.7500 /	.00	.00	.00	.00	.00
6.0000 /	.00	.00	.00	.00	.00
6.2500 /	.00	.00	.00	.00	.00
6.5000 /	.00	.00	.00	.00	.00
6.7500 /	.00	.00	.00	.00	.00
7.0000 /	.00	.00	.00	.00	.00
7.2500 /	.00	.00	.00	.00	.00
7.5000 /	.00	.00	.00	.00	.00
7.7500 /	.00	.00	.00	.00	.00
8.0000 /	.00	.00	.00	.00	.00
8.2500 /	.00	.00	.00	.00	.00
8.5000 /	.00	.00	.00	.00	.00
8.7500 /	.00	.00	.00	.00	.00
9.0000 /	.00	.00	.00	.00	.00
9.2500 /	.01	.01	.01	.01	.01
9.5000 /	.01	.01	.01	.01	.01
9.7500 /	.01	.01	.01	.01	.01
10.0000 /	.02	.02	.02	.02	.02
10.2500 /	.03	.03	.03	.03	.03
10.5000 /	.03	.04	.04	.04	.04
10.7500 /	.05	.05	.05	.05	.06
11.0000 /	.06	.07	.07	.07	.08
11.2500 /	.09	.09	.10	.12	.14
11.5000 /	.18	.24	.33	.41	.51
11.7500 /	.63	.72	.87	1.05	1.14
12.0000 /	1.15	1.09	1.02	.94	.88
12.2500 /	.84	.79	.74	.71	.69
12.5000 /	.66	.64	.62	.59	.56
12.7500 /	.53	.50	.48	.45	.43
13.0000 /	.41	.39	.37	.36	.33
13.2500 /	.31	.28	.26	.25	.23
13.5000 /	.22	.20	.19	.18	.18
13.7500 /	.17	.16	.15	.15	.14
14.0000 /	.14	.13	.13	.13	.12
14.2500 /	.12	.12	.12	.11	.11
14.5000 /	.11	.11	.11	.11	.10
14.7500 /	.11	.10	.10	.10	.10
15.0000 /	.10	.10	.10	.09	.09
15.2500 /	.10	.10	.09	.09	.09
15.5000 /	.09	.09	.09	.09	.09
15.7500 /	.09	.08	.08	.08	.08
16.0000 /	.08	.08	.08	.08	.08
16.2500 /	.08	.07	.07	.07	.07
16.5000 /	.07	.07	.07	.07	.07
16.7500 /	.07	.07	.07	.07	.07
17.0000 /	.07	.07	.07	.07	.07
17.2500 /	.06	.06	.06	.06	.06
17.5000 /	.06	.06	.06	.06	.06
17.7500 /	.06	.06	.06	.06	.06
18.0000 /	.06	.06	.06	.06	.06
18.2500 /	.06	.06	.06	.06	.06
18.5000 /	.06	.06	.06	.05	.05
18.7500 /	.05	.05	.05	.05	.05
19.0000 /	.05	.05	.05	.05	.05
19.2500 /	.05	.05	.05	.05	.05
19.5000 /	.05	.05	.05	.05	.04
19.7500 /	.04	.04	.04	.04	.04
20.0000 /	.04	.04	.04	.04	.04
20.2500 /	.04	.04	.04	.04	.04
20.5000 /	.04	.04	.04	.04	.04
20.7500 /	.04	.04	.04	.04	.04
21.0000 /	.04	.04	.04	.04	.04
21.2500 /	.04	.04	.04	.04	.04
21.5000 /	.04	.04	.04	.04	.04
21.7500 /	.04	.04	.04	.04	.04
22.0000 /	.04	.04	.04	.04	.04
22.2500 /	.04	.04	.04	.04	.04
22.5000 /	.04	.04	.04	.04	.04
22.7500 /	.04	.04	.04	.04	.04
23.0000 /	.04	.04	.04	.04	.04
23.2500 /	.04	.04	.04	.04	.04
23.5000 /	.04	.04	.04	.04	.04
23.7500 /	.04	.04	.04	.04	.04
24.0000 /	.04				

10-YR STORM COMPUTATIONS

POND INFLOW SUMMARY

Type.... Pond Inflow Summary Page 100
Name.... UGDF IN
Event: 10 yr

SUMMARY FOR HYDROGRAPH ADDITION
at Node: UGDF IN

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
A-33	W-2A		W-2A	10

INFLOWS TO: UGDF IN

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	W-2A	10	.308	12.0500	4.45

TOTAL FLOW INTO: UGDF IN

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	UGDF IN	10	.308	12.0500	4.45

TOTAL NODE INFLOW...
HYG file =
HYG ID = UGDF IN
HYG Tag = 10

Peak Discharge = 4.45 cfs
Time to Peak = 12.0500 hrs
HYG Volume = .308 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0500 hrs
Time / hrs / Time on left represents time for first value in each row.

Time / hrs					
5.5000 /	.00	.00	.00	.00	.00
5.7500 /	.00	.00	.00	.00	.00
6.0000 /	.00	.00	.00	.00	.00
6.2500 /	.00	.00	.00	.00	.00
6.5000 /	.00	.00	.00	.00	.00
6.7500 /	.00	.01	.01	.01	.01
7.0000 /	.01	.01	.01	.01	.01
7.2500 /	.01	.01	.01	.01	.01
7.5000 /	.01	.01	.01	.01	.02
7.7500 /	.02	.02	.02	.02	.02
8.0000 /	.02	.02	.02	.02	.02
8.2500 /	.02	.02	.02	.03	.03
8.5000 /	.03	.03	.03	.03	.03
8.7500 /	.03	.03	.04	.04	.04
9.0000 /	.04	.04	.04	.04	.05
9.2500 /	.05	.05	.05	.05	.05
9.5000 /	.05	.05	.06	.06	.06
9.7500 /	.06	.06	.06	.07	.07
10.0000 /	.07	.07	.08	.08	.08
10.2500 /	.09	.09	.09	.10	.10
10.5000 /	.11	.11	.11	.12	.13
10.7500 /	.13	.14	.14	.15	.16
11.0000 /	.17	.18	.18	.19	.21
11.2500 /	.22	.24	.24	.26	.29
11.5000 /	.31	.34	.39	.47	.57
11.7500 /	.69	.83	1.00	1.20	1.53
12.0000 /	2.71	2.28	1.94	1.64	1.46
12.2500 /	1.33	1.21	1.09	.98	.90
12.5000 /	.86	.81	.77	.73	.71
12.7500 /	.69	.67	.65	.64	.62
13.0000 /	.60	.57	.55	.53	.51
13.2500 /	.49	.47	.45	.44	.42
13.5000 /	.41	.39	.38	.37	.35
13.7500 /	.33	.32	.30	.28	.27
14.0000 /	.26	.25	.24	.23	.22
14.2500 /	.22	.21	.21	.20	.20
14.5000 /	.19	.19	.19	.18	.18
14.7500 /	.17	.17	.17	.16	.16
15.0000 /	.16	.16	.16	.15	.15
15.2500 /	.15	.15	.15	.14	.14
15.5000 /	.14	.14	.14	.13	.13
15.7500 /	.13	.13	.12	.12	.12
16.0000 /	.12	.12	.12	.12	.12
16.2500 /	.12	.12	.11	.11	.11
16.5000 /	.11	.11	.11	.11	.11
16.7500 /	.11	.11	.11	.11	.11
17.0000 /	.11	.11	.11	.11	.11
17.2500 /	.11	.11	.11	.10	.10
17.5000 /	.10	.10	.10	.10	.10
17.7500 /	.10	.10	.10	.10	.10
18.0000 /	.10	.10	.10	.10	.09
18.2500 /	.09	.09	.09	.09	.09
18.5000 /	.09	.09	.09	.09	.09
18.7500 /	.09	.09	.09	.09	.08
19.0000 /	.08	.08	.08	.08	.08
19.2500 /	.08	.08	.08	.08	.08
19.5000 /	.08	.08	.08	.08	.08
19.7500 /	.07	.07	.07	.07	.07
20.0000 /	.07	.07	.07	.07	.07
20.2500 /	.07	.07	.07	.07	.07
20.5000 /	.07	.07	.07	.07	.07
20.7500 /	.07	.07	.07	.07	.07
21.0000 /	.07	.07	.07	.07	.07
21.2500 /	.07	.07	.07	.07	.07
21.5000 /	.07	.07	.07	.07	.06
21.7500 /	.06	.06	.06	.06	.06
22.0000 /	.06	.06	.06	.06	.06
22.2500 /	.06	.06	.06	.06	.06
22.5000 /	.06	.06	.06	.06	.06
22.7500 /	.06	.06	.06	.06	.06
23.0000 /	.06	.06	.06	.06	.06
23.2500 /	.06	.06	.06	.06	.06
23.5000 /	.06	.06	.06	.06	.06
23.7500 /	.06	.06	.06	.06	.06
24.0000 /	.06				

POND ROUTED HYDROGRAPH

Type.... Pond Routed Hydrograph (total out) Page 117
Name.... UGDF OUT
Tag: 10 Event: 10 yr

POND ROUTED TOTAL OUTFLOW HYG...
HYG file =
HYG ID = UGDF OUT
HYG Tag = 10

Peak Discharge = 3.44 cfs
Time to Peak = 12.1500 hrs
HYG Volume = .307 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0500 hrs
Time / hrs / Time on left represents time for first value in each row.

Time / hrs					
5.5000 /	.00	.00	.00	.00	.00
5.7500 /	.00	.00	.00	.00	.00
6.0000 /	.00	.00	.00	.00	.00
6.2500 /	.00	.00	.00	.00	.00
6.5000 /	.00	.00	.00	.00	.00
6.7500 /	.00	.00	.00	.00	.00
7.0000 /	.00	.00	.01	.01	.01
7.2500 /	.01	.01	.01	.01	.01
7.5000 /	.01	.01	.01	.01	.01
7.7500 /	.01	.01	.01	.01	.01
8.0000 /	.02	.02	.02	.02	.02
8.2500 /	.02	.02	.02	.02	.02
8.5000 /	.02	.02	.02	.03	.03
8.7500 /	.03	.03	.03	.03	.03
9.0000 /	.03	.04	.04	.04	.04
9.2500 /	.04	.04	.04	.04	.05
9.5000 /	.05	.05	.05	.05	.05
9.7500 /	.05	.05	.06	.06	.06
10.0000 /	.06	.06	.06	.07	.07
10.2500 /	.07	.07	.08	.08	.08
10.5000 /	.09	.09	.09	.10	.10
10.7500 /	.11	.11	.12	.12	.13
11.0000 /	.13	.14	.14	.15	.16
11.2500 /	.17	.18	.18	.19	.20
11.5000 /	.21	.23	.24	.26	.29
11.7500 /	.34	.41	.50	.62	.78
12.0000 /	1.00	1.19	1.39	1.60	1.77
12.2500 /	1.77	1.70	1.58	1.45	1.32
12.5000 /	1.20	1.09	.99	.91	.84
12.7500 /	.78	.73	.69	.66	.63
13.0000 /	.60	.57	.55	.53	.51
13.2500 /	.49	.47	.45	.44	.42
13.5000 /	.41	.39	.38	.37	.35
13.7500 /	.33	.32	.30	.28	.27
14.0000 /	.26	.25	.24	.23	.22
14.2500 /	.22	.21	.21	.20	.20
14.5000 /	.19	.19	.19	.18	.18
14.7500 /	.17	.17	.17	.16	.16
15.0000 /	.16	.16	.16	.15	.15
15.2500 /	.15	.15	.14	.14	.14
15.5000 /	.14	.14	.13	.13	.13
15.7500 /	.13	.13	.13	.13	.12
16.0000 /	.12	.12	.12	.12	.12
16.2500 /	.12	.12	.12	.12	.12
16.5000 /	.11	.11	.11	.11	.11
16.7500 /	.11	.11	.11	.11	.11
17.0000 /	.11	.11	.11	.11	.11
17.2500 /	.11	.11	.11	.11	.11
17.5000 /	.10	.10	.10	.10	.10
17.7500 /	.10	.10	.10	.10	.10
18.0000 /	.10	.10	.10	.10	.10
18.2500 /	.10	.10	.10	.10	.10
18.5000 /	.09	.09	.09	.09	.09
18.7500 /	.09	.09	.09	.09	.09
19.0000 /	.09	.09	.09	.09	.09
19.2500 /	.09	.08	.08	.08	.08
19.5000 /	.08	.08	.08	.08	.08
19.7500 /	.08	.08	.08	.08	.08
20.0000 /	.08	.07	.07	.07	.07
20.2500 /	.07	.07	.07	.07	.07
20.5000 /	.07	.07	.07	.07	.07
20.7500 /	.07	.07	.07	.07	.07
21.0000 /	.07	.07	.07	.07	.07
21.2500 /	.07	.07	.07	.07	.07
21.5000 /	.07	.07	.07	.07	.07
21.7500 /	.07	.07	.07	.07	.07
22.0000 /	.07	.06	.06	.06	.06
22.2500 /	.06	.06	.06	.06	.06
22.5000 /	.06	.06	.06	.06	.06
22.7500 /	.06	.06	.06	.06	.06
23.0000 /	.06	.06	.06	.06	.06
23.2500 /	.06	.06	.06	.06	.06
23.5000 /	.06	.06	.06	.06	.06
23.7500 /	.06	.06	.06	.06	.06
24.0000 /	.06				

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
1/26/2023
PROFESSIONAL ENGINEER

SWM COMPUTATIONS

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.42

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

OUTFALL/SWM/BMP NARRATIVE:

PROJECT DESCRIPTION:
THIS PROJECT IS A 1.50 ACRE SITE LOCATED AT THE INTERSECTION OF WASHINGTON STREET AND JEFFERSON STREET IN THE TOWN OF HAYMARKET. THE PLAN PROPOSES UTILITY, PARKING, AND PEDESTRIAN ACCESS IMPROVEMENTS, ALONG WITH A SMALL BUILDING ADDITION TO AN EXISTING BUILDING ON THE SITE. THE TOTAL DISTURBED AREA IS 1.60 ACRES.

EXISTING SITE CONDITIONS:
THIS SITE IS LOCATED AT THE INTERSECTION OF WASHINGTON STREET AND JEFFERSON STREET IN THE TOWN OF HAYMARKET. THE SITE IS DEVELOPED WITH 5 EXISTING BUILDINGS AND IS GENERALLY IMPERVIOUS WITH SMALL AMOUNTS OF GRASS. THE SITE DRAINS TO TWO DIFFERENT LOCAL STORM SEWER OUTFALL POINTS, WHICH ULTIMATELY DRAIN TO CATLETTS BRANCH-BROAD RUN AND LITTLE BULL RUN, RESPECTIVELY. THE EXISTING TOPOGRAPHY IS GENERALLY FLAT WITH DRAINAGE GENERALLY FLOWING TO THE SOUTH ACROSS THE SITE. THERE ARE EXISTING DRAINAGE ISSUES DUE TO THE FLAT SITE ELEVATIONS AND RUNOFF BEING DIRECTED TOWARDS BUILDINGS WITH LIMITED OVERLAND RELIEF.

ADJACENT PROPERTY:
THE SITE IS BORDERED ON THE NORTH AND WEST BY EXISTING RESIDENTIAL DEVELOPMENT, ON THE SOUTH BY COMMERCIAL AND RESIDENTIAL DEVELOPMENT, AND ON THE EAST BY COMMERCIAL DEVELOPMENT.

STORMWATER MANAGEMENT NARRATIVE & METHODOLOGY:
THE PROJECT INCLUDES 1 UNDERGROUND FACILITY TO MANAGE THE POST DEVELOPMENT FLOWS GENERATED BY THE PROPOSED DEVELOPMENT. THE UNDERGROUND FACILITY CONSISTS OF A STORMTECH SC-310 SYSTEM MANUFACTURED BY ADVANCED DRAINAGE SOLUTIONS (ADS). THE FACILITY HAS A MODIFIED MH-1 OUTFALL STRUCTURE (STRUCTURE 30) THAT CONTROLS THE FLOWS FROM THE 1, 2, AND 10 YEAR STORM EVENTS TO ENSURE THAT LESS RUNOFF IS RELEASED FROM THE SITE FOR ALL 3 EVENTS THAN IN PRE-DEVELOPMENT CONDITIONS, WHILE ALSO MEETING ENERGY BALANCE REQUIREMENTS FOR THE SITE.

THE COMPUTATIONS FOR THE SWM FACILITY WERE COMPLETED PER USDA TR-55 GUIDANCE (FOR DRAINAGE AREA CN VALUES, SEE SHEET C.31-C.32) AND SCS TYPE II RAINFALL DISTRIBUTION (FOR FLOW RATES) USING BENTLEY'S PONDPACK TO COMPUTE THE FINAL ROUTING RESULTS.

OUTFALLS:
THERE ARE TWO OUTFALLS ON THIS SITE, WHICH ARE DESCRIBED IN MORE DETAIL BELOW.

OUTFALL #1:
OUTFALL #1 (A POINT OF ANALYSIS AND POINT OF DISCHARGE) IS AN EXISTING STORM SEWER INLET ON THE SOUTHWESTERN CORNER OF THE SITE WHERE EXISTING STORM SEWER RUNOFF FROM WASHINGTON STREET COMBINES WITH THE SITE RUNOFF. THE STORM SEWER THEN RUNS UNDER WASHINGTON STREET AND TOWARDS BROAD RUN. THE RUNOFF FROM THIS SITE TO THIS OUTFALL POINT IS UNCONTROLLED TO THE OUTFALL POINT, BUT IS COLLECTED BY STORM SEWER INLETS THAT TIE INTO THE OUTFALL POINT INLET. PER ENERGY BALANCE COMPUTATIONS SHOWN ON THIS SHEET, THIS OUTFALL MEETS CHANNEL PROTECTION REQUIREMENTS AS REQUIRED BY 9VAC25-870-66.B.1.b. THE OUTFALL POINT IS CONSIDERED TO CURRENTLY EXPERIENCE LOCALIZED FLOODING DUE TO THE POOR DRAINAGE IN THE SITE AREA, THEREFORE, THE DESIGN HAS BEEN COMPLETED SUCH THAT THE POST DEVELOPMENT PEAK FLOW RATE DURING THE 10-YEAR, 24-HOUR STORM IS LESS THAN THE PRE-DEVELOPMENT FLOW RATE. THEREFORE, FLOOD PROTECTION CRITERIA IS MET FOR THIS OUTFALL AS REQUIRED BY 9VAC25-870-66.C.2.b. SINCE THIS OUTFALL MEETS CHANNEL AND FLOOD PROTECTION REQUIREMENTS AS DESCRIBED ABOVE, IT IS THE PROFESSIONAL OPINION OF THIS FIRM THAT OUTFALL #1 IS CONSIDERED TO BE AN ADEQUATE OUTFALL TO HANDLE THE DEVELOPMENT PROPOSED WITH THIS PLAN.

OUTFALL #2:
OUTFALL #2 (A POINT OF ANALYSIS AND POINT OF DISCHARGE) IS AN EXISTING STORM SEWER MANHOLE ON THE SOUTHWESTERN CORNER OF THE SITE WHERE EXISTING STORM SEWER RUNOFF FROM JEFFERSON STREET COMBINES WITH THE SITE RUNOFF THAT IS RELEASED FROM THE ON-SITE SWM FACILITY. THE STORM SEWER THEN RUNS UNDER JEFFERSON STREET AND TOWARDS LITTLE BULL RUN. THE RUNOFF FROM THIS SITE TO THIS OUTFALL POINT IS CONTROLLED BY THE ON-SITE SWM FACILITY, WHICH OUTFALLS INTO THE OUTFALL POINT. PER ENERGY BALANCE COMPUTATIONS SHOWN ON THIS SHEET, THIS OUTFALL MEETS CHANNEL PROTECTION REQUIREMENTS AS REQUIRED BY 9VAC25-870-66.B.1.b. THE OUTFALL POINT IS CONSIDERED TO CURRENTLY EXPERIENCE LOCALIZED FLOODING DUE TO THE POOR DRAINAGE IN THE SITE AREA, THEREFORE, THE DESIGN HAS BEEN COMPLETED SUCH THAT THE POST DEVELOPMENT PEAK FLOW RATE DURING THE 10-YEAR, 24-HOUR STORM IS LESS THAN THE PRE-DEVELOPMENT FLOW RATE. THEREFORE, FLOOD PROTECTION CRITERIA IS MET FOR THIS OUTFALL AS REQUIRED BY 9VAC25-870-66.C.2.b. SINCE THIS OUTFALL MEETS CHANNEL AND FLOOD PROTECTION REQUIREMENTS AS DESCRIBED ABOVE, IT IS THE PROFESSIONAL OPINION OF THIS FIRM THAT OUTFALL #2 IS CONSIDERED TO BE AN ADEQUATE OUTFALL TO HANDLE THE DEVELOPMENT PROPOSED WITH THIS PLAN.

CHANNEL PROTECTION:
AS DESCRIBED ABOVE, BOTH OUTFALLS MEET CHANNEL PROTECTION REQUIREMENTS AS REQUIRED BY 9VAC25-870-66.B.1.b. NOTE THAT ENERGY BALANCE PER 9VAC25-870-66.B.3.a. STATES THAT THE RUNOFF VOLUME AND FLOWS ARE BASED OFF OF THE DEVELOPED SITE. THEREFORE, THE ENERGY BALANCE COMPUTATIONS AND DRAINAGE AREAS ARE PROVIDED ON THIS SHEET CONSIDERING THE ENTIRE SITE AREA, WHERE SEPARATE DRAINAGE AREAS ARE PROVIDED TO COMPUTE FLOOD PROTECTION REQUIREMENTS.

FLOOD PROTECTION:
AS DESCRIBED ABOVE, BOTH OUTFALLS MEET FLOOD PROTECTION REQUIREMENTS AS REQUIRED BY 9VAC25-870-66.C.2.b. BOTH OUTFALLS ARE CONSIDERED TO CURRENTLY EXPERIENCE LOCALIZED FLOODING.

SWM SUMMARY:
THIS PROPOSED DEVELOPMENT WILL CONTINUE TO HONOR NATURAL DRAINAGE DIVIDES AND THE PROPOSED FLOWS TO EACH OF THE OUTFALLS IS LESS THAN THE EXISTING FLOWS. BOTH CHANNEL AND FLOOD PROTECTION REQUIREMENTS ARE MET FOR BOTH OUTFALLS.

BMP NARRATIVE:
THE BMP ANALYSIS WAS PERFORMED IN ACCORDANCE WITH CURRENT VA DEQ REQUIREMENTS. ONCE FULLY DEVELOPED, THE SITE REQUIRES A PHOSPHOROUS REMOVAL RATE OF 0.43 LBS/YR. THIS WILL BE ACCOMPLISHED BY PROVIDING ON-SITE TREATMENT MEASURES IN THE FORM OF AN ISOLATER ROW PLUS WITHIN THE ON-SITE SWM FACILITY, AND A CONTECH JELLYFISH FILTER WITHIN ONE OF THE STORM DRAINAGE INLETS. COMBINED, THOSE TWO MEASURES EXCEED THE TREATMENT REQUIREMENTS FOR THE SITE. SEE SHEETS C.29-C.30 FOR THE OVERALL SITE BMP, ISOLATER ROW, AND JELLYFISH FILTER COMPUTATIONS.

SWM FACILITY CONSTRUCTION PHASING:
THE CONSTRUCTION OF THE UGDF SHALL BE PHASED IN SUCH A MANNER AS TO PREVENT ANY SEDIMENT-LADEN RUNOFF FROM ENTERING THE FACILITY PRIOR TO ITS ENTIRE CONTRIBUTING DRAINAGE AREA BECOMING PERMANENTLY STABILIZED IN ACCORDANCE WITH THE VESCH.

1. ENSURE ACCESS TO THE EXISTING BUILDING IS MAINTAINED AT ALL TIMES.
2. ALTHOUGH THE EXACT PHASING IS TO BE COORDINATED BY THE CONTRACTOR WITH THE SITE INSPECTOR, THE ENGINEER'S PROPOSED PHASING IS TO CONSTRUCT AS MANY UPSTREAM IMPROVEMENTS AS POSSIBLE, INCLUDING THE UPSTREAM STORM SEWER, PRIOR TO INSTALLING THE SWM FACILITY.
3. PROTECT THE LIMITS OF THE SWM FACILITY WITH SILT FENCE AND SAFETY FENCE, AS APPROPRIATE. INSTALL THE STORMTECH SYSTEM, INCLUDING THE CHAMBERS AND STONE PER THE MANUFACTURER'S STANDARDS.
4. CONNECT THE SWM FACILITY TO THE INFLOW AND OUTFLOW STRUCTURES, WHILE CONTINUING TO PREVENT SEDIMENT FROM ENTERING THE FACILITY WITH INLET PROTECTION AND SILT FENCE.
5. AFTER THE ENTIRE UPSTREAM DRAINAGE AREA OF THE UGDF HAS BEEN PERMANENTLY STABILIZED, THE FACILITY MAY BE BROUGHT ONLINE.

SWM/BMP FACILITY MAINTENANCE:
MANUFACTURED SWM & BMP SYSTEMS REQUIRE REGULAR INSPECTION AND MAINTENANCE TO MAXIMIZE THEIR EFFECTIVENESS. THE SPECIFIC MAINTENANCE REQUIREMENTS AND SCHEDULE SHOULD BE PREPARED BY THE MANUFACTURER AND SIGNED BY THE OWNER/OPERATOR.

A MAINTENANCE LOG IS REQUIRED TO KEEP TRACK OF ROUTINE INSPECTIONS AND MAINTENANCE. FAILURE TO MAINTAIN ANY SWM & BMP FACILITY MAY RESULT IN REDUCED PERFORMANCE OR THE SYSTEM CLOGGING AND CAUSING UPSTREAM FLOODING. LACK OF MAINTENANCE IS WIDELY ACKNOWLEDGED TO BE THE MOST PREVALENT CAUSE OF FAILURE OF STRUCTURAL SWM & BMP FACILITIES. INSPECTIONS AND DEBRIS, LITTER, AND SEDIMENT REMOVAL SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS AND REQUIREMENTS OF CONTECH ENGINEERED SOLUTIONS.

VIRGINIA PERMITTING:
IN ACCORDANCE WITH 9VAC25-151-70, A GENERAL VPDES PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES MUST BE APPLIED FOR AND ISSUED FROM DEQ PRIOR TO COMMENCING LAND-DISTURBING ACTIVITIES.

SWM/BMP	Outfall	SWM/BMP facility Type	Location	Subdivision/Site Name	HUC	Total acres treated	Year Built/Revised	Land Use	Latitude Longitude	Maintenance (County/private)	Copy of Maintenance Agreement
Jellyfish Filter	1	Manufactured Device	15000 Washington Street Haymarket, VA 20169	Haymarket Town Center Redevelopment	PL32	0.15	N/A	Commercial/Civic	38°48'45"N 77°38'12"W	Public	N/A

SWM/BMP	Outfall	SWM/BMP facility Type	Location	Subdivision/Site Name	HUC	Total acres treated	Year Built/Revised	Land Use	Latitude Longitude	Maintenance (County/private)	Copy of Maintenance Agreement
Isolater Row	2	Manufactured Device	15000 Washington Street Haymarket, VA 20169	Haymarket Town Center Redevelopment	PL43	0.45	N/A	Commercial/Civic	38°48'45"N 77°38'10"W	Public	N/A

OUTFALL 1: ADEQUATE OUTFALL NOTES & COMPUTATIONS

RAINFALL DEPTH
I(1YR) = 2.51 IN.
I(2YR) = 3.04 IN.
I(10YR) = 4.67 IN.

PRE-DEVELOPMENT WATERSHED COMPUTATIONS

W-1A:
PRE-DEVELOPMENT DRAINAGE AREA
A = 0.90 AC.
CN = 93
Tc = 15.0 MIN.

PRE-DEVELOPMENT RUNOFF
Q(1YR) = 1.90 CFS
Q(2YR) = 2.40 CFS
Q(10YR) = 3.94 CFS

W-1B:
PRE-DEVELOPMENT DRAINAGE AREA
A = 0.40 AC.
CN = 86
Tc = 15.0 MIN.

PRE-DEVELOPMENT RUNOFF
Q(1YR) = 0.61 CFS
Q(2YR) = 0.82 CFS
Q(10YR) = 1.50 CFS

POST-DEVELOPMENT WATERSHED COMPUTATIONS

W-1A:
POST-DEVELOPMENT DRAINAGE AREA
A = 1.20 AC.
CN = 90
Tc = 15.0 MIN.

POST-DEVELOPMENT RUNOFF
Q(1YR) = 2.22 CFS
Q(2YR) = 2.89 CFS
Q(10YR) = 4.96 CFS

OUTFALL #1 POST-DEVELOPMENT RUNOFF RELEASE RATES

ALLOWABLE POST-DEVELOPMENT RUNOFF
Q(1YR) = (1.90+0.61) = 2.51 CFS
(ENERGY BALANCE) = 2.52 CFS
Q(2YR) = (2.40+0.82) = 3.22 CFS
Q(10YR) = (3.94+1.50) = 5.44 CFS

DESIGN POST-DEVELOPMENT RUNOFF
Q(1YR) = 2.22 CFS
Q(2YR) = 2.89 CFS
Q(10YR) = 4.96 CFS

NOTES:
1. OUTFALL 1 PRE AND POST-DEVELOPMENT FLOWS ARE PER PONDPACK ROUTING, SEE SHEETS C.39-C.42.
2. SEE SHEETS C.31-C.32 FOR TOTAL PRE AND POST-DEVELOPMENT DRAINAGE AREA MAPS AND TIME OF CONCENTRATION CALCULATIONS.
3. DEQ "RUN-ON" METHODOLOGY WAS USED TO DETERMINE ENERGY BALANCE REQUIREMENTS FOR THIS WATERSHED. W-1A REPRESENTS THE PRE-DEVELOPMENT, ON-SITE RUNOFF. W-1B REPRESENTS THE PRE-DEVELOPMENT OFF-SITE RUNOFF. THE RUNOFF VALUES CALCULATED WITH PONDPACK ARE SHOWN ON THIS SHEET AND IN THE ENERGY BALANCE EQUATION BELOW. PER DEQ "RUN-ON" DESIGN, THE PRE-DEVELOPMENT, ON-SITE DRAINAGE AREA IS USED TO CALCULATE THE POST-DEVELOPMENT RUNOFF VOLUME, RESULTING IN THE REQUIRED POST-DEVELOPMENT RUNOFF RATE TO THE OUTFALL. THE RUNOFF TO THE OUTFALL AS A WHOLE WAS ALSO COMPUTED BY PONDPACK AND SHOWN ON THIS SHEET TO MEET ENERGY BALANCE REQUIREMENTS.

1-yr 24 Hour Storm (inches)	2.51
Improvement Factor	0.80

ON-SITE

Rv Pre

	Landcover	CN	Area (ac)
1	IMPERVIOUS	98	0.70
2	GRASS	74	0.20
3			
4			
5			
6			
	Total Area =		0.90
	On-Site RCN =		93
	S =		0.79
	Q =		1.76
	Rv pre =		5,749
	On-Site q1-yr-pre =		1.90

ON-SITE

Rv Dev

	Landcover	CN	Area (ac)
1	IMPERVIOUS	98	0.55
2	GRASS	74	0.25
3			
4			
5			
5			
	Total Area =		0.80
	On-Site RCN =		91
	S =		1.05
	Q =		1.58
	Rv dev =		4,586
	Rv dev reduced =		4,586
	Outfall 1 q1-yr-dev ≤		2.52
	Outfall 1 q1-yr-dev =		2.22

OFF-SITE

Rv Dev

	Landcover	CN	Area (ac)
1	IMPERVIOUS	98	0.20
2	GRASS	74	0.20
3			
4			
5			
5			
	Total Area =		0.40
	Off-Site RCN =		86
	Off-Site q1-yr-dev =		0.61

"RUN-ON" ENERGY BALANCE EQUATION:
Q1(POST) <= [Q1(PRE,onsite) x [RV(PRE,onsite) / RV(POST,onsite)] x IF] + Q1(PRE,offsite)
WHERE IF = 0.80
Q1(POST) <= [1.90 x [5,749 / 4,586] x 0.80] + 0.61
Q1(POST) <= 2.52 CFS
2.22 CFS < 2.52 CFS

OUTFALL 2: ADEQUATE OUTFALL NOTES & COMPUTATIONS

RAINFALL DEPTH
I(1YR) = 2.51 IN.
I(2YR) = 3.04 IN.
I(10YR) = 4.67 IN.

PRE-DEVELOPMENT WATERSHED COMPUTATIONS

W-2A:
PRE-DEVELOPMENT DRAINAGE AREA
A = 0.70 AC.
CN = 90
Tc = 20.0 MIN.

PRE-DEVELOPMENT RUNOFF
Q(1YR) = 1.14 CFS
Q(2YR) = 1.49 CFS
Q(10YR) = 2.56 CFS

W-2B:
PRE-DEVELOPMENT DRAINAGE AREA
A = 1.85 AC.
CN = 80
Tc = 20.0 MIN.

PRE-DEVELOPMENT RUNOFF
Q(1YR) = 1.71 CFS
Q(2YR) = 2.49 CFS
Q(10YR) = 5.13 CFS

POST-DEVELOPMENT WATERSHED COMPUTATIONS

W-2A:
POST-DEVELOPMENT DRAINAGE AREA
A = 1.25 AC.
CN = 84
Tc = 15.0 MIN.

WATERSHED POST-DEVELOPMENT RUNOFF
Q(1YR) = 1.70 CFS
Q(2YR) = 2.35 CFS
Q(10YR) = 4.45 CFS

SWM POST-DEVELOPMENT RELEASED RUNOFF
Q(1YR) = 0.72 CFS
Q(2YR) = 1.15 CFS
Q(10YR) = 3.44 CFS

W-2B:
POST-DEVELOPMENT DRAINAGE AREA
A = 1.40 AC.
CN = 84
Tc = 20.0 MIN.

POST-DEVELOPMENT RUNOFF
Q(1YR) = 1.66 CFS
Q(2YR) = 2.31 CFS
Q(10YR) = 4.39 CFS

OUTFALL #2 POST-DEVELOPMENT RUNOFF RELEASE RATES

ALLOWABLE POST-DEVELOPMENT RUNOFF
Q(1YR) = (1.14+1.71) = 2.85 CFS
(ENERGY BALANCE) = 2.38 CFS
Q(2YR) = (1.49+2.49) = 3.98 CFS
Q(10YR) = (2.56+5.13) = 7.69 CFS

DESIGN POST-DEVELOPMENT RUNOFF
Q(1YR) = 2.81 CFS
Q(2YR) = 3.20 CFS
Q(10YR) = 7.67 CFS

NOTES:
1. OUTFALL 2 PRE AND POST-DEVELOPMENT FLOWS ARE PER PONDPACK ROUTING, SEE SHEETS C.40-C.42. PLEASE NOTE THAT THE SWM POST-DEVELOPMENT RELEASED RUNOFF VALUE CANNOT BE ADDED TO THE W-2B RUNOFF VALUE TO GET THE RUNOFF TO OUTFALL #2 SINCE THE WATERSHED PEAK RELEASE RATES ARE OFFSET. PONDPACK COMPUTED THE PEAK RELEASE RATE SHOWN ABOVE.
2. SEE SHEETS C.31-C.32 FOR TOTAL PRE AND POST-DEVELOPMENT DRAINAGE AREA MAPS.
3. DEQ "RUN-ON" METHODOLOGY WAS USED TO DETERMINE ENERGY BALANCE REQUIREMENTS FOR THIS WATERSHED. W-1A REPRESENTS THE PRE-DEVELOPMENT, ON-SITE RUNOFF. W-1B REPRESENTS THE PRE-DEVELOPMENT OFF-SITE RUNOFF. THE RUNOFF VALUES CALCULATED WITH PONDPACK ARE SHOWN ON THIS SHEET AND IN THE ENERGY BALANCE EQUATION BELOW. PER DEQ "RUN-ON" DESIGN, THE PRE-DEVELOPMENT, ON-SITE DRAINAGE AREA IS USED TO CALCULATE THE POST-DEVELOPMENT RUNOFF VOLUME, RESULTING IN THE REQUIRED POST-DEVELOPMENT RUNOFF RATE TO THE OUTFALL. THE RUNOFF TO THE OUTFALL AS A WHOLE WAS ALSO COMPUTED BY PONDPACK AND SHOWN ON THIS SHEET TO MEET ENERGY BALANCE REQUIREMENTS. FOR WATERSHED 2 IN POST-DEVELOPMENT CONDITIONS, W-2A REPRESENTS THE RUNOFF CONTROLLED BY THE ON-SITE SWM FACILITY AND W-2B REPRESENTS THE UNCONTROLLED RUNOFF TO THE OUTFALL.

1-yr 24 Hour Storm (inches)	2.51
Improvement Factor	0.80

ON-SITE

Rv Pre

	Landcover	CN	Area (ac)
1	IMPERVIOUS	98	0.25
2	GRASS	74	0.10
3	GRAVEL	89	0.35
4			
5			
6			
	Total Area =		0.70
	On-Site RCN =		90
	S =		1.10
	Q =		1.55
	Rv pre =		3,927
	On-Site q1-yr-pre =		1.14

ON-SITE

Rv Dev

	Landcover	CN	Area (ac)
1	IMPERVIOUS	98	0.65
2	GRASS	74	0.15
3			
4			
5			
5			
	Total Area =		0.80
	RCN =		94
	S =		0.70
	Q =		1.83
	Rv dev =		5,324
	Rv dev reduced =		5,324
	Outfall 2 q1-yr-dev ≤		2.38
	Outfall 2 q1-yr-dev =		2.31

OFF-SITE

Rv Dev

	Landcover	CN	Area (ac)
1	IMPERVIOUS	98	0.45
2	GRASS	74	1.40
3			
4			
5			
5			
	Total Area =		1.85
	On-Site RCN =		80
	Off-Site q1-yr-dev =		1.71

"RUN-ON" ENERGY BALANCE EQUATION:
Q1(POST) <= [Q1(PRE,onsite) x [RV(PRE,onsite) / RV(POST,onsite)] x IF] + Q1(PRE,offsite)
WHERE IF = 0.80
Q1(POST) <= [1.14 x [3,927 / 5,324] x 0.80] + 1.71
Q1(POST) <= 2.38 CFS
2.31 CFS = 2.38 CFS

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
1/26/2023
PROFESSIONAL ENGINEER

SWM & BMP NARRATIVE

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.43

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

RINKER DESIGN ASSOCIATES, P.C.
Engineering • Surveying • Transportation • Traffic • Structures & Bridge
Right of Way • CEI • Land Planning • Environmental

TOWN OF HAYMARKET
WAIVER REQUEST

Date: October 21, 2022
Project Name: Haymarket Town Center
Site Location: 15000 Washington Street
Applicant: Town of Haymarket

Requirements to be waived:

1. **Zoning Ordinance Section 58-6.1:** There must be 1 space per 300 sf for an office building and 1 space per 250 sf for a retail building.

This plan is for improvements to the existing Haymarket Town Hall property. The purpose of the project is to improve the aesthetic appeal of the property by adding parking, curb & gutter, sidewalks and landscaping throughout the site as well as to address drainage issues.

We are hereby requesting that the Town consider a reduction to the number of parking spaces required in accordance with the Zoning Ordinance Section 58-6.1 which states "There must be 1 space per 300 sf for an office building and 1 space per 250 sf for a retail building." When performing those calculations, the required parking for this project is 74 spaces.

In coordination with the Town of Haymarket, we have been advised to increase the amount of open space as long as the number of proposed parking spaces is greater than the number of existing parking spaces. We are proposing 60 spaces whereas the number of existing parking spaces is 53. The Town has requested more green open space in lieu of additional parking spaces. Additionally, existing building locations that impact available parking areas, VDOT's requirements for throat lengths for commercial entrances, and the Town's desire for a "Town Green" open space on the site limit the ability to add any additional spaces. Because we are providing 7 additional spaces over what is currently being provided, we believe that we have met the required number of parking spaces requested by the Town of Haymarket.

APPROVAL:

I hereby approve this waiver request.

(Signature) (Date)

(Print Name) *(Title)*

RINKER DESIGN ASSOCIATES, P.C.
Engineering • Surveying • Transportation • Traffic • Structures & Bridge
Right of Way • CEI • Land Planning • Environmental

TOWN OF HAYMARKET
WAIVER REQUEST

Date: March 22, 2022
Project Name: Haymarket Town Center
Site Location: 15000 Washington Street
Applicant: Town of Haymarket

Requirements to be waived:

1. **Zoning Ordinance Section 58-17.11:** B-1 zoning adjacent to R-1 requires a 30 foot buffer with semitransparent screening.
2. **Zoning Ordinance Section 58-17.11:** B-1 zoning adjacent to B-1 requires a 10 foot buffer with opaque screening.
3. **Zoning Ordinance Section 58-17.13(c)(1):** For parking adjacent to a public street a continuous strip at least 10 feet in width not inclusive of sidewalk shall be located between the property owner's parking lot and the property line.
4. **VDOT Road Design Manual Buffer Strip:** A Design Waiver shall be submitted for buffer strips less than 3 feet for Posted Speeds 25 mph or less.

This plan is for improvements to the existing Haymarket Town Hall property. The purpose of the project is to improve the aesthetic appeal of the property by adding parking, curb & gutter, sidewalks and landscaping throughout the site as well as to address drainage issues.

We are hereby requesting that the Town will consider an alternative landscape screening and buffer yard design in accordance with Zoning Ordinance Section 58-17.8(c) which states, "Alternative planting programs achieving the objectives of the required screens shall be permitted to allow flexibility in landscape design. The Planning Commission and the Architectural Review Board may approve any of the alternative screens or a combination of the alternatives if the applicant proves that the objective of the screen or screenings has been met. The Planning Commission or Architectural Review Board may reduce or eliminate the requirements for a screen if a landscape plan proposes the use of hedges, shrubs, walls, berms or combination that achieve the same objective of the required screen". We are unable to meet requirements 1 and 2 listed above while still satisfying the parking requirements for the proposed building uses on site. We are able to provide a 5 foot landscape strip with trees and shrubs along the entire length of the parking lot adjacent to the neighboring R-1 and B-1 zoned properties to the north of the site. In addition, there is an existing 6 foot board fence separating our site from the residential properties. Since the plan will improve the screening between the site and neighboring properties by adding trees, shrubs and a 5 foot landscape strip that does not currently exist, a waiver should be justified.

We are also unable to meet requirement 3 listed above along Jefferson Street. Using the minimums for sidewalk, parking stalls and travelways, the landscape strip provided is approximately 6.3 feet along the frontage except where the VDOT shared use plan connects to the property.

VDOT requires a minimum of a 3 foot wide buffer strip between the back of curb and the sidewalk to place all lateral obstructions and to ensure that the pedestrian access route is free of obstacles. Along Jefferson Street, the sidewalk will be constructed immediately behind the curb in a similar manner to Washington Street. An 8' wide sidewalk will be provided as a continuation of the shared use path from VDOT plan #055-233-045 UPC 97735. There are no lateral obstructions in this vicinity and any that may be required in the future will be placed behind the sidewalk. A buffer strip is not provided due to the limited space on site

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and the Town's desire to provide a wide pedestrian access path across the Town Hall property on both Washington and Jefferson Streets.

APPROVAL:

I hereby approve this waiver request.

(Signature) (Date)

(Print Name) (Title)

VDOT Virginia Department of Transportation

February 2015

ACCESS MANAGEMENT EXCEPTION REQUEST: AM-E
ACCESS MANAGEMENT REGULATIONS 24 VAC 30-73
SECTION 120

Submitted by: Scott Woodard		**Date:** 1/26/2023
Email Address: swoodard@rdacivil.com		**Phone:** 571-719-6461
Address: 11100 Endeavor Court, Suite 200, Manassas, VA 20109		
Project Name: Haymarket Town Center Redevelopment	**Rte #** 76-625	**Locality:** Town of Haymarket
Description of Project: See included narrative.		
VDOT District: NOVA (Prince William Land Use)	**Area Land Use Engineer:** Hiren Joshi	

NOTES:
(1). Submit this form and any attachments to one of the District's Area Land Use Engineers.
(2). See Section 120 of the Regulations for details on the requirements, exceptions, and exception request review process.
(3). Attach additional information as necessary to justify the exception request(s).
(4). If a traffic engineering study is required, the decision on the request will be based on VDOT engineering judgment.
(5). Use the LD-440 Design Exception or the LD-448 Design Waiver forms for *design and engineering standards*, e.g. radius, grade, sight distance. See IIM-LD-227 on VDOT web site for additional instructions.

Select the Exception(s) Being Requested

☐ **Exception to the shared commercial entrance requirement.** (Access M. Regulations Section 120 C.2)
Reason for exception:
☐ **A. An agreement to share the entrance could not be reached with adjoining property owner.**
☐ **Attached:** Written evidence that adjoining property owner will not share the entrance.
☐ **B. Physical constraints: topography, adjacent hazardous land use, stream, wetland, other.**
☐ **Specify constraint:** _____
☐ **Attached:** Documentation of constraint such as aerial photo or topographic map.

☐ **Exception to the vehicular connection to adjoining undeveloped property requirement.** (Section 120 C.4)
Reason for exception:
☐ **A. Physical constraints: topography, adjacent hazardous land use, stream, wetland, other.**
☐ **Specify constraint:** _____
☐ **Attached:** Documentation of constraint such as aerial photo or topographic map.
☐ **B. Other reason:** _____

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☐ **Exception to the commercial entrance shall not be located within the functional area of an intersection requirement.** (See Regulation Section 120 C. 1; Appendix F, Rd Design Manual)
☐ **Attached:** A traffic engineering study documenting that the operation of the intersection and public safety will not be adversely impacted.

☑ **EXCEPTION TO THE SPACING STANDARDS FOR:**
- **Commercial entrances; intersections/median crossovers (Table 2-2);**
- **Commercial entrances/intersections near interchange ramps (Tables 2-3, 2-4);** or
- **Corner clearance (Figure 4-4).** Appendix F, Road Design Manual

Information on the Exception Request

☑ **ON A STATE HIGHWAY**
Functional classification: Principal Arterial: ☐ Minor Arterial: ☐ Collector: ☑ Local: ☐
Posted speed limit: _____ mph
☐ **NEAR AN INTERCHANGE RAMP** (Submittal of a traffic engineering study required)
☐ **CORNER CLEARANCE** (Submittal of a traffic engineering study required)
Type of intersection/entrance: Signalized ☐ Unsignalized ☐ Full Access ☑ Partial Access ☐
Required spacing distance 225 **ft**
Proposed spacing distance 105 **ft**
Requested exception: Reduction in required spacing 120 **ft**

REASON FOR EXCEPTION:

☑ **A. To be located on an older, established business corridor along a highway where existing spacing did not meet the standards prior to 7/1/08 or 10/14/09.** (Regulation Section 120 C.3.c)
☑ **Attached:** Dated aerial photo of corridor identifying proposed entrance/intersection location.

☐ **B. Not enough property frontage to meet spacing standard, but the applicant does not want a partial access right-in/right-out entrance.** (Section 120 C.3.f)
☐ **Attached:** A traffic engineering study documenting that left turn movements at the entrance will not have a negative impact on highway operation or safety.

☐ **C. To be located within a new urbanism mixed use type development.** (Section 120 C.3.d)
☐ **Attached:** The design of the development and compliance with intersection sight distance.

☐ **D. The proposed entrance meets the signal warrants but does not meet the signalized intersection spacing standard. The applicant requests an exception to the spacing standard.**
☐ **Attached:** A traffic engineering study that (i) evaluates the location's suitability for a roundabout and (ii) provides documentation that the proposed signal will not impact safety and traffic flow. (Section 120 C.5)

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☐ **E. The development's 2nd (or additional) entrance does not meet the spacing standards but is necessary for the streets to be accepted into the secondary system.** (Section 120 C.3.e)
☐ **Attached:** Information on the development that identifies the location of entrances.

☐ **F. To be located within the limits of a VDOT and locality approved access management corridor plan.**
☐ **Attached:** Aerial photo of corridor identifying proposed entrance/intersection location. (Sect 120 C.3.b)

FOR VDOT USE ONLY

Recommendation on Exception Request: Approve ☐ Deny ☐	**Date:**
Area Land Use Engineer or: _____ **Name**	
Remarks:	

Exception Request Action: Approved ☐ Denied ☐	**Date:**
District Administrator or Designee: _____ **Name (and position if Designee)** _____	
Remarks:	

District Staff: Please email copy to Bradley.Shelton@VDOT.Virginia.gov

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA SCOTT WOODARD Lic. No. 065821 1/26/2023 PROFESSIONAL ENGINEER

WAIVERS

HAYMARKET TOWN CENTER REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096–002
SHEET NUMBER: C.44

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

PRINCE WILLIAM COUNTY
Department of Development Services - Land Development Division

UNIT PRICE LIST

(Performance Bonds, Landscape Escrows, Siltation & Erosion Control Escrows, and Floodplain Item Escrows)

Effective: March 1, 2022

Project Name: Haymarket Town Center Redevelopment

PWC File #: SP20220324 **Date Prepared:** 1/26/2023

NOTE: This form is to be used to estimate Performance Bond, Landscape Escrow, Siltation Erosion Escrow and Floodplain Items Escrow prices posted with Prince William County. These prices do not include items that are to be bonded separately with the Virginia Department of Transportation.

1. MOBILIZATION/DEMOBILIZATION OF CONSTRUCTION EQUIPMENT

Quantity	Item	Price	Cost
1	Mobilization/Demobilization	@ Lump Sum $15,000 min.	$ 15,000.00

2. STORM DRAINAGE

A. Structures

Quantity	Item	Price	Cost
	DI-1	@ $6,900 EA	$ -
5	DI-3	@ $6,900 EA	$ 34,500.00
	DI-4	@ $6,900 EA	$ -
1	MH-1	@ $4,900 EA	$ 4,900.00
	MH-2	@ $4,500 EA	$ -
	JB-1	@ $7,175 EA	$ -
2	DI-7	@ $6,800 EA	$ 13,600.00
	DI-12	@ $6,800 EA	$ -
		Subtotal for Structures:	**$ 53,000.00**

B. Concrete Pipe

Quantity	Item	Price	Cost
	12"0	@ $82 LF	$ -
230	15"0	@ $82 LF	$ 18,860.00
	18"0	@ $82 LF	$ -
	21"0	@ $82 LF	$ -
	24"0	@ $103 LF	$ -
	27"0	@ $103 LF	$ -
	30"0	@ $103 LF	$ -
	33"0	@ $207 LF	$ -
	36"0	@ $207 LF	$ -
	42"0	@ $207 LF	$ -
	48"0	@ $207 LF	$ -
	54"0	@ $365 LF	$ -
	60"0	@ $365 LF	$ -
	66"0	@ $365 LF	$ -
	72"0	@ $453 LF	$ -
		Subtotal for Concrete Pipe:	**$ 18,860.00**
		Subtotal for this page:	**$ 86,860.00**

C. End Walls

Quantity	Item	Price	Cost
	12"0	@ $1,950 EA	$ -
	15"0	@ $1,950 EA	$ -
	18"0	@ $1,950 EA	$ -
	21"0	@ $1,950 EA	$ -
	24"0	@ $1,950 EA	$ -
	27"0	@ $1,950 EA	$ -
	30"0	@ $2,100 EA	$ -
	33"0	@ $2,300 EA	$ -
	36"0	@ $2,800 EA	$ -
	42"0	@ $7,236 EA	$ -
	48"0	@ $7,236 EA	$ -
	54"0	@ $7,236 EA	$ -
	60"0	@ $7,236 EA	$ -
	66"0	@ $7,236 EA	$ -
	72"0	@ $9,854 EA	$ -
		Subtotal for End Walls:	**$ -**

D. End Sections (ES-1)

Quantity	Item	Price	Cost
	12"0	@ $1,048 EA	$ -
	15"0	@ $1,048 EA	$ -
	18"0	@ $1,048 EA	$ -
	21"0	@ $1,048 EA	$ -
	24"0	@ $1,048 EA	$ -
	27"0	@ $1,200 EA	$ -
	30"0	@ $1,300 EA	$ -
	33"0	@ $1,500 EA	$ -
	36"0	@ $1,900 EA	$ -
	42"0 - 60"	@ $3,050 EA	$ -
		Subtotal for End Section ES-1:	**$ -**

E. Corrugated Metal Pipe

Quantity	Item	Price	Cost
	12"0	@ $40 LF	$ -
	15"0	@ $60 LF	$ -
	18"0	@ $60 LF	$ -
	24"0	@ $80 LF	$ -
	30"0	@ $80 LF	$ -
	36"0	@ $140 LF	$ -
	42"0	@ $140 LF	$ -
	48"0	@ $140 LF	$ -
	54"0	@ $250 LF	$ -
	60"0	@ $250 LF	$ -
		Subtotal for CM Pipe:	**$ -**
		Subtotal for this page:	**$ -**

F. End Section (ES-2)

Quantity	Item	Price	Cost
	15"0	@ $870 EA	$ -
	18"0	@ $870 EA	$ -
	24"0	@ $870 EA	$ -
	30"0	@ $870 EA	$ -
	36"0	@ $1,100 EA	$ -
	42"0	@ $1,400 EA	$ -
	48"0	@ $1,800 EA	$ -
		Subtotal for End Sections (ES-2):	**$ -**

G. AD N-12 (HDPE)

Quantity	Item	Price	Cost
	12"0	@ $45 LF	$ -
	15"0	@ $106 LF	$ -
	18"0	@ $106 LF	$ -
	24"0	@ $106 LF	$ -
	30"0	@ $106 LF	$ -
	36"0	@ $170 LF	$ -
	42"0	@ $170 LF	$ -
	48"0	@ $170 LF	$ -
	60"0	@ $250 LF	$ -
		Subtotal for AD N-12 (HDPE):	**$ -**
		Subtotal for this page:	**$ -**

H. Stormwater Management/BMP Facilities Cost Estimates Per Impervious Acre Treated (See Note 3)

Quantity	Item	Price	Cost
Non-Proprietary BMP(Engineer Estimate for all SWM)			
	Dry Retention Pond	By itemized cost	
	Dry Extended Detention Pond	By itemized cost	
	Wet Pond/Wetlands	By itemized cost	
	Bioswale	By itemized cost	
	Vegetated Grass Channel	By itemized cost	
	Micro-Bio-Retention (Raingarden)	By itemized cost	
	Infiltration Practices without Sand	By itemized cost	
	Infiltration Practices with Sand	By itemized cost	
	Filtering Practices with Sand Below Ground	By itemized cost	
	Filtering Practices with Sand Above Ground	By itemized cost	
	Permeable Pavement Level 2 Design	By itemized cost	
	Vegetated Roof Level 1 Design	By itemized cost	
	Vegetated Roof Level 2 Design	By itemized cost	
	Soil Compost Amendment	By itemized cost	
	Rooftop Impervious Surface Disconnection	By itemized cost	
	Sheet Flow to a Vegetated Filter Strip	By itemized cost	
Proprietary/Manufactured BMP-manufacturer's Certified Cost Plus Construction Cost			
	Aqua-Swirl® Stormwater Treatment System	By itemized cost	
	BaySeparator™	By itemized cost	
	Continuous Defective Separator® (CDS)	By itemized cost	
	Downstream Defender®	By itemized cost	
	Hydroguard	By itemized cost	
	Stormceptor® MAX	By itemized cost	
	Stormceptor® OSR	By itemized cost	
	Stormceptor® STC	By itemized cost	
	StormPro	By itemized cost	
	Storm Water Quality Unit	By itemized cost	
	V2BI	By itemized cost	
	The Vortechs® System	By itemized cost	
	Aqua-Filter Stormwater™ Filtration System	By itemized cost	
1	Storm Tech® Isolater Row™	By itemized cost	$ 100,000.00
	Up-Flo Filter® with CPZ Media	By itemized cost	
	The Stormwater Management StormFilter® with ZPG Media	By itemized cost	
	BaySaver™ Stormwater Cartridge System	By itemized cost	
	Filterra Bioretention Systems	By itemized cost	
1	Jellyfish® Filter	By itemized cost	$ 50,000.00
	Modular Wetland System Linear (MWS-Linear)	By itemized cost	
	Perk Filter	By itemized cost	
	The Stormwater Management StormFilter® with Phosphosorb Media	By itemized cost	
	Subtotal for Stormwater Management/BMP Facilities Cost Estimates Per Impervious Acre Treated:		**$ 150,000.00**
		Subtotal for this page:	**$ 150,000.00**

I. Miscellaneous Stormwater Management

Quantity	Item	Price	Cost
	Seed, Fertilizer & Mulch ($200 Min.)	@ $3.00 SY	$ -
	Sod	@ $8.00 SY	$ -
	Hydraulic Cem .Conc. - 4" depth	@ $8.00 SF	$ -
	Bituminous Concreate - 1" depth	@ $6.00 SY	$ -
	Rip-Rap	@ $7.75 SF	$ -
	Grouted Rip-Rap	@ $9.00 SF	$ -
	Erosion Control Stone (EC-1)	@ $130 TON	$ -
	#57 - Coarse Aggregate	@ $30 TON	$ -
	4' High Chain Link Fence (#9 gauge or better, including braces, end posts and gate)	@ $45 LF	$ -
	6' High Chain Link Fence (#9 gauge or better, including braces, end posts and gate)	@ $45 LF	$ -
	SWM Sign (WATER RISES RAPIDLY) (Minimum 3 signs per facility)	@ $390 EA	$ -
	Access Road	By Itemized Cost	
	Subtotal for Miscellaneous Stormwater Management		**$ -**

J. Miscellaneous Drainage Items

Quantity	Item	Price	Cost
	Box Culvert	@ $ $840 CY of conc.	$ -
	Energy Dissipater	@ $2,250 EA	$ -
	Wing Walls	@ $990 CY of conc.	$ -
Ditches:			
	Roadside Standard Ditches (Seed, Fertilize & Mulch)	@ $8.00 LF	$ -
	Sod Ditches	@ $10.50 LF	$ -
	Paved Ditches	@ $8.50 SF	$ -
	Filter Cloth Fabric & Gabion Stone	@ $22 SF	$ -
	Rip-Rap	@ $7.75 SF	$ -
	Grouted Rip-Rap	@ $9.00 SF	$ -
	Paved Flume	@ $10 SF	$ -
8	Flush the Drainage System	$290/Hr. (Min 8 Hrs.)	$ 2,000.00
	Subtotal for Miscellaneous Drainage Items:		**$ 2,000.00**
		Subtotal for this page:	**$ 2,000.00**

3. CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY AND/OR PRIVATE INGRESS/EGRESS EASEMENTS

A. Site Work

Quantity	Item	Price	Cost
	Clear & Grub	@ $12,800	$ -
	Excavation	@ $35 CY	$ -
	Embankment** (cut and fill)	@ $25 CY	$ -
	Embankment (haul off)	@ $36 CY	$ -
	Final Grading	@ $5,000 AC	$ -
	Rock Excavation	@ $75 CY	$ -
	Slope Stabilization - Hydroseeding ($3.1 or flatter) $1,000 Min.	@ $1.25 SY	$ -
	Slope Stab. - Jute Mesh, matting Blankets, etc. (Between 2:1 to 3:1) $200 Min	@ $6.00 SY	$ -
	Slope Stab. - Sod (Between 2:1 to 3:1) $200 Min	@ $8.00 SY	$ -
	Steep Slopes (Grading and Stabilization with Jute Mesh, Netting, Blankets, etc.)	@ $20 SY	$ -
		Subtotal for Site Work:	**$ -**

B. Subgrade, Subbase, and Base Course Items

Quantity	Item	Price	Cost
	Subgrade preparation (Subbase and base course)	@ $3.50 SY	$ -
	Aggregate (21A/21B)	@ $3 SY per Inch Depth	$ -
	Bituminous Concrete	@ $6.25 SY per Inch Depth	$ -
	Reinforced Concrete Pavement	@ $18 SY per Inch Depth	$ -
	Gravel Shoulders (4" Depth)	@ $12 SY (4" Depth)	$ -
	Soil Cement Stabilization (4%)	@ $24 SY (6" Depth)	$ -
	Lime Stabilization (10%)	@ $16 SY (6" Depth)	$ -
	Cement Treated Aggregate	@ $11 per Inch Depth	$ -
Underdrains:			
	UD-1	@ $21 LF	$ -
	UD-2	@ $21 LF	$ -
	UD-3	@ $21 LF	$ -
	UD-4	@ $21 LF	$ -
	Subtotal for Subgrade, Subbase, Base Course Items & Underdrains (Public):		**$ -**
		Subtotal for this page:	**$ -**

C. Entrances and Pipe Stems

Quality	Item	Price	Cost
	DE-1	@ $1,800 EA	$ -
	DE-2	@ $1,950 EA	$ -
	DE-3	@ $2,000 EA	$ -
	DE-4	@ $2,300 EA	$ -
	PP-1 (1 Lot)	@ $2,000 EA	$ -
	PP-1 (2-5 Lots)	@ $2,300 EA	$ -
	PP-2 (1 Lot)	@ $1,725 EA	$ -
	PP-2 (2-5 Lots)	@ $1,725 EA	$ -
	CG-9D or equal: 30' Width	@ $5,750 EA	$ -
	CG-9D or equal: 40' Width	@ $7,475 EA	$ -
	CG-10A or equal: 30' Width	@ $4,738 EA	$ -
	CG-10A or equal: 40' Width	@ $6,095 EA	$ -
	CG-11: Concrete Entrance	@ $3,450 EA	$ -
	Valley Gutter	@ $61 SY	$ -
	Pipestem Driveway - 10' (1 Lot)	@ $61 LF	$ -
	Pipestem Driveway - 18' (2-5 Lots)	@ $81 LF	$ -
		Subtotal for Entrance and Pipe Stems:	**$ -**
		Subtotal for this page:	**$ -**

D. Miscellaneous Construction Items

Quantity	Item	Price	Cost
	Sidewalk (5' Width)	@ $40 LF	$ -
	Header Curb (CG-2/CG-3)	@ $25 LF	$ -
	Curb & Gutter	@ $28 LF	$ -
7	CG-12 (Truncated Dome)	@ $2,000 EA	$ 14,000.00
2930	Bicycle Trail/Walkway	@ $11.00 SF	$ 32,230.00
	Raised Concrete Median (MS-1A)	@ $81 SY	$ -
	Trail (Wood Chip)	@ $19 SY	$ -
	Trail (Stone Dust)	@ $19 SY	$ -
Retaining Walls			
	Timber	@ $34 SF	$ -
	Crib	@ $44 SF	$ -
	MSE/Geogrid	@ $50 SF	$ -
	Gravity Wall	@ $72 SY	$ -
	Excavation for tiebacks in walls in cut areas	@ $29 CY	$ -
	Anti-Graffiti Paint (Concrete Retaining Walls only-treatment/sealant)	@ $18 SF (Min. $2,500)	$ -
	Guardrail	@ $45 LF	$ -
	GR-7 NCHRP 350	@ $3,640 EA	$ -
	GR-9	@ $3,640 EA	$ -
	Address Sign (Entrance to Pipestems)	@ $460 EA	$ -
	Street Name Sign	@ $525	$ -
	Traffic Control Sign	@ $450	$ -
	Bus Stop Sign	@ $415	$ -
	Bus Shelter	@ $24,000	$ -
	Traffic Signal	@ (Lump Sum)	
5	HC Parking Space Sign	@ $720 EA	$ 3,600.00
	Bike Rack	@ $350 EA	$ -
	Roadside Delineators (ED-1)	@ $75 EA	$ -
	Hand Rail (HR-1)	@ $120 LF	$ -
	Pavement Marking (Paint)	@ $2.50 SF	$ -
	Pavement Marking (Thermoplastic)	@ $7.00 SF	$ -
	Traffic Barricade (TB-1)	@ $1,725 EA	$ -
8	Street Lighting	@ $5,500 EA	$ 44,000.00
	Utilities Relocation	(Min. $40,000) (Lump Sum or provide estimate from utility co.)	$ -
	VDOT Street Acceptance Package	@ $7,000	$ -
1	P.E. Certified "As-Built" Plans	Lump Sum (Min. $12,000)	$ 12,000.00
		Subtotal for Miscellaneous Construction Items:	**$ 105,830.00**
		Subtotal for this page:	**$ 105,830.00**

4. SANITARY SEWER & WATER LINE CONSTRUCTION

Quantity	Item	Price	Cost
1	Fire Hydrant Assembly	@ $9,200 EA	$ 9,200.00
	Central Sewer Lift/Pump Station Construction	@ (Lump Sum)	

Water Main (Exclusive of Fire Hydrants)

Quantity	Item	Price	Cost
	4"0 DIP	@ $60 LF	$ -
	6"0 DIP	@ $75 LF	$ -
250	8"0 DIP	@ $90 LF	$ 22,500.00
73	12"0 DIP	@ $125 LF	$ 9,125.00
	16"0 DIP	@ $165 LF	$ -
	18"0 DIP	@ $185 LF	$ -
4	4"0 or 6"0 RW Valve (with accessories)	@ $1,200 EA	$ 4,800.00
1	8"0 or 12"0 RW Valve (with accessories)	@ $3,000 EA	$ 3,000.00
	16"0 or 24"0 RW Valve (with accessories)	@ $7,000 EA	$ -
2	Standard Meter Crock & Appurtenances (Angle valve, backflow preventer, yoke, frame & cover, and service line)	@ $2,500 EA	$ 5,000.00
	Meter Vault & Appurtenances (3 meters & larger)	@ $40,000 EA	$ -
	Water Main Blow-off Assembly	@ $3,000 EA	$ -
	Air Release Assembly	@ $6,800 EA	$ -
	Dead End Anchor System	@ $10,000 EA	$ -
		Subtotal for Water Main:	**$ 44,425.00**
		Subtotal for this page:	**$ 53,625.00**

Sanitary Sewer Pipe Line (Exclusive of Manhole Structures)

Quantity	Item	Price	Cost
	1.5"0 thru 4"0 LPFM (Low Pressure Force Main System)	@ $35 LF	$ -
128	8"0 PVC	@ $81 LF	$ 10,368.00
	8"0 DIP	@ $95 LF	$ -
	10"0 PVC	@ $100 LF	$ -
	10"0 DIP	@ $110 LF	$ -
	12"0 PVC	@ $170 LF	$ -
	12"0 DIP	@ $185 LF	$ -
	15"0 PVC	@ $225 LF	$ -
2	4' Dia. Sanitary Sewer Manhole	@ $11,000 EA	$ 22,000.00
	5' Dia. Sanitary Sewer Manhole	@ $11,000 EA	$ -
2	Street Manhole Frame & Cover Assembly (Including rain bowl & chimney seal)	@ $1,200 EA	$ 2,400.00
	Easement Manhole Frame & Cover Assembly (Including chimney seal)	@ $1,200 EA	$ -
	Abandonment of Manhole	@ $290 VF	$ -
	4"0 PVC Lateral (including clean-out stack)	@ $50 LF	$ -
	4"0 DIP Lateral (including clean-out stack)	@ $60 LF	$ -
257	6"0 PVC Lateral (including clean-out stack)	@ $70 LF	$ 17,990.00
	6"0 DIP Later (including clean-out stack)	@ $75 LF	$ -
	LPFM Flushing Station	@ $2,900 EA	$ -
	Sewerage Air Release/Vacuum Breaker Assembly	@ $4,050 EA	$ -
	Steel Casing	@ $600 LF	$ -
	Grease Trap (500 gal. minimum)	@ $5,200 EA	$ -
		@	$ -
		@	$ -
		@	$ -
		Subtotal for Sanitary Sewer Pipe:	**$ 52,758.00**

Note: For sizes larger than 15"0, add $4.60 per inch increase in diameter.

Subtotal for this page:	**$ 52,758.00**
TOTAL CONSTRUCTION COST: (Pages 1 through 10)	**$ 451,073.00**

5. MISCELLANEAOUS COSTS

A. Administrative Cost - 10% of the total construction cost, not to exceed $50,000	$ 45,107.30
B. Inflation Cost - Compounded annually at 3.0% per year of the total Construction Cost	$ 13,532.19
TOTAL PERFORMANCE BOND AMOUNT:	**$ 509,712.49**

6. FLOODPLAIN ITEMS ESCROW

Quantity	Item	Price	Cost
	LOMR	$18,000	$ -
	Elevation Certificate	$1,000	$ -
	LOMC (SF Detached)	$1,800	$ -
	Stream Restoration (By Itemized Cost)		
	TOTAL FLOODPLAIN ITEMS ESCROW:		**$ -**

7. LANDSCAPING ESCROW

A. Deciduous Trees

Quantity	Item	Price	Cost
	5'-6'	@ $300 EA	$ -
	1" - 1.5" or 1.5"- 2"	@ $450 EA	$ -
	2" - 2.5" or 2.5 - 3"	@ $600 EA	$ -
33	3" - 3.5" or 3.5" - 4"	@ $959 EA	$ 31,647.00
	Subtotal for Deciduous Trees:		**$ 31,647.00**

B. Evergreen Trees

Quantity	Item	Price	Cost
	5' - 6'	@ $250 EA	$ -
9	6' - 7'	@ $270 EA	$ 2,430.00
	7' - 8'	@ $450 EA	$ -
	8' - 10'	@ $830 EA	$ -
	Subtotal for Evergreen Trees:		**$ 2,430.00**

C. Shrubs

Quantity	Item	Price	Cost
117	18" - 24"	@ $60 EA	$ 7,020.00
	24" - 30"	@ $80 EA	$ -
	Subtotal for Shrubs:		**$ 7,020.00**

D. Ornamental

Quantity	Item	Price	Cost
	1 Gal. (#1)	@ $35	$ -
	2 Gal. (#2)	@ $45	$ -
	3 Gal. (#3)	@ $50	$ -
	Subtotal for Ornamentals:		**$ -**

E. Perennial

Quantity	Item	Price	Cost
	18" - 24"	@ $15.00	$ -
	Subtotal for Perennial:		**$ -**

F. Reforestation

Quantity	Item	Price	Cost
	# of Acres	@ $11,700 AC	$ -
	Subtotal for Reforestation		**$ -**
	TOTAL LANDSCAPE ESCROW AMOUNT:		**$ 41,097.00**

8. SILTATION AND EROSION CONTROL ESCROWS

Quantity	Item	Price	Cost
	Diversion Dike	@ $7.00 LF	$ -
8	Cleaning out SWM Facilities, Silt Traps and Silt Basins	$600/Hr. Lump Sum (Min. $20,000 or actual estimate provided by engineer to the satisfaction of the plan reviewr)	$ 20,000.00
220	Silt Fence: 0' - 1000' (installation, maintenance for 1 year & removal)	@ $8.00 LF	$ 1,760.00
	Silt Fence: 1001' - 1000' (installation, maintenance for 1 year & removal)	@ $6.00 LF	$ -
	Silt Fence: 10,000' + (installation, maintenance for 1 year & removal)	@ $4.00 LF	$ -
200	Super Silt Fence: 0' - 1000' (installation, maintenance for 1 year & removal)	@ $20 LF	$ 4,000.00
	Super Silt Fence: 1001' - 10000 (installation, maintenance for 1 year & removal)	@ $12 LF	$ -
	Super Silt Fence: 10,000' + (installation, maintenance for 1 year & removal)	@ $11.00 LF	$ -
	Sod	@ $8.00 SY	$ -
1694	Seed, Fertilizer & Mulch	@ $3.00 SY ($200 Min)	$ 5,082.00
	Steep Slopes (Grading and Stabilization with jute mesh, netting, blankets, etc.)	@ $18 SY	$ -
	Coarse Aggregates (#1 or #57)	@ $35 TON	$ -
13	Inlet Protection	@ $190 EA	$ 2,470.00
	Check Dam	@ $250 EA	$ -
1	Temp. Construction Entrance	@ $2,300 EA	$ 2,300.00
1	Wash Rack	@ $2,000 EA	$ 2,000.00
	Temp. Sediment Trap 0-1 AC	@ $1,000	$ -
	1-2 AC	@ $1,500	$ -
	2-3 AC	@ $2,000	$ -
	Temporary Sediment Basin	By itemized cost	
	Channel Diversion (720 LF @ $8/SF)	By itemized cost	
	6' Chain-link Safety Fence	@ $50 LF	$ -
	4' Plastic Orange Safety Fence	@ $4.00 LF	$ -
	Yard utility refurbishment	@ $875 EA Single Family Lot	$ -
	Stockpile Removal (Quantity based on policy)	@ $30 CY	$ -
1.6	Removal of Erosion Control Measures	@ 500	$ 800.00
	Level Spreader	By itemized cost	
	Total Cost:		**$ 38,412.00**
	Administrative Cost (10% of Total Cost):		**$ 3,841.20**
	TOTAL SILTATION & EROSION CONTROL ESCROW AMOUNT:		**$ 42,253.20**

Minimum acceptable amount for Siltation and Erosion Control is $2,500.00

I hereby certify that the above is my best estimate of the quantities and current cost of bondable improvements, landscaping items, Siltation & Erosion Control Escrow and floodplain items in this subdivision or site plan.

Scott Woodard — 703-368-7373

Preparer's Signature — **Telephone #**

Scott Woodard, P.E. — Rinker Design Associates, P.C.

Name (Print) — **Company or Firm**

NOTES:

1. For items identified with ** the quantity for the embankment material is the net difference of total fill material needed and cut material available at the project site, if excavated or cut material is suitable for embankment.
2. The excavation and embankment costs include necessary grading, spreading and/or compaction of soil in accordance with County and State Standards and Specifications
3. The unit cost for each of the items in the Unit Price Lists is the installation cost which includes factors such as materials, excavation, bedding backfilling, compaction, form work, etc.
4. Inflation has been calculated based on Northern Virginia Consumer Price Index of the Washington D.C. area provided by the Bureau of Labor and Statistics.
5. Whoever certifies the site development plans must also certify the total cost of the bonded items, landscaping escrow and siltation and erosion control escrow and must sign "Preparer's Signature" on page 10 of this form.
6. Floodplain Items Escrow not to be part of Bond/Escrow reduction.

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA — SCOTT WOODARD — Lic. No. 063821 — 1/26/2023 — PROFESSIONAL ENGINEER

TOWN OF HAYMARKET
UNIT PRICE LIST

HAYMARKET TOWN CENTER
REDEVELOPMENT
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.45

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

PRINCE WILLIAM COUNTY
Department of Development Services - Land Development Division

UNIT PRICE LIST

(Performance Bonds, Landscape Escrows, Siltation & Erosion Control Escrows, and Floodplain Item Escrows)

Effective: March 1, 2022

Project Name: Haymarket Town Center Redevelopment

PWC File #: SP20220324 **Date Prepared:** 1/26/2023

NOTE: This form is to be used to estimate Performance Bond, Landscape Escrow, Siltation Erosion Escrow and Floodplain Items Escrow prices posted with Prince William County. These prices do not include items that are to be bonded separately with the Virginia Department of Transportation.

1. MOBILIZATION/DEMOBILIZATION OF CONSTRUCTION EQUIPMENT

Quantity	Item	Price	Cost
1	Mobilization/Demobilization	@ Lump Sum $15,000 min.	$ 15,000.00

2. STORM DRAINAGE

A. Structures

Quantity	Item	Price	Cost
	DI-1	@ $6,900 EA	$ -
2	DI-3	@ $6,900 EA	$ 13,800.00
	DI-4	@ $6,900 EA	$ -
	MH-1	@ $4,900 EA	$ -
	MH-2	@ $4,500 EA	$ -
	JB-1	@ $7,175 EA	$ -
	DI-7	@ $6,800 EA	$ -
	DI-12	@ $6,800 EA	$ -
		Subtotal for Structures:	**$ 13,800.00**

B. Concrete Pipe

Quantity	Item	Price	Cost
	12"0	@ $82 LF	$ -
	15"0	@ $82 LF	$ -
	18"0	@ $82 LF	$ -
	21"0	@ $82 LF	$ -
	24"0	@ $103 LF	$ -
	27"0	@ $103 LF	$ -
	30"0	@ $103 LF	$ -
	33"0	@ $207 LF	$ -
	36"0	@ $207 LF	$ -
	42"0	@ $207 LF	$ -
	48"0	@ $207 LF	$ -
	54"0	@ $365 LF	$ -
	60"0	@ $365 LF	$ -
	66"0	@ $365 LF	$ -
	72"0	@ $453 LF	$ -
		Subtotal for Concrete Pipe:	**$ -**

		Subtotal for this page:	**$ 28,800.00**

C. End Walls

Quantity	Item	Price	Cost
	12"0	@ $1,950 EA	$ -
	15"0	@ $1,950 EA	$ -
	18"0	@ $1,950 EA	$ -
	21"0	@ $1,950 EA	$ -
	24"0	@ $1,950 EA	$ -
	27"0	@ $1,950 EA	$ -
	30"0	@ $2,100 EA	$ -
	33"0	@ $2,300 EA	$ -
	36"0	@ $2,800 EA	$ -
	42"0	@ $7,236 EA	$ -
	48"0	@ $7,236 EA	$ -
	54"0	@ $7,236 EA	$ -
	60"0	@ $7,236 EA	$ -
	66"0	@ $7,236 EA	$ -
	72"0	@ $9,854 EA	$ -
		Subtotal for End Walls:	**$ -**

D. End Sections (ES-1)

Quantity	Item	Price	Cost
	12"0	@ $1,048 EA	$ -
	15"0	@ $1,048 EA	$ -
	18"0	@ $1,048 EA	$ -
	21"0	@ $1,048 EA	$ -
	24"0	@ $1,048 EA	$ -
	27"0	@ $1,200 EA	$ -
	30"0	@ $1,300 EA	$ -
	33"0	@ $1,500 EA	$ -
	36"0	@ $1,900 EA	$ -
	42"0 - 60"	@ $3,050 EA	$ -
		Subtotal for End Section ES-1:	**$ -**

E. Corrugated Metal Pipe

Quantity	Item	Price	Cost
	12"0	@ $40 LF	$ -
	15"0	@ $60 LF	$ -
	18"0	@ $60 LF	$ -
	24"0	@ $80 LF	$ -
	30"0	@ $80 LF	$ -
	36"0	@ $140 LF	$ -
	42"0	@ $140 LF	$ -
	48"0	@ $140 LF	$ -
	54"0	@ $250 LF	$ -
	60"0	@ $250 LF	$ -
		Subtotal for CM Pipe:	**$ -**

		Subtotal for this page:	**$ -**

F. End Section (ES-2)

Quantity	Item	Price	Cost
	15"0	@ $870 EA	$ -
	18"0	@ $870 EA	$ -
	24"0	@ $870 EA	$ -
	30"0	@ $870 EA	$ -
	36"0	@ $1,100 EA	$ -
	42"0	@ $1,400 EA	$ -
	48"0	@ $1,800 EA	$ -
		Subtotal for End Sections (ES-2):	**$ -**

G. AD N-12 (HDPE)

Quantity	Item	Price	Cost
	12"0	@ $45 LF	$ -
	15"0	@ $106 LF	$ -
	18"0	@ $106 LF	$ -
	24"0	@ $106 LF	$ -
	30"0	@ $106 LF	$ -
	36"0	@ $170 LF	$ -
	42"0	@ $170 LF	$ -
	48"0	@ $170 LF	$ -
	60"0	@ $250 LF	$ -
		Subtotal for AD N-12 (HDPE):	**$ -**

		Subtotal for this page:	**$ -**

H. Stormwater Management/BMP Facilities Cost Estimates Per Impervious Acre Treated (See Note 3)

Quantity	Item	Price	Cost
Non-Proprietary BMP(Engineer Estimate for all SWM)			
	Dry Retention Pond	By itemized cost	
	Dry Extended Detention Pond	By itemized cost	
	Wet Pond/Wetlands	By itemized cost	
	Bioswale	By itemized cost	
	Vegetated Grass Channel	By itemized cost	
	Micro-Bio-Retention (Raingarden)	By itemized cost	
	Infiltration Practices without Sand	By itemized cost	
	Infiltration Practices with Sand	By itemized cost	
	Filtering Practices with Sand Below Ground	By itemized cost	
	Filtering Practices with Sand Above Ground	By itemized cost	
	Permeable Pavement Level 2 Design	By itemized cost	
	Vegetated Roof Level 1 Design	By itemized cost	
	Vegetated Roof Level 2 Design	By itemized cost	
	Soil Compost Amendment	By itemized cost	
	Rooftop Impervious Surface Disconnection	By itemized cost	
	Sheet Flow to a Vegetated Filter Strip	By itemized cost	
Proprietary/Manufactured BMP-manufacturer's Certified Cost Plus Construction Cost			
	Aqua-Swirl® Stormwater Treatment System	By itemized cost	
	BaySeparator™	By itemized cost	
	Continuous Defective Separator® (CDS)	By itemized cost	
	Downstream Defender®	By itemized cost	
	Hydroguard	By itemized cost	
	Stormceptor® MAX	By itemized cost	
	Stormceptor® OSR	By itemized cost	
	Stormceptor® STC	By itemized cost	
	StormPro	By itemized cost	
	Storm Water Quality Unit	By itemized cost	
	V2B1	By itemized cost	
	The Vortechs® System	By itemized cost	
	Aqua-Filter Stormwater™ Filtration System	By itemized cost	
	Storm Tech® Isolater Row™	By itemized cost	
	Up-Flo Filter® with CPZ Media	By itemized cost	
	The Stormwater Management StormFilter® with ZPG Media	By itemized cost	
	BayFilter™ Stormwater Cartridge System	By itemized cost	
	Filterra Bioretention Systems	By itemized cost	
	Jellyfish® Filter	By itemized cost	
	Modular Wetland System Linear (MWS-Linear)	By itemized cost	
	Perk Filter	By itemized cost	
	The Stormwater Management StormFilter® with Phosphosorb Media	By itemized cost	
		Subtotal for Stormwater Management/BMP Facilities Cost Estimates Per Impervious Acre Treated:	**$ -**

		Subtotal for this page:	**$ -**

I. Miscellaneous Stormwater Management

Quantity	Item	Price	Cost
	Seed, Fertilizer & Mulch ($200 Min.)	@ $3.00 SY	$ -
	Sod	@ $8.00 SY	$ -
	Hydraulic Cem. Conc. - 4" depth	@ $8.00 SF	$ -
	Bituminous Concreate - 1" depth	@ $6.00 SY	$ -
	Rip-Rap	@ $7.75 SF	$ -
	Grouted Rip-Rap	@ $9.00 SF	$ -
	Erosion Control Stone (EC-1)	@ $130 TON	$ -
	#57 - Coarse Aggregate	@ $30 TON	$ -
	4' High Chain Link Fence (#9 gauge or better, including braces, end posts and gate)	@ $45 LF	$ -
	6' High Chain Link Fence (#9 gauge or better, including braces, end posts and gate)	@ $45 LF	$ -
	SWM Sign (WATER RISES RAPIDLY) (Minimum 3 signs per facility)	@ $390 EA	$ -
	Access Road	By Itemized Cost	
		Subtotal for Miscellaneous Stormwater Management	**$ -**

J. Miscellaneous Drainage Items

Quantity	Item	Price	Cost
	Box Culvert	@ $ 840 CY of conc	$ -
	Energy Dissipater	@ $2,250 EA	$ -
	Wing Walls	@ $990 CY of conc.	$ -
Ditches:			
	Roadside Standard Ditches (Seed, Fertilize & Mulch)	@ $8.00 LF	$ -
	Sod Ditches	@ $10.50 LF	$ -
	Paved Ditches	@ $8.50 SF	$ -
	Filter Cloth Fabric & Gabion Stone	@ $22 SF	$ -
	Rip-Rap	@ $7.75 SF	$ -
	Grouted Rip-Rap	@ $9.00 SF	$ -
	Paved Flume	@ $10 SF	$ -
8	Flush the Drainage System	$290/Hr. (Min 8 Hrs.)	$ 2,000.00
		Subtotal for Miscellaneous Drainage Items:	**$ 2,000.00**

		Subtotal for this page:	**$ 2,000.00**

3. CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY AND/OR PRIVATE INGRESS/EGRESS EASEMENTS

A. Site Work

Quantity	Item	Price	Cost
	Clear & Grub	@ $12,800	$ -
	Excavation	@ $35 CY	$ -
	Embankment** (cut and fill)	@ $25 CY	$ -
	Embankment (haul off)	@ $36 CY	$ -
	Final Grading	@ $5,000 AC	$ -
	Rock Excavation	@ $75 CY	$ -
	Slope Stabilization - Hydroseeding ($3.1 or flatter) $1,000 Min.	@ $1.25 SY	$ -
	Slope Stab. - Jute Mesh, matting Blankets, etc. (Between 2:1 to 3:1) $200 Min	@ $6.00 SY	$ -
	Slope Stab. - Sod (Between 2:1 to 3:1) $200 Min	@ $8.00 SY	$ -
	Steep Slopes (Grading and Stabilization with Jute Mesh, Netting, Blankets, etc.)	@ $20 SY	$ -
		Subtotal for Site Work:	**$ -**

B. Subgrade, Subbase, and Base Course Items

Quantity	Item	Price	Cost
	Subgrade preparation (Subbase and base course)	@ $3.50 SY	$ -
1476	Aggregate (21A/21B)	@ $3 SY per Inch Depth	$ 3,690.00
4395	Bituminous Concrete	@ $6.25 SY per Inch Depth	$ 24,172.50
	Reinforced Concrete Pavement	@ $18 SY per Inch Depth	$ -
	Gravel Shoulders (4" Depth)	@ $12 SY (4" Depth)	$ -
	Soil Cement Stabilization (4%)	@ $24 SY (6" Depth)	$ -
	Lime Stabilization (10%)	@ $16 SY (6" Depth)	$ -
	Cement Treated Aggregate	@ $11 per Inch Depth	$ -
Underdrains:			
	UD-1	@ $21 LF	$ -
	UD-2	@ $21 LF	$ -
	UD-3	@ $21 LF	$ -
166	UD-4	@ $21 LF	$ 3,486.00
		Subtotal for Subgrade, Subbase, Base Course Items & Underdrains (Public):	**$ 31,348.50**

		Subtotal for this page:	**$ 31,348.50**

C. Entrances and Pipe Stems

Quality	Item	Price	Cost
	DE-1	@ $1,800 EA	$ -
	DE-2	@ $1,950 EA	$ -
	DE-3	@ $2,000 EA	$ -
	DE-4	@ $2,300 EA	$ -
	PP-1 (1 Lot)	@ $2,000 EA	$ -
	PP-1 (2-5 Lots)	@ $2,300 EA	$ -
	PP-2 (1 Lot)	@ $1,725 EA	$ -
	PP-2 (2-5 Lots)	@ $1,725 EA	$ -
	CG-9D or equal: 30' Width	@ $5,750 EA	$ -
	CG-9D or equal: 40' Width	@ $7,475 EA	$ -
	CG-10A or equal: 30' Width	@ $4,738 EA	$ -
	CG-10A or equal: 40' Width	@ $6,095 EA	$ -
2	CG-11: Concrete Entrance	@ $3,450 EA	$ 6,900.00
	Valley Gutter	@ $61 SY	$ -
	Pipestem Driveway - 10' (1 Lot)	@ $61 LF	$ -
	Pipestem Driveway - 18' (2-5 Lots)	@ $81 LF	$ -
		Subtotal for Entrance and Pipe Stems:	**$ 6,900.00**

		Subtotal for this page:	**$ 6,900.00**

D. Miscellaneous Construction Items

Quantity	Item	Price	Cost
	Sidewalk (5' Width)	@ $40 LF	$ -
	Header Curb (CG-2/CG-3)	@ $25 LF	$ -
166	Curb & Gutter	@ $28 LF	$ 4,648.00
4	CG-12 (Truncated Dome)	@ $2,000 EA	$ 8,000.00
	Bicycle Trail/Walkway	0 $11.00 SF	$ -
	Raised Concrete Median (MS-1A)	@ $81 SY	$ -
	Trail (Wood Chip)	@ $19 SY	$ -
	Trail (Stone Dust)	@ $19 SY	$ -
Retaining Walls:			
	Timber	@ $34 SF	$ -
	Crib	@ $44 SF	$ -
	MSE/Geogrid	@ $50 SF	$ -
	Gravity Wall	@ $72 SY	$ -
	Excavation for tiebacks in walls in cut areas	@ $29 CY	$ -
	Anti-Graffiti Paint (Concrete Retaining Walls only-treatment/sealant)	@ $18 SF (Min. $2,500)	$ -
	Guardrail	@ $45 LF	$ -
	GR-7 NCHRP 350	@ $3,640 EA	$ -
	GR-9	@ $3,640 EA	$ -
	Address Sign (Entrance to Pipestems)	@ $460 EA	$ -
1	Street Name Sign	@ $525	$ 525.00
3	Traffic Control Sign	@ $450	$ 1,350.00
	Bus Stop Sign	@ $415	$ -
	Bus Shelter	@ $24,000	$ -
	Traffic Signal	@ (Lump Sum)	
	HC Parking Space Sign	@ $720 EA	$ -
	Bike Rack	@ $350 EA	$ -
	Roadside Delineators (ED-1)	@ $75 EA	$ -
	Hand Rail (HR-1)	@ $120 LF	$ -
	Pavement Marking (Paint)	@ $2.50 SF	$ -
	Pavement Marking (Thermoplastic)	@ $7.00 SF	$ -
	Traffic Barricade (TB-1)	@ $1,725 EA	$ -
	Street Lighting	@ $5,500 EA	$ -
	Utilities Relocation	(Min. $40,000) (Lump Sum or provide estimate from utility co.)	$ -
	VDOT Street Acceptance Package	@ $7,000	$ -
1	P.E. Certified "As-Built" Plans	Lump Sum (Min. $12,000)	$ 12,000.00
		Subtotal for Miscellaneous Construction Items:	**$ 26,523.00**

		Subtotal for this page:	**$ 26,523.00**

4. SANITARY SEWER & WATER LINE CONSTRUCTION

Quantity	Item	Price	Cost
	Fire Hydrant Assembly	@ $9,200 EA	$ -
	Central Sewer Lift/Pump Station Construction	@ (Lump Sum)	

Water Main (Exclusive of Fire Hydrants)

Quantity	Item	Price	Cost
	4"0 DIP	@ $60 LF	$ -
	6"0 DIP	@ $75 LF	$ -
	8"0 DIP	@ $90 LF	$ -
	12"0 DIP	@ $125 LF	$ -
	16"0 DIP	@ $165 LF	$ -
	18"0 DIP	@ $185 LF	$ -
	4"0 or 6"0 RW Valve (with accessories)	@ $1,200 EA	$ -
	8"0 or 12"0 RW Valve (with accessories)	@ $3,000 EA	$ -
	16"0 or 24"0 RW Valve (with accessories)	@ $7,000 EA	$ -
	Standard Meter Crock & Appurtenances (Angle valve, backflow preventer, yoke, flume & cover, and service line)	@ $2,500 EA	$ -
	Meter Vault & Appurtenances (3 meters & larger)	@ $40,000 EA	$ -
	Water Main Blow-off Assembly	@ $3,000 EA	$ -
	Air Release Assembly	@ $6,800 EA	$ -
	Dead End Anchor System	@ $10,000 EA	$ -
		Subtotal for Water Main:	**$ -**

		Subtotal for this page:	**$ -**

Sanitary Sewer Pipe Line (Exclusive of Manhole Structures)

Quantity	Item	Price	Cost
	1.5"0 thru 4"0 LPFM (Low Pressure Force Main System)	@ $35 LF	$ -
	8"0 PVC	@ $81 LF	$ -
	8"0 DIP	@ $95 LF	$ -
	10"0 PVC	@ $100 LF	$ -
	10"0 DIP	@ $110 LF	$ -
	12"0 PVC	@ $170 LF	$ -
	12"0 DIP	@ $185 LF	$ -
	15"0 PVC	@ $225 LF	$ -
	4' Dia. Sanitary Sewer Manhole	@ $11,000 EA	$ -
	5' Dia. Sanitary Sewer Manhole	@ $11,000 EA	$ -
	Street Manhole Frame & Cover Assembly (Including rain bowl & chimney seal)	@ $1,200 EA	$ -
	Easement Manhole Frame & Cover Assembly (Including chimney seal)	@ $1,200 EA	$ -
	Abandonment of Manhole	@ $290 VF	$ -
	4"0 PVC Lateral (including clean-out stack)	@ $50 LF	$ -
	4"0 DIP Lateral (including clean-out stack)	@ $60 LF	$ -
	6"0 PVC Lateral (including clean-out stack)	@ $70 LF	$ -
	6"0 DIP Later (including clean-out stack)	@ $75 LF	$ -
	LPFM Flushing Station	@ $2,900 EA	$ -
	Sewerage Air Release/Vacuum Breaker Assembly	@ $4,050 EA	$ -
	Steel Casing	@ $600 LF	$ -
	Grease Trap (500 gal. minimum)	@ $5,200 EA	$ -
		@	$ -
		@	$ -
		@	$ -
		Subtotal for Sanitary Sewer Pipe:	**$ -**

Note: For sizes larger than 15"0, add $4.60 per inch increase in diameter.

		Subtotal for this page:	**$ -**
		TOTAL CONSTRUCTION COST: (Pages 1 through 10)	**$ 95,571.50**

5. MISCELLANEOUS COSTS

A. Administrative Cost - 10% of the total construction cost, not to exceed $50,000	$ 9,557.15
B. Inflation Cost - Compounded annually at 3.0% per year of the total Construction Cost	$ 2,867.15
TOTAL PERFORMANCE BOND AMOUNT:	**$ 107,995.80**

6. FLOODPLAIN ITEMS ESCROW

Quantity	Item	Price	Cost
	LOMR	$18,000	$ -
	Elevation Certificate	$1,000	$ -
	LOMC (SF Detached)	$1,800	$ -
	Stream Restoration (By Itemized Cost)		
		TOTAL FLOODPLAIN ITEMS ESCROW:	**$ -**

7. LANDSCAPING ESCROW

A. Deciduous Trees

Quantity	Item	Price	Cost
	5'-6'	@ $300 EA	$ -
	1" - 1.5" or 1.5"- 2"	@ $450 EA	$ -
	2" - 2.5" or 2.5 - 3"	@ $600 EA	$ -
	3" - 3.5" or 3.5" - 4"	@ $959 EA	$ -
		Subtotal for Deciduous Trees:	**$ -**

B. Evergreen Trees

Quantity	Item	Price	Cost
	5' - 6'	@ $250 EA	$ -
	6' - 7'	@ $270 EA	$ -
	7' - 8'	@ $450 EA	$ -
	8' - 10'	@ $830 EA	$ -
		Subtotal for Evergreen Trees:	**$ -**

C. Shrubs

Quantity	Item	Price	Cost
	18" - 24"	@ $60 EA	$ -
	24" - 30"	@ $80 EA	$ -
		Subtotal for Shrubs:	**$ -**

D. Ornamental

Quantity	Item	Price	Cost
	1 Gal. (#1)	@ $35	$ -
	2 Gal. (#2)	@ $45	$ -
	3 Gal. (#3)	@ $50	$ -
		Subtotal for Ornamentals:	**$ -**

E. Perennial

Quantity	Item	Price	Cost
	18" - 24"	@ $15.00	$ -
		Subtotal for Perennial:	**$ -**

F. Reforestation

Quantity	Item	Price	Cost
	# of Acres	@ $11,700 AC	$ -
		Subtotal for Reforestation	**$ -**
		TOTAL LANDSCAPE ESCROW AMOUNT:	**$ -**

8. SILTATION AND EROSION CONTROL ESCROWS

Quantity	Item	Price	Cost
	Diversion Dike	@ $7.00 LF	$ -
	Cleaning out SWM Facilities, Silt Traps and Silt Basins	$600/Hr. Lump Sum (Min. $20,000 or actual estimate provided by engineer to the satisfaction of the plan review)	$ -
	Silt Fence: 0' - 1000' (installation, maintenance for 1 year & removal)	@ $8.00 LF	$ -
	Silt Fence: 1001' - 1000' (installation, maintenance for 1 year & removal)	@ $6.00 LF	$ -
	Silt Fence: 10,000' + (installation, maintenance for 1 year & removal)	@ $4.00 LF	$ -
	Super Silt Fence: 0' - 1000' (installation, maintenance for 1 year & removal)	@ $20 LF	$ -
	Super Silt Fence: 1001' - 10000 (installation, maintenance for 1 year & removal)	@ $12 LF	$ -
	Super Silt Fence: 10,000' + (installation, maintenance for 1 year & removal)	@ $11.00 LF	$ -
	Sod	@ $8.00 SY	$ -
	Seed, Fertilizer & Mulch	@ $3.00 SY ($200 Min)	$ -
	Steep Slopes (Grading and Stabilization with jute mesh, netting, blankets, etc.)	@ $18 SY	$ -
	Coarse Aggregates (#1 or #57)	@ $35 TON	$ -
	Inlet Protection	@ $190 EA	$ -
	Check Dam	@ $250 EA	$ -
	Temp. Construction Entrance	@ $2,300 EA	$ -
	Wash Rack	@ $2,000 EA	$ -
	Temp. Sediment Trap 0-1 AC	@ $1,000	$ -
	1-2 AC	@ $1,500	$ -
	2-3 AC	@ $2,000	$ -
	Temporary Sediment Basin	By itemized cost	
	Channel Diversion (720 LF @ $8/SF)	By itemized cost	
	6' Chain-link Safety Fence	@ $50 LF	$ -
	4' Plastic Orange Safety Fence	@ $4.00 LF	$ -
	Yard utility refurbishment	@ $875 EA Single Family Lot	$ -
	Stockpile Removal (Quantity based on policy)	@ $30 CY	$ -
	Removal of Erosion Control Measures	@ 500	$ -
	Level Spreader	By itemized cost	
		Total Cost:	**$ -**
		Administrative Cost (10% of Total Cost):	**$ -**
		TOTAL SILTATION & EROSION CONTROL ESCROW AMOUNT:	**$ -**

Minimum acceptable amount for Siltation and Erosion Control is $2,500.00

I hereby certify that the above is my best estimate of the quantities and current cost of bondable improvements, landscaping items, Siltation & Erosion Control Escrow and floodplain items in this subdivision or site plan.

Scott Woodard — 703-368-7373

Preparer's Signature — **Telephone #**

Scott Woodard, P.E. — Rinker Design Associates, P.C.

Name (Print) — **Company or Firm**

NOTES:

1. For items identified with ** the quantity for the embankment material is the net difference of total fill material needed and cut material available at the project site, if excavated or cut material is suitable for embankment.
2. The excavation and embankment costs include necessary grading, spreading and/or compaction of soil in accordance with County and State Standards and Specifications
3. The unit cost for each of the items in the Unit Price Lists is the installation cost which includes factors such as materials, excavation, bedding backfilling, compaction, form work, etc.
4. Inflation has been calculated based on Northern Virginia Consumer Price Index of the Washington D.C. area provided by the Bureau of Labor and Statistics.
5. Whoever certifies the site development plans must also certify the total cost of the bonded items, landscaping escrow and siltation and erosion control escrow and must sign "Preparer's Signature" on page 10 of this form.
6. Floodplain Items Escrow not to be part of Bond/Escrow reduction.

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA — SCOTT WOODARD — Lic. No. 065821 — PROFESSIONAL ENGINEER — 1/26/2023

VDOT UNIT PRICE LIST

HAYMARKET TOWN CENTER REDEVELOPMENT

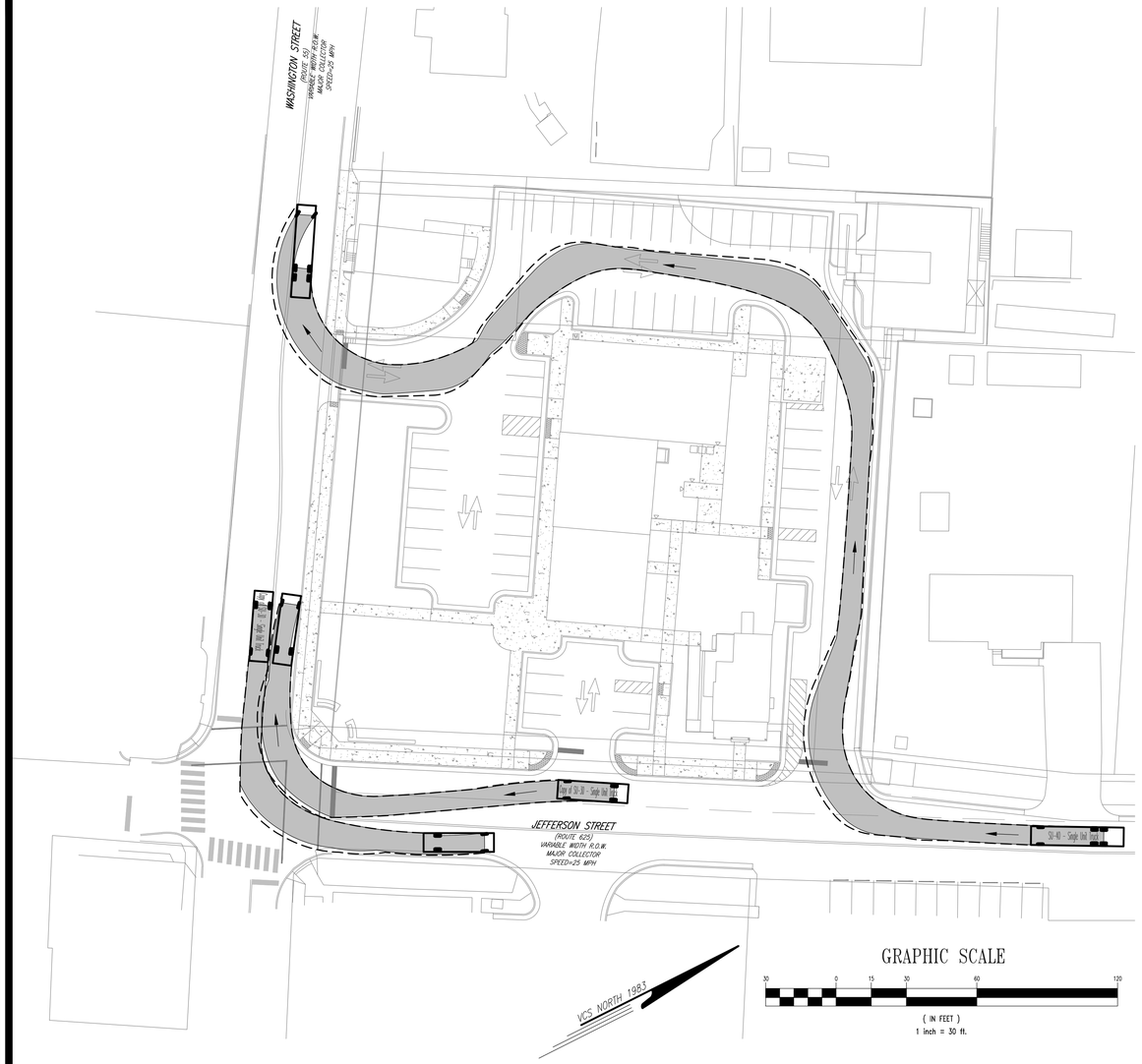
TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

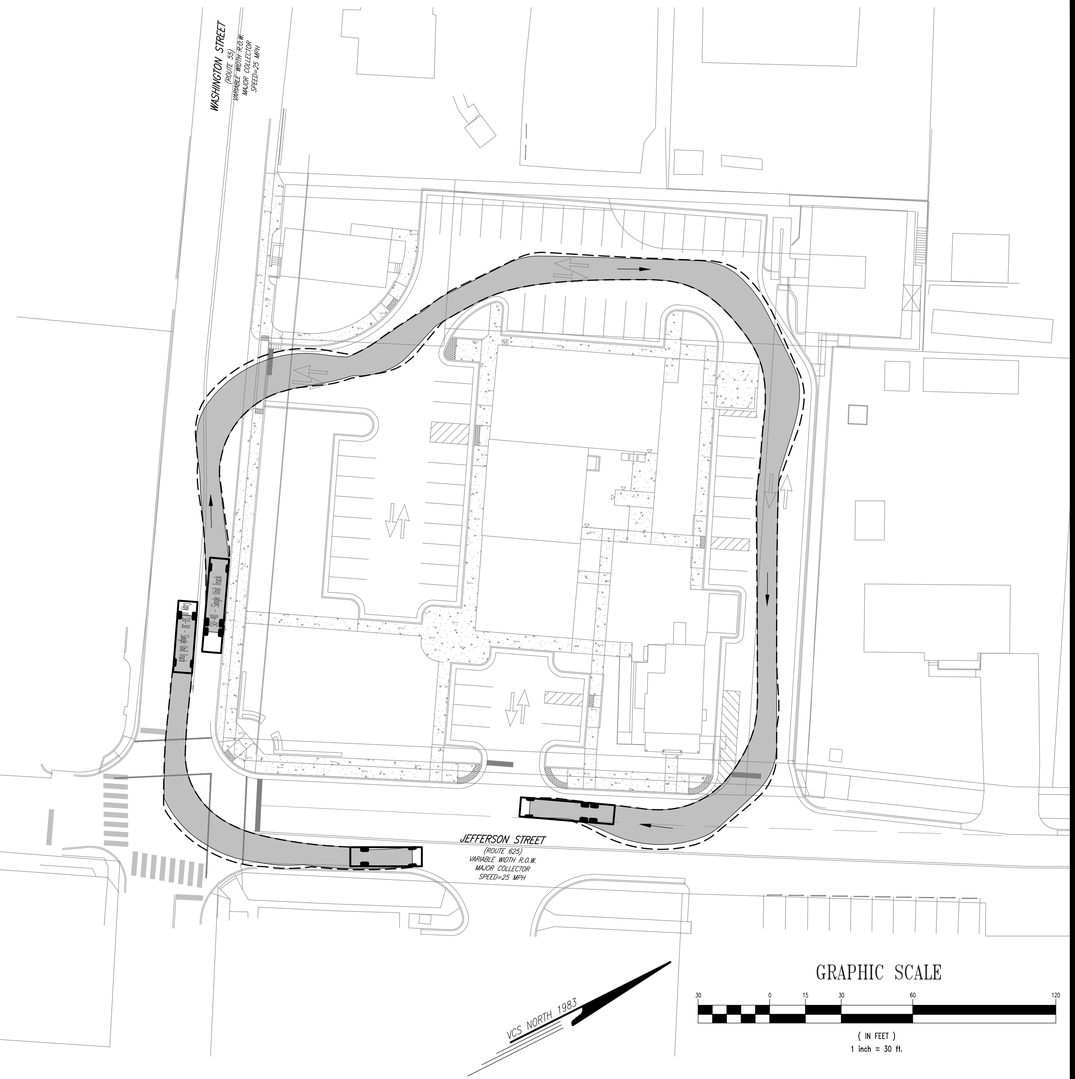
PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096–002
SHEET NUMBER: C.46

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

TRUCK TURNING EXHIBIT (IN)



TRUCK TURNING EXHIBIT (OUT)



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Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

TURNING EXHIBITS

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE:	JANUARY 26, 2023
DESIGN BY:	JLK, SAW
CHECKED BY:	JLK, SAW
ARCHITECT:	N/A
JURISDICTIONAL PLAN NO.	SP20220324
RDA PLAN #:	14096-002
SHEET NUMBER:	C.47

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

CAR TURNING EXHIBIT

Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering * Surveying * Transportation * Environmental Services

COMMONWEALTH OF VIRGINIA
SCOTT WOODARD
Lic. No. 053821
PROFESSIONAL ENGINEER
1/26/2023

TURNING EXHIBITS

HAYMARKET TOWN CENTER REDEVELOPMENT

TOWN OF HAYMARKET, VIRGINIA

REVISIONS:

PLAN DATE: JANUARY 26, 2023
DESIGN BY: JLK, SAW
CHECKED BY: JLK, SAW
ARCHITECT: N/A
JURISDICTIONAL PLAN NO. SP20220324
RDA PLAN #: 14096-002
SHEET NUMBER: C.48

Attachment: 02 SP20220324 Haymarket Town Center Redevelopment Planset (6052 : Town Center Site Plan)

Town of Haymarket
15000 Washington Street, #100
Haymarket, VA 20169
703-753-2600

Thomas Britt
Town Planner

MEMORANDUM

TO: Planning Commission
FROM: Thomas Britt, Town Planner
DATE: March 14, 2023
SUBJECT: Comprehensive Plan RPA Map Update

Background:
As part of the Virginia DEQ's external review of the Town of Haymarket's compliance with required CBPA items, the DEQ recommended in January 2022 that the Town add a brief narrative to the existing potential soil hazards map found in the appendix of the Haymarket comprehensive plan. This narrative would provide more context for the potential soil hazards in Haymarket. Virginia DEQ also recommended in March 2021 that the Town add a map showing CBPA Resource Protection Areas, as it is not currently included in the comprehensive plan.

Thomas Britt, the town planner for Haymarket, has written an updated narrative for the potential erosion hazards map, and given an RPA Map to include in the comprehensive plan. These items are currently in review by Daniel Moore of the Virginia DEQ.
The town planner asks the Planning Commission to review these two items and prepare to discuss them and their adoption in the April 17 Planning Commission meeting.

Attachment: 01 CPBA RPA Map Memo Update (6051 : CBPA Comprehensive Plan Language Update)

Sensitive Soils

Soils are perhaps the most important, and at the same time, most constraining of all the Town's natural resource. The parent material of a soil, the climate of a region, the location of surface and groundwater resources, and the slope of a land area, all of which are out of the control of human beings, will determine the soil's fertility, shrink-swell potential, permeability, erodibility, etc. These characteristics are only a few of which may affect the type of land use permitted on an individual soil. Soil characteristics will determine whether an area is appropriate for agriculture, for septic fields, or for foundations or roads. Good management of these soil characteristics will help maintain a clean water source and will provide are as to recharge groundwater. However, poor management of these soils will choke local waterways with silt and sediments and result in the erosion of valuable topsoil as well as spoil the lands cape.

As stated by the Town's Chesapeake Bay Preservation Ordinance, soil characteristics which are considered RMA features include highly erodible soils and highly permeable soils. According to the Soil Survey of Prince William County, Virginia, there are no highly permeable soils within the Town of Haymarket.

Figure 13 on the next page presents a map of soil erosion hazards for the Town of Haymarket. 67 percent of the Town's land area has severe erosion hazards if proper management during construction is not observed. Most of the residential and commercial development lie on the areas that have these severe erosion hazards. Soils with moderate risk of erosion are located mostly by the North Fork Broad Run and the RPA boundary for the North Fork Broad Run, with some distribution of moderate erosion hazard within the severe erosion hazard coverage. Even if a development falls on an area with moderate potential soil erosion hazards, construction on these sites should be properly managed to prevent any erosion hazards.

Other soil characteristics that will have an imp act on development suitability and must be considered are hydric soils, shrink-swell potential, wetness, flooding, depth to bed rock, and high water table. These characteristics will dictate whether or not a site is suitable for a single family home or commercial property, or whether or not a property can support an on-site septic system. There are no identified hydric soils within the Town. Soils that have a mode rate shrink-swell potential include Calverton Silt Loam and the Sudley-Oatlands Complex while soils with high

Attachment: 02 Figure 13 Narrative Update (6051 : CBPA Comprehensive Plan Language Update)

shrink-swell potential include Dulles Silt Loam and Sycoline-Kelly Complex. Shrink-swell soils shrink when dry and expand when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. A moderate and high shrink-swell potential may require significant precautions or preclude certain development on a soil altogether.

Attachment: 02 Figure 13 Narrative Update (6051 : CBPA Comprehensive Plan Language Update)

- *State*

  Pertinent laws of the Commonwealth of Virginia include the Tidal Wetlands Act (Title 62.1, Chapter 1 of the Virginia Code). The Commonwealth's ownership of subaqueous land is established in Title 62.1, Chapter 1 of the Virginia Code. The Virginia Marine Resources Commission (VMRC) is the regulating authority for the coastal resources included in these laws. Localities (i.e., counties, cities, and towns) which desire to regulate their own tidal wetlands have the option of adopting prescribed zoning ordinances and forming citizen Wetlands Boards. VMRC retains an oversight and appellate role for localities which have adopted these coastal resources ordinances.

- *Local*

  Under the Chesapeake Bay Preservation Act (Chapter 25, Title 10.1 of the Code of Virginia) localities must establish a program to protect and delineate environmentally sensitive features. The Act directs the local jurisdictions to establish Resource Protection Areas (RPAs), in which only water related activities with very stringent environmental requirements are permitted. Areas of the Town which are RPAs include a 100-foot vegetated buffer area located adjacent to and landward of North Fork Creek and two unnamed intermittent streams. Most of the remaining wetlands in Haymarket are located within the confines of the Town's RPA. Wetlands as well as the floodplain which encompasses most of the Town's remaining wetlands, are specifically designated as RMAs by the Town's Chesapeake Bay Preservation Ordinance.

Although some development exists within the alluvial floodplain area of the Town where wetlands are most likely to exist, current federal, state and local wetlands regulations and the Town's Chesapeake Bay Preservation Ordinance will substantially restrict further development or redevelopment within the area.

Sensitive Soils

Soils are perhaps the most important, and at the same time, most constraining of all the Town's natural resource. The parent material of a soil, the climate of a region, the location of surface and groundwater resources, and the slope of a land area, all of which are out of the control of human beings, will determine the soil's fertility, shrink-swell potential, permeability, erodibility, etc. These characteristics are only a few of which may affect the type of land use permitted on an individual soil. Soil characteristics will determine whether an area is appropriate for agriculture, for septic fields, or for foundations or roads. Good management of these soil characteristics will help maintain a clean water source and will provide are as to recharge groundwater. However, poor management of these soils will choke local waterways with silt and sediments and result in the erosion of valuable topsoil as well as spoil the lands cape.

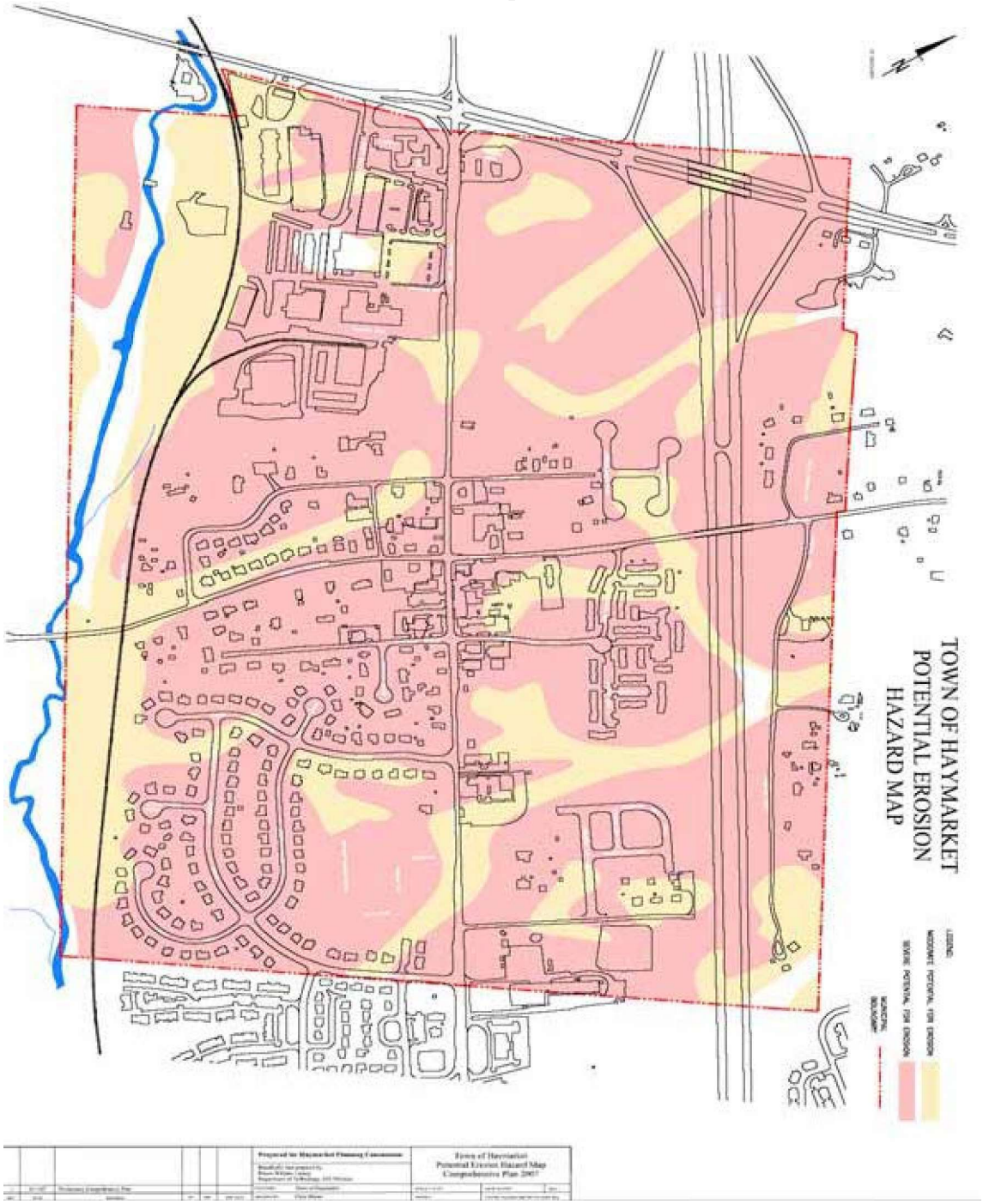
As stated by the Town's Chesapeake Bay Preservation Ordinance, soil characteristics which are considered RMA features include highly erodible soils and highly permeable soils. According to the Soil Survey of Prince William County, Virginia, there are no highly permeable soils within the Town of Haymarket. However, fully 67 percent of the Town's land area has severe erosion hazards if proper management during construction is not observed. Figure 13 on the next page presents a ma p of soil erosion hazards for the Town of Haymarket.

Other soil characteristics that will have an imp act on development suitability and must be considered are hydric soils, shrink-swell potential, wetness, flooding, depth to bed rock, and high water table. These characteristics will dictate whether or not a site is suitable for a single family home or commercial property, or whether or not a property can support an on-site septic system. There are no identified hydric soils within the Town. Soils that have a mode rate shrink-swell potential include Calverton Silt Loam and the Sudley-Oatlands Complex while soils with high shrink-swell potential include Dulles Silt Loam and Sycoline-Kelly Complex. Shrink-swell soils shrink when dry and expand when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. A moderate and high shrink-swell potential may require significant precautions or preclude certain development on a soil altogether.

Table 18 sums up the suitability of e ach soil for the construction of single family dwellings, commercial dwellings, and septic systems. These are only general parameters and a site specific test will be required during the planning phase of a development. In general, a limitation rating of "slight" indicates that the

Attachment: 03 Haymarket Comp Plan Soil Erosion Sample (6051 : CBPA Comprehensive Plan Language Update)

FIGURE 13: Potential Erosion Hazard Map



As demonstrated in Table 18, fully 81 to 100 percent of the Town has severe restrictions to septic fields, primarily as a result of depth to rock, wetness, slow perc rates, and flooding potential. Over 30 percent of the land area has severe restrictions to local roadways and streets. Nearly 34 percent of the Town has severe restrictions on single family dwellings without basements while approximately 52 percent of the Town has severe restrictions on single family dwellings with basements. The soil within the Town most suited for building site development is Arcola Silt Loam. Arcola soils cover 48 percent of the Town and are located primarily in areas which have already been developed within the Town.

The environmentally sensitivity features outlined in the previous sections should be used by the Town as a guide to future land development. Though small in area, Haymarket needs to remain sensitive toenvironmental issues and constraints. The activity of even a small area can upset the balance of nature

Attachment: 03 Haymarket Comp Plan Soil Erosion Sample (6051 : CBPA Comprehensive Plan Language Update)

LEGEND

- EX. MUNICIPAL BOUNDARY LINE
- EX. PROPERTY LINE
- EX. EDGE OF ROAD
- EX. RAILROAD
- EX. WETLANDS
- EX. FLOOD HAZARD AREA
- EX. RPA BOUNDARY
- EX. RPA (RESOURCE PROTECTION AREA)
- EX. RMA (RESOURCE MANAGEMENT AREA)

VIRGINIA STATE GRID NORTH
NAD 83

200 100 0 200 400
GRAPHIC SCALE
1" = 200'

christopher consultants
9301 innovation dr suite 150 manassas, va 20110
p 703.393.9887
engineering • surveying • land planning

THE TOWN OF HAYMARKET

PRINCE WILLIAM COUNTY, VIRGINIA

MARK	DATE	DESCRIPTION

PROJECT No.: 17038.001.00
DRAWING No.:
DATE: 11/28/2022
SCALE: 1"=200'
DESIGN: KMM
DRAWN: EAH
CHECKED: KMM

SHEET TITLE:

CHESAPEAKE BAY PRESERVATION AREA MAP

SHEET No.

C400

Attachment: 04 HAYMARKET RPA MAP - Copy (6051 : CBPA Comprehensive Plan Language Update)

P:\FX\Projects\17038\00100\######## DES\DESIGN\HAYMARKET RPA MAP.dwg, 11/29/2022 12:04:05 PM, Elisabeth Hansraj, 1:2.8055, christopher consultants, ltd