



Easton Staff Development Review MEETING AGENDA

Wednesday, December 28, 2022 - 11:00 AM
Council Chambers, Easton Town Office
14 S Harrison Street

1. Staff Review

- a. Staff review only time: 10:00 AM - 11:00 AM

2. Discussion Items

- a. **Application Number:** 2022-20 Time: 11:00 AM
Location: Camac Street
Applicant: Aspire Outdoors, LLC
Request: The applicant (Aspire Outdoors, LLC) proposes a six-building apartment complex with an associated community pool and poolhouse.



1 FRONT ELEVATION RENDERING

Scale: 1/8" = 1'-0"



2 FRONT PERSPECTIVE RENDERING

NOT TO SCALE

ELEVATIONS

ASPIRE APARTMENTS

MAP 26, GRID 20, PARCEL 186
TALBOT COUNTY
ASPIRE OUTDOORS LLC



PROFESSIONAL
CERTIFICATION:
I CERTIFY THAT THESE
DOCUMENTS WERE
PREPARED BY ME OR
UNDER MY CLOSE PERSONAL
SUPERVISION AND THAT I AM A DULY
LICENSED ARCHITECT UNDER
THE LAWS OF THE STATE OF
MARYLAND.
LICENSE NUMBER: 20221
EXPIRATION DATE: 01/16/2024

REVISIONS		DESCRIPTION
REV. #	DATE	

DATE: 12/07/2022

SCALE: AS SHOWN

DRAWN BY: KL, PR

DESIGNED BY: KL, PR

APPROVED BY:

SHEET NO.:

A-201

**Town of Easton**

Engineering, Planning and Zoning

14 South Harrison Street, Easton, MD 21601

Easton Staff Development Review**Property Information**

Address	Camac St, Easton, MD 21601				
Tax Map	0026	Grid	0020	Parcel	0186
Deed Reference:	Liber	02644	Folio	00114	
Plat Reference:	Liber		Folio		
Base Zoning District	R10A	Historic District	Y ☐ N ☒		
		Planning Redevelopment	Y ☒ N ☐		
Purpose of Application / Description of Work:					

Aspire Outdoors, LLC is looking to develop the property at the South end of Camac Street into 6 apartment buildings with a community pool and pool house. Water and sewer will be extended from the existing mains on Camac St. Stormwater management will be handled via submerged gravel wetlands to the NE and S of the site.

Owner

Name	Aspire Outdoors, LLC	
Mailing Address	29760 Standish St, Easton, MD 21601	
Telephone No.	410-310-6241	Email ddaly@baamboys.com

Applicant / Agent

Name	Same as above	
Mailing Address		
Telephone No.		Email

Surveyor / Engineer

Name	Robert Rauch	License No.	11024	Expiration Date	7/24/2024
Mailing Address	106 N. Harrison St, Easton, MD, 21601				
Telephone No.	410-770-9081	Email	robert@raucheng.com; brian@raucheng.com		

Any modifications during review shall warrant an updated application.

I do hereby solemnly declare and affirm that the information provided by this application and the documents attached hereto accurately represent the conditions of the request and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date 12/07/2022

Printed Name of Applicant or Agent

Robert Rauch

For Office Use Only

Easton Staff Development Review Meeting Required Y ☐ N ☐

Easton Staff Development Review Meeting Date

Completeness Check Date

Revisions/Resubmissions Required Y ☐ N ☐

Resubmission Date

Documents Received Y ☐ N ☐

Staff Determination

Planning Commission Required Y ☐ N ☐

BOZA Required Y ☐ N ☐

Historic District Commission Required Y ☐ N ☐

Resubmission for ESDR Required Y ☐ N ☐

Staff Signature

Date

Revised 02-2019

APPENDIX B-1

SKETCH PLAN SUBMITTAL CHECKLIST

NOTE: THIS CHECKLIST REPRESENTS THE MINIMUM INFORMATION TO BE SUBMITTED ON A SITE PLAN. ADDITIONAL INFORMATION MAY BE REQUIRED FOR UNIQUE SITUATIONS.

COMPLETE THE CHECKLIST AND SUBMIT IT WITH THE PLAN. IF AN ITEM IS NOT APPLICABLE, ENTER "N/A".

- | | |
|--|----------|
| 1. Location map, | <u>X</u> |
| 2. Boundary, | <u>X</u> |
| 3. Topography, | <u>X</u> |
| 4. General proposed land uses drawn to scale, and | <u>X</u> |
| 5. The Forest Stand Delineation as detailed in the Town of Easton's Forest Conservation Ordinance. | <u>X</u> |
| 6. The location of any easements, rights-of-way or any other encumbrances which pertain to the property subject to the site plan review. | <u>X</u> |
| 7. Conditions of concern, for example, water courses, wetlands, floodplains, or other environmentally sensitive features. | <u>X</u> |
| 8. Location of refuse collection, exterior lighting, fencing, and all pedestrian walkways and sidewalks. | <u>X</u> |
| 9. General location and description (r.e. intended function, proposed species, etc.) of proposed landscaping. | <u>X</u> |
| 10. Location of parking including layout and landscaping. | <u>X</u> |
| 11. Conceptual building elevations or renderings illustrating the character, scale, and materials of all proposed structures. Such elevations or renderings shall be sealed by a licensed professional as described above. | <u>X</u> |
| 12. A statement describing the extent to which the application complies with the Recommended Design Principles for Easton set forth on pages 29-31 of the Comprehensive Plan | <u>X</u> |

This checklist completed by Brian Fitzgerald Date 12/07/2022

APPENDIX B-2

SKETCH STORMWATER MANAGEMENT PLAN SUBMITTAL CHECKLIST

EFFECTIVE MAY 4, 2010

NOTE: THE FOLLOWING CHECKLIST REPRESENTS THE MINIMUM INFORMATION TO BE SUBMITTED FOR SUPPORT OF A STORMWATER MANAGEMENT CONCEPT PLAN, SITE DEVELOPMENT PLAN, AND/OR FINAL DESIGN PLAN. THE TOWN MAY REQUEST ADDITIONAL INFORMATION AS DEEMED NECESSARY.

COMPLETE THE APPROPRIATE CHECKLIST AND SUBMIT IT WITH THE PLANS, APPLICATION FORM, NARRATIVE OR REPORT, AND FEE. ITEMS IN BOLD ARE REQUIRED FOR CONCEPT AND/OR SITE DEVELOPMENT PHASE REVIEW.

I. Sketch Plan Submittal

A. Site and Resource Map

Natural Resources Identified on Plan, including, but not limited to:

Please use these responses for the following:

(Provided = P; Not Provided = NP; Not Applicable = N/A)

Tidal and Non-Tidal Wetland Boundaries	<u>P</u>	
Wetland Buffers		<u>P</u>
Floodplain Boundaries and Elevations	<u>N/A</u>	
Streams and other Waterways	<u>P</u>	
Stream Buffers	<u>P</u>	
Forest Boundaries		<u>P</u>
Forest Buffers	<u>N/A</u>	
Critical Areas	<u>N/A</u>	
Steep Slopes (>25%)	<u>N/A</u>	
Erodible Soils	<u>N/A</u>	
Areas of High Recharge	<u>N/A</u>	
Springs		<u>N/A</u>
Soil Types and Hydrologic Soil Groups	<u>P</u>	
Bedrock and/or other Geologic Features	<u>N/A</u>	
Vegetative Cover		<u>P</u>
Existing Drainage Areas and Flow Patterns	<u>P</u>	
Existing Stormwater Outfalls	<u>P</u>	
Site and Resource Map field verified by a properly licensed design professional.	<u>P</u>	

Existing contours (1' max intervals) and utilities shown. P

Large tracts of contiguous open spaces, forested areas and
other important resources protected by conservation
easements. N/A

Opportunities for afforestation identified. P

Wetland, stream and forest buffers enhanced and/or

expanded.	<u>N/A</u>
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B. Site Fingerprinting and Development Layout

Locations of proposed impervious areas provided.	<u>P</u>
Proposed contours (1' max intervals) and utilities shown.	<u>P</u>
Preliminary locations of proposed Environmental Site Design (ESD) practices provided.	<u>P</u>
Locations of stormwater outfalls and conveyance provided with offsite storm drains, culverts and grass channels with size and slope.	<u>P</u>
Limit of disturbance and extent of clearing & grading.	<u>P</u>
Site natural resources protected during construction. If site natural resources must be disturbed during construction, please include an explanation in the stormwater narrative.	<u>P</u>
Better Site Design Techniques incorporated, including:	
Sheetflow and overland flow provided wherever possible	<u>P</u>
Building footprint and site layout designed to protect conservation areas	<u>P</u>
Proposed streets, rights of way, and/or sidewalks with modifications to reduce impervious area	<u>P</u>
Landscaped medians and/or cul-de-sacs	<u>P</u>
Stormwater management features in medians or cul-de-sacs	<u>N/A</u>
Private open road section with grass channels and/or biofilters	<u>N/A</u>
Minimize numbers of parking spaces and sizes	<u>N/A</u>
Narrow frontages to reduce road length	<u>N/A</u>
Site graded to encourage runoff from impervious areas to pervious areas or other natural conveyance systems	<u>P</u>

C. Stormwater Narrative

Title Page includes:

Job Name	<u>P</u>
Owner/Developer	<u>P</u>
Design Professional	<u>P</u>
Date Prepared	<u>P</u>
Seal and Signature (properly licensed Design Professional)	<u>P</u>
Project is identified as new development or redevelopment. (Redevelopment projects have $\geq 40\%$ total site imperviousness)	<u>P</u>

Project and streets designed for 2-year and 10-year quantitative management. P

Project is identified as being within the Tanyard Branch Watershed. (Projects within this watershed must manage proposed 10-year storm flows to the existing 2-year storm discharge rate.) N/A

A narrative that supports the concept and describes how the design will achieve:

Natural resource protection and enhancement	<u>P</u>
Maintenance of natural flow patterns	<u>P</u>
Reduction of impervious areas through better site design, alternative surfaces, and non-structural practices	<u>P</u>
Implementation of ESD planning techniques and practices to the Maximum Extent Practicable (MEP)	<u>P</u>
Preliminary ESD sizing calculations provided	<u>P</u>
Integration of erosion and sediment controls (ESC) into the stormwater strategy	<u>P</u>

D. Sketch Plan Meeting

Following the Sketch Plan submittal, a meeting will be scheduled between the Town of Easton Planning & Zoning, Town Engineer, the Talbot County Soil Conservation District (SCD) ESC reviewer, the owner/developer, the SWM and ESC designer(s), and any other reviewers deemed necessary by the Town of Easton and/or the Talbot County SCD. Official Minutes from the Sketch Plan Meeting must be submitted for review and acceptance by all parties. These minutes must accompany all future submittals. OK

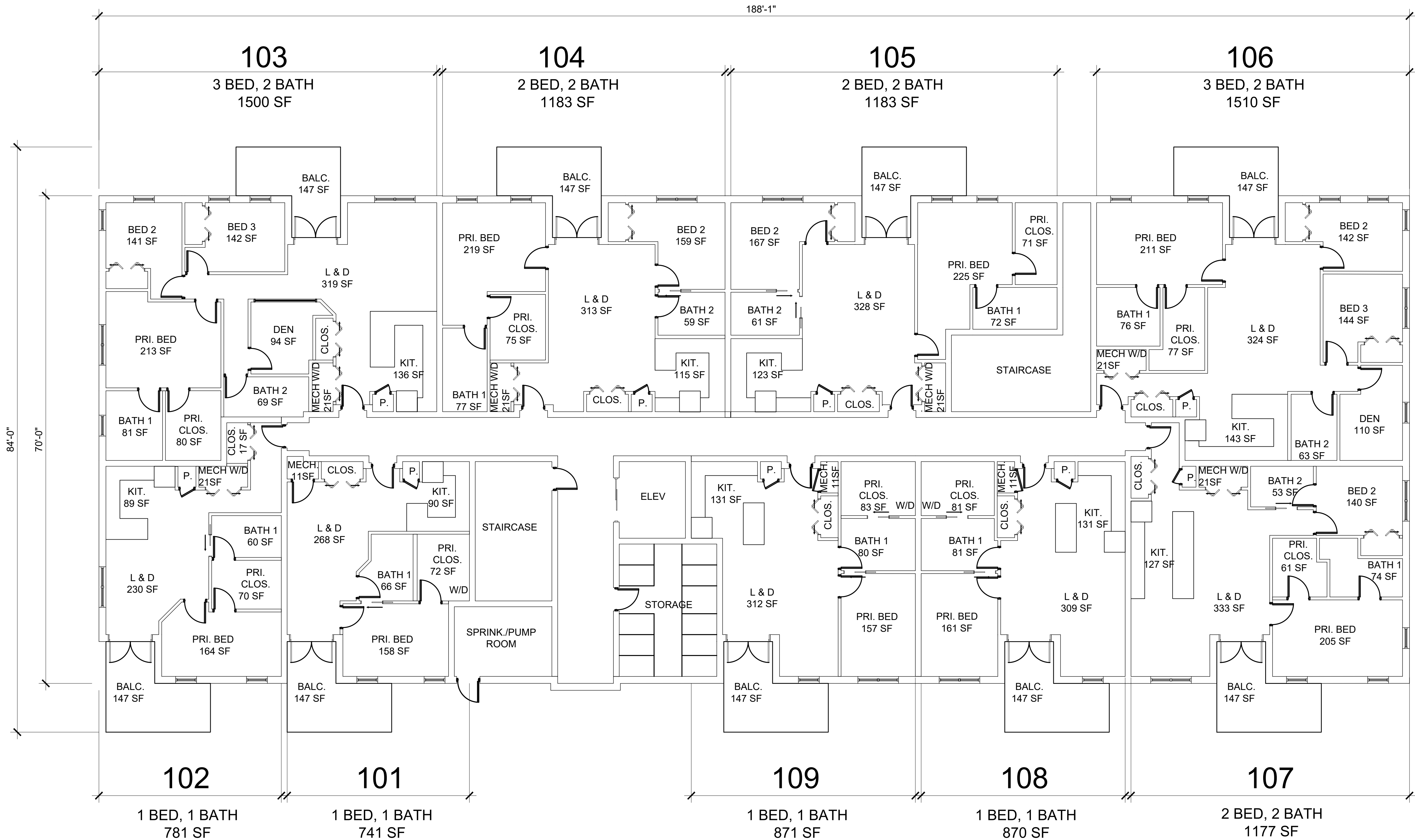
This checklist completed by Brian Fitzgerald Date 12/07/2022

EASTON, TALBOT COUNTY, MARYLAND

TAX MAP 26 GRID 20 PARCEL 186
ELECTION DISTRICT 1, TALBOT COUNTY, MARYLAND
FSD/FCP DRAWINGS FOR ASPIRE OUTDOORS LLC

SEAL	DATE
------	------

FILE NO.:



1

PROPOSED 1ST FLOOR PLAN

Scale: 1/8" = 1'-0"

PROPOSED FIRST FLOOR PLAN
ASPIRE APARTMENTS

RAUCH
Engineering | Survey | Architecture | Environmental
Office: 410.770.9681 | Fax: 410.770.9687
www.raucheng.com
Maryland Office: 106 N. Harrison St. - Easton, MD 21601

PROFESSIONAL
CERTIFICATION:
I CERTIFY THAT THESE
DOCUMENTS WERE
PREPARED OR REVIEWED BY
ME AND THAT I AM A DULY
LICENSED ARCHITECT UNDER
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LICENSE NUMBER: 20221
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REVISIONS
DESCRIPTION

REV. #	DATE	DESCRIPTION

DATE: 12/07/2022

SCALE: AS SHOWN

DRAWN BY: KL

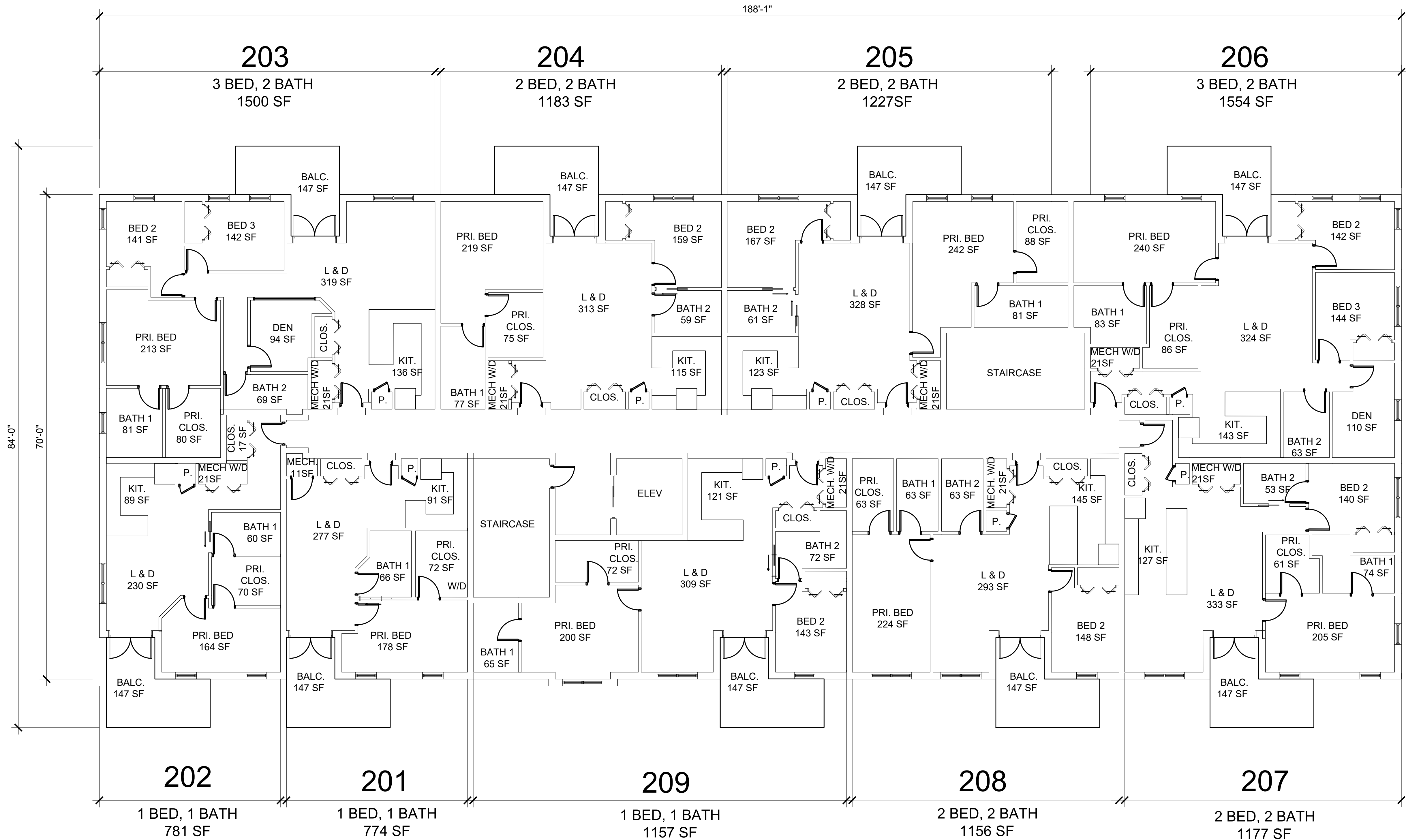
DESIGNED BY: KL, PR

APPROVED BY:

SHEET NO.:

A-101

MAP 26, GRID 20, PARCEL 186
TALBOT COUNTY
ASPIRE OUTDOORS LLC



1 PROPOSED SECOND FLOOR PLAN

Scale: 1/8" = 1'-0"

PROPOSED SECOND FLOOR PLAN
ASPIRE APARTMENTS



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SCALE: AS SHOWN

DRAWN BY: KL

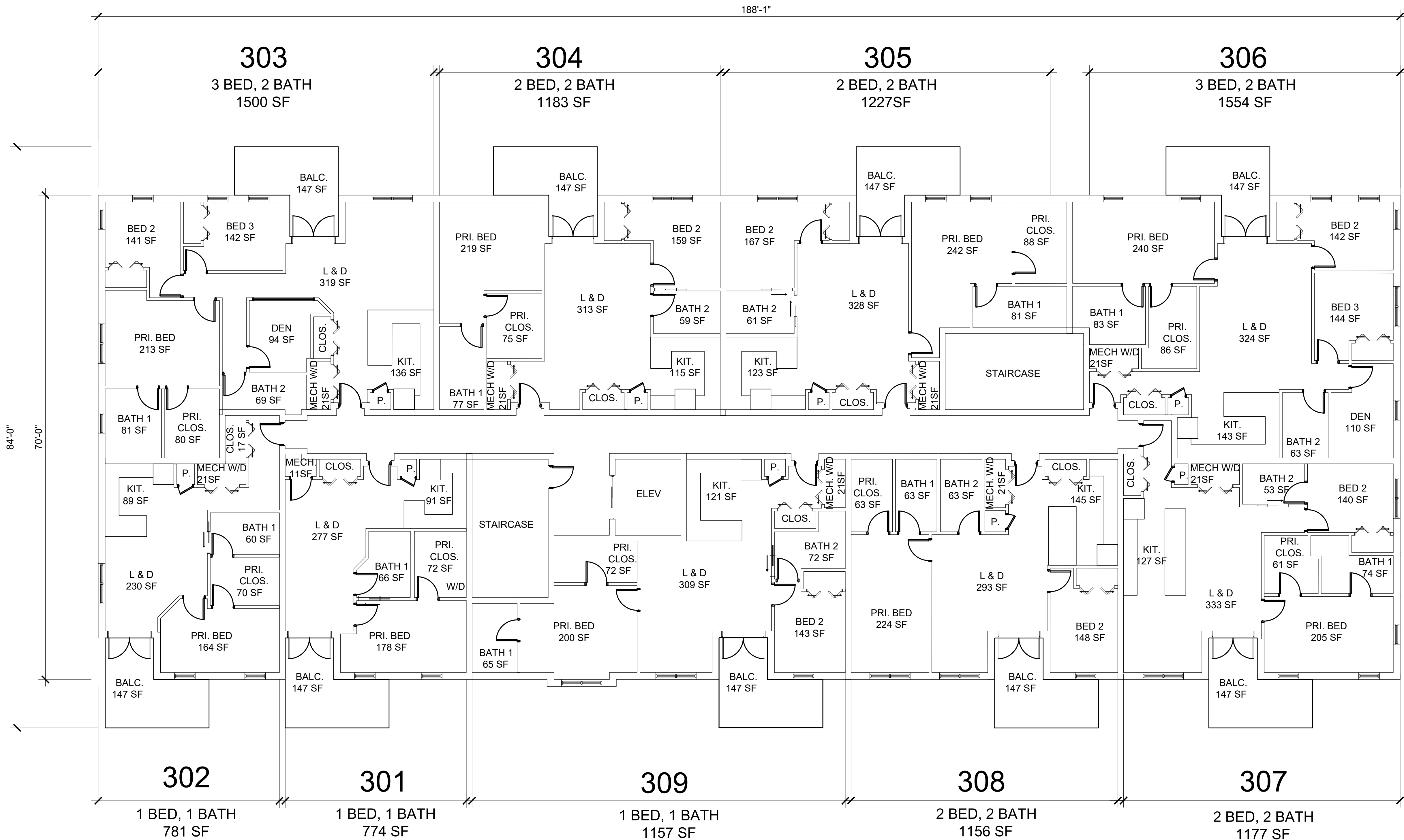
DESIGNED BY: KL, PR

APPROVED BY:

SHEET NO.:

A-102

MAP 26, GRID 20, PARCEL 186
TALBOT COUNTY
ASPIRE OUTDOORS LLC



1 PROPOSED THIRD FLOOR PLAN

Scale: 1/8" = 1'-0"

PROPOSED THIRD FLOOR PLAN
ASPIRE APARTMENTS

RAUCH
Engineering | Survey | Architecture | Environmental
Office: 410.770.9881 | Fax: 410.770.9887
TALBOT COUNTY
Maryland Office: 106 N. Harrison St. - Easton, MD 21601

PROFESSIONAL
CERTIFICATION
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SCALE: AS SHOWN

DRAWN BY: KL

DESIGNED BY: KL, PR

APPROVED BY:

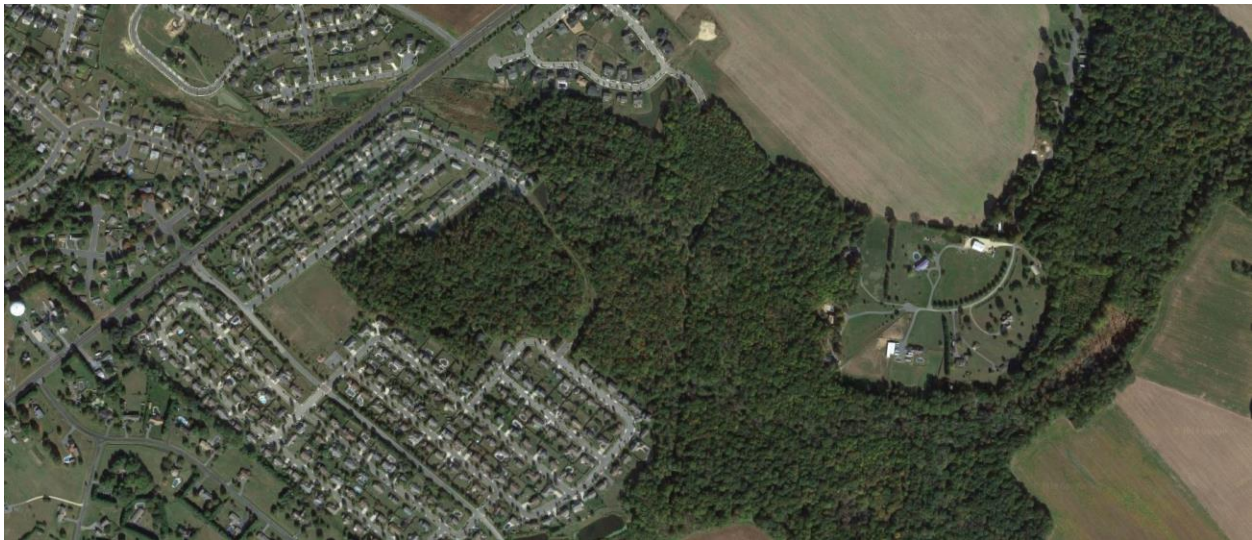
SHEET NO.:

A-103

FOREST STAND DELINEATION AND NATURAL RESOURCES INVENTORY

**Aspire Outdoors LLC
Town of Easton, Talbot County, Maryland**

October 2022



Prepared For:
Aspire Outdoors LLC
29760 Standish Street
Easton, MD 21601

Prepared By:
RAUCH inc.
106 North Harrison Street
Easton, MD 21601

CONTENTS

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1.0 INTRODUCTION

This Natural Resource Inventory (NRI), Forest Stand Delineation, and specimen survey of trees 30-inches in diameter and larger has been prepared for Aspire Outdoors, LLC to characterize existing forest cover for an environmental study. This study is intended to assess and aid in preliminary site plan development for the overall project site known as Aspire Outdoors. The overall project site comprises of two separate parcels identified as Parcel 186 and Parcel 112, totaling 65.695 acres. The subject parcels are documented on file as 50.225 acres (Parcel 186) and 15.47 acres (Parcel 112), and are located within the Town of Easton, Talbot County, Maryland. Forest stands were delineated according to guidelines within the *Maryland State Forest Conservation Technical Manual*, Third Edition, 1997, Maryland Department of Natural Resources, hereafter referred to as the State Manual, as well as Talbot County's and the Town of Easton's, Forest Stand Delineation criteria.

The Maryland Forest Conservation Act was passed by the General Assembly in 1991 and subsequently amended in 1993, 1994, and 2009 (*Maryland State Bill 666, Natural Resources, No Net Loss of Forest Policy, Forest Conservation Act*) to conserve the State's forest resources during development. The Act requires identification of existing forest stands, protection of the most desirable forest stands, and establishment of areas where new forests can be planted. The Act and regulations require that any person submitting application for subdivision, grading, or sediment and erosion control permits on units of land 40,000 square feet (0.92 acres) or greater shall submit a forest stand delineation (FSD) and forest conservation plan (FCP). These must be approved by the county or municipal government, a locally adopted forest conservation program, or the Maryland Department of Natural Resources (DNR) where no local program is in effect before other development related approvals are given.

The purpose of the FSD is to provide a tool to be used during the preliminary plan and review process to determine the most suitable and practical areas for forest conservation. Using a combination of resource mapping and field methods of ecology, it inventories and describes existing forests, and locates priority areas for retention, reforestation, or afforestation on the site as required. The FSD becomes the methodology for evaluating the existing natural features and vegetation on a site proposed for development taking into account the environmental elements that shape or influence the structure or makeup of a plant community. An approved FSD is valid for five (5) years in most Maryland Counties and two (2) years in others. To remain valid thereafter, it shall be updated and re-approved every five or two years (Environmental Division Natural Resources Program Manager dependent in this case) unless it becomes part of an approved FCP, and then subsequently acted upon through the land development process.

2.0 GENERAL SITE DESCRIPTION

The Aspire Outdoors LLC property is located within the Mid-Atlantic Coastal Plain (U.S. Department of Agriculture, Natural Resource Conservation Service, MLRA 153C of LRR T). Both parcels are more or less bounded by the Matthewstown Run residential neighborhoods. Parcel 186 is bordered to the North by the Hunter's Mill residential neighborhood. The portions of Matthewstown Run to the southwest of Parcels 112 and 186 pre-date the portions of Matthewstown Run that are located to the northwest.

Historically, the area was characterized by a mix of agricultural and forest fallow, which is evident in the forest stands located on the subject property. Some areas of the property have been left to reforest through ecological succession, while most other areas are upland mixed hardwood stands that have been selectively cut. Evidence of this is shown through logging trails on aerial imagery and presence of three or more tree layers have become established within the canopy.

First order (headwaters) and second order streams are located on the Subject Property and divide the property flowing into the named tributary, Hosewells Branch. Hosewells Branch, confluent to Kings Creek, flows East and ultimately into the Choptank River which is located to the Southeast of the property. Wetlands are contained within the sites boundaries, which have been identified as palustrine forested (PFO). Vernal pools can be found adjacent to the stream towards the southern extent of the property as the water tables rise and, the majority of which reside in forested and stream corridor areas.

The exact project area will be determined by the Limit of Disturbance (LOD), which has been defined in the forest conservation map. Generally, the project area will be focused on upland habitat and areas of previous timber harvesting activities, minimizing impacts to priority forests.

3.0 METHODOLOGY

The current State Manual requires that an FSD be performed to characterize and quantify existing forest resources, identify forest cover in the net tract area, and identify those areas of forest with priorities for retention. In addition to a general vegetation survey and identification of specimen trees (trees of 30-inches in diameter and trees within 75% of a current champion), the Manual requires the use of formal vegetation sampling techniques.

Our study protocol involves the delineation of all existing forest stands within the property boundaries. The forest stands are based on composition, density, size, condition, and age of the stand. The dominant, co-dominant, and associate tree species for each stand are identified and tabulated to indicate their relative frequencies and average tree diameter class and to provide descriptions of each tree stand including the identification of understory and herbaceous species. This information is utilized to isolate stands of higher quality vegetation (i.e. old growth forests, unique forest stands, contiguous forest, etc.) and any individual specimen trees, groves or clusters that should be considered for potential preservation in the planning and development process.

A forest stand or type can be characterized by studying the results of variable plot sampling (a statistical survey method, typically averaging 80-feet across in pole stocked or larger timber). Variable point sampling refers to a method in which sample trees are located with a probability proportional to their basal areas, (i.e. larger trees with larger basal areas have higher probabilities of selection than smaller trees). Basal area is defined as a measurement of the cross-sectional area of a tree trunk at breast height. Basal area of a forest stand is the sum of the basal areas of the individual trees. Furthermore, since basal area is highly correlated with tree volume, variable point sampling is an efficient method for estimating frequency of occurrence, volume, and/or economic value. Using a 10-factor wedge prism for sampling, it can be shown that each tree selected within the variable plot represents 10 square feet of basal area per acre, hence the term 10-factor point sample.

Sample point locations within each vegetation type are randomly selected (minimum of one per every four-acres of homogenous forest type and a minimum of two per stand). At each sample point location, trees that fall within the sample area are tallied and measured. This data is used to estimate the number of trees per acre, per each one-inch diameter class. In addition, the condition of the overstory trees in each vegetation type is evaluated and the understory and ground cover species identified.

Information included in the sample point data includes:

- Percent canopy closure and tree species observed including relative dominance,
- Percent and species of shrubs,
- Percent and species of forest floor covered by herbaceous plants,
- Percent of forest floor covered by downed woody debris,
- The presence or absence of exotic or invasive species.

A study of various aerial photography is also conducted to determine ground forest conditions and to make a preliminary determination of vegetation types occurring on the site. These

vegetation types are then ground-authenticated to verify composition, extent, and ecological importance.

Both within and between the sample plots, specimen trees and trees associated with historic structures are identified and located on the plan. Plan species which are listed as threatened, endangered, or in need of conservation are also identified.

Interpretation of the field data allows us to make judgements as to the forest composition, structure, condition, function, retention potential, and management recommendations for each stand. The FSD map is prepared and includes the natural resources inventory, steep slopes, wetlands, buffer setbacks, and other natural features and constraints required by the Manual or State/County government. The NRI/FSD maps are enclosed at the end of this report. Completed data sheets and a forest stand summary are also included the Appendix.

4.0 RESULTS

This NRI/FSD and tree survey has been prepared for the Aspire Outdoors LLC development to characterize the approximate 65.70-acre Subject Property. This consisted of approximately 56.41-acres of forested area and surrounding specimen trees across the entirety of the woodlands. Forestry fieldwork was performed in 2022 on March 28th, April 1st, & October 28th.

Mesic Mixed Hardwoods

The Mesic Mixed Hardwood stand totals 12.38-acres and is generally the upland stand. These stands are depicted in the map as Stand 1, provided in the attached Forest Stand Delineation Map. The dominant indicator species of these stands is Red Maple. There is an estimated 160.9 trees per acres, having an average diameter of 10.5-inches, and a basal area of 108.3 feet² per acre. This basal area falls within the range of fully stocked stands (100-129 feet² per acre), meaning trees are spaced enough to prevent competition, yet closely enough to utilize the entire site.

Red Maple trees are estimated to be found at 64.4 trees per acre. Red Maple trees have an average diameter of 10-inches, and a frequency of occurrence of 40%. The stand is estimated to be 45 years old, placing the time of the most recent influential perturbation around 1977. This coincides with aerial imagery from 1981 that showed timbering activities occurring in this area (Northern portion) of the site. Co-dominate and Associate species found across the data stations include Northern Red Oak, White Oak, Willow Oak, and Loblolly Pine. The understory was comprised of American Beech, American Holly, Black Cherry, Red Maple. The groundcover species included partridge berry, crowsfoot, and lowbush blueberry. The understory was relatively low and open which is probably due to the significance of American Beech in the understory.

Riparian Hardwood Corridor

The Riparian Hardwood Corridor is 46.03 acres in size and located along the bottomlands including the floodplain along streams and vernal pools found on the property. This forest type can be identified as Stand 2 in the Forest Stand Delineation Map. They are dominated by White Oak species (Willow Oak, Swamp Chestnut, etc.) with co-dominate species including Red Maple. The forest stand is relatively diverse with most of the sampling points having 4-5 tree species over 6" DBH and up to 7 in FSP-13.

The Riparian Hardwood Corridor has an estimated 136.2 trees per acre, with an average diameter of 11.7-inches, and a basal area of 118.8 feet² per acre. Basal areas ranging from 100-129 are described as also being fully stocked. Canopy closure was found to be 70-75%, which correlates with well stocked forests, and further supports the results found by basal area analysis. White Oaks were calculated to occur at 16.4 trees per acre, with an average diameter of 14.4-inches, and frequency of occurrence of 12%. A stand summary of these results is provided in the Appendix. The stand is approximately 72 years old, and is likely the result of an agricultural field that was laid fallow due to poor soils. Due to frequent flooding and proximity to wetlands, most of the specimen trees found on the property were located within this forest stand. A visual of this stand is also provided in the Forest Stand Delineation Map. It should be noted that due to a tornado that went over the property, there is an increase of downed woody debris within the wetland areas that disturbed much of the larger trees.

Specimen Trees

A specimen tree is defined as any tree having a diameter at breast height of 30-inches or greater. A total of 12 specimen trees were identified throughout the Aspire Outdoors LLC property, with diameters ranging up to 44-inches. Species included White Oak, Willow Oak, Swamp Chestnut Oak, Red Maple, and Loblolly Pine. Heights and tree crowns ranged from 35-80 feet and 50-75 feet, respectively. The vast majority of specimen trees were rated to be in "Good" condition.

Rare, Threatened, and Endangered Species

An environmental review request for the 65.70-acre planned development was submitted to the Maryland Department of Natural Resources (DNR), Wildlife and Heritage Service, and a response was obtained from Lori Byrne, Environmental Review Coordinator, dated June 17th, 2022 shown in the Appendix. DNR has determined that the southernmost portion of the project site overlaps with the site known as Swann-Haven Ponds which consists of a series of vernal pools which should be avoided to all extents. Among the animals listed in the review, a state listed endangered species known as the Seth Forest Water Scavenger Beetle (*Hydrochus spangleri*), occurs in this type of habitat. She goes on to encourage the applicant to consider a minimum 100-foot undisturbed buffer (ideally, 300-foot undisturbed buffer) from the wetland edge to this region of the project. If development is planned for the southern area, the Natural Heritage Program would be willing to provide conservation guidelines. Fortunately, it appears that this area will not be impacted.

All woodlands at Aspire Outdoors are proposed to be retained, except for 8.10-acres of highly selective clearing, necessary for road infrastructure and stormwater outfalls are proposed. Any impacts to wetlands/waters, will be permitted through ACOE and MDE. We understand that FWS guidance includes avoidance and minimization of tree clearing, establishing a buffer setback from tree lines as and where possible, and that retained woodlands be protected through some form of easement.

The DNR environmental review also mentioned that some of the forested land at Aspire Outdoors may be considered forest interior dwelling (FID) bird habitat.

The definition of FID habitat is:

- forest at least 50-acres in size with 10 or more acres of “forest interior” habitat, containing forest buffering of 300-feet to the nearest forest edge
- riparian forest with perennial stream, at least 50-acres in size, with a total average width of at least 300-feet

The determination of FID habitat does not consider political boundaries, and may include off-site woodlands that reach into the subject property, where a portion of the subject property contributes to the overall size qualification as being FID habitat. Aspire Outdoors has no control over abutting adjacent land and landowners regarding retention of woodlands considered as being FID habitat, but the applicant has done their due diligence to maintain as much of the contiguous forests as can be avoided.

As previously mentioned, almost all priority woodlands at Aspire Outdoors LLC are proposed to be retained, except necessary improvements to make the project feasible and meet all required comments from local agencies (i.e. Soil Conservation and State Highway Administration). The specific proposed road crossings are essential to gain access to developable land and have gone through the scrutiny of best avoiding and minimizing both forest and wetlands/waters impacts.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Approximately 46.03 acres of the Riparian Hardwood Corridor forests were found in the subject property. This stand contains R4 intermittent and R2 perennial stream channels within the middle of the property. All streams require a 100-foot protection buffer setback from the top of each bank landward. The majority of the specimen trees and wetlands within the scope of the development reside within these setbacks or in the floodplain, which is favorable and will result in minimal impacts to these areas.

The Mature Mixed Hardwood stands consist of approximately 12.38 acres. This stand encompasses most of the proposed development within the scope of the project, which coincides with the upland areas. Using aerial imagery from USGS and sampling data, it appears that this stand was previously timbered in the late 1970s through early 1980s and would be a good candidate for development.

The overwhelming majority of the Riparian Hardwood Corridor stand at Aspire Outdoors LLC includes highly erodible soils, wetlands, streams, and floodplain. This stand should be left as a buffer to any potential habitats that may exist. The Town of Easton states in their regulations that subdivision and site development plans should make all reasonable attempts to preserve specimen trees, smallgroves, hedgerows, or other existing tree stands. It is recommended that impacts to existing forests are minimized to the greatest extent possible. This can be achieved by limiting clearing activities in the interior forest, and in circumstances where impacts cannot be avoided, drafting site designs that place lots along the forest edges.

In conclusion, all the woodlands considered priority retention forest include forest cover within buffer setbacks for wetlands and waters, the majority being located in the riparian hardwood corridors. Forest sampling data shows these areas to be associated with wetlands and waters. Impacts to these areas should be avoided.

Questions or comments regarding this NRI/FSD can be directed to RAUCH inc. at 410-770-9081.

APPENDIX

Aspire Outdoors Forest Stand Summary Analysis

Stand Number or ID	Aerial Extent in Acres	Estimated Trees Per Acre	Average Diameter (d.b.h.)	Basal Area Per Acre ₂	Stand Formation Type	Dominant Indicator Species	Dominant Species Per Acre	Dominant Species Mean d.b.h	Dominant % Frequency of Occurrence	Approximate Age of The Stand ₃
MMH	12.38	160.9	10.5"	Fully Stocked	Mesic Mixed Hardwoods	Red Maple	64.4	10"	40%	45 / 1977
RHC	46.03	136.2	11.7"	Fully Stocked	Riparian Hardwood Corridor	White Oak spp.	16.4	14.4"	12%	72 / 1950

1. A forest association is an assemblage of plants having ecologically similar requirements and include one or more dominant species from which it derives a definite character. The Aspire Outdoors property occurs in the major forest group, the Mesic Mixed Hardwood Forest (Mid-Atlantic). This forest is typically found on well-drained soils with sloping gradients. It is characteristically a mixed forest dominated by Northern Red Oaks, White Oak, Red Maple, and Tulip Poplar in various proportions. Overstory associates include Oak spp. (Red & White), Red Maple, and Loblolly Pine, with a mix of American Beech and American Holly being particularly characteristic and abundant throughout the understory. This forest type occurs throughout Maryland and east of the fall line; located on the Lower Atlantic Coastal Plain Province, *Vegetation Map of Maryland, The Existing Natural Forests, 1976, G.S. Brush, C. Lenk, S. Smith*. The Aspire Outdoors Property is located within this formation type and will express Mixed Oak hardwood community through ecological time.

2. Basal area is a measurement of the cross-section of a tree in square feet at breast height. Basal area (BA) of a forest stand is the sum of the basal areas of the individual trees and is reported as BA per acre. The BA value shown in this Forest Analysis equates to a stocking which is a general description of the density of the forest stand as compared to the desirable density for best growth and management. Stands may be described as understocked; a stand of trees so widely spaced that, even with full growth potential realized, crown closure will not occur, well stocked; the situation in which a forest stand contains trees spaced widely enough to prevent competition, yet closely enough to utilize the entire site, and overstocked; the trees are so closely spaced that they are competing for resources, resulting in less than full growth potential for individual trees. Basal area per acre values are analyzed as non-stocked = 0 to 9, poorly stocked = 10 to 59, moderately stocked = 60 to 99, fully stocked = 100 to 129, and overstocked = 130 to 160. *Forestry Handbook, K.F. Wenger, 1984, pg. 318-321*. There is a correlation between stand density and canopy closure, typically recognized as understocked, under 40% crown closure, well stocked, 40-70% crown closure, overstocked, over 70% crown closure. *Essentials of Forestry Practice, C.H. Stoddard, 1968, page 53*.

3. Age dating methodology – *Valuation of Landscape Trees, Shrubs and other Plants. A Guide to the Methods and Procedures for Appraising Amenity Plants, International Society of Arboriculture, Seventh Edition, 1988, pages 33, 34*, increment boring or cutting and counting of growth rings. Stand age of the dominant overstory represents the time since the last, most influencing perturbation, such as release from agriculture, highgrading (selective harvest) etc.

Project Name: **Aspire Outdoors LLC**
 Stand #: Mesic Mixed Hardwoods
 Number of Point Samples: 6
 Field Crew: Kowalczyk, O'Neal
 Date: 10.31.22

Point Sample Inventory Calculation Data Sheet, ESA, Inc.
 Elementary Timber Measurements, H.V. Wiant
 WVU Division of Forestry, 1990, pgs. 74-81

DBH	FACTOR	BAF TOTALS	TREES PER AC	DOM SP BAF TOTALS	DOM SP T/A	TREES/AC *MDBH	DOM SP T/A*MDBH
1	1833.52	0	0.0	0	0.0	0	0
2	458.38	0	0.0	0	0.0	0	0
3	203.72	0	0.0	0	0.0	0	0
4	114.6	0	0.0	0	0.0	0	0
5	73.34	1	12.2	0	0.0	61.11666667	0
6	50.93	1	8.5	1	8.5	50.93	50.93
7	37.42	4	24.9	2	12.5	174.6266667	87.31333333
8	28.65	2	9.6	2	9.6	76.4	76.4
9	22.64	4	15.1	0	0.0	135.84	0
10	18.34	4	12.2	2	6.1	122.2666667	61.13333333
11	15.15	4	10.1	1	2.5	111.1	27.775
12	12.74	12	25.5	7	14.9	305.76	178.36
13	10.85	8	14.5	2	3.6	188.0666667	47.01666667
14	9.35	0	0.0	0	0.0	0	0
15	8.15	9	12.2	0	0.0	183.375	0
16	7.16	6	7.2	4	4.8	114.56	76.37333333
17	6.34	5	5.3	1	1.1	89.81666667	17.96333333
18	5.66	1	0.9	1	0.9	16.98	16.98
19	5.08	1	0.8	0	0.0	16.08666667	0
20	4.58	1	0.8	0	0.0	15.26666667	0
21	4.16	0	0.0	0	0.0	0	0
22	3.79	0	0.0	0	0.0	0	0
23	3.47	1	0.6	0	0.0	13.30166667	0
24	3.18	1	0.5	0	0.0	12.72	0
25	2.93	0	0.0	0	0.0	0	0
26	2.71	0	0.0	0	0.0	0	0
27	2.52	0	0.0	0	0.0	0	0
28	2.34	0	0.0	0	0.0	0	0
29	2.18	0	0.0	0	0.0	0	0
30	2.04	0	0.0	0	0.0	0	0
31	1.91	0	0.0	0	0.0	0	0
32	1.79	0	0.0	0	0.0	0	0
33	1.68	0	0.0	0	0.0	0	0
34	1.586	0	0.0	0	0.0	0	0
35	1.496	0	0.0	0	0.0	0	0
36	1.414	0	0.0	0	0.0	0	0
37	1.339	0	0.0	0	0.0	0	0
38	1.269	0	0.0	0	0.0	0	0
39	1.205	0	0.0	0	0.0	0	0
40	1.145	0	0.0	0	0.0	0	0
		65	160.9	23	64.4	1688.213333	640.245
ESTIMATED TREES PER ACRE:			160.9				
AVERAGE MEAN DIAMETER:			10.5				
BASAL AREA PER ACRE:			108.3				
DOMINANT SPECIES:			Red Maple				
DOM SPEC TREES PER ACRE:			64.4				
DOM SPEC AVG MEAN DIAMETER:			9.9				
% FREQUENCY OF OCCURENCE:			40.0				

Project Name: **Aspire Outdoors LLC**
 Stand # : Riparian Hardwood Corridor
 Number of Point Samples: 8
 Field Crew: Kowalczyk, O'Neal
 Date: 10.31.22

Point Sample Inventory Calculation Dat
 Elementary Timber Measurement:
 WVU Division of Forestry, 1990,

DBH	FACTOR	BAF TOTALS	TREES PER AC	DOM SP BAF TOTALS	DOM SP T/A
1	1833.52	0	0.0	0	0.0
2	458.38	0	0.0	0	0.0
3	203.72	0	0.0	0	0.0
4	114.6	0	0.0	0	0.0
5	73.34	0	0.0	0	0.0
6	50.93	0	0.0	0	0.0
7	37.42	6	28.1	0	0.0
8	28.65	4	14.3	1	3.6
9	22.64	6	17.0	0	0.0
10	18.34	3	6.9	0	0.0
11	15.15	5	9.5	0	0.0
12	12.74	10	15.9	2	3.2
13	10.85	7	9.5	1	1.4
14	9.35	2	2.3	0	0.0
15	8.15	7	7.1	2	2.0
16	7.16	9	8.1	2	1.8
17	6.34	4	3.2	2	1.6
18	5.66	3	2.1	1	0.7
19	5.08	5	3.2	0	0.0
20	4.58	2	1.1	0	0.0
21	4.16	3	1.6	1	0.5
22	3.79	3	1.4	1	0.5
23	3.47	1	0.4	1	0.4
24	3.18	2	0.8	0	0.0
25	2.93	2	0.7	1	0.4
26	2.71	2	0.7	0	0.0
27	2.52	3	0.9	0	0.0
28	2.34	2	0.6	0	0.0
29	2.18	0	0.0	0	0.0
30	2.04	0	0.0	0	0.0
31	1.91	0	0.0	0	0.0
32	1.79	0	0.0	0	0.0
33	1.68	2	0.4	1	0.2
34	1.586	0	0.0	0	0.0
35	1.496	0	0.0	0	0.0
36	1.414	0	0.0	0	0.0
37	1.339	1	0.2	0	0.0
38	1.269	0	0.0	0	0.0
39	1.205	1	0.2	1	0.2
40	1.145	0	0.0	0	0.0
		95	136.2	17	16.4

ESTIMATED TREES PER ACRE: 136.2
 AVERAGE MEAN DIAMETER: 11.7
 BASAL AREA PER ACRE: 118.8

DOMINANT SPECIES: White Oaks
 DOM SPEC TREES PER ACRE: 16.4
 DOM SPEC AVG MEAN DIAMETER: 14.4
 % FREQUENCY OF OCCURENCE: 12.0

June 17, 2022

Mr. Kyle A. Kowalczyk
Rauch Engineering, Inc.
106 N. Harrison Street
Easton, MD 21601

**RE: Environmental Review for Aspire Outdoors, LLC - Proposed Mixed-Use Facility on Tax Map 35
Parcels 112 & 186 Town of Easton, Talbot County, Maryland.**

Dear Mr. Kowalczyk:

The Wildlife and Heritage Service has determined that the southernmost part of the project site overlaps with the site known as Swann-Haven Ponds. Swann-Haven Ponds is a natural area encompassing vernal pools in a forested habitat. Fairy shrimp, marbled salamander larvae, and wood frog tadpoles are among the animals that inhabit the pool. The globally rare Seth Forest Water Scavenger Beetle (*Hydrochus spangleri*) – state-listed as endangered - is also found here. The vernal pools are surrounded by a mature mesic forest with red maple, sweetgum, white oak, willow oak, and tulip poplar.

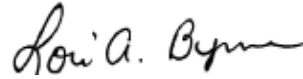
Vernal pools are defined as small, nontidal palustrine forested wetlands with a well-defined, discrete basin and the lack of a permanent, above ground outlet. The basin overlies a clay hardpan or some other impermeable soil or rock layer that impedes drainage. As the water table rises in fall and winter, the basin fills, forming a shallow pool. By spring, the pool typically reaches maximum depth following snowmelt and the onset of spring rains. By mid-late summer, the pool usually dries up completely, although some surface water may persist in relatively deep basins, especially in years with above average precipitation. This periodic, seasonal drying prevents fish populations from becoming established, an important biotic feature of vernal pools.

We would encourage the applicant to consider a minimum 100-foot undisturbed buffer (ideally, 300-foot undisturbed buffer) from the wetland edge, in order to avoid detrimental impacts to the rare species that may occur there.

Also, our remote analysis suggests that the forested area on this property contains Forest Interior Dwelling Bird habitat. Populations of many bird species which depend on this type of forested habitat are declining in Maryland and throughout the eastern United States. Interested landowners can contact us for further voluntary guidelines to help conserve this important habitat.

Please be sure to let us know if the limits of proposed disturbance or overall site boundaries change and we will provide you with an updated evaluation. Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at lori.byrne@maryland.gov or at (410) 260-8573.

Sincerely,

A handwritten signature in black ink that reads "Lori A. Byrne". The signature is written in a cursive, flowing style.

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2022.0550.ta
Cc: D. Limpert, DNR



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127

<http://www.fws.gov/chesapeakebay/>

<http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html>



In Reply Refer To:
Project Code: 2022-0026583
Project Name: Aspire Outdoors LLC

March 31, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of

this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive

Annapolis, MD 21401-7307

(410) 573-4599

Project Summary

Project Code: 2022-0026583

Event Code: None

Project Name: Aspire Outdoors LLC

Project Type: Mixed-Use Construction

Project Description: Proposed mixed-use development on two adjacent parcels totalling approximately 63 AC of woodlands. The developer would like provide housing and recreational activities to underprivileged communities located in Talbot County within the Town limits of Easton, MD. Project is anticipated to begin Spring 2024.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.783641599999996,-76.0408974369104,14z>



Counties: Talbot County, Maryland

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ The monarch is a candidate species and not yet listed or proposed for listing. There are generally no section 7 requirements for candidate species (FAQ found here: https://www.fws.gov/savethemonarch/FAQ-Section7.html). Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED.
PLEASE VISIT [HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML](https://www.fws.gov/wetlands/data/mapper.html) OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPaC User Contact Information

Agency: Rauch Inc.

Name: Tyler O'Neal

Address: 106 N. Harrison St.

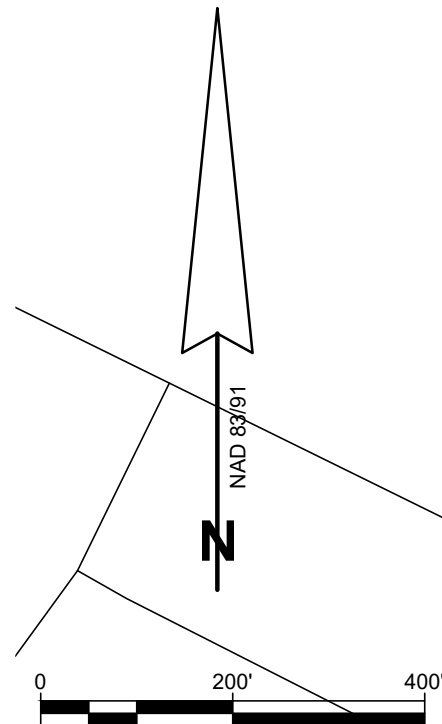
City: Easton

State: MD

Zip: 21601

Email: tyler@raucheng.com

Phone: 3022334501



SITE ANALYSIS		
Feature	Yes	No
Forest On-Site	X	
Contiguous Forest	X	
Priority Forest	X	
Wetlands	X	
Streams	X	
Floodplains	X	
Hydric Soils	X	
Slopes > 15%		X
Historical or Cultural Features		X
Trees >30' DBH	X	
State Champion Trees		X
Easement or ROW Restrictions	X	
Existing Structures		X
Rare, Threatened or Endangered Flora		X
Rare, Threatened or Endangered Fauna	X	
Forest Interior Dwelling Species	X	

LEGEND

- PROPERTY LINE
- EXISTING TREELINE
- EXISTING SOIL TYPE LINE
- EXISTING NON-TIDAL WETLANDS
- EXISTING WETLANDS BUFFER
- EXISTING STREAM
- EXISTING STREAM BUFFER
- DENOTES SPECIMEN TREE
- FOREST STAND 1
- FOREST STAND 2 (PRIORITY)
- DENOTES FOREST SAMPLING POINT

SOILS TYPE

CoA - CORSICA MUCKY LOAM, 0 TO 2 PERCENT SLOPES
FgcA - FALLSINGTON LOAMS, 0 TO 2 PERCENT SLOPES
MtcB - MATTAPEX SILT LOAM, 2 TO 5 PERCENT SLOPES
NsB - NASSAWANGO SILT LOAM, 2 TO 5 PERCENT SLOPES
OtA - OTHELLO SILT LOAMS, 0 TO 2 PERCENT SLOPES
WdcA - WOODSTOWN SANDY LOAM, 0 TO 2 PERCENT SLOPES
WdcB - WOODSTOWN SANDY LOAM, 2 TO 5 PERCENT SLOPES
Zk - ZEKIAH SILT LOAM, FREQUENTLY FLOODED

B/D
C/D
C
C
C/D
C
C/D

AREA CALCULATIONS

TOTAL ACREAGE	38.70 AC.
TOTAL EXISTING FOREST	33.35 AC.
FOREST STAND 1	6.60 AC.
FOREST STAND 2 (PRIORITY)	26.75 AC.

SPECIMEN TREES

NO.	SPECIES	DBH (")	CONDITION	DISPOSITION
1	White Oak	38.8	FAIR	SAVE
2	White Oak	33.8	GOOD	SAVE
3	White Oak	38.2	GOOD	SAVE
4	White Oak	44	POOR	SAVE
5	White Oak	36.5	GOOD	SAVE
6	White Oak	30.3	GOOD	SAVE
7	White Oak	36	GOOD	SAVE
8	White Oak	30.1	FAIR	SAVE
9	Willow Oak	32	GOOD	SAVE
10	Swamp Chestnut Oak	33.2	GOOD	SAVE
11	Red Maple	36.9	GOOD	SAVE
12	Loblolly Pine	32.9	GOOD	SAVE

NOTE: CHRIS PAJAK OF MDE'S NON-TIDAL WETLAND DIVISION PREVIOUSLY CONFIRMED WETLAND DELINEATION ON 5/5/2021. ADJACENT PROPERTY LINES, SOIL MAPPING, AND EXISTING TREE LINE ARE ALL TAKEN FROM PUBLIC SOURCES.

FOREST STAND 2 SHOULD BE RETAINED AS BEST CAN BEING PRIORITY FOREST WITH SENSITIVE ENVIRONMENTAL FEATURES. ANY DISTURBANCES TO NON-TIDAL WETLANDS OR ASSOCIATED BUFFERS WILL REQUIRE ADDITIONAL PERMITTING THROUGH MDE.

FOREST STAND DELINEATION MAP
ON THE LANDS OF
ASPIRE OUTDOORS, LLC
TAX MAP 28 GRID 20 PARCEL 186
ELECTION DISTRICT 1, TALBOT COUNTY, MARYLAND
FSD/FCP DRAWINGS FOR ASPIRE OUTDOORS, LLC

RAUCH inc.
engineering design &
development services
office: 410.770.8081 | fax: 410.770.3867
email: design@rauchinc.com | web: www.rauchinc.com
Virginia Office: 8229 Boone Blvd, Suite 625 - Vienna, VA 22182

SEAL
DATE

REVISIONS

REV. #	DATE	DESCRIPTION	

DATE: OCTOBER 2022
JOB NUMBER: 030320
SCALE: 1" = 200'
DRAWN BY: TPO
DESIGNED BY: RAUCH INC.
APPROVED BY:
FOLDER REF:

SHEET NO.: 3 OF 4
FILE NO.:

CONTACT INFORMATION

OWNER/DEVELOPER: ASPIRE OUTDOORS, LLC
29760 STANDISH STREET
EASTON, MD 21601

ENGINEER: RAUCH Inc.
106 N HARRISON ST
EASTON, MARYLAND 21301
(410)770-9081

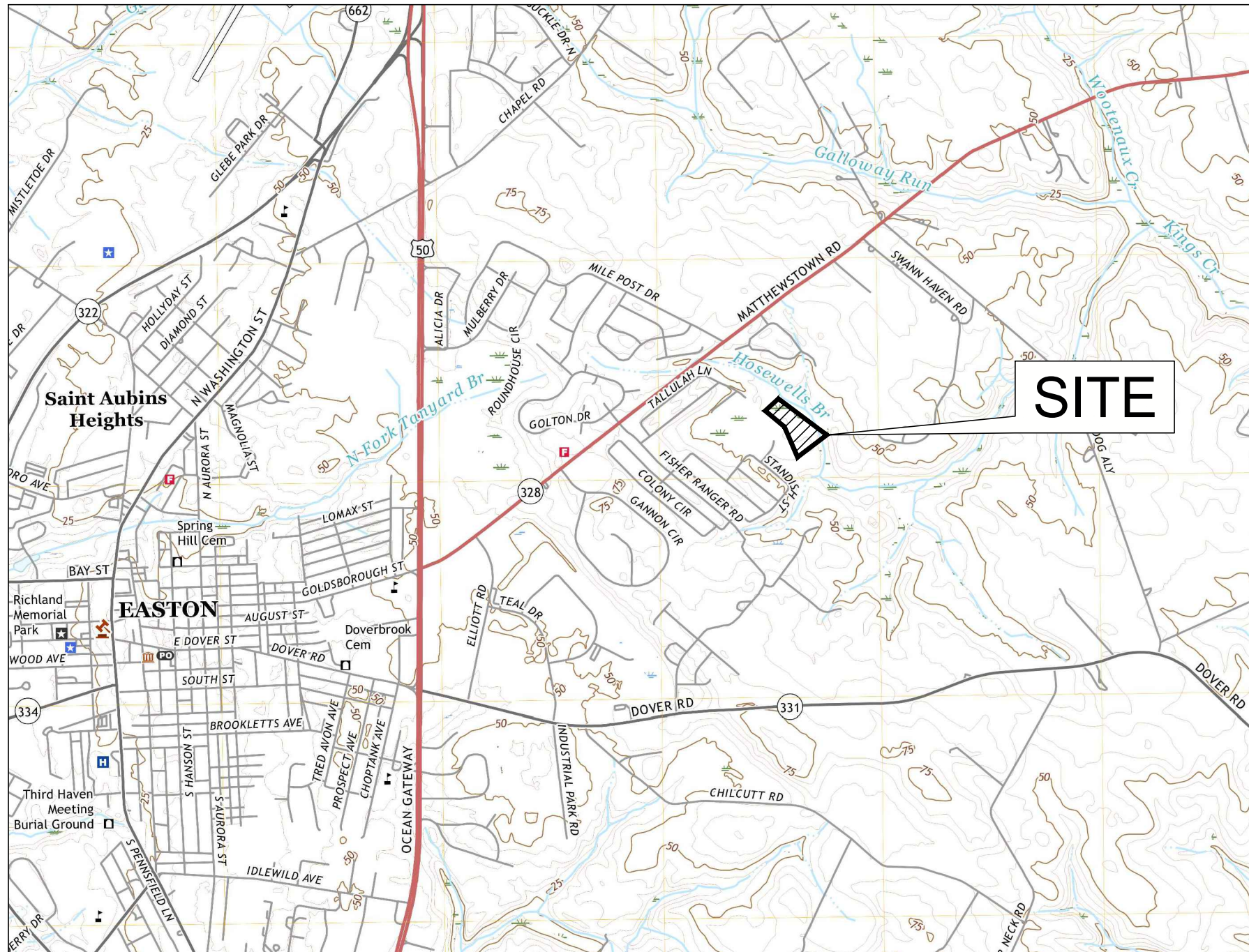
SITE DATA

PROPERTY ADDRESS: CAMAC STREET
EASTON, MD 21601
38.785378 N
-76.039285 W
PRESENT ZONING CLASSIFICATION: R10A
PRESENT USE: UNDEVELOPED SITE
PLANNED USE: RESIDENTIAL
TAX MAP: 0026
GRID: 0186
PARCEL: 02644/00114
SITE AREA: 2,187,801 SQ. FT / 50.225 ACRES
FEMA FLOOD MAP: PANEL 24041C0191C
SURVEY DATUM: NAVD83
HORIZONTAL: NAVD88
VERTICAL: 2248
EPSG CODE:

PARKING:
PER ZONING ORDINANCE 28-1001.3

REQUIRED PARKING: MULTIFAMILY: 1 TO 2 PER DWELLING UNIT
6 BUILDINGS WITH 27 UNITS EACH = 162 UNITS
162 SPACES TO 324 SPACES
PROVIDED PARKING: 213 SPACES OR 1.314 SPACES PER UNIT
ADA PARKING REQUIRED: 7 SPACES (2 VAN ACCESSIBLE)
ADA PARKING PROVIDED: 8 SPACES (3 VAN ACCESSIBLE)

ASPIRE APARTMENTS
INFRASTRUCTURE IMPROVEMENT PLANS
FOR
ASPIRE OUTDOORS LLC
TALBOT COUNTY, MARYLAND 21601



VICINITY MAP
SCALE: 1" = 2,000'

ENVIRONMENTAL NOTES:

- THE PROJECT SITE IS NOT LOCATED WITHIN THE CRITICAL AREA BUFFER
- THE SITE IS NOT LOCATED WITHIN A 100 YEAR FLOODPLAIN
- NON-TIDAL WETLANDS ARE PRESENT ON-SITE

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETE WITHIN:

- THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND
- SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING

LINETYPES

TOPOGRAPHY
MAJOR CONTOURS
MINOR CONTOURS
TOP OF SLOPE BREAKLINE
BOTTOM OF SLOPE BREAKLINE
TOPOGRAPHY BREAKLINE

CATCHMENT AREA

To FLOW PATH

PARCEL BOUNDARY
PARCEL SETBACK/EASEMENT
FENCELINE WOOD
FENCELINE STEEL
TREELINE/VEGETATION
ROADWAY CENTERLINE
HIGHWAY BARRIER

UTILITIES

OVERHEAD ELECTRIC
UNDERGROUND ELECTRIC
UG ELECTRIC - PRIMARY
UG ELECTRIC - SECONDARY
TELEPHONE LINE
GAS PIPE LINE
CABLE TV
WATER PIPE
STORMWATER PIPE

UNDERDRAIN
SANITARY SEWER
FORCE MAIN SEWER

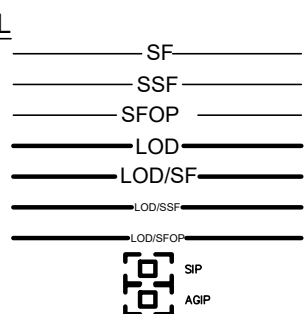
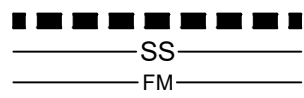
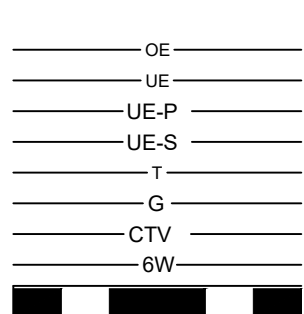
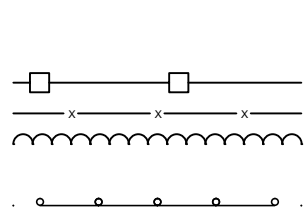
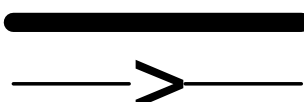
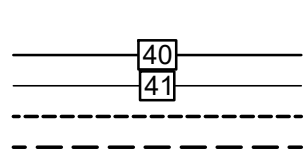
ENVIRONMENTAL

WETLAND LINE
FLOOD PLANE 100/500 YR
MEAN HIGH WATER
MEAN LOW WATER
CRITICAL AREA BOUNDARY
BUFFER 25'/100'
SOILS BOUNDARY
SWM EASEMENT 5'/10'

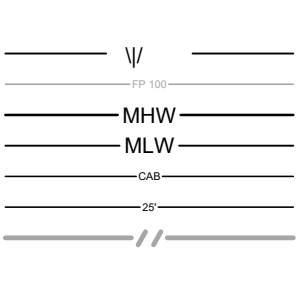
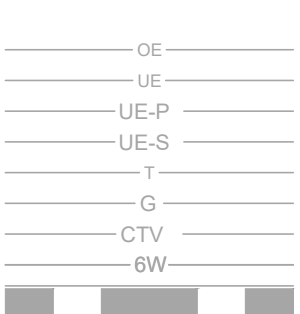
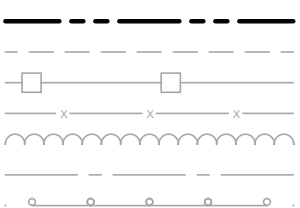
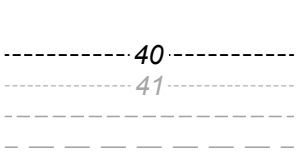
EROSION AND SEDIMENT CONTROL

SILT FENCE
SUPER SILT FENCE
SILT FENCE ON PAVEMENT
LIMITS OF DISTURBANCE
LOD & SILT FENCE
LOD & SUPER SILT FENCE
LOD & SILT FENCE ON PAVEMENT
STANDARD INLET PROTECTION
AT-GRADE INLET PROTECTION

PROPOSED



EXISTING



SYMBOLS

FLARED END SECTION

YARD INLET

CURB INLET

CUSTOM INLET

NYLOPLAST INLET

STORM DRAIN MANHOLE

SANITARY SEWER MANHOLE

CLEANOUT

GATE VALVE

STUB

SIGN

WATER METER

FIRE HYDRANT

WELL

BOLLARD

ELECTRIC TRANSFORMER

TELEPHONE PEDESTAL

UTILITY POLE

GUY WIRE

CONIFEROUS TREE

DECIDUOUS TREE

SPOT ELEVATION

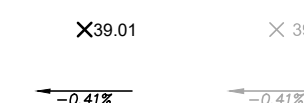
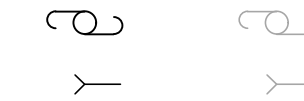
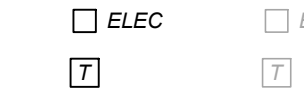
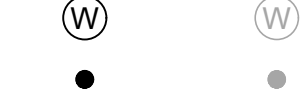
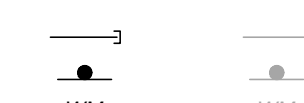
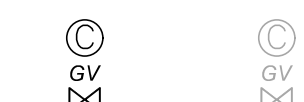
LAND SLOPE

BENCHMARK

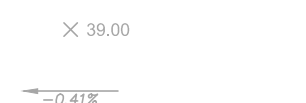
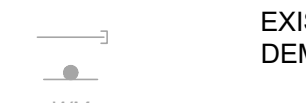
BOREHOLE/MONITORING WELL

LIGHTING

PROPOSED



EXISTING



HATCHES

ASPHALT

GRAVEL

CONCRETE

RIPRAP/ROCK

ESD BED BOTTOM

BRICK PAVING

EXISTING, TO BE DEMOLISHED

STEEP SLOPES

ROOFTOP/NON-ROOFTOP DISCONNECT

ASPHALT

GRAVEL

CONCRETE

RIPRAP/ROCK

ESD BED BOTTOM

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CONCRETE

RIPRAP/ROCK

ESD BED BOTTOM

BRICK PAVING

EXISTING, TO BE DEMOLISHED

STEEP SLOPES

ROOFTOP/NON-ROOFTOP DISCONNECT

ABBREVIATIONS

ADA AMERICANS WITH DISABILITIES ACT
AGIP AT GRADE INLET PROTECTION
@ BACK OF CURB
BM BENCHMARK
BRL BUILDING RESTRICTION LINE
CES CONCRETE END SECTION
C/O CLEAN OUT
CHRD CHORD
CI CURB INLET
CIP CURB INLET PROTECTION
CL CENERLINE
CMF CONCRETE MONUMENT FOUND
CMP CORRUGATED METAL PIPE
Cui CUSTOM INLET
CY CUBIC YARD
DI DUCTILE IRON
E EAST
EL/ELEV ELEVATION
EP EDGE OF PAVE
ESC EROSION AND SEDIMENT CONTROL
EX EXISTING
FES FLARED END SECTION
FFE FINISHED FLOOR ELEVATION
FH FIRE HYDRANT
FL FLOW LINE
FT FOOT
GFA GROSS FLOOR AREA
GPD GALLONS PER DAY
GV GATE VALVE
HDPE HIGH DENSITY POLYETHYLENE
I INLET
INV INVERT
KV KILOVOLTS
L ARC LENGTH
LF LINEAR FEET
LOD LIMITS OF DISTURBED AREA
LT LEFT
MAX MAXIMUM
MBR MICRO-BIORETENTION
MD MARYLAND
MEP MECHANICAL, ELECTRICAL, AND PLUMBING
MH MANHOLE
MH-W MEAN HIGH WATER
MIN MINIMUM
MLW MEAN LOW WATER
MSHA MARYLAND STATE HIGHWAY ADMINISTRATION
MUTC MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
N NORTH
NO NUMBER
PC POINT OF CURVATURE

SHEET INDEX

SHEET NUMBER	DRAWING TITLE
G-100	COVER SHEET
C-101	SITE PLAN
C-200	EROSION AND SEDIMENT CONTROL (ESC) COVER
V-101	DEMOLITION & CLEARING PLAN
C-201.01	ESC PLAN
C-201.02	STORMWATER & STORM DRAIN PLAN
C-203	STORM DRAIN PROFILES
C-205.01 → C-205.02	ESC DETAILS
C-205.03 → C-205.04	STORMWATER MANAGEMENT DETAILS
C-301	SITE GRADING PLAN
C-305.01 → C-305.02	SITE DETAILS
C-401	UTILITY PLAN
C-403.01 → C-403.02	UTILITY PROFILES
C-405	UTILITY DETAILS
C-501	STRIPING PLAN
C-601	LANDSCAPING PLAN
C-605.01 → C-605.02	LANDSCAPING NOTES & DETAILS

GENERAL NOTES

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, LOCAL BUILDING CODES, BEST PRACTICES OF THE RESPECTIVE TRADES AND THE STANDARD SPECIFICATIONS AND DETAILS REFERRED TO HEREON.

THIS DRAWING SHOWS INFORMATION OBTAINED FROM AVAILABLE RECORDS REGARDING PIPES, CONDUITS, TELEPHONE LINES AND OTHER STRUCTURES AND CONDITIONS WHICH EXIST WITHIN LIMITS OF THE WORK AT AND BELOW THE SURFACE OF THE GROUND. THE CONTRACTOR IS RESPONSIBLE FOR SUPPORTING AND PROTECTING ALL PIPES, CONDUITS, TELEPHONE LINES, AND OTHER STRUCTURES.

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING TWO (2) WEEKS PRIOR TO START OF CONSTRUCTION AND SHALL COORDINATE ALL CONSTRUCTION PHASES WITH THEM:

MDE (Main Number)	410-537-3000
MDE (Eastern Shore Field Office)	410-901-4020
TOWN OF EASTON DPW	410-882-0513
EASTON UTILITIES	410-822-6110
TALBOT COUNTY SCD	410-882-1577 x 3
MISS UTILITY	800-257-7777 or 811

SHOULD ANY DAMAGE OCCUR TO ANY MARKED UTILITIES, THEY SHALL BE REPAIRED SOLELY AT THE CONTRACTORS EXPENSE.

ALL LANDSCAPING SHALL BE PERFORMED BY QUALIFIED PROFESSIONALS. ALL PLANT MATERIALS SHALL BE FROM CERTIFIED NURSERYMAN AND BE GUARANTEED FOR ONE (1) YEAR FROM THE DATE OF PLANTING.

ANY PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE REPLACED SOLELY AT THE CONTRACTORS EXPENSE.

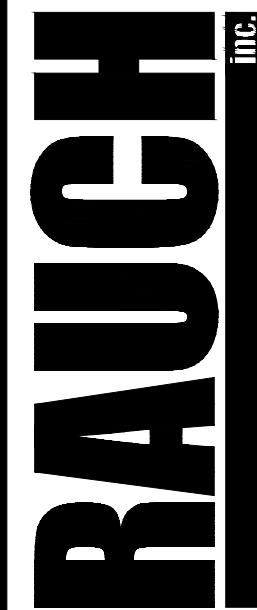
FIRE LANE AND ACCESS WILL MEET REQUIREMENTS FOR THE PROPOSED BUILDING PRIOR TO THE FINAL SITE PLAN.

COVER SHEET

OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP: 0026, GRID: 0020, PARCEL: 0186
ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC



Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 9081 | Fax: 410 770 3987

REVISIONS

REV. #	DATE	DESCRIPTION
1		



DATE:	12/6/2022
SCALE:	AS SHOWN
DRAWN BY:	BBF
DESIGNED BY:	BBF
APPROVED BY:	BBF

SHEET NO.: G-100

FOR REVIEW

[illegible]

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, LOCAL BUILDING CODES, BEST PRACTICES OF THE RESPECTIVE TRADES AND THE STANDARD SPECIFICATIONS AND DETAILS REFERRED TO HEREON.

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ANY PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE REPLACED SOLELY AT THE CONTRACTORS EXPENSE.

1. THE PROJECT SITE IS NOT LOCATED WITHIN THE CRITICAL AREA BUFFER
2. THE SITE IS NOT LOCATED WITHIN A 100 YEAR FLOODPLAIN
3. STEEP SLOPES ARE NOT PRESENT ON SITE
4. NON TIDAL WETLANDS ARE PRESENT ON SITE

1. STORMWATER MANAGEMENT WILL BE HANDLED VIA SUBMERGED GRAVEL WETLANDS WITH FOREBAYS ON SITE
2. THE PROJECT WILL NOT ALTER HYDROLOGY TO OR FROM THE SITE
3. NO OUTLETS WILL BE ALTERED BY THIS PROJECT

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETE WITHIN:

A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND

B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISBURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING

REVIEWED FOR THE TALBOT SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

APPROVED:

TALBOT SOIL CONSERVATION DISTRICT DATE

NOTE: THE TALBOT SOIL CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, DELETE, MODIFY OR OTHERWISE ALTER THE EROSION CONTROL PROVISIONS OF THIS PLAN IN THE EVENT THAT ADDITIONAL PROTECTION BECOMES NECESSARY.

DEVELOPER'S CERTIFICATION

I HEREBY CERTIFY THAT ALL OF THE DEVELOPMENT AND/OR CONSTRUCTION SHALL BE DONE IN ACCORDANCE TO THIS PLAN OF EROSION AND SEDIMENT CONTROL.

SIGNATURE _____ DATE _____

1. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION MADE IN THIS PLAN. ANY CHANGE MADE TO THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER WILL PLACE RESPONSIBILITY FOR SAID CHANGE ON THE CONTRACTOR OR SUBCONTRACTOR.
2. ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT.

The map shows the Easton area with various streets and landmarks. A black rectangle labeled "SITE" is located near the intersection of Hillside Rd and Dover Rd. The map includes roads like Dover Rd, Hillside Rd, and various streets in the Easton neighborhood. A black rectangle labeled "SITE" is located near the intersection of Hillside Rd and Dover Rd.

VICINITY MAP
SCALE: 1" = 2,000'

TOPOGRAPHY
MAJOR CONTOURS
MINOR CONTOURS
TOP OF SLOPE BREAKLINE
BOTTOM OF SLOPE BREAKLINE
TOPOGRAPHY BREAKLINE

CATCHMENT AREA

Tc FLOW PATH

PARCEL BOUNDARY
PARCEL SETBACK/EASEMENT
FENCELINE WOOD
FENCELINE STEEL
TREELINE/VEGETATION
ROADWAY CENTERLINE
HIGHWAY BARRIER

UTILITIES
OVERHEAD ELECTRIC
UNDERGROUND ELECTRIC
TELEPHONE LINE
GAS PIPE LINE
CABLE TV
WATER PIPE
STORMWATER PIPE

UNDERDRAIN
SANITARY SEWER
FORCE MAIN SEWER

ENVIRONMENTAL
WETLAND LINE
FLOOD PLANE 100/500 YR
MEAN HIGH WATER
MEAN LOW WATER
CRITICAL AREA BOUNDARY
BUFFER 25'/100'
SOILS 25'/100'

SILT FENCE
SUPER SILT FENCE
SILT FENCE ON PAVEMENT
LIMITS OF DISTURBANCE
LOD & SILT FENCE
LOD & SUPER SILT FENCE
LOD & SILT FENCE ON PAVEMENT
STANDARD INLET PROTECTION
AT-GRADE INLET PROTECTION
CURB INLET PROTECTION
SWM EASEMENT 5'10'

45
44

SS
FM

FLARED END SECTION
YARD INLET
CURB INLET
CUSTOM INLET
NYLOPLAST INLET
STORM DRAIN MANHOLE
SANITARY SEWER MANHOLE
CLEANOUT
GATE VALVE
STUB
SIGN
WATER METER
FIRE HYDRANT
WELL
BOLLARD
ELECTRIC TRANSFORMER

ASPHALT

GRAVEL

CONCRETE

RIPRAP/ROCK

ESD BED BOTTOM

BRICK PAVING

EXISTING,TO BE
DEMOLISHED

STEEP SLOPES

ROOFTOP/NON-ROOFTOP
DISCONNECT

ADA	AMERICANS WITH DISABILITIES ACT
AGIP	AT GRADE INLET PROTECTION
@	AT
BC	BACK OF CURB
BM	BENCHMARK
BRL	BUILDING RESTRICTION LINE
CES	CONCRETE END SECTION
C/O	CLEAN OUT
CHRD	CHORD
CI	CURB INLET
CIP	CURB INLET PROTECTION
CL	CENERLINE
CMP	CORRUGATED METAL PIPE
Cul	CUSTOM INLET
CY	CUBIC YARD
DI	DUCTILE IRON
E	EAST
EL/ELEV	ELEVATION
EP	EDGE OF PAVE
ESC	EROSION AND SEDIMENT CONTROL
EX	EXISTING
FES	FLARED END SECTION
FFE	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FL	FLOW LINE
FT	FOOT
GFA	GROSS FLOOR AREA
GPD	GALLONS PER DAY
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
I	INLET
INV	INVERT
KV	KILOVOLTS
L	ARC LENGTH
LF	LINEAR FEET
LOD	LIMITS OF DISTURBED AREA
LT	LEFT
MAX	MAXIMUM
MBR	MICRO-BIORETENTION
MD	MARYLAND
MEP	MECHANICAL, ELECTRICAL, AND PLUMBING
MH	MANHOLE
MHW	MEAN HIGH WATER

MLW	MEAN LOW WATER
MSHA	MARYLAND STATE HIGHWAY ADMINISTRATION
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
N	NORTH
NO	NUMBER
PC	POINT OF CURVATURE
PE	POLYETHYLENE
PERF	PERFORATED
PR	PROPOSED
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
Q	DISCHARGE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RCN	RUNOFF CURVE NUMBER
ROW	RIGHT-OF-WAY
RT	RIGHT
S	SOUTH
SC	STABILIZED CONSTRUCTION ENTRANCE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
Sf	FRICTION SLOPE
SF	SILT FENCE
SHA	STATE HIGHWAY ADMINISTRATION
SIP	STANDARD INLET PROTECTION
SQ	SQUARE
SS	SANITARY SEWER
SSF	SUPER SILT FENCE
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
SWM	STORM WATER MANAGEMENT
TAN	TANGENT
TB	THRUST BLOCK
TBR	TO BE REMOVED
TC	TOP OF CURB
Tc	TIME OF CONCENTRATION
TP	TAX PARCEL
TYP	TYPICAL
UE	UNDERGROUND ELECTRIC
UL	UNDERGROUND LIGHT CABLE
UT	UNDERGROUND TELEPHONE
V	VELOCITY
W	WEST
W/	WITH

OF THE LANDS OF

TAX MAP: 0026. GRID: 0020. PARCEL: 0186

TAX MAP: 0026. GRID: 0020. PARCEL: 0186

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

ASPIRE OUTDOORS, LLC

RAUCH
inc.

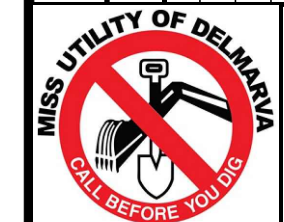
Engineering | Survey | Architecture | Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 9081 | Fax: 410 770 3887

REVISIONS

DESCRIPTION

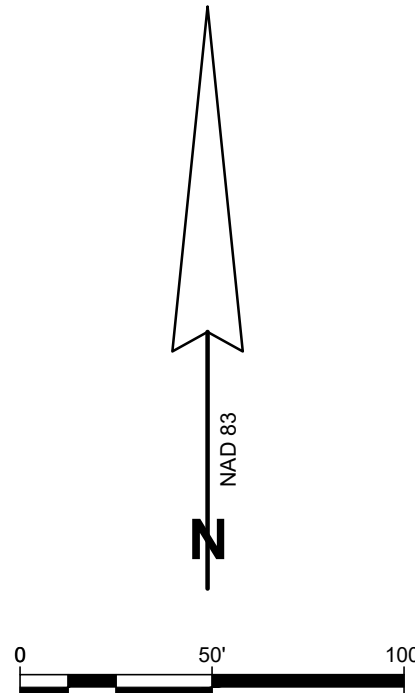
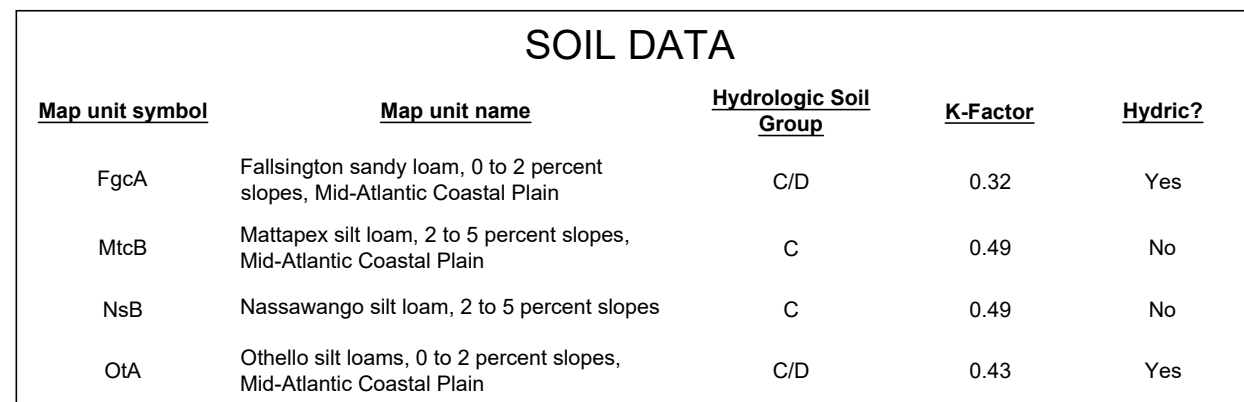
REV. #	DATE
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DATE:	12/1/2022
SCALE:	1" = 2,00'
DRAWN BY:	BBF
DESIGNED BY:	BBF
APPROVED BY:	BBF

SHEET NO.: **C-200**

**FOR
REVIEW**



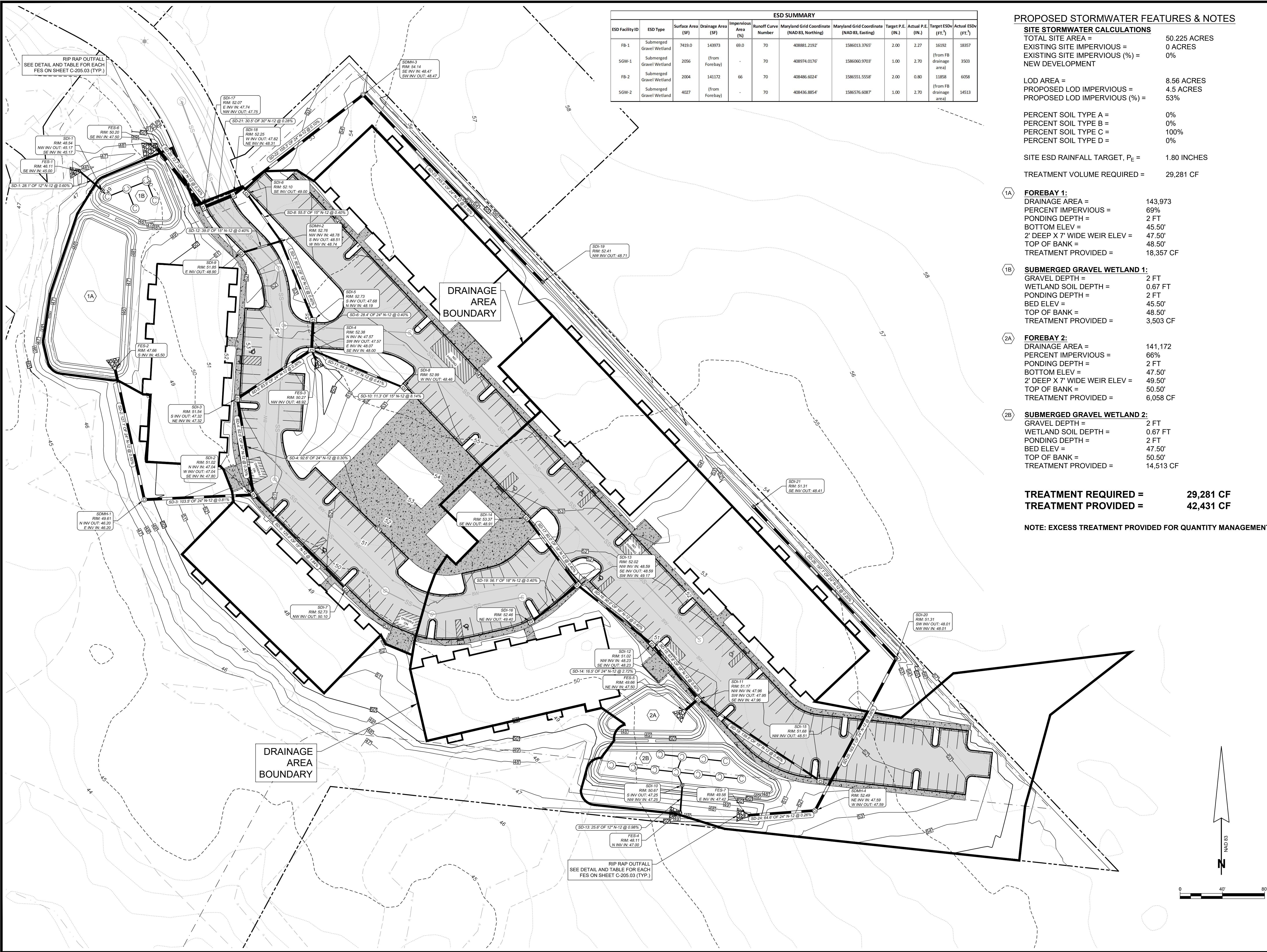
RAUCH

Engineering | Survey | Architecture | Environmental

1102

Main Office: 108 N Harrison St. - Easton, MD 21801
Web: www.rauch-inc.com Email: design@rauch.com
Phone: 410 770 9081 Fax: 410 770 3887

 	DATE: 12/1/2022 SCALE: 1" = 50' DRAWN BY: BBF DESIGNED BY: BBF APPROVED BY: BBF SHEET NO.: C-01.01	
	DATE: SCALE: DRAWN BY: DESIGNED BY: APPROVED BY: SHEET NO.: C-01.01	
	DATE: SCALE: DRAWN BY: DESIGNED BY: APPROVED BY: SHEET NO.: C-01.01	
	DATE: SCALE: DRAWN BY: DESIGNED BY: APPROVED BY: SHEET NO.: C-01.01	



ESD SUMMARY									
ESD Facility ID	ESD Type	Surface Area (SF)	Drainage Area (SF)	Impervious Area (%)	Runoff Curve Number	Maryland Grid Coordinate (NAD 83, Northing)	Maryland Grid Coordinate (NAD 83, Easting)	Target P.E. (IN.)	Actual P.E. (IN.)
FB-1	Submerged Gravel Wetland	7419.0	143973	69.0	70	408881.2192'	1586013.3765'	2.00	2.27
SGW-1	Submerged Gravel Wetland	2056	(from Forebay)	-	70	408974.0176'	1586060.9703'	1.00	2.70
FB-2	Submerged Gravel Wetland	2004	141172	66	70	408486.6024'	1586551.5558'	2.00	0.80
SGW-2	Submerged Gravel Wetland	4027	(from Forebay)	-	70	408436.8854'	1586576.6087'	1.00	2.70

PROPOSED STORMWATER FEATURES & NOTES

SITE STORMWATER CALCULATIONS
TOTAL SITE AREA = 50.225 ACRES
EXISTING SITE IMPERVIOUS = 0 ACRES
EXISTING SITE IMPERVIOUS (%) = 0%
NEW DEVELOPMENT

LOD AREA = 8.56 ACRES
PROPOSED LOD IMPERVIOUS = 4.5 ACRES
PROPOSED LOD IMPERVIOUS (%) = 53%

PERCENT SOIL TYPE A = 0%
PERCENT SOIL TYPE B = 0%
PERCENT SOIL TYPE C = 100%
PERCENT SOIL TYPE D = 0%

SITE ESD RAINFALL TARGET, P_E = 1.80 INCHES
TREATMENT VOLUME REQUIRED = 29,281 CF

- 1A

FOREBAY 1:
DRAINAGE AREA = 143,973
PERCENT IMPERVIOUS = 69%
PONDING DEPTH = 2 FT
BOTTOM ELEV = 45.50'
2' DEEP X 7' WIDE WEIR ELEV = 47.50'
TOP OF BANK = 48.50'
TREATMENT PROVIDED = 18,357 CF
- 1B

SUBMERGED GRAVEL WETLAND 1:
GRAVEL DEPTH = 2 FT
WETLAND SOIL DEPTH = 0.67 FT
PONDING DEPTH = 2 FT
BED ELEV = 45.50'
TOP OF BANK = 48.50'
TREATMENT PROVIDED = 3,503 CF
- 2A

FOREBAY 2:
DRAINAGE AREA = 141,172
PERCENT IMPERVIOUS = 66%
PONDING DEPTH = 2 FT
BOTTOM ELEV = 47.50'
2' DEEP X 7' WIDE WEIR ELEV = 49.50'
TOP OF BANK = 50.50'
TREATMENT PROVIDED = 6,058 CF
- 2B

SUBMERGED GRAVEL WETLAND 2:
GRAVEL DEPTH = 2 FT
WETLAND SOIL DEPTH = 0.67 FT
PONDING DEPTH = 2 FT
BED ELEV = 47.50'
TOP OF BANK = 50.50'
TREATMENT PROVIDED = 14,513 CF

TREATMENT REQUIRED = 29,281 CF
TREATMENT PROVIDED = 42,431 CF

NOTE: EXCESS TREATMENT PROVIDED FOR QUANTITY MANAGEMENT

STORMWATER & STORM DRAIN PLAN

OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP: 0026, GRID: 0020, PARCEL: 0106
ELECTION DISTRICT 01, TALEOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC

RAUCH

Engineering | Survey | Architecture | Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 8081 | Fax: 410 770 3987

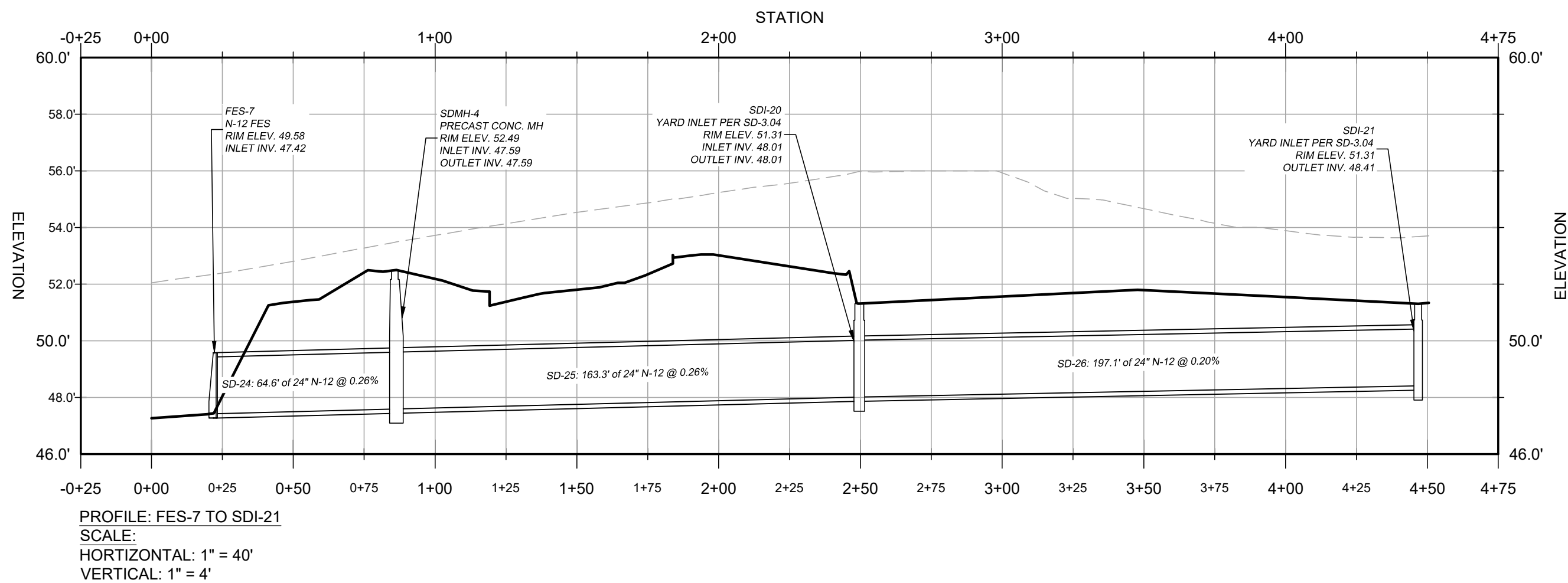
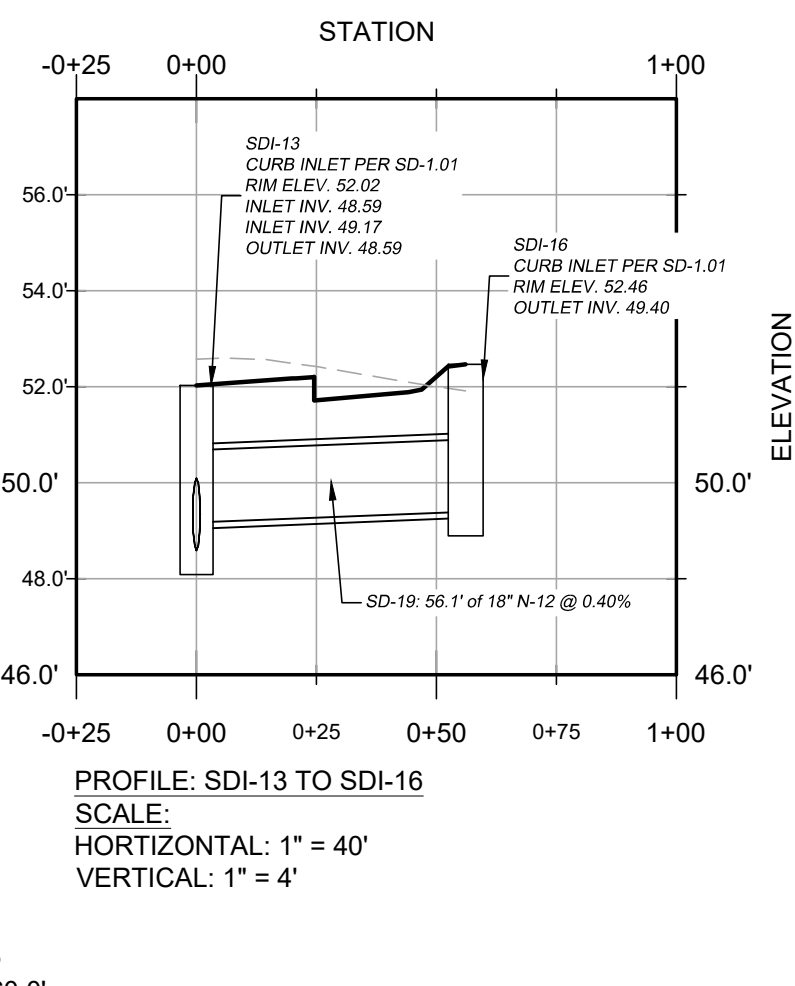
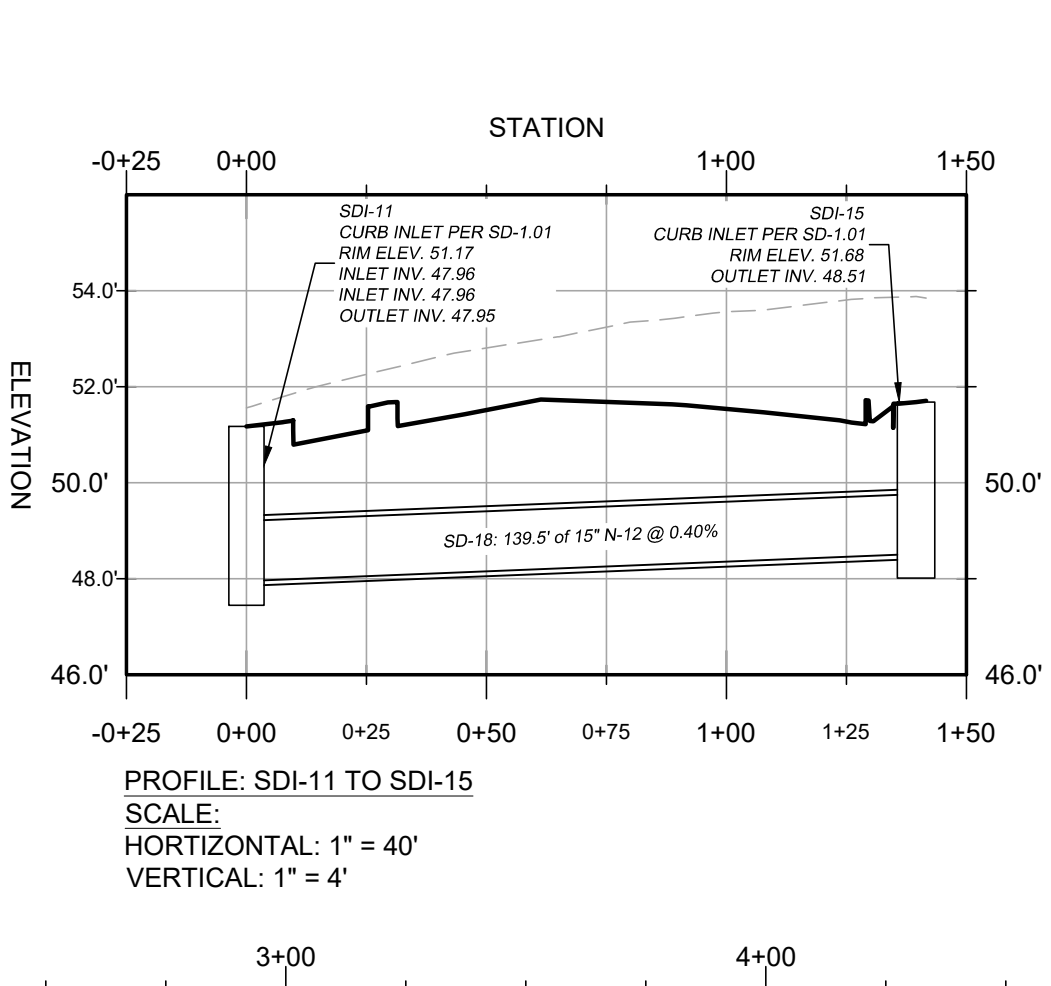
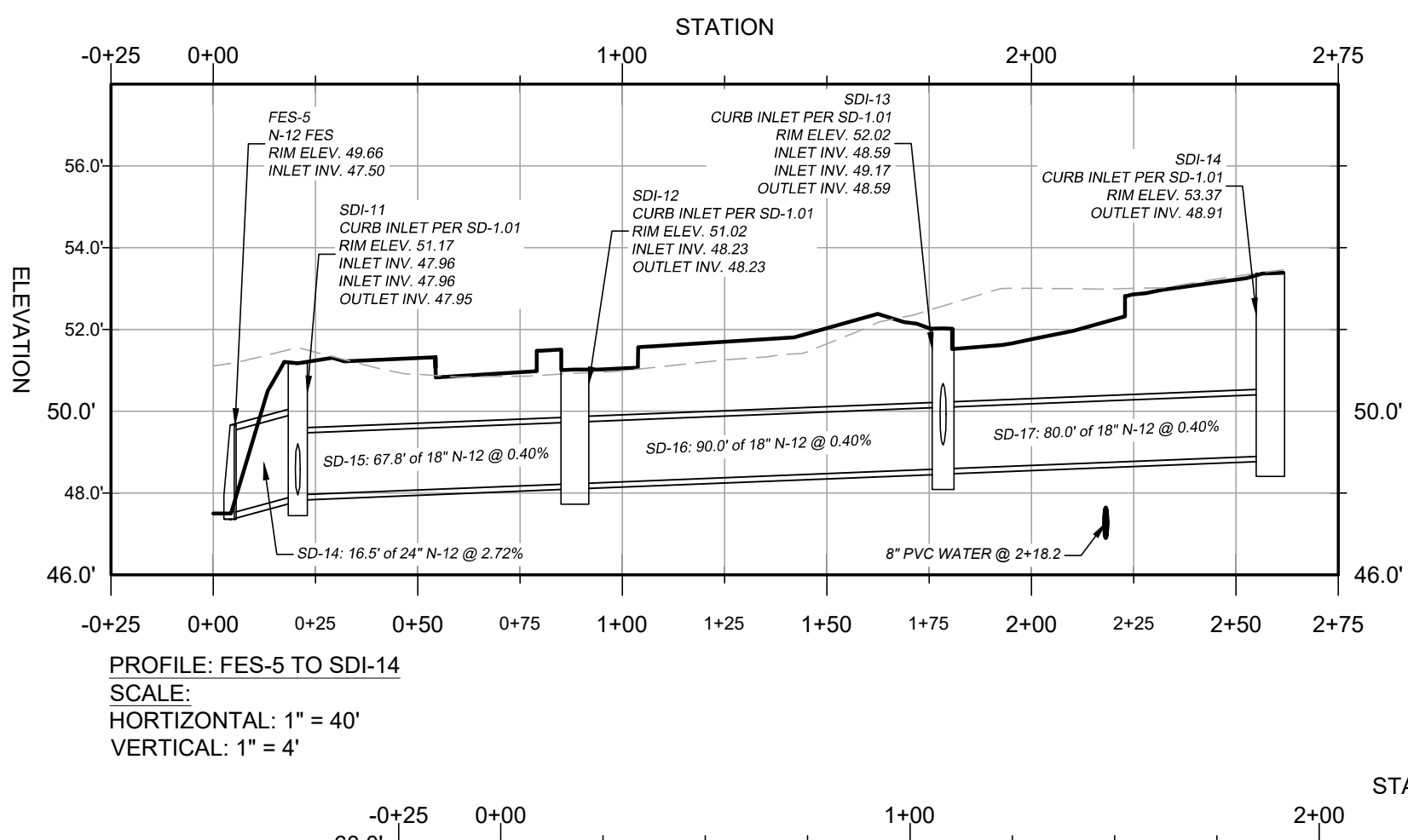
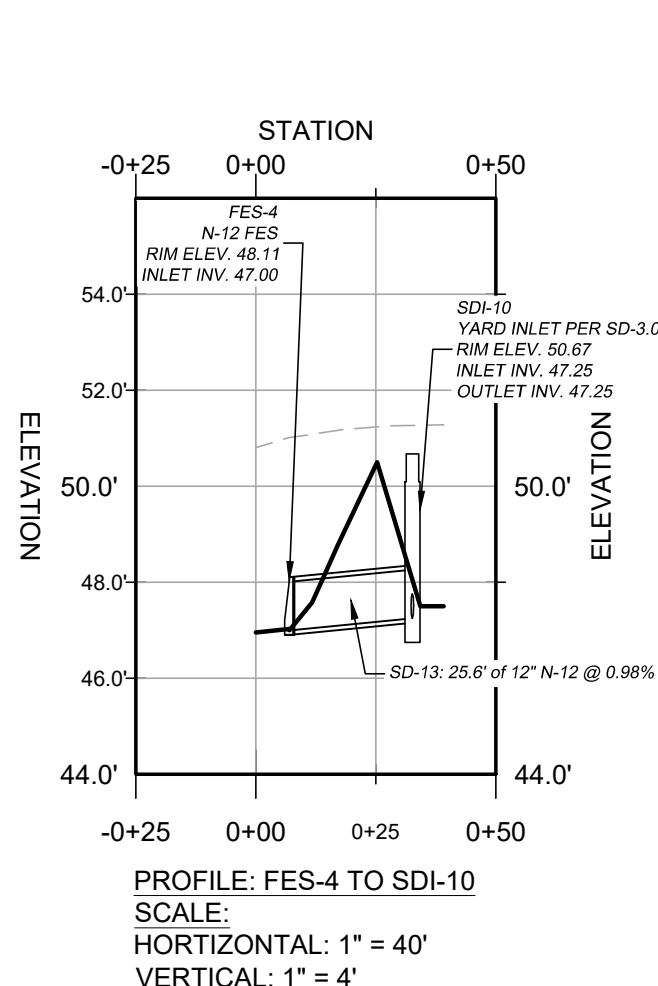
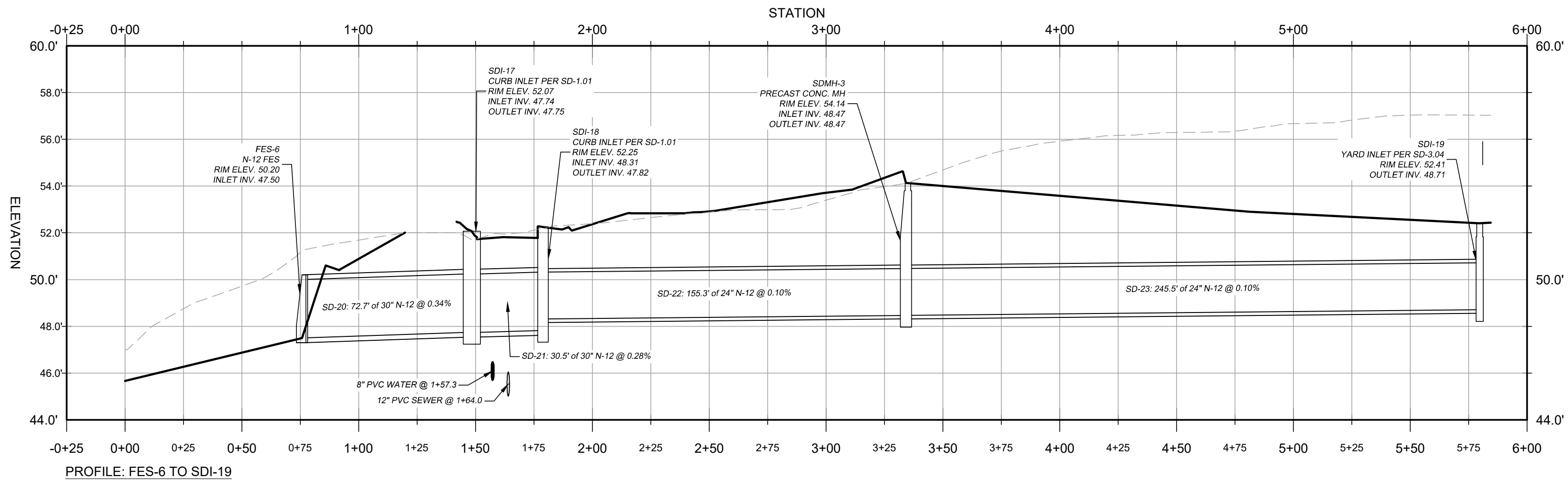
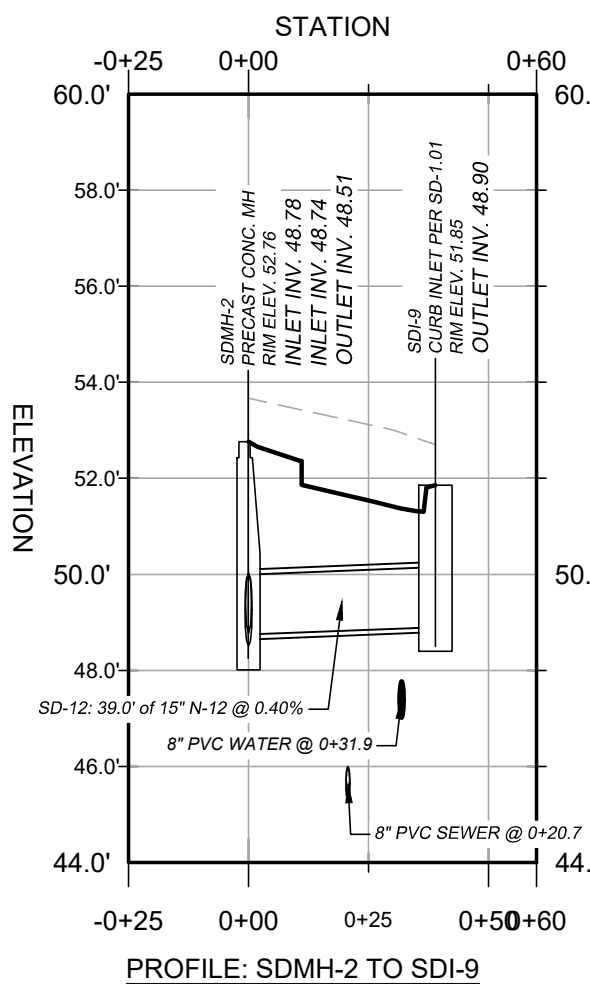
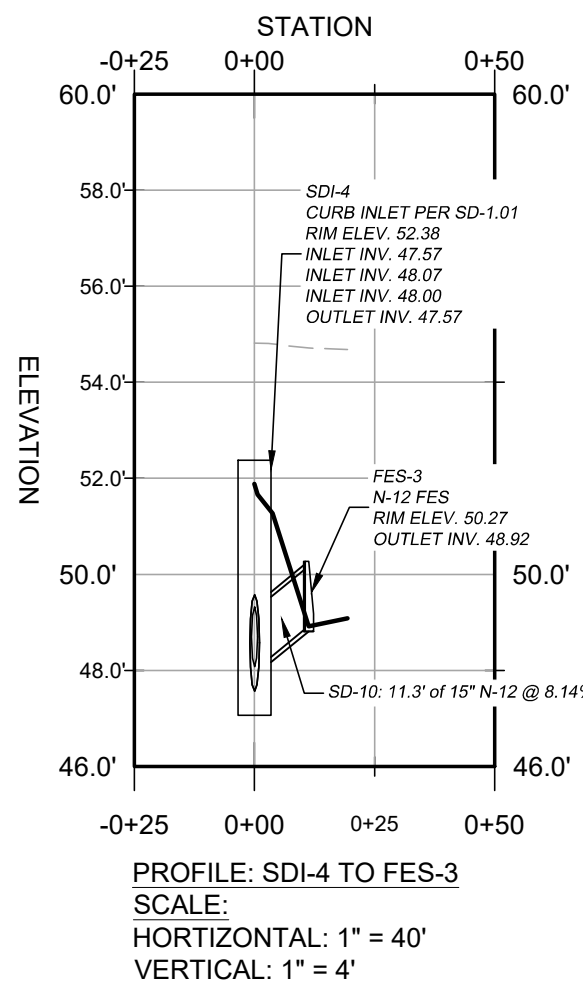
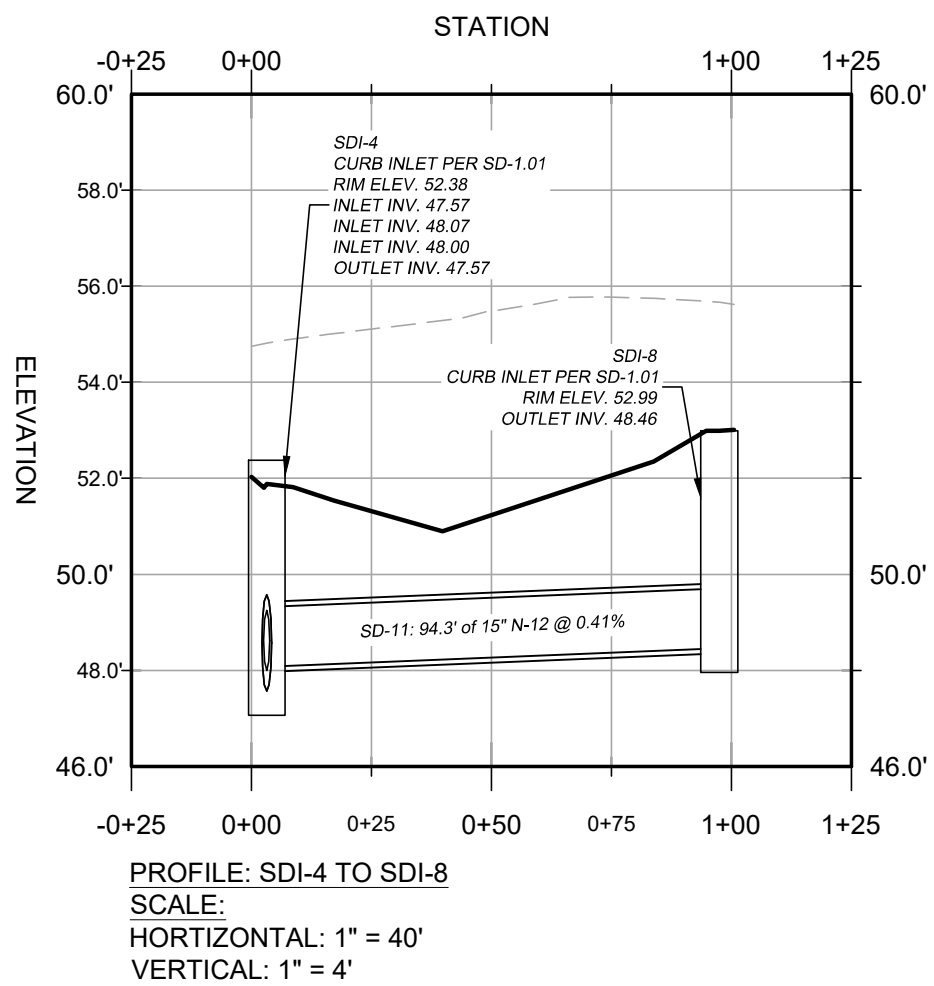
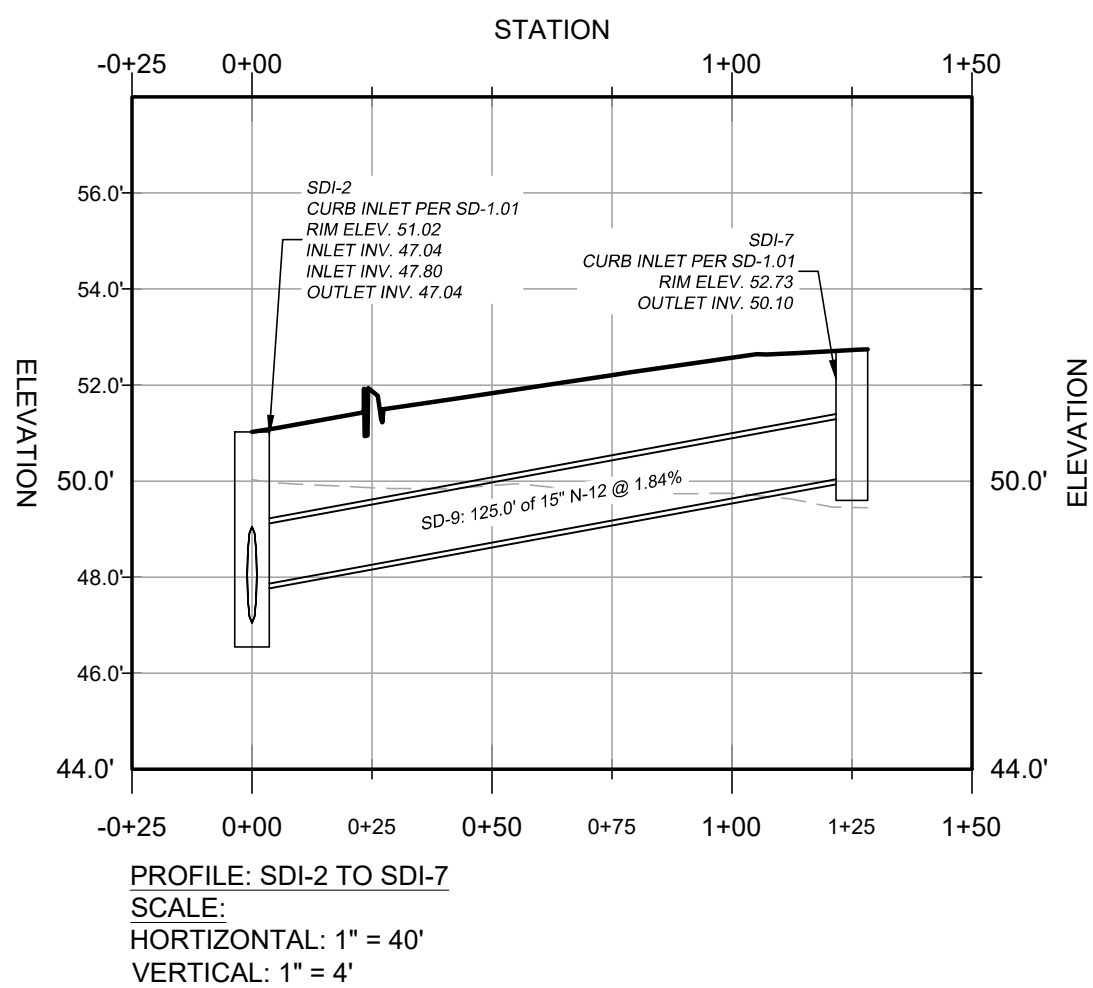
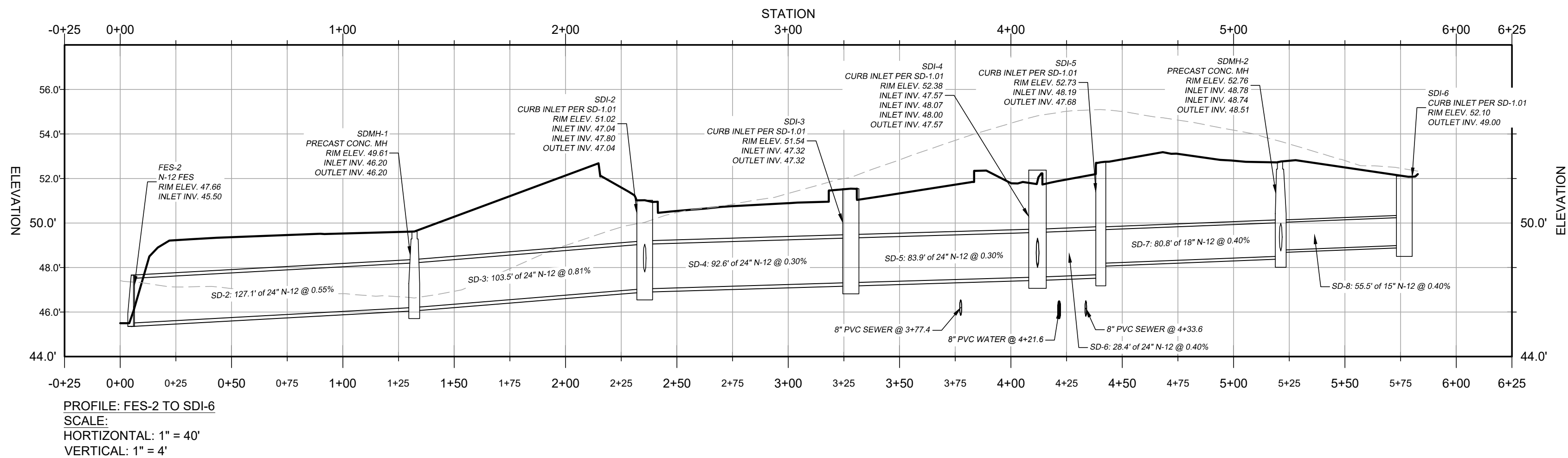
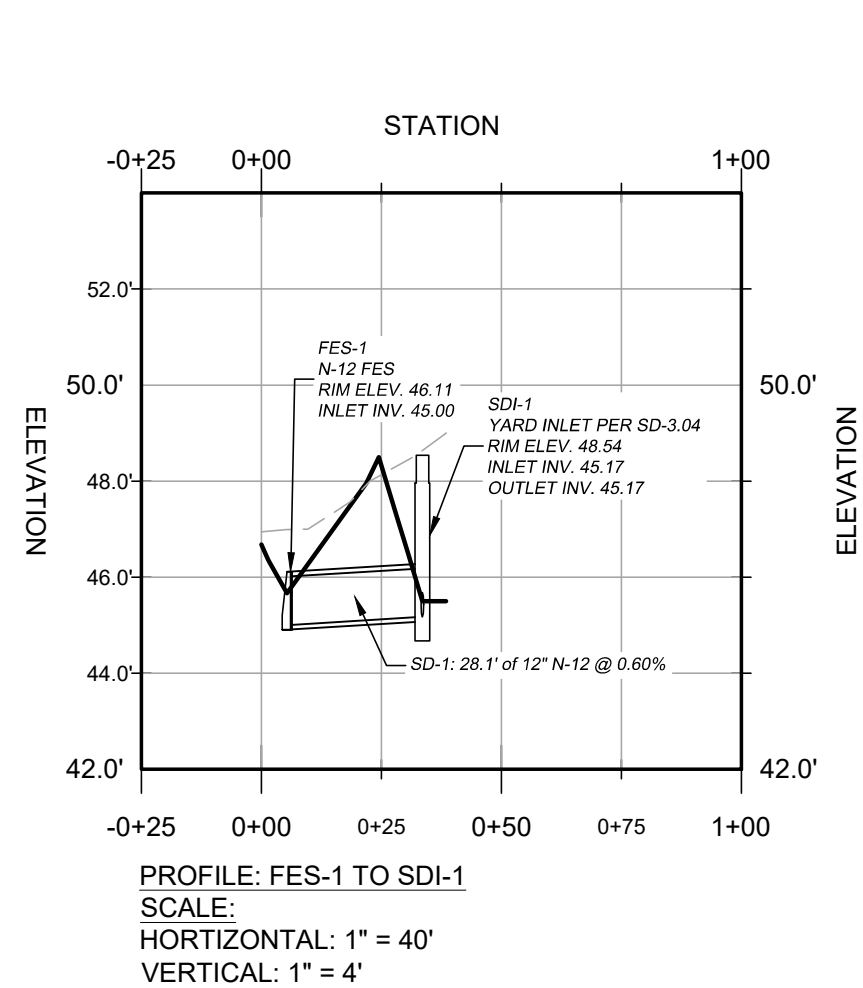
REVISIONS

REV. #	DATE	DESCRIPTION
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DATE: 12/1/2022
SCALE: 1" = 40'
DRAWN BY: BBF
DESIGNED BY: BBF
APPROVED BY: BBF

SHEET NO.: C-201.02

FOR REVIEW

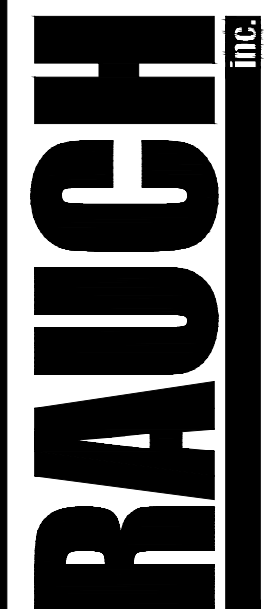


STORMWATER & STORM DRAIN PROFILES

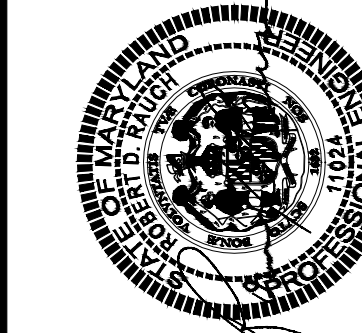
OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP: 0026, GRID: 0020, PARCEL: 0166
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC



Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauch.com
Phone: 410 770 9881 | Fax: 410 770 3887



Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 11024
Expiration Date: July 24, 2024

REVISIONS		DESCRIPTION		
REV. #	DATE			
1				

B-4 STANDARDS AND SPECIFICATIONS
FOR
VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seeded preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseeds within the planting season.

- Adequate vegetative stabilization requires 95 percent groundcover.
- If an area has less than 40 percent groundcover, reestablish following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
- If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
- Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-2 STANDARDS AND SPECIFICATIONS
FOR
SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

A. Soil Preparation

1. Temporary Stabilization

- Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
- Apply fertilizer and lime as prescribed on the plans.
- Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.

2. Permanent Stabilization

- A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
 - Soil pH between 6.0 and 7.0.
 - Soluble salts less than 500 parts per million (ppm).
 - Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: If lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
 - Soil contains 1.5 percent minimum organic matter by weight.
- Soil contains sufficient pore space to permit adequate root penetration.
- Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
- Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
- Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

- Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
- Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
- Topsoiling is limited to areas having 2:1 or flatter slopes where:
 - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 - The original soil to be vegetated contains material toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible.
- Areas having slopes steeper than 2:1 require special consideration and design.

- Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
 - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
 - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
 - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

6. Topsoil Application

- Erosion and sediment control practices must be maintained when applying topsoil.
- Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
- Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

- Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
- Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
- Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydrosedding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that it least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
- Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
- Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B-4-3 STANDARDS AND SPECIFICATIONS
FOR
SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

A. Seeding

1. Specifications

- All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
- Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
- Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydrosedding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

2. Application

- Dry Seeding: This includes use of conventional drop or broadcast spreaders.
 - Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
 - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
 - Drill or Cutlispacker Seeding: Mechanized seeders that apply and cover seed with soil.
- Cutlispacker seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
- Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
- Hydrosedding: Apply seed uniformly with hydroseder (slurry includes seed and fertilizer). If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorus), 200 pounds per acre; K2O (potassium), 200 pounds per acre.
- Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydrosedding). Normally, not more than 2 tons are applied by hydrosedding at any one time. Do not use burnt or hydrated lime when hydrosedding.
- Mix seed and fertilizer on site and seed immediately and without interruption.
- When hydrosedding do not incorporate seed into the soil.

B. Mulching

- Mulch Materials (in order of preference)
 - Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
 - Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
 - WCFM, including dye, must contain no germination or growth inhibiting factors.
 - WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
 - WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

2. Application

- Apply mulch to all seeded areas immediately after seeding.
- When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
- Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
- Anchoring
 - Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
 - A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
 - Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petrosel, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
 - Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B-4-4 STANDARDS AND SPECIFICATIONS
FOR
TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

- Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
- For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3 A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

Hardness Zone (from Figure B.3): <u>7a</u>				Fertilizer Rate (10-20-20)	Lime Rate	
Seed Mixture (from Table B.1):						
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates			Seeding Depths
	ANNUAL RYEGRASS	40	FEB 15 - APR 30 AUG 15 - NOV 30			0.5
	BARLEY	96	FEB 15 - APR 30 AUG 15 - NOV 30	1.0	436 lb/ac 10 lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sf

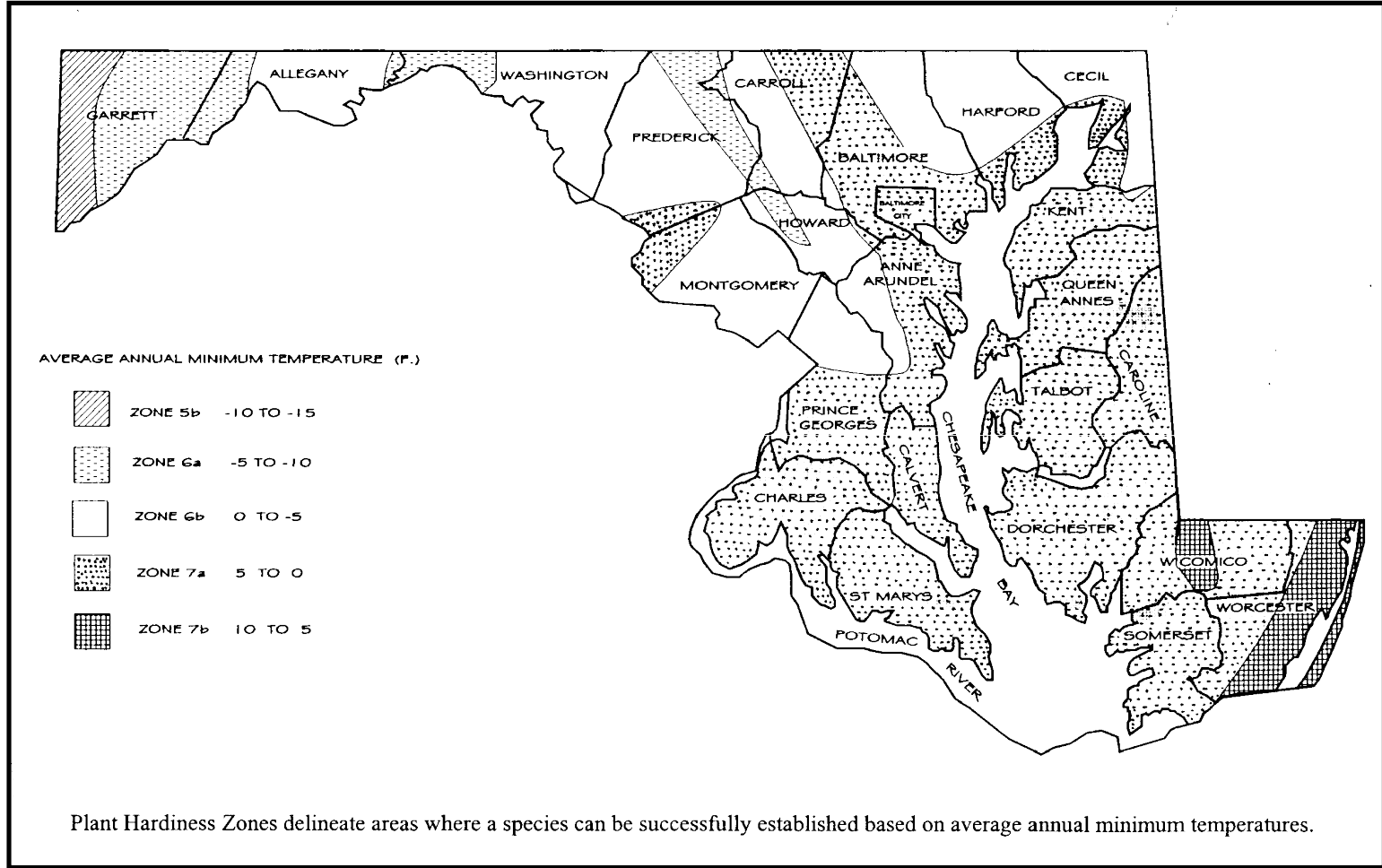


Figure B-3: U.S.D.A. Plant Hardness Zones

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate ^{1/}		Seeding Depth ^{2/} (Inches)	Recommended Seeding Dates by Plant Hardiness Zone ^{3/}		
	lb/ac	lb/1000 ft ²		5b and 6a	6b	7a and 7b
Cool-Season Grasses						
Annual Ryegrass (<i>Lolium perenne</i> <i>ssp. multiflorum</i>)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Barley (<i>Hordeum vulgare</i>)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Oats (<i>Avena sativa</i>)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Wheat (<i>Triticum aestivum</i>)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Cereal Rye (<i>Secale cereale</i>)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15
Warm-Season Grasses						
Foxtail Millet (<i>Setaria italica</i>)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet (<i>Pennisetum glaucum</i>)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

NOTES:

- Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasses.

- For sandy soils, plant seeds at twice the depth listed above.
- The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS
FOR VEGETATIVE STABILIZATION

- Contractor shall install soil erosion and sediment control devices prior to any grading. Following initial disturbance or re-disturbance, permanent or temporary stabilization shall be completed within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes greater than three (3) horizontal to one (1) vertical (3:1) and seven (7) days as to all other disturbed or graded areas on the project site not under active grading. All temporary erosion and sediment control devices are to be provided as indicated on this plan, with location adjustments to be made in the field as necessary, and to be maintained at the end of each working day until project completion. The minimum area practical shall be disturbed for the minimal amount of time possible. Clearing and grubbing shall include all trees, brush, debris, root mat and organic materials to be removed.
- Temporary seeding shall be accomplished between February 15th through April 30th, or August 15th through November 30th. During other times, temporary mulching shall be provided.
- Temporary seeding shall conform to the following applications: 436 lbs. per acre of 10-20-20; 4,000 lbs. per acre of ground limestone, to be incorporated into the soil by disking or other suitable means. Annual ryegrass shall be applied at a rate of 50 lbs. per acre using suitable equipment. Mulches shall be applied immediately after seeding.

Seed Mixture (For Hardness Zone 7a) (From Table B.1)					Fertilizer Rate (10-20-20)		Lime Rate
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths	N	P2O5 K2O	
	ANNUAL RYEGRASS	50#	2/15 - 4/30 8/15 - 11/30	½"			
	BARLEY	96#	2/15 - 4/30 / 8/15 - 11/30	1"		436 lb/ac	2 tons/ac
	OATS	72#	2/15 - 4/30 / 8/15 - 11/30	1"		10 lb/	90 lb/
	WHEAT	120#	2/15 - 4/30 / 8/15 - 11/30	1"		1000 sf	1000 sf
	CEREAL RYE	112#	2/15 - 4/30 / 8/15 - 12/15	1"			
	FOXTAIL MILLET	30#	5/1 - 8/14	½"			
	PEARL MILLET	20#	5/1 - 8/14	½"			

- Mulching shall be unchopped, unrotted, small grain straw applied at a rate of 2-2½ tons per acre. Anchor mulch with a mulch anchoring tool on the Contour. Wood cellulose fiber may be used for anchoring straw at a rate of 750 lbs. per acre mixed with water at a maximum of 50 lbs. of wood cellulose fiber per 100 gals. of water, or with a synthetic liquid binder according to manufacturer recommendations. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1,500 lbs. per acre. Mix wood cellulose fiber with water to attain a mixture with a maximum of 50 lbs. of wood cellulose fiber per 100 gals. of water.
- Permanent seeding shall be accomplished between March 1st through May 15th, or August 15th through October 15th. Permanent seeding at other than specified times will be allowed only upon written approval. Permanent seeding shall conform to the following applications: Permanent seeding for sites having disturbed over five (5) acres shall use fertilizer rates recommended by a soil testing agency and the recommendations provided in the Permanent Seeding Summary Table. Permanent seeding for conditions other than listed above shall be performed at the rates and dates as provided in the Permanent Seeding Summary Table below. Fertilizer and lime amendments shall be incorporated into the top 3"-5" of the soil by disking or other suitable means. Mulching shall be accomplished as discussed in Item #6 of these specifications.

Any spoil or borrow will be placed at a site approved by the Soil Conservation District.

- All areas remaining or intended to remain disturbed for longer than seven (7) days shall be stabilized in accordance with the USDA, Natural Resources Conservation Service Standards and Specifications for Soil Erosion and Sediment Control in developing areas for critical area stabilization.
- It will be the responsibility of the Contractor or Subcontractor to notify the Engineer of any deviation from this plan. Any change made in this plan without written authorization from the Engineer will place responsibility of said change on the Contractor or Subcontractor.

EROSION AND SEDIMENT CONTROL DETAILS

OF THE LANDS OF

521 AUGUST ST

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH
Engineering / Survey / Architecture / Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauch.com
Phone: 410 770 8081 | Fax: 410 770 3467

REVISIONS

DESCRIPTION

DATE

REV. #

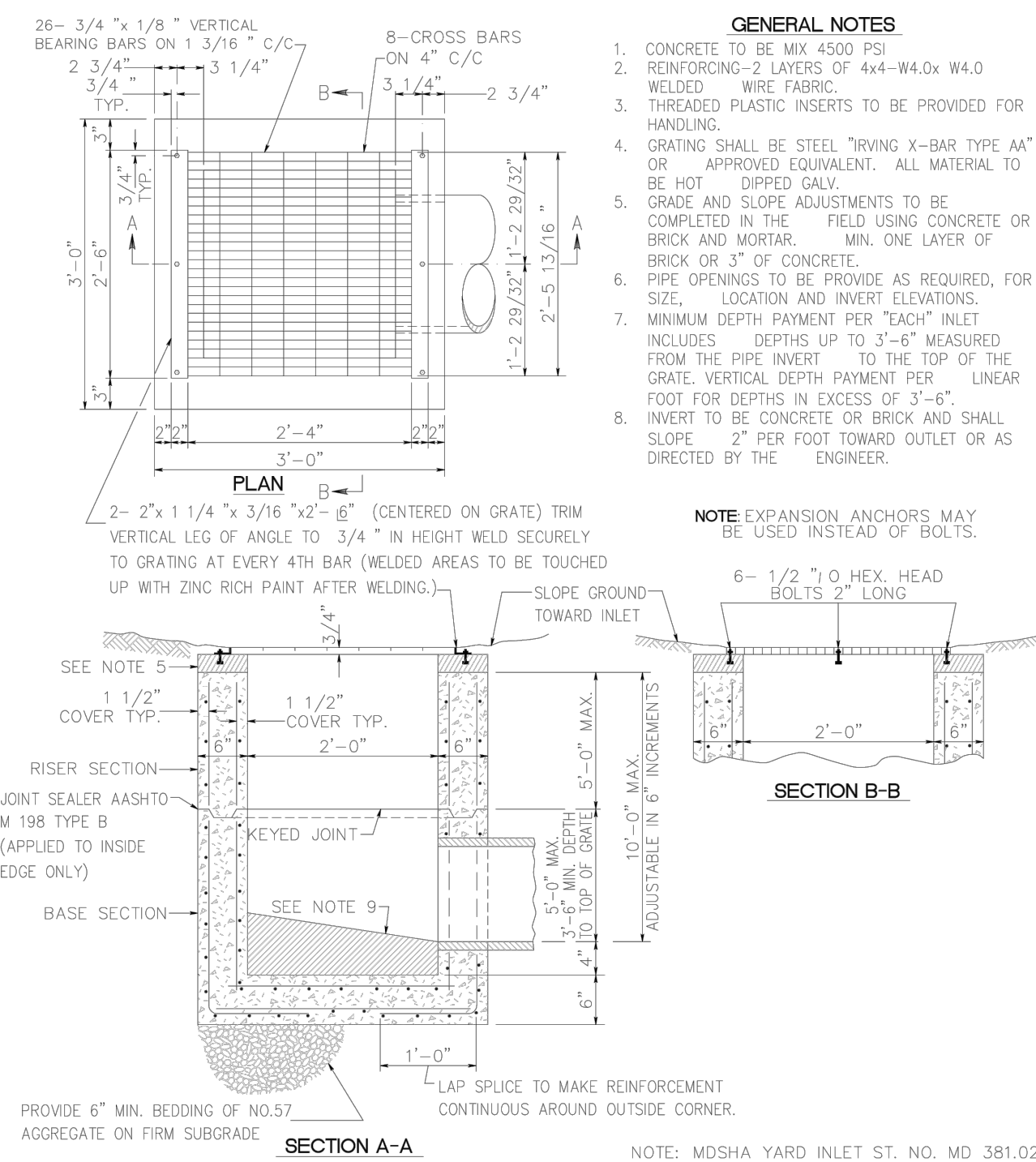
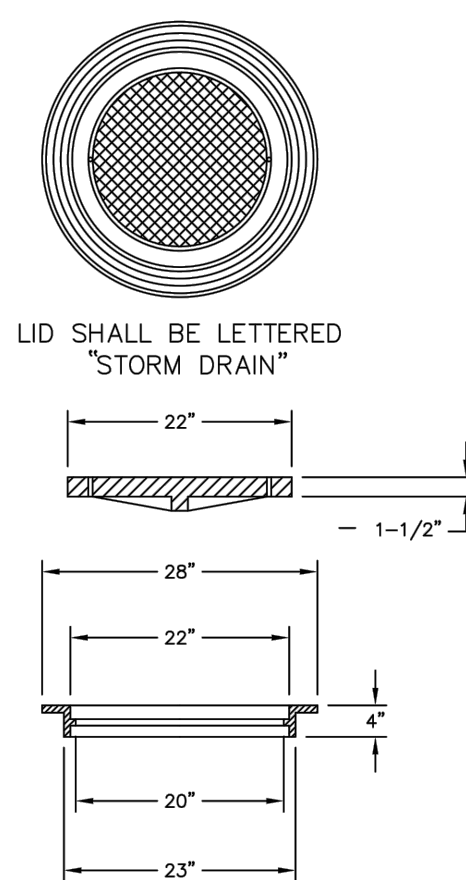
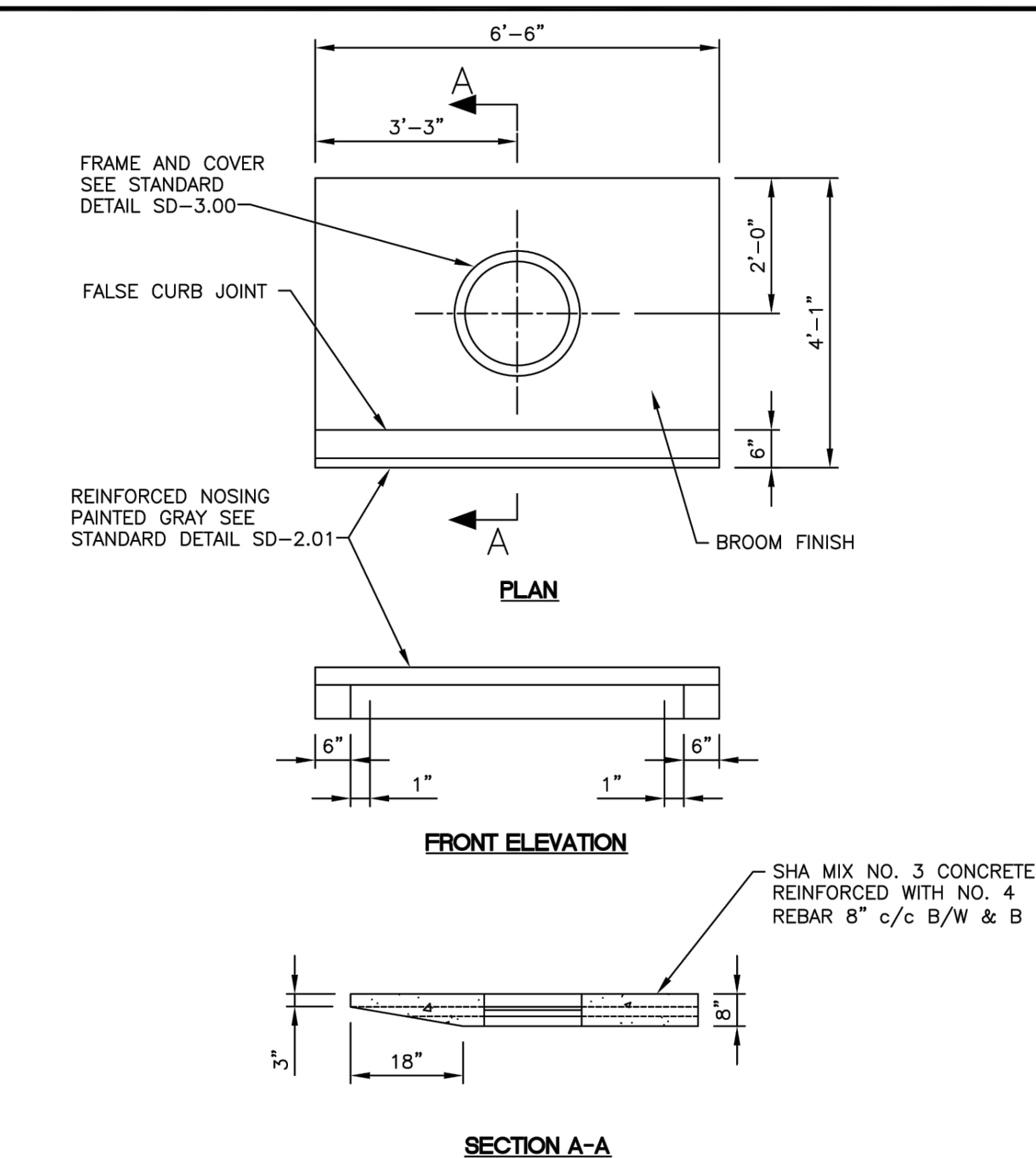
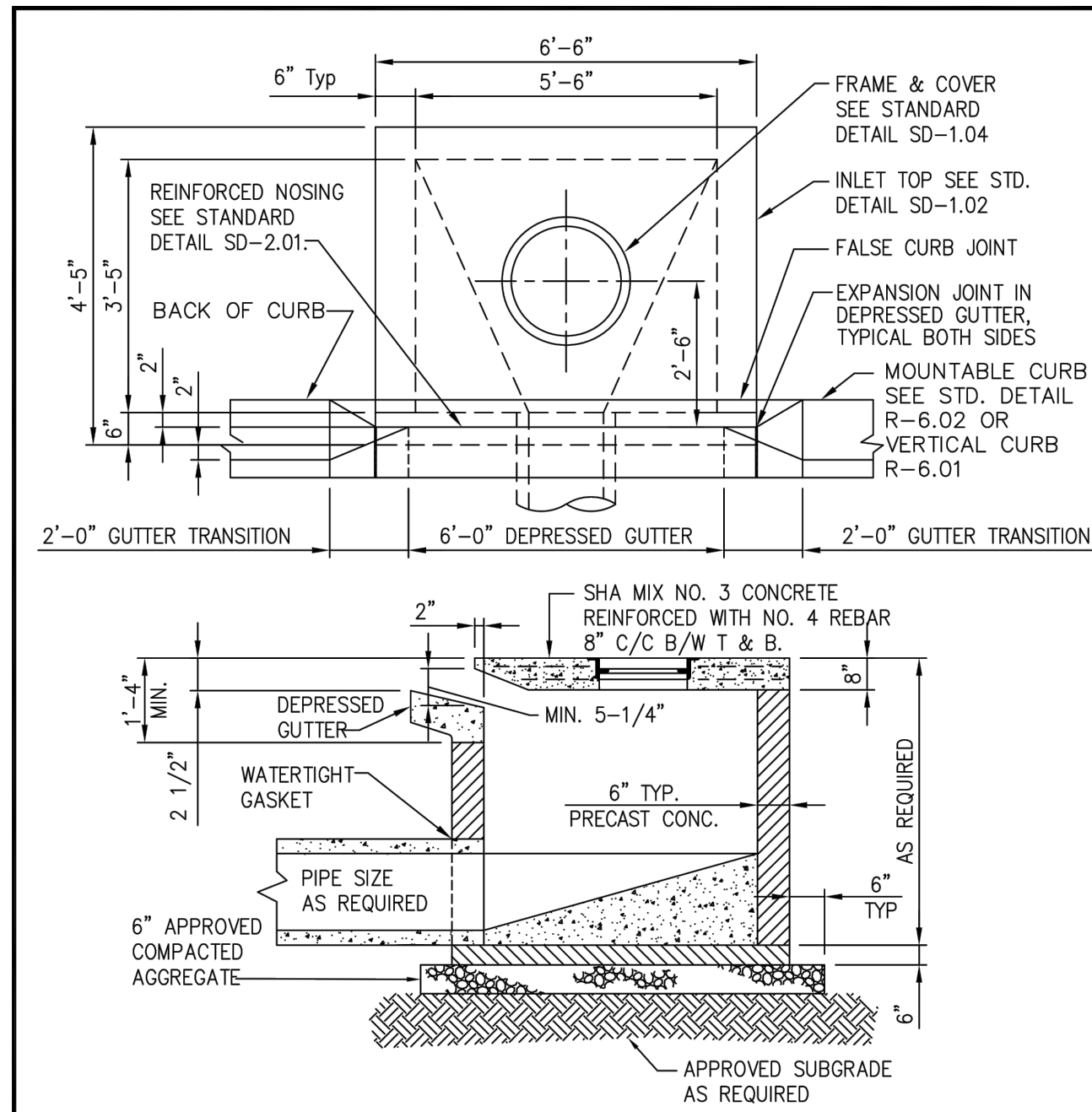
MARYLAND
OFFICE OF THE
COMPTROLLER
OF PUBLIC ACCOUNTS

811
Call Before You Dig

DATE: 12/6/2022
SCALE: N/A
DRAWN BY: WCS
DESIGNED BY: WCS
APPROVED BY: BBF

SHEET NO.: C-205.02

FOR
REVIEW

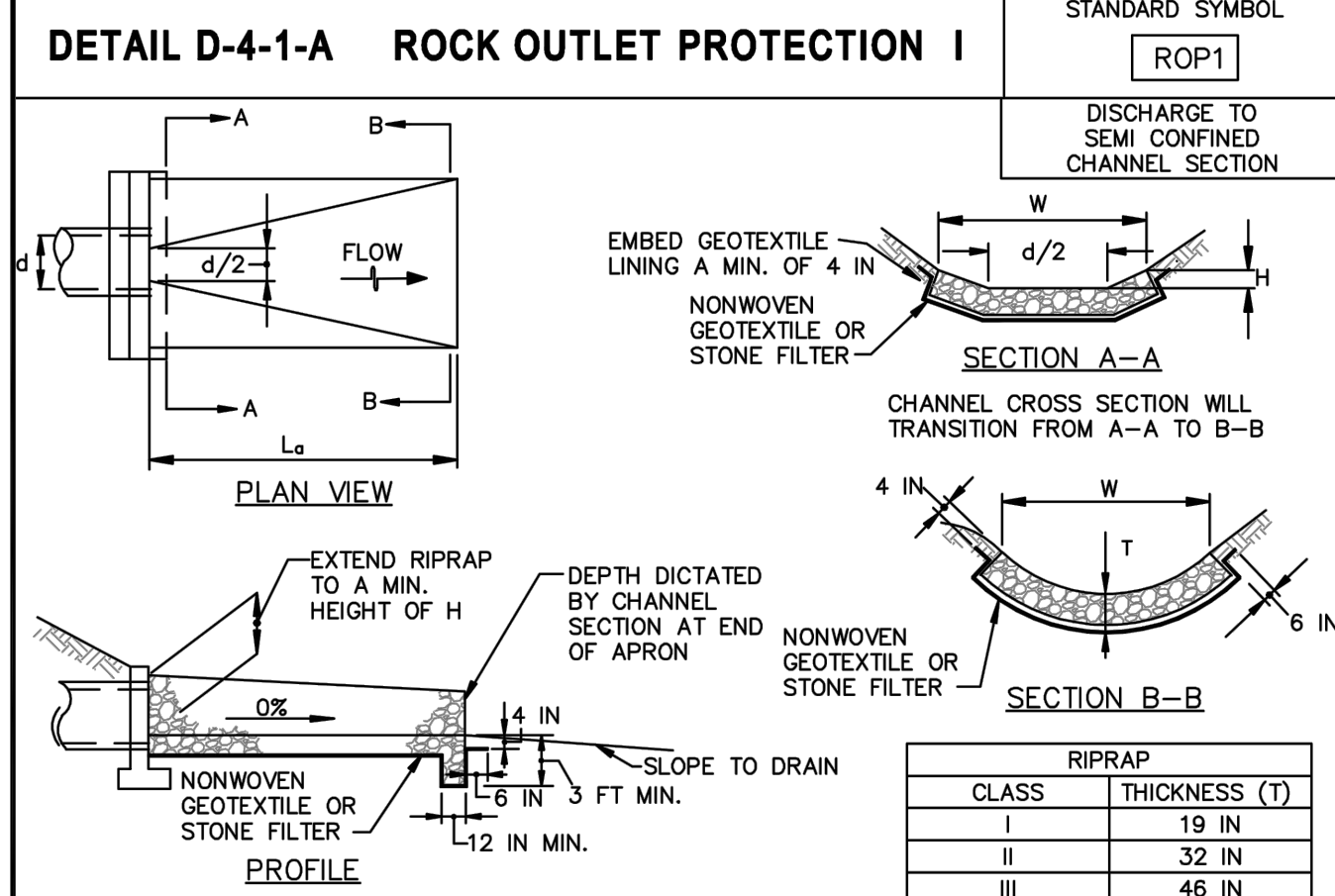
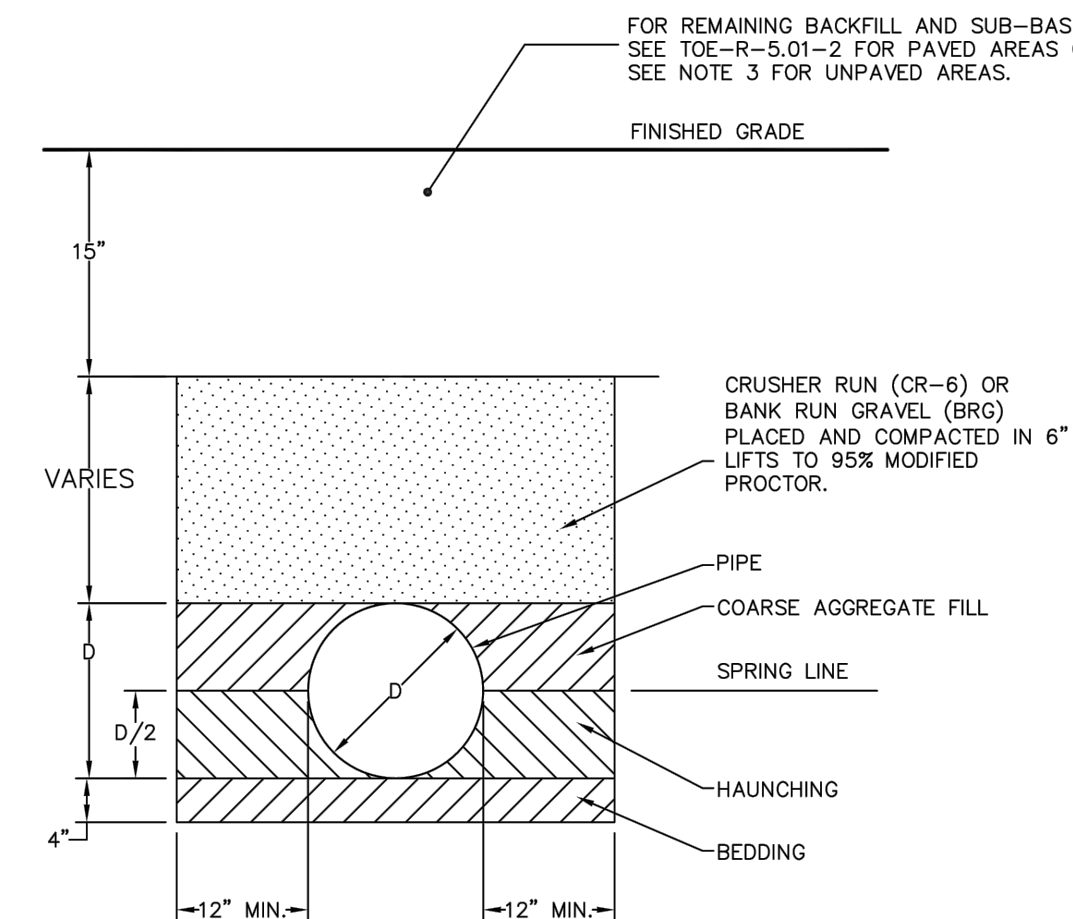
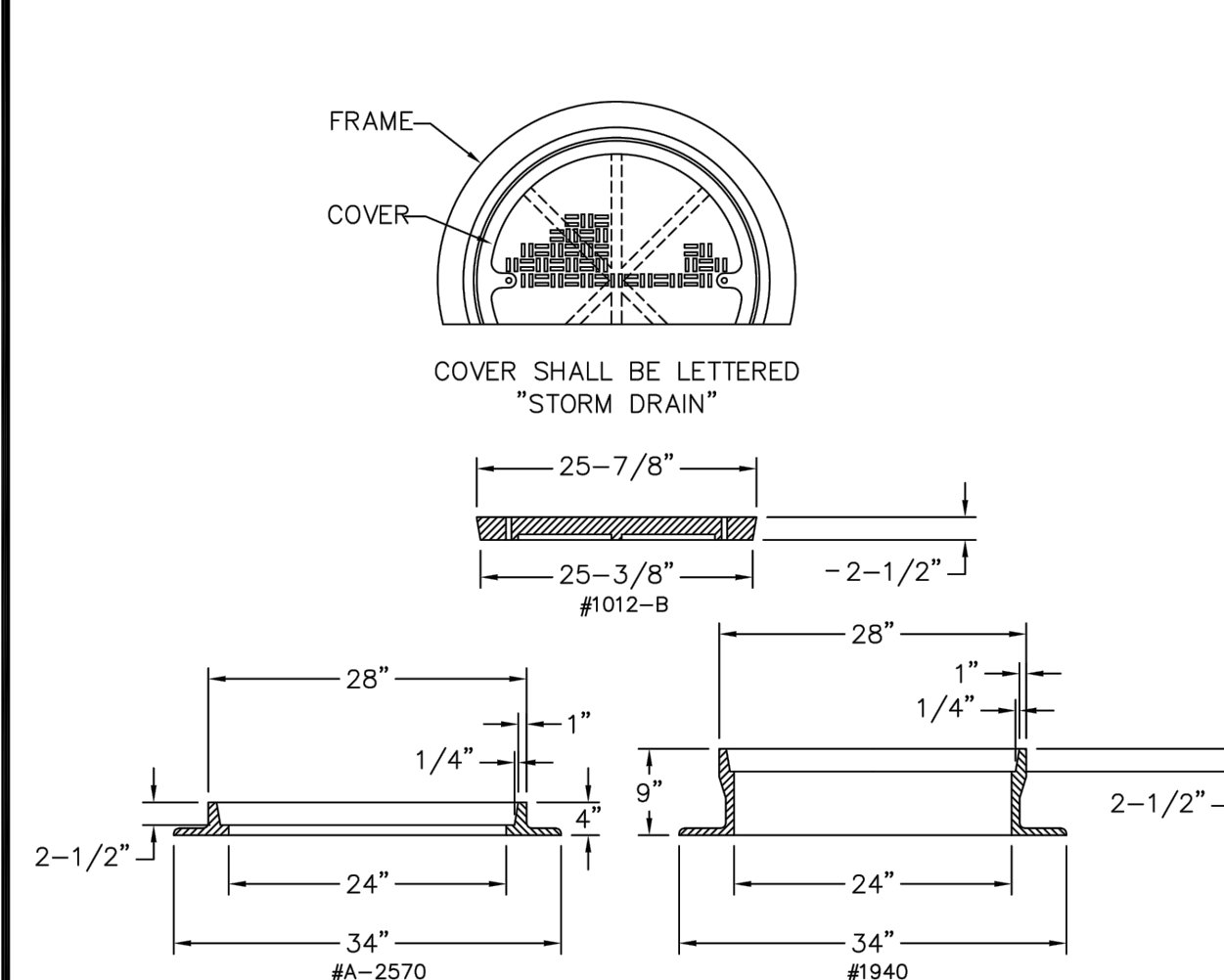
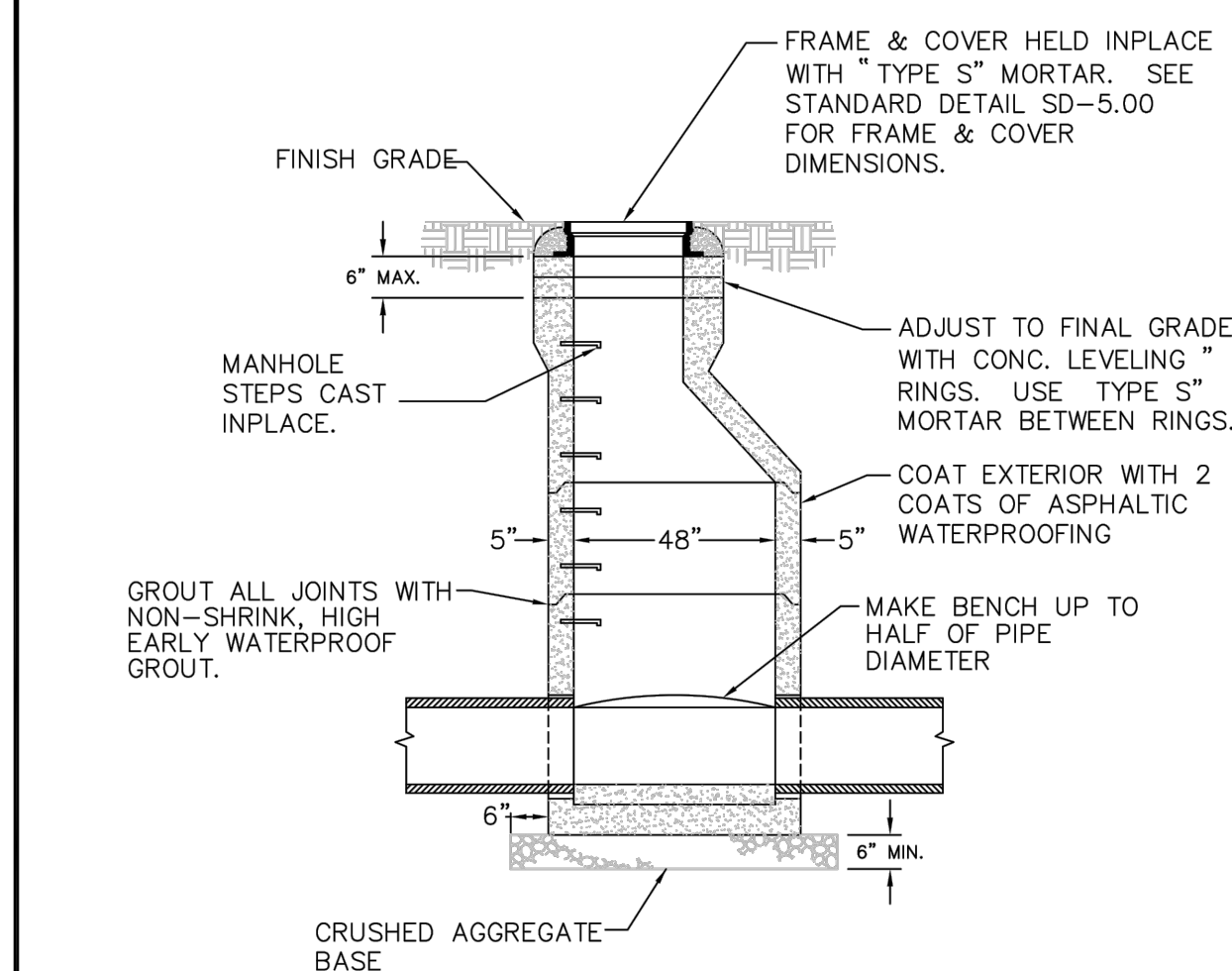


	APPROVAL <i>[Signature]</i> TOWN ENGINEER <u>1/2020</u> DATE	TOWN OF EASTON STANDARD DETAILS CURB INLET
	ISSUED: JANUARY 2020	STANDARD NO: TOE-SD-101

	APPROVAL <i>[Signature]</i> TOWN ENGINEER <i>1/1/2020</i> DATE	TOWN OF EASTON STANDARD DETAILS INLET TOP
	ISSUED: JANUARY 2020	

	APPROVAL <i>[Signature]</i> TOWN ENGINEER <i>1/2020</i> DATE	TOWN OF EASTON STANDARD DETAILS INLET FRAME AND COVER
	ISSUED: JANUARY 2020	STANDARD NO.: TOE-SD-104

	APPROVAL <i>David M. Engel</i> TOWN ENGINEER <u>1/10/20</u> DATE	TOWN OF EASTON STANDARD DETAILS NON-TRAFFIC BEARING YARD INLET
	ISSUED: JANUARY 2020	STANDARD NO.: TOE-SD-107



	APPROVAL <i>Pedro N. Engel</i> _____ TOWN ENGINEER <u>1/2020</u> DATE	TOWN OF EASTON STANDARD DETAILS PRECAST CONCRETE MANHOLE
	ISSUED: JANUARY 2020	STANDARD NO: TOE-SD-2.01

	APPROVAL <i>Ped. Van Engle</i> _____ TOWN ENGINEER <u>1/2020</u> DATE	TOWN OF EASTON STANDARD DETAILS MAN-HOLE FRAME AND COVER
	ISSUED: JANUARY 2020	

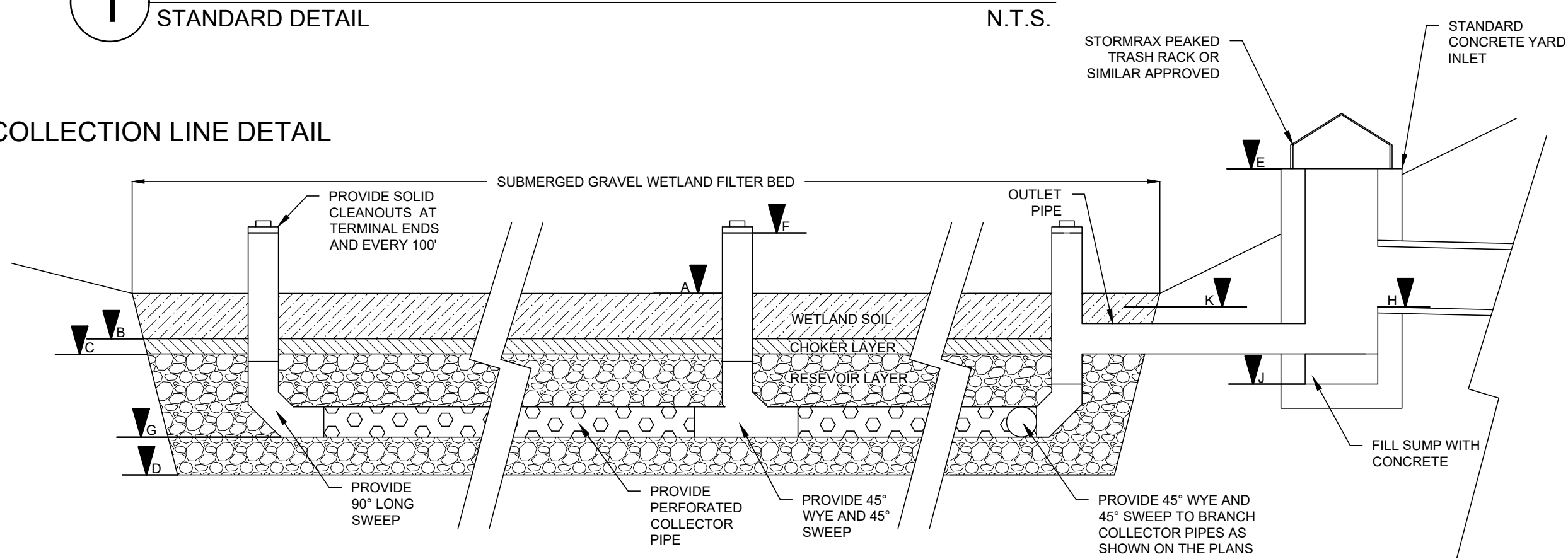
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	ISSUED: JANUARY 2020	STANDARD NO: TOE-R-501-1

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

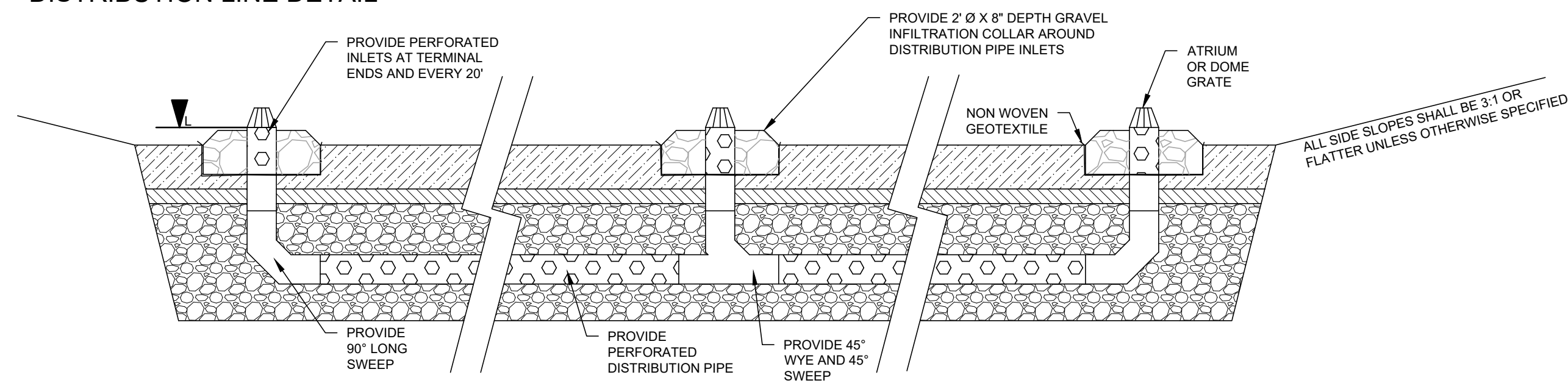
FES #	FES DIAMETER (IN.)	10-YR STORM (CFS)	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN.)	RIP-RAP TYPE
1	12	5.55	10	11	19	CLASS I
2	24	8.51	11	13	19	CLASS I
3	15	2.01	8	9.25	19	CLASS I
4	12	5.08	10	11	19	CLASS I
5	24	12.57	11	13	19	CLASS I
6	30	17.56	14	16.5	19	CLASS I
7	24	15.82	11	13	19	CLASS I

1 SUBMERGED GRAVEL WETLAND
STANDARD DETAIL

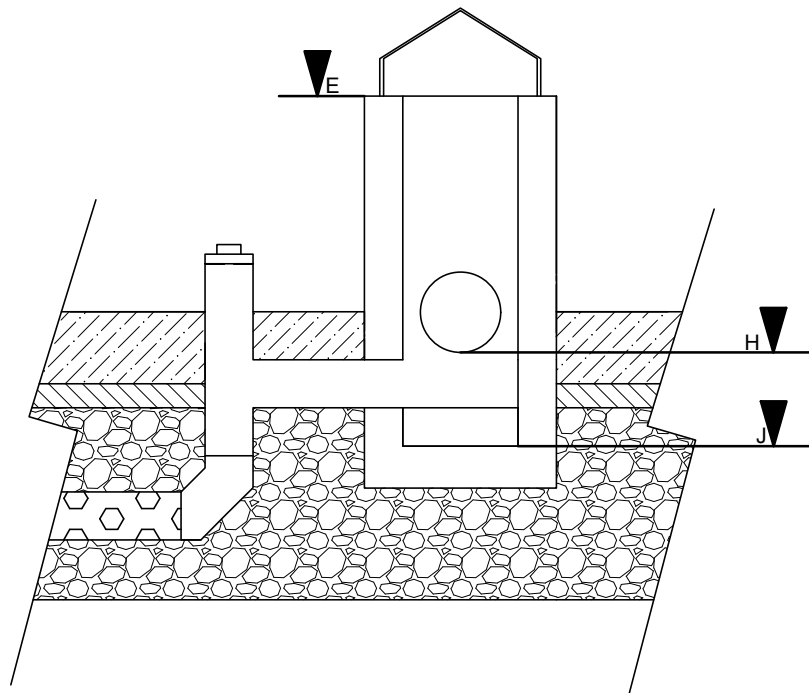
COLLECTION LINE DETAIL



DISTRIBUTION LINE DETAIL

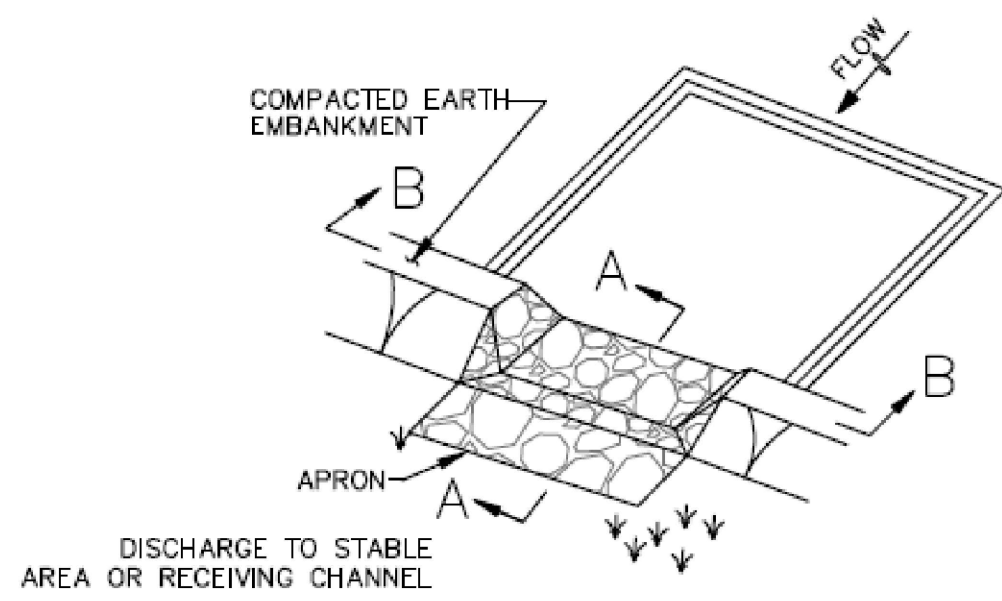


OUTLET STRUCTURE INSIDE
WETLAND BED

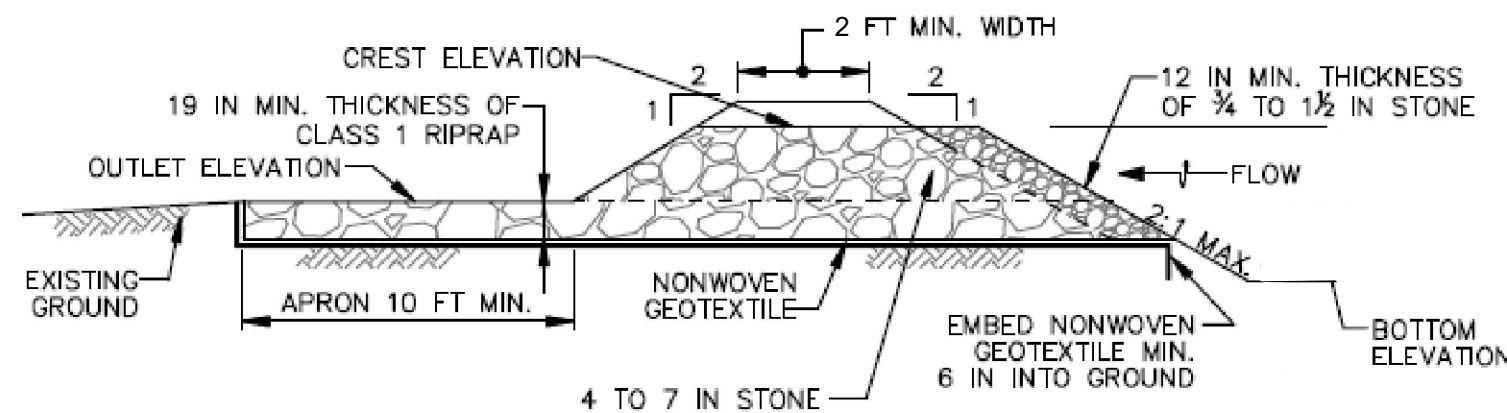


- NOTES:
- 8" THICK WETLAND SOILS SHALL BE LOW K_{sat} SOIL (0.1-0.01 FT/DAY) CONTAINING $\pm 50\%$ SILT/CLAY, $\pm 25\%$ SAND, $\pm 25\%$ ORGANIC CONTENT
 - ALL PIPES SHALL BE SDR-35 OR SCHEDULE 40 UNLESS SHOWN
 - FILTER FABRIC IS NOT USED BETWEEN SOIL AND CHOKER STONE OR GRAVEL AND CHOKER STONE
 - PERFORATIONS SHALL BE $\frac{1}{8}" \times \frac{1}{8}"$ @ 6" ϕ CIRC AROUND THE CIRCUMFERENCE OF THE PIPE
 - 4" THICK CHOKER STONE SHALL BE PEA GRAVEL OR #8 STONE, WASHED AND FREE OF FINES
 - RESERVOIR GRAVEL SHALL BE $\frac{1}{2}"$ RIVER GRAVEL OR #57 CRUSHED STONE, WASHED AND FREE OF FINES
 - YARD INLETS SHALL BE FOUNDED ON 6" NO 57 STONE ON TOP OF GEOTEXTILE FILTER - COMPACT SUBGRADE.

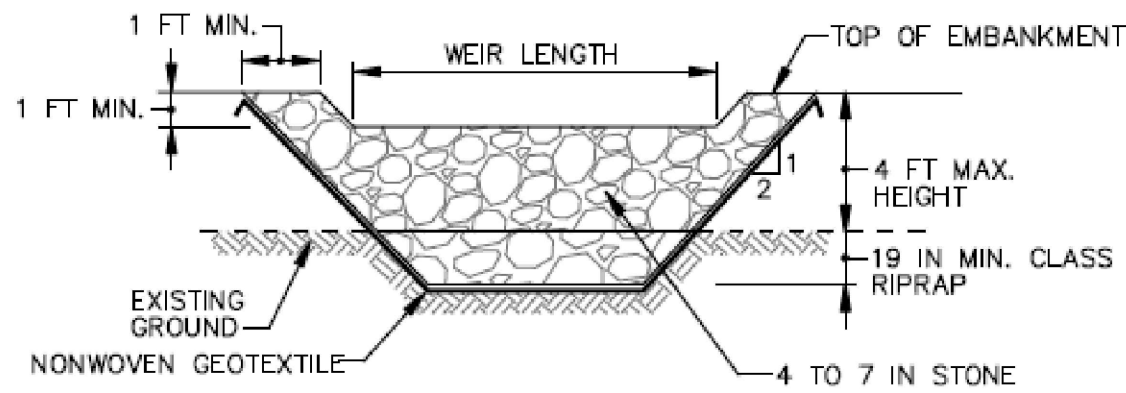
SUBMERGED GRAVEL WETLAND			
PRACTICE NAME		SGW-1	SGW-2
COMPONENT		ELEVATION - FT	ELEVATION - FT
A	WETLAND BED	45.50	47.50
B	CHOKER TOP	44.83	46.83
C	RESEVOIR TOP	44.50	46.50
D	RESEVOIR BOTTOM	42.50	44.50
E	RIM	47.50	49.50
F	CLEANOUT	47.50	49.50
G	COLLECTOR/DISTRIBUTION PIPE INVERT	42.75	44.75
H	OUTLET	45.17	47.17
J	OUTLET STRUCTURE BOTTOM	40.75	42.75
K	IWS ELEVATION	45.17	47.17
L	COLLECTOR PIPE INLET RIM	47.00	49.00
UNDERDRAIN SIZE - IN		6	6
OUTLET STRUCTURE SIZE + TYPE		2'X2' CONCRETE	2'X2' CONCRETE
OUTLET PIPE SIZE + TYPE		12" N-12	12" N-12
BED AREA		2,056 SF	4,027 SF



ISOMETRIC VIEW



SECTION A-A



SECTION B-B

FOREBAY 1
CREST ELEV = 47.50
WEIR LENGTH = 7 FT
CREST WIDTH = 2 FT

FOREBAY 2
CREST ELEV = 49.50
WEIR LENGTH = 7 FT
CREST WIDTH = 2 FT

STORMWATER DETAILS

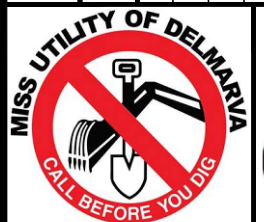
OF THE LANDS OF
ASPIRE APARTMENTS
TAX MAP: 0026, GRID: 0020, PARCEL: 0166
ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC

RAUCH
Engineering | Survey | Architecture | Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 9081 | Fax: 410 770 3987

REVISIONS

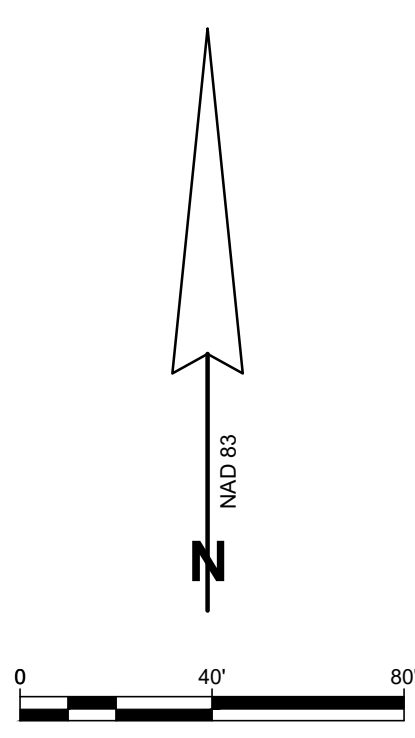
REV. #	DATE	DESCRIPTION
1		



DATE: 12/6/2022
SCALE: N/A
DRAWN BY: BBF
DESIGNED BY: BBF
APPROVED BY: BBF

SHEET NO.:
C-205.04

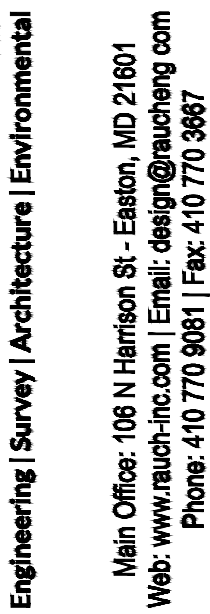
FOR
REVIEW



1	EASTON UTILITIES R.O.W. / EASEMENT
2	PROPOSED 5 FT CONCRETE SIDEWALK. SEE DETAIL ON SHEET C-305.01
3	PARALLEL HANDICAP RAMP. SEE DETAIL ON SHEET C-305.01
4	A.D.A. ACCESS AISLE STRIPED PER A.D.A. STANDARDS
5	REFUSE BIN COLLECTION AREA WITH WOODEN FENCE AND DEPRESSED CURB/GUTTER.
6	STANDARD CURB AND GUTTER. SEE DETAIL ON SHEET C-305.01
7	PROPOSED APARTMENT BUILDING
8	SIDEWALK RAMP. SEE DETAIL ON SHEET C-305.02
9	DETECTABLE WARNING SURFACE. SEE DETAIL ON SHEET C-305.02
10	REVERSE GRADE GUTTER PAN. SEE DETAIL ON SHEET C-305.02.
11	ROAD/PARKING AREA. SEE DETAIL ON SHEET C-405.01
12	PARKING ISLAND DRAINAGE CUT THROUGH SEE DETAIL ON SHEET C-405.02

OF THE LANDS OF

TAX MAP: 0026, GRID: 0020, PARCEL: 0186
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC



OVERLAY - HMA SUPERPAVE 9.5 MM, PG 64-22, LEVEL 2, FOR 1-1/2" OVERLAYS. - HMA SUPERPAVE 12.5 MM, PG 64-22, LEVEL 2, FOR 2" OVERLAYS. - MATCH THE SURFACE COURSE SPECIFIED FOR THE ADJUSTMENT FULL DEPTH PAVING IF DIFFERENT FROM THE ABOVE.		
COMMERCIAL ASPHALT PAVEMENT FOR ROADS SURFACE COURSE: 2" HOT MIX ASPHALT SUPERPAVE 9.5 MM BASE COURSE: 4" HOT MIX ASPHALT SUPERPAVE, 19.0 MM PLACED IN 2-2" LIFTS. SUB BASE: 6" OR-6 GRADED AGGREGATE COMPACTED TO 95% OF ASTM D1557, MODIFIED PROCTOR METHOD.		
RESIDENTIAL ASPHALT PAVEMENT FOR ALLEYS SURFACE COURSE: 2" HOT MIX ASPHALT SUPERPAVE 9.5 MM BASE COURSE: 2 1/2" HOT MIX ASPHALT SUPERPAVE, 19.0 MM SUB BASE: 6" OR-6 GRADED AGGREGATE COMPACTED TO 95% OF ASTM D1557, MODIFIED PROCTOR METHOD.		
CONCRETE PAVEMENT 8" PORTLAND CEMENT CONCRETE MIX #7. SUB BASE: 6" OR-6 GRADED AGGREGATE COMPACTED TO 95% OF ASTM D1557, MODIFIED PROCTOR METHOD.		
TOWN OF EASTON MARYLAND FOUNDED 1710	APPROVAL TOWN ENGINEER 1/1/2020 ISSUED: JANUARY 2020	TOWN OF EASTON STANDARD DETAILS PAVING SPECIFICATIONS STANDARD NO: TOE-R-101

PAVING NOTES		
PAVING REQUIREMENTS		
A. BASE COURSE		
1. SUB-GRADE SHALL BE PLACED ON PREPARED AND COMPACTED REFILLED EXCAVATIONS TO THE COMPACTED DEPTH AS SHOWN ON DETAIL 9W-1.03. MATERIALS AND METHODS OF CONSTRUCTION SHALL MEET THE PROVISIONS OF MD SHA STANDARDS, SECTION 208.		
2. GRADED AGGREGATE BASE COURSE:		
a) GRADED AGGREGATE BASE COURSE SHALL BE SPREAD ON PREPARED AND COMPACTED REFILLED EXCAVATION TO THE COMPACTED DEPTH SHOWN ON THE DRAWING DETAILS.		
b) GRADED AGGREGATE SHALL BE PER MD SHA STANDARD, SECTION 401.		
c) RECYCLED CRUSHED CONCRETE IS AN ACCEPTABLE ALTERNATIVE PROVIDED THICKNESS ADJUSTMENTS ARE MADE BASED ON SUPPLEMENTAL TESTING TO BE SUBMITTED BY A QUALIFIED TESTING LABORATORY AND APPROVED BY THE TOWN ENGINEER.		
B. TRACK COAT		
1. COATING SHALL BE RESIDUAL ASPHALT UNIFORMLY SPREAD BETWEEN .01 AND .05 GALLONS/SQ. YARD.		
2. CONTRACTOR SHALL TAKE CARE NOT TO TRACK COAT ON SURFACE COURSES.		
C. HOT MIX ASPHALT PAVEMENT		
1. HOT MIX ASPHALT PAVEMENT SHALL CONSIST OF A NUMBER OF COURSES OF HMA SUPERPAVE MATERIAL AND AGGREGATE ON A PREPARED SUB-BASE AS SHOWN WITHIN THE TOWN STANDARDS.		
2. MATERIALS AND METHODS OF CONSTRUCTION SHALL MEET THE PROVISIONS OF SECTION 504 AND SECTION 904 OF THE MD SHA STANDARDS AND DETAILS.		
3. SURFACE COURSES OF BITUMINOUS CONCRETE MIXES SHALL HAVE LESS THAN 15% OF RECYCLED ASPHALT PAVEMENT (RAP).		
4. BASE COURSES SHALL HAVE NO MORE THAN 20% RAP.		
5. WEATHER RESTRICTIONS:		
a) PLANT MIXED SEAL - MINIMUM SURFACE TEMPERATURE 60° AND RISING.		
b) SURFACE COURSE - MINIMUM SURFACE TEMPERATURE 40° AND RISING.		
c) BASE COURSE - MINIMUM SURFACE TEMPERATURE 32° AND RISING.		
D. CONCRETE PAVEMENT		
1. CONCRETE USED IN THE RESTORATION OF STREET AND ROADS SHALL BE PLACED TO THE MINIMUM THICKNESS THAT SHALL BE APPROVED BY THE TOWN. CONCRETE MAY BE A BASE COURSE WITH A BITUMINOUS CONCRETE OVERLAY OR A FINISHED SURFACE COURSE.		
2. CONCRETE PAVEMENT SHALL MEET THE PROVISIONS OF MD SHA STANDARDS, SECTION 522.		
3. CONCRETE SIDEWALK AND CURB AND GUTTER RESTORATION SHALL BE AS INDICATED WITHIN THE TOWN STANDARDS.		
E. SOIL CEMENT		
1. WHERE THE CBR VALUES ARE FOUND TO BE LOW WITHIN THE PAVED AREA, THE TOWN WILL ALLOW THE SUB-GRADE BE REINFORCED BY A CEMENTIOUS MATERIAL BEING MIXED IN THE SUBGRADE. APPLICATION SHALL BE SUBJECT TO THE GEOTECHNICAL INVESTIGATION.		
2. A MINIMUM OF 2" OF GRADED AGGREGATE SHALL BE INSTALLED BETWEEN THE AMENDED SOIL AND BITUMINOUS PAVEMENT.		
3. MINIMUM MIX DEPTH OF THE SOIL CEMENT MIXTURE SHALL BE 8" WITH A 5-5.5% MINIMUM CEMENT CONTENT.		
TOWN OF EASTON MARYLAND FOUNDED 1710	APPROVAL TOWN ENGINEER 1/1/2020 ISSUED: JANUARY 2020	TOWN OF EASTON STANDARD DETAILS PAVING NOTES STANDARD NO: TOE-R-102

CONCRETE QUICK REFERENCE LIST		
CAST-IN-PLACE CONCRETE SIDEWALKS AND CURBING		
A. SUBMITTALS		
1. SUBMIT MIX DESIGN FOR APPROVAL PRIOR TO PLACING CONCRETE (MSHA MIX #3 FOR ALL CONCRETE SIDEWALKS, AIR ENTRAINED, MINIMUM 3500 PSI MIX). FOR CURB AND GUTTER, UTILIZE MSHA MIX #7, EXCEPT MAXIMUM WATER CEMENTITIOUS RATIO OF 0.45 AND 611 POUNDS MINIMUM CEMENTITIOUS MATERIALS. AIR ENTRAINED, MINIMUM 4200 PSI MIX.		
2. SUBMIT CONCRETE TESTING AGENCY FOR APPROVAL, WHICH CONTRACTOR OR PROJECT OWNER SHALL EMPLOY FOR INFELD AND LABORATORY TESTING.		
B. CONCRETE PLACEMENT		
1. NOTIFY TOWN OF INTENTION TO POUR CONCRETE 24 HOURS PRIOR TO PERFORMING WORK. (PHONE: 410-822-8822).		
2. DRIVER SHALL PRESENT COMPUTER GENERATED MIX DELIVERY TICKET UPON ARRIVAL TO SITE.		
3. DO NOT ADD WATER TO MIX AT JOB SITE UNLESS APPROVED BY ENGINEER. DO NOT POUR CONCRETE DURING RAIN EVENTS.		
4. TESTING AGENCY SHALL TEST FOR SLUMP, TEMPERATURE AND AIR ENTRAINMENT AT THE JOB SITE. PRIOR TO POURING EACH TRUCK LOAD DELIVERED TO SITE, THE MAXIMUM TIME FROM ADDING WATER TO BATCH AT PLANT TO DISCHARGE AT SITE SHALL BE WITHIN 1½ HOURS. TESTING AGENCY SHALL VERIFY THAT SUB-GRADE IS PROPERLY COMPACTED.		
5. TESTING AGENCY SHALL COLLECT CYLINDERS FOR COMPRESSION TESTING ON EACH TRUCK LOAD OF CONCRETE DELIVERED TO SITE PER ADO REQUIREMENTS. TEST RESULTS SHALL BE PROVIDED TO THE ENGINEER WITHIN 48 HOURS OF 7 AND 28 DAY BREAKS. REPORT SHALL INCLUDE LOCATION OF POUR PER PLAN STATIONING.		
6. ENGINEER OF HIS/HER REPRESENTATIVE SHALL VERIFY THAT AREA OF CONCRETE WORK IS PROPERLY PREPARED, FREE OF WATER, FREE OF UNSTABLE MATERIALS AND THAT ALL REINFORCEMENT REQUIRED AT DRIVEWAYS, RAMP, VALLEY GUTTERS, ETC IS IN PLACE AND PROPERLY SUPPORTED.		
7. COLD WEATHER CONCRETE PLACEMENT SHALL BE PROTECTED FROM DAMAGE AND FROST, FREEZING ACTION OR LOW TEMPERATURES. NO UNAPPROVED ADJUSTMENTS ARE PERMITTED.		
8. CONCRETE CURB AND SIDEWALKS SHALL HAVE PROPER CONTROL JOINTS INSTALLED AT 10 FOOT INTERVALS FOR CURB AND 5 FOOT INTERVALS FOR SIDEWALK. EXPANSION JOINTS FOR CURBING SHALL BE AT EACH 100 FOOT INTERVAL PLUS AT EACH POINT OF TANGENT OR CURVE. SIDEWALKS SHALL HAVE EXPANSION JOINTS AT 20 FOOT INTERVALS OR AT CHANGE OF DIRECTION.		
TOWN OF EASTON MARYLAND FOUNDED 1710	APPROVAL TOWN ENGINEER 1/1/2020 ISSUED: JANUARY 2020	TOWN OF EASTON STANDARD DETAILS CONCRETE QUICK REFERENCE LIST STANDARD NO: TOE-R-103

CONCRETE SIDEWALK		
5'-0" VARIES 4" MIN. APPROVED SUBGRADE CURB AND GUTTER NOTES 1. CONCRETE SHALL BE SHA MIX NO. 3. 2. CONTRACTION JOINTS SHALL BE TOOLED AT 5'-0" INTERVALS. (4' INTERVALS FOR 4' WIDE SIDEWALK) 3. EXPANSION JOINTS AT INTERVALS NOT GREATER THAN 20'-0". 4. ALL UNPAVED AREAS WITHIN STREET SIDEWALKS SHALL BE SEEDED OR SOODED PER SPECIFICATIONS. 5. SIDEWALKS AT DRIVEWAY LOCATIONS TO BE 8" THICK. 6. WHERE CONTINUOUS WIDTH OF TRAVEL IS LESS THAN 5'-0", PROVIDE PASSING ZONES AT AN INTERVAL NOT TO EXCEED 200' CENTER TO CENTER. ENTRANCES SHALL BE ACCEPTABLE PASSING ZONES PROVIDED PAVING WIDTH OF 5'-0" IS MAINTAINED AT 4:1 SLOPE. 7. GRASS STRIPS SHALL BE SLOPED AS TO PROVIDE POSITIVE DRAINAGE TOWARD STORMWATER FEATURES. 8. WHERE REVERSE SLOPES OF GRASS STRIPS AND SIDEWALKS ARE REQUIRED TO PROVIDE POSITIVE DRAINAGE TOWARDS A STORMWATER FEATURE, SPOT ELEVATIONS SHALL BE PROVIDED ON FRONT AND BACK OF SIDEWALK. (REVERSE SLOPES MUST BE APPROVED BY THE TOWN PRIOR TO CONSTRUCTION) 9. MAXIMUM SLOPE IN THE DIRECTION OF TRAVEL SHALL BE 5% IN LOCATIONS WITHOUT HANDICAPPED RAMPS. 10. SIDEWALKS SHALL COMPLY WITH ADA REQUIREMENTS PER THE MOST UP TO DATE DEPARTMENT OF JUSTICE REGULATION 28CFR PART 36. EXPANSION JOINT DETAIL PREFORMED EXPANSION JOINT MATERIAL 1/2" 4" MIN. APPROVED SUBGRADE		
TOWN OF EASTON MARYLAND FOUNDED 1710	APPROVAL TOWN ENGINEER 1/1/2020 ISSUED: JANUARY 2020	TOWN OF EASTON STANDARD DETAILS CONCRETE SIDEWALK STANDARD NO: TOE-R-701

NOTES		
1. ALL CONCRETE USED FOR CURB AND GUTTER SHALL BE SHA MIX NO. 7.		
2. CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 40'-0". EXTRUDED CONCRETE CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 100'-0".		
3. DEPRESSED CURB AND GUTTER SHALL BE UTILIZED AT HANDICAPPED RAMPS WHEN TRANSITIONING FROM STANDARD CURB AND GUTTER.		
4. MAXIMUM GUTTER AND SLOPE ON CURB RETURNS SHALL BE 2% WHERE HANDICAPPED RAMPS ARE REQUIRED.		
TOWN OF EASTON MARYLAND FOUNDED 1710	APPROVAL TOWN ENGINEER 1/1/2020 ISSUED: JANUARY 2020	TOWN OF EASTON STANDARD DETAILS STANDARD DEPRESSED CURB AND GUTTER STANDARD NO: TOE-R-601

NOTES		
1. ALL CONCRETE USED FOR CURB AND GUTTER SHALL BE SHA MIX NO. 7.		
2. CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 40'-0". EXTRUDED CONCRETE CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 100'-0".		
3. MAXIMUM GUTTER SLOPE ON CURB RETURNS SHALL BE 2% WHERE HANDICAPPED RAMPS ARE REQUIRED.		
TOWN OF EASTON MARYLAND FOUNDED 1710	APPROVAL TOWN ENGINEER 1/1/2020 ISSUED: JANUARY 2020	TOWN OF EASTON STANDARD DETAILS STANDARD DEPRESSED CURB AND GUTTER FOR SIDEWALK RAMPS STANDARD NO: TOE-R-603

NOTES		
1. TO BE USED WHERE SIDEWALK IS ADJACENT TO THE CURB. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.		
2. WHERE 60" SIDEWALK CAN NOT BE PROVIDED, A DESIGN WAIVER MUST BE REQUESTED.		
3. NO TRAVERSABLE SLOPE ON THE RAMP OR SIDEWALK SHALL EXCEED 1:21 IN THE DIRECTION OF PEDESTRIAN TRAVEL OR 48:1 PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL. THE CROSS SLOPE OF THE LANDING AREA CAN NOT EXCEED GRADE OF ROADWAY.		
4. EXPANSION JOINT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH TOE STANDARD DETAIL.		
5. SIDEWALK RAMPS TO BE SHOWN ON PLANS SYMBOLICALLY AND REFERENCED WITH THE CENTER OF THE RAMP ALIGNED TO A STATION ON THE CONSTRUCTION CENTERLINE. SEPARATE DETAILS SHALL BE SHOWN WHERE PROPOSED RAMP VARIES FROM STANDARD CASES.		
6. TRANSITION PANELS TO THE INTO EXISTING SIDEWALK MUST BE A MINIMUM OF 5' IN LENGTH.		
TOWN OF EASTON MARYLAND FOUNDED 1710	APPROVAL TOWN ENGINEER 1/1/2020 ISSUED: JANUARY 2020	TOWN OF EASTON STANDARD DETAILS SIDEWALK RAMPS PARALLEL STANDARD NO: TOE-R-704

NOTES		
1. ALL CONCRETE USED FOR CURB AND GUTTER SHALL BE SHA MIX NO. 7.		
2. CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 40'-0". EXTRUDED CONCRETE CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 100'-0".		
3. MEDIAN CURB AND GUTTER TO BE USED AT MEDIANS ONLY. SEE TOE-R-6.07 FOR MEDIAN RAMP DETAILS.		
TOWN OF EASTON MARYLAND FOUNDED 1710	APPROVAL TOWN ENGINEER 1/1/2020 ISSUED: JANUARY 2020	TOWN OF EASTON STANDARD DETAILS MEDIAN CURB AND GUTTER (SHA TYPE C) STANDARD NO: TOE-R-604

REVISIONS

REV. #	DATE	DESCRIPTION
1		



DATE:	12/7/2022
SCALE:	N/A
DRAWN BY:	BBF
DESIGNED BY:	BBF
APPROVED BY:	BBF

SHEET NO.: C-305.01

FOR REVIEW

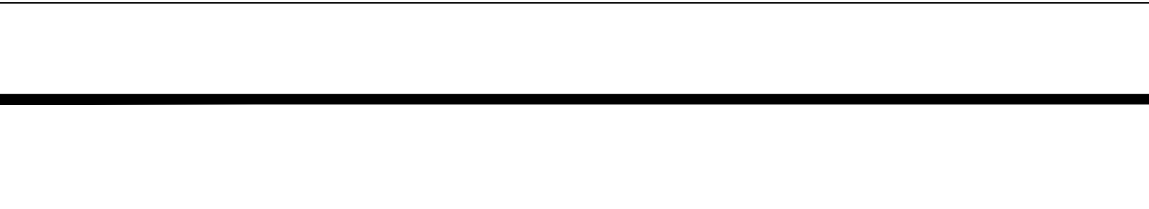
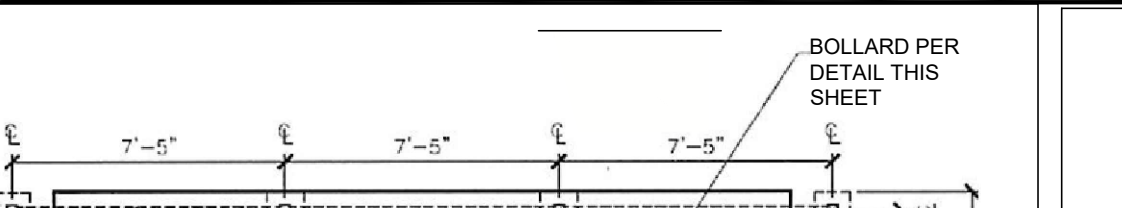
9. MAINTENANCE OF REFILLED EXCAVATIONS
1. ALL DEPRESSIONS APPEARING IN THE REFILLED EXCAVATION, STABILIZED BASE AND TEMPORARY PAVING SHALL BE PROPERLY REFILLED, IF THE CONTRACTOR FAILS TO MAKE REPAIRS WITHIN 48 HOURS AFTER RECEIPT OF WRITTEN NOTICE FROM THE TOWN ENGINEER, THE TOWN MAY REFILL SAID DEPRESSIONS AND THE COST THEREOF SHALL BE BILLED TO THE CONTRACTOR. IN CASE OF EMERGENCY, THE TOWN MAY REPAIR ANY DEPRESSIONS IN CONTACT WITH BARRICADES WITHOUT GIVING PREVIOUS NOTICE TO THE CONTRACTOR, AND THE COST OF DOING SO SHALL BE BILLED TO THE CONTRACTOR.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURY OR DAMAGE THAT MAY RESULT FROM LACK OF MAINTENANCE OF ANY REFILLED EXCAVATION AT ANY TIME.



A. **Submittals:**

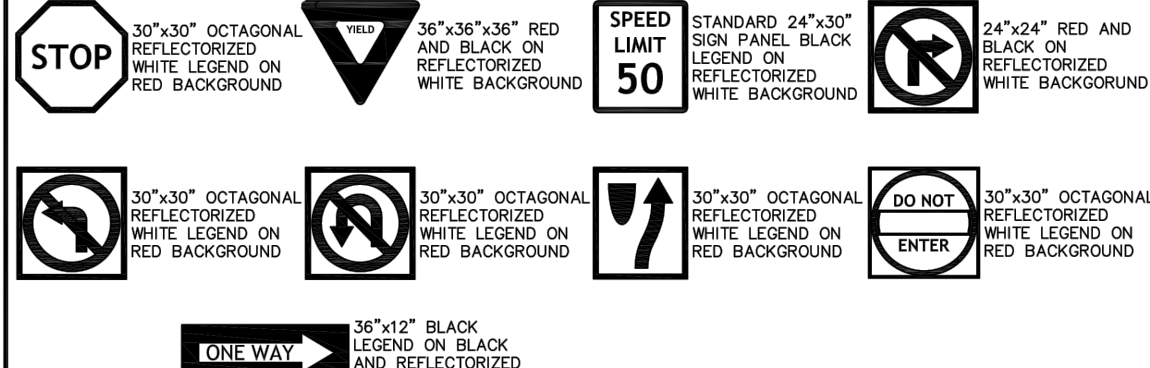
- 1) Submit mix design for approval prior to placing concrete (MSHA MIX #3 for all concrete sidewalks, air entrained, minimum 3500 psi mix). For curb and gutter, utilize MSHA Mix #7, except maximum water cementitious ratio of 0.45 and 611 pounds minimum cementitious materials, air entrained, minimum 4200 psi mix.
- 2) Submit Concrete Testing Agency for approval, which contractor or project owner shall employ for infill and laboratory testing.

- B. **Concrete Placement**
 - 1) Notify The Town of intention to pour concrete 24 hours prior to performing work. (Phone 410-820-8822)
 - 2) Driver shall present computer generated mix delivery ticket upon arrival to site.
 - 3) Do not add water to mix at job site unless approved by Engineer. Do not pour concrete during rain or even if raining.
 - 4) Testing agency shall test for slump, temperature and air entrainment at the job site, prior to pouring each truck load delivered to site. The maximum time from adding water to batch at plant to discharge at site shall be 1 1/2 hours.
 - 5) Testing agency shall verify that subgrade is properly compacted.
 - 6) Testing agency shall collect cylinders for compression testing on each truck load of concrete delivered to site per ACI requirements. Test results shall be provided to the Engineer within 24 hours of testing and of test breaking. Report shall include location of pour per plan stationing.
 - 7) Engineer or his representative shall verify that area of concrete work is properly prepared, free of water, debris, and loose material and that all reinforcement required at driveways, ramps, valley gullies, etc. is in place and properly supported.
 - 8) Cold weather concrete placement shall be protected from damage and frost, freezing action or low temperatures. No unapproved admixtures are permitted.
 - 9) Concrete curb and sidewalks shall have proper control joints installed at 10 foot intervals for curb and 20 foot intervals for sidewalks. Sidewalks shall have contraction joints every 10'-0", and expansion joints every 40'-0". Extruded concrete curb & gutter shall have contraction joints every 10'-0", and expansion joints every 100'-0". Expansion joints shall be staggered. Sidewalks shall have expansion joints at 20 foot intervals or at change of direction.



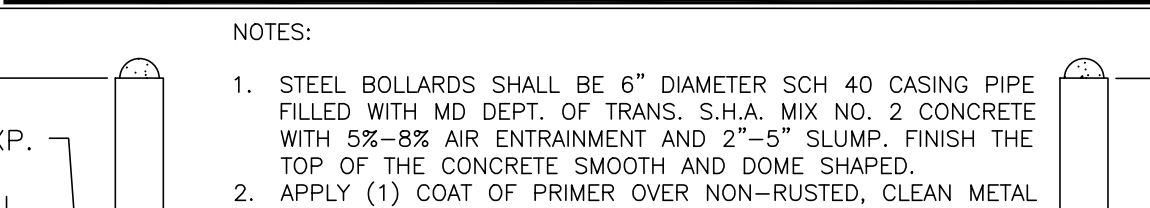
SIGN DETAILS

- NOTES:
1. BRICK SIDEWALK AND HANDICAP RAMPS SHALL BE USED AS DIRECTED BY THE TOWN.
 2. AT NO POINT SHALL THE SLOPE OF THE LANDING BE GREATER THAN 48:1 (2%), INCLUDING DIAGONAL.
 3. THERE SHALL BE A LANDING PRIOR TO THE RAMPS. THE LANDING SHALL BE 3' IN LENGTH, MINIMUM.
 4. DETAIL ONLY TO BE USED AS A GUIDE, CONTRACTOR TO USE GRADES SHOWN ON GRADING PLAN.



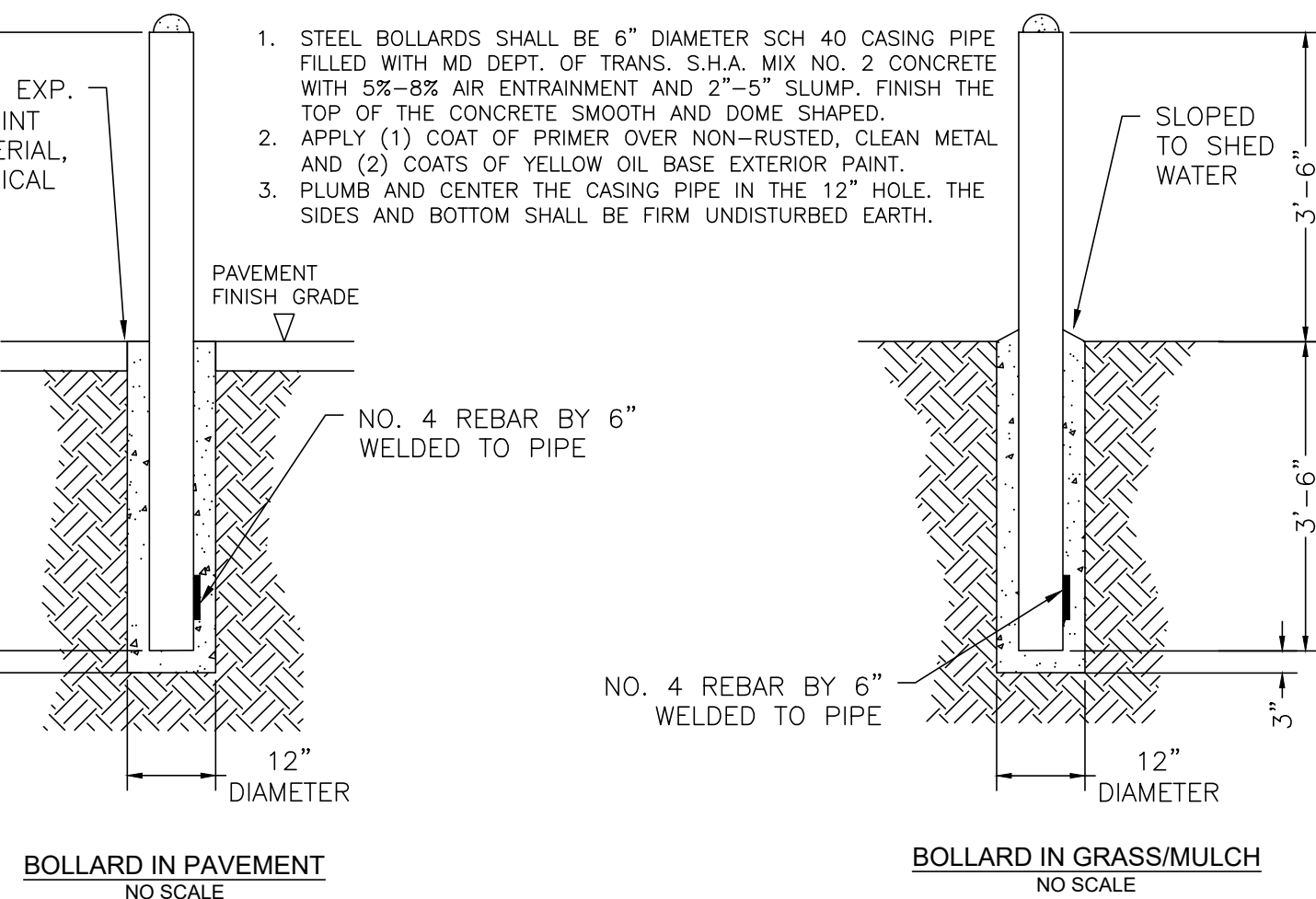
- NOTES:

1. REFER TO THE MARYLAND STATE HIGHWAY ADMINISTRATION "STANDARD BOOK" FOR DIMENSIONS AND COLORS OF ALL SIGNS NOT SHOWN.



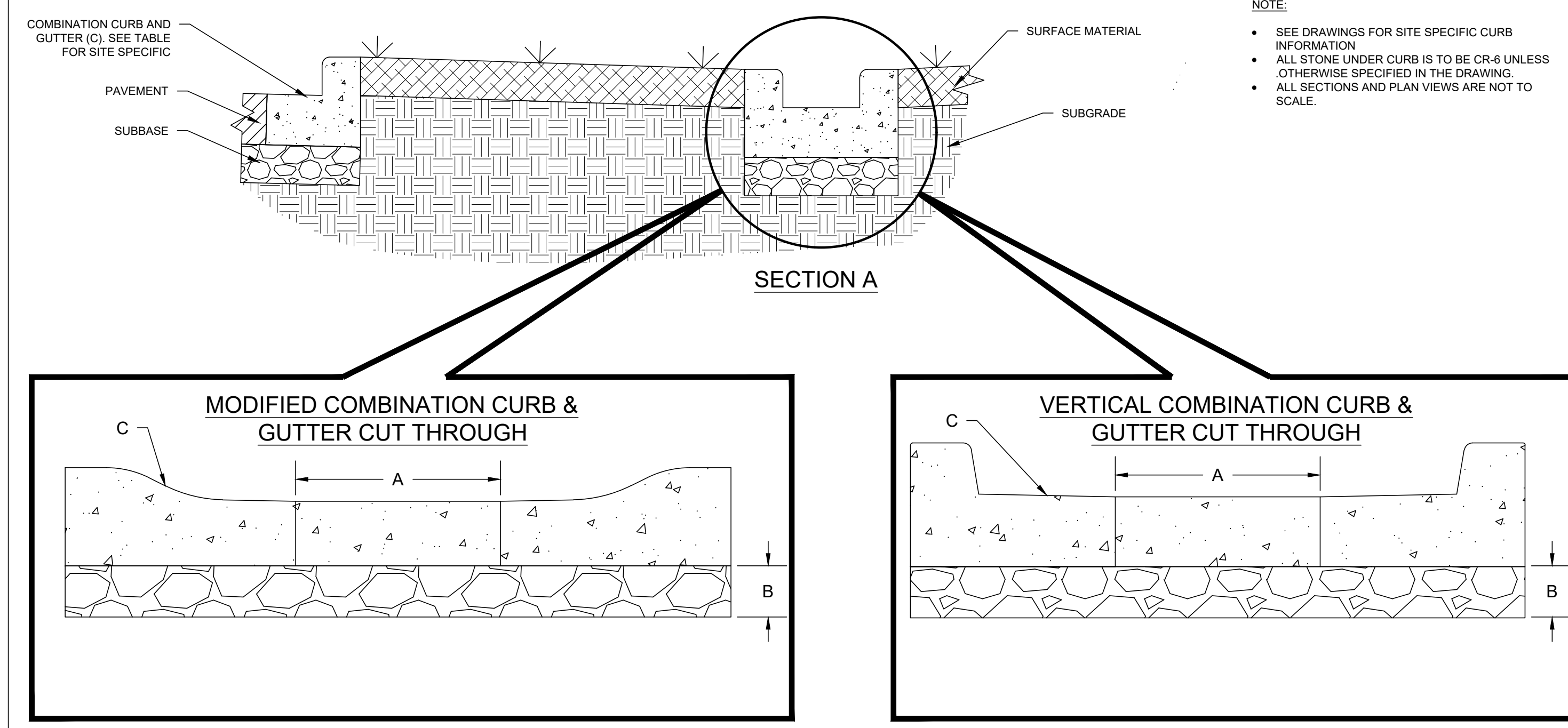
- NOTES:

1. STEEL BOLLARDS SHALL BE 6" DIAMETER SCH 40 CASING PIPE FILLED WITH MD DEPT. OF TRANS. S.H.A. MIX NO. 2 CONCRETE WITH 5%-8% AIR ENTRAINMENT AND 2"-5" SLUMP. FINISH THE TOP OF THE CONCRETE SMOOTH AND DOME SHAPED.
2. APPLY (1) COAT OF PRIMER OVER NON-RUSTED, CLEAN METAL AND (2) COATS OF YELLOW OIL BASE EXTERIOR PAINT.
3. SLIDING AND CENTER THE CASING PIPE IN THE 12" HOLE. THE SIDES AND BOTTOM SHALL BE FIRM UNDISTURBED EARTH.



- NOTE:**

- SEE DRAWINGS FOR SITE SPECIFIC CURB INFORMATION
- ALL STONE UNDER CURB IS TO BE CR-6 UNLESS OTHERWISE SPECIFIED IN THE DRAWING.
- ALL SECTIONS AND PLAN VIEWS ARE NOT TO SCALE.



PARKING ISLAND CUT THROUGH DETAIL
NO SCALE

SITE DETAILS

OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP: 0026; GRID: 0020; PARCEL: 0186

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

ASPIRE OUTDOORS, LLC

RAUCH
INC.
Engineering | Survey | Architecture | Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 9081 | Fax: 410 770 3667

REVISIONS		DESCRIPTION
REV. #	DATE	
1		



DATE: 12/7/2022

SCALE: N/A

DRAWN BY: BBF

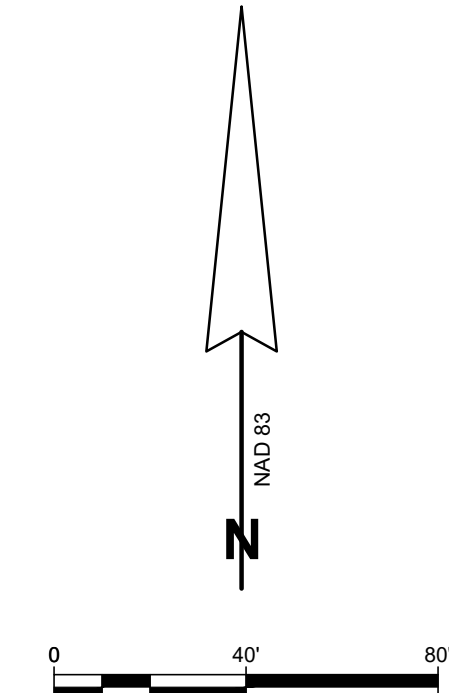
DESIGNED BY: BBF

APPROVED BY: BBF



SHEET NO.: C-305.02

FOR REVIEW

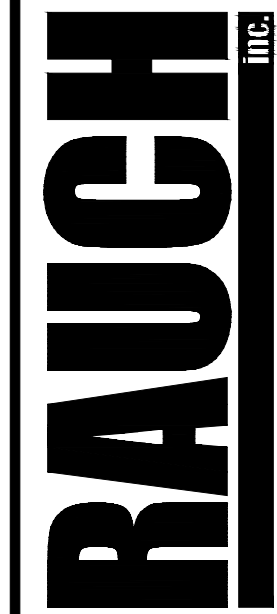


1	6" SDR-35 SEWER LATERAL. SEE DETAIL ON SHEET C-505.01
2	6" SDR-35 SEWER CLEAN OUT. SEE DETAIL ON SHEET C-505.01
3	6" FIRE C-900 DR-18 WATER LINE. SEE DETAIL ON SHEET C-505.01
4	4" POTABLE C-900 DR-18 PIPE WATER LINE. SEE DETAIL ON SHEET C-505.01
5	WATER METER. SEE DETAIL ON SHEET C-505.01
6	8" 45° BEND
7	8" 22.5° BEND
8	8" 11.25° BEND
9	BLOW OFF WITH METER PIT. SEE DETAIL ON SHEET
10	8"x8" TEE
11	8"x6" HYDRANT TEE
12	12"x8" REDUCER

OF THE LANDS OF

ASPIRE APARTMENTS

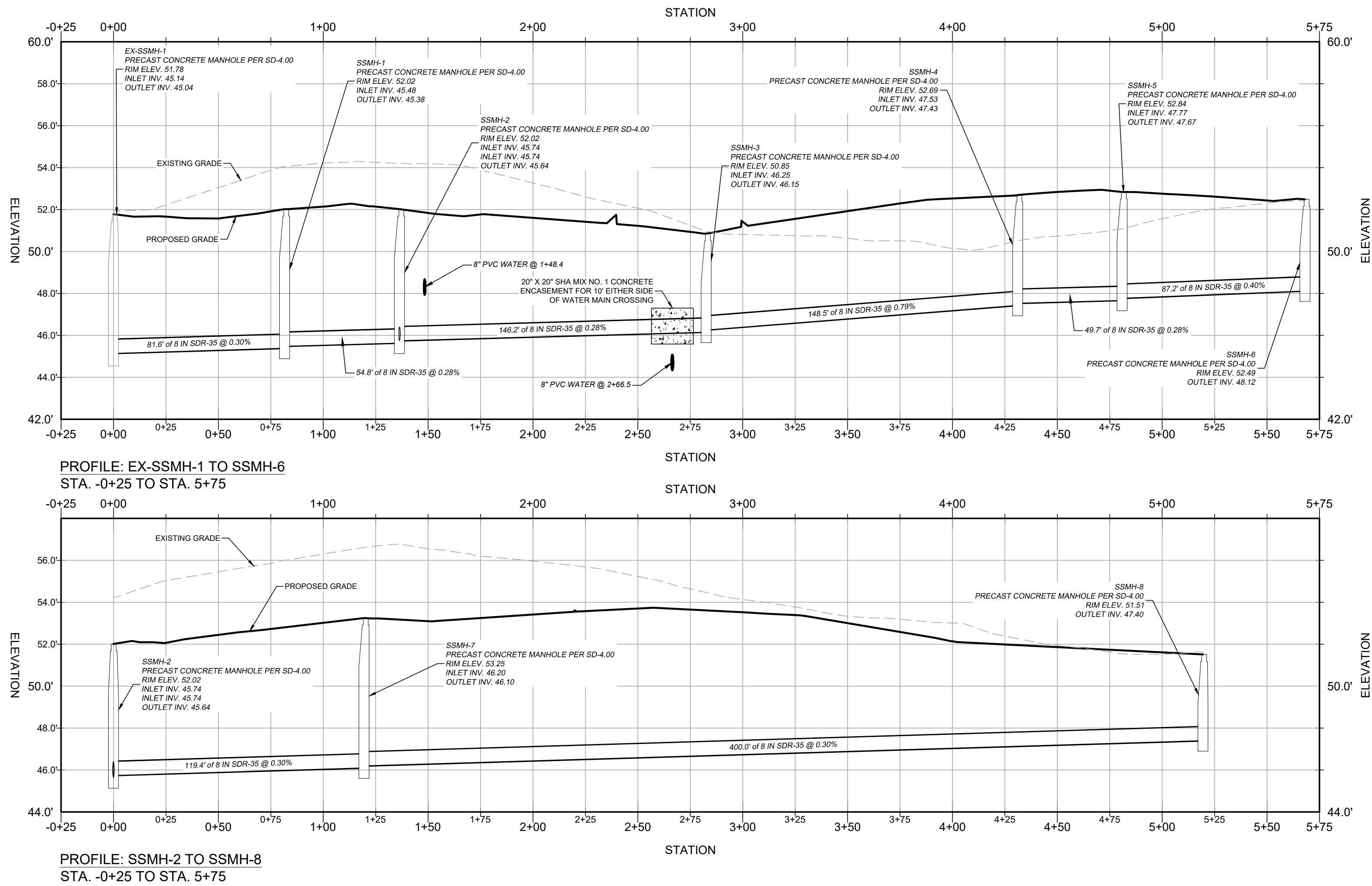
TAX MAP: 0026, GRID: 0020, PARCEL: 0186
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC



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inc.

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Phone: 410 770 9081 | Fax: 410 770 3687

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STRUCTURE SCHEDULE
ASPIRE - APARTMENTS - SEWER

STRUCTURE NAME	LOCATION	STRUCTURE TYPE AND SIZE	CONNECTED PIPES	RIM ELEVATION
EX-SSMH-1	N408968.37, E1586138.39	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-1 INV IN = 45.14 SS-10 INV OUT = 45.04	51.78
SSMH-1	N408908.59, E1586193.90	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-2 INV IN = 45.48 SS-1 INV OUT = 45.38	52.02
SSMH-2	N408853.98, E1586198.58	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-3 INV IN = 45.74 SS-6 INV IN = 45.74 SS-2 INV OUT = 45.64	52.02
SSMH-3	N408708.01, E1586190.09	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-7 INV IN = 46.25 SS-6 INV OUT = 46.15	50.85
SSMH-4	N408602.49, E1586294.62	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-8 INV IN = 47.53 SS-7 INV OUT = 47.43	52.69
SSMH-5	N408580.08, E1586339.04	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-9 INV IN = 47.77 SS-8 INV OUT = 47.67	52.84
SSMH-6	N408596.55, E1586424.67	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-9 INV OUT = 48.12	52.49
SSMH-7	N408846.99, E1586317.82	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-4 INV IN = 46.20 SS-3 INV OUT = 46.10	53.25
SSMH-8	N408556.00, E1586592.28	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-4 INV OUT = 47.40	51.51
SSMH-9	N409066.14, E1586101.86	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-10 INV IN = 44.70	53.23

PIPE SCHEDULE
ASPIRE - APARTMENTS - SEWER

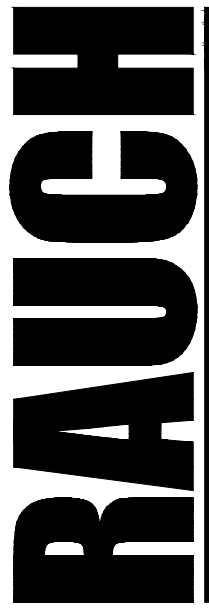
PIPE NAME	SIZE AND MATERIAL	LENGTH	SLOPE	UPSTREAM STRUCTURE AND INVERT	DOWNSTREAM STRUCTURE AND INVERT
SS-1	8 IN SDR-35	81.58'	0.30%	EX-SSMH-1 INV. 45.14'	SSMH-1 INV. 45.38'
SS-2	8 IN SDR-35	54.81'	0.28%	SSMH-1 INV. 45.48'	SSMH-2 INV. 45.64'
SS-3	8 IN SDR-35	119.45'	0.30%	SSMH-2 INV. 45.74'	SSMH-7 INV. 46.10'
SS-4	8 IN SDR-35	400.00'	0.30%	SSMH-7 INV. 46.20'	SSMH-8 INV. 47.40'
SS-6	8 IN SDR-35	146.22'	0.28%	SSMH-2 INV. 45.74'	SSMH-3 INV. 46.15'
SS-7	8 IN SDR-35	148.53'	0.79%	SSMH-3 INV. 46.25'	SSMH-4 INV. 47.43'
SS-8	8 IN SDR-35	49.75'	0.28%	SSMH-4 INV. 47.53'	SSMH-5 INV. 47.67'
SS-9	8 IN SDR-35	87.20'	0.40%	SSMH-5 INV. 47.77'	SSMH-6 INV. 48.12'
SS-10	12 IN SDR-35	104.37'	0.33%	SSMH-9 INV. 44.70'	EX-SSMH-1 INV. 45.04'

SEWER PROFILES

OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP - 0026, GRID: 0020, PARCEL - 0186
ELECTION DISTRICT 01, TALEOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC



Engineering | Survey | Architecture | Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
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REVISIONS

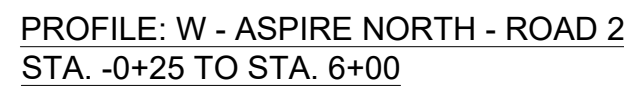
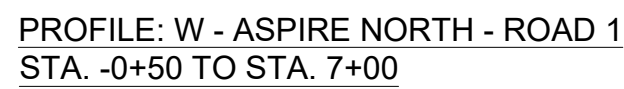
REV. #	DATE	DESCRIPTION
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DATE: 12/6/2022
SCALE: 1" = 20'
DRAWN BY: BBF
DESIGNED BY: BBF
APPROVED BY: BBF

SHEET NO.: C-403.01

FOR REVIEW



WATER PROFILES

OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP: 0026, GRID: 0020, PARCEL: 0186
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC

RAUCH
inc.

Engineering | Survey | Architecture | Environmental

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REVISIONS

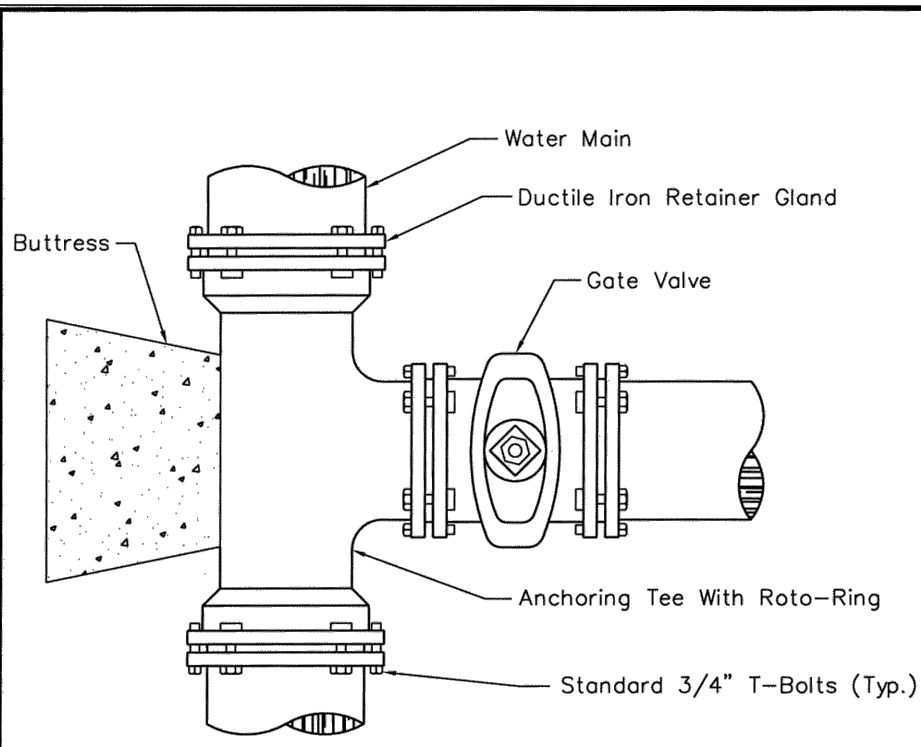
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SHEET NO.:

C-403.02

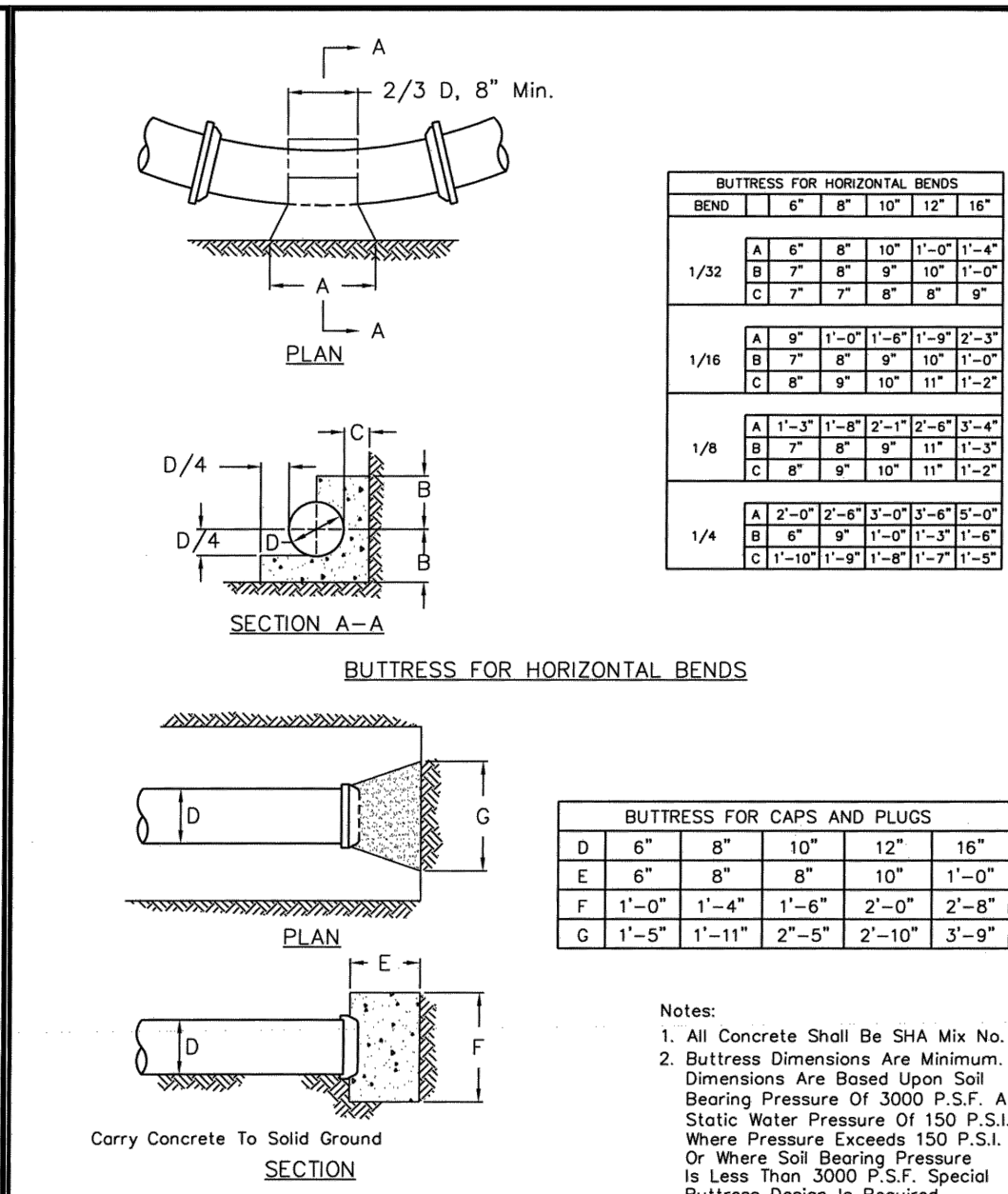
**FOR
REVIEW**



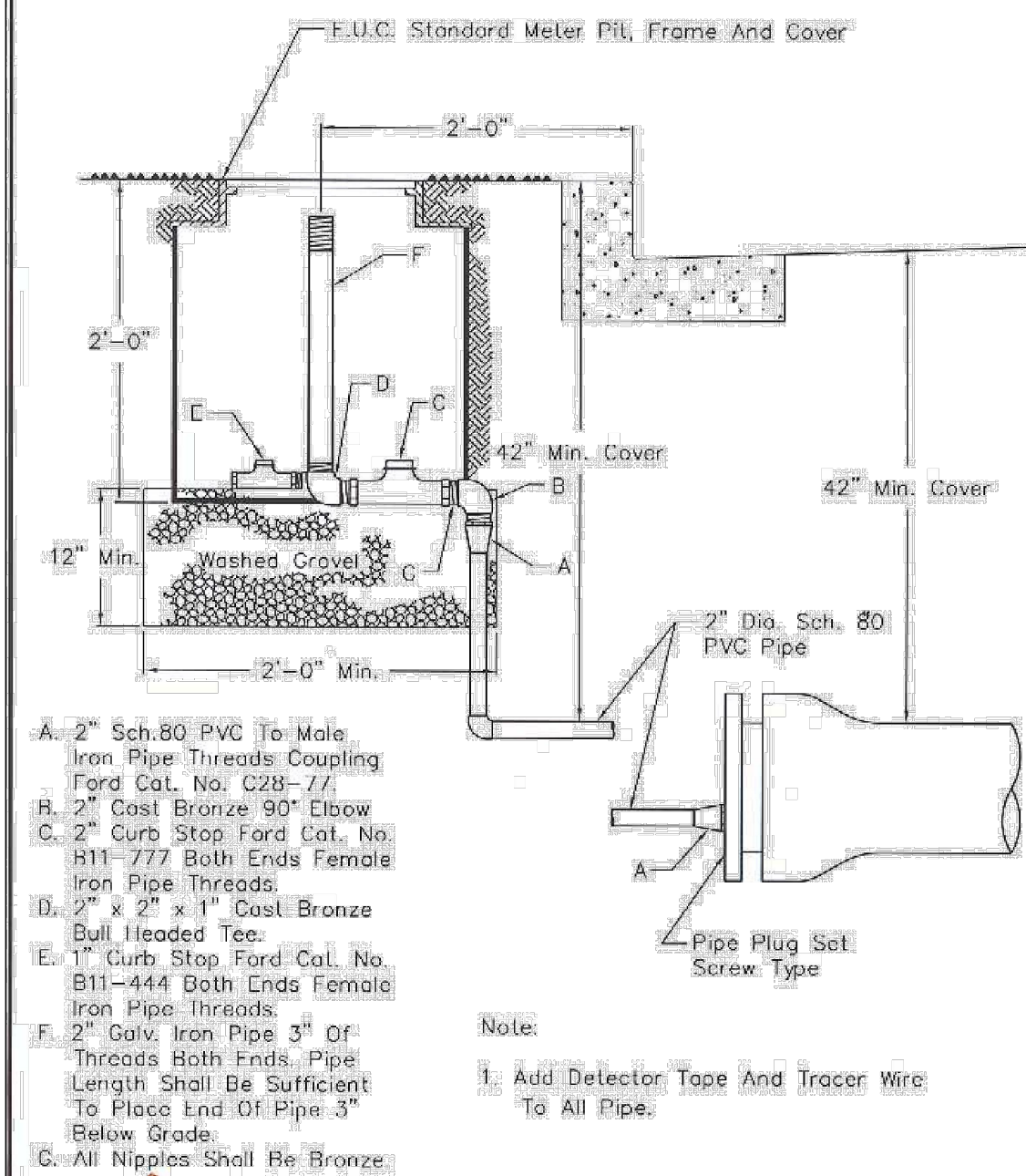
Note:

1. All Fittings Shall Be Mechanical Joint, With Ductile Iron Retainer Glands And Mega-Lug Or Equivalent Restraint.
2. Anchoring Tee Shall Be As Indicated And As Manufactured By Griffin Pipe Products, 1100 West Front St. Florence, N.J. 08518, Or An Approved Equal.
3. Retainer Gland Shall Be As Indicated And As Manufactured By Russell Pipe & Foundry Co. Inc., 910 Washington St., Alexander City, AL. 35010, Or An Approved Equal.

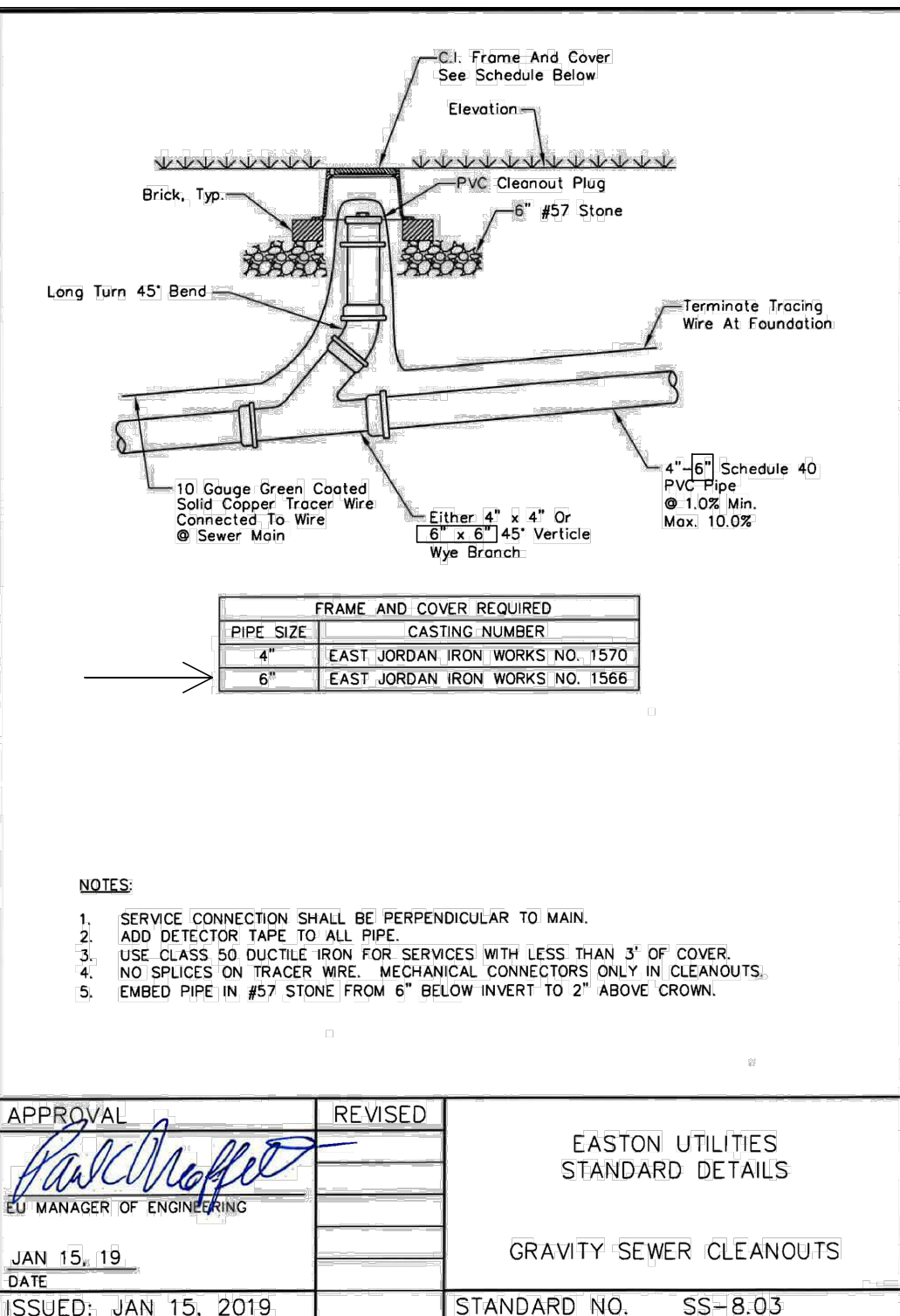
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<i>Talbot W. Gane</i>	AUG 1, 94	
EU MANAGER OF ENGINEERING DATE	MAR 9, 95	
	MAR 1, 98	
ISSUED: MAY 1, 1986		STANDARD NO. W-2.01



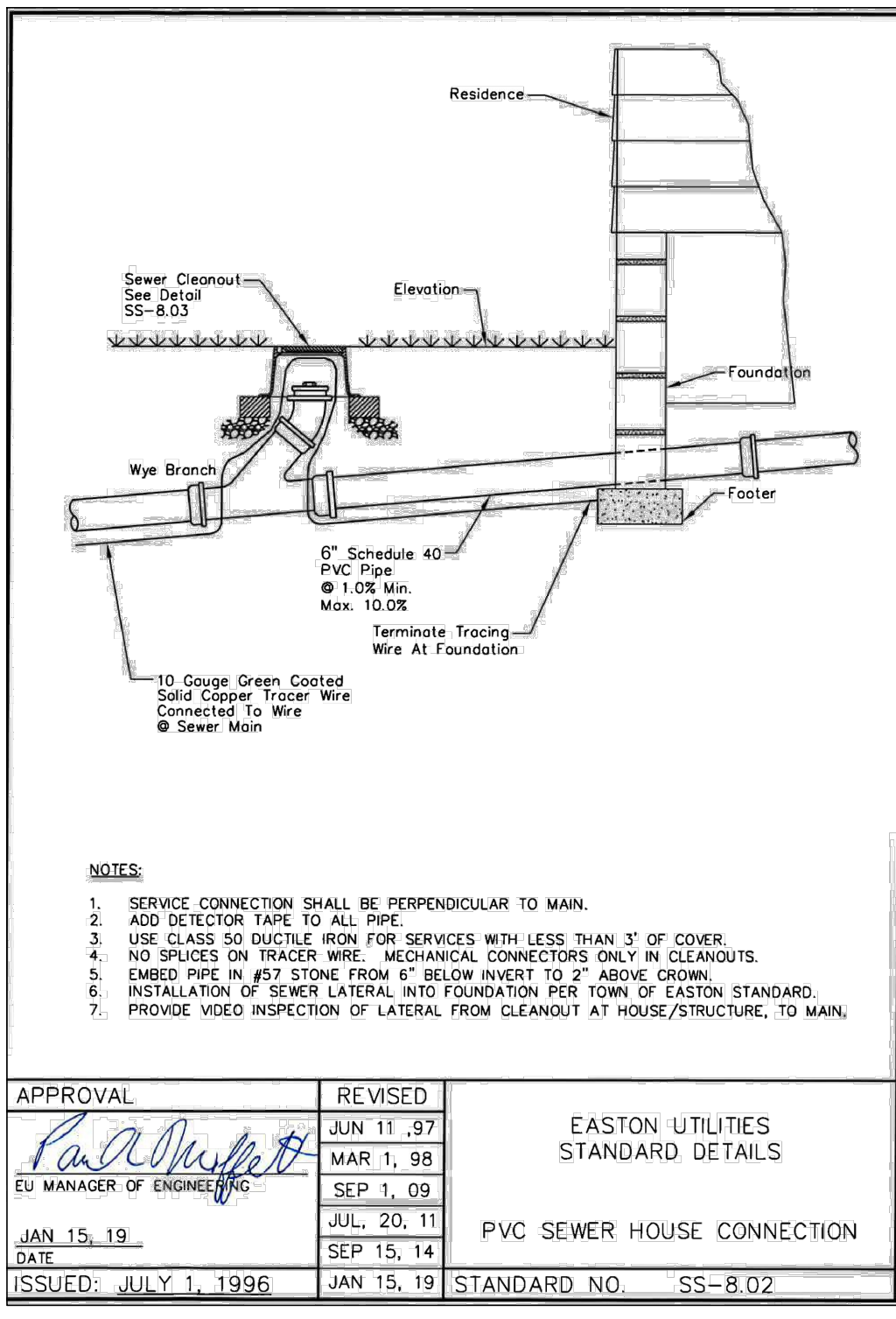
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EU MANAGER OF ENGINEERING DATE	MAR 9, 95	
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ISSUED: MAY 1, 1986		STANDARD NO. W-3.00



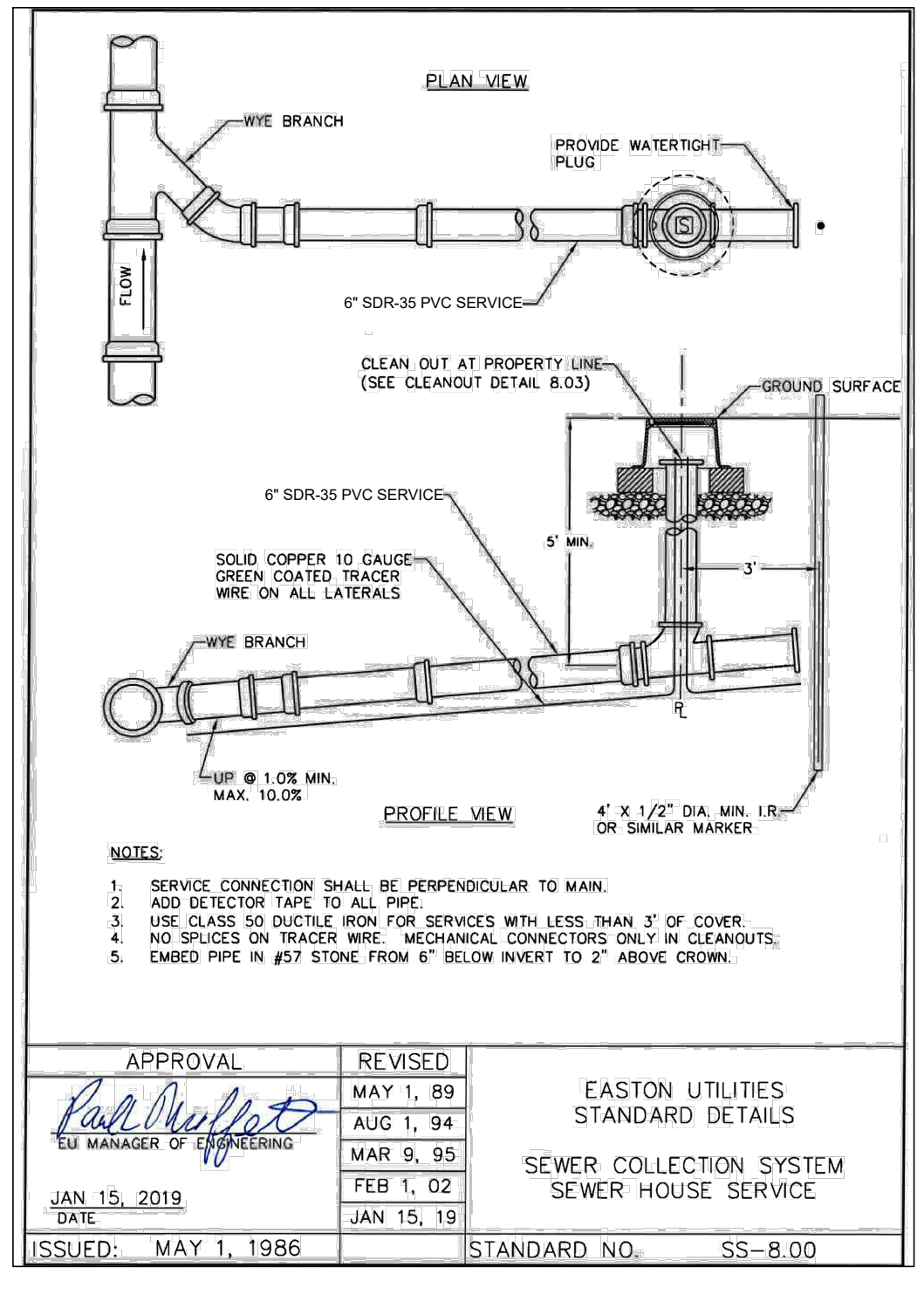
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ISSUED: MAY 1, 1986		STANDARD NO. W-5.00



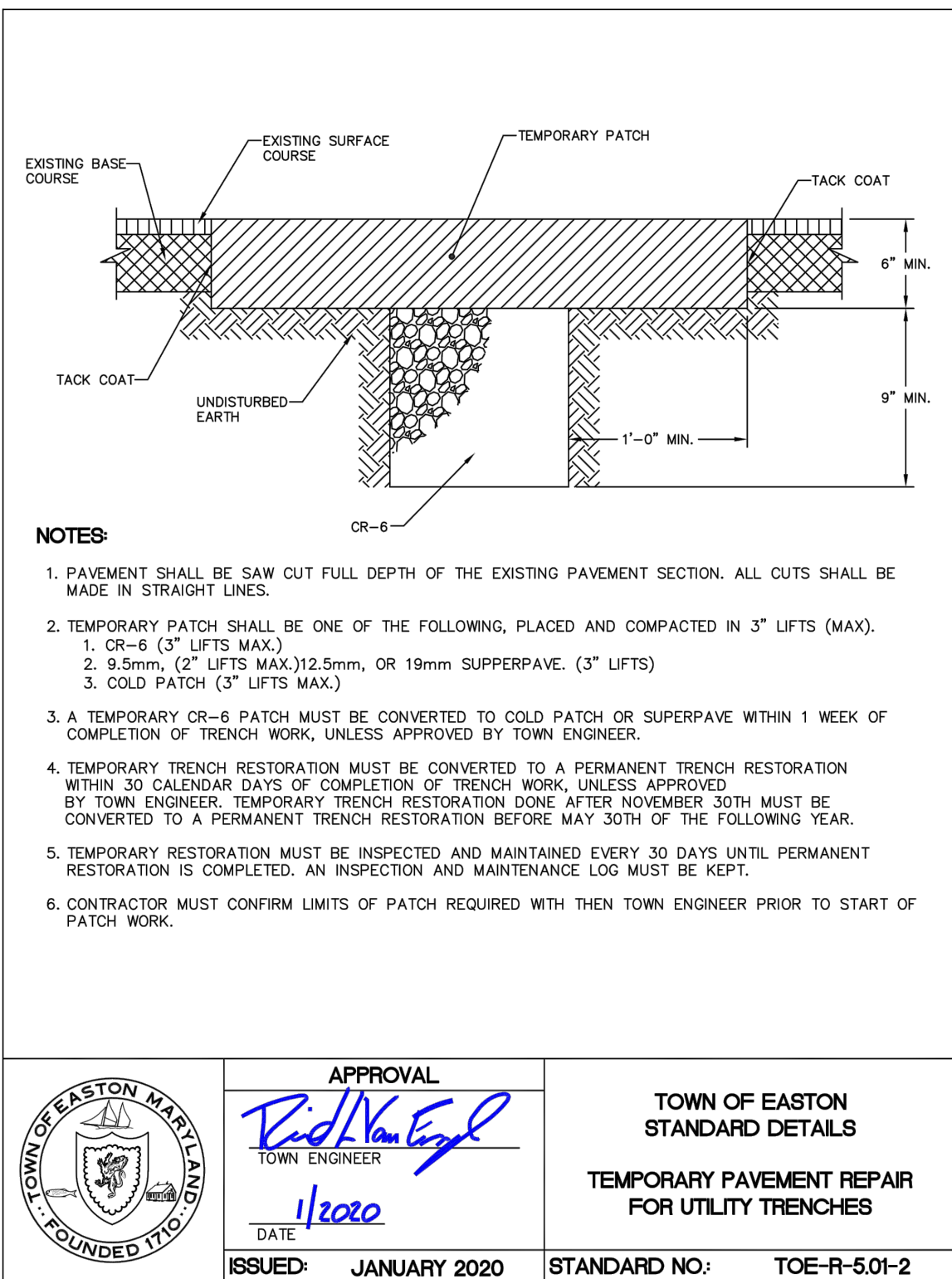
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<i>Paul D. Neff</i>	JUN 11, 97	
EU MANAGER OF ENGINEERING	MAR 1, 98	
	SEP 1, 09	
	JUL 20, 11	
	SEP 15, 14	
ISSUED: JAN 15, 2019		STANDARD NO. SS-8.03



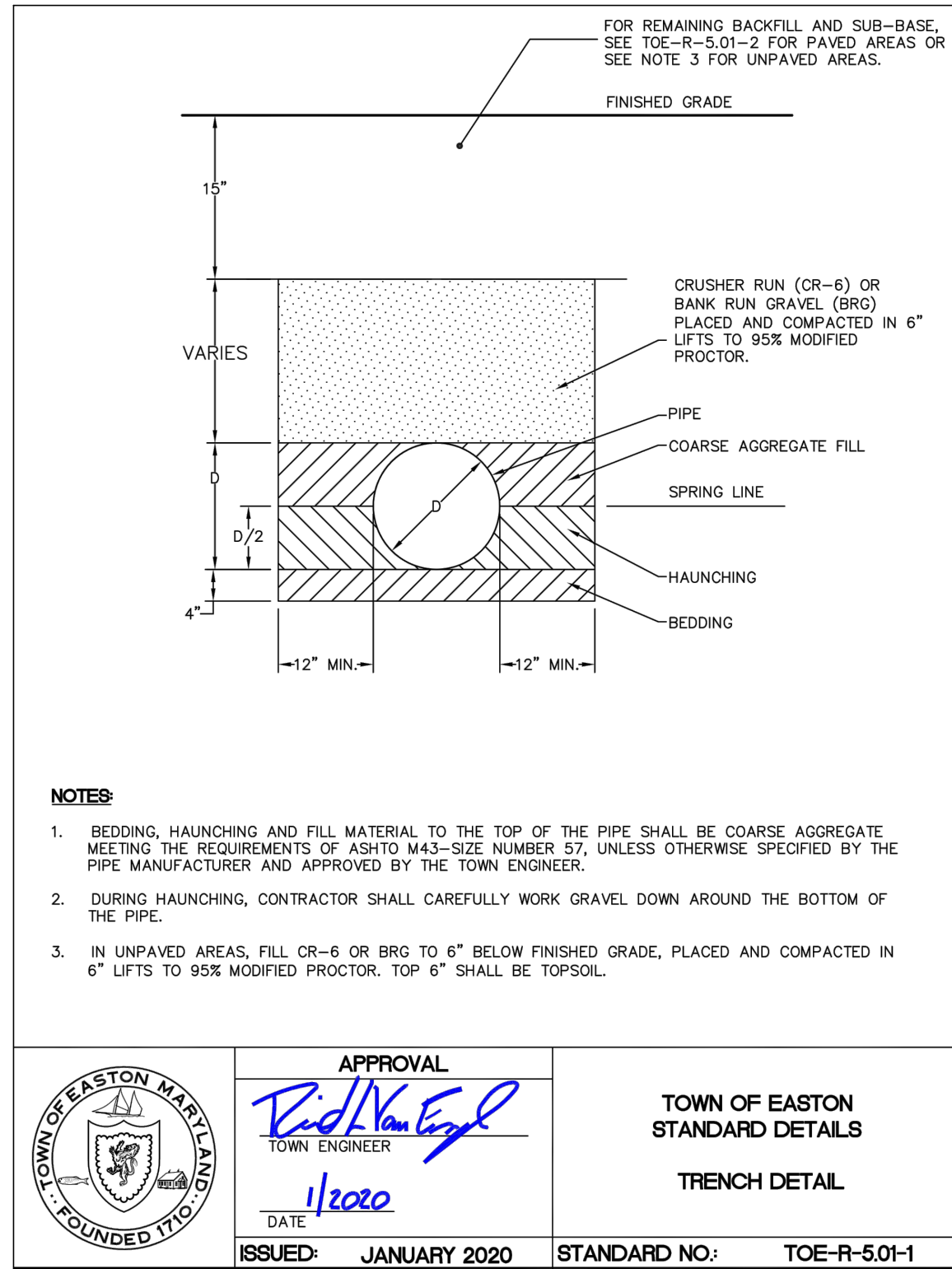
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<i>Paul D. Neff</i>	JUN 11, 97	
EU MANAGER OF ENGINEERING	MAR 1, 98	
	SEP 1, 09	
	JUL 20, 11	
	SEP 15, 14	
ISSUED: JULY 1, 1996		STANDARD NO. SS-8.02



APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Neff</i>	MAY 1, 89	
EU MANAGER OF ENGINEERING	AUG 1, 94	
	MAR 9, 95	
	FEB 1, 02	
ISSUED: MAY 1, 1986		STANDARD NO. SS-8.00



APPROVAL	REVISED	TOWN OF EASTON STANDARD DETAILS
<i>Paul D. Neff</i>	JAN 15, 2019	
EU MANAGER OF ENGINEERING	MAR 9, 95	
	FEB 1, 02	
ISSUED: JANUARY 2020		STANDARD NO. TOE-R-5.01-2



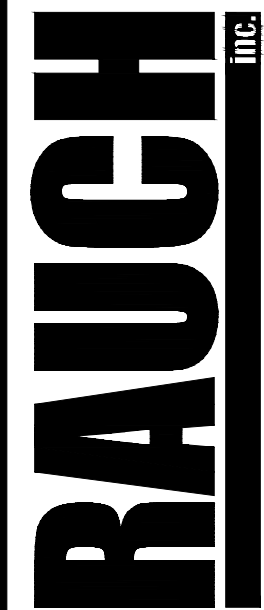
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EU MANAGER OF ENGINEERING	MAR 9, 95	
	FEB 1, 02	
ISSUED: JANUARY 2020		STANDARD NO. TOE-R-5.01-1

UTILITY DETAILS

OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP - 0026, GRID: 0020, PARCEL - 0166
ELECTION DISTRICT 01, TALEOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC



REVISIONS

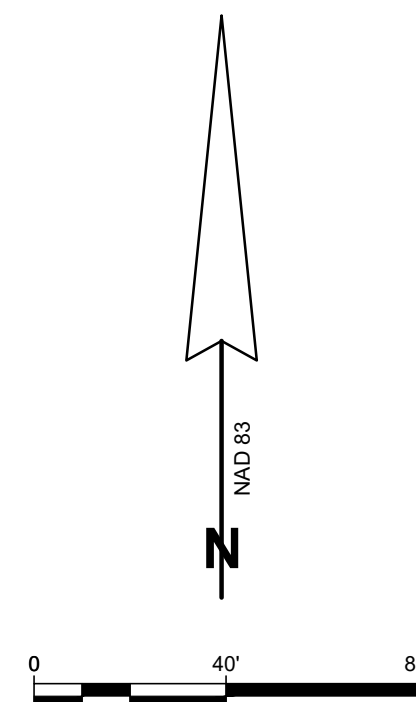
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DRAWN BY:	BBF
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APPROVED BY:	BBF

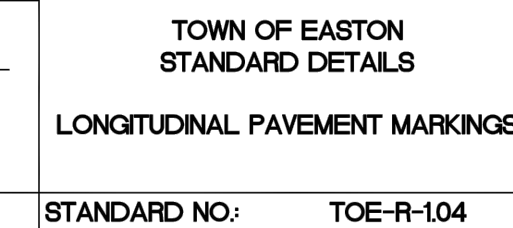
SHEET NO.: C-405

FOR REVIEW



1	HANDICAPPED PARKING SIGN - SEE DETAIL ON SHEET C-305.01
2	STOP SIGN - SEE DETAIL ON SHEET C-305.01
3	ENTRANCE GATE WITH ENTRANCE SIGN

- A. CENTERLINE PAVEMENT MARKINGS SHALL BE USED TO DELINEATE THE SEPARATION OF TRAFFIC LANES THAT HAVE OPPOSITE DIRECTIONS OF TRAVEL.
1. THE CENTERLINE SHALL BE IN THE GEOMETRIC CENTER OF THE ROADWAY UNLESS OTHERWISE REQUIRED BY FIELD CONDITIONS.
2. ALL TWO WAY STREETS GREATER THAN 16' WIDE SHALL HAVE A CENTERLINE.
3. CENTERLINE MARKING SHALL BE YELLOW LINES, CONFIGURATION TO BE APPROVED BY THE TOWN ENGINEER.
- B. EDGE LINE PAVEMENT MARKINGS SHALL BE USED TO DELINEATE THE SHOULDER AND TRAVEL LANES.
1. THE EDGE OF THE TRAVEL LANE SHALL CONSIST OF A SINGLE SOLID WHITE LINE.
2. EXCEPT FOR DOTTED EDGE LINE EXTENSIONS, EDGE LINES SHALL NOT BE EXTENDED THROUGH INTERSECTIONS OR MAJOR DRAINAGES.
- C. WHILE SEPARATING TRAFFIC LANES TRAVELING IN THE SAME DIRECTION A SINGLE BROWN WHITE LINE SHALL BE USED WHERE CROSSING LANES IS PERMITTED.
- D. BASE FOR DROP-UP REFLECTIVE MARKINGS SHALL BE CONCRETE OR FOR A PLAIN NON-REFLECTIVE TRAFFIC PAINT SUITABLE FOR EITHER BITUMINOUS OR CONCRETE SURFACES.
1. GLASS BEADS SHALL CONFORM TO AASHTO M 247 WITH A MOISTURE RESISTANCE COATING.
2. IMMEDIATELY BEFORE APPLYING THE MARKING PAINT TO THE PAVEMENT, THE CONTRACTOR SHALL REMOVE ALL DIRT AND DEBRIS FROM THE SURFACE OF THE PAVEMENT AND REMOVE ALL MATTER WHICH WOULD PREVENT EFFECTIVE ADHESION OF THE PAINT TO THE PAVEMENT.
3. THE TEMPERATURE OF THE PAVEMENT SHALL BE AT LEAST 40° F. AT THE TIME OF APPLICATION.
4. EVERY EFFORT SHALL BE MADE TO APPLY PAINT ACCORDINGLY TO THE REQUIREMENTS STATED IN THIS SPECIFICATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPERATURE OF THE PAINT, INCLUSIVE OR ON PAVEMENT WITH A SURFACE TEMPERATURE BELOW 5° (40° F). COLD WEATHER PAINT CAN BE USED WHICH DOES NOT EXCEED EPA'S FEDERAL REGISTER/RULES AND REGULATIONS (40 CFR 241.101-107). THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS AND SHALL MEET THE AASHTO M242 F AND REQUIREMENTS NOTED BELOW. THESE PRODUCTS SHALL BE APPLIED TO THE PAVEMENT TO BE MARKED IN ACCORDANCE WITH THE AASHTO M242 F.
5. THE COLD WEATHER PAINT SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS.

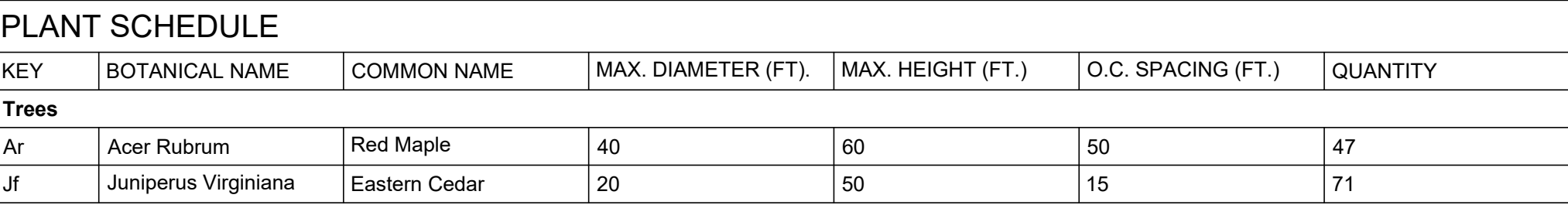
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ASPIRE APARTMENTS

TAX MAP: 0026, GRID: 0020, PARCEL: 0186
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC

inc.
Engineering | Survey | Architecture | Environmental!

Main Office: 106 N Harrison St - Easton, MD 21601
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Phone: 410 770 9081 | Fax: 410 770 3887



1. INTERNAL, ON-STREET PUBLIC OR PRIVATE STREET TREE PLANTINGS - ONE (1) SHADE/CANOPY TREE PER 35' OF STREET CENTERLINE LENGTH. TREES TO BE PLANTED WITHIN 15' OF CURB LINE.
2. ALL PARKING LOTS SHALL BE LANDSCAPED WITH AN EVERGREEN SHRUB HEDGE WHICH WILL GROW TO A MINIMUM OF 42" HEIGHT WITHIN 5 YEARS ALONG ALL STREET OR ALLEY FRONTAGES AND ALONG ALL, OR PORTIONS OF, SIDES VISIBLE FROM STREETS OR ALLEYS, EXCLUDING THE BUILDING OR FACILITY ACCESS SIDE(S).
3. **BUILDING FACADE PLANTINGS**

-ONE (1) TREE PER 50' OF FRONT BUILDING FACADE OR PORTION THEREOF.

-LANDSCAPE BEDS CONTAINING UNDERSTORY TREES, SHRUBS, GROUNDCOVERS THAT COVER 25% OF THE FRONT OF THE BUILDING FACADE. MINIMUM BED DIMENSION SHALL BE FIVE FEET (5'). A BUILDING WITH A SIXTY FOOT FRONT FACADE WOULD MEET THESE REQUIREMENTS WITH TWO TREES LOCATED IN TWO SHRUB BEDS 7.5' BY 5' ON EITHER SIDE OF THE ENTRANCE DOOR. REQUIRED SHADE/CANOPY TREES CAN BE LOCATED WITHIN THESE BEDS WHERE THE BED SIZE EQUALS OR EXCEEDS 64 SQ. FT. PLANT TYPE AND FORM SHALL REFLECT THE ADJACENT BUILDING FORM AND MASS. LARGE OR TALL BUILDINGS SHALL INCORPORATE LARGER PLANTINGS AND MORE TREES.
4. **SERVICE/LOADING AREAS**

PROVIDE MINIMUM 6' WALL/FENCE WITH AT LEAST 50% OF FACE PLANTED WITH EVERGREEN SHRUBS OR TREES. IN LIEU OF 50% PLANTING REQUIREMENT, WALL OR FENCE SHALL BE A DECORATIVE ARCHITECTURAL STATEMENT COMPATIBLE WITH THE ARCHITECTURAL DESIGN OF THE ADJOINING STRUCTURE. ACCESS OPENING(S) TO BE ORIENTED AWAY FROM STREETS AND PREDOMINANT PEDESTRIAN/TRAFFIC VIEWS, OR GATED TO SCREEN VIEW.
5. **SHRUB AND GROUNDCOVER PLANTINGS**

SHRUBS AND GROUNDCOVERS SHALL BE INTEGRATED INTO THE SITE AND LANDSCAPE PLAN TO COMPLEMENT ARCHITECTURAL DESIGN, SCREEN OR OBSCURE VIEWS, SEPARATE PEDESTRIAN ACTIVITIES FROM VEHICULAR TRAVEL WAYS, STABILIZE SENSITIVE OR ERODING AREAS AND OTHER APPLICATIONS THAT CONTRIBUTE TO THE OVERALL LANDSCAPE APPEARANCE. THE APPLICANT SHALL PROVIDE SHRUB AND GROUNDCOVER PLANTINGS OR DEMONSTRATE WHY THEY ARE UNNECESSARY, IMPRACTICAL, OR NOT EFFECTIVE IN PROVIDING AN ACCEPTABLE LANDSCAPE APPEARANCE.
6. FOR 11,001 TO 100,000 SQ. FT. OF DISTURBED AREA, THE MINIMUM TREE PLANTING REQUIRED EXCLUDING BUFFERYARDS SHALL BE 1 TREE/ 1500 SQ. FT.

1 SUBMERGED GRAVEL WETLAND AND FOREBAY
PLANTINGS ARE DETAILED ON SHEET C-605.02

2 PICKET FENCE

LANDSCAPING PLAN

OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP: 0026, GRID: 0020, PARCEL: 0166

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

ASPIRE OUTDOORS, LLC

RAUCH
INC.
Engineering | Survey | Architecture | Environmental

Main Office: 108 N Harrison St., Easton, MD 21001
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Phone: 410 770 9081 | Fax: 410 770 3987

REVISIONS		DESCRIPTION
REV. #	DATE	
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DATE:		12/6/2022
SCALE:		1" = 40'
DRAWN BY:		BBF
DESIGNED BY:		BBF
APPROVED BY:		BBF
SHEET NO.: C-601		
FOR REVIEW		

LANDSCAPE PLANTING REQUIREMENTS

GENERAL REQUIREMENTS:

- COMPLIANCE WITH THE TERMS OF THIS LANDSCAPE PLAN, INCLUDING ALL MAINTENANCE AND WARRANTY REQUIREMENTS PRESCRIBED HEREON IS THE RESPONSIBILITY OF THE OWNER. MAINTENANCE AND WARRANTY TERMS AND RESPONSIBILITIES OF THE CONTRACTOR SHALL BE NEGOTIATED BETWEEN OWNER AND CONTRACTOR.
- THE CONTRACTOR (CONTRACTOR) IS RESPONSIBLE FOR THE COMPLETE INSTALLATION OF ALL LANDSCAPING SHOWN OR IMPLIED ON THIS PLAN. PLANT QUANTITIES ARE SHOWN FOR CONVENIENCE ONLY AND SHALL BE VERIFIED PRIOR TO INSTALLATION. THE CONTRACTOR SHALL NOTIFY THE OWNER, OR DESIGNATED REPRESENTATIVE IF PROPOSED SPECIES AND/OR SITE PLANTING CONDITIONS WARRANT RE-DESIGN CONSIDERATIONS.
- THE CONTRACTOR SHALL DILIGENTLY ATTEMPT TO LOCATE THE SPECIFIED NATIVE PLANT MATERIAL. IF SPECIFIED PLANT MATERIALS CANNOT BE LOCATED, ALTERNATIVES MAY BE CONSIDERED AND APPROVED, IN ADVANCE, BY THE OWNER, OR DESIGNATED REPRESENTATIVE.
- PRIOR TO LANDSCAPE INSTALLATION, THE CONTRACTOR SHALL COORDINATE A SITE MEETING WITH THE OWNER, OR DESIGNATED REPRESENTATIVE TO REVIEW THE PLAN, SITE DRAINAGE CONDITIONS AND TO DETERMINE ANY FIELD ADJUSTMENTS NECESSARY.
- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK, AND SHALL COORDINATE WITH OTHER CONTRACTORS ON SITE AND MISS UTILITY TO VERIFY UTILITY LOCATIONS. ANY REPAIRS TO EXISTING UNDERGROUND UTILITIES REQUIRED AS A RESULT OF ACTIONS OF THE CONTRACTOR AND/OR HIS ASSIGNS SHALL BE BORNE BY CONTRACTOR.
- THE CONTRACTOR SHALL VERIFY THAT FINAL ROUGH GRADES HAVE BEEN ESTABLISHED AND THAT THE SITE IS READY FOR LANDSCAPE INSTALLATION. THE CONTRACTOR SHALL ENSURE THAT PLANTINGS WILL HAVE ADEQUATE DRAINAGE. THE CONTRACTOR SHALL INSTALL PLANT MATERIAL FACTORING IN ANY "FINAL" GRADING WORK TO BE COMPLETED AFTER LANDSCAPE INSTALLATION.
- THE CONTRACTOR SHALL LAY OUT BEDS AND POSITION PLANTS FOR APPROVAL BY OWNER, OR DESIGNATED REPRESENTATIVE. THE CONTRACTOR SHALL REVIEW ANY SIGNIFICANT FIELD ADJUSTMENTS PRIOR TO INSTALLATION.
- **NOTE:** PLANTING WITHIN THE ROOT ZONE OF EXISTING TREES REQUIRES ADDITIONAL CARE. HAND DIGGING OF PLANTING HOLES AND ADJUSTMENT OF PLANTING LAYOUT MAY BE NECESSARY.
- THE CONTRACTOR SHALL MAINTAIN A CLEAN JOB SITE AND REMOVE ALL PLANTING AND RELATED DEBRIS DAILY DURING THE COURSE OF IMPLEMENTATION.
- THE OWNER, OR DESIGNATED REPRESENTATIVE SHALL REJECT ANY AND ALL PLANT MATERIAL THAT DOES NOT MEET SPECIFICATIONS, IS DISEASED OR OTHERWISE UNHEALTHY.
- ALL LANDSCAPE INSTALLATION SHALL BE ACCOMPLISHED WITH QUALIFIED PERSONNEL, UTILIZING INDUSTRY STANDARD PRACTICES AND TECHNIQUES.

PLANT MATERIAL:

- ALL PLANT MATERIAL SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK AS APPROVED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE INC. LATEST EDITIONS.
- ALL PLANT MATERIAL SHALL BE NURSERY GROWN WITH SOUND HORTICULTURAL PRACTICES AND UNLESS OTHERWISE APPROVED BY THE OWNER, OR DESIGNATED REPRESENTATIVE, GROWN IN SOIL AND CLIMATE CONDITIONS SIMILAR TO THIS PROJECT SITE.
- ALL MATERIAL SHALL EXHIBIT HEALTHY GROWTH WITH GOOD BRANCHING STRUCTURE, DENSE FOLIAGE AND A FIBROUS, DEVELOPED ROOT SYSTEM.
- ALL MATERIAL SHALL BE FREE OF INSECT INFESTATION AND DISEASE. THE OWNER RESERVES THE RIGHT TO HAVE THE PLANT MATERIAL INSPECTED AND TAGGED AT THE GROWING SITE, AND TO REJECT ANY DEFICIENT MATERIAL AT THE JOB SITE.

PLANT MATERIAL HANDLING:

- ALL PLANT MATERIAL SHALL ARRIVE AT THE JOB SITE IN A HEALTHY CONDITION.
- THE CONTRACTOR SHALL STAGE DELIVERY AND PLANT INSTALLATION TO MINIMIZE STRESS ON PLANT MATERIAL.
- PLANT MATERIAL TO BE STAGED ON OR OFF THE JOB SITE SHALL BE LOCATED TO MAXIMIZE PROTECTION FROM HOT SUN AND DRYING WINDS, AND SHALL BE WATERED TO MAINTAIN A STRESS FREE CONDITION. ON-SITE WATER MAY NOT BE AVAILABLE FOR THE CONTRACTOR TO USE. THE LACK OF AVAILABLE WATER SHALL NOT RELIEVE THE CONTRACTOR OF ADEQUATE MAINTENANCE.

PLANTING SCHEDULE:

- PLANTING SCHEDULES SHALL COINCIDE WITH THE OVERALL PROGRESS OF SITE CONSTRUCTIONS.
- CERTAIN PLANT SPECIES REQUIRE SPECIFIC SEASON INSTALLATION AND SHALL BE COORDINATED APPROPRIATELY.
- PLANTING IS DISCOURAGED IN THE HOT, DRY PERIODS OF SUMMER AND DURING FROZEN GROUND CONDITIONS IN WINTER, BUT MAY BE CONSIDERED YEAR-ROUND WITH MAINTENANCE REQUIREMENTS ADDRESSED ACCORDINGLY.
- THE CONTRACTOR IS RESPONSIBLE FOR PLANT MATERIAL HEALTH AND VIGOR REGARDLESS OF WHEN THE MATERIAL IS INSTALLED.

TREE & SHRUB PLANTINGS:

- ALL TREE/SHRUB PLANTING PITS SHALL BE EXCAVATED TO A DEPTH SO THAT THE PLANT ROOT FLARE SHALL LIE AT THE FINISHED GRADE SURROUNDING THE PLANT. SOIL THAT MAY HAVE BEEN PLACED ON TOP OF ROOT BALL OR SETTLED AROUND TRUNK OR ROOT FLARE DURING TRANSPORT SHALL BE REMOVED TO ADEQUATELY EXPOSE ROOT FLARE SO PROPER PLANTING DEPTH CAN BE ESTABLISHED.
- THE ROOT BALL SHALL REST ON UNDISTURBED OR STABILIZED SOIL. THE CONTRACTOR SHALL NOTIFY THE OWNER, OR DESIGNATED REPRESENTATIVE IF THIS PLANTING DEPTH SPECIFICATION CANNOT BE IMPLEMENTED.
- TREE PLANTING PITS SHALL BE EXCAVATED DEPTH EQUAL TO THE HEIGHT OF THE ROOT BALL AND TO A WIDTH EQUALING TWICE THE ROOT BALL DIAMETER.
- EXCAVATED SOILS NOT PREVIOUSLY COMPACTED OR OTHERWISE DEGRADED SHALL BE RE-USED FOR PLANTING PIT BACKFILL. EXCAVATED SOILS UNSUITED FOR BACKFILL SHALL BE AMENDED WITH FRIABLE TOPSOIL TO CREATE A SUITABLE PLANTING SOIL AS APPROVED BY THE OWNER, OR DESIGNATED REPRESENTATIVE. EXCAVATED SOILS THAT CANNOT BE RESTORED TO A REASONABLE PLANTING SOIL SHALL BE REMOVED AND REPLACED WITH A SUITABLE PLANTING SOIL. NOTE: FOR BEDDING PURPOSES OR UNLESS OTHERWISE SPECIFIED HERON, THE CONTRACTOR SHALL ASSUME EXCAVATED SOILS ARE SUITABLE FOR PLANTING BACKFILL.
- SLOW RELEASE FERTILIZER TAB(S) (20-10-5, 21 GRAM, 2-YEAR) SHALL BE ADDED TO PLANTING HOLES AS PER MANUFACTURER'S SPECIFICATIONS.
- THE SIDES OF CONTAINER GROWN STOCK SHALL BE CUT OR SCARIFIED TO ELIMINATE BOUND ROOTS AND PROMOTE HEALTHY ROOT GROWTH.
- ALL SYNTHETIC MATERIALS FROM AROUND THE TREE TRUNK AND ROOT BALL SHALL BE REMOVED AND NOT EVIDENT WITHIN THE BACKFILL SOIL MIX. STRING, ROPE, SYNTHETIC BURLAP, PLASTIC, STRAPPING, AND OTHER MATERIALS THAT WILL NOT DECOMPOSE IN THE SOIL SHALL BE REMOVED AT THE TIME OF PLANTING
- SOIL GRADES SHALL BE FEATHERED AROUND PLANTINGS TO BLEND WITH SURROUNDING LANDSCAPE OR TURF AREAS. EXCESS EXCAVATED SOIL SHALL BE REMOVED FROM JOB SITE.
- ALL TREES AND SHRUBS SHALL BE WATERED DURING PLANTING TO MINIMIZE AIR POCKETS AND TO ENSURE SOIL CONTACT WITH ROOTS.

TREE STAKING/ GUYING:

- TREES SHALL BE STAKED TO PREVENT TOPPLING BY STRONG WIND.
- STAKES SHALL BE INSTALLED ACCORDING TO DETAIL PROVIDED ON PLAN. ANOTHER STAKING/GUYING METHOD MAY BE USED WITH APPROVAL OF OWNER'S REPRESENTATIVE.

HERBACEOUS PLANT INSTALLATION:

- ROOT MASSES SHALL BE MOIST, BUT NOT SATURATED, AT THE TIME OF PLANTING.
- PLANT PITS SHALL BE PREPARED USING A DIBBLE, SPADE OR MECHANICAL AUGER BY OPENING A HOLE AT THE PLANTING SITE. FOR PLANTINGS UNDER EXISTING TREES, PLANTING HOLES SHALL BE HAND-DUG AND LOCATIONS ADJUSTED TO ACCOMMODATE EXISTING TREE ROOTS.
- PLANTS SHALL BE PLACED IN PLANTING PITS IN A VERTICAL POSITION.
- SOIL SHALL BE BACKFILLED INTO PLANT PITS, LIGHTLY COMPRESSED TO ELIMINATE AIR POCKETS, AND FIRMED AROUND THE PLANTS.
- ALL PLANTS SHALL BE WATERED DURING PLANTING TO MINIMIZE AIR POCKETS AND TO ENSURE SOIL CONTACT WITH ROOTS.

MULCHING:

- TWO TO THREE INCHES OF SHREDDED HARDWOOD MULCH SHALL BE APPLIED TO ALL NEWLY PLANTED TREES AND SHRUBS.
- TWO TO THREE INCHES OF HARDWOOD MULCH SHALL BE APPLIED TO UPLAND HERBACEOUS PLANTING AREAS AS SHOWN ON THE PLANTING PLAN.
- MULCH SHALL NOT BE APPLIED TO SWALE, FOREBAY, OR WETLAND PLANTING SHELF AREAS.

MAINTENANCE

DURING CONSTRUCTION PERIOD:

- THE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIAL THROUGHOUT JOB COMPLETION AND FINAL ACCEPTANCE. ALL PLANT MATERIAL SHALL BE WATERED, WEEDED, MULCHED, PRUNED AND TREATED FOR INSECT DAMAGE, FUNGUS OR DISEASE TO INSURE HEALTHY GROWING CONDITIONS. WATERING SHALL PROVIDE ADEQUATE MOISTURE TO SUPPORT VIGOROUS GROWTH. DURING TIMES OF NORMAL PRECIPITATION, ALL TREES SHALL RECEIVE 1", OR APPROX. 5-10 GALLONS OF WATER PER WEEK. PLANTS IN HEAVIER SOILS SHALL BE MONITORED TO AVOID OVER-WATERING. GATOR BAGS, WATERING TRAYS, IRRIGATION, HAND WATERING, OR OTHER INDUSTRY STANDARD TECHNIQUES SHALL BE EMPLOYED TO MAINTAIN ADEQUATE MOISTURE SUPPLY TO THE PLANT MATERIAL. THE CONTRACTOR SHALL INSTRUCT THE OWNER REGARDING THE REQUIRED AND PROPER ON-GOING MAINTENANCE OF LANDSCAPE MATERIAL.

DURING WARRANTY PERIOD:

- THE CONTRACTOR SHALL VISIT THE SITE PERIODICALLY TO ADVISE OWNER OF ANY DEFICIENT CONDITIONS AFFECTING PLANT SURVIVABILITY. DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED (SEE WARRANTY BELOW).

LANDSCAPE WARRANTIES

FROM THE 2018 TOWN OF EASTON ZONING ORDINANCE:

- PRIOR TO ISSUANCE OF AN OCCUPANCY PERMIT, THE APPROVED PRELIMINARY LANDSCAPE PLAN SHALL BE IMPLEMENTED BY THE APPLICANT. AT COMPLETION, THE APPLICANT SHALL REQUEST THAT THE TOWN INSPECT THE COMPLETE LANDSCAPING AND ISSUE THE APPROPRIATE APPROVAL. THE TOWN RECOGNIZES THAT PLANTING SCHEDULES AND FAVORABLE WEATHER/CLIMATIC CONDITIONS DO NOT ALWAYS COINCIDE. THE APPLICANT SHALL MAKE EVERY REASONABLE EFFORT TO COORDINATE BUILDING AND SITE CONSTRUCTION WITH LANDSCAPE IMPROVEMENT INSTALLATION SO THAT ALL PROJECT CONSTRUCTION CAN BE COMPLETE PRIOR TO REQUEST FOR OCCUPANCY PERMITS. UPON DEMONSTRATING THAT SOME OR ALL OF THE REQUIRED LANDSCAPE IMPROVEMENTS SHOULD BE POSTPONED, AND SUBJECT TO THE APPROVAL OF THE TOWN, THE APPLICANT SHALL POST AN IRREVOCABLE FINANCIAL SURETY EQUAL TO THE ESTIMATED INSTALLATION COSTS AS APPROVED BY THE TOWN, GUARANTEEING THE COMPLETE IMPLEMENTATION OF THE LANDSCAPE PLAN WITHIN 6 MONTHS OF OCCUPANCY OR USE OF THE SITE OR SUBDIVISION. AFTER INSTALLATION IS COMPLETE AND INSPECTED AND APPROVED BY THE TOWN, THE APPLICANT SHALL REQUEST IN WRITING TO THE TOWN TO RELEASE ANY UNUSED PORTION OF THE SURETY.
- THE OWNER/DEVELOPER SHALL MAINTAIN ALL LANDSCAPE IMPROVEMENTS PROVIDING ADEQUATE GROWING CONDITIONS TO INSURE HEALTHY, VIGOROUS PLANT SURVIVAL AND GROWTH. THE TOWN RESERVES THE RIGHT TO PERIODICALLY REVIEW INSTALLED LANDSCAPES AND REPORT ANY SIGNIFICANT DEFICIENCIES TO THE OWNER/DEVELOPER. AT THE END OF TWO GROWING SEASONS, AND/OR AT ANY TIME PRIOR TO, THE TOWN SHALL ASSESS THE LANDSCAPE IMPROVEMENTS AND DIRECT REPLACEMENT OR REVITALIZATION OF ANY DEFICIENT AREAS. THE OWNER SHALL REPAIR OR REPLACE DEFICIENT ITEMS WITHIN 30 CALENDAR DAYS.
- FAILURE TO MAINTAIN, REPAIR OR REPLACE THE REQUIRED AND APPROVED LANDSCAPE IMPROVEMENTS SHALL BE CONSIDERED A VIOLATION OF THIS ORDINANCE AND SHALL BE ENFORCED IN ACCORDANCE WITH SECTION 28 – 1308 OF THE TOWN OF EASTON ZONING ORDINANCE.

MAINTENANCE:

DURING CONSTRUCTION PERIOD:

THE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIAL THROUGH JOB COMPLETION AND FINAL ACCEPTANCE. ALL PLANT MATERIAL SHALL BE WATERED, WEEDED, MULCHED, PRUNED AND TREATED FOR INSECT DAMAGE, FUNGUS OR DISEASE TO ENSURE HEALTHY GROWING CONDITIONS. WATERING SHALL PROVIDE ADEQUATE MOISTURE TO SUPPORT VIGOROUS GROWTH. TYPICALLY, ALL TREES SHOULD RECEIVE APPROXIMATELY 1", OR 5-10 GALLONS OF WATER PER WEEK. PLANTS IN HEAVIER SOILS SHALL BE MONITORED TO AVOID OVER-WATERING. GATOR BAGS, WATERING TRAYS, IRRIGATION, HAND WATERING, OR OTHER INDUSTRY STANDARD TECHNIQUES SHALL BE EMPLOYED TO MAINTAIN ADEQUATE MOISTURE SUPPLY TO THE PLANT MATERIAL. INSTRUCT OWNER REGARDING REQUIRED AND PROPER ON-GOING MAINTENANCE OF LANDSCAPE INSTALLATION.

PLANT LIST:

SYMBOL	QUAN	SCIENTIFIC NAME	COMMON NAME	SPECIFICATION
UNDERSTORY TREES				
AR	47	ACER RUBRUM	RED MAPLE	2" CALIPER, MIN
JF	71	JUNIPERUS VIRGINIANA	EASTERN CEDAR	2" CALIPER, MIN.

LANDSCAPE REQUIREMENTS SUMMARY PER ZONING ORDINANCE:

SECTION 1014.7.E:

BUFFERYARD "C" (PUD-INFILL APARTMENTS MAY BE EXCLUDED FROM THIS REQUIREMENT):

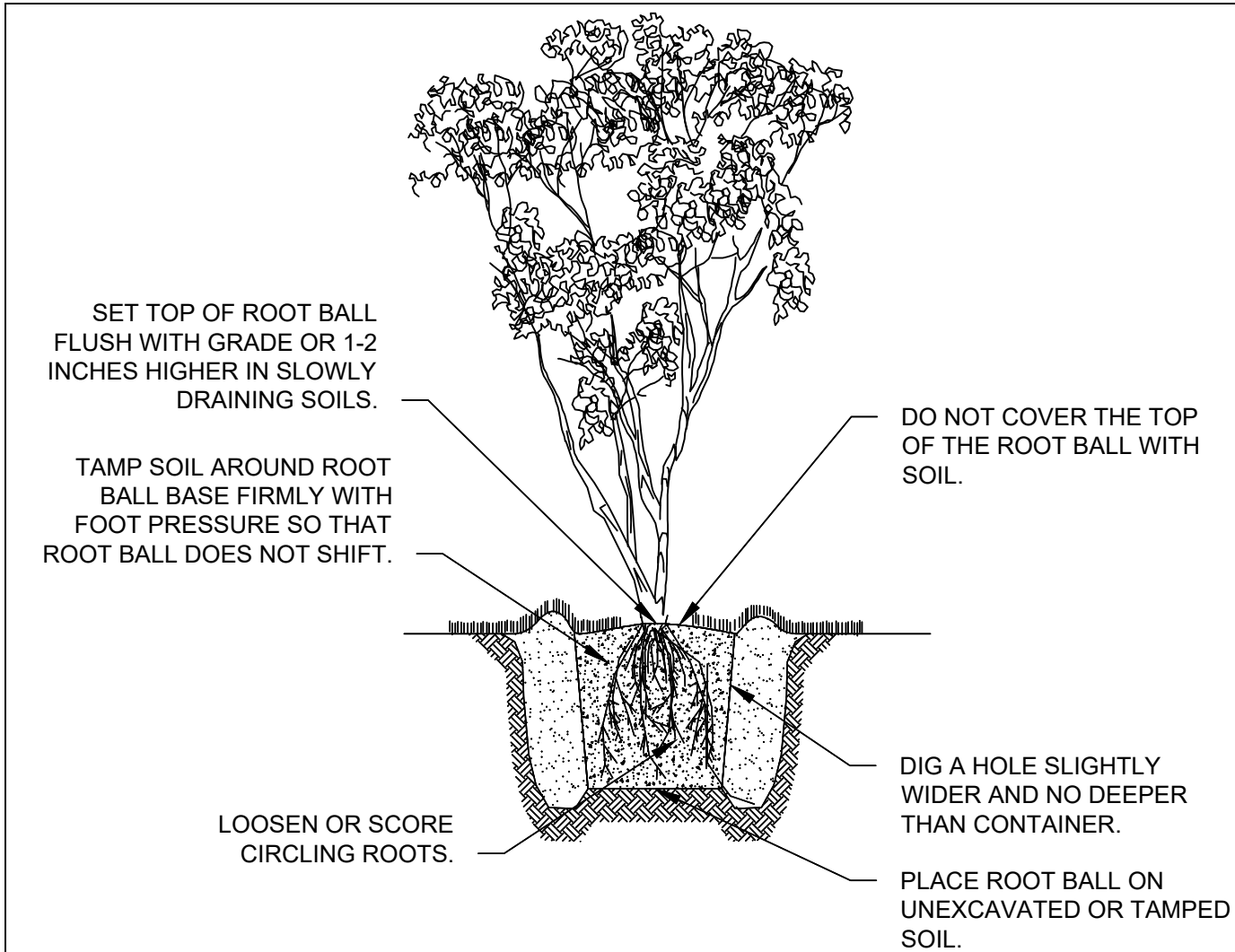
BUFFERYARD "C" (FOR ALL RESIDENTIALLY ZONED LOTS OR LAND USE APPLICATIONS TO BUFFER ALL OTHER STREETS EQUALING OR EXCEEDING TOWN OF EASTON "RESIDENTIAL COLLECTOR DESIGNATION") THIS BUFFERYARD IS NOT REQUIRED ALONG THE STREET WHERE THE PRIMARY LOT FRONTAGE IS DESIGNATED.

- 20' WIDTH PLANT UNIT:
- 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS
- NOTE: WHEN THIS BUFFERYARD IS LOCATED BETWEEN A PARKING LOT AND STREET RW, DELETE THE SHRUB REQUIREMENT.
- OPTIONS:
 - Substitute 1 evergreen tree for 5 shrubs

1 CANOPY TREE
2 EVERGREEN TREE
SHRUBS N/A

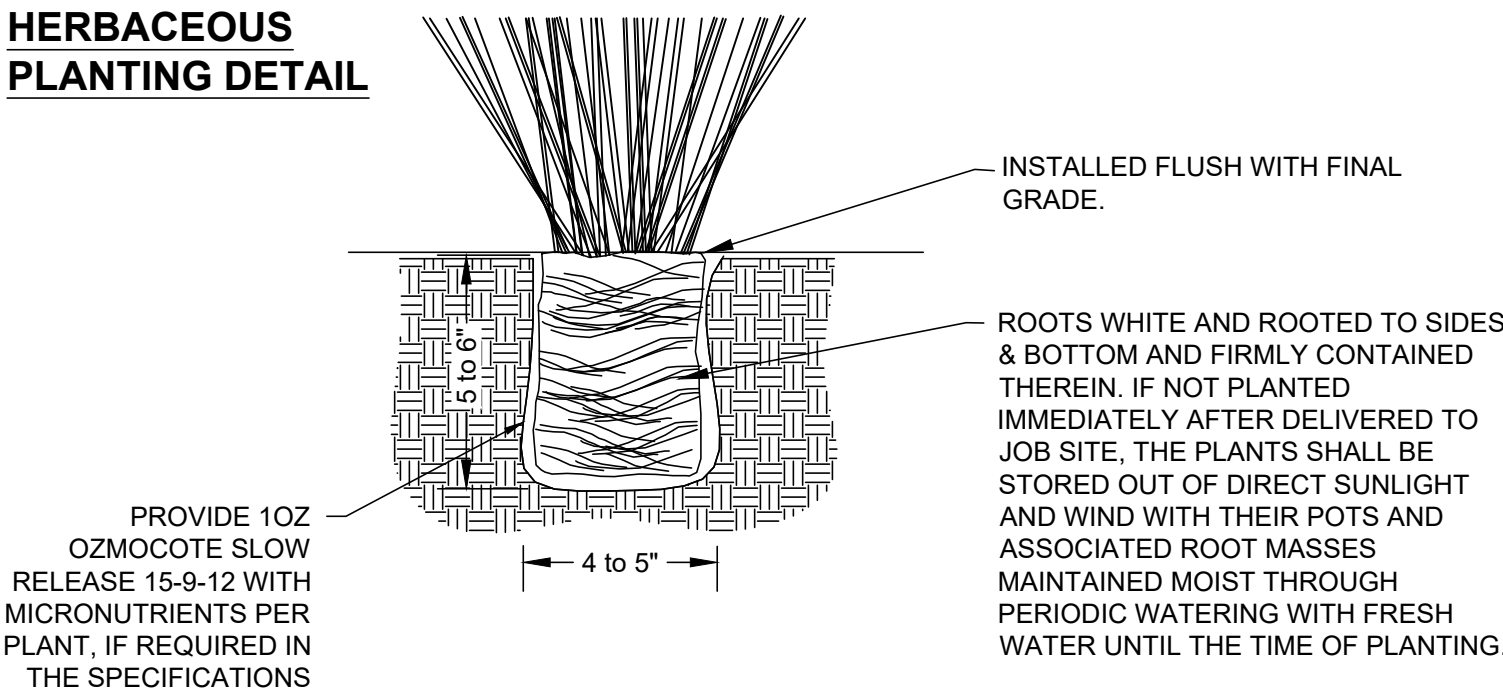
LANDSCAPING NOTES:

- LANDSCAPE INSTALLER SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK. INSTALLER SHALL ENSURE THAT FINAL GRADES HAVE BEEN ESTABLISHED AND THE SITE IS READY FOR LANDSCAPE INSTALLATION.
- LANDSCAPE INSTALLER SHALL MAINTAIN THE LANDSCAPE IMPROVEMENT AREAS IN A CLEAN CONDITION, REMOVING DEBRIS DAILY AND AT THE COMPLETION OF THE INSTALLATION.
- INSTALLER SHALL LAYOUT ALL BEDS AND POSITION PLANTS PER THE PLANS. ADJUST AS REQUIRED FOR FIELD CONDITIONS. REPORT SIGNIFICANT ADJUSTMENTS TO THE OWNER FOR APPROVAL PRIOR TO PLANT INSTALLATION. ALL BED AREAS SHALL BE SPRAYED WITH HERBICIDE AS NEEDED TO KILL AND/OR REMOVE ALL WEED OR GRASS VEGETATION.
- EXCEPT FOR TREE SPADE INSTALLATIONS, ALL TREE PITS SHALL BE EXCAVATED TO A DEPTH SO THAT THE ROOT BALL WILL REST ON SOLID SOIL AT THE PROPER HEIGHT. STREET TREES PLANTING PITS SHALL BE EXCAVATED AND WORKED IN A RECTANGULAR FORM WITH THE SMALL DIMENSION TWICE THE DIAMETER OF THE ROOT BALL AND THE LARGE DIMENSION AT LEAST THREE TIMES THE DIAMETER OF THE ROOT BALL. OPEN AREA TREE PITS SHALL BE EXCAVATED TO A MINIMUM DIMENSION OF TWICE THE ROOTBALL WIDTH. TREES PLANTED ON SLOPES OR SIDE SWALES SHALL BE INSTALLED AT A HEIGHT RELATING TO THE UPHILL SIDE OF THE PIT, AND MOUNDED WITH SOIL AROUND THE LOWER SIDE. ALL SIDES AND BOTTOM OF TREE PLANTING PITS SHALL BE SCARIFIED OR LOOSENED TO PERMIT ROOT GROWTH. EXCAVATED SOILS THAT HAVE BEEN PREVIOUSLY UNDISTURBED SHALL BE LOOSENED AND UTILIZED FOR BACKFILL. COMPACTED SOILS THAT CANNOT BE RESTORED TO A REASONABLE PLANTING SOIL SHALL BE REMOVED AND REPLACED WITH FRIABLE NATIVE SOILS FROM THE REGION.
- ALL SHRUB PLANTING PITS, LANDSCAPE BEDS AND PLANTING MASS AREAS SHALL BE WORKED TOWN OF EASTON 2018 EDITION ZONING ORDINANCE ARTICLE X 10-62 TO A DEPTH OF 12" (OR RAISED SLIGHTLY TO ACHIEVE A 12" FRIABLE SOIL DEPTH). SHRUB PLANTING AREAS SHALL BE WORKED TO 12" MINIMUM OUTSIDE THE ROOT BALL.
- ALL LANDSCAPE BEDS SHALL BE "V" EDGED AND MULCHED WITH MINIMUM 3" DOUBLE SHREDDED HARDWOOD BARK MULCH, OR APPROVED EQUAL. MULCH TO FENCE LINES OR BACK OF CURBS WHERE APPROPRIATE TO ELIMINATE NARROW GRASS AREAS. AVOID MULCH PILED AGAINST TREE TRUNKS, ETC.
- ALL TREES TO BE STAKED AND GUYED WITH HARDWOOD STAKES, MINIMUM OF TWO (2) - 5' LONG, OR OTHER APPROVED GUYING SYSTEM. STAKES SHALL BE DRIVEN INTO STABLE SOILS. PROVIDE WIRE GUYS WITH RUBBER PROTECTANT OR OTHER APPROVED INDUSTRY PRACTICE.
- LANDSCAPE INSTALLER SHALL MAINTAIN ALL PLANT MATERIALS THROUGH THE COMPLETION OF THE LANDSCAPE INSTALLATION, AND THEN AS REQUIRED BY THE OWNER.
- AT THE COMPLETION OF THE LANDSCAPE INSTALLATION (OR BY PHASED COMPLETION IF PROVIDED FOR ON THE PLAN), THE OWNER, OR HIS DESIGNATED REPRESENTATIVE SHALL REQUEST AN INSPECTION BY TOWN OF EASTON.



CONTAINER TREE & SHRUB PLANTING DETAIL

HERBACEOUS PLANTING DETAIL

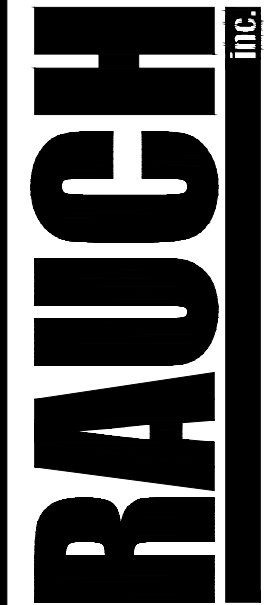


LANDSCAPING NOTES & DETAILS

OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP - 0026, GRID: 0020, PARCEL- 0106
ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC



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REVISIONS

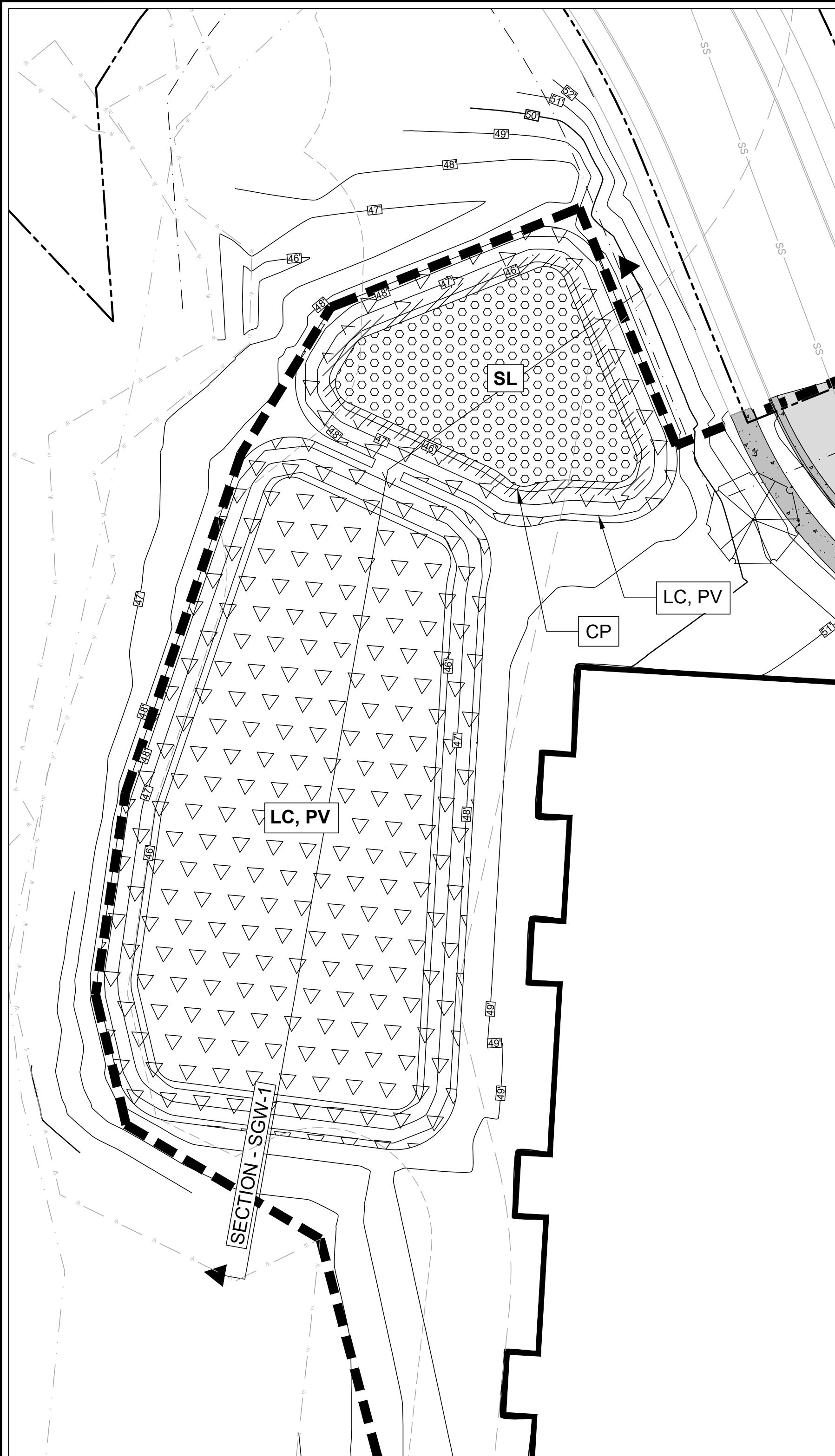
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DESIGNED BY:	BBF
APPROVED BY:	BBF

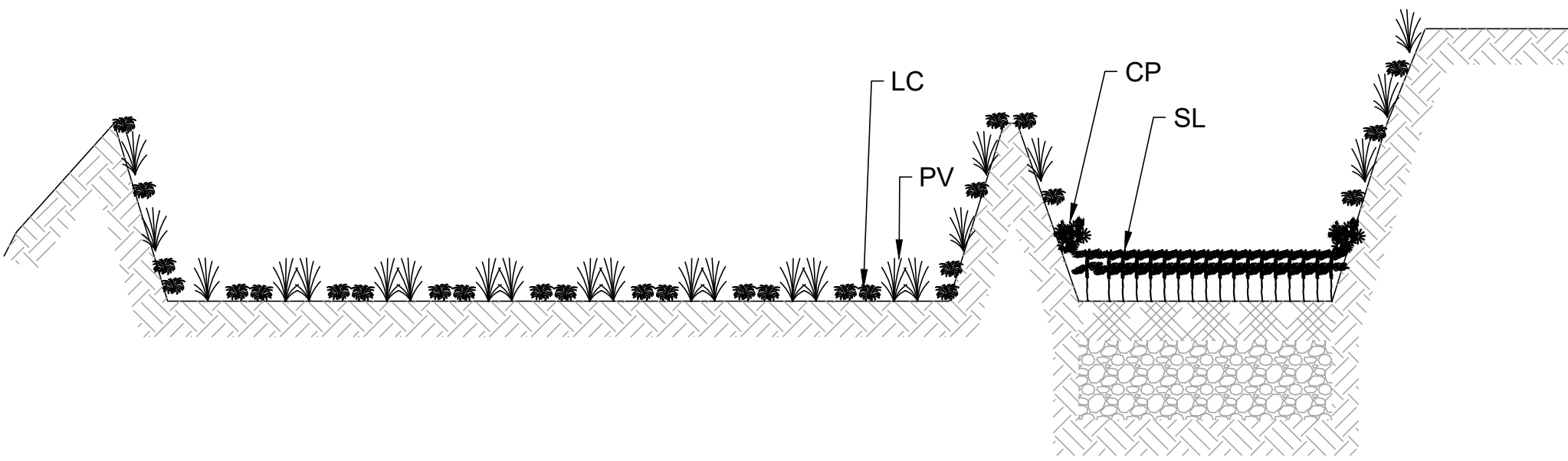
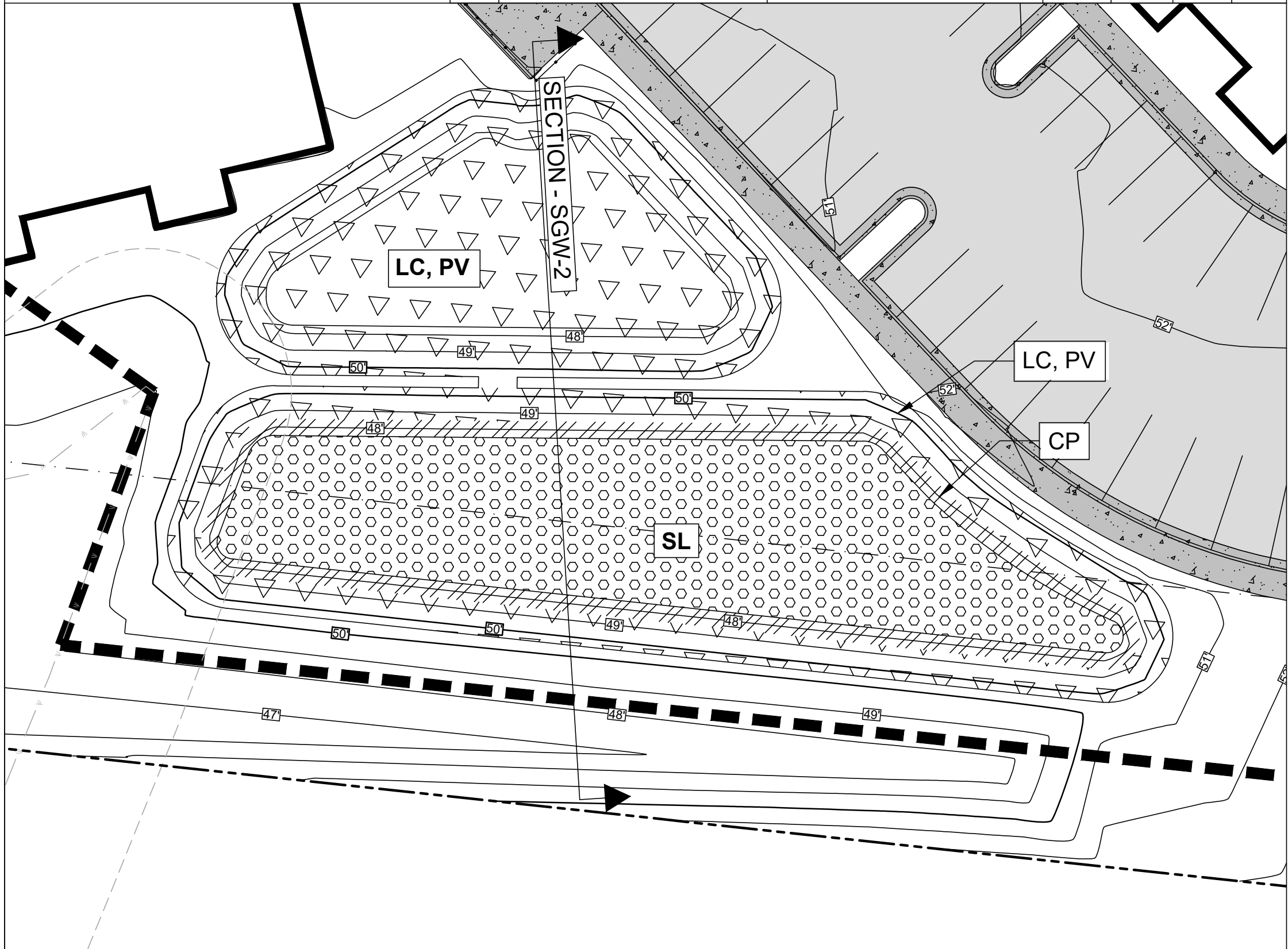
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FOR REVIEW



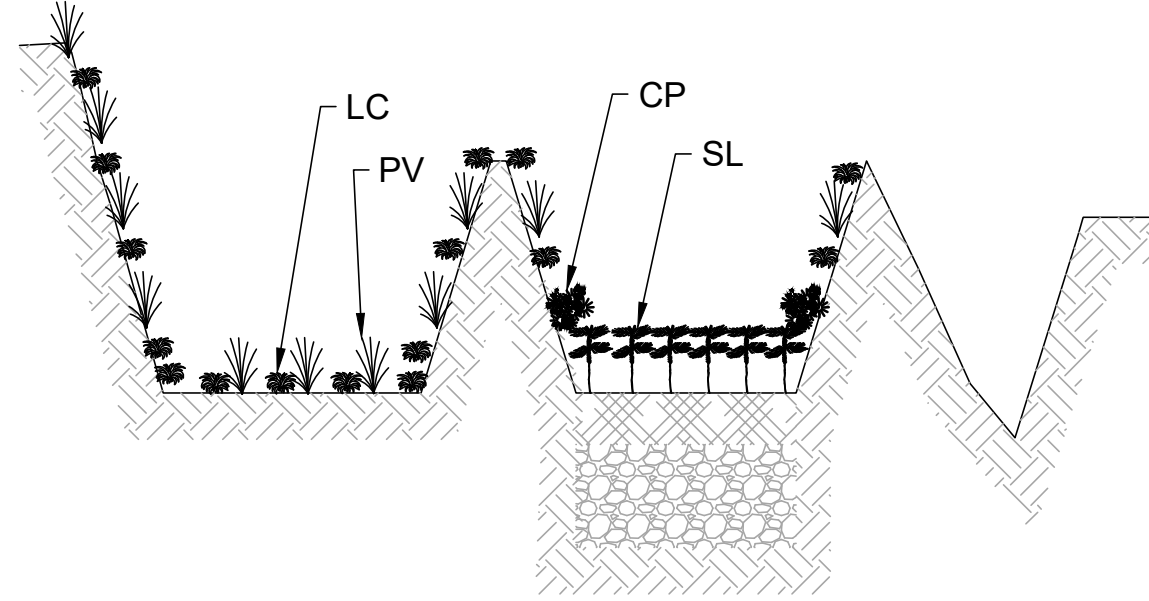
NORTH SUBMERGED GRAVEL WETLAND-FOREBAY - 2" PLUGS					
PV	PANICUM VIRGATUM	SWITCHGRASS		2116	SQ-FT 1058
LC	LOTUS CORNICULATUS	BIRDS FOOT TREFOIL		2116	SQ-FT 1058
			TOTAL	4232	2116
NORTH SUBMERGED GRAVEL WETLAND - 2" PLUGS					
PV	PANICUM VIRGATUM	SWITCHGRASS		1284	SQ-FT 659
LC	LOTUS CONICULATUS	BIRDS FOOD TREFOIL		1284	SQ-FT 659
CP	CALTHA PALUSTRIS	MARSH MARIGOLD		1199	SQ-FT 615
SL	SAGITTARIA LANCIFOLIA L.	DUCK POTATO		6938	SQ-FT 3560
			TOTAL	10705	5496

SOUTH SUBMERGED GRAVEL WETLAND-FOREBAY - 2" PLUGS					
PV	PANICUM VIRGATUM	SWITCHGRASS		715	SQ-FT 366
LC	LOTUS CORNICULATUS	BIRDS FOOT TREFOIL		716	SQ-FT 367
			TOTAL	1431	713
SOUTH SUBMERGED GRAVEL WETLAND - 2" PLUGS					
PV	PANICUM VIRGATUM	SWITCHGRASS		608	SQ-FT 312
LC	LOTUS CONICULATUS	BIRDS FOOD TREFOIL		608	SQ-FT 312
CP	CALTHA PALUSTRIS	MARSH MARIGOLD		1131	SQ-FT 580
SL	SAGITTARIA LANCIFOLIA L.	DUCK POTATO		5044	SQ-FT 2588
			TOTAL	7391	3792



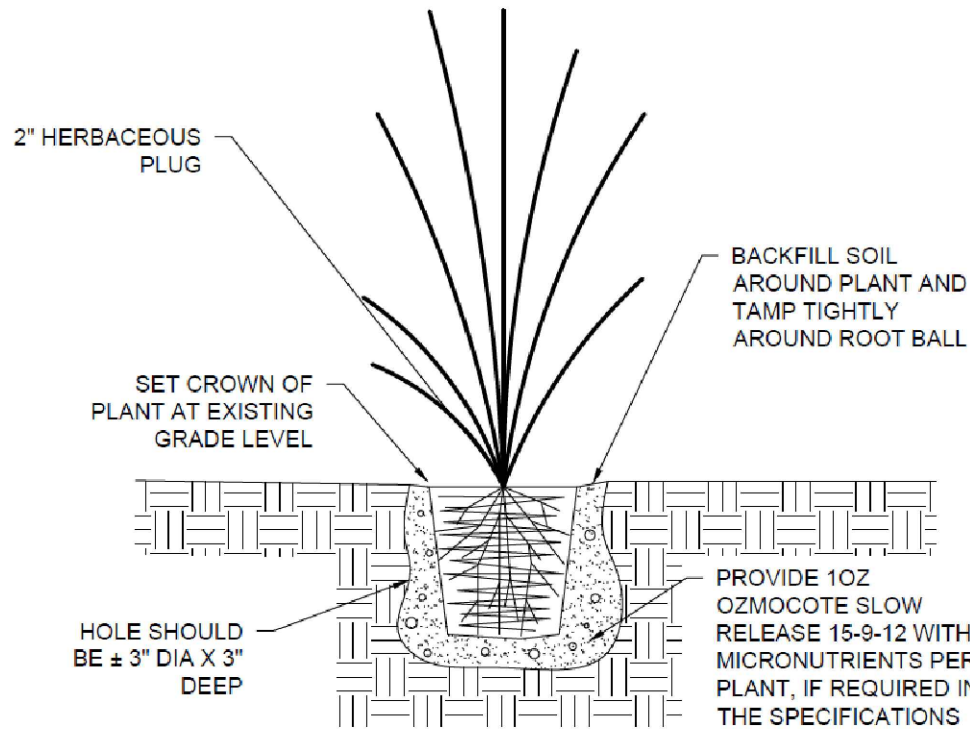
SGW-1 - NORTH POND
TYPICAL LANDSCAPE SECTION

NOTE:
PLANTS SPECIFIED ON DETAIL MAY BE REPLACED
BY ANY OF THE PLANTS LISTED IN THE OPTIONS
ON THIS SHEET ASSUMING THE PLANT IS
REPLACED WITH PLANT IN THE SAME ELEVATION.



SGW-2 - SOUTH POND
TYPICAL LANDSCAPE SECTION

NOTE:
PLANTS SPECIFIED ON DETAIL MAY BE REPLACED
BY ANY OF THE PLANTS LISTED IN THE OPTIONS
ON THIS SHEET ASSUMING THE PLANT IS
REPLACED WITH PLANT IN THE SAME ELEVATION.



2" PLUG PLANTING DETAIL

PLANTING OPTIONS AT POND ELEVATIONS

12"-36" DEPTH BELOW NORMAL POOL ELEVATION
WATER LILY, DEEP WATER DUCK POTATO, SAGO POND PLANT, REDHEAD GRASS

0"-12" DEPTH BELOW NORMAL POOL ELEVATION
BLUE FLAG IRIS, PICKERELWEED, DUCK POTATO, FLOWERING BULRUSH, SOFTTRUSH, SEDGES, LOBELIA, POND CYPRESS, VARIOUS ASTERS

0" TO 12" ELEVATION ABOVE NORMAL POOL ELEVATION
NEW ENGLAND ASTER, MARSH ASTER, MARSH MARIGOLD (APPALACHIAN PLATEAU), TUSsock SEDGE, SPOTTED JOE PYE WEED, FORGET ME NOTS, INKERRY, PURPLE OSIER DOGWOOD, PIN OAK, RIVER BIRCH, SYCAMORE, SWAMP WHITE OAK (COASTAL PLAIN), WEEPING WILLOW, DAWN REDWOOD

1' TO 4' ELEVATION ABOVE NORMAL POOL ELEVATION
PURPLE CONE FLOWER, BIRDS FOOT TREFOIL, SLENDER RUSH, DEER TONGUE GRASS, LESPEDEZA, SWITCH GRASS, SERVICEBERRY, GRAY BIRCH, HACKBERRY, SWEET PEPPER BUSH (COASTAL PLAIN), GRAY STEM DOGWOOD, RED OSIER DOGWOOD, GREEN ASH

QP2 TO CPV TO QP10 OR QF WATER SURFACE ELEVATION
(MANY WILDFLOWERS AND NATIVE GRASSES), AMERICAN HOLLY, WITCH HAZEL, NINEBARK, RED OAK, AMERICAN ELDERBERRY, AMERICAN HEMLOCK, LOWBUSH BLUEBERRY, MAPLE LEAF VIBURNUM, NANNYBERRY, BLACKHAW VIBURNUM

QF WATER SURFACE ELEVATION AND ABOVE (FLOODPLAIN)
MOSTLY ORNAMENTALS AS LONG AS SOILS DRAINS WELL. MANY NATIVES. ALL SPECIE MUST BE ABLE TO TOLERATE FLOOD PLAIN CONDITIONS. HACKBERRY, PITCH PINE, SHEEP FESCUE, WILDFLOWERS, MANY NATIVE GRASSES.

- POND INSPECTION
- REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION:
 - DURING EXCAVATION TO SUBGRADE
 - DURING CONSTRUCTION OF APPURTENANT CONVEYANCE
 - DURING LANDSCAPE PLANTING
 - UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

- POND MAINTENANCE CRITERIA:
- MAINTENANCE MEASURES
- MAINTENANCE RESPONSIBILITY FOR A POND AND ITS BUFFER SHALL BE VESTED WITH A RESPONSIBLE PARTY BY MEANS OF A LEGALLY BINDING AND ENFORCEABLE MAINTENANCE AGREEMENT THAT IS EXECUTED AS A CONDITION OF PLAN APPROVAL OR LOCAL PERMITTING PROCESSES.
 - THE PRINCIPAL SPILLWAY SHALL BE EQUIPPED WITH A TRASH RACK THAT PROVIDES ACCESS FOR MAINTENANCE.
 - SEDIMENT REMOVAL IN THE FOREBAY SHALL OCCUR WHEN 50% OF THE TOTAL FOREBAY CAPACITY HAS BEEN LOST.
 - SEDIMENTS EXCAVATED FROM STORMWATER PONDS THAT DO NOT RECEIVE RUNOFF FROM DESIGNATED HOTSPOTS ARE NOT CONSIDERED TOXIC OR HAZARDOUS MATERIAL AND CAN BE SAFELY DISPOSED BY EITHER LAND APPLICATION OR LAND FILLING. SEDIMENT TESTING MAY BE REQUIRED PRIOR TO SEDIMENT DISPOSAL WHEN A HOTSPOT LAND USE IS PRESENT.
 - SEDIMENT REMOVED FROM STORMWATER PONDS SHOULD BE DISPOSED OF ACCORDING TO CURRENT EROSION AND SEDIMENT CONTROL REGULATIONS.

- MAINTENANCE ACCESS
- A MAINTENANCE RIGHT-OF-WAY OR EASEMENT SHALL EXTEND TO A POND FROM A PUBLIC OR PRIVATE ROAD.
 - MAINTENANCE ACCESS SHOULD BE AT LEAST 12 FEET WIDE; HAVE A MAXIMUM SLOPE OF NO MORE THAN 15%; AND BE APPROPRIATELY STABILIZED TO WITHSTAND MAINTENANCE EQUIPMENT AND VEHICLES. THE MAINTENANCE ACCESS SHOULD EXTEND TO THE FOREBAY, SAFETY BENCH, RISER, AND OUTLET, AND BE DESIGNATED TO ALLOW VEHICLES TO TURN AROUND.

- NON-CLOGGING LOW FLOW ORIFICE
- THE LOW FLOW ORIFICE SHALL HAVE A MINIMUM DIAMETER OF 3 INCHES AND SHALL BE ADEQUATELY PROTECTED FROM CLOGGING BY AN ACCEPTABLE EXTERNAL TRASH RACK. TWO EXAMPLES OF APPROVED EXTERNAL TRASH RACKS ARE PROVIDED IN DETAIL NO. 1 AND 2 OF APPENDIX D.8. THE LOW FLOW ORIFICE DIAMETER MAY BE REDUCED TO ONE INCH IF AN INTERNAL ORIFICE IS USED (E.G., AN OVER-PERFORATED VERTICAL STANDPIPE THAT IS PROTECTED BY HARDWARE CLOTH AND A STONE FILTERING JACKET). A SCHEMATIC DESIGN OF AN ACCEPTABLE INTERNAL ORIFICE PROTECTION DESIGN IS PROVIDED IN DETAIL NO. 3 OF APPENDIX D.8.
 - THE PREFERRED METHOD IS A SUBMERGED REVERSE-SLOPE PIPE THAT EXTENDS DOWNWARD FROM THE RISER TO AN INFLOW POINT ONE FOOT BELOW THE NORMAL POOL ELEVATION.
 - ALTERNATIVE METHODS ARE TO EMPLOY A BROAD CRESTED RECTANGULAR, V-NOTCH, OR PROPORTIONAL WEIR, PROTECTED BY A HALF-ROUND CORRUGATED METAL PIPE (CMP) OR SIMILAR DEVICE THAT EXTENDS AT LEAST 12 INCHES BELOW THE NORMAL POOL. (SEE DETAIL NO. 7 OF APPENDIX D.8.)
 - THE USE OF HORIZONTAL PERFORATED PIPE PROTECTED BY GEOTEXTILE AND GRAVEL IS NOT RECOMMENDED.
 - VERTICAL PIPES MAY BE USED AS AN ALTERNATIVE IF A PERMANENT POOL IS PRESENT.

- RISER
- THE RISER SHALL BE LOCATED WITHIN THE EMBANKMENT FOR MAINTENANCE ACCESS, SAFETY AND AESTHETICS.
 - ACCESS TO THE RISER IS TO BE PROVIDED BY LOCKABLE MANHOLE COVERS AND MANHOLE STEPS WITH EASY REACH OF VALVES AND OTHER CONTROLS. RISER OPENINGS SHOULD BE FENCED WITH PIPE OR REBAR TO PREVENT TRASH ACCUMULATION.

LANDSCAPING NOTES & DETAILS

OF THE LANDS OF
ASPIRE APARTMENTS

TAX MAP: 0026, GRID: 0020, PARCEL: 0166
ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC

RAUCH
Engineering | Survey | Architecture | Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 8081 | Fax: 410 770 3987

REVISIONS

DESCRIPTION

REV. #

DATE



DATE: 12/6/2022
SCALE: 1" = 200'
DRAWN BY: BBF
DESIGNED BY: BBF
APPROVED BY: BBF

SHEET NO.:
C-605.02

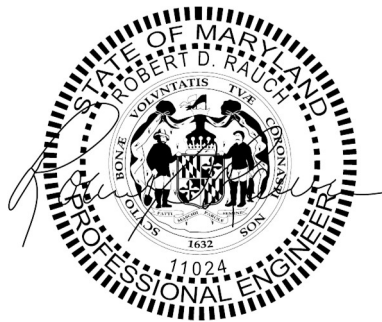
FOR
REVIEW



**STORMWATER MANAGEMENT ANALYSIS
FOR
ASPIRE - APARTMENTS
PREPARED FOR
ASPIRE OUTDOORS LLC**

**PREPARED BY
RAUCH, INC
106 N. HARRISON STREET
EASTON, MD 21601**

2nd OF DECEMBER 2022



PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENCED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

ROBERT D. RAUCH, LICENCE NO. 11024
EXPIRATION DATE 7/24/2024

12/2/2022

DATE

Stormwater Management Narrative



PROJECT SUMMARY

The project is located in the town of Easton, off Matthewstown Road, and at the end of Camac Street. The property map is 26, grid 20, parcel 186, deed 2644/114, land use residential, and is zoned R10A. The Town of Easton needs housing and this project proposes the construction of an apartment complex to provide a high density solution to meet Town needs. The following report will show how stormwater management requirements for the project meet the 2000 Maryland Stormwater Manual Volumes I and II as currently updated. The report will also prove the post-construction site will reduce peak runoff of the 2-year and 10-year storm compared to the pre-construction site.

SITE – PRE-CONSTRUCTION CONDITIONS

The existing site contains existing non-tidal wetlands and a perennial stream located on the property. The existing site consists of mainly woods with some agricultural field which drain to the Southwest, into the woods where a perennial stream runs off site. residential areas. The study point selected for the analysis is downstream of the existing perennial stream that runs through the site. Three drainage areas were drawn with the estimated longest time of concentration to be used in the analysis. The drainage area has A,B,C, and D soils. There is a mix of woods, agricultural, and residential areas all incorporated into the runoff curve number for the drainage area.

SITE – POST-CONSTRUCTION CONDITIONS

We are proposing converting the site into a 6-apartment development with a community pool and clubhouse. Adjacent to the pool will be a community area located in the central portion of the site. The impervious is proposed to be treated by a Chapter 5 structural practice. The Chapter 5 ESD structural practice includes the use of two submerged gravel wetlands.

The analysis of postconstruction was performed using 3 existing catchments and 2 proposed catchments all draining to a combination swales, forebays, and submerged gravel wetlands. The outfall of these facilities all reach a single study point downstream of the proposed site. The drainage areas consist of some existing agricultural fields, woods, and developments which have been analyzed in order to show all flow getting to the single study point. Times of concentration used in most drainage areas start with sheet flow, change to shallow concentrated flow, and either discharge into an inlet or swale/stream. Proposed conditions during the 2,10-, and 100-year storm events have been analyzed and show peak flows from the development during these storms are less than existing conditions peak flows at Study Point #1.

The study point will remain unchanged. The plans included with this report detail all drainage areas with times of concentration.



WATER QUALITY – ESDv

We are proposing to take credit for two submerged gravel wetlands as the Chapter 5 practices to meet the Site's ESDv requirement.

Both Submerged Gravel Wetlands will have the required pretreatment forebay. All inflow into the forebays will enter via a storm drain pipe or surface drainage prior to spilling into the Submerged Gravel Wetlands. The outfall of the forebays will be a 2'x7' stone weir and the outfall of the Submerged Gravel Wetlands will be a 2'x2' yard inlet.

Practice Summary:

Forebay to Submerged Gravel Wetlands #1

Sub-Catchment Area #PR-DA-1	143,973 Sf
Percent Impervious:	69%
Surface Area:	7,419 Sf
Ponding Depth:	2 Ft
Media Depth:	0 Ft

Submerged Gravel Wetland #1

Surface Area:	2,056 Sf
Ponding Depth:	2 Ft
Media Depth:	2 Ft

Forebay to Submerged Gravel Wetlands #2

Sub-Catchment Area #PR-DA-2	141,172 Sf
Percent Impervious:	66%
Surface Area:	2,004 Sf
Ponding Depth:	2 Ft
Media Depth:	0 Ft

Submerged Gravel Wetland #2

Surface Area:	4,027 Sf
Ponding Depth:	2 Ft
Media Depth:	2 Ft

Site Calculation Summary:

ESDv Required =	29,281 Cf
ESDv Provided =	42,431 Cf

***Esd To the Mep Met**

WATER QUANTITY

An effort has been made to bypass all off-site drainage from the existing neighboring agricultural field by capturing this flow in a grass swale and discharging prior to the existing wetlands via a storm drain pipe. On-site volume control is provided within both submerged gravel wetlands, and their forebay. The wetlands will have forebays to capture sediment prior to reaching the facility.

The Submerged Gravel Wetlands will discharge into a proposed "V" bottom swale prior to the non-tidal wetlands and would have treated the stormwater prior to discharging. The proposed Submerged Gravel Wetlands have a 2'x 2' outfall structure with an orifice at an invert elevation 4" below the bed elevation. From the catch basin, a 12" outfall pipe will be directed to the "V" bottom swale which eventually reaches Study Point #1.

STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
EXISTING	280.31	586.96	981.54
PROPOSED	278.12	585.67	980.50
CHANGE	-2.19	-1.29	-1.04

CONCLUSION

This report shows that all requirements of the MDE stormwater design manual have been met for this site and natural areas have been preserved in meeting these guidelines.

ESD Calculations

LIMITS OF DISTURBANCE

EXISTING LOD COVERAGE			
COVERAGE DESCRIPTION	COVERAGE CATEGORY	COVERAGE AREA SQ-FT	SOIL TYPE
TREES/VEGETATION	PERVIOUS	373006	C
TREES/VEGETATION	PERVIOUS		D

TOTAL SITE AREA 373006 SQ-FT
EXISTING IMPERVIOUS AREA 0 SQ-FT
PERCENT IMPERVIOUS 0%

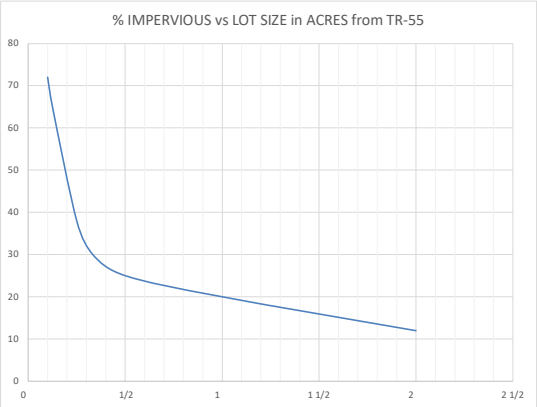
PROPOSED LOD COVERAGE		
COVERAGE DESCRIPTION	COVERAGE CATEGORY	COVERAGE AREA SQ-FT
ROADWAY	IMPERVIOUS	81228
IMPERVIOUS PARKING	IMPERVIOUS	84774
ROOFS	IMPERVIOUS	
SIDEWALK	PERVIOUS	176831

TOTAL SITE AREA 373006 SQ-FT
PROPOSED IMPERVIOUS AREA 196175 SQ-FT
PERCENT IMPERVIOUS 53%

PERCENT HSG A 0%
PERCENT HSG B 0%
PERCENT HSG C 100%
PERCENT HSG D 0%

FROM TR-55		
LOT SIZE	% IMPERVIOUS	
2.00	12	
1.00	20	
1/2	0.50	25
1/3	0.33	30
1/4	0.25	38
1/8	0.13	65
	0.10	72

0.166667



PERVIOUS A GRAVEL IMPERVIOUS
IMPERVIOUS B ROOFS IMPERVIOUS
C OUS PARKING IMPERVIOUS
D DRIVEWAY IMPERVIOUS
ROADWAY IMPERVIOUS
WATER IMPERVIOUS
PAVEMENT IMPERVIOUS
SIDEWALK IMPERVIOUS
LANDSCAPING PERVIOUS
PERVIOUS PARKING PERVIOUS
TREES/VEGETATION PERVIOUS
TURF LAWN PERVIOUS
CONSERVATION AREA PERVIOUS
PERMEABLE PAVEMENT PERVIOUS

Maryland ESD Calculations and 10% Phosphorus Removal

Last Update: 1/6/2019 Rauch Inc.

Project Name:	Aspire Apartments
Date:	5-Dec-22
	data input cells
	calculation cells

Step 1: Complete ESD Implementation Checklist

Check all of the Following ESD Practices That Were Implemented at Site	Yes - No - N/A
Environmental Mapping Was Conducted at Site Prior to Layout	YES
Natural Areas Were Conserved (e.g., forests, wetlands, steep slopes, floodplains)	YES
Stream, Wetland and Shoreline Buffers Were Reserved	YES
Disturbance of Permeable Soils Was Minimized	YES
Natural Flow Paths Were Maintained Across the Site	YES
Building Layout Was Fingerprinted to Reduce Clearing and Grading at Site	YES
Site Grading Promoted Sheetflow From Impervious Areas to Pervious Ones	YES
Site Design Was Evaluated to Reduce Creation of Needless Impervious Cover	YES
Site Design Was Evaluated to Maximize Disconnection of Impervious Cover	YES
Site Design Was Evaluated to Identify Potential Hotspot Generating Area for Stormwater Treatment	YES
Erosion and Sediment Control Practices and Post Construction Stormwater Management Practices Were Integrated into a Comprehensive Plan	YES
Tree Planting Was Used at the Site to Convert Turf Areas into Forest	YES

Step 2: Calculate Site Imperviousness and Water Quality Volume, WQv (for redevelopment)

defined as A single tract, lot, parcel of land or combination of tracts, lots parcels of land that are in one ownership or are contiguous and in diverse ownership where development is to be performed as part of a unit, subdivision or project. See page 5.117 in the design handbook. This means that a project may be classed as redevelopment even if the LOD is less than 40% impervious

Total SITE Area, A (acres or sq-ft)	50,225
Existing SITE Impervious Area (acres or sq-ft)	0
SITE percent impervious	0%
Development Category (for ESD)	New Development
LOD Area, A (acres)	8.56
Existing LOD Impervious Surface Area (acres)	0.00
Proposed LOD Impervious Surface Area (acres)	4.50
Rainfall Depth, P (in)	1.0
Existing LOD Imperviousness, I_{imp}	0%
Proposed LOD Imperviousness, I_{post}	53%
Water Quality Calculation for Redevelopment Only	
Required Treatment Area (acres)	0.000
Runoff Coefficient, R_v	0.95
Water Quality Volume, WQv (cf)	0

Step 4: Calculate Environmental Site Design (ESD) Rainfall Target, P_E

% Soil Type A	0%	RCN Soil Type A	70.56
% Soil Type B	0%	RCN Soil Type B	80.52
% Soil Type C	100%	RCN Soil Type C	87.04
% Soil Type D	0%	RCN Soil Type D	89.52
Target Pre-Developed Condition, $RCN_{\text{pre-dev}}$	70.00000	Post-Developed Condition, RCN	87.04
Soil Type A ESD Rainfall Target, P_E (in)	0.00		
Soil Type B ESD Rainfall Target, P_E (in)	0.00		
Soil Type C ESD Rainfall Target, P_E (in)	1.80		
Soil Type D ESD Rainfall Target, P_E (in)	0.00		
Maximum P_E (in)	2.7		
Site ESD Rainfall Target, P_E (in)	1.80		
ESD Runoff Depth, Q_E (in)	0.94		
ESD Runoff Volume, ESD_v (cf)	29,281		
Total Treatment Volume (cf)	29,281		

Runoff depths for H and H analysis		
2yr	10yr	100yr
3.4	5.3	7.6

Step 3: Calculate Phosphorous Removal Requirement, RR for Critical Area Sites

Development Category (for 10%)	New Development
New Development	
Average Annual Predevelopment Load, L_{pre} (lbs P / yr)	4.28
Redevelopment:	
Predevelopment Runoff Coefficient, $R_{v_{\text{pre}}}$	0.05
Phosphorous Mean Concentration, C (mg/L)	0.3
Average Annual Predevelopment Load, L_{pre} (lbs P / yr)	1.05
Post-Development Runoff Coefficient, $R_{v_{\text{post}}}$	0.52
Average Annual Post-Development Load, L_{post} (lbs P / yr)	10.97
Removal Requirement, RR (lbs P / yr)	7.12

Step 5: Select Nonstructural Practices to Treat the ESD Rainfall Target
Step 6: Select Micro-Scale Practices to Treat the ESD Rainfall Target

Micro-Scale Practices	P _s Credit Description	Contributing Drainage Area (sf)	Direct ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)
Submerged Gravel Wetlands	ESDv credit is based on design storage volume	285,145	42,431	18016	42,431	18,016

Baseline Phosphorous Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
58%	70%	15.10	10.51	4.58

Step 7: Check for ESDv to MEP compliance and Revise Site If Necessary

Drainage Area Treated (sf)	285,145
----------------------------	---------

WQv or ESDv Treated (cf) using ESD practices	42,431
P _E achieved (inches)	2.61

Entire ESDv Treated Through ESD Practices?	YES
ESDv Remaining? (cf)	0
If ESDv is not fully treated, is ESD to MEP achieved?	NO

Redevelopment WQv Requirements Met Through ESD Practices?	N/A
WQv Remaining? (cf)	0

New Development Water Quality Volume Requirements

Required Treatment Area (acres)	8.56
Runoff Coefficient, Rv	0.52
Water Quality Volume, WQv (cf)	16,267

New Development WQv Requirements Met Through ESD Practices?	YES
WQv Remaining? (cf)	0

Step 8: Determine Reduced RCN and Volume Management Requirements Based Upon P_E Achieved

Reduced RCN for Type A Soils	N/A
Reduced RCN for Type B Soils	N/A
Reduced RCN for Type C Soils	N/A
Reduced RCN for Type D Soils	N/A

Composite Reduced RCN CN* 1 yr	N/A
--------------------------------	-----

Target Reduced RCN _{100% 1 yr}	70.00
---	-------

Q ₂ (in) for Reduced RCN	N/A
V (ft ³) for Reduced RCN	N/A

Q ₂ (in) for pre developed RCN	0.55
V (ft ³) for pre developed RCN	17225

Volume Management Required (cf)	0
---------------------------------	---

Volume Required for structural practices (cf)	0
---	---

Composite reduced runoff curve number for H and H analysis (TR-55)			
S	Ia	Pe achieved x Rv	
1.49	0.30	1.37	
2 yr	10 yr	100 yr	
2.10	3.85	6.07	
Qr	0.73	2.49	4.70
Qr-(Pe achieved x Rv)			
CN*	65.66	72.67	75.16

Step 9: Select Structural Practices to Meet Volume Management Requirements

Structural Practices	Contributing Drainage Area (sf)	% Impervious Cover	Direct ESDv Received by Practice (cf)	ESDv from Upstream Practices (cf)	Treatment Volume (cf)
Stormwater Ponds (Level 1)	0	0%	0	0	0
Stormwater Ponds (Level 2)	0	0%	0	0	0
Stormwater Wetlands (Level 1)	0	0%	0	0	0
Stormwater Wetlands (Level 2)	0	0%	0	0	0
Stormwater Filtering Systems (Level 1)	0	0%	0	0	0
Stormwater Filtering Systems (Level 2)	0	0%	0	0	0
Stormwater Infiltration (Level 1)	0	0%	0	0	0
Stormwater Infiltration (Level 2)	0	0%	0	0	0

Total structural CPv or WQv provided	0
WQv Requirement Met through structural practices?	YES
WQv Remaining (cf)	0
CPv Requirement Met through structural practices?	YES
CPv Remaining (cf)	0

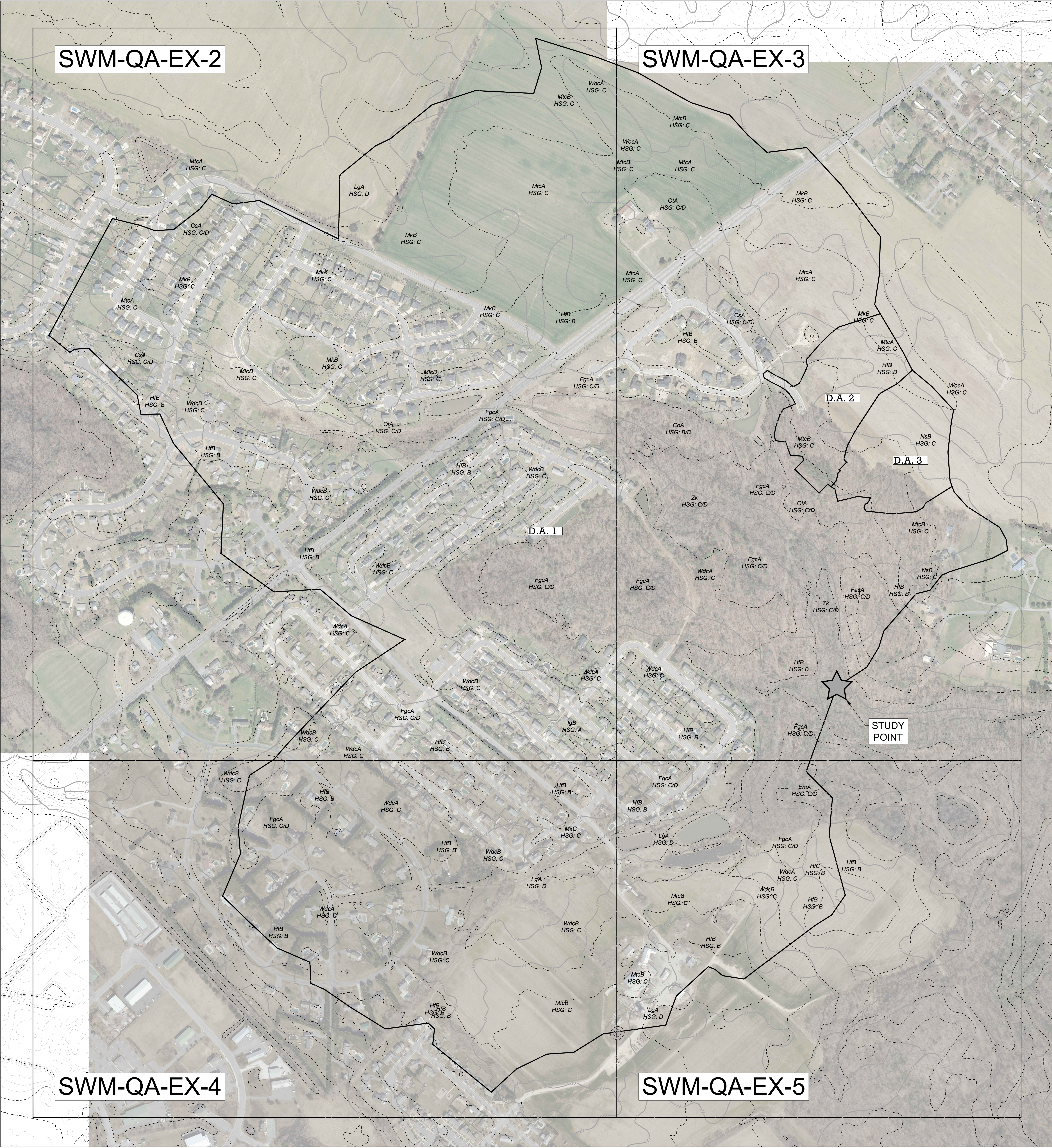
Critical Area Credits				
Phosphorous Removal Efficiency	Adjusted Phosphorus Removal Efficiency	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
50%	0%	0.00	0.00	0.00
75%	0%	0.00	0.00	0.00
50%	0%	0.00	0.00	0.00
75%	0%	0.00	0.00	0.00
60%	0%	0.00	0.00	0.00
65%	0%	0.00	0.00	0.00
60%	0%	0.00	0.00	0.00
90%	0%	0.00	0.00	0.00

Total Load Reduction (lbs P / year)	10.51
Total Load Reduction Remaining (lbs P / yr)	0.00

Micro-Scale Practices	Contributing Drainage Area (sf)	% Impervious Cover -----RV	To fully treat sub area ----- PE required WQV	Max available WQV or ESDv from CDA (cf)	Area of upstream catchment (sf)	WQV or ESDv from Up-Gradient Practices (cf)	Total catchment area ----- Total ESDv to practice	Practice Specific Parameter(s)				WQV or ESDv provided (cf)	Runoff Volume Remaining (cf)	Down-Gradient Practice and Row	Soil Type	Baseline Phosphorous Removal Efficiency	Adjusted Removal Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)	Watershed-Inches treated (PE Provided)	Annual Rainfall Treated (%)
Forebay to Submerged Gravel Wetland #1	143,973	69%	2.00				143,973	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)			Submerged Gravel Wetlands								
		0.674805	16192	21,860	0	0	21860	7,419	10,938	2	0	18,357	3,503	2	C/D	60%	75.35%	5.46	4.11	1.35	2.27	103.69%
Submerged Gravel Wetland #1			1.00				143,973	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)											
		0.05	0	0	143973	3503	3503	2,056	3,958	2	2	3,503	0		C/D	60%	78.62%	0.87	0.69	0.19	2.70	108.20%
Forebay to Submerged Gravel Wetland #2	141,172	66%	2.00				141,172	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)			Submerged Gravel Wetlands								
		0.647637	15238	20,571	0	0	20571	2,004	4,054	2	0	6,058	14,513	4	C/D	60%	55.70%	5.14	2.86	2.28	0.80	76.65%
Submerged Gravel Wetland #2			1.00				141,172	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)											
		0.05	0	0	141172	14513	14513	4,027	7,506	2	2	14,513	0		C/D	60%	78.62%	3.63	2.85	0.77	2.70	108.20%
Total	285,145			42,431		18,016						42,431	18,016			58%	69.64%	15.10	10.51	4.58	1.90	99.07%

Drainage Map of Existing Conditions

ASPIRE
EXISTING STORMWATER MANAGEMENT QUANTITY ANALYSIS
FOR
ASPIRE OUTDOORS LLC
SITUATED IN
TOWN OF EASTON, TALBOT COUNTY, MARYLAND



811
MARYLAND
DESIGNED BY: [Signature]
CHECKED BY: [Signature]
DATE: 12/1/2022

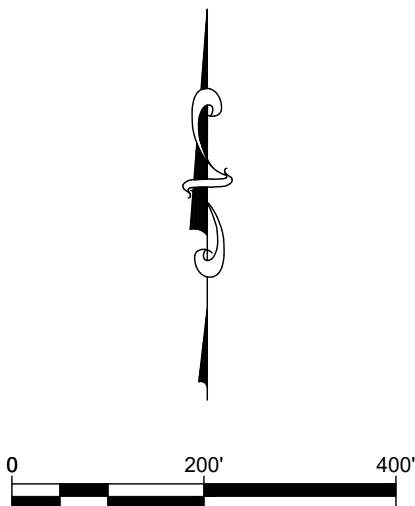
REVISIONS		
REV. #	DATE	DESCRIPTION

Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 11024
Expiration Date: July 24, 2024
12/1/2022

RAUCH
Engineering | Survey | Architecture | Environmental
Main Office: 106 N. Harrison St. - Easton, MD 21801
Web: www.rauch-inc.com | Email: design@rauch.com
Phone: 410.770.9081 | Fax: 410.770.9887

EXISTING STORMWATER QUANTITY ANALYSIS - KEY SHEET
OF THE LANDS OF
ASPIRE - APARTMENTS
TAX MAP 26, GRID 20, PARCEL 186
FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND
PREPARED FOR ASPIRE OUTDOORS LLC

STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
EXISTING	280.31	586.96	981.54
PROPOSED	278.12	585.67	980.50
CHANGE	-2.19	-1.29	-1.04





MATCHLINE TO SHEET SWM-QA-EX-3

MATCHLINE TO SHEET SWM-QA-EX-4

SHEET NO. SWM-QA-EX-2



REVISIONS		
REV. #	DATE	DESCRIPTION

Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 11024
Expiration Date: July 24, 2024



Main Office: 106 N. Harrison St. - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 9061 | Fax: 410 770 9887

EXISTING STORMWATER QUANTITY ANALYSIS - KEY SHEET

OF THE LANDS OF

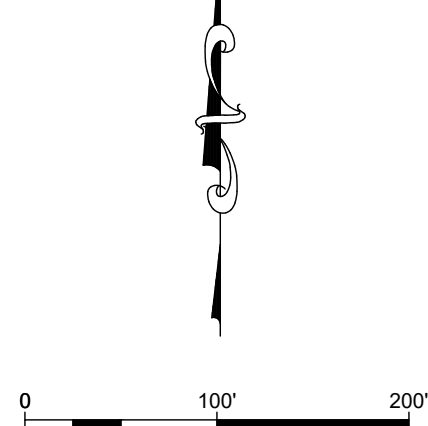
ASPIRE - APARTMENTS

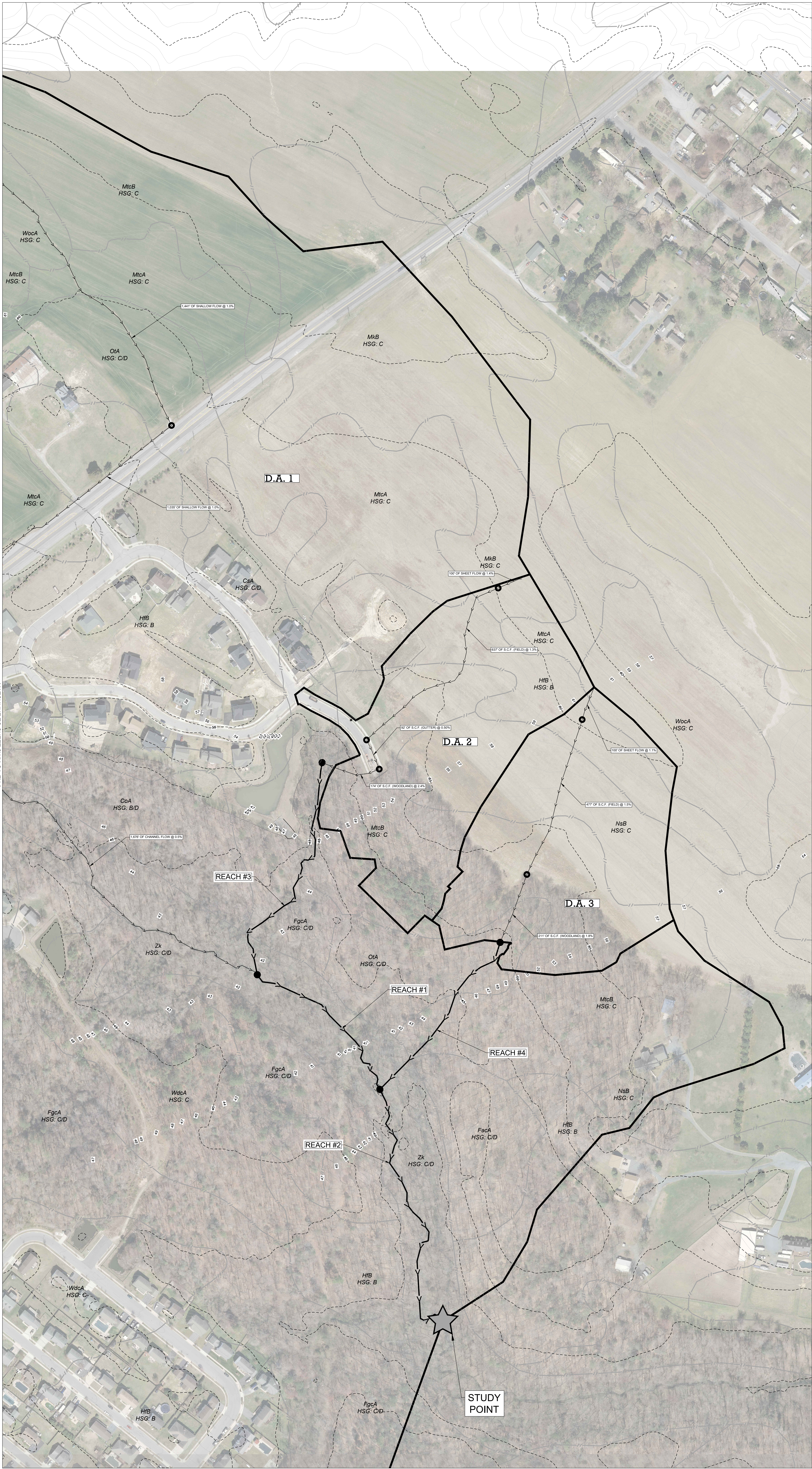
TAX MAP 26, GRID 20, PARCEL 186

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR ASPIRE OUTDOORS LLC

LEGEND	
	DRAINAGE AREA
	FLOW PATH
	REACH
	SOIL BOUNDARY
	TIME OF CONCENTRATION METHOD DIVIDER
	REACH DIVIDER





LEGEND

— DRAINAGE AREA

— FLOW PATH

— REACH

--- SOIL BOUNDARY

○ TIME OF CONCENTRATION METHOD DIVIDER

● REACH DIVIDER

DATE: 12/1/2022

DESIGNED BY: RBF

DRAWN BY: RBF

CHECKED BY: RBF

APPROVED BY: RBF

SHEET NO.: SWM-QA-EX-3

REV. #

DATE

DESCRIPTION

Professional Certification.

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

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Web: www.rauch-inc.com | Email: design@raucheng.com

Phone: 410 770 9081 | Fax: 410 770 9887

EXISTING STORMWATER QUANTITY ANALYSIS - KEY SHEET

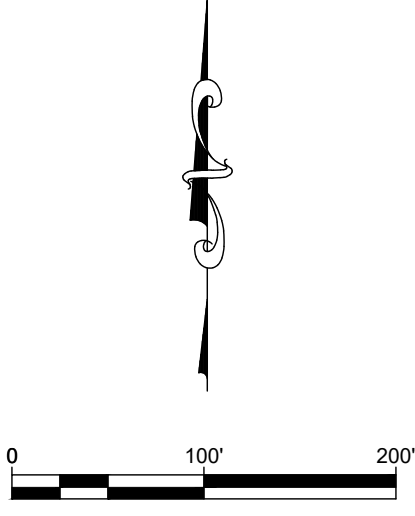
OF THE LANDS OF

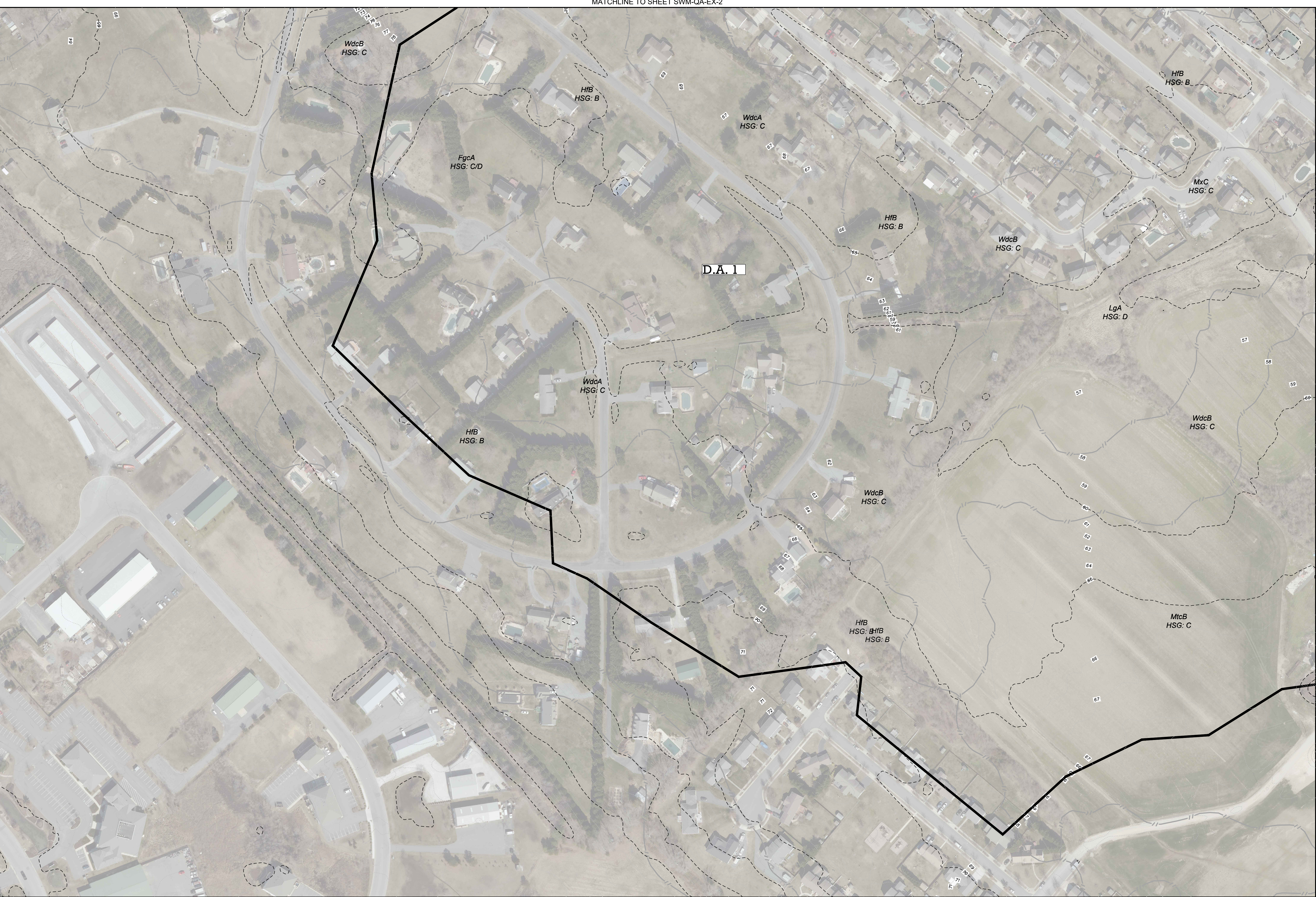
ASPIRE - APARTMENTS

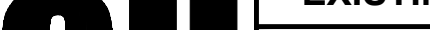
TAX MAP 26, GRID 20, PARCEL 186

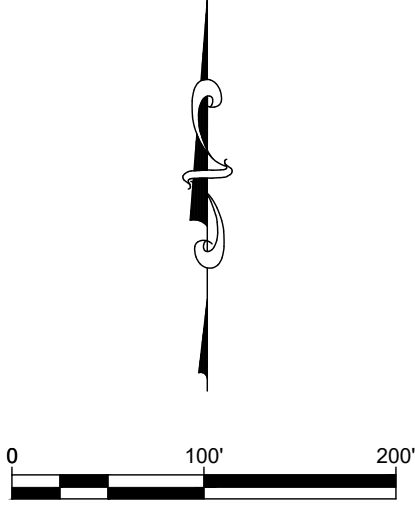
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SHEET NO. SWM-0A-EX-4			REVISIONS		Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 11024 Expiration Date: July 24, 2024		 Engineering Survey Architecture Environmental	Main Office: 106 N Harrison St - Easton, MD 21601 Web: www.rauch-inc.com Email: design@raucheng.com Phone: 410 770 0081 Fax: 410 770 3887	EXISTING STORMWATER QUANTITY ANALYSIS - KEY SHEET
			REV. #	DATE					DESCRIPTION





LEGEND

DRAINAGE AREA

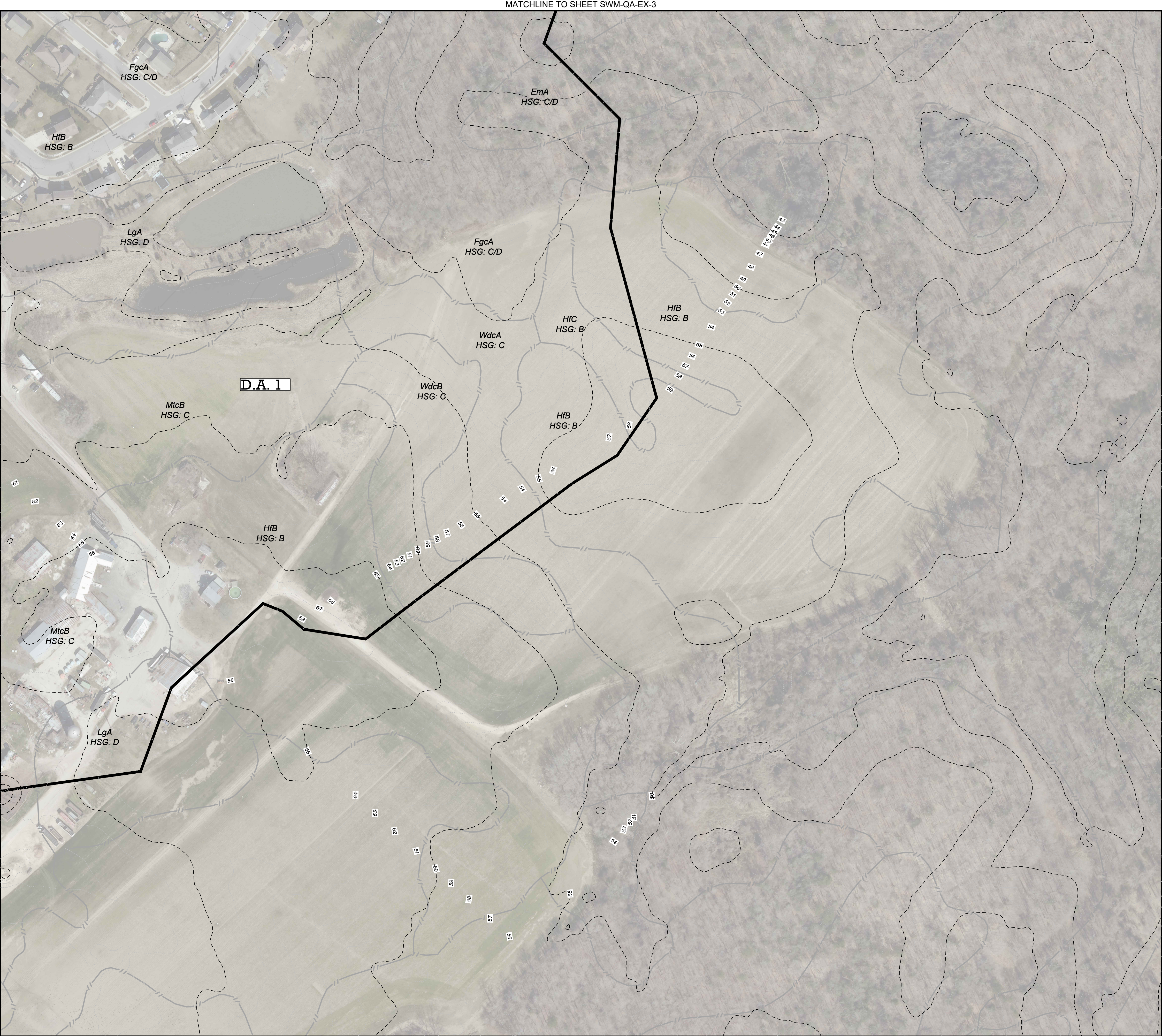
FLOW PATH

REACH

SOIL BOUNDARY

TIME OF CONCENTRATION METHOD DIVIDER

REACH DIVIDER



DATE: 12/1/2022

DRAWN BY: RBF

DESIGNED BY: RBF

APPROVED BY: RBF

SHEET NO.: SWM-QA-EX-5

REV. #

DATE

DESCRIPTION

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EXISTING STORMWATER QUANTITY ANALYSIS - KEY SHEET

OF THE LANDS OF

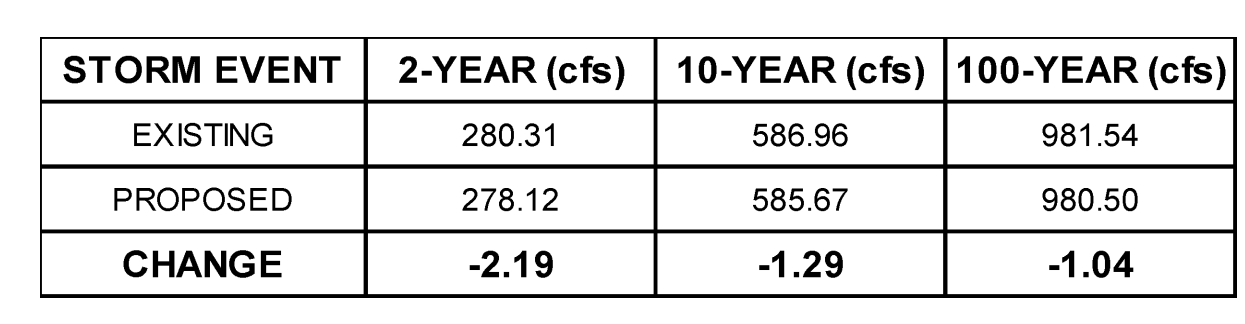
ASPIRE - APARTMENTS

TAX MAP 26, GRID 20, PARCEL 186

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR ASPIRE OUTDOORS LLC

Drainage Map of Proposed Conditions



STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
EXISTING	280.31	586.96	981.54
PROPOSED	278.12	585.67	980.50
CHANGE	-2.19	-1.29	-1.04



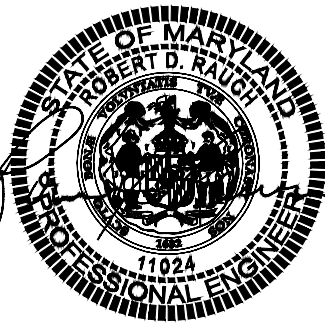
MATCHLINE TO SHEET SWM-QA-PR-3

MATCHLINE TO SHEET SWM-QA-PR-4

[illegible]

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Expiration Date: July 24, 2024



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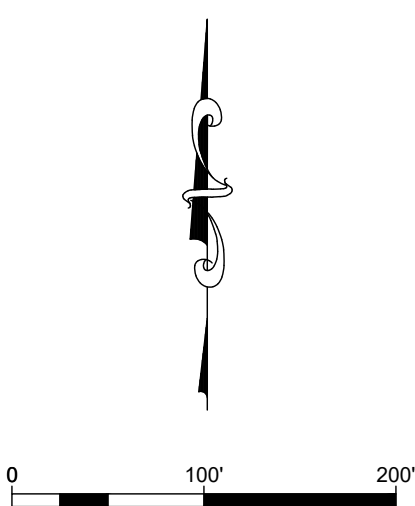
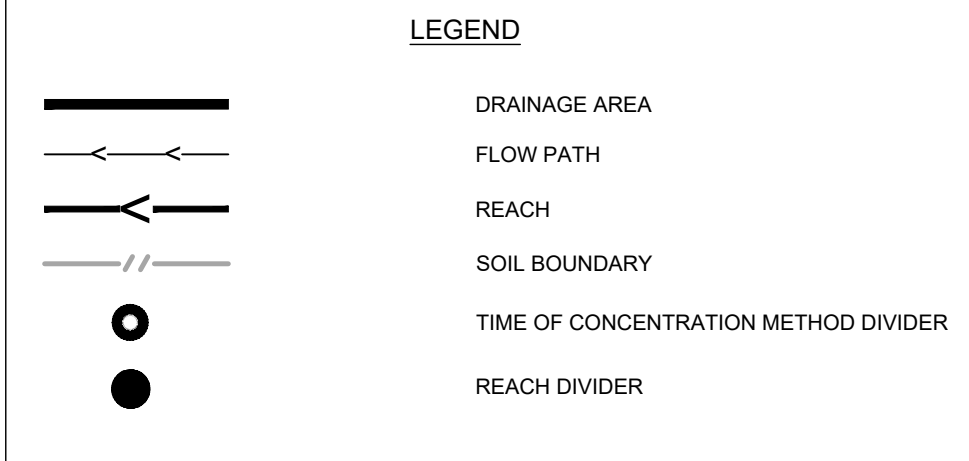
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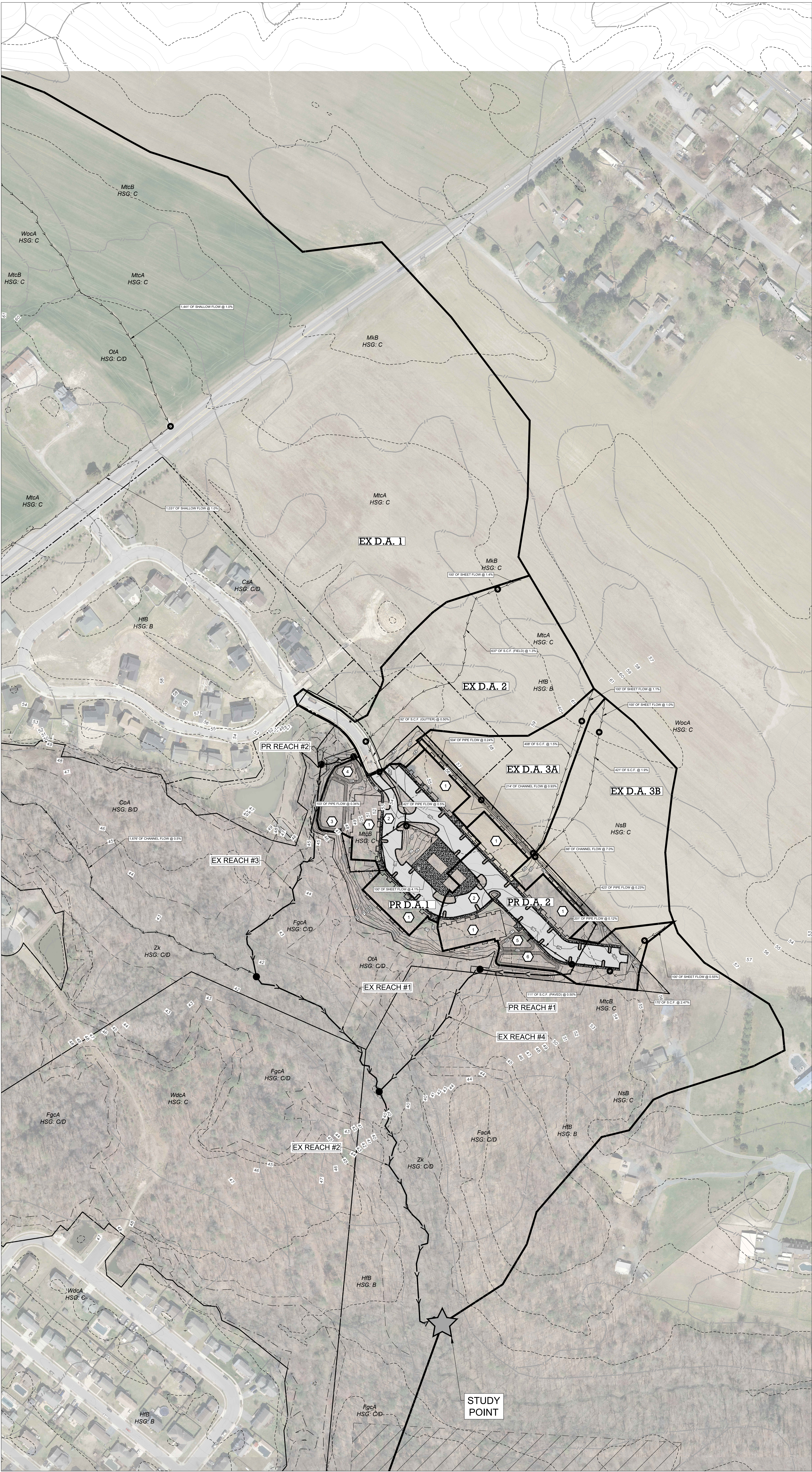
OF THE LANDS OF

ASPIRE - APARTMENTS

TAX MAP 26, GRID 20, PARCEL 186

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND
PREPARED FOR ASPIRE OUTDOORS LLC





PROPOSED SITE FEATURES

- 1 APARTMENT BUILDING
- 2 ASPHALT ROAD
- 3 FOREBAY #1
- 4 SUBMERGED GRAVEL WETLANDS #1
- 5 FOREBAY #2
- 6 SUBMERGED GRAVEL WETLANDS #2

LEGEND

- DRAINAGE AREA
- FLOW PATH
- REACH
- SOIL BOUNDARY
- TIME OF CONCENTRATION METHOD DIVIDER
- REACH DIVIDER

REVISIONS		
REV. #	DATE	DESCRIPTION

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License No. 11024
PRPiration Date: July 24, 2024



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PROPOSED STORMWATER QUANTITY ANALYSIS - KEY SHEET

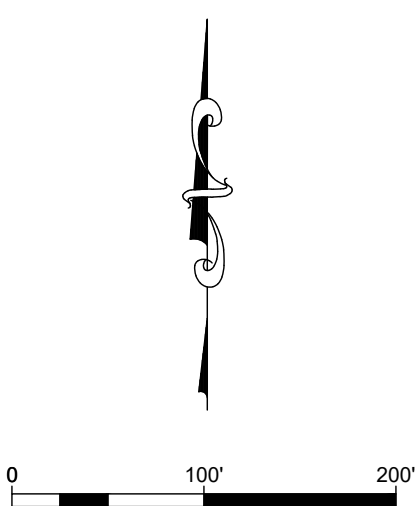
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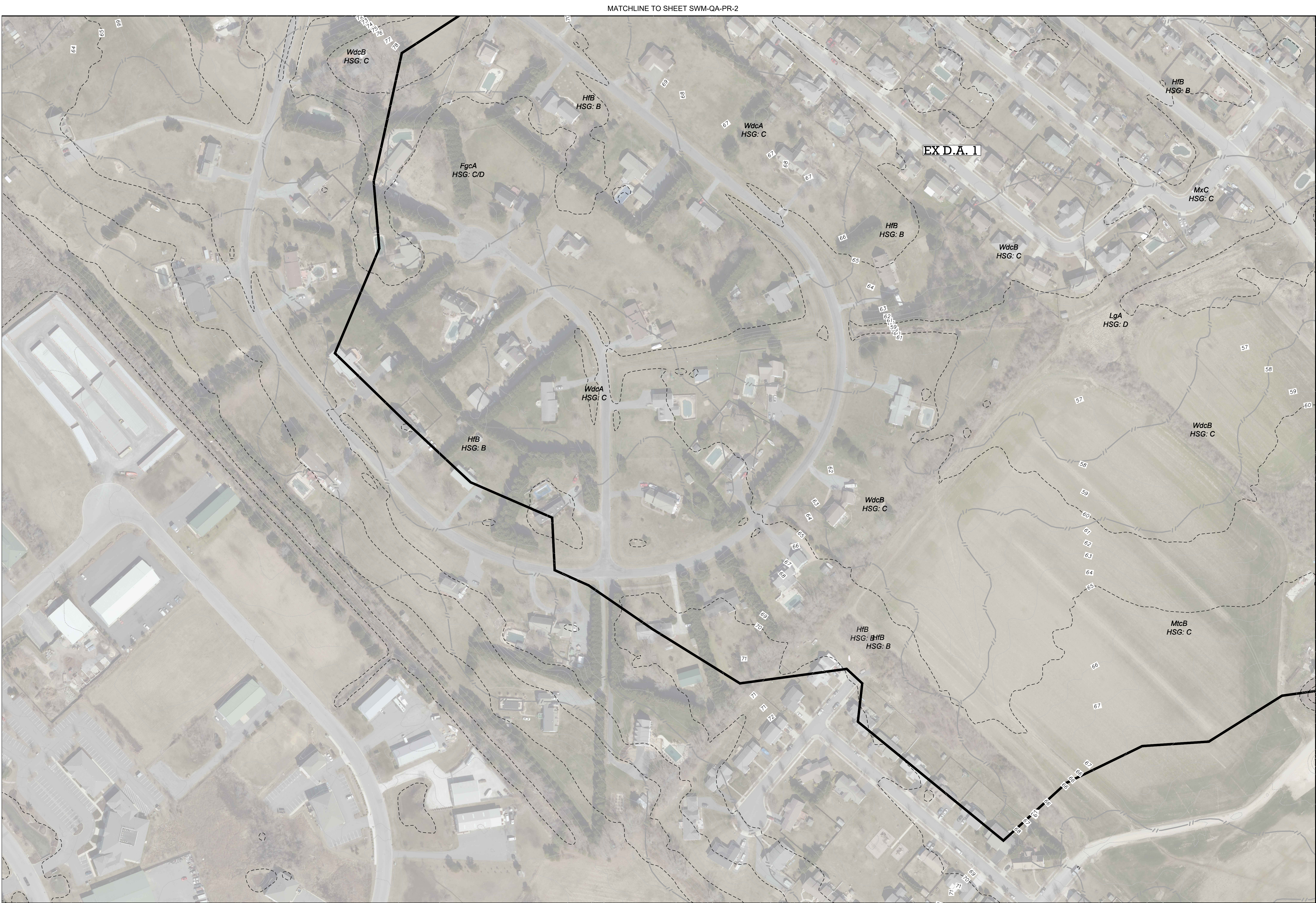
ASPIRE - APARTMENTS

TAX MAP 26, GRID 20, PARCEL 188

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR ASPIRE OUTDOORS LLC





DATE: 12/1/2022	DESIGNED BY: RBF	APPROVED BY: RBF
SHEET NO. SWM-QA-PR-4		



REVISIONS		
REV. #	DATE	DESCRIPTION

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PRpiration Date: July 24, 2024



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PROPOSED STORMWATER QUANTITY ANALYSIS - KEY SHEET

OF THE LANDS OF

ASPIRE - APARTMENTS

TAX MAP 26, GRID 20, PARCEL 186

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR ASPIRE OUTDOORS LLC

LEGEND

	DRAINAGE AREA
	FLOW PATH
	REACH
	SOIL BOUNDARY
	TIME OF CONCENTRATION METHOD DIVIDER
	REACH DIVIDER



0 100' 200'



LEGEND

--- DRAINAGE AREA

--- FLOW PATH

--- REACH

--- SOIL BOUNDARY

--- TIME OF CONCENTRATION METHOD DIVIDER

● REACH DIVIDER

DATE: 11/1/2022

DRAWN BY: RBF

CHECKED BY: RBF

APPROVED BY: RBF

SHEET NO.: SWM-QA-PR-5

REV. #

DATE

DESCRIPTION

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PROPOSED STORMWATER QUANTITY ANALYSIS - KEY SHEET

OF THE LANDS OF

ASPIRE - APARTMENTS

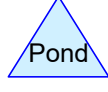
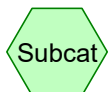
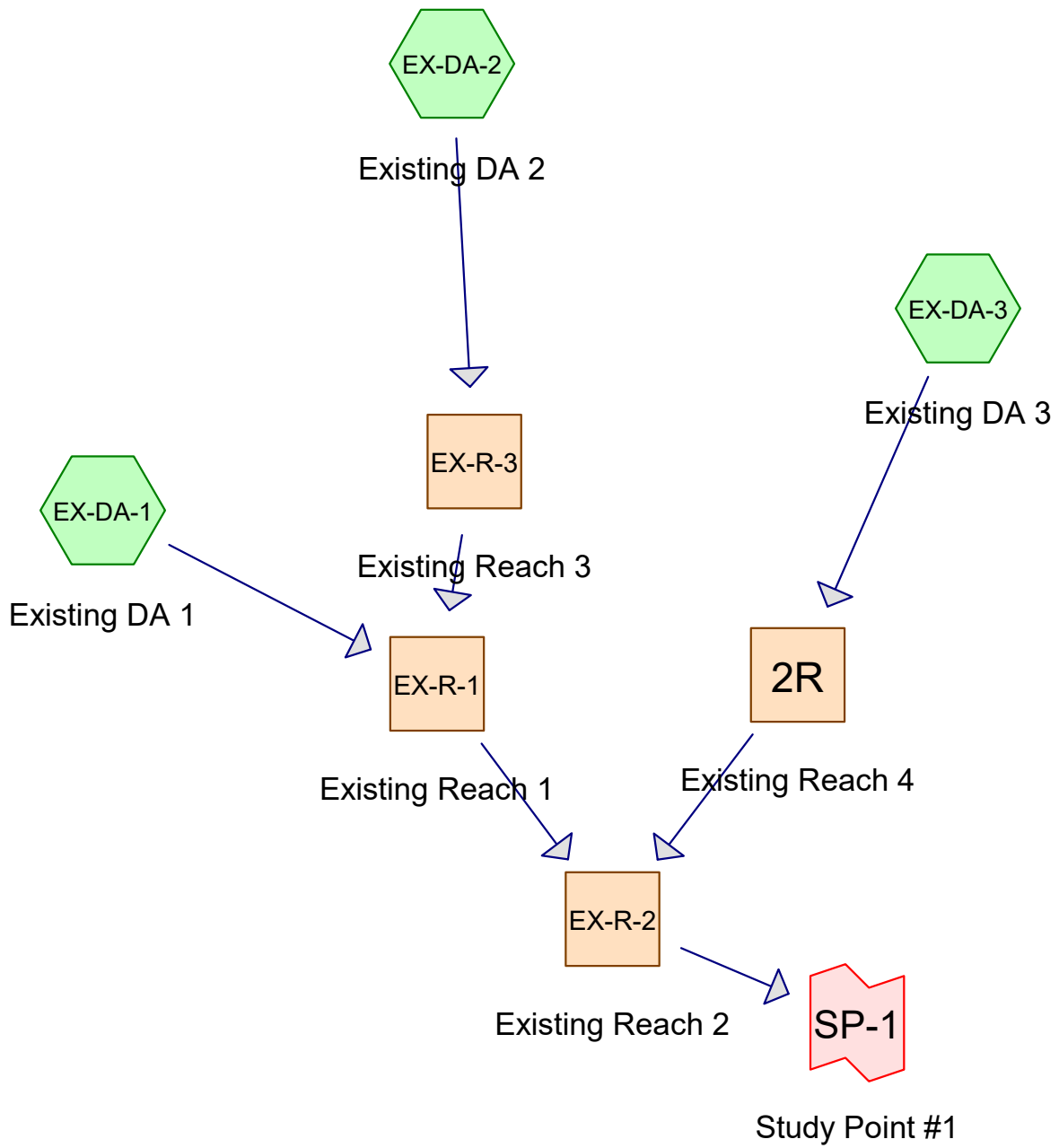
TAX MAP 26, GRID 20, PARCEL 186

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR ASPIRE OUTDOORS LLC

Page 62 of 421

2-Year Existing Conditions Analysis



Routing Diagram for Aspire - Existing
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Aspire - Existing

Prepared by {enter your company name here}

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.455	61	1/4 acre lots, 38% imp, HSG A (EX-DA-1)
67.726	75	1/4 acre lots, 38% imp, HSG B (EX-DA-1)
103.031	83	1/4 acre lots, 38% imp, HSG C (EX-DA-1)
49.521	87	1/4 acre lots, 38% imp, HSG D (EX-DA-1)
0.334	98	Paved parking, HSG B (EX-DA-2)
27.005	78	Row crops, straight row, Good, HSG B (EX-DA-1, EX-DA-2, EX-DA-3)
99.126	85	Row crops, straight row, Good, HSG C (EX-DA-1, EX-DA-2, EX-DA-3)
18.854	89	Row crops, straight row, Good, HSG D (EX-DA-1)
16.164	55	Woods, Good, HSG B (EX-DA-1)
18.757	70	Woods, Good, HSG C (EX-DA-1, EX-DA-2, EX-DA-3)
42.640	77	Woods, Good, HSG D (EX-DA-1)

Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-DA-1: Existing DA 1 Runoff Area=18,645,844 sf 19.86% Impervious Runoff Depth=1.56"
Flow Length=4,740' Tc=43.0 min CN=80 Runoff=270.04 cfs 55.554 af

Subcatchment EX-DA-2: Existing DA 2 Runoff Area=417,449 sf 3.48% Impervious Runoff Depth=1.49"
Flow Length=1,003' Tc=16.3 min CN=79 Runoff=11.56 cfs 1.189 af

Subcatchment EX-DA-3: Existing DA 3 Runoff Area=391,168 sf 0.00% Impervious Runoff Depth=1.56"
Flow Length=788' Tc=15.3 min CN=80 Runoff=11.86 cfs 1.165 af

Reach 2R: Existing Reach 4 Avg. Flow Depth=0.77' Max Vel=0.90 fps Inflow=11.86 cfs 1.165 af
n=0.100 L=564.0' S=0.0168 '/' Capacity=3.82 cfs Outflow=9.37 cfs 1.165 af

Reach EX-R-1: Existing Reach 1 Avg. Flow Depth=3.81' Max Vel=3.84 fps Inflow=277.94 cfs 56.743 af
n=0.040 L=532.0' S=0.0038 '/' Capacity=177.63 cfs Outflow=276.70 cfs 56.743 af

Reach EX-R-2: Existing Reach 2 Avg. Flow Depth=4.39' Max Vel=3.22 fps Inflow=284.24 cfs 57.908 af
n=0.040 L=819.0' S=0.0024 '/' Capacity=143.16 cfs Outflow=280.31 cfs 57.908 af

Reach EX-R-3: Existing Reach 3 Avg. Flow Depth=1.22' Max Vel=1.15 fps Inflow=11.56 cfs 1.189 af
n=0.040 L=729.0' S=0.0014 '/' Capacity=27.19 cfs Outflow=9.37 cfs 1.189 af

Link SP-1: Study Point #1

Inflow=280.31 cfs 57.908 af
Primary=280.31 cfs 57.908 af

Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

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Summary for Subcatchment EX-DA-1: Existing DA 1

Runoff = 270.04 cfs @ 12.45 hrs, Volume= 55.554 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
150,521	61	1/4 acre lots, 38% imp, HSG A
2,950,162	75	1/4 acre lots, 38% imp, HSG B
704,124	55	Woods, Good, HSG B
1,014,991	78	Row crops, straight row, Good, HSG B
4,488,021	83	1/4 acre lots, 38% imp, HSG C
574,033	70	Woods, Good, HSG C
3,928,165	85	Row crops, straight row, Good, HSG C
2,157,149	87	1/4 acre lots, 38% imp, HSG D
1,857,395	77	Woods, Good, HSG D
821,283	89	Row crops, straight row, Good, HSG D
18,645,844	80	Weighted Average
14,942,420		80.14% Pervious Area
3,703,424		19.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
16.0	1,441	0.0100	1.50		Shallow Concentrated Flow, Ag Ditch Grassed Waterway Kv= 15.0 fps
11.5	1,035	0.0100	1.50		Shallow Concentrated Flow, Mathewstown Rd North Swale Grassed Waterway Kv= 15.0 fps
0.9	197	0.0030	3.85	6.80	Pipe Channel, Culvert under Mile Post Rd 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011 Concrete pipe, straight & clean
2.2	240	0.0150	1.84		Shallow Concentrated Flow, Mathewstown Rd - North Swale before Grassed Waterway Kv= 15.0 fps
0.1	51	0.0030	8.59	168.59	Pipe Channel, Culvert crossing Mathewstown Rd to Hosewells Branch 60.0" Round Area= 19.6 sf Perim= 15.7' r= 1.25' n= 0.011 Concrete pipe, straight & clean
7.7	1,676	0.0050	3.62	75.95	Channel Flow, Hosewells Branch Area= 21.0 sf Perim= 13.0' r= 1.62' n= 0.040 Winding stream, pools & shoals
43.0	4,740	Total			

Aspire - Existing

Prepared by {enter your company name here}

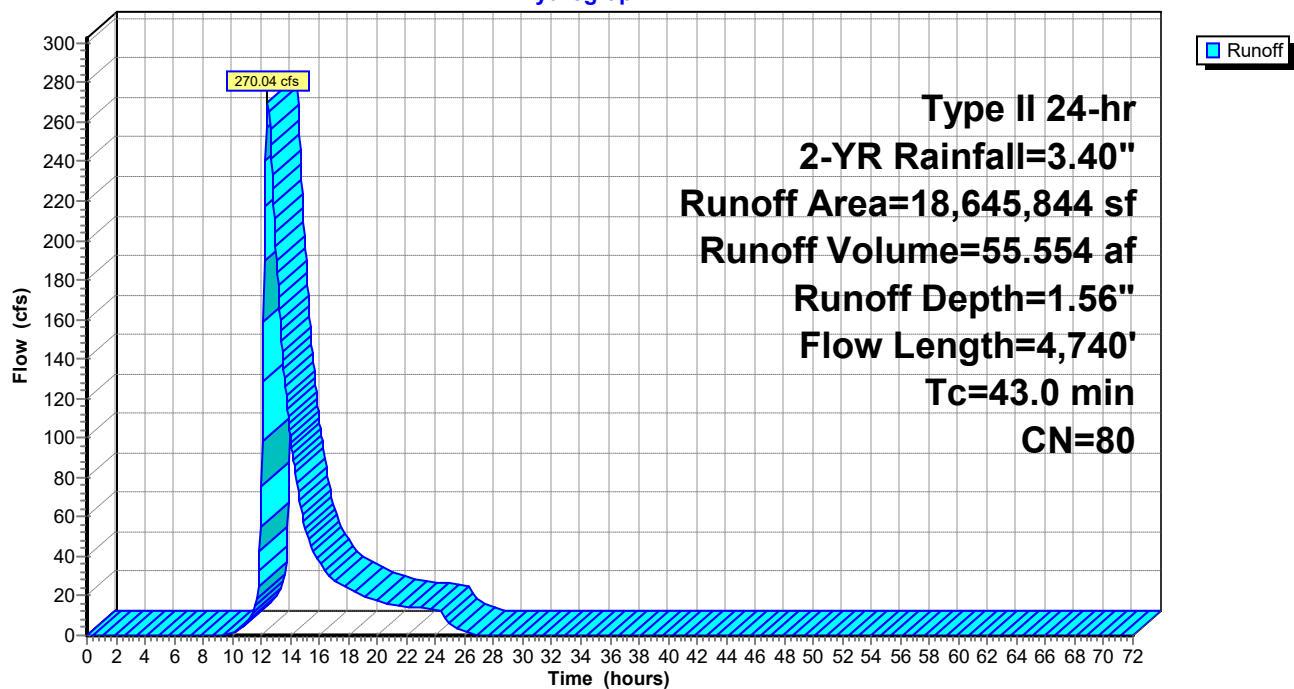
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Type II 24-hr 2-YR Rainfall=3.40"

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Subcatchment EX-DA-1: Existing DA 1

Hydrograph



Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Subcatchment EX-DA-1: Existing DA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	1.56	0.00
1.00	0.04	0.00	0.00	53.00	3.40	1.56	0.00
2.00	0.07	0.00	0.00	54.00	3.40	1.56	0.00
3.00	0.12	0.00	0.00	55.00	3.40	1.56	0.00
4.00	0.16	0.00	0.00	56.00	3.40	1.56	0.00
5.00	0.21	0.00	0.00	57.00	3.40	1.56	0.00
6.00	0.27	0.00	0.00	58.00	3.40	1.56	0.00
7.00	0.34	0.00	0.00	59.00	3.40	1.56	0.00
8.00	0.41	0.00	0.00	60.00	3.40	1.56	0.00
9.00	0.50	0.00	0.00	61.00	3.40	1.56	0.00
10.00	0.62	0.01	0.93	62.00	3.40	1.56	0.00
11.00	0.80	0.03	6.32	63.00	3.40	1.56	0.00
12.00	2.25	0.72	75.21	64.00	3.40	1.56	0.00
13.00	2.62	0.98	196.64	65.00	3.40	1.56	0.00
14.00	2.79	1.09	100.73	66.00	3.40	1.56	0.00
15.00	2.90	1.18	55.02	67.00	3.40	1.56	0.00
16.00	2.99	1.24	36.65	68.00	3.40	1.56	0.00
17.00	3.07	1.30	27.35	69.00	3.40	1.56	0.00
18.00	3.13	1.35	23.39	70.00	3.40	1.56	0.00
19.00	3.19	1.39	20.46	71.00	3.40	1.56	0.00
20.00	3.24	1.43	17.73	72.00	3.40	1.56	0.00
21.00	3.28	1.46	15.51				
22.00	3.32	1.50	14.45				
23.00	3.36	1.53	13.80				
24.00	3.40	1.56	13.26				
25.00	3.40	1.56	5.72				
26.00	3.40	1.56	1.59				
27.00	3.40	1.56	0.33				
28.00	3.40	1.56	0.05				
29.00	3.40	1.56	0.00				
30.00	3.40	1.56	0.00				
31.00	3.40	1.56	0.00				
32.00	3.40	1.56	0.00				
33.00	3.40	1.56	0.00				
34.00	3.40	1.56	0.00				
35.00	3.40	1.56	0.00				
36.00	3.40	1.56	0.00				
37.00	3.40	1.56	0.00				
38.00	3.40	1.56	0.00				
39.00	3.40	1.56	0.00				
40.00	3.40	1.56	0.00				
41.00	3.40	1.56	0.00				
42.00	3.40	1.56	0.00				
43.00	3.40	1.56	0.00				
44.00	3.40	1.56	0.00				
45.00	3.40	1.56	0.00				
46.00	3.40	1.56	0.00				
47.00	3.40	1.56	0.00				
48.00	3.40	1.56	0.00				
49.00	3.40	1.56	0.00				
50.00	3.40	1.56	0.00				
51.00	3.40	1.56	0.00				

Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

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Printed 12/5/2022

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Summary for Subcatchment EX-DA-2: Existing DA 2

Runoff = 11.56 cfs @ 12.11 hrs, Volume= 1.189 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
14,528	98	Paved parking, HSG B
111,725	78	Row crops, straight row, Good, HSG B
162,322	85	Row crops, straight row, Good, HSG C
128,874	70	Woods, Good, HSG C
417,449	79	Weighted Average
402,921		96.52% Pervious Area
14,528		3.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0140	0.32		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
6.2	637	0.0130	1.71		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
1.1	92	0.0050	1.44		Shallow Concentrated Flow, Camac Gutter Paved Kv= 20.3 fps
3.7	174	0.0240	0.77		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.3	1,003	Total			

Aspire - Existing

Prepared by {enter your company name here}

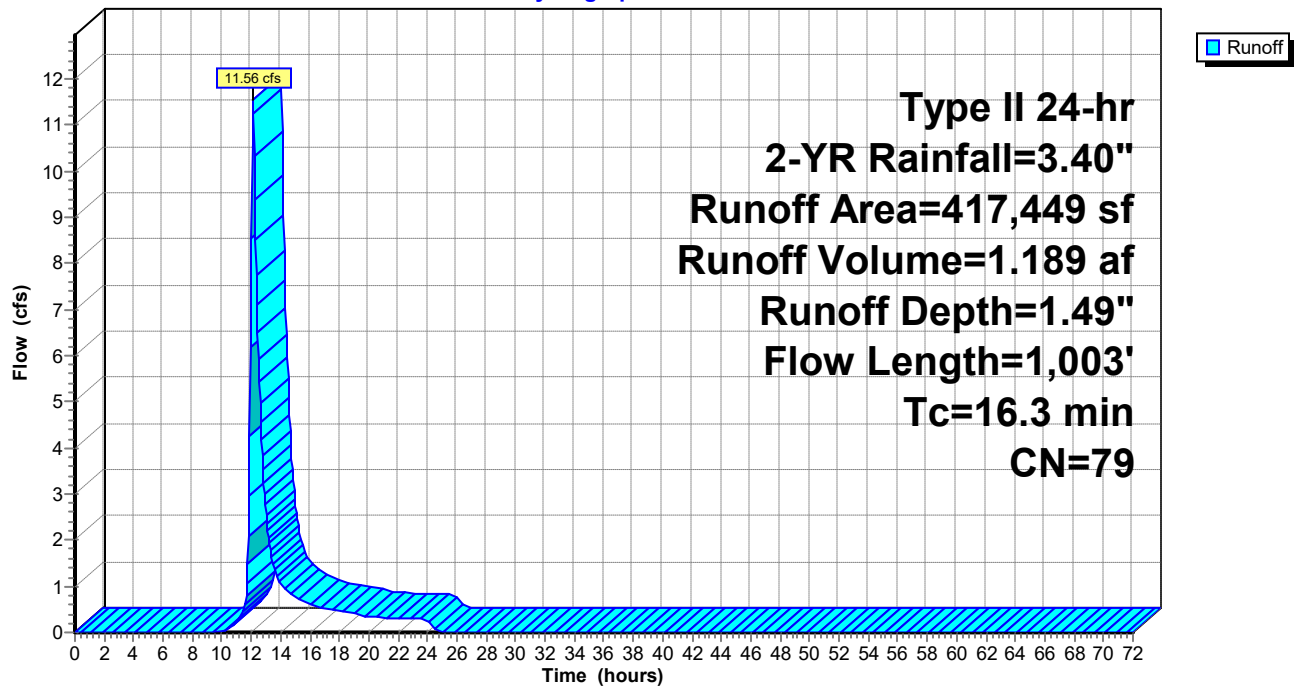
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Type II 24-hr 2-YR Rainfall=3.40"

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Subcatchment EX-DA-2: Existing DA 2

Hydrograph



Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Subcatchment EX-DA-2: Existing DA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	1.49	0.00
1.00	0.04	0.00	0.00	53.00	3.40	1.49	0.00
2.00	0.07	0.00	0.00	54.00	3.40	1.49	0.00
3.00	0.12	0.00	0.00	55.00	3.40	1.49	0.00
4.00	0.16	0.00	0.00	56.00	3.40	1.49	0.00
5.00	0.21	0.00	0.00	57.00	3.40	1.49	0.00
6.00	0.27	0.00	0.00	58.00	3.40	1.49	0.00
7.00	0.34	0.00	0.00	59.00	3.40	1.49	0.00
8.00	0.41	0.00	0.00	60.00	3.40	1.49	0.00
9.00	0.50	0.00	0.00	61.00	3.40	1.49	0.00
10.00	0.62	0.00	0.03	62.00	3.40	1.49	0.00
11.00	0.80	0.02	0.24	63.00	3.40	1.49	0.00
12.00	2.25	0.68	8.55	64.00	3.40	1.49	0.00
13.00	2.62	0.92	2.56	65.00	3.40	1.49	0.00
14.00	2.79	1.04	1.06	66.00	3.40	1.49	0.00
15.00	2.90	1.12	0.78	67.00	3.40	1.49	0.00
16.00	2.99	1.18	0.62	68.00	3.40	1.49	0.00
17.00	3.07	1.24	0.52	69.00	3.40	1.49	0.00
18.00	3.13	1.29	0.46	70.00	3.40	1.49	0.00
19.00	3.19	1.33	0.41	71.00	3.40	1.49	0.00
20.00	3.24	1.36	0.35	72.00	3.40	1.49	0.00
21.00	3.28	1.40	0.32				
22.00	3.32	1.43	0.31				
23.00	3.36	1.46	0.29				
24.00	3.40	1.49	0.28				
25.00	3.40	1.49	0.01				
26.00	3.40	1.49	0.00				
27.00	3.40	1.49	0.00				
28.00	3.40	1.49	0.00				
29.00	3.40	1.49	0.00				
30.00	3.40	1.49	0.00				
31.00	3.40	1.49	0.00				
32.00	3.40	1.49	0.00				
33.00	3.40	1.49	0.00				
34.00	3.40	1.49	0.00				
35.00	3.40	1.49	0.00				
36.00	3.40	1.49	0.00				
37.00	3.40	1.49	0.00				
38.00	3.40	1.49	0.00				
39.00	3.40	1.49	0.00				
40.00	3.40	1.49	0.00				
41.00	3.40	1.49	0.00				
42.00	3.40	1.49	0.00				
43.00	3.40	1.49	0.00				
44.00	3.40	1.49	0.00				
45.00	3.40	1.49	0.00				
46.00	3.40	1.49	0.00				
47.00	3.40	1.49	0.00				
48.00	3.40	1.49	0.00				
49.00	3.40	1.49	0.00				
50.00	3.40	1.49	0.00				
51.00	3.40	1.49	0.00				

Aspire - Existing

Prepared by {enter your company name here}

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Subcatchment EX-DA-3: Existing DA 3

Runoff = 11.86 cfs @ 12.10 hrs, Volume= 1.165 af, Depth= 1.56"

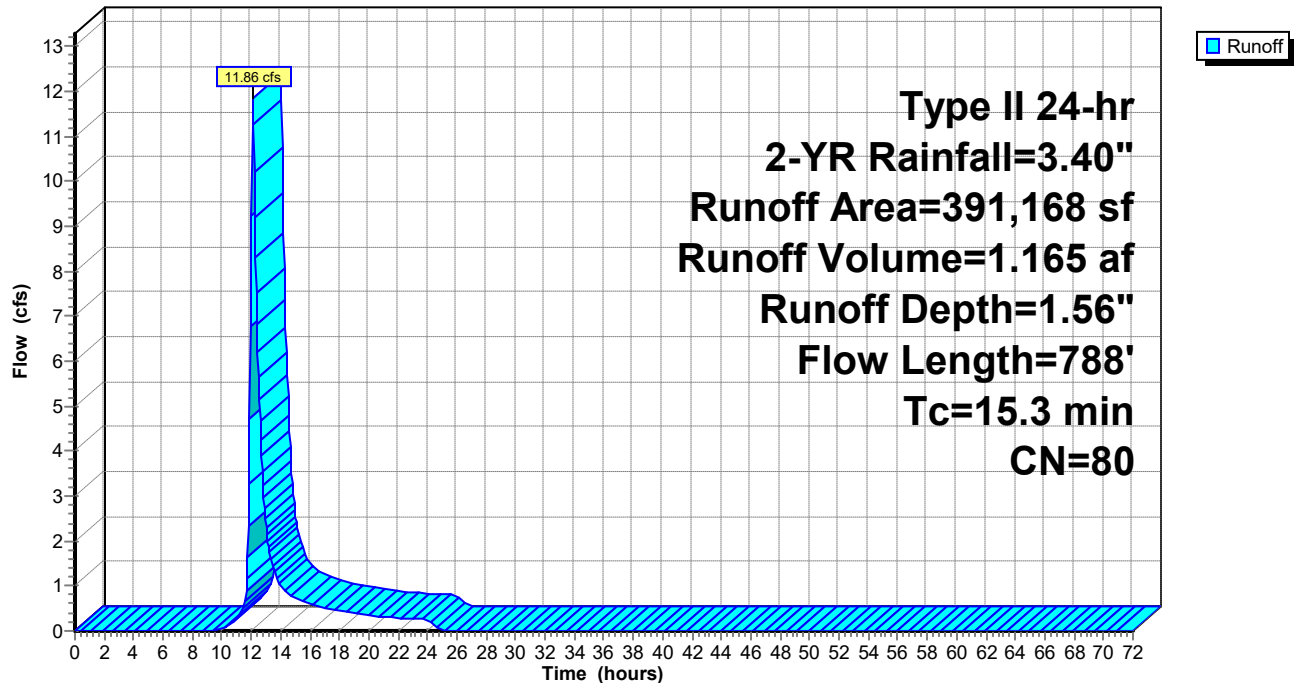
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
49,610	78	Row crops, straight row, Good, HSG B
227,428	85	Row crops, straight row, Good, HSG C
114,130	70	Woods, Good, HSG C
391,168	80	Weighted Average
391,168		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0110	0.29		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
4.3	477	0.0150	1.84		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
5.2	211	0.0180	0.67		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
15.3	788	Total			

Subcatchment EX-DA-3: Existing DA 3

Hydrograph



Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

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Printed 12/5/2022

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Hydrograph for Subcatchment EX-DA-3: Existing DA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	1.56	0.00
1.00	0.04	0.00	0.00	53.00	3.40	1.56	0.00
2.00	0.07	0.00	0.00	54.00	3.40	1.56	0.00
3.00	0.12	0.00	0.00	55.00	3.40	1.56	0.00
4.00	0.16	0.00	0.00	56.00	3.40	1.56	0.00
5.00	0.21	0.00	0.00	57.00	3.40	1.56	0.00
6.00	0.27	0.00	0.00	58.00	3.40	1.56	0.00
7.00	0.34	0.00	0.00	59.00	3.40	1.56	0.00
8.00	0.41	0.00	0.00	60.00	3.40	1.56	0.00
9.00	0.50	0.00	0.00	61.00	3.40	1.56	0.00
10.00	0.62	0.01	0.06	62.00	3.40	1.56	0.00
11.00	0.80	0.03	0.28	63.00	3.40	1.56	0.00
12.00	2.25	0.72	9.24	64.00	3.40	1.56	0.00
13.00	2.62	0.98	2.32	65.00	3.40	1.56	0.00
14.00	2.79	1.09	1.01	66.00	3.40	1.56	0.00
15.00	2.90	1.18	0.74	67.00	3.40	1.56	0.00
16.00	2.99	1.24	0.59	68.00	3.40	1.56	0.00
17.00	3.07	1.30	0.50	69.00	3.40	1.56	0.00
18.00	3.13	1.35	0.44	70.00	3.40	1.56	0.00
19.00	3.19	1.39	0.39	71.00	3.40	1.56	0.00
20.00	3.24	1.43	0.33	72.00	3.40	1.56	0.00
21.00	3.28	1.46	0.30				
22.00	3.32	1.50	0.29				
23.00	3.36	1.53	0.28				
24.00	3.40	1.56	0.27				
25.00	3.40	1.56	0.01				
26.00	3.40	1.56	0.00				
27.00	3.40	1.56	0.00				
28.00	3.40	1.56	0.00				
29.00	3.40	1.56	0.00				
30.00	3.40	1.56	0.00				
31.00	3.40	1.56	0.00				
32.00	3.40	1.56	0.00				
33.00	3.40	1.56	0.00				
34.00	3.40	1.56	0.00				
35.00	3.40	1.56	0.00				
36.00	3.40	1.56	0.00				
37.00	3.40	1.56	0.00				
38.00	3.40	1.56	0.00				
39.00	3.40	1.56	0.00				
40.00	3.40	1.56	0.00				
41.00	3.40	1.56	0.00				
42.00	3.40	1.56	0.00				
43.00	3.40	1.56	0.00				
44.00	3.40	1.56	0.00				
45.00	3.40	1.56	0.00				
46.00	3.40	1.56	0.00				
47.00	3.40	1.56	0.00				
48.00	3.40	1.56	0.00				
49.00	3.40	1.56	0.00				
50.00	3.40	1.56	0.00				
51.00	3.40	1.56	0.00				

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Reach 2R: Existing Reach 4

Inflow Area = 8.980 ac, 0.00% Impervious, Inflow Depth = 1.56" for 2-YR event
Inflow = 11.86 cfs @ 12.10 hrs, Volume= 1.165 af
Outflow = 9.37 cfs @ 12.25 hrs, Volume= 1.165 af, Atten= 21%, Lag= 8.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.90 fps, Min. Travel Time= 10.5 min

Avg. Velocity= 0.24 fps, Avg. Travel Time= 38.4 min

Peak Storage= 5,900 cf @ 12.25 hrs

Average Depth at Peak Storage= 0.77'

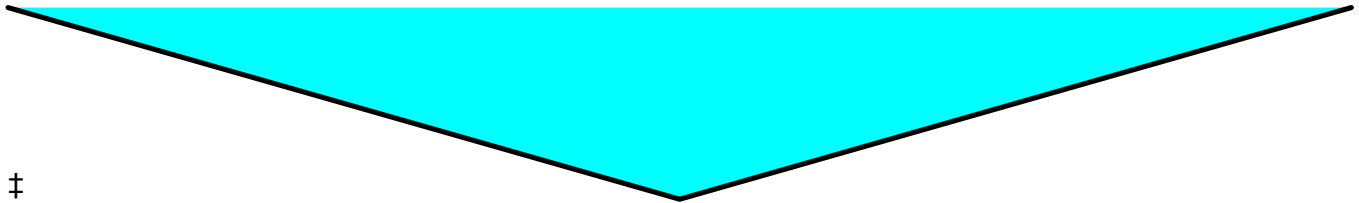
Bank-Full Depth= 0.50' Flow Area= 5.0 sf, Capacity= 3.82 cfs

0.00' x 0.50' deep channel, n= 0.100 Heavy timber, flow below branches

Side Slope Z-value= 20.0 ' Top Width= 20.00'

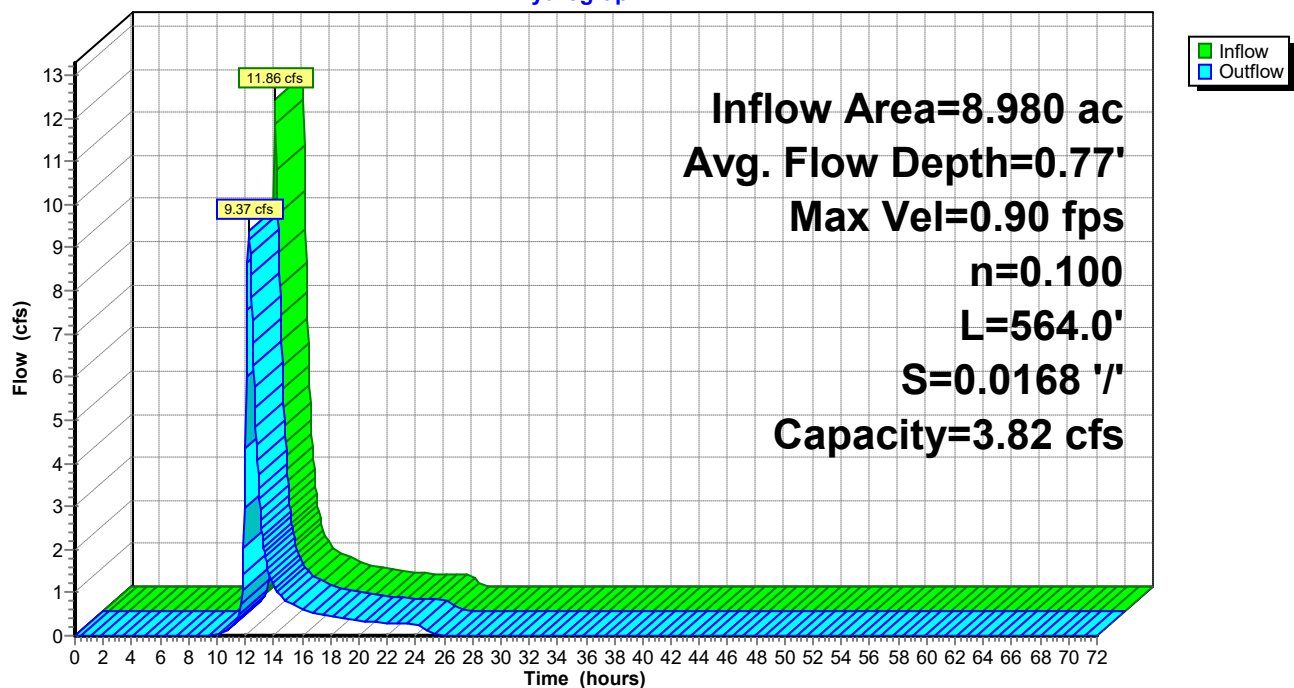
Length= 564.0' Slope= 0.0168 '/'

Inlet Invert= 49.50', Outlet Invert= 40.00'



Reach 2R: Existing Reach 4

Hydrograph



Aspire - Existing

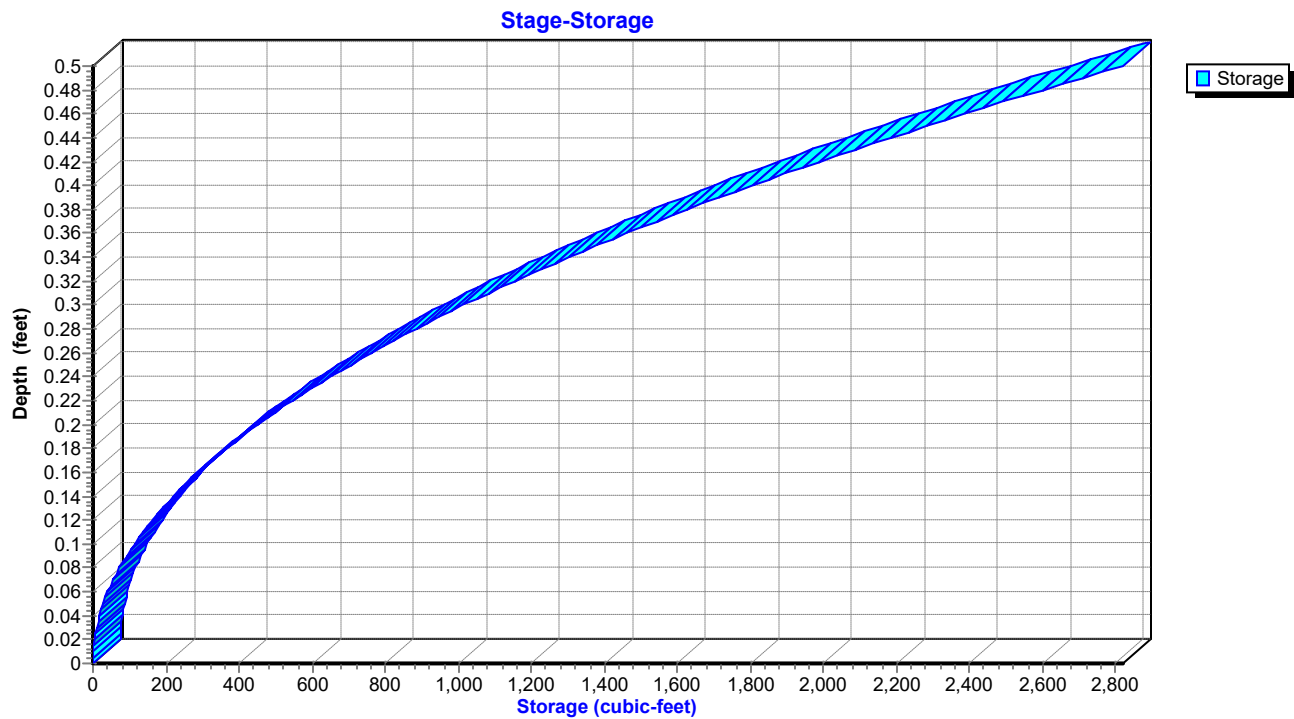
Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Reach 2R: Existing Reach 4



Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach 2R: Existing Reach 4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	49.50	0.00
2.50	0.00	0	49.50	0.00
5.00	0.00	0	49.50	0.00
7.50	0.00	0	49.50	0.00
10.00	0.06	53	49.57	0.02
12.50	5.64	4,757	50.17	7.31
15.00	0.74	860	49.78	0.79
17.50	0.47	600	49.73	0.49
20.00	0.33	467	49.70	0.35
22.50	0.29	407	49.69	0.29
25.00	0.01	133	49.61	0.07
27.50	0.00	9	49.53	0.00
30.00	0.00	2	49.51	0.00
32.50	0.00	1	49.51	0.00
35.00	0.00	0	49.51	0.00
37.50	0.00	0	49.50	0.00
40.00	0.00	0	49.50	0.00
42.50	0.00	0	49.50	0.00
45.00	0.00	0	49.50	0.00
47.50	0.00	0	49.50	0.00
50.00	0.00	0	49.50	0.00
52.50	0.00	0	49.50	0.00
55.00	0.00	0	49.50	0.00
57.50	0.00	0	49.50	0.00
60.00	0.00	0	49.50	0.00
62.50	0.00	0	49.50	0.00
65.00	0.00	0	49.50	0.00
67.50	0.00	0	49.50	0.00
70.00	0.00	0	49.50	0.00

Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Stage-Area-Storage for Reach 2R: Existing Reach 4

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
49.50	0.0	0
49.51	0.0	1
49.52	0.0	5
49.53	0.0	10
49.54	0.0	18
49.55	0.1	28
49.56	0.1	41
49.57	0.1	55
49.58	0.1	72
49.59	0.2	91
49.60	0.2	113
49.61	0.2	136
49.62	0.3	162
49.63	0.3	191
49.64	0.4	221
49.65	0.4	254
49.66	0.5	289
49.67	0.6	326
49.68	0.6	365
49.69	0.7	407
49.70	0.8	451
49.71	0.9	497
49.72	1.0	546
49.73	1.1	597
49.74	1.2	650
49.75	1.3	705
49.76	1.4	763
49.77	1.5	822
49.78	1.6	884
49.79	1.7	949
49.80	1.8	1,015
49.81	1.9	1,084
49.82	2.0	1,155
49.83	2.2	1,228
49.84	2.3	1,304
49.85	2.5	1,382
49.86	2.6	1,462
49.87	2.7	1,544
49.88	2.9	1,629
49.89	3.0	1,716
49.90	3.2	1,805
49.91	3.4	1,896
49.92	3.5	1,990
49.93	3.7	2,086
49.94	3.9	2,184
49.95	4.0	2,284
49.96	4.2	2,387
49.97	4.4	2,492
49.98	4.6	2,599
49.99	4.8	2,708
50.00	5.0	2,820

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Reach EX-R-1: Existing Reach 1

Inflow Area = 437.633 ac, 19.50% Impervious, Inflow Depth = 1.56" for 2-YR event
Inflow = 277.94 cfs @ 12.45 hrs, Volume= 56.743 af
Outflow = 276.70 cfs @ 12.48 hrs, Volume= 56.743 af, Atten= 0%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.84 fps, Min. Travel Time= 2.3 min

Avg. Velocity= 1.20 fps, Avg. Travel Time= 7.4 min

Peak Storage= 38,288 cf @ 12.48 hrs

Average Depth at Peak Storage= 3.81'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 177.63 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 ' Top Width= 26.00'

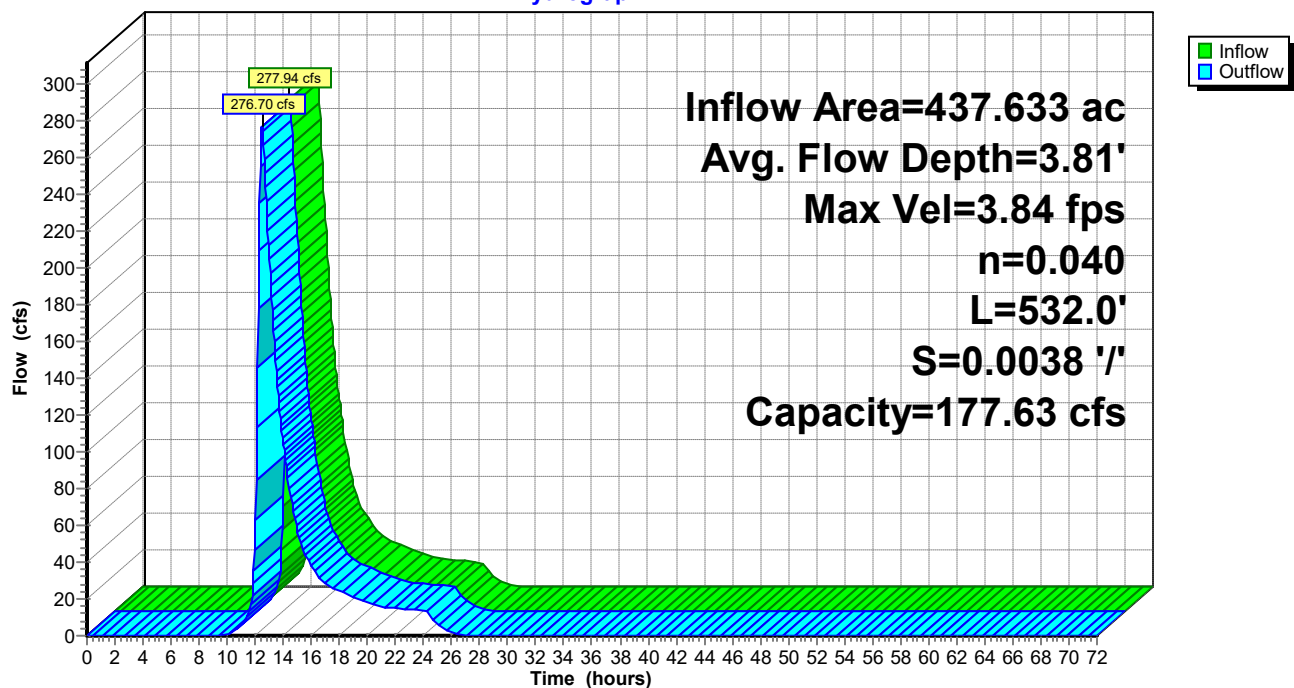
Length= 532.0' Slope= 0.0038 '/'

Inlet Invert= 42.00', Outlet Invert= 40.00'

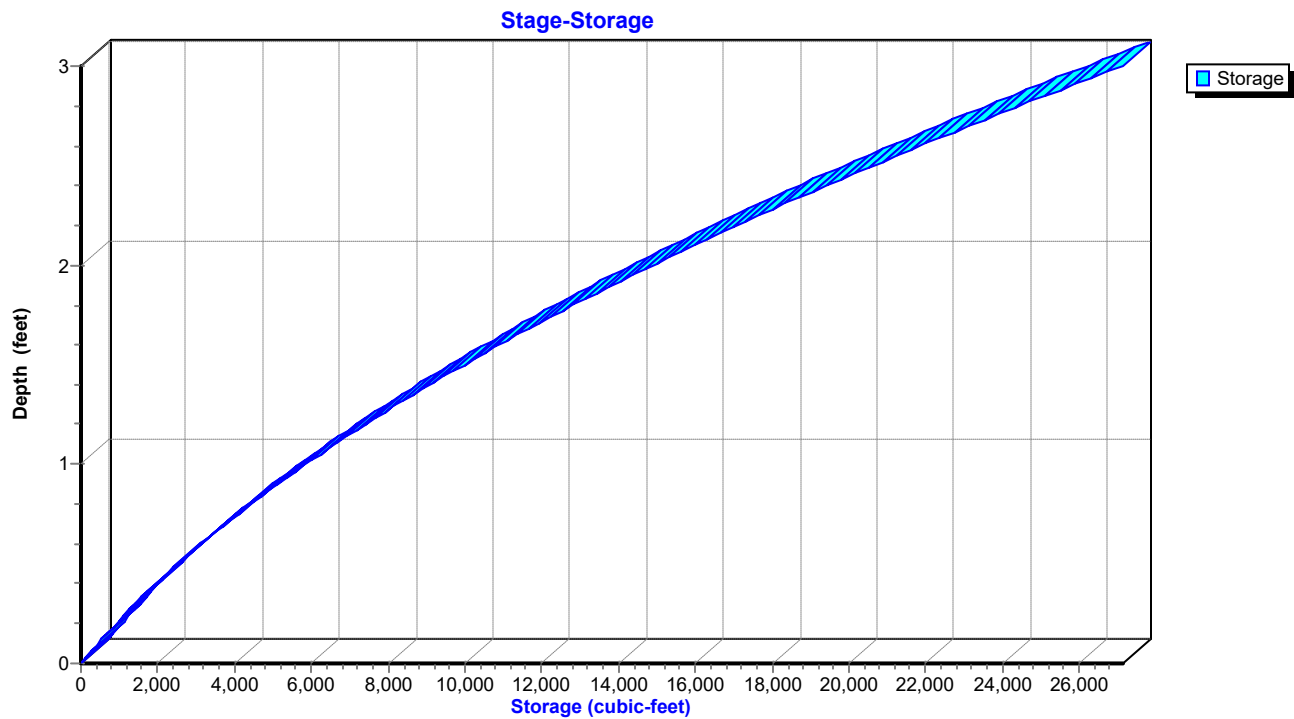


Reach EX-R-1: Existing Reach 1

Hydrograph



Reach EX-R-1: Existing Reach 1



Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach EX-R-1: Existing Reach 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	42.00	0.00
2.50	0.00	0	42.00	0.00
5.00	0.00	0	42.00	0.00
7.50	0.00	0	42.00	0.00
10.00	0.94	531	42.12	0.53
12.50	275.08	38,258	45.81	276.43
15.00	55.84	11,896	43.70	57.21
17.50	25.64	6,763	43.12	25.85
20.00	18.09	5,306	42.93	18.25
22.50	14.41	4,515	42.81	14.45
25.00	5.80	2,597	42.51	6.38
27.50	0.14	305	42.07	0.22
30.00	0.00	18	42.00	0.01
32.50	0.00	2	42.00	0.00
35.00	0.00	0	42.00	0.00
37.50	0.00	0	42.00	0.00
40.00	0.00	0	42.00	0.00
42.50	0.00	0	42.00	0.00
45.00	0.00	0	42.00	0.00
47.50	0.00	0	42.00	0.00
50.00	0.00	0	42.00	0.00
52.50	0.00	0	42.00	0.00
55.00	0.00	0	42.00	0.00
57.50	0.00	0	42.00	0.00
60.00	0.00	0	42.00	0.00
62.50	0.00	0	42.00	0.00
65.00	0.00	0	42.00	0.00
67.50	0.00	0	42.00	0.00
70.00	0.00	0	42.00	0.00

Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Stage-Area-Storage for Reach EX-R-1: Existing Reach 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
42.00	0.0	0	44.60	41.1	21,855
42.05	0.4	217	44.65	42.3	22,487
42.10	0.8	442	44.70	43.5	23,126
42.15	1.3	674	44.75	44.7	23,774
42.20	1.7	915	44.80	45.9	24,430
42.25	2.2	1,164	44.85	47.2	25,093
42.30	2.7	1,420	44.90	48.4	25,765
42.35	3.2	1,685	44.95	49.7	26,445
42.40	3.7	1,958	45.00	51.0	27,132
42.45	4.2	2,238			
42.50	4.8	2,527			
42.55	5.3	2,824			
42.60	5.9	3,128			
42.65	6.5	3,441			
42.70	7.1	3,762			
42.75	7.7	4,090			
42.80	8.3	4,427			
42.85	9.0	4,771			
42.90	9.6	5,123			
42.95	10.3	5,484			
43.00	11.0	5,852			
43.05	11.7	6,228			
43.10	12.4	6,613			
43.15	13.2	7,005			
43.20	13.9	7,405			
43.25	14.7	7,814			
43.30	15.5	8,230			
43.35	16.3	8,654			
43.40	17.1	9,087			
43.45	17.9	9,527			
43.50	18.8	9,975			
43.55	19.6	10,432			
43.60	20.5	10,896			
43.65	21.4	11,368			
43.70	22.3	11,848			
43.75	23.2	12,336			
43.80	24.1	12,832			
43.85	25.1	13,336			
43.90	26.0	13,848			
43.95	27.0	14,368			
44.00	28.0	14,896			
44.05	29.0	15,432			
44.10	30.0	15,976			
44.15	31.1	16,528			
44.20	32.1	17,088			
44.25	33.2	17,656			
44.30	34.3	18,232			
44.35	35.4	18,816			
44.40	36.5	19,407			
44.45	37.6	20,008			
44.50	38.8	20,615			
44.55	39.9	21,231			

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Reach EX-R-2: Existing Reach 2

Inflow Area = 446.613 ac, 19.11% Impervious, Inflow Depth = 1.56" for 2-YR event
Inflow = 284.24 cfs @ 12.48 hrs, Volume= 57.908 af
Outflow = 280.31 cfs @ 12.55 hrs, Volume= 57.908 af, Atten= 1%, Lag= 4.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.22 fps, Min. Travel Time= 4.2 min

Avg. Velocity= 0.94 fps, Avg. Travel Time= 14.5 min

Peak Storage= 71,268 cf @ 12.55 hrs

Average Depth at Peak Storage= 4.39'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 143.16 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 26.00'

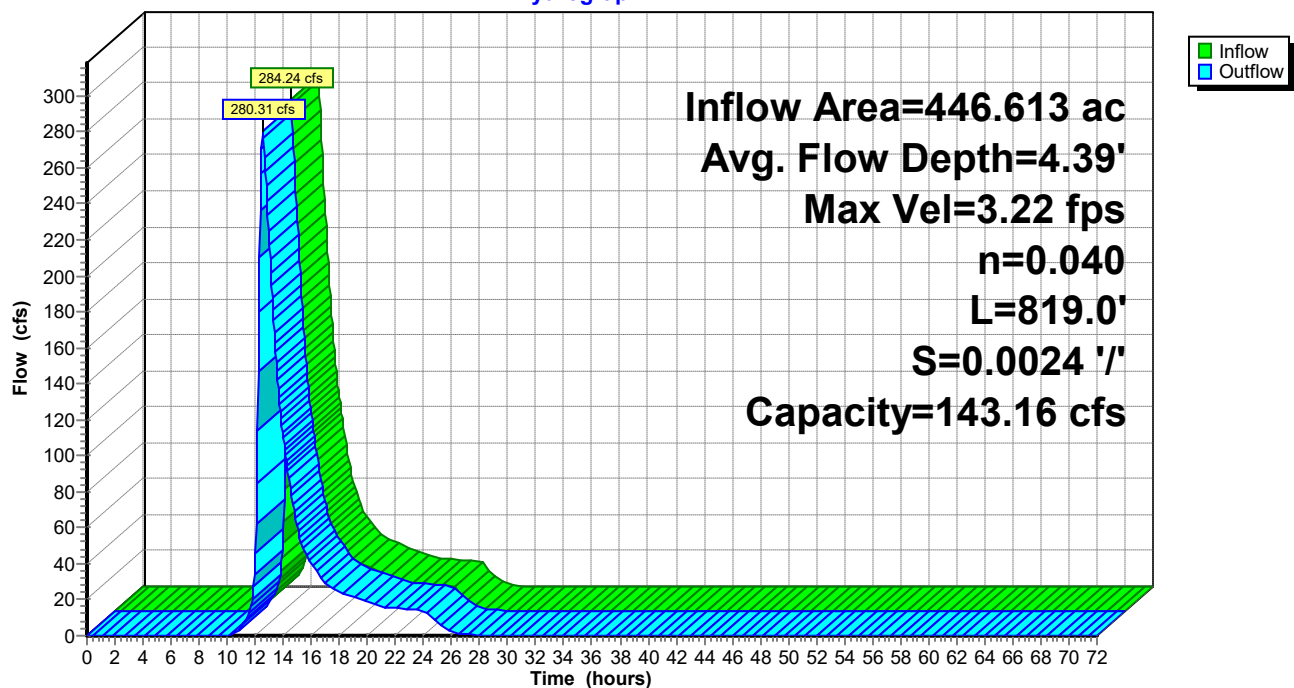
Length= 819.0' Slope= 0.0024 '/'

Inlet Invert= 40.00', Outlet Invert= 38.00'

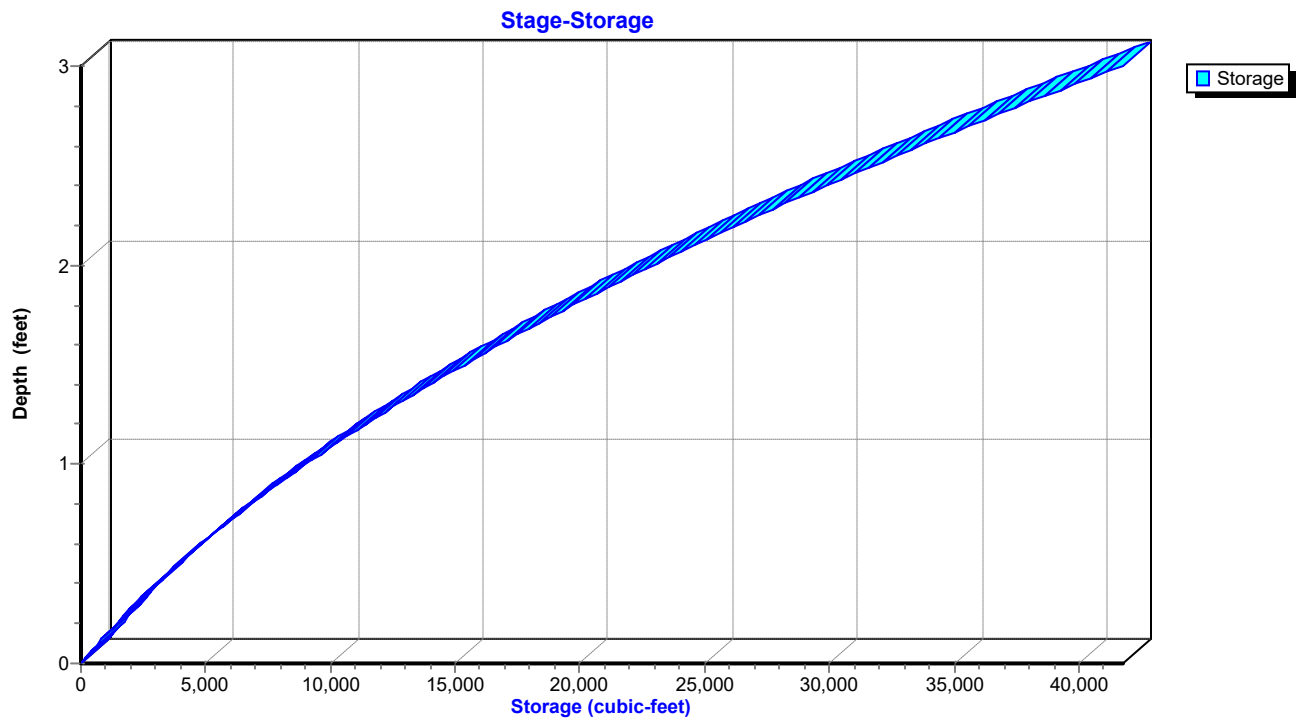


Reach EX-R-2: Existing Reach 2

Hydrograph



Reach EX-R-2: Existing Reach 2



Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach EX-R-2: Existing Reach 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	40.00	0.00
2.50	0.00	0	40.00	0.00
5.00	0.00	0	40.00	0.00
7.50	0.00	0	40.00	0.00
10.00	0.55	302	40.05	0.09
12.50	283.75	70,853	44.37	278.38
15.00	58.00	22,286	41.96	60.54
17.50	26.33	12,409	41.28	26.72
20.00	18.60	9,719	41.06	18.88
22.50	14.74	8,208	40.93	14.81
25.00	6.44	5,176	40.64	7.55
27.50	0.22	757	40.11	0.38
30.00	0.01	149	40.02	0.03
32.50	0.00	29	40.00	0.01
35.00	0.00	6	40.00	0.00
37.50	0.00	1	40.00	0.00
40.00	0.00	0	40.00	0.00
42.50	0.00	0	40.00	0.00
45.00	0.00	0	40.00	0.00
47.50	0.00	0	40.00	0.00
50.00	0.00	0	40.00	0.00
52.50	0.00	0	40.00	0.00
55.00	0.00	0	40.00	0.00
57.50	0.00	0	40.00	0.00
60.00	0.00	0	40.00	0.00
62.50	0.00	0	40.00	0.00
65.00	0.00	0	40.00	0.00
67.50	0.00	0	40.00	0.00
70.00	0.00	0	40.00	0.00

Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Stage-Area-Storage for Reach EX-R-2: Existing Reach 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
40.00	0.0	0	42.60	41.1	33,645
40.05	0.4	334	42.65	42.3	34,618
40.10	0.8	680	42.70	43.5	35,602
40.15	1.3	1,038	42.75	44.7	36,600
40.20	1.7	1,409	42.80	45.9	37,609
40.25	2.2	1,792	42.85	47.2	38,630
40.30	2.7	2,187	42.90	48.4	39,665
40.35	3.2	2,595	42.95	49.7	40,711
40.40	3.7	3,014	43.00	51.0	41,769
40.45	4.2	3,446			
40.50	4.8	3,891			
40.55	5.3	4,347			
40.60	5.9	4,816			
40.65	6.5	5,297			
40.70	7.1	5,791			
40.75	7.7	6,296			
40.80	8.3	6,815			
40.85	9.0	7,345			
40.90	9.6	7,887			
40.95	10.3	8,442			
41.00	11.0	9,009			
41.05	11.7	9,588			
41.10	12.4	10,181			
41.15	13.2	10,785			
41.20	13.9	11,400			
41.25	14.7	12,030			
41.30	15.5	12,670			
41.35	16.3	13,323			
41.40	17.1	13,989			
41.45	17.9	14,667			
41.50	18.8	15,356			
41.55	19.6	16,059			
41.60	20.5	16,774			
41.65	21.4	17,500			
41.70	22.3	18,240			
41.75	23.2	18,991			
41.80	24.1	19,754			
41.85	25.1	20,531			
41.90	26.0	21,319			
41.95	27.0	22,119			
42.00	28.0	22,932			
42.05	29.0	23,758			
42.10	30.0	24,595			
42.15	31.1	25,445			
42.20	32.1	26,307			
42.25	33.2	27,181			
42.30	34.3	28,068			
42.35	35.4	28,966			
42.40	36.5	29,877			
42.45	37.6	30,801			
42.50	38.8	31,737			
42.55	39.9	32,684			

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Reach EX-R-3: Existing Reach 3

Inflow Area = 9.583 ac, 3.48% Impervious, Inflow Depth = 1.49" for 2-YR event
Inflow = 11.56 cfs @ 12.11 hrs, Volume= 1.189 af
Outflow = 9.37 cfs @ 12.26 hrs, Volume= 1.189 af, Atten= 19%, Lag= 8.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.15 fps, Min. Travel Time= 10.6 min

Avg. Velocity= 0.30 fps, Avg. Travel Time= 39.9 min

Peak Storage= 5,959 cf @ 12.26 hrs

Average Depth at Peak Storage= 1.22'

Bank-Full Depth= 2.00' Flow Area= 18.0 sf, Capacity= 27.19 cfs

3.00' x 2.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 15.00'

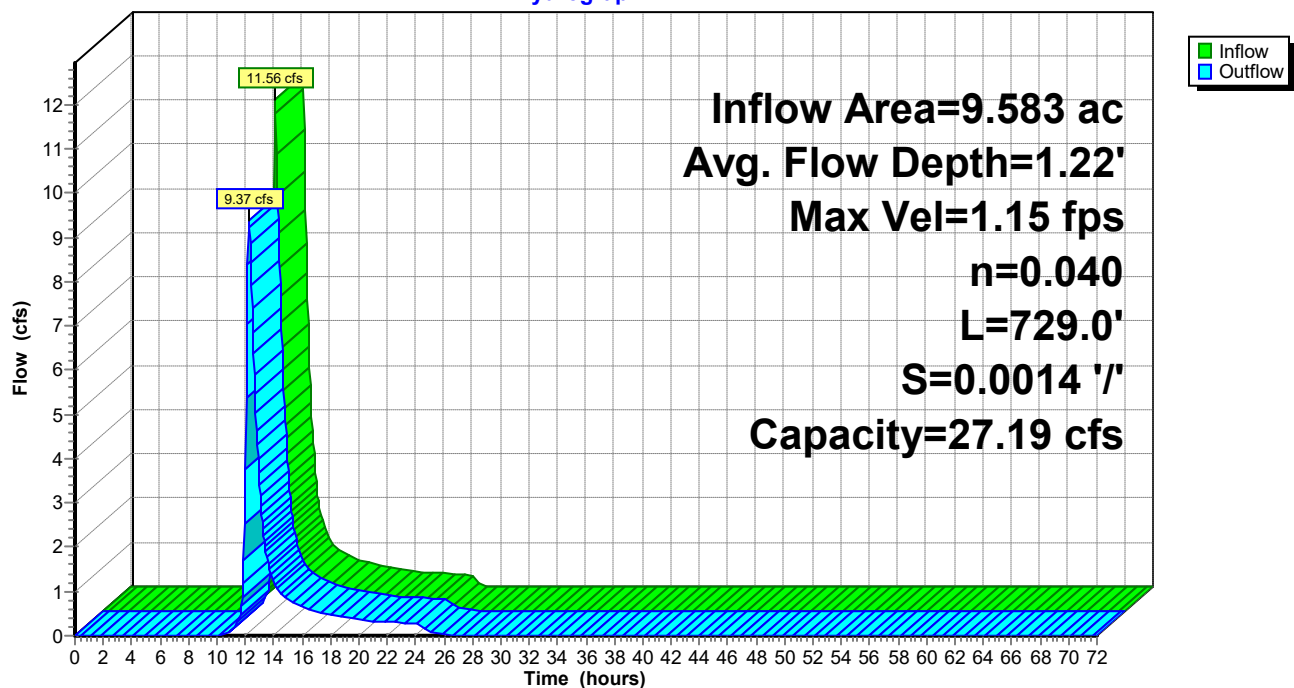
Length= 729.0' Slope= 0.0014 '/'

Inlet Invert= 43.00', Outlet Invert= 42.00'

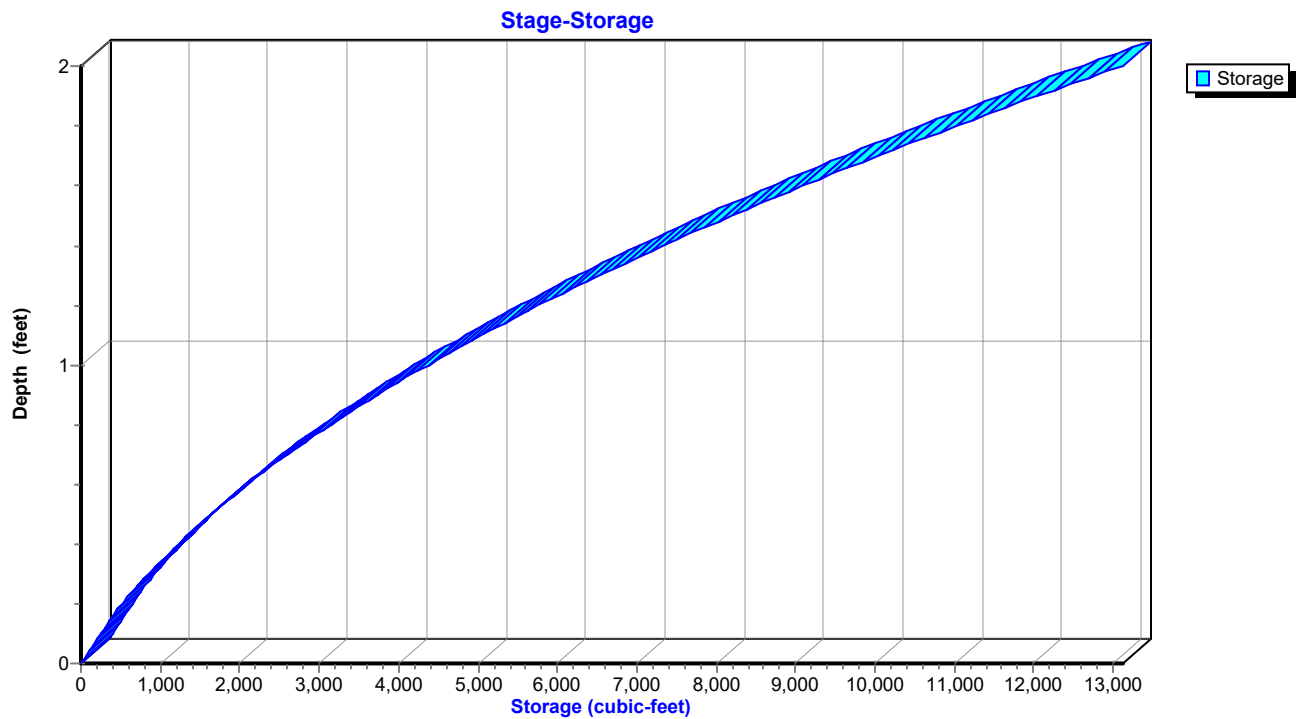


Reach EX-R-3: Existing Reach 3

Hydrograph



Reach EX-R-3: Existing Reach 3



Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Reach EX-R-3: Existing Reach 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	43.00	0.00
2.50	0.00	0	43.00	0.00
5.00	0.00	0	43.00	0.00
7.50	0.00	0	43.00	0.00
10.00	0.03	22	43.01	0.00
12.50	5.93	5,000	44.09	7.38
15.00	0.78	1,039	43.35	0.83
17.50	0.49	745	43.27	0.51
20.00	0.35	595	43.22	0.36
22.50	0.30	525	43.20	0.30
25.00	0.01	224	43.09	0.08
27.50	0.00	36	43.02	0.00
30.00	0.00	10	43.00	0.00
32.50	0.00	3	43.00	0.00
35.00	0.00	1	43.00	0.00
37.50	0.00	0	43.00	0.00
40.00	0.00	0	43.00	0.00
42.50	0.00	0	43.00	0.00
45.00	0.00	0	43.00	0.00
47.50	0.00	0	43.00	0.00
50.00	0.00	0	43.00	0.00
52.50	0.00	0	43.00	0.00
55.00	0.00	0	43.00	0.00
57.50	0.00	0	43.00	0.00
60.00	0.00	0	43.00	0.00
62.50	0.00	0	43.00	0.00
65.00	0.00	0	43.00	0.00
67.50	0.00	0	43.00	0.00
70.00	0.00	0	43.00	0.00

Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

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Stage-Area-Storage for Reach EX-R-3: Existing Reach 3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
43.00	0.0	0	44.04	6.4	4,640
43.02	0.1	45	44.06	6.6	4,776
43.04	0.1	91	44.08	6.7	4,913
43.06	0.2	139	44.10	6.9	5,052
43.08	0.3	189	44.12	7.1	5,193
43.10	0.3	241	44.14	7.3	5,335
43.12	0.4	294	44.16	7.5	5,480
43.14	0.5	349	44.18	7.7	5,626
43.16	0.6	406	44.20	7.9	5,774
43.18	0.6	465	44.22	8.1	5,923
43.20	0.7	525	44.24	8.3	6,075
43.22	0.8	587	44.26	8.5	6,228
43.24	0.9	651	44.28	8.8	6,383
43.26	1.0	716	44.30	9.0	6,539
43.28	1.1	784	44.32	9.2	6,697
43.30	1.2	853	44.34	9.4	6,858
43.32	1.3	924	44.36	9.6	7,019
43.34	1.4	996	44.38	9.9	7,183
43.36	1.5	1,071	44.40	10.1	7,348
43.38	1.6	1,147	44.42	10.3	7,515
43.40	1.7	1,225	44.44	10.5	7,684
43.42	1.8	1,304	44.46	10.8	7,855
43.44	1.9	1,386	44.48	11.0	8,027
43.46	2.0	1,469	44.50	11.3	8,201
43.48	2.1	1,554	44.52	11.5	8,377
43.50	2.3	1,640	44.54	11.7	8,555
43.52	2.4	1,729	44.56	12.0	8,734
43.54	2.5	1,819	44.58	12.2	8,915
43.56	2.6	1,911	44.60	12.5	9,098
43.58	2.7	2,004	44.62	12.7	9,283
43.60	2.9	2,100	44.64	13.0	9,469
43.62	3.0	2,197	44.66	13.2	9,657
43.64	3.1	2,295	44.68	13.5	9,847
43.66	3.3	2,396	44.70	13.8	10,038
43.68	3.4	2,498	44.72	14.0	10,232
43.70	3.6	2,603	44.74	14.3	10,427
43.72	3.7	2,708	44.76	14.6	10,624
43.74	3.9	2,816	44.78	14.8	10,822
43.76	4.0	2,925	44.80	15.1	11,022
43.78	4.2	3,036	44.82	15.4	11,225
43.80	4.3	3,149	44.84	15.7	11,428
43.82	4.5	3,264	44.86	16.0	11,634
43.84	4.6	3,380	44.88	16.2	11,841
43.86	4.8	3,498	44.90	16.5	12,050
43.88	5.0	3,618	44.92	16.8	12,261
43.90	5.1	3,740	44.94	17.1	12,474
43.92	5.3	3,863	44.96	17.4	12,688
43.94	5.5	3,988	44.98	17.7	12,904
43.96	5.6	4,115	45.00	18.0	13,122
43.98	5.8	4,244			
44.00	6.0	4,374			
44.02	6.2	4,506			

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

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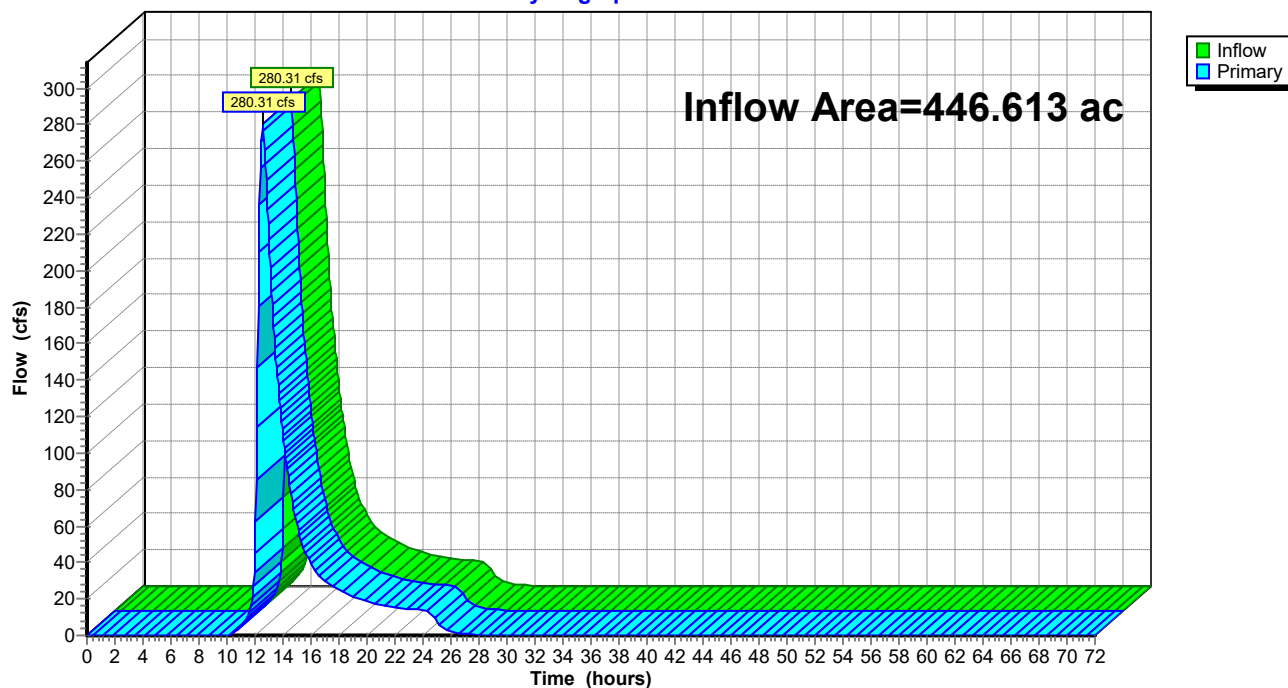
Summary for Link SP-1: Study Point #1

Inflow Area = 446.613 ac, 19.11% Impervious, Inflow Depth = 1.56" for 2-YR event
Inflow = 280.31 cfs @ 12.55 hrs, Volume= 57.908 af
Primary = 280.31 cfs @ 12.55 hrs, Volume= 57.908 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link SP-1: Study Point #1

Hydrograph



Aspire - Existing

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

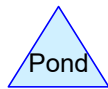
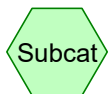
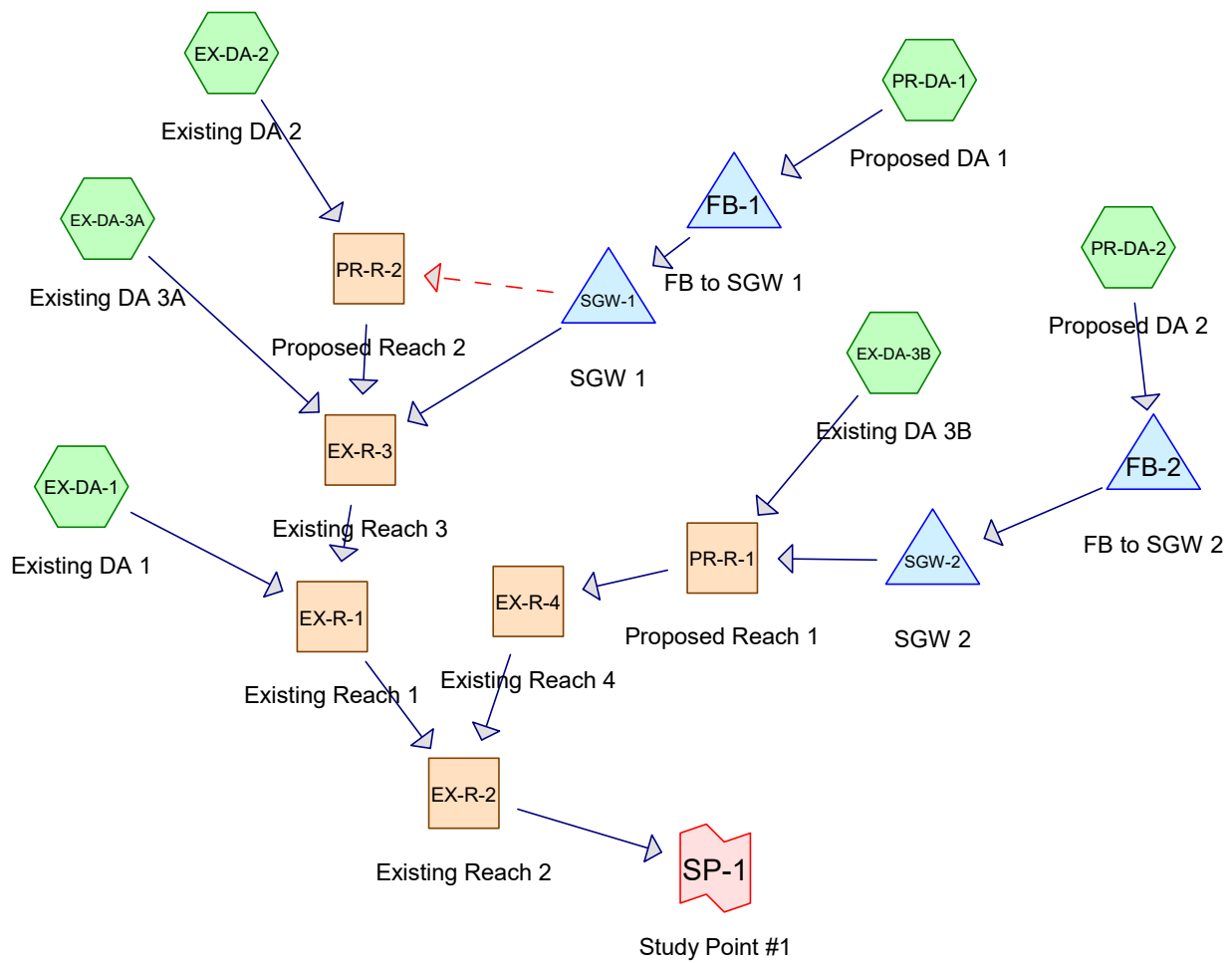
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Hydrograph for Link SP-1: Study Point #1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.09	0.00	0.09	62.00	0.00	0.00	0.00
11.00	4.60	0.00	4.60	63.00	0.00	0.00	0.00
12.00	45.39	0.00	45.39	64.00	0.00	0.00	0.00
13.00	217.22	0.00	217.22	65.00	0.00	0.00	0.00
14.00	109.71	0.00	109.71	66.00	0.00	0.00	0.00
15.00	60.54	0.00	60.54	67.00	0.00	0.00	0.00
16.00	39.56	0.00	39.56	68.00	0.00	0.00	0.00
17.00	29.23	0.00	29.23	69.00	0.00	0.00	0.00
18.00	24.82	0.00	24.82	70.00	0.00	0.00	0.00
19.00	21.72	0.00	21.72	71.00	0.00	0.00	0.00
20.00	18.88	0.00	18.88	72.00	0.00	0.00	0.00
21.00	16.41	0.00	16.41				
22.00	15.20	0.00	15.20				
23.00	14.49	0.00	14.49				
24.00	13.91	0.00	13.91				
25.00	7.55	0.00	7.55				
26.00	2.39	0.00	2.39				
27.00	0.72	0.00	0.72				
28.00	0.21	0.00	0.21				
29.00	0.07	0.00	0.07				
30.00	0.03	0.00	0.03				
31.00	0.02	0.00	0.02				
32.00	0.01	0.00	0.01				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2-Year Proposed Conditions Analysis



Routing Diagram for Aspire - Proposed

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Aspire - Proposed

Prepared by {enter your company name here}

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.455	61	1/4 acre lots, 38% imp, HSG A (EX-DA-1)
67.726	75	1/4 acre lots, 38% imp, HSG B (EX-DA-1)
103.031	83	1/4 acre lots, 38% imp, HSG C (EX-DA-1)
49.521	87	1/4 acre lots, 38% imp, HSG D (EX-DA-1)
2.203	74	>75% Grass cover, Good, HSG C (EX-DA-1, PR-DA-1, PR-DA-2)
0.334	98	Paved parking, HSG B (EX-DA-2)
4.478	98	Paved parking, HSG C (EX-DA-3A, EX-DA-3B, PR-DA-1, PR-DA-2)
26.555	78	Row crops, straight row, Good, HSG B (EX-DA-1, EX-DA-2, EX-DA-3A, EX-DA-3B)
98.762	85	Row crops, straight row, Good, HSG C (EX-DA-1, EX-DA-2, EX-DA-3A, EX-DA-3B)
18.854	89	Row crops, straight row, Good, HSG D (EX-DA-1)
16.164	55	Woods, Good, HSG B (EX-DA-1)
12.888	70	Woods, Good, HSG C (EX-DA-1)
42.640	77	Woods, Good, HSG D (EX-DA-1)

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-DA-1: Existing DA 1 Runoff Area=18,637,760 sf 19.87% Impervious Runoff Depth=1.56"
Flow Length=4,740' Tc=43.0 min CN=80 Runoff=269.92 cfs 55.530 af

Subcatchment EX-DA-2: Existing DA 2 Runoff Area=232,668 sf 6.24% Impervious Runoff Depth=1.77"
Flow Length=932' Tc=12.9 min CN=83 Runoff=9.06 cfs 0.790 af

Subcatchment EX-DA-3A: Existing DA 3A Runoff Area=108,633 sf 0.88% Impervious Runoff Depth=1.85"
Flow Length=1,226' Tc=12.6 min CN=84 Runoff=4.48 cfs 0.385 af

Subcatchment EX-DA-3B: Existing DA 3B Runoff Area=190,236 sf 0.22% Impervious Runoff Depth=1.85"
Flow Length=1,010' Tc=11.4 min CN=84 Runoff=8.30 cfs 0.674 af

Subcatchment PR-DA-1: Proposed DA 1 Runoff Area=143,973 sf 69.42% Impervious Runoff Depth=2.45"
Flow Length=521' Tc=8.4 min CN=91 Runoff=9.55 cfs 0.674 af

Subcatchment PR-DA-2: Proposed DA 2 Runoff Area=141,172 sf 66.40% Impervious Runoff Depth=2.35"
Flow Length=582' Tc=11.7 min CN=90 Runoff=7.66 cfs 0.636 af

Reach EX-R-1: Existing Reach 1 Avg. Flow Depth=3.81' Max Vel=3.84 fps Inflow=277.58 cfs 56.984 af
n=0.040 L=532.0' S=0.0038 '/' Capacity=177.63 cfs Outflow=276.35 cfs 56.984 af

Reach EX-R-2: Existing Reach 2 Avg. Flow Depth=4.37' Max Vel=3.22 fps Inflow=281.91 cfs 58.285 af
n=0.040 L=819.0' S=0.0024 '/' Capacity=143.16 cfs Outflow=278.12 cfs 58.285 af

Reach EX-R-3: Existing Reach 3 Avg. Flow Depth=1.30' Max Vel=1.19 fps Inflow=13.50 cfs 1.454 af
n=0.040 L=729.0' S=0.0014 '/' Capacity=27.19 cfs Outflow=10.68 cfs 1.454 af

Reach EX-R-4: Existing Reach 4 Avg. Flow Depth=0.68' Max Vel=0.82 fps Inflow=8.76 cfs 1.301 af
n=0.100 L=464.0' S=0.0151 '/' Capacity=3.62 cfs Outflow=7.02 cfs 1.301 af

Reach PR-R-1: Proposed Reach 1 Avg. Flow Depth=0.96' Max Vel=3.17 fps Inflow=8.81 cfs 1.301 af
n=0.022 L=221.0' S=0.0063 '/' Capacity=112.93 cfs Outflow=8.76 cfs 1.301 af

Reach PR-R-2: Proposed Reach 2 Avg. Flow Depth=1.06' Max Vel=2.65 fps Inflow=9.06 cfs 0.790 af
n=0.025 L=100.0' S=0.0050 '/' Capacity=7.67 cfs Outflow=8.99 cfs 0.790 af

Pond FB-1: FB to SGW 1 Peak Elev=47.64' Storage=18,561 cf Inflow=9.55 cfs 0.674 af
Outflow=0.93 cfs 0.279 af

Pond FB-2: FB to SGW 2 Peak Elev=50.04' Storage=7,276 cf Inflow=7.66 cfs 0.636 af
Outflow=7.15 cfs 0.636 af

Pond SGW-1: SGW 1 Peak Elev=45.90' Storage=2,538 cf Inflow=0.93 cfs 0.279 af
Primary=0.65 cfs 0.279 af Secondary=0.00 cfs 0.000 af Outflow=0.65 cfs 0.279 af

Pond SGW-2: SGW 2 Peak Elev=49.64' Storage=14,543 cf Inflow=7.15 cfs 0.636 af
Outflow=2.53 cfs 0.627 af

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Link SP-1: Study Point #1

Inflow=278.12 cfs 58.285 af

Primary=278.12 cfs 58.285 af

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Summary for Subcatchment EX-DA-1: Existing DA 1

Runoff = 269.92 cfs @ 12.45 hrs, Volume= 55.530 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
150,521	61	1/4 acre lots, 38% imp, HSG A
2,950,162	75	1/4 acre lots, 38% imp, HSG B
704,124	55	Woods, Good, HSG B
1,014,991	78	Row crops, straight row, Good, HSG B
4,488,021	83	1/4 acre lots, 38% imp, HSG C
561,418	70	Woods, Good, HSG C
3,928,165	85	Row crops, straight row, Good, HSG C
2,157,149	87	1/4 acre lots, 38% imp, HSG D
1,857,395	77	Woods, Good, HSG D
821,283	89	Row crops, straight row, Good, HSG D
4,531	74	>75% Grass cover, Good, HSG C
18,637,760	80	Weighted Average
14,934,336		80.13% Pervious Area
3,703,424		19.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
16.0	1,441	0.0100	1.50		Shallow Concentrated Flow, Ag Ditch Grassed Waterway Kv= 15.0 fps
11.5	1,035	0.0100	1.50		Shallow Concentrated Flow, Mathewstown Rd North Swale Grassed Waterway Kv= 15.0 fps
0.9	197	0.0030	3.85	6.80	Pipe Channel, Culvert under Mile Post Rd 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011 Concrete pipe, straight & clean
2.2	240	0.0150	1.84		Shallow Concentrated Flow, Mathewstown Rd - North Swale before Grassed Waterway Kv= 15.0 fps
0.1	51	0.0030	8.59	168.59	Pipe Channel, Culvert crossing Mathewstown Rd to Hosewells Branch 60.0" Round Area= 19.6 sf Perim= 15.7' r= 1.25' n= 0.011 Concrete pipe, straight & clean
7.7	1,676	0.0050	3.62	75.95	Channel Flow, Hosewells Branch Area= 21.0 sf Perim= 13.0' r= 1.62' n= 0.040 Winding stream, pools & shoals
43.0	4,740	Total			

Aspire - Proposed

Prepared by {enter your company name here}

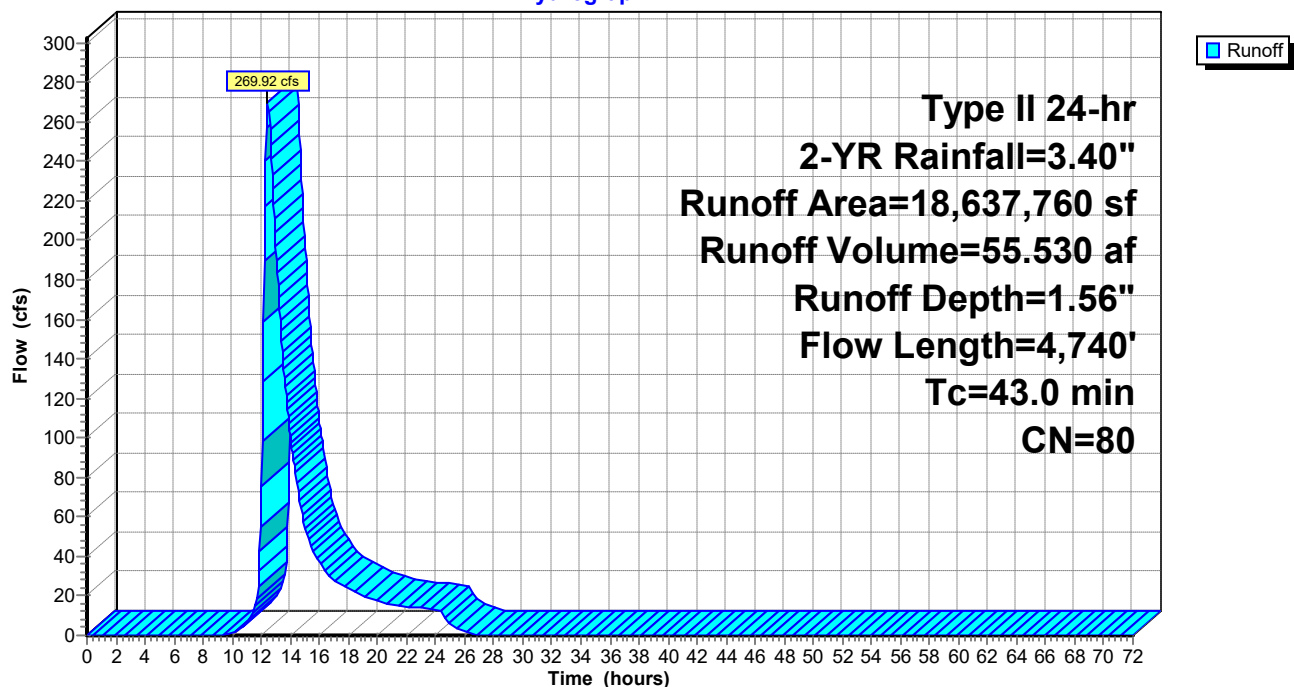
HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Subcatchment EX-DA-1: Existing DA 1

Hydrograph



Aspire - Proposed

Prepared by {enter your company name here}

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Hydrograph for Subcatchment EX-DA-1: Existing DA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	1.56	0.00
1.00	0.04	0.00	0.00	53.00	3.40	1.56	0.00
2.00	0.07	0.00	0.00	54.00	3.40	1.56	0.00
3.00	0.12	0.00	0.00	55.00	3.40	1.56	0.00
4.00	0.16	0.00	0.00	56.00	3.40	1.56	0.00
5.00	0.21	0.00	0.00	57.00	3.40	1.56	0.00
6.00	0.27	0.00	0.00	58.00	3.40	1.56	0.00
7.00	0.34	0.00	0.00	59.00	3.40	1.56	0.00
8.00	0.41	0.00	0.00	60.00	3.40	1.56	0.00
9.00	0.50	0.00	0.00	61.00	3.40	1.56	0.00
10.00	0.62	0.01	0.93	62.00	3.40	1.56	0.00
11.00	0.80	0.03	6.31	63.00	3.40	1.56	0.00
12.00	2.25	0.72	75.18	64.00	3.40	1.56	0.00
13.00	2.62	0.98	196.55	65.00	3.40	1.56	0.00
14.00	2.79	1.09	100.69	66.00	3.40	1.56	0.00
15.00	2.90	1.18	54.99	67.00	3.40	1.56	0.00
16.00	2.99	1.24	36.63	68.00	3.40	1.56	0.00
17.00	3.07	1.30	27.33	69.00	3.40	1.56	0.00
18.00	3.13	1.35	23.38	70.00	3.40	1.56	0.00
19.00	3.19	1.39	20.45	71.00	3.40	1.56	0.00
20.00	3.24	1.43	17.72	72.00	3.40	1.56	0.00
21.00	3.28	1.46	15.50				
22.00	3.32	1.50	14.45				
23.00	3.36	1.53	13.80				
24.00	3.40	1.56	13.25				
25.00	3.40	1.56	5.72				
26.00	3.40	1.56	1.59				
27.00	3.40	1.56	0.33				
28.00	3.40	1.56	0.05				
29.00	3.40	1.56	0.00				
30.00	3.40	1.56	0.00				
31.00	3.40	1.56	0.00				
32.00	3.40	1.56	0.00				
33.00	3.40	1.56	0.00				
34.00	3.40	1.56	0.00				
35.00	3.40	1.56	0.00				
36.00	3.40	1.56	0.00				
37.00	3.40	1.56	0.00				
38.00	3.40	1.56	0.00				
39.00	3.40	1.56	0.00				
40.00	3.40	1.56	0.00				
41.00	3.40	1.56	0.00				
42.00	3.40	1.56	0.00				
43.00	3.40	1.56	0.00				
44.00	3.40	1.56	0.00				
45.00	3.40	1.56	0.00				
46.00	3.40	1.56	0.00				
47.00	3.40	1.56	0.00				
48.00	3.40	1.56	0.00				
49.00	3.40	1.56	0.00				
50.00	3.40	1.56	0.00				
51.00	3.40	1.56	0.00				

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Summary for Subcatchment EX-DA-2: Existing DA 2

Runoff = 9.06 cfs @ 12.07 hrs, Volume= 0.790 af, Depth= 1.77"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
14,528	98	Paved parking, HSG B
92,133	78	Row crops, straight row, Good, HSG B
126,007	85	Row crops, straight row, Good, HSG C
232,668	83	Weighted Average
218,140		93.76% Pervious Area
14,528		6.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0140	0.32		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
6.2	637	0.0130	1.71		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
1.1	92	0.0050	1.44		Shallow Concentrated Flow, Camac Gutter Paved Kv= 20.3 fps
0.3	103	0.0034	5.28	25.91	Pipe Channel, Pipe to EX-R-3 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Corrugated PP, smooth interior
12.9	932	Total			

Aspire - Proposed

Prepared by {enter your company name here}

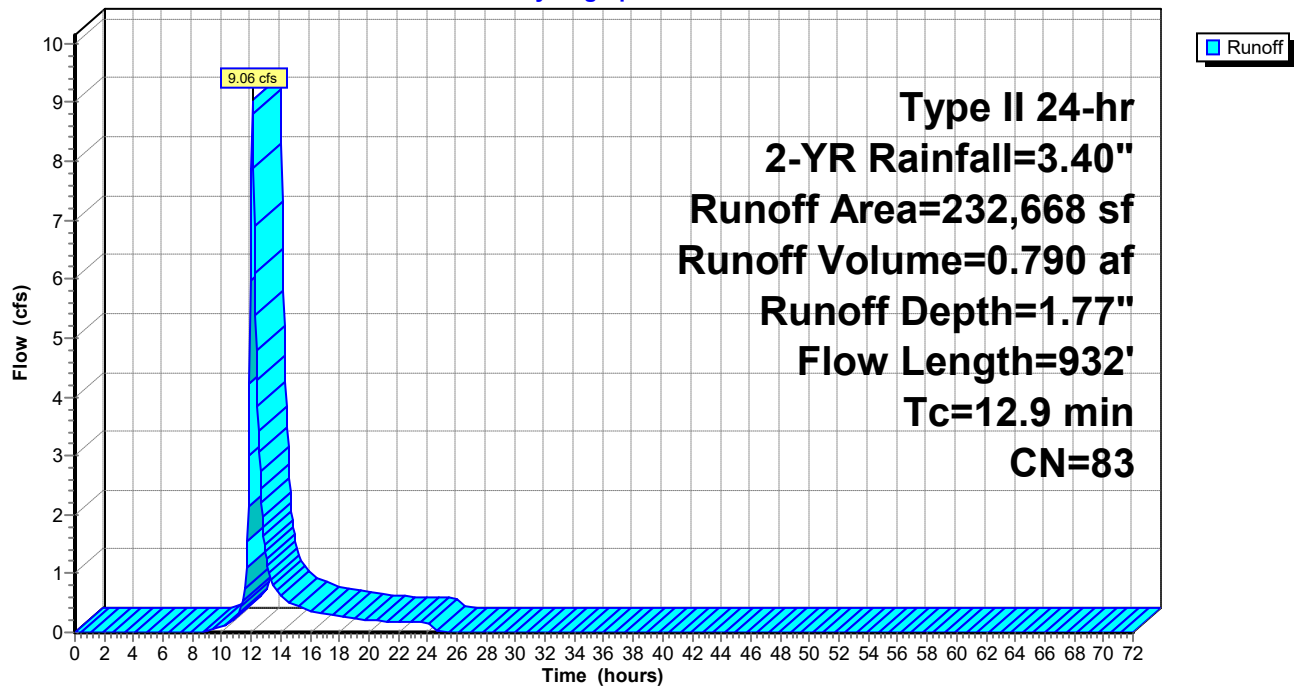
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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Subcatchment EX-DA-2: Existing DA 2

Hydrograph



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Hydrograph for Subcatchment EX-DA-2: Existing DA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	1.77	0.00
1.00	0.04	0.00	0.00	53.00	3.40	1.77	0.00
2.00	0.07	0.00	0.00	54.00	3.40	1.77	0.00
3.00	0.12	0.00	0.00	55.00	3.40	1.77	0.00
4.00	0.16	0.00	0.00	56.00	3.40	1.77	0.00
5.00	0.21	0.00	0.00	57.00	3.40	1.77	0.00
6.00	0.27	0.00	0.00	58.00	3.40	1.77	0.00
7.00	0.34	0.00	0.00	59.00	3.40	1.77	0.00
8.00	0.41	0.00	0.00	60.00	3.40	1.77	0.00
9.00	0.50	0.00	0.03	61.00	3.40	1.77	0.00
10.00	0.62	0.02	0.09	62.00	3.40	1.77	0.00
11.00	0.80	0.06	0.28	63.00	3.40	1.77	0.00
12.00	2.25	0.87	7.86	64.00	3.40	1.77	0.00
13.00	2.62	1.15	1.29	65.00	3.40	1.77	0.00
14.00	2.79	1.28	0.63	66.00	3.40	1.77	0.00
15.00	2.90	1.37	0.47	67.00	3.40	1.77	0.00
16.00	2.99	1.44	0.37	68.00	3.40	1.77	0.00
17.00	3.07	1.50	0.32	69.00	3.40	1.77	0.00
18.00	3.13	1.55	0.28	70.00	3.40	1.77	0.00
19.00	3.19	1.60	0.24	71.00	3.40	1.77	0.00
20.00	3.24	1.64	0.21	72.00	3.40	1.77	0.00
21.00	3.28	1.68	0.19				
22.00	3.32	1.71	0.18				
23.00	3.36	1.74	0.18				
24.00	3.40	1.77	0.17				
25.00	3.40	1.77	0.00				
26.00	3.40	1.77	0.00				
27.00	3.40	1.77	0.00				
28.00	3.40	1.77	0.00				
29.00	3.40	1.77	0.00				
30.00	3.40	1.77	0.00				
31.00	3.40	1.77	0.00				
32.00	3.40	1.77	0.00				
33.00	3.40	1.77	0.00				
34.00	3.40	1.77	0.00				
35.00	3.40	1.77	0.00				
36.00	3.40	1.77	0.00				
37.00	3.40	1.77	0.00				
38.00	3.40	1.77	0.00				
39.00	3.40	1.77	0.00				
40.00	3.40	1.77	0.00				
41.00	3.40	1.77	0.00				
42.00	3.40	1.77	0.00				
43.00	3.40	1.77	0.00				
44.00	3.40	1.77	0.00				
45.00	3.40	1.77	0.00				
46.00	3.40	1.77	0.00				
47.00	3.40	1.77	0.00				
48.00	3.40	1.77	0.00				
49.00	3.40	1.77	0.00				
50.00	3.40	1.77	0.00				
51.00	3.40	1.77	0.00				

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Summary for Subcatchment EX-DA-3A: Existing DA 3A

Runoff = 4.48 cfs @ 12.06 hrs, Volume= 0.385 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
10,398	78	Row crops, straight row, Good, HSG B
97,279	85	Row crops, straight row, Good, HSG C
956	98	Paved parking, HSG C
108,633	84	Weighted Average
107,677		99.12% Pervious Area
956		0.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0110	0.29		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
3.7	408	0.0150	1.84		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
0.9	214	0.0093	4.09	20.44	Channel Flow, rear yard swale Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.025
2.2	504	0.0024	3.82	12.01	Pipe Channel, Pipe to EX-R-4 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
12.6	1,226	Total			

Aspire - Proposed

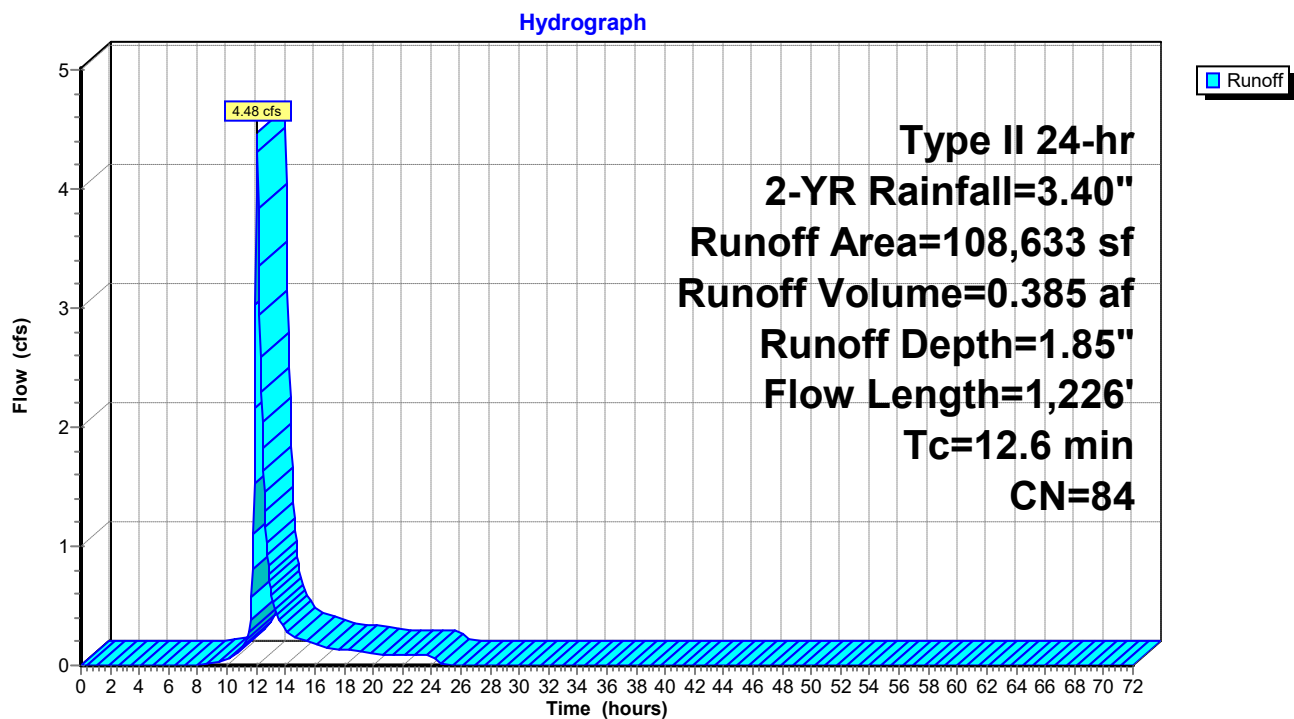
Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Subcatchment EX-DA-3A: Existing DA 3A



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Subcatchment EX-DA-3A: Existing DA 3A

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	1.85	0.00
1.00	0.04	0.00	0.00	53.00	3.40	1.85	0.00
2.00	0.07	0.00	0.00	54.00	3.40	1.85	0.00
3.00	0.12	0.00	0.00	55.00	3.40	1.85	0.00
4.00	0.16	0.00	0.00	56.00	3.40	1.85	0.00
5.00	0.21	0.00	0.00	57.00	3.40	1.85	0.00
6.00	0.27	0.00	0.00	58.00	3.40	1.85	0.00
7.00	0.34	0.00	0.00	59.00	3.40	1.85	0.00
8.00	0.41	0.00	0.00	60.00	3.40	1.85	0.00
9.00	0.50	0.01	0.02	61.00	3.40	1.85	0.00
10.00	0.62	0.03	0.05	62.00	3.40	1.85	0.00
11.00	0.80	0.08	0.15	63.00	3.40	1.85	0.00
12.00	2.25	0.93	3.95	64.00	3.40	1.85	0.00
13.00	2.62	1.21	0.61	65.00	3.40	1.85	0.00
14.00	2.79	1.34	0.30	66.00	3.40	1.85	0.00
15.00	2.90	1.44	0.22	67.00	3.40	1.85	0.00
16.00	2.99	1.51	0.18	68.00	3.40	1.85	0.00
17.00	3.07	1.57	0.15	69.00	3.40	1.85	0.00
18.00	3.13	1.63	0.13	70.00	3.40	1.85	0.00
19.00	3.19	1.67	0.12	71.00	3.40	1.85	0.00
20.00	3.24	1.71	0.10	72.00	3.40	1.85	0.00
21.00	3.28	1.75	0.09				
22.00	3.32	1.78	0.09				
23.00	3.36	1.82	0.08				
24.00	3.40	1.85	0.08				
25.00	3.40	1.85	0.00				
26.00	3.40	1.85	0.00				
27.00	3.40	1.85	0.00				
28.00	3.40	1.85	0.00				
29.00	3.40	1.85	0.00				
30.00	3.40	1.85	0.00				
31.00	3.40	1.85	0.00				
32.00	3.40	1.85	0.00				
33.00	3.40	1.85	0.00				
34.00	3.40	1.85	0.00				
35.00	3.40	1.85	0.00				
36.00	3.40	1.85	0.00				
37.00	3.40	1.85	0.00				
38.00	3.40	1.85	0.00				
39.00	3.40	1.85	0.00				
40.00	3.40	1.85	0.00				
41.00	3.40	1.85	0.00				
42.00	3.40	1.85	0.00				
43.00	3.40	1.85	0.00				
44.00	3.40	1.85	0.00				
45.00	3.40	1.85	0.00				
46.00	3.40	1.85	0.00				
47.00	3.40	1.85	0.00				
48.00	3.40	1.85	0.00				
49.00	3.40	1.85	0.00				
50.00	3.40	1.85	0.00				
51.00	3.40	1.85	0.00				

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Summary for Subcatchment EX-DA-3B: Existing DA 3B

Runoff = 8.30 cfs @ 12.05 hrs, Volume= 0.674 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
39,212	78	Row crops, straight row, Good, HSG B
150,604	85	Row crops, straight row, Good, HSG C
420	98	Paved parking, HSG C
190,236	84	Weighted Average
189,816		99.78% Pervious Area
420		0.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0100	0.28		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
3.4	421	0.0190	2.07		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
0.1	66	0.0700	11.22	56.09	Channel Flow, rear yard swale Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.025
1.9	423	0.0023	3.74	11.75	Pipe Channel, Pipe to EX-R-4 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
11.4	1,010	Total			

Aspire - Proposed

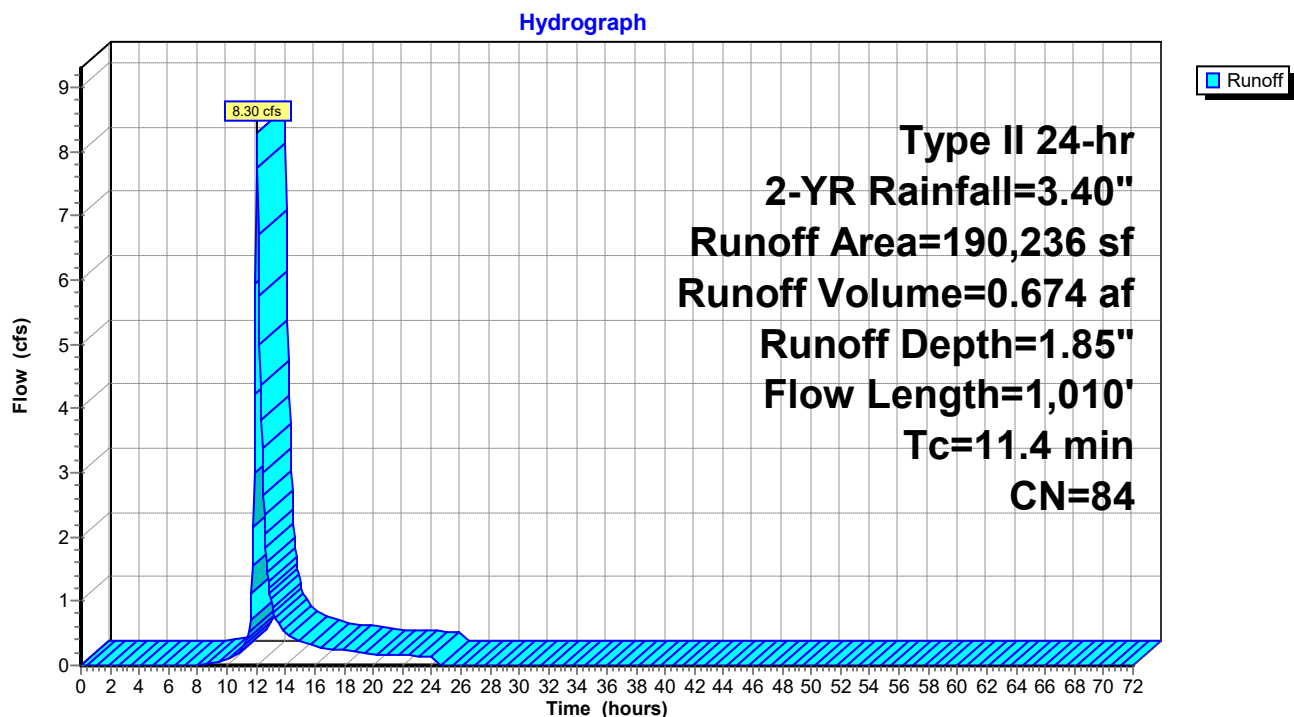
Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Subcatchment EX-DA-3B: Existing DA 3B



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Subcatchment EX-DA-3B: Existing DA 3B

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	1.85	0.00
1.00	0.04	0.00	0.00	53.00	3.40	1.85	0.00
2.00	0.07	0.00	0.00	54.00	3.40	1.85	0.00
3.00	0.12	0.00	0.00	55.00	3.40	1.85	0.00
4.00	0.16	0.00	0.00	56.00	3.40	1.85	0.00
5.00	0.21	0.00	0.00	57.00	3.40	1.85	0.00
6.00	0.27	0.00	0.00	58.00	3.40	1.85	0.00
7.00	0.34	0.00	0.00	59.00	3.40	1.85	0.00
8.00	0.41	0.00	0.00	60.00	3.40	1.85	0.00
9.00	0.50	0.01	0.04	61.00	3.40	1.85	0.00
10.00	0.62	0.03	0.10	62.00	3.40	1.85	0.00
11.00	0.80	0.08	0.27	63.00	3.40	1.85	0.00
12.00	2.25	0.93	7.63	64.00	3.40	1.85	0.00
13.00	2.62	1.21	1.00	65.00	3.40	1.85	0.00
14.00	2.79	1.34	0.52	66.00	3.40	1.85	0.00
15.00	2.90	1.44	0.39	67.00	3.40	1.85	0.00
16.00	2.99	1.51	0.31	68.00	3.40	1.85	0.00
17.00	3.07	1.57	0.26	69.00	3.40	1.85	0.00
18.00	3.13	1.63	0.23	70.00	3.40	1.85	0.00
19.00	3.19	1.67	0.20	71.00	3.40	1.85	0.00
20.00	3.24	1.71	0.17	72.00	3.40	1.85	0.00
21.00	3.28	1.75	0.16				
22.00	3.32	1.78	0.15				
23.00	3.36	1.82	0.15				
24.00	3.40	1.85	0.14				
25.00	3.40	1.85	0.00				
26.00	3.40	1.85	0.00				
27.00	3.40	1.85	0.00				
28.00	3.40	1.85	0.00				
29.00	3.40	1.85	0.00				
30.00	3.40	1.85	0.00				
31.00	3.40	1.85	0.00				
32.00	3.40	1.85	0.00				
33.00	3.40	1.85	0.00				
34.00	3.40	1.85	0.00				
35.00	3.40	1.85	0.00				
36.00	3.40	1.85	0.00				
37.00	3.40	1.85	0.00				
38.00	3.40	1.85	0.00				
39.00	3.40	1.85	0.00				
40.00	3.40	1.85	0.00				
41.00	3.40	1.85	0.00				
42.00	3.40	1.85	0.00				
43.00	3.40	1.85	0.00				
44.00	3.40	1.85	0.00				
45.00	3.40	1.85	0.00				
46.00	3.40	1.85	0.00				
47.00	3.40	1.85	0.00				
48.00	3.40	1.85	0.00				
49.00	3.40	1.85	0.00				
50.00	3.40	1.85	0.00				
51.00	3.40	1.85	0.00				

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Subcatchment PR-DA-1: Proposed DA 1

Runoff = 9.55 cfs @ 12.01 hrs, Volume= 0.674 af, Depth= 2.45"

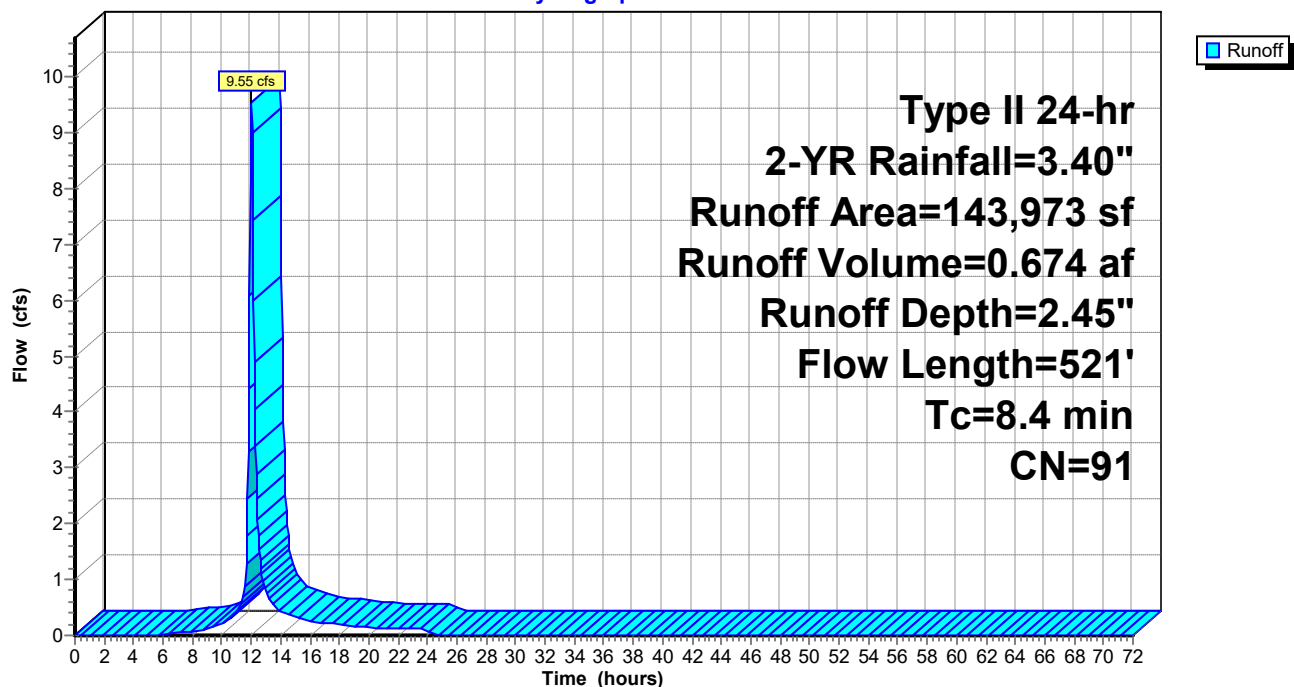
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
44,023	74	>75% Grass cover, Good, HSG C
99,950	98	Paved parking, HSG C
143,973	91	Weighted Average
44,023		30.58% Pervious Area
99,950		69.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	100	0.0410	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
1.3	421	0.0050	5.52	17.33	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
8.4	521	Total			

Subcatchment PR-DA-1: Proposed DA 1

Hydrograph



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Subcatchment PR-DA-1: Proposed DA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	2.45	0.00
1.00	0.04	0.00	0.00	53.00	3.40	2.45	0.00
2.00	0.07	0.00	0.00	54.00	3.40	2.45	0.00
3.00	0.12	0.00	0.00	55.00	3.40	2.45	0.00
4.00	0.16	0.00	0.00	56.00	3.40	2.45	0.00
5.00	0.21	0.00	0.00	57.00	3.40	2.45	0.00
6.00	0.27	0.01	0.02	58.00	3.40	2.45	0.00
7.00	0.34	0.02	0.05	59.00	3.40	2.45	0.00
8.00	0.41	0.04	0.07	60.00	3.40	2.45	0.00
9.00	0.50	0.07	0.13	61.00	3.40	2.45	0.00
10.00	0.62	0.12	0.20	62.00	3.40	2.45	0.00
11.00	0.80	0.23	0.42	63.00	3.40	2.45	0.00
12.00	2.25	1.39	9.50	64.00	3.40	2.45	0.00
13.00	2.62	1.72	0.76	65.00	3.40	2.45	0.00
14.00	2.79	1.87	0.43	66.00	3.40	2.45	0.00
15.00	2.90	1.98	0.33	67.00	3.40	2.45	0.00
16.00	2.99	2.06	0.26	68.00	3.40	2.45	0.00
17.00	3.07	2.13	0.22	69.00	3.40	2.45	0.00
18.00	3.13	2.19	0.20	70.00	3.40	2.45	0.00
19.00	3.19	2.25	0.17	71.00	3.40	2.45	0.00
20.00	3.24	2.29	0.14	72.00	3.40	2.45	0.00
21.00	3.28	2.33	0.13				
22.00	3.32	2.37	0.13				
23.00	3.36	2.41	0.12				
24.00	3.40	2.45	0.12				
25.00	3.40	2.45	0.00				
26.00	3.40	2.45	0.00				
27.00	3.40	2.45	0.00				
28.00	3.40	2.45	0.00				
29.00	3.40	2.45	0.00				
30.00	3.40	2.45	0.00				
31.00	3.40	2.45	0.00				
32.00	3.40	2.45	0.00				
33.00	3.40	2.45	0.00				
34.00	3.40	2.45	0.00				
35.00	3.40	2.45	0.00				
36.00	3.40	2.45	0.00				
37.00	3.40	2.45	0.00				
38.00	3.40	2.45	0.00				
39.00	3.40	2.45	0.00				
40.00	3.40	2.45	0.00				
41.00	3.40	2.45	0.00				
42.00	3.40	2.45	0.00				
43.00	3.40	2.45	0.00				
44.00	3.40	2.45	0.00				
45.00	3.40	2.45	0.00				
46.00	3.40	2.45	0.00				
47.00	3.40	2.45	0.00				
48.00	3.40	2.45	0.00				
49.00	3.40	2.45	0.00				
50.00	3.40	2.45	0.00				
51.00	3.40	2.45	0.00				

Aspire - Proposed

Prepared by {enter your company name here}

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Subcatchment PR-DA-2: Proposed DA 2

Runoff = 7.66 cfs @ 12.05 hrs, Volume= 0.636 af, Depth= 2.35"

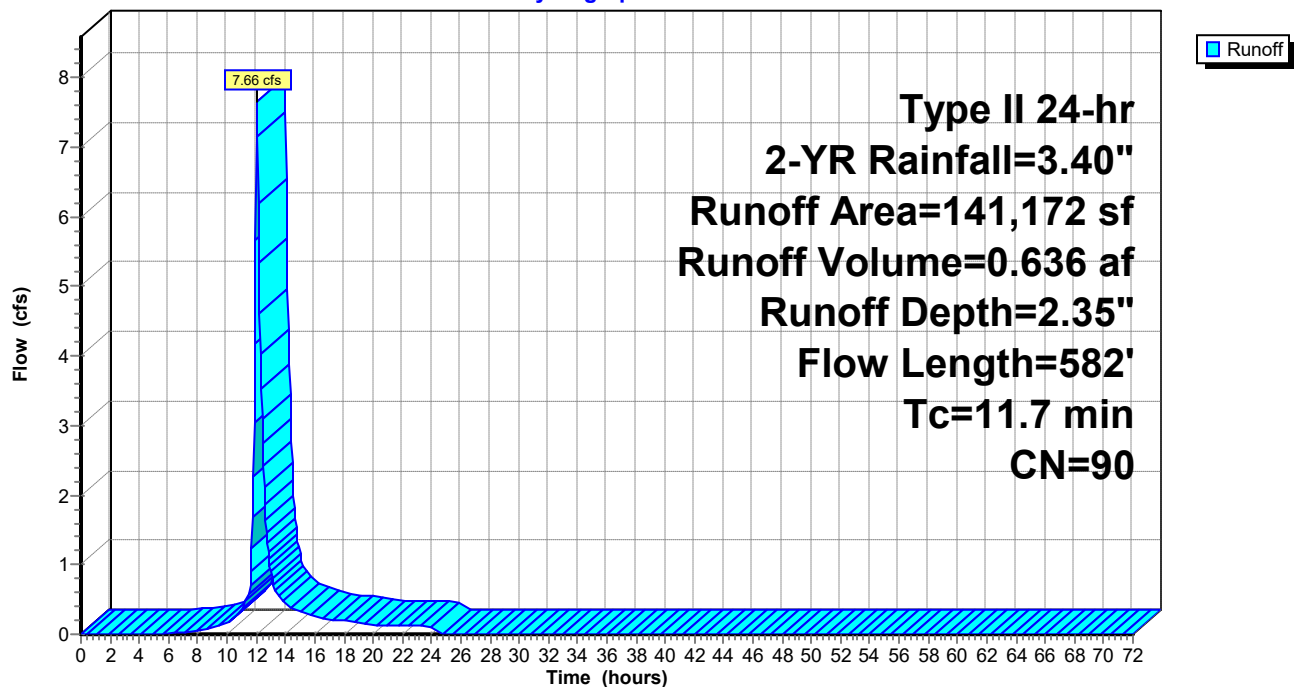
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
47,428	74	>75% Grass cover, Good, HSG C
93,744	98	Paved parking, HSG C
141,172	90	Weighted Average
47,428		33.60% Pervious Area
93,744		66.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0055	0.22		Sheet Flow, ag field Cultivated: Residue<=20% n= 0.060 P2= 3.40"
1.2	170	0.0247	2.36		Shallow Concentrated Flow, ag field Grassed Waterway Kv= 15.0 fps
1.3	111	0.0050	1.44		Shallow Concentrated Flow, gutter pan Paved Kv= 20.3 fps
1.5	201	0.0016	2.28	2.80	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
11.7	582	Total			

Subcatchment PR-DA-2: Proposed DA 2

Hydrograph



Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Hydrograph for Subcatchment PR-DA-2: Proposed DA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	2.35	0.00
1.00	0.04	0.00	0.00	53.00	3.40	2.35	0.00
2.00	0.07	0.00	0.00	54.00	3.40	2.35	0.00
3.00	0.12	0.00	0.00	55.00	3.40	2.35	0.00
4.00	0.16	0.00	0.00	56.00	3.40	2.35	0.00
5.00	0.21	0.00	0.00	57.00	3.40	2.35	0.00
6.00	0.27	0.00	0.01	58.00	3.40	2.35	0.00
7.00	0.34	0.01	0.03	59.00	3.40	2.35	0.00
8.00	0.41	0.03	0.06	60.00	3.40	2.35	0.00
9.00	0.50	0.06	0.11	61.00	3.40	2.35	0.00
10.00	0.62	0.10	0.17	62.00	3.40	2.35	0.00
11.00	0.80	0.20	0.36	63.00	3.40	2.35	0.00
12.00	2.25	1.31	7.10	64.00	3.40	2.35	0.00
13.00	2.62	1.64	0.87	65.00	3.40	2.35	0.00
14.00	2.79	1.79	0.44	66.00	3.40	2.35	0.00
15.00	2.90	1.89	0.33	67.00	3.40	2.35	0.00
16.00	2.99	1.98	0.26	68.00	3.40	2.35	0.00
17.00	3.07	2.04	0.22	69.00	3.40	2.35	0.00
18.00	3.13	2.11	0.19	70.00	3.40	2.35	0.00
19.00	3.19	2.16	0.17	71.00	3.40	2.35	0.00
20.00	3.24	2.20	0.14	72.00	3.40	2.35	0.00
21.00	3.28	2.24	0.13				
22.00	3.32	2.28	0.13				
23.00	3.36	2.32	0.12				
24.00	3.40	2.35	0.12				
25.00	3.40	2.35	0.00				
26.00	3.40	2.35	0.00				
27.00	3.40	2.35	0.00				
28.00	3.40	2.35	0.00				
29.00	3.40	2.35	0.00				
30.00	3.40	2.35	0.00				
31.00	3.40	2.35	0.00				
32.00	3.40	2.35	0.00				
33.00	3.40	2.35	0.00				
34.00	3.40	2.35	0.00				
35.00	3.40	2.35	0.00				
36.00	3.40	2.35	0.00				
37.00	3.40	2.35	0.00				
38.00	3.40	2.35	0.00				
39.00	3.40	2.35	0.00				
40.00	3.40	2.35	0.00				
41.00	3.40	2.35	0.00				
42.00	3.40	2.35	0.00				
43.00	3.40	2.35	0.00				
44.00	3.40	2.35	0.00				
45.00	3.40	2.35	0.00				
46.00	3.40	2.35	0.00				
47.00	3.40	2.35	0.00				
48.00	3.40	2.35	0.00				
49.00	3.40	2.35	0.00				
50.00	3.40	2.35	0.00				
51.00	3.40	2.35	0.00				

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Reach EX-R-1: Existing Reach 1

Inflow Area = 439.004 ac, 19.97% Impervious, Inflow Depth = 1.56" for 2-YR event
Inflow = 277.58 cfs @ 12.45 hrs, Volume= 56.984 af
Outflow = 276.35 cfs @ 12.48 hrs, Volume= 56.984 af, Atten= 0%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.84 fps, Min. Travel Time= 2.3 min

Avg. Velocity= 0.68 fps, Avg. Travel Time= 13.0 min

Peak Storage= 38,248 cf @ 12.48 hrs

Average Depth at Peak Storage= 3.81'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 177.63 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 26.00'

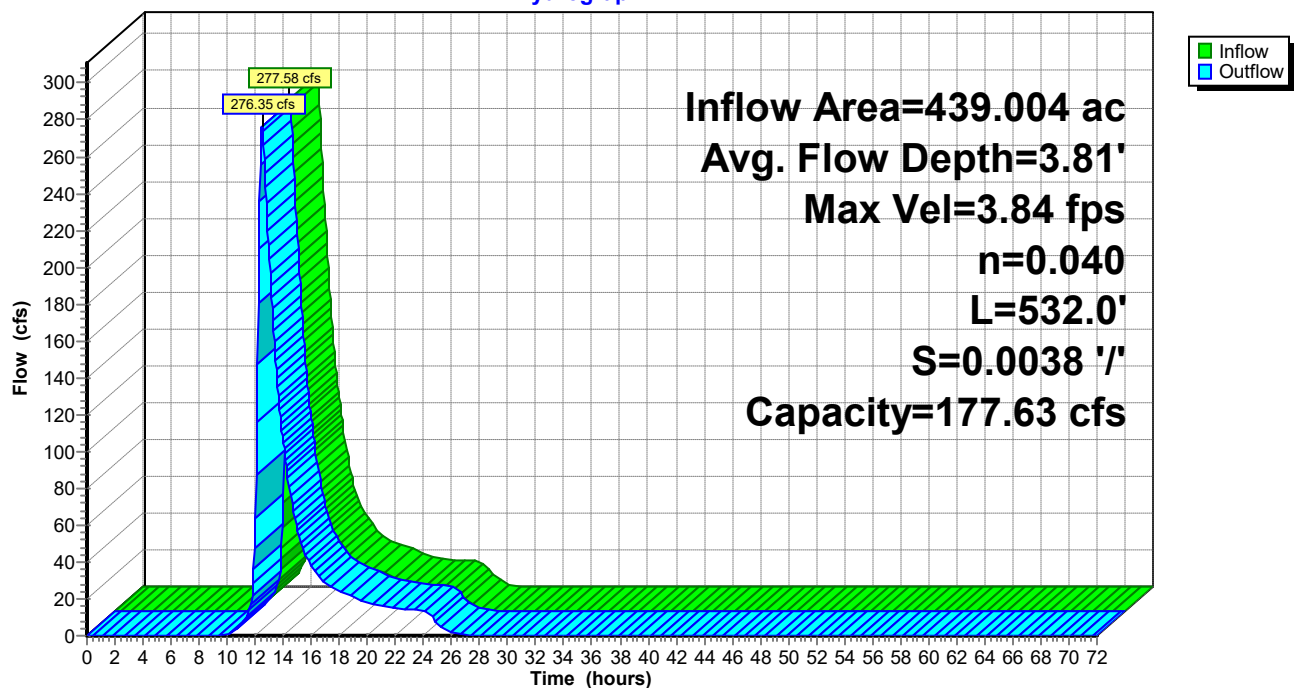
Length= 532.0' Slope= 0.0038 '/'

Inlet Invert= 42.00', Outlet Invert= 40.00'

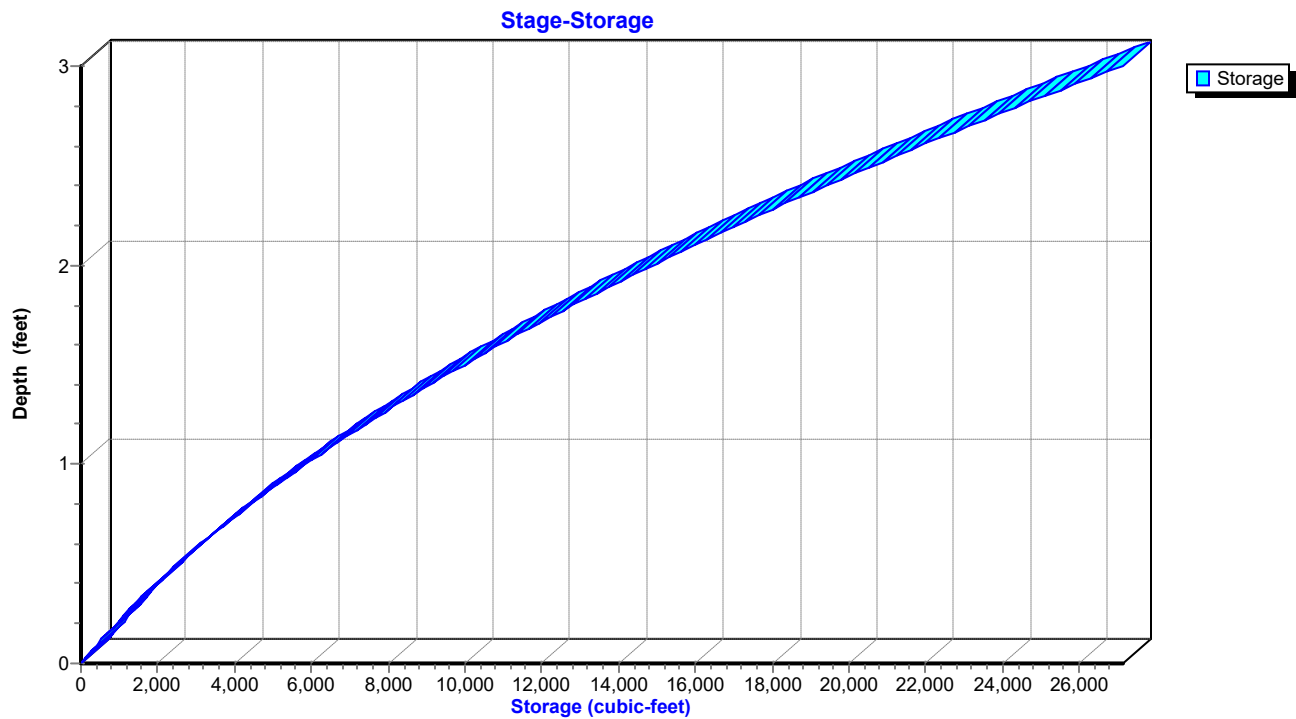


Reach EX-R-1: Existing Reach 1

Hydrograph



Reach EX-R-1: Existing Reach 1



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach EX-R-1: Existing Reach 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	42.00	0.00
2.50	0.00	0	42.00	0.00
5.00	0.00	0	42.00	0.00
7.50	0.00	0	42.00	0.00
10.00	1.02	584	42.13	0.63
12.50	274.57	38,211	45.80	276.02
15.00	56.22	11,953	43.71	57.59
17.50	25.82	6,796	43.12	26.02
20.00	18.21	5,330	42.93	18.37
22.50	14.50	4,535	42.82	14.54
25.00	5.85	2,611	42.51	6.43
27.50	0.16	314	42.07	0.23
30.00	0.01	27	42.01	0.01
32.50	0.00	8	42.00	0.00
35.00	0.00	4	42.00	0.00
37.50	0.00	2	42.00	0.00
40.00	0.00	1	42.00	0.00
42.50	0.00	1	42.00	0.00
45.00	0.00	1	42.00	0.00
47.50	0.00	0	42.00	0.00
50.00	0.00	0	42.00	0.00
52.50	0.00	0	42.00	0.00
55.00	0.00	0	42.00	0.00
57.50	0.00	0	42.00	0.00
60.00	0.00	0	42.00	0.00
62.50	0.00	0	42.00	0.00
65.00	0.00	0	42.00	0.00
67.50	0.00	0	42.00	0.00
70.00	0.00	0	42.00	0.00

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Stage-Area-Storage for Reach EX-R-1: Existing Reach 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
42.00	0.0	0	44.60	41.1	21,855
42.05	0.4	217	44.65	42.3	22,487
42.10	0.8	442	44.70	43.5	23,126
42.15	1.3	674	44.75	44.7	23,774
42.20	1.7	915	44.80	45.9	24,430
42.25	2.2	1,164	44.85	47.2	25,093
42.30	2.7	1,420	44.90	48.4	25,765
42.35	3.2	1,685	44.95	49.7	26,445
42.40	3.7	1,958	45.00	51.0	27,132
42.45	4.2	2,238			
42.50	4.8	2,527			
42.55	5.3	2,824			
42.60	5.9	3,128			
42.65	6.5	3,441			
42.70	7.1	3,762			
42.75	7.7	4,090			
42.80	8.3	4,427			
42.85	9.0	4,771			
42.90	9.6	5,123			
42.95	10.3	5,484			
43.00	11.0	5,852			
43.05	11.7	6,228			
43.10	12.4	6,613			
43.15	13.2	7,005			
43.20	13.9	7,405			
43.25	14.7	7,814			
43.30	15.5	8,230			
43.35	16.3	8,654			
43.40	17.1	9,087			
43.45	17.9	9,527			
43.50	18.8	9,975			
43.55	19.6	10,432			
43.60	20.5	10,896			
43.65	21.4	11,368			
43.70	22.3	11,848			
43.75	23.2	12,336			
43.80	24.1	12,832			
43.85	25.1	13,336			
43.90	26.0	13,848			
43.95	27.0	14,368			
44.00	28.0	14,896			
44.05	29.0	15,432			
44.10	30.0	15,976			
44.15	31.1	16,528			
44.20	32.1	17,088			
44.25	33.2	17,656			
44.30	34.3	18,232			
44.35	35.4	18,816			
44.40	36.5	19,407			
44.45	37.6	20,008			
44.50	38.8	20,615			
44.55	39.9	21,231			

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Reach EX-R-2: Existing Reach 2

Inflow Area = 446.613 ac, 20.11% Impervious, Inflow Depth = 1.57" for 2-YR event
Inflow = 281.91 cfs @ 12.48 hrs, Volume= 58.285 af
Outflow = 278.12 cfs @ 12.55 hrs, Volume= 58.285 af, Atten= 1%, Lag= 4.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.22 fps, Min. Travel Time= 4.2 min

Avg. Velocity= 0.58 fps, Avg. Travel Time= 23.5 min

Peak Storage= 70,797 cf @ 12.55 hrs

Average Depth at Peak Storage= 4.37'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 143.16 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 26.00'

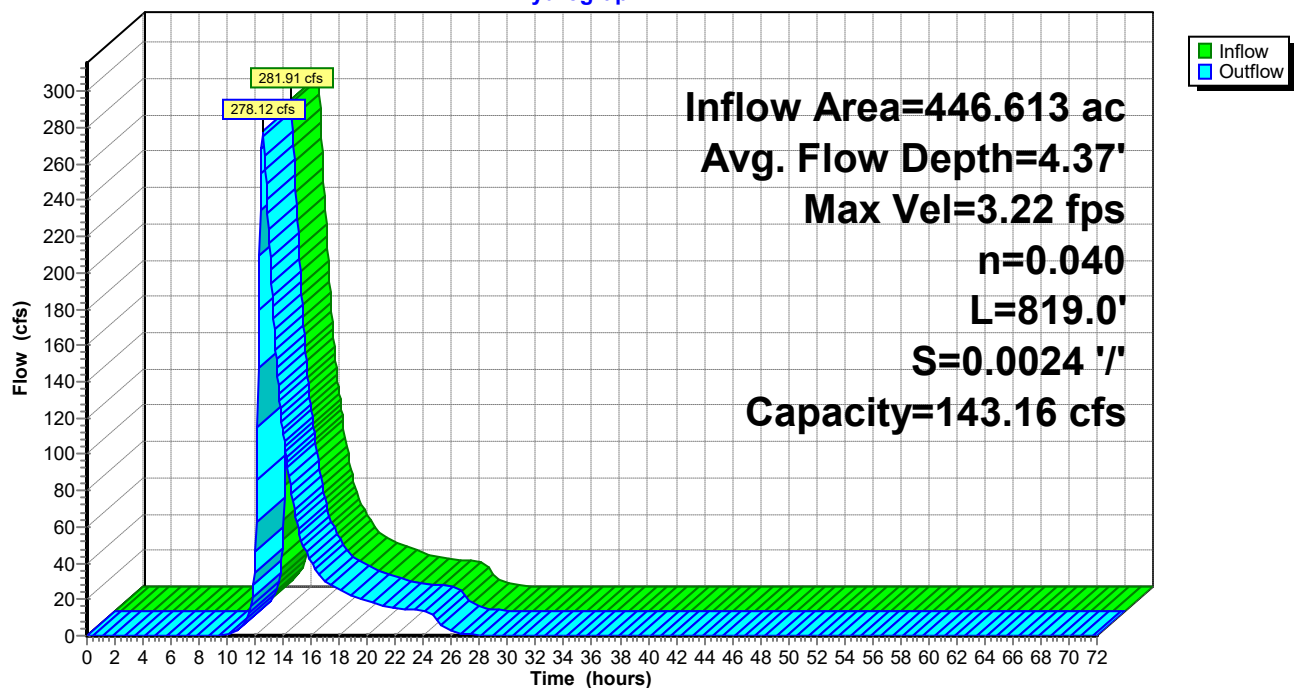
Length= 819.0' Slope= 0.0024 '/'

Inlet Invert= 40.00', Outlet Invert= 38.00'



Reach EX-R-2: Existing Reach 2

Hydrograph



Aspire - Proposed

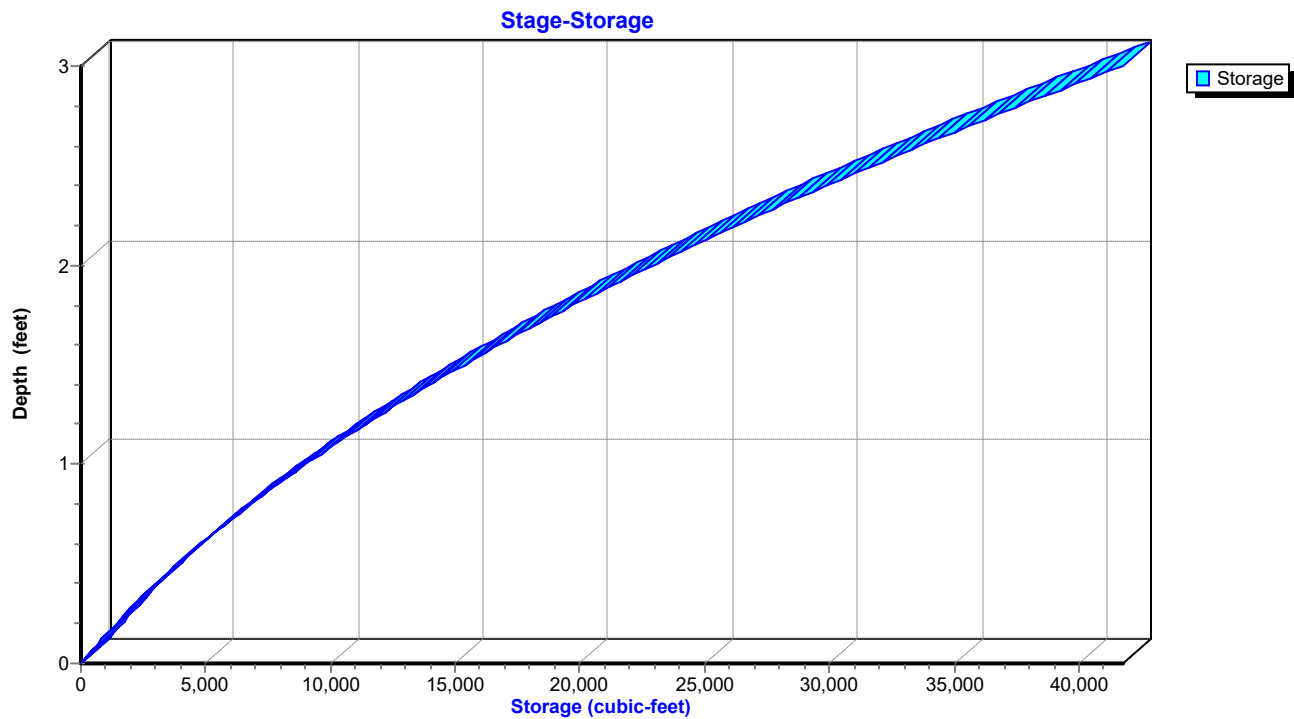
Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Reach EX-R-2: Existing Reach 2



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach EX-R-2: Existing Reach 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	40.00	0.00
2.50	0.00	0	40.00	0.00
5.00	0.00	0	40.00	0.00
7.50	0.00	0	40.00	0.00
10.00	0.70	474	40.07	0.18
12.50	281.53	70,352	44.35	276.05
15.00	58.97	22,545	41.98	61.51
17.50	26.81	12,570	41.29	27.21
20.00	18.78	9,787	41.07	19.07
22.50	14.83	8,244	40.93	14.91
25.00	6.58	5,236	40.64	7.68
27.50	0.26	804	40.12	0.42
30.00	0.02	192	40.03	0.04
32.50	0.01	66	40.01	0.01
35.00	0.00	26	40.00	0.01
37.50	0.00	14	40.00	0.00
40.00	0.00	9	40.00	0.00
42.50	0.00	5	40.00	0.00
45.00	0.00	4	40.00	0.00
47.50	0.00	3	40.00	0.00
50.00	0.00	2	40.00	0.00
52.50	0.00	2	40.00	0.00
55.00	0.00	1	40.00	0.00
57.50	0.00	1	40.00	0.00
60.00	0.00	1	40.00	0.00
62.50	0.00	1	40.00	0.00
65.00	0.00	0	40.00	0.00
67.50	0.00	0	40.00	0.00
70.00	0.00	0	40.00	0.00

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Stage-Area-Storage for Reach EX-R-2: Existing Reach 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
40.00	0.0	0	42.60	41.1	33,645
40.05	0.4	334	42.65	42.3	34,618
40.10	0.8	680	42.70	43.5	35,602
40.15	1.3	1,038	42.75	44.7	36,600
40.20	1.7	1,409	42.80	45.9	37,609
40.25	2.2	1,792	42.85	47.2	38,630
40.30	2.7	2,187	42.90	48.4	39,665
40.35	3.2	2,595	42.95	49.7	40,711
40.40	3.7	3,014	43.00	51.0	41,769
40.45	4.2	3,446			
40.50	4.8	3,891			
40.55	5.3	4,347			
40.60	5.9	4,816			
40.65	6.5	5,297			
40.70	7.1	5,791			
40.75	7.7	6,296			
40.80	8.3	6,815			
40.85	9.0	7,345			
40.90	9.6	7,887			
40.95	10.3	8,442			
41.00	11.0	9,009			
41.05	11.7	9,588			
41.10	12.4	10,181			
41.15	13.2	10,785			
41.20	13.9	11,400			
41.25	14.7	12,030			
41.30	15.5	12,670			
41.35	16.3	13,323			
41.40	17.1	13,989			
41.45	17.9	14,667			
41.50	18.8	15,356			
41.55	19.6	16,059			
41.60	20.5	16,774			
41.65	21.4	17,500			
41.70	22.3	18,240			
41.75	23.2	18,991			
41.80	24.1	19,754			
41.85	25.1	20,531			
41.90	26.0	21,319			
41.95	27.0	22,119			
42.00	28.0	22,932			
42.05	29.0	23,758			
42.10	30.0	24,595			
42.15	31.1	25,445			
42.20	32.1	26,307			
42.25	33.2	27,181			
42.30	34.3	28,068			
42.35	35.4	28,966			
42.40	36.5	29,877			
42.45	37.6	30,801			
42.50	38.8	31,737			
42.55	39.9	32,684			

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Reach EX-R-3: Existing Reach 3

Inflow Area = 11.140 ac, 23.79% Impervious, Inflow Depth = 1.57" for 2-YR event
Inflow = 13.50 cfs @ 12.07 hrs, Volume= 1.454 af
Outflow = 10.68 cfs @ 12.20 hrs, Volume= 1.454 af, Atten= 21%, Lag= 7.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.19 fps, Min. Travel Time= 10.2 min

Avg. Velocity= 0.21 fps, Avg. Travel Time= 56.5 min

Peak Storage= 6,563 cf @ 12.20 hrs

Average Depth at Peak Storage= 1.30'

Bank-Full Depth= 2.00' Flow Area= 18.0 sf, Capacity= 27.19 cfs

3.00' x 2.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 15.00'

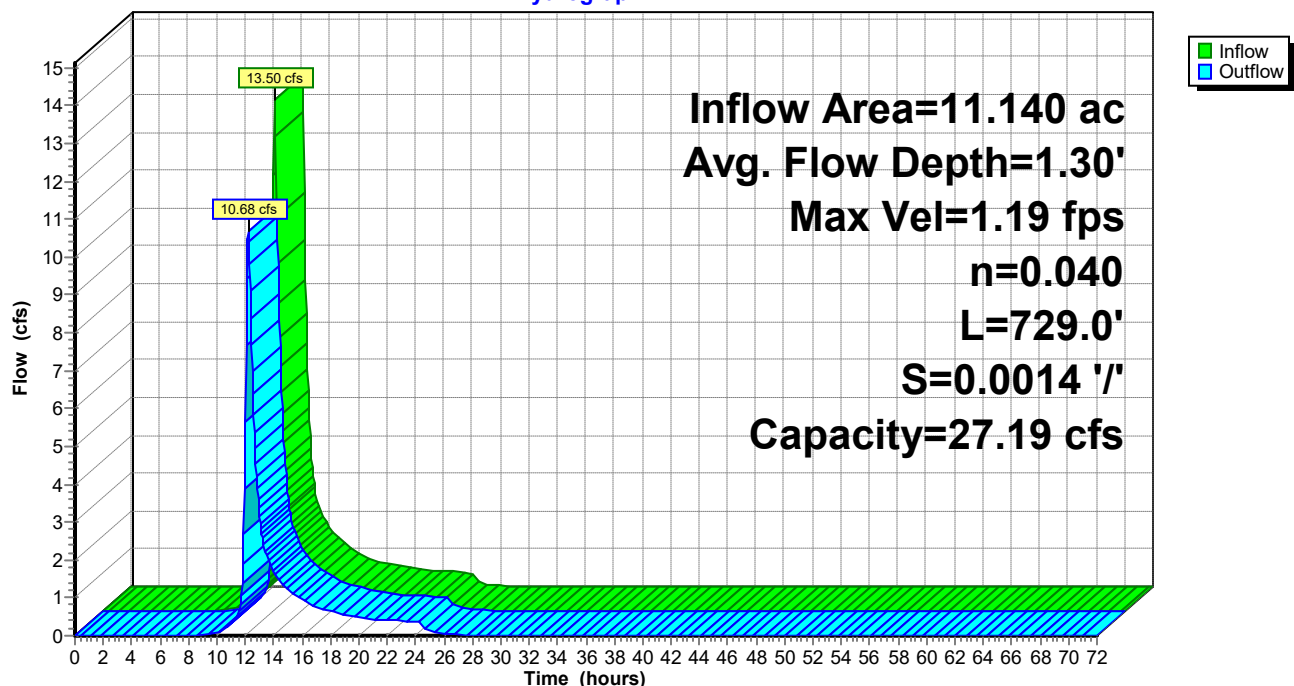
Length= 729.0' Slope= 0.0014 '/'

Inlet Invert= 43.00', Outlet Invert= 42.00'

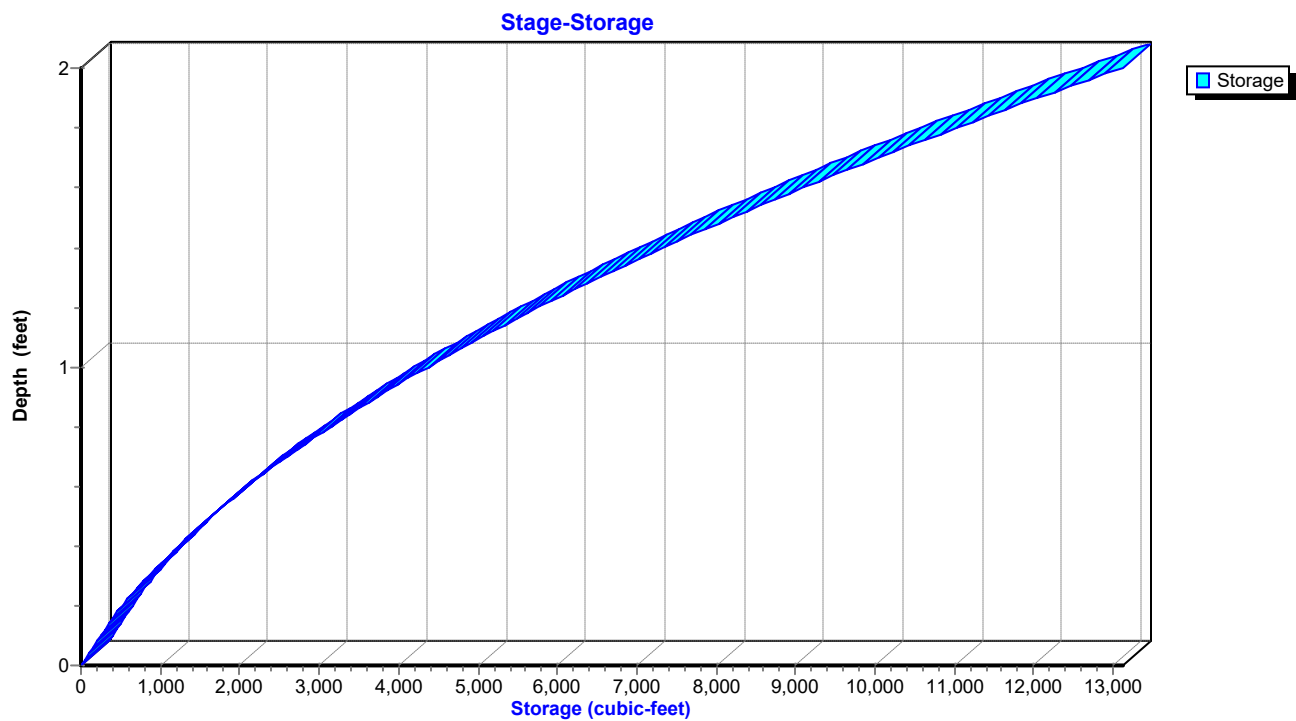


Reach EX-R-3: Existing Reach 3

Hydrograph



Reach EX-R-3: Existing Reach 3



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Reach EX-R-3: Existing Reach 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	43.00	0.00
2.50	0.00	0	43.00	0.00
5.00	0.00	0	43.00	0.00
7.50	0.00	0	43.00	0.00
10.00	0.14	235	43.10	0.09
12.50	5.18	4,801	44.06	6.99
15.00	1.16	1,372	43.44	1.23
17.50	0.67	923	43.32	0.70
20.00	0.47	728	43.26	0.49
22.50	0.40	636	43.24	0.40
25.00	0.06	307	43.12	0.13
27.50	0.01	78	43.03	0.02
30.00	0.00	37	43.02	0.01
32.50	0.00	19	43.01	0.00
35.00	0.00	9	43.00	0.00
37.50	0.00	5	43.00	0.00
40.00	0.00	3	43.00	0.00
42.50	0.00	2	43.00	0.00
45.00	0.00	1	43.00	0.00
47.50	0.00	1	43.00	0.00
50.00	0.00	1	43.00	0.00
52.50	0.00	1	43.00	0.00
55.00	0.00	0	43.00	0.00
57.50	0.00	0	43.00	0.00
60.00	0.00	0	43.00	0.00
62.50	0.00	0	43.00	0.00
65.00	0.00	0	43.00	0.00
67.50	0.00	0	43.00	0.00
70.00	0.00	0	43.00	0.00

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Stage-Area-Storage for Reach EX-R-3: Existing Reach 3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
43.00	0.0	0	44.04	6.4	4,640
43.02	0.1	45	44.06	6.6	4,776
43.04	0.1	91	44.08	6.7	4,913
43.06	0.2	139	44.10	6.9	5,052
43.08	0.3	189	44.12	7.1	5,193
43.10	0.3	241	44.14	7.3	5,335
43.12	0.4	294	44.16	7.5	5,480
43.14	0.5	349	44.18	7.7	5,626
43.16	0.6	406	44.20	7.9	5,774
43.18	0.6	465	44.22	8.1	5,923
43.20	0.7	525	44.24	8.3	6,075
43.22	0.8	587	44.26	8.5	6,228
43.24	0.9	651	44.28	8.8	6,383
43.26	1.0	716	44.30	9.0	6,539
43.28	1.1	784	44.32	9.2	6,697
43.30	1.2	853	44.34	9.4	6,858
43.32	1.3	924	44.36	9.6	7,019
43.34	1.4	996	44.38	9.9	7,183
43.36	1.5	1,071	44.40	10.1	7,348
43.38	1.6	1,147	44.42	10.3	7,515
43.40	1.7	1,225	44.44	10.5	7,684
43.42	1.8	1,304	44.46	10.8	7,855
43.44	1.9	1,386	44.48	11.0	8,027
43.46	2.0	1,469	44.50	11.3	8,201
43.48	2.1	1,554	44.52	11.5	8,377
43.50	2.3	1,640	44.54	11.7	8,555
43.52	2.4	1,729	44.56	12.0	8,734
43.54	2.5	1,819	44.58	12.2	8,915
43.56	2.6	1,911	44.60	12.5	9,098
43.58	2.7	2,004	44.62	12.7	9,283
43.60	2.9	2,100	44.64	13.0	9,469
43.62	3.0	2,197	44.66	13.2	9,657
43.64	3.1	2,295	44.68	13.5	9,847
43.66	3.3	2,396	44.70	13.8	10,038
43.68	3.4	2,498	44.72	14.0	10,232
43.70	3.6	2,603	44.74	14.3	10,427
43.72	3.7	2,708	44.76	14.6	10,624
43.74	3.9	2,816	44.78	14.8	10,822
43.76	4.0	2,925	44.80	15.1	11,022
43.78	4.2	3,036	44.82	15.4	11,225
43.80	4.3	3,149	44.84	15.7	11,428
43.82	4.5	3,264	44.86	16.0	11,634
43.84	4.6	3,380	44.88	16.2	11,841
43.86	4.8	3,498	44.90	16.5	12,050
43.88	5.0	3,618	44.92	16.8	12,261
43.90	5.1	3,740	44.94	17.1	12,474
43.92	5.3	3,863	44.96	17.4	12,688
43.94	5.5	3,988	44.98	17.7	12,904
43.96	5.6	4,115	45.00	18.0	13,122
43.98	5.8	4,244			
44.00	6.0	4,374			
44.02	6.2	4,506			

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Reach EX-R-4: Existing Reach 4

Inflow Area = 7.608 ac, 28.41% Impervious, Inflow Depth = 2.05" for 2-YR event
Inflow = 8.76 cfs @ 12.07 hrs, Volume= 1.301 af
Outflow = 7.02 cfs @ 12.20 hrs, Volume= 1.301 af, Atten= 20%, Lag= 7.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.82 fps, Min. Travel Time= 9.4 min

Avg. Velocity= 0.18 fps, Avg. Travel Time= 42.5 min

Peak Storage= 3,961 cf @ 12.20 hrs

Average Depth at Peak Storage= 0.68'

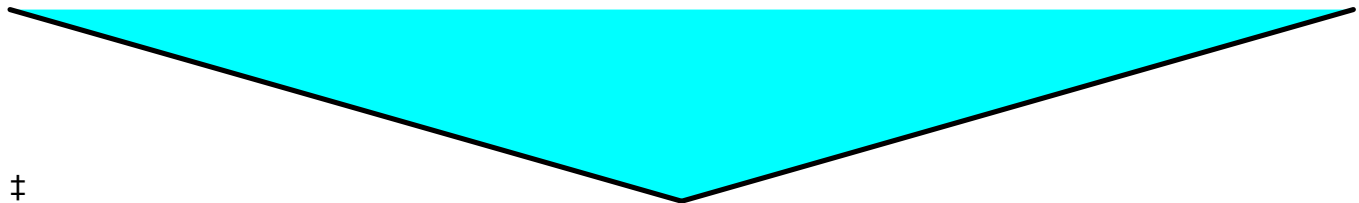
Bank-Full Depth= 0.50' Flow Area= 5.0 sf, Capacity= 3.62 cfs

0.00' x 0.50' deep channel, n= 0.100 Heavy timber, flow below branches

Side Slope Z-value= 20.0 ' Top Width= 20.00'

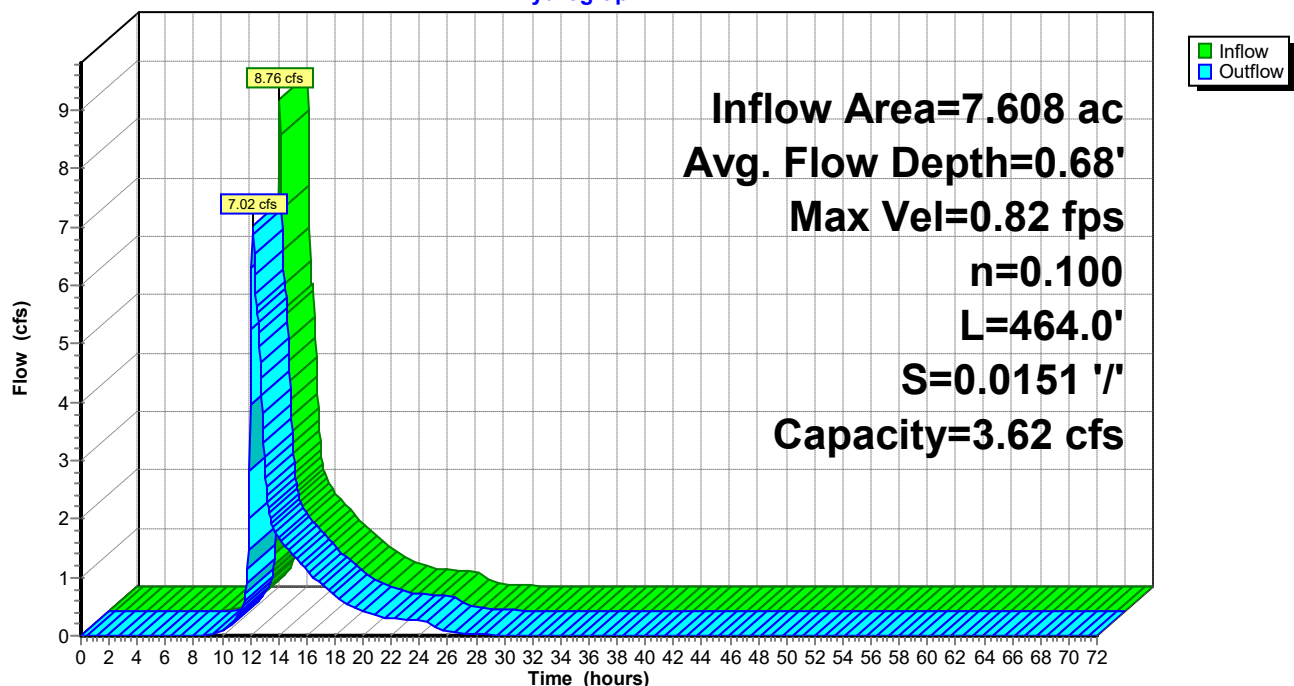
Length= 464.0' Slope= 0.0151 '/'

Inlet Invert= 47.00', Outlet Invert= 40.00'



Reach EX-R-4: Existing Reach 4

Hydrograph



Aspire - Proposed

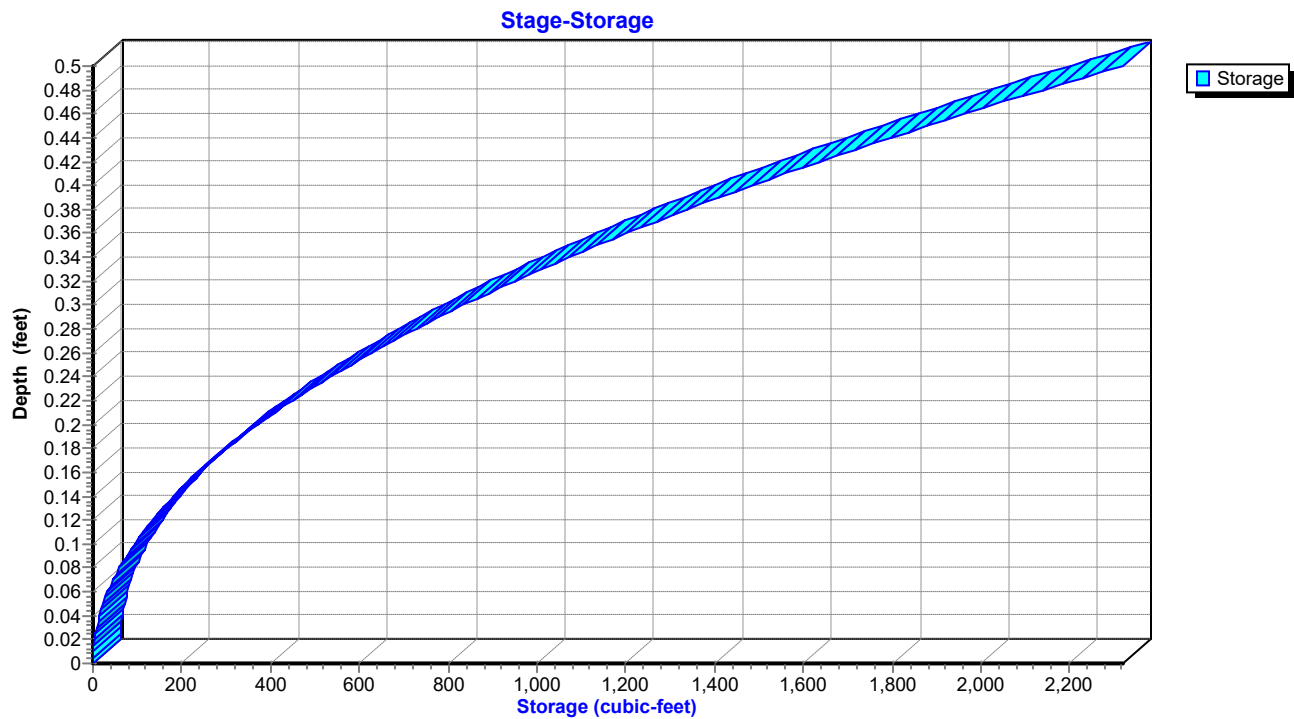
Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

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Reach EX-R-4: Existing Reach 4



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Reach EX-R-4: Existing Reach 4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	47.00	0.00
2.50	0.00	0	47.00	0.00
5.00	0.00	0	47.00	0.00
7.50	0.00	0	47.00	0.00
10.00	0.10	120	47.11	0.07
12.50	5.21	3,233	47.60	5.51
15.00	1.33	1,123	47.35	1.38
17.50	0.75	739	47.28	0.79
20.00	0.39	454	47.22	0.41
22.50	0.29	350	47.19	0.29
25.00	0.11	213	47.15	0.15
27.50	0.01	63	47.08	0.03
30.00	0.01	25	47.05	0.01
32.50	0.00	13	47.04	0.00
35.00	0.00	7	47.03	0.00
37.50	0.00	6	47.03	0.00
40.00	0.00	4	47.02	0.00
42.50	0.00	3	47.02	0.00
45.00	0.00	3	47.02	0.00
47.50	0.00	2	47.02	0.00
50.00	0.00	2	47.01	0.00
52.50	0.00	1	47.01	0.00
55.00	0.00	1	47.01	0.00
57.50	0.00	1	47.01	0.00
60.00	0.00	1	47.01	0.00
62.50	0.00	1	47.01	0.00
65.00	0.00	0	47.01	0.00
67.50	0.00	0	47.01	0.00
70.00	0.00	0	47.00	0.00

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Stage-Area-Storage for Reach EX-R-4: Existing Reach 4

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
47.00	0.0	0
47.01	0.0	1
47.02	0.0	4
47.03	0.0	8
47.04	0.0	15
47.05	0.1	23
47.06	0.1	33
47.07	0.1	45
47.08	0.1	59
47.09	0.2	75
47.10	0.2	93
47.11	0.2	112
47.12	0.3	134
47.13	0.3	157
47.14	0.4	182
47.15	0.4	209
47.16	0.5	238
47.17	0.6	268
47.18	0.6	301
47.19	0.7	335
47.20	0.8	371
47.21	0.9	409
47.22	1.0	449
47.23	1.1	491
47.24	1.2	535
47.25	1.3	580
47.26	1.4	627
47.27	1.5	677
47.28	1.6	728
47.29	1.7	780
47.30	1.8	835
47.31	1.9	892
47.32	2.0	950
47.33	2.2	1,011
47.34	2.3	1,073
47.35	2.5	1,137
47.36	2.6	1,203
47.37	2.7	1,270
47.38	2.9	1,340
47.39	3.0	1,411
47.40	3.2	1,485
47.41	3.4	1,560
47.42	3.5	1,637
47.43	3.7	1,716
47.44	3.9	1,797
47.45	4.0	1,879
47.46	4.2	1,964
47.47	4.4	2,050
47.48	4.6	2,138
47.49	4.8	2,228
47.50	5.0	2,320

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Reach PR-R-1: Proposed Reach 1

Inflow Area = 7.608 ac, 28.41% Impervious, Inflow Depth = 2.05" for 2-YR event
Inflow = 8.81 cfs @ 12.06 hrs, Volume= 1.301 af
Outflow = 8.76 cfs @ 12.07 hrs, Volume= 1.301 af, Atten= 1%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.17 fps, Min. Travel Time= 1.2 min

Avg. Velocity = 0.76 fps, Avg. Travel Time= 4.8 min

Peak Storage= 609 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.96'

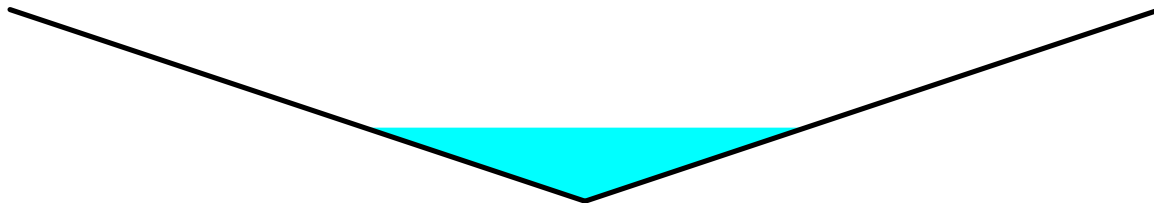
Bank-Full Depth= 2.50' Flow Area= 18.8 sf, Capacity= 112.93 cfs

0.00' x 2.50' deep channel, n= 0.022 Earth, clean & straight

Side Slope Z-value= 3.0 '/' Top Width= 15.00'

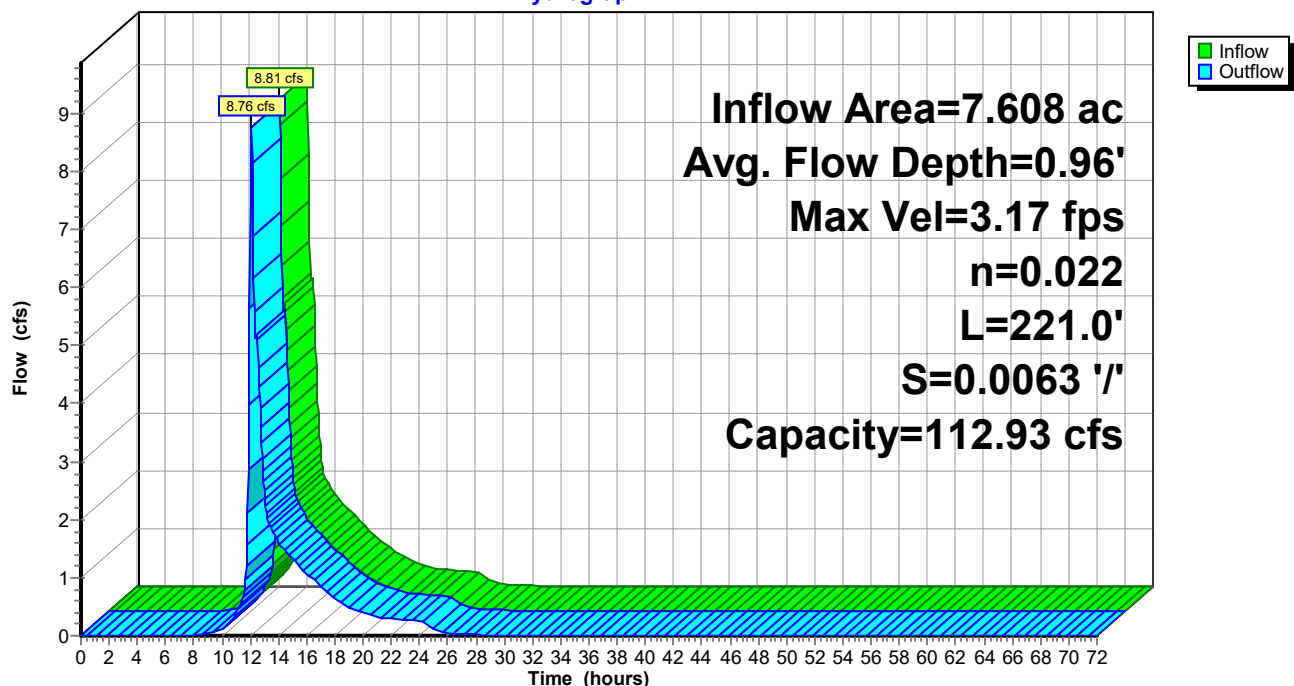
Length= 221.0' Slope= 0.0063 '/'

Inlet Invert= 47.40', Outlet Invert= 46.00'



Reach PR-R-1: Proposed Reach 1

Hydrograph



Aspire - Proposed

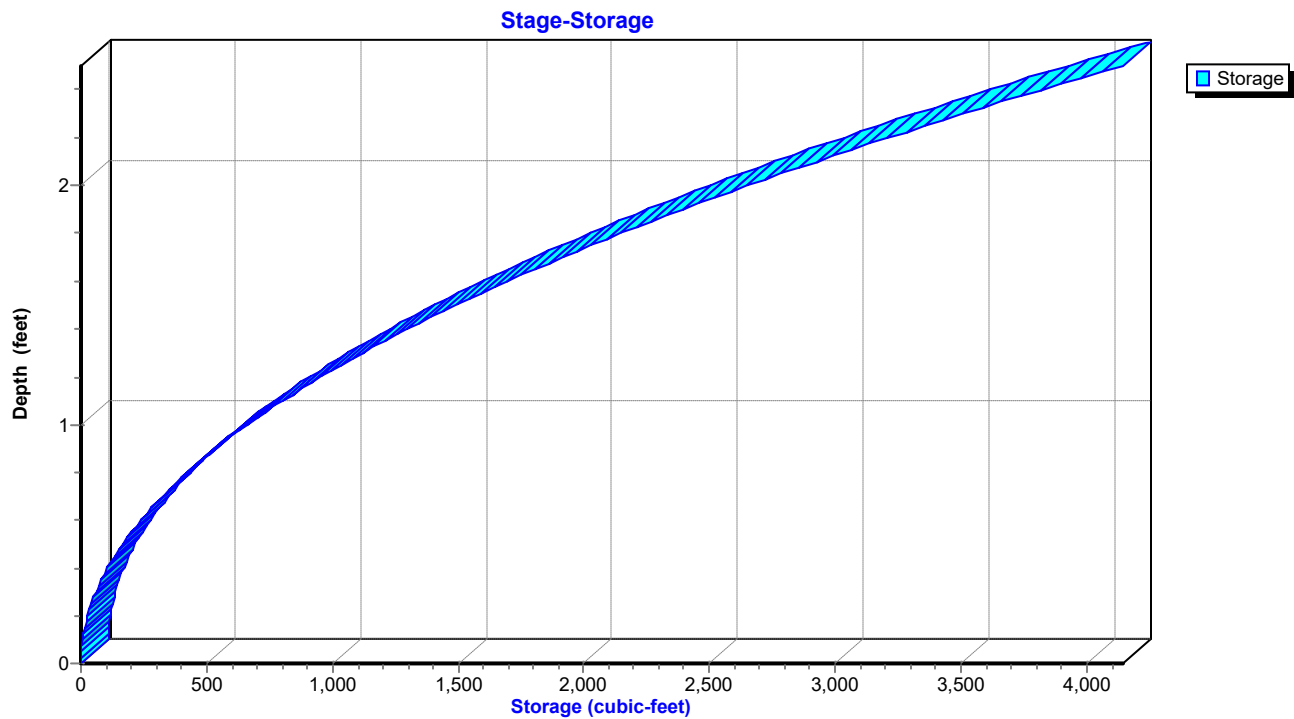
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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Reach PR-R-1: Proposed Reach 1



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Reach PR-R-1: Proposed Reach 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	47.40	0.00
2.50	0.00	0	47.40	0.00
5.00	0.00	0	47.40	0.00
7.50	0.00	0	47.40	0.00
10.00	0.13	22	47.58	0.10
12.50	5.15	412	48.19	5.21
15.00	1.33	148	47.87	1.33
17.50	0.74	96	47.78	0.75
20.00	0.38	59	47.70	0.39
22.50	0.29	47	47.67	0.29
25.00	0.11	23	47.59	0.11
27.50	0.00	5	47.48	0.01
30.00	0.01	2	47.46	0.01
32.50	0.00	2	47.45	0.00
35.00	0.01	1	47.44	0.00
37.50	0.00	0	47.42	0.00
40.00	0.00	0	47.41	0.00
42.50	0.00	0	47.41	0.00
45.00	0.00	0	47.41	0.00
47.50	0.00	0	47.42	0.00
50.00	0.00	0	47.40	0.00
52.50	0.00	0	47.41	0.00
55.00	0.00	0	47.40	0.00
57.50	0.00	0	47.40	0.00
60.00	0.00	0	47.40	0.00
62.50	0.00	0	47.40	0.00
65.00	0.00	0	47.40	0.00
67.50	0.00	0	47.40	0.00
70.00	0.00	0	47.40	0.00

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 12/5/2022

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Stage-Area-Storage for Reach PR-R-1: Proposed Reach 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
47.40	0.0	0
47.45	0.0	2
47.50	0.0	7
47.55	0.1	15
47.60	0.1	27
47.65	0.2	41
47.70	0.3	60
47.75	0.4	81
47.80	0.5	106
47.85	0.6	134
47.90	0.8	166
47.95	0.9	201
48.00	1.1	239
48.05	1.3	280
48.10	1.5	325
48.15	1.7	373
48.20	1.9	424
48.25	2.2	479
48.30	2.4	537
48.35	2.7	598
48.40	3.0	663
48.45	3.3	731
48.50	3.6	802
48.55	4.0	877
48.60	4.3	955
48.65	4.7	1,036
48.70	5.1	1,120
48.75	5.5	1,208
48.80	5.9	1,299
48.85	6.3	1,394
48.90	6.8	1,492
48.95	7.2	1,593
49.00	7.7	1,697
49.05	8.2	1,805
49.10	8.7	1,916
49.15	9.2	2,030
49.20	9.7	2,148
49.25	10.3	2,269
49.30	10.8	2,393
49.35	11.4	2,521
49.40	12.0	2,652
49.45	12.6	2,786
49.50	13.2	2,924
49.55	13.9	3,065
49.60	14.5	3,209
49.65	15.2	3,356
49.70	15.9	3,507
49.75	16.6	3,661
49.80	17.3	3,819
49.85	18.0	3,980
49.90	18.8	4,144

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

Summary for Reach PR-R-2: Proposed Reach 2

Inflow Area = 5.341 ac, 6.24% Impervious, Inflow Depth = 1.77" for 2-YR event
Inflow = 9.06 cfs @ 12.07 hrs, Volume= 0.790 af
Outflow = 8.99 cfs @ 12.08 hrs, Volume= 0.790 af, Atten= 1%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.65 fps, Min. Travel Time= 0.6 min

Avg. Velocity= 1.07 fps, Avg. Travel Time= 1.6 min

Peak Storage= 339 cf @ 12.08 hrs

Average Depth at Peak Storage= 1.06'

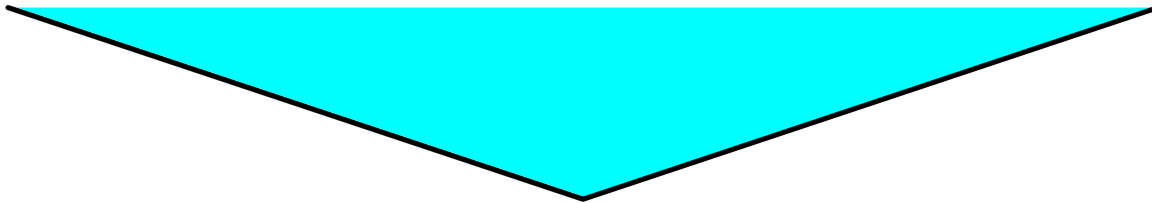
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 7.67 cfs

0.00' x 1.00' deep channel, n= 0.025

Side Slope Z-value= 3.0 '/' Top Width= 6.00'

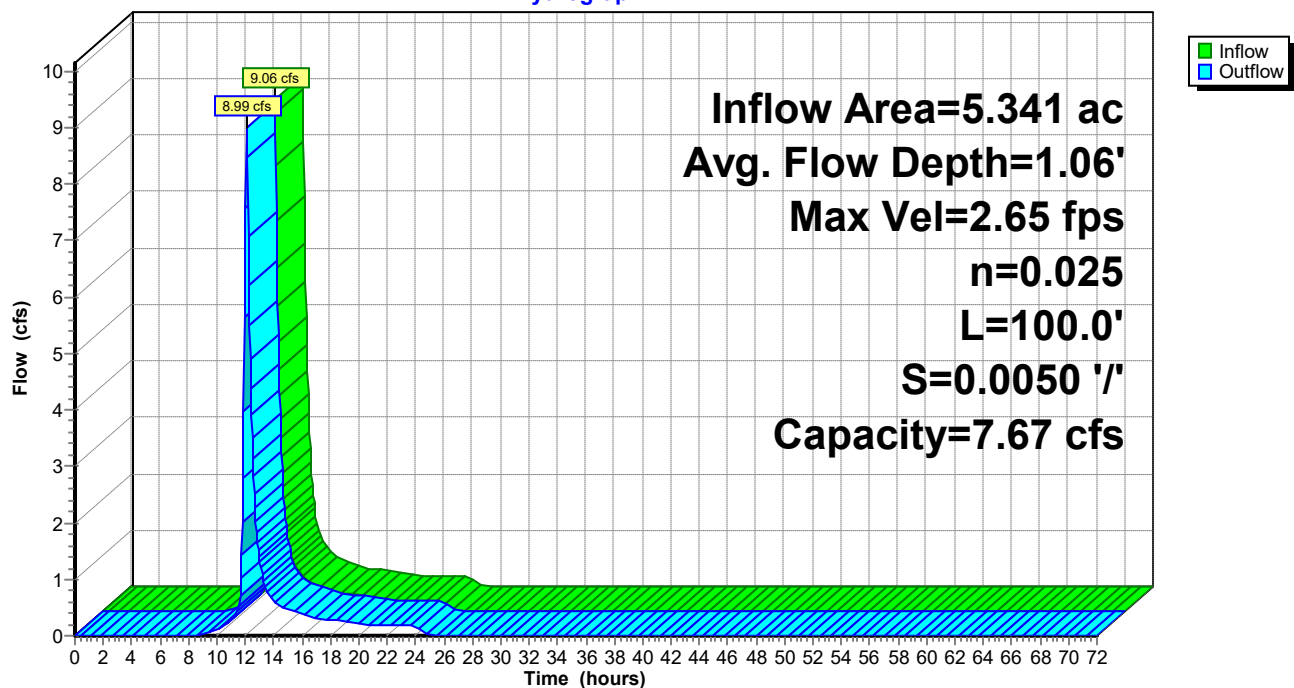
Length= 100.0' Slope= 0.0050 '/'

Inlet Invert= 47.50', Outlet Invert= 47.00'

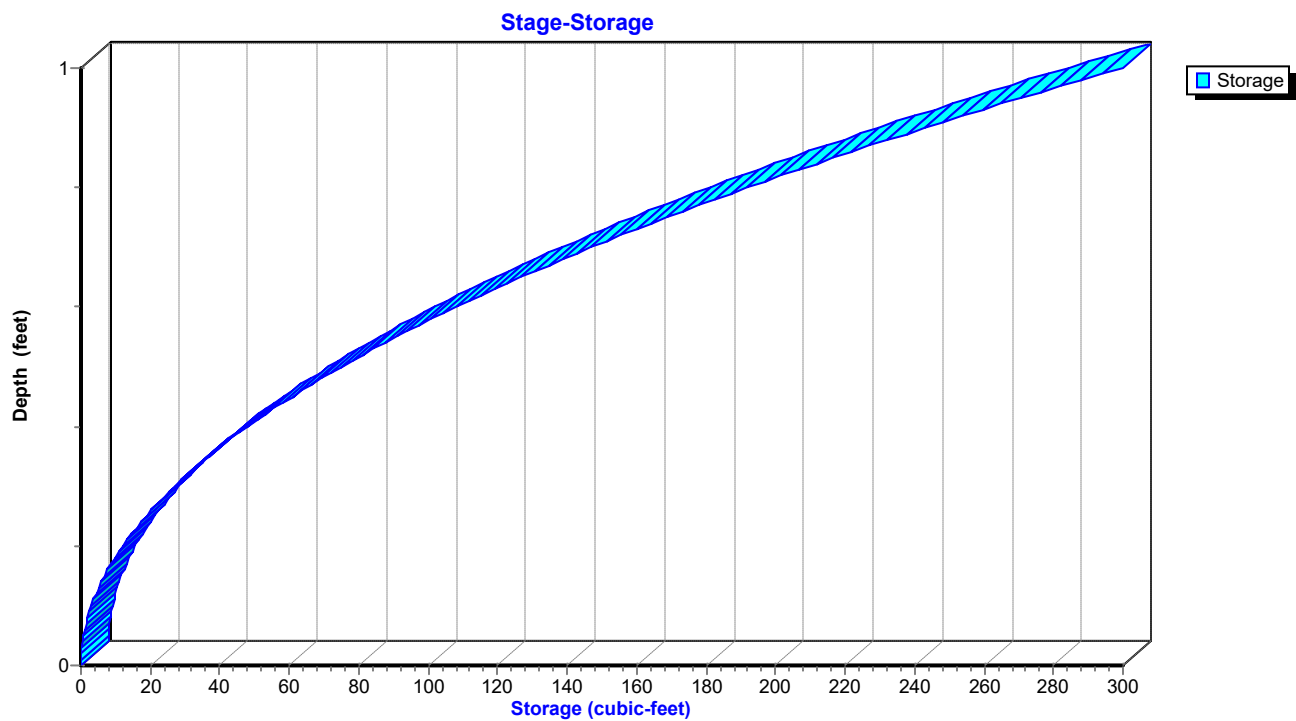


Reach PR-R-2: Proposed Reach 2

Hydrograph



Reach PR-R-2: Proposed Reach 2



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Reach PR-R-2: Proposed Reach 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	47.50	0.00
2.50	0.00	0	47.50	0.00
5.00	0.00	0	47.50	0.00
7.50	0.00	0	47.50	0.00
10.00	0.09	11	47.69	0.09
12.50	3.43	167	48.25	3.50
15.00	0.47	37	47.85	0.47
17.50	0.30	26	47.80	0.30
20.00	0.21	20	47.76	0.21
22.50	0.18	18	47.75	0.18
25.00	0.00	1	47.56	0.00
27.50	0.00	0	47.50	0.00
30.00	0.00	0	47.50	0.00
32.50	0.00	0	47.50	0.00
35.00	0.00	0	47.50	0.00
37.50	0.00	0	47.50	0.00
40.00	0.00	0	47.50	0.00
42.50	0.00	0	47.50	0.00
45.00	0.00	0	47.50	0.00
47.50	0.00	0	47.50	0.00
50.00	0.00	0	47.50	0.00
52.50	0.00	0	47.50	0.00
55.00	0.00	0	47.50	0.00
57.50	0.00	0	47.50	0.00
60.00	0.00	0	47.50	0.00
62.50	0.00	0	47.50	0.00
65.00	0.00	0	47.50	0.00
67.50	0.00	0	47.50	0.00
70.00	0.00	0	47.50	0.00

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Stage-Area-Storage for Reach PR-R-2: Proposed Reach 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
47.50	0.0	0	48.02	0.8	81
47.51	0.0	0	48.03	0.8	84
47.52	0.0	0	48.04	0.9	87
47.53	0.0	0	48.05	0.9	91
47.54	0.0	0	48.06	0.9	94
47.55	0.0	1	48.07	1.0	97
47.56	0.0	1	48.08	1.0	101
47.57	0.0	1	48.09	1.0	104
47.58	0.0	2	48.10	1.1	108
47.59	0.0	2	48.11	1.1	112
47.60	0.0	3	48.12	1.2	115
47.61	0.0	4	48.13	1.2	119
47.62	0.0	4	48.14	1.2	123
47.63	0.1	5	48.15	1.3	127
47.64	0.1	6	48.16	1.3	131
47.65	0.1	7	48.17	1.3	135
47.66	0.1	8	48.18	1.4	139
47.67	0.1	9	48.19	1.4	143
47.68	0.1	10	48.20	1.5	147
47.69	0.1	11	48.21	1.5	151
47.70	0.1	12	48.22	1.6	156
47.71	0.1	13	48.23	1.6	160
47.72	0.1	15	48.24	1.6	164
47.73	0.2	16	48.25	1.7	169
47.74	0.2	17	48.26	1.7	173
47.75	0.2	19	48.27	1.8	178
47.76	0.2	20	48.28	1.8	183
47.77	0.2	22	48.29	1.9	187
47.78	0.2	24	48.30	1.9	192
47.79	0.3	25	48.31	2.0	197
47.80	0.3	27	48.32	2.0	202
47.81	0.3	29	48.33	2.1	207
47.82	0.3	31	48.34	2.1	212
47.83	0.3	33	48.35	2.2	217
47.84	0.3	35	48.36	2.2	222
47.85	0.4	37	48.37	2.3	227
47.86	0.4	39	48.38	2.3	232
47.87	0.4	41	48.39	2.4	238
47.88	0.4	43	48.40	2.4	243
47.89	0.5	46	48.41	2.5	248
47.90	0.5	48	48.42	2.5	254
47.91	0.5	50	48.43	2.6	259
47.92	0.5	53	48.44	2.7	265
47.93	0.6	55	48.45	2.7	271
47.94	0.6	58	48.46	2.8	276
47.95	0.6	61	48.47	2.8	282
47.96	0.6	63	48.48	2.9	288
47.97	0.7	66	48.49	2.9	294
47.98	0.7	69	48.50	3.0	300
47.99	0.7	72			
48.00	0.8	75			
48.01	0.8	78			

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

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Summary for Pond FB-1: FB to SGW 1

Inflow Area = 3.305 ac, 69.42% Impervious, Inflow Depth = 2.45" for 2-YR event
 Inflow = 9.55 cfs @ 12.01 hrs, Volume= 0.674 af
 Outflow = 0.93 cfs @ 12.81 hrs, Volume= 0.279 af, Atten= 90%, Lag= 47.7 min
 Primary = 0.93 cfs @ 12.81 hrs, Volume= 0.279 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 47.64' @ 12.81 hrs Surf.Area= 9,929 sf Storage= 18,561 cf

Plug-Flow detention time= 309.6 min calculated for 0.279 af (41% of inflow)
 Center-of-Mass det. time= 188.6 min (993.1 - 804.4)

Volume	Invert	Avail.Storage	Storage Description
#1	45.50'	27,690 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.50	7,419	0	0
48.50	10,938	27,536	27,536
48.51	20,000	155	27,690

Device	Routing	Invert	Outlet Devices
#1	Primary	47.50'	7.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.93 cfs @ 12.81 hrs HW=47.64' TW=45.67' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 0.93 cfs @ 0.95 fps)

Aspire - Proposed

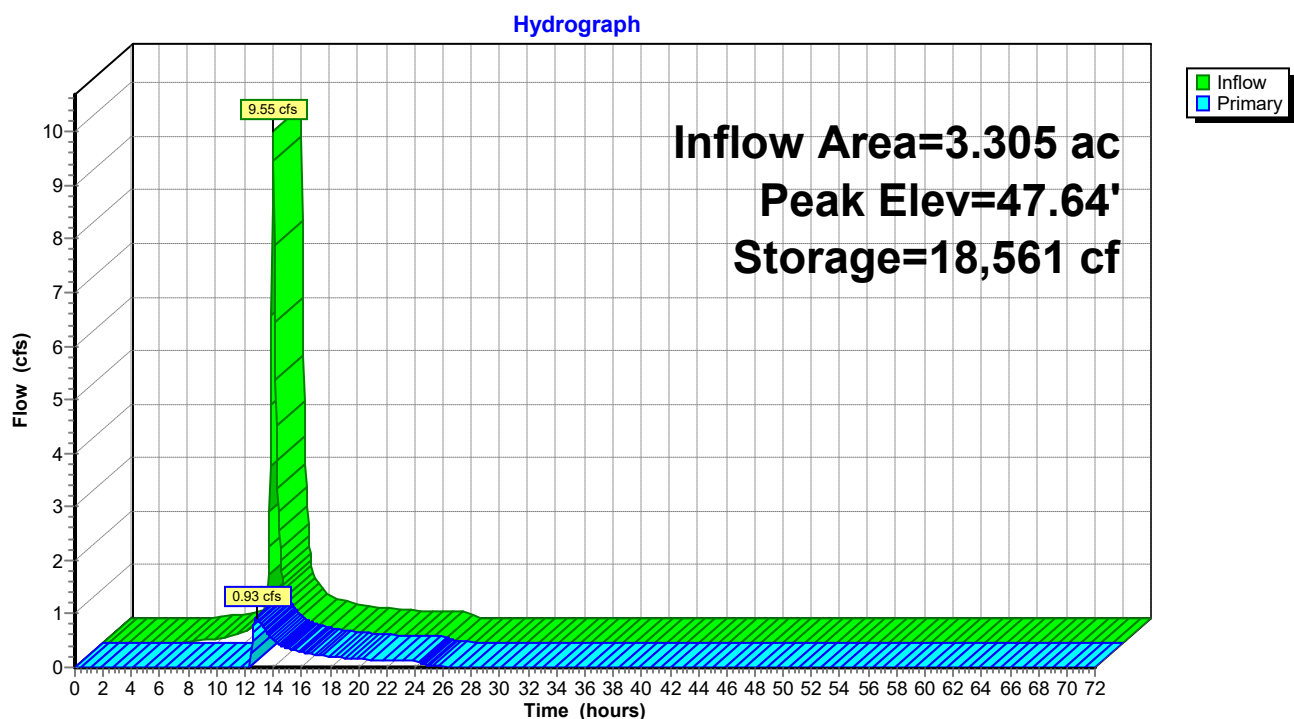
Prepared by {enter your company name here}

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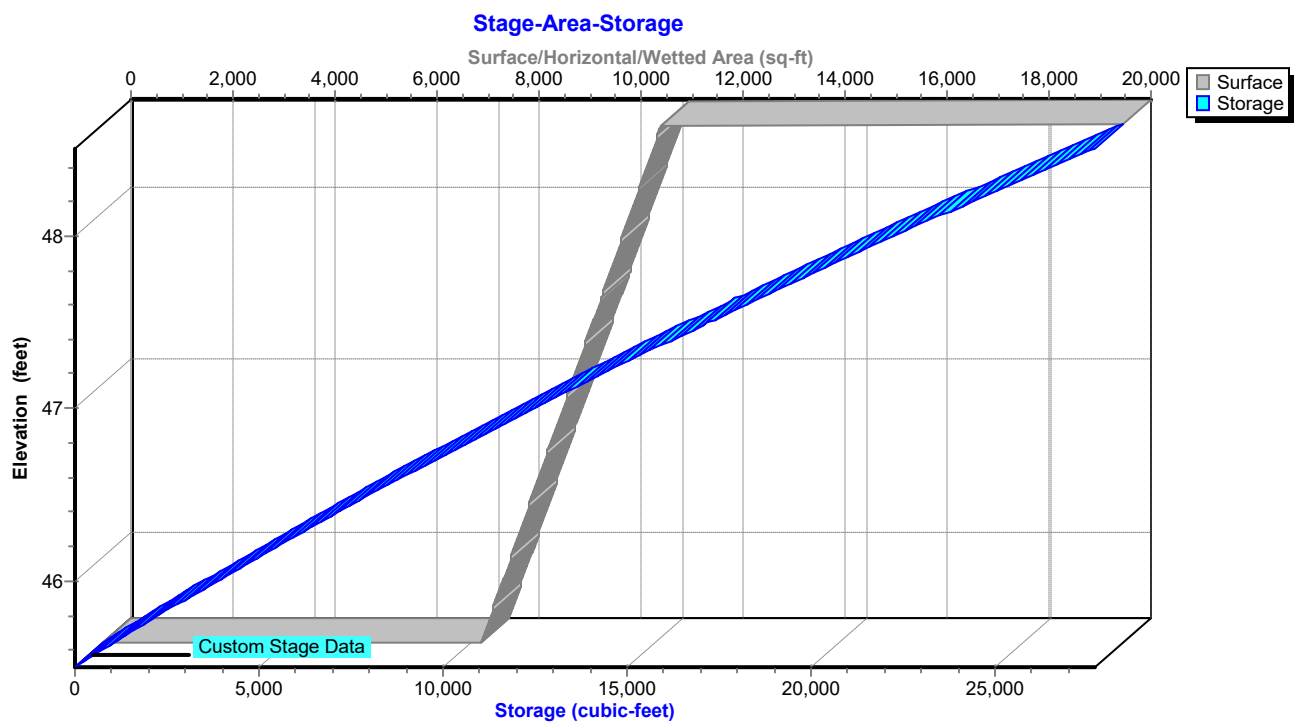
Type II 24-hr 2-YR Rainfall=3.40"

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Pond FB-1: FB to SGW 1



Pond FB-1: FB to SGW 1



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Pond FB-1: FB to SGW 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	45.50	0.00
2.50	0.00	0	45.50	0.00
5.00	0.00	1	45.50	0.00
7.50	0.06	264	45.54	0.00
10.00	0.20	1,326	45.68	0.00
12.50	1.78	18,071	47.59	0.48
15.00	0.33	17,918	47.57	0.36
17.50	0.21	17,711	47.55	0.22
20.00	0.14	17,602	47.54	0.16
22.50	0.13	17,552	47.54	0.13
25.00	0.00	17,345	47.52	0.04
27.50	0.00	17,222	47.50	0.00
30.00	0.00	17,201	47.50	0.00
32.50	0.00	17,193	47.50	0.00
35.00	0.00	17,190	47.50	0.00
37.50	0.00	17,188	47.50	0.00
40.00	0.00	17,187	47.50	0.00
42.50	0.00	17,186	47.50	0.00
45.00	0.00	17,186	47.50	0.00
47.50	0.00	17,185	47.50	0.00
50.00	0.00	17,185	47.50	0.00
52.50	0.00	17,185	47.50	0.00
55.00	0.00	17,185	47.50	0.00
57.50	0.00	17,185	47.50	0.00
60.00	0.00	17,185	47.50	0.00
62.50	0.00	17,184	47.50	0.00
65.00	0.00	17,184	47.50	0.00
67.50	0.00	17,184	47.50	0.00
70.00	0.00	17,184	47.50	0.00

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Stage-Area-Storage for Pond FB-1: FB to SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
45.50	7,419	0	48.10	10,469	23,254
45.55	7,478	372	48.15	10,527	23,779
45.60	7,536	748	48.20	10,586	24,307
45.65	7,595	1,126	48.25	10,645	24,838
45.70	7,654	1,507	48.30	10,703	25,371
45.75	7,712	1,891	48.35	10,762	25,908
45.80	7,771	2,278	48.40	10,821	26,448
45.85	7,830	2,668	48.45	10,879	26,990
45.90	7,888	3,061	48.50	10,938	27,536
45.95	7,947	3,457			
46.00	8,006	3,856			
46.05	8,064	4,258			
46.10	8,123	4,663			
46.15	8,181	5,070			
46.20	8,240	5,481			
46.25	8,299	5,894			
46.30	8,357	6,311			
46.35	8,416	6,730			
46.40	8,475	7,152			
46.45	8,533	7,577			
46.50	8,592	8,006			
46.55	8,651	8,437			
46.60	8,709	8,871			
46.65	8,768	9,307			
46.70	8,827	9,747			
46.75	8,885	10,190			
46.80	8,944	10,636			
46.85	9,003	11,085			
46.90	9,061	11,536			
46.95	9,120	11,991			
47.00	9,179	12,448			
47.05	9,237	12,909			
47.10	9,296	13,372			
47.15	9,354	13,838			
47.20	9,413	14,307			
47.25	9,472	14,779			
47.30	9,530	15,254			
47.35	9,589	15,732			
47.40	9,648	16,213			
47.45	9,706	16,697			
47.50	9,765	17,184			
47.55	9,824	17,674			
47.60	9,882	18,166			
47.65	9,941	18,662			
47.70	10,000	19,160			
47.75	10,058	19,662			
47.80	10,117	20,166			
47.85	10,176	20,674			
47.90	10,234	21,184			
47.95	10,293	21,697			
48.00	10,352	22,213			
48.05	10,410	22,732			

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

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Summary for Pond FB-2: FB to SGW 2

Inflow Area = 3.241 ac, 66.40% Impervious, Inflow Depth = 2.35" for 2-YR event
 Inflow = 7.66 cfs @ 12.05 hrs, Volume= 0.636 af
 Outflow = 7.15 cfs @ 12.11 hrs, Volume= 0.636 af, Atten= 7%, Lag= 3.3 min
 Primary = 7.15 cfs @ 12.11 hrs, Volume= 0.636 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Starting Elev= 49.50' Surf.Area= 3,371 sf Storage= 5,375 cf
 Peak Elev= 50.04' @ 12.11 hrs Surf.Area= 3,736 sf Storage= 7,276 cf (1,901 cf above start)

Plug-Flow detention time= 127.8 min calculated for 0.513 af (81% of inflow)
 Center-of-Mass det. time= 9.2 min (823.1 - 813.9)

Volume	Invert	Avail.Storage	Storage Description
#1	47.50'	9,157 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.50	2,004	0	0
50.50	4,054	9,087	9,087
50.51	10,000	70	9,157

Device	Routing	Invert	Outlet Devices
#1	Primary	49.50'	7.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=7.11 cfs @ 12.11 hrs HW=50.03' TW=48.81' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 7.11 cfs @ 1.91 fps)

Aspire - Proposed

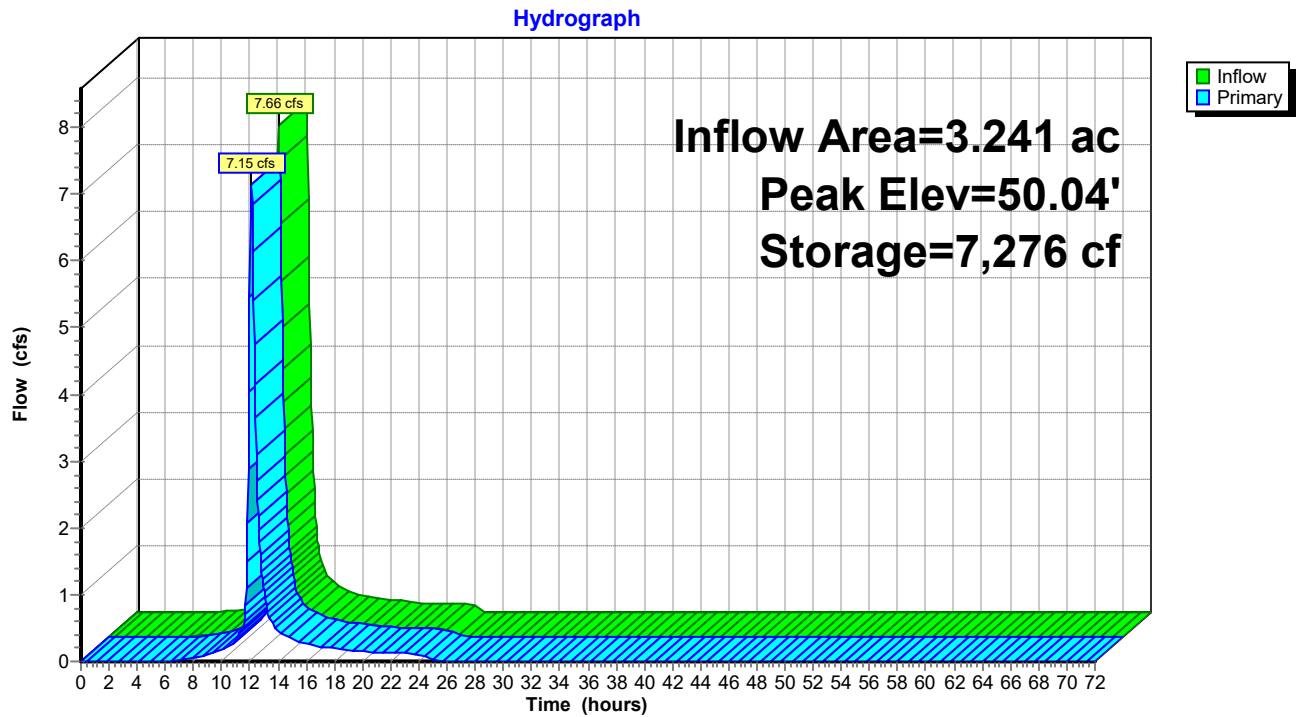
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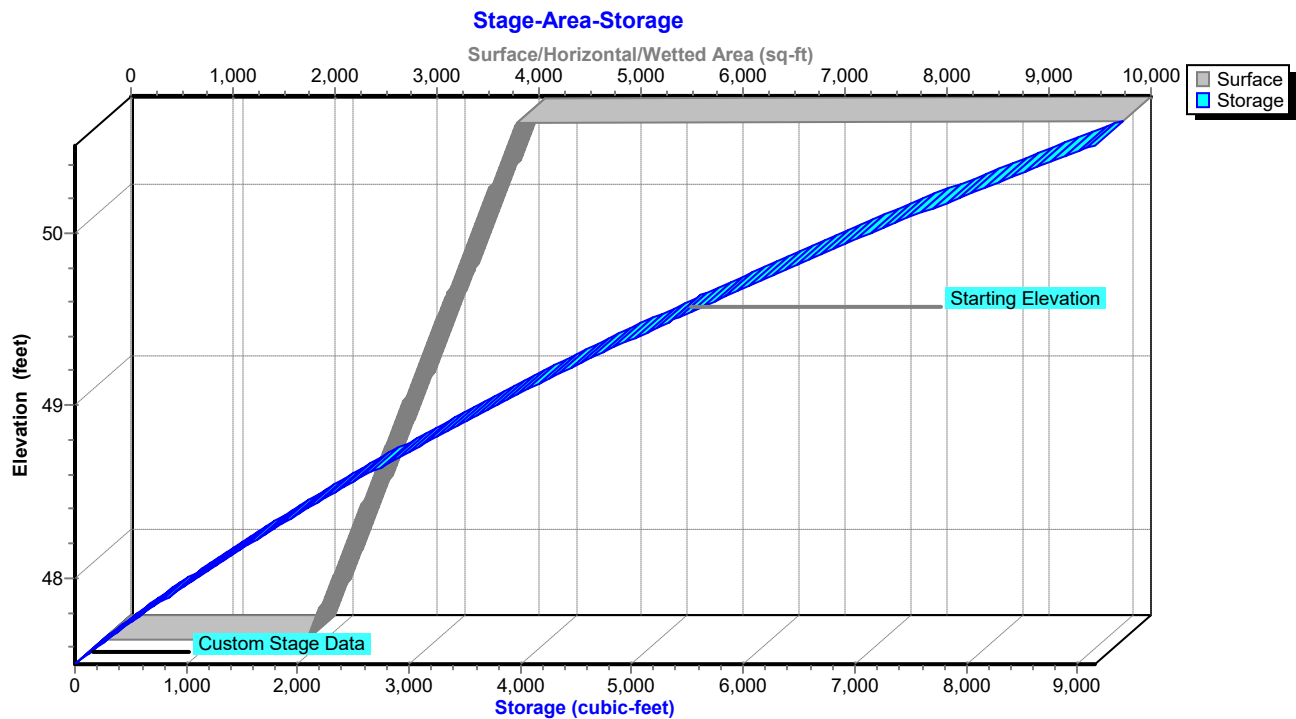
Type II 24-hr 2-YR Rainfall=3.40"

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Pond FB-2: FB to SGW 2



Pond FB-2: FB to SGW 2



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Pond FB-2: FB to SGW 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	5,375	49.50	0.00
2.50	0.00	5,375	49.50	0.00
5.00	0.00	5,375	49.50	0.00
7.50	0.04	5,430	49.52	0.04
10.00	0.17	5,518	49.54	0.15
12.50	2.41	6,435	49.81	2.70
15.00	0.33	5,615	49.57	0.34
17.50	0.20	5,550	49.55	0.21
20.00	0.14	5,512	49.54	0.15
22.50	0.12	5,498	49.54	0.12
25.00	0.00	5,403	49.51	0.01
27.50	0.00	5,377	49.50	0.00
30.00	0.00	5,376	49.50	0.00
32.50	0.00	5,375	49.50	0.00
35.00	0.00	5,375	49.50	0.00
37.50	0.00	5,375	49.50	0.00
40.00	0.00	5,375	49.50	0.00
42.50	0.00	5,375	49.50	0.00
45.00	0.00	5,375	49.50	0.00
47.50	0.00	5,375	49.50	0.00
50.00	0.00	5,375	49.50	0.00
52.50	0.00	5,375	49.50	0.00
55.00	0.00	5,375	49.50	0.00
57.50	0.00	5,375	49.50	0.00
60.00	0.00	5,375	49.50	0.00
62.50	0.00	5,375	49.50	0.00
65.00	0.00	5,375	49.50	0.00
67.50	0.00	5,375	49.50	0.00
70.00	0.00	5,375	49.50	0.00

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Stage-Area-Storage for Pond FB-2: FB to SGW 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
47.50	2,004	0	50.10	3,781	7,520
47.55	2,038	101	50.15	3,815	7,710
47.60	2,072	204	50.20	3,849	7,902
47.65	2,106	308	50.25	3,883	8,095
47.70	2,141	414	50.30	3,917	8,290
47.75	2,175	522	50.35	3,952	8,487
47.80	2,209	632	50.40	3,986	8,685
47.85	2,243	743	50.45	4,020	8,885
47.90	2,277	856	50.50	4,054	9,087
47.95	2,312	971			
48.00	2,346	1,087			
48.05	2,380	1,206			
48.10	2,414	1,325			
48.15	2,448	1,447			
48.20	2,482	1,570			
48.25	2,517	1,695			
48.30	2,551	1,822			
48.35	2,585	1,950			
48.40	2,619	2,080			
48.45	2,653	2,212			
48.50	2,687	2,346			
48.55	2,721	2,481			
48.60	2,756	2,618			
48.65	2,790	2,756			
48.70	2,824	2,897			
48.75	2,858	3,039			
48.80	2,892	3,183			
48.85	2,927	3,328			
48.90	2,961	3,475			
48.95	2,995	3,624			
49.00	3,029	3,775			
49.05	3,063	3,927			
49.10	3,097	4,081			
49.15	3,131	4,237			
49.20	3,166	4,394			
49.25	3,200	4,553			
49.30	3,234	4,714			
49.35	3,268	4,877			
49.40	3,302	5,041			
49.45	3,337	5,207			
49.50	3,371	5,375			
49.55	3,405	5,544			
49.60	3,439	5,715			
49.65	3,473	5,888			
49.70	3,507	6,062			
49.75	3,542	6,239			
49.80	3,576	6,417			
49.85	3,610	6,596			
49.90	3,644	6,778			
49.95	3,678	6,961			
50.00	3,712	7,145			
50.05	3,746	7,332			

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

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Summary for Pond SGW-1: SGW 1

Inflow Area = 3.305 ac, 69.42% Impervious, Inflow Depth = 1.01" for 2-YR event
 Inflow = 0.93 cfs @ 12.81 hrs, Volume= 0.279 af
 Outflow = 0.65 cfs @ 13.53 hrs, Volume= 0.279 af, Atten= 30%, Lag= 43.2 min
 Primary = 0.65 cfs @ 13.53 hrs, Volume= 0.279 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Starting Elev= 45.17' Surf.Area= 2,056 sf Storage= 1,382 cf

Peak Elev= 45.90' @ 13.53 hrs Surf.Area= 2,310 sf Storage= 2,538 cf (1,157 cf above start)

Plug-Flow detention time= 110.9 min calculated for 0.248 af (89% of inflow)

Center-of-Mass det. time= 24.4 min (1,017.5 - 993.1)

Volume	Invert	Avail.Storage	Storage Description	
#1	43.49'	11,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.49	2,056	0.0	0	0
43.50	2,056	40.0	8	8
45.49	2,056	40.0	1,637	1,645
45.50	2,056	100.0	21	1,665
48.50	3,958	100.0	9,021	10,686
48.51	100,000	100.0	520	11,206

Device	Routing	Invert	Outlet Devices
#1	Primary	45.17'	12.0" Round Culvert L= 28.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.17' / 45.00' S= 0.0060 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	47.50'	24.0" x 24.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads
#3	Device 1	45.17'	6.0" Vert. Collector Pipe C= 0.600
#4	Secondary	48.50'	75.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.65 cfs @ 13.53 hrs HW=45.90' TW=43.57' (Dynamic Tailwater)

1=Culvert (Passes 0.65 cfs of 1.41 cfs potential flow)

2=Rim (Controls 0.00 cfs)

3=Collector Pipe (Orifice Controls 0.65 cfs @ 3.34 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.17' TW=47.50' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Aspire - Proposed

Prepared by {enter your company name here}

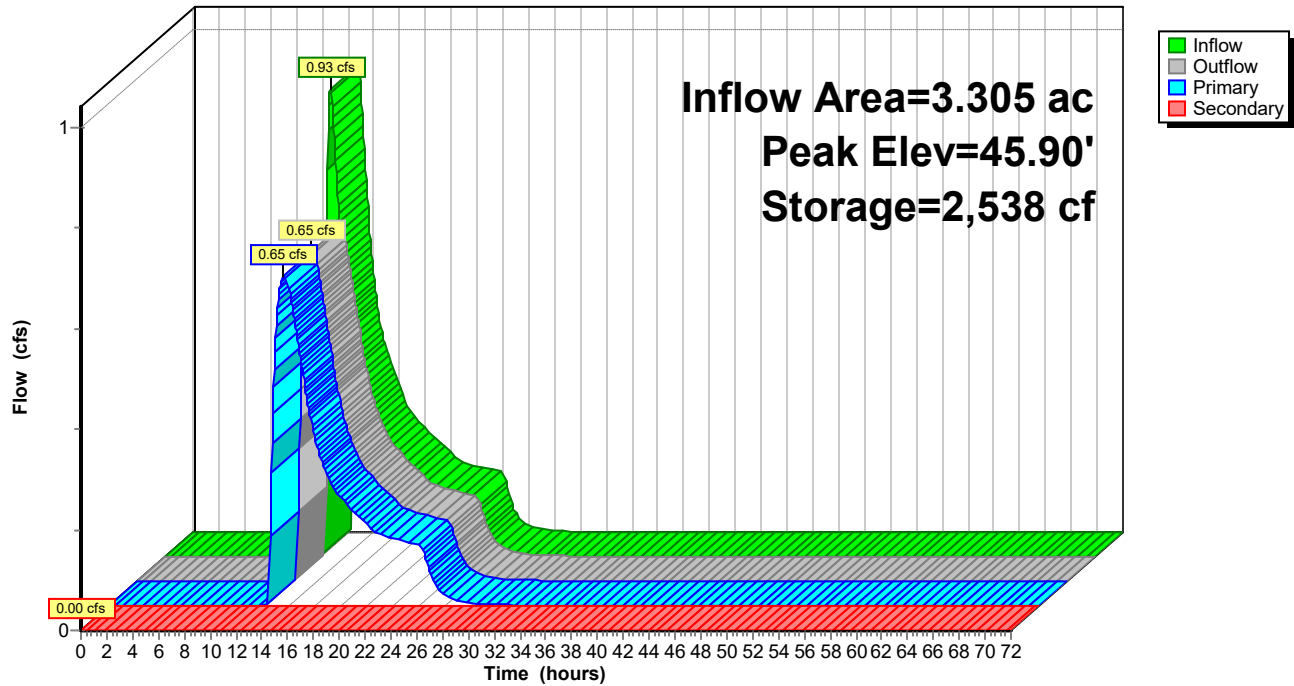
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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

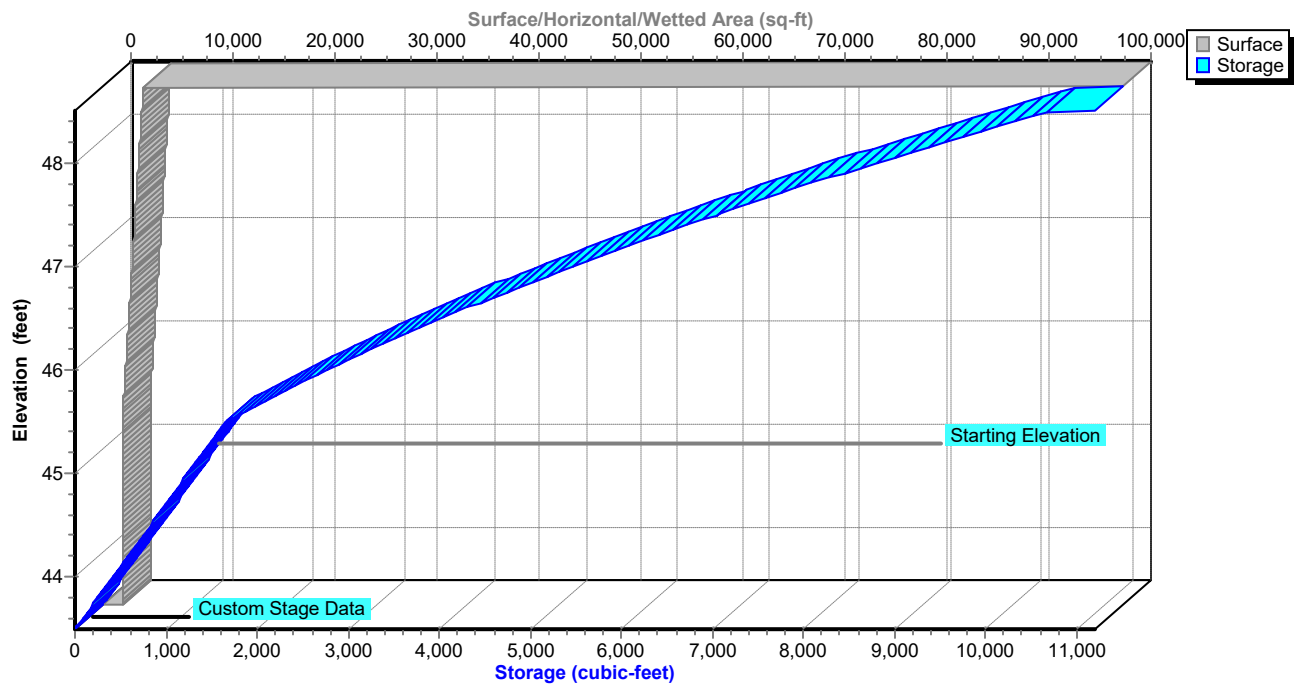
Pond SGW-1: SGW 1

Hydrograph



Pond SGW-1: SGW 1

Stage-Area-Storage



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Pond SGW-1: SGW 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	1,382	45.17	0.00	0.00	0.00
2.50	0.00	1,382	45.17	0.00	0.00	0.00
5.00	0.00	1,382	45.17	0.00	0.00	0.00
7.50	0.00	1,382	45.17	0.00	0.00	0.00
10.00	0.00	1,382	45.17	0.00	0.00	0.00
12.50	0.48	1,481	45.29	0.04	0.04	0.00
15.00	0.36	1,999	45.66	0.46	0.46	0.00
17.50	0.22	1,627	45.47	0.23	0.23	0.00
20.00	0.16	1,584	45.42	0.16	0.16	0.00
22.50	0.13	1,561	45.39	0.13	0.13	0.00
25.00	0.04	1,496	45.31	0.06	0.06	0.00
27.50	0.00	1,422	45.22	0.01	0.01	0.00
30.00	0.00	1,405	45.20	0.00	0.00	0.00
32.50	0.00	1,398	45.19	0.00	0.00	0.00
35.00	0.00	1,394	45.19	0.00	0.00	0.00
37.50	0.00	1,392	45.18	0.00	0.00	0.00
40.00	0.00	1,390	45.18	0.00	0.00	0.00
42.50	0.00	1,389	45.18	0.00	0.00	0.00
45.00	0.00	1,388	45.18	0.00	0.00	0.00
47.50	0.00	1,387	45.18	0.00	0.00	0.00
50.00	0.00	1,387	45.18	0.00	0.00	0.00
52.50	0.00	1,386	45.18	0.00	0.00	0.00
55.00	0.00	1,386	45.17	0.00	0.00	0.00
57.50	0.00	1,385	45.17	0.00	0.00	0.00
60.00	0.00	1,385	45.17	0.00	0.00	0.00
62.50	0.00	1,385	45.17	0.00	0.00	0.00
65.00	0.00	1,385	45.17	0.00	0.00	0.00
67.50	0.00	1,384	45.17	0.00	0.00	0.00
70.00	0.00	1,384	45.17	0.00	0.00	0.00

Aspire - Proposed*Type II 24-hr 2-YR Rainfall=3.40"*

Prepared by {enter your company name here}

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Stage-Area-Storage for Pond SGW-1: SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
43.49	2,056	0
43.59	2,056	82
43.69	2,056	164
43.79	2,056	247
43.89	2,056	329
43.99	2,056	411
44.09	2,056	493
44.19	2,056	576
44.29	2,056	658
44.39	2,056	740
44.49	2,056	822
44.59	2,056	905
44.69	2,056	987
44.79	2,056	1,069
44.89	2,056	1,151
44.99	2,056	1,234
45.09	2,056	1,316
45.19	2,056	1,398
45.29	2,056	1,480
45.39	2,056	1,563
45.49	2,056	1,645
45.59	2,113	1,853
45.69	2,176	2,067
45.79	2,240	2,288
45.89	2,303	2,515
45.99	2,367	2,749
46.09	2,430	2,989
46.19	2,493	3,235
46.29	2,557	3,487
46.39	2,620	3,746
46.49	2,684	4,011
46.59	2,747	4,283
46.69	2,810	4,561
46.79	2,874	4,845
46.89	2,937	5,136
46.99	3,001	5,433
47.09	3,064	5,736
47.19	3,127	6,045
47.29	3,191	6,361
47.39	3,254	6,684
47.49	3,318	7,012
47.59	3,381	7,347
47.69	3,444	7,688
47.79	3,508	8,036
47.89	3,571	8,390
47.99	3,635	8,750
48.09	3,698	9,117
48.19	3,761	9,490
48.29	3,825	9,869
48.39	3,888	10,255
48.49	3,952	10,647

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Summary for Pond SGW-2: SGW 2

Inflow Area = 3.241 ac, 66.40% Impervious, Inflow Depth = 2.35" for 2-YR event
 Inflow = 7.15 cfs @ 12.11 hrs, Volume= 0.636 af
 Outflow = 2.53 cfs @ 12.54 hrs, Volume= 0.627 af, Atten= 65%, Lag= 25.8 min
 Primary = 2.53 cfs @ 12.54 hrs, Volume= 0.627 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Starting Elev= 47.17' Surf.Area= 4,027 sf Storage= 2,706 cf
 Peak Elev= 49.64' @ 12.53 hrs Surf.Area= 6,510 sf Storage= 14,543 cf (11,837 cf above start)

Plug-Flow detention time= 200.9 min calculated for 0.565 af (89% of inflow)
 Center-of-Mass det. time= 120.5 min (943.6 - 823.1)

Volume	Invert	Avail.Storage	Storage Description	
#1	45.49'	20,699 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.49	4,027	0.0	0	0
45.50	4,027	40.0	16	16
47.49	4,027	40.0	3,205	3,222
47.50	4,027	100.0	40	3,262
50.50	7,506	100.0	17,300	20,561
50.51	20,000	100.0	138	20,699

Device	Routing	Invert	Outlet Devices
#1	Primary	47.25'	12.0" Round Culvert L= 25.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.25' / 47.00' S= 0.0098 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	49.50'	24.0" x 24.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads
#3	Device 1	47.16'	6.0" Vert. Collector Pipe C= 0.600
#4	Primary	50.50'	159.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=2.52 cfs @ 12.54 hrs HW=49.64' TW=48.18' (Dynamic Tailwater)

- 1=Culvert (Passes 2.52 cfs of 4.57 cfs potential flow)
 2=Rim (Weir Controls 1.38 cfs @ 1.23 fps)
 3=Collector Pipe (Orifice Controls 1.14 cfs @ 5.82 fps)
 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Aspire - Proposed

Prepared by {enter your company name here}

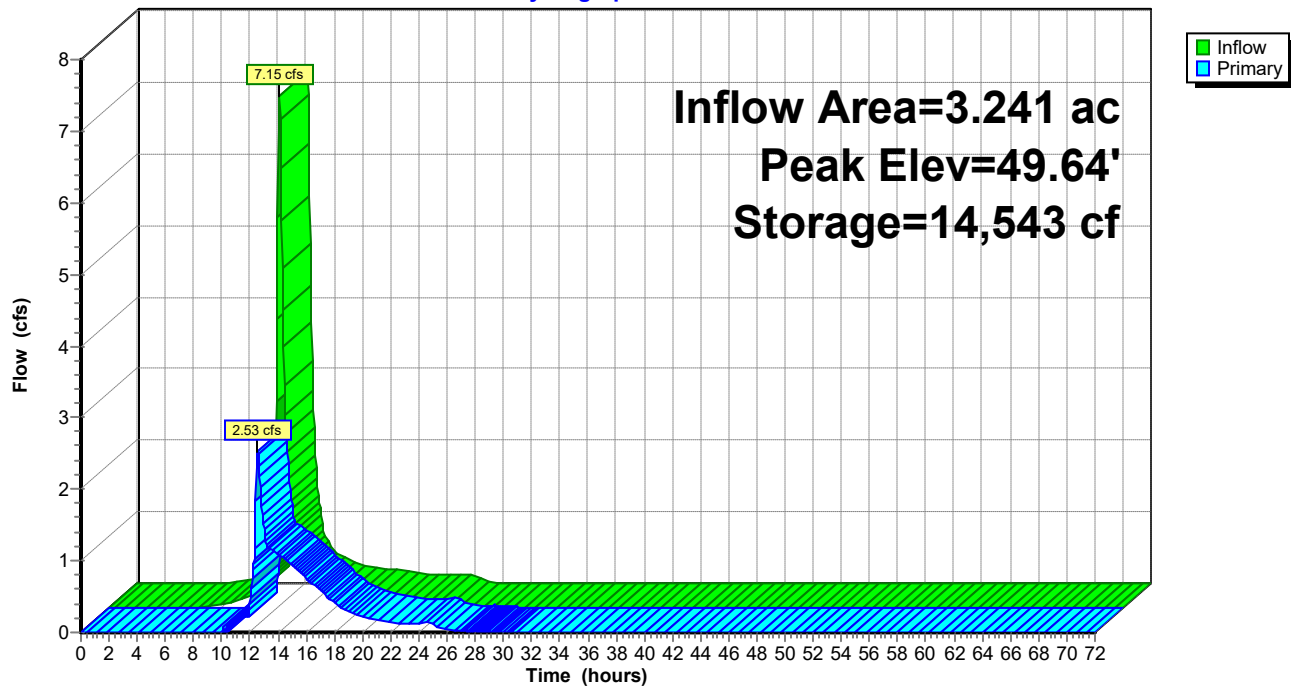
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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022

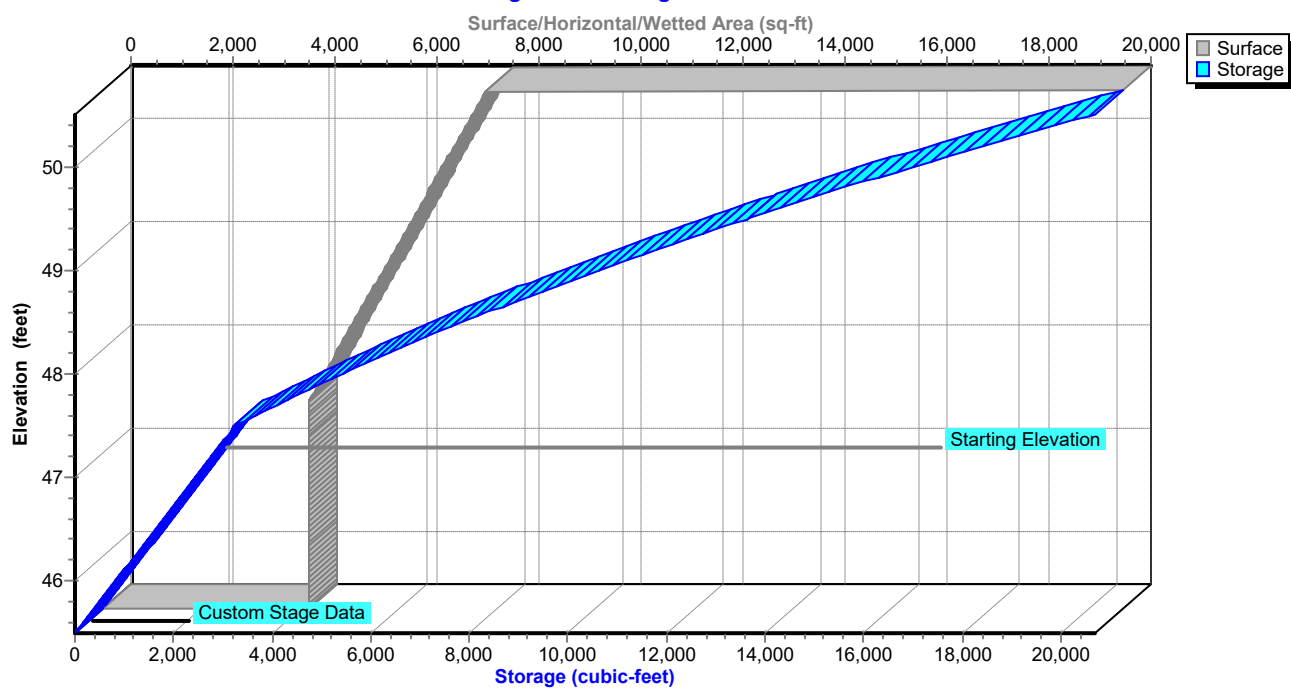
Pond SGW-2: SGW 2

Hydrograph



Pond SGW-2: SGW 2

Stage-Area-Storage



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Pond SGW-2: SGW 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	2,706	47.17	0.00
2.50	0.00	2,706	47.17	0.00
5.00	0.00	2,706	47.17	0.00
7.50	0.04	2,808	47.23	0.00
10.00	0.15	3,576	47.58	0.03
12.50	2.70	14,533	49.64	2.50
15.00	0.34	9,803	48.86	0.94
17.50	0.21	5,681	48.06	0.49
20.00	0.15	4,302	47.75	0.21
22.50	0.12	4,029	47.69	0.13
25.00	0.01	3,704	47.61	0.11
27.50	0.00	3,284	47.51	0.00
30.00	0.00	3,168	47.46	0.01
32.50	0.00	3,132	47.43	0.00
35.00	0.00	3,117	47.42	0.01
37.50	0.00	3,105	47.42	0.00
40.00	0.00	3,097	47.41	0.00
42.50	0.00	3,091	47.41	0.00
45.00	0.00	3,087	47.41	0.00
47.50	0.00	3,084	47.40	0.00
50.00	0.00	3,082	47.40	0.00
52.50	0.00	3,080	47.40	0.00
55.00	0.00	3,079	47.40	0.00
57.50	0.00	3,078	47.40	0.00
60.00	0.00	3,077	47.40	0.00
62.50	0.00	3,077	47.40	0.00
65.00	0.00	3,077	47.40	0.00
67.50	0.00	3,077	47.40	0.00
70.00	0.00	3,077	47.40	0.00

Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Stage-Area-Storage for Pond SGW-2: SGW 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
45.49	4,027	0
45.59	4,027	161
45.69	4,027	322
45.79	4,027	483
45.89	4,027	644
45.99	4,027	805
46.09	4,027	966
46.19	4,027	1,128
46.29	4,027	1,289
46.39	4,027	1,450
46.49	4,027	1,611
46.59	4,027	1,772
46.69	4,027	1,933
46.79	4,027	2,094
46.89	4,027	2,255
46.99	4,027	2,416
47.09	4,027	2,577
47.19	4,027	2,738
47.29	4,027	2,899
47.39	4,027	3,061
47.49	4,027	3,222
47.59	4,131	3,629
47.69	4,247	4,048
47.79	4,363	4,478
47.89	4,479	4,921
47.99	4,595	5,374
48.09	4,711	5,840
48.19	4,827	6,317
48.29	4,943	6,805
48.39	5,059	7,305
48.49	5,175	7,817
48.59	5,291	8,340
48.69	5,407	8,875
48.79	5,523	9,422
48.89	5,639	9,980
48.99	5,755	10,549
49.09	5,871	11,131
49.19	5,987	11,724
49.29	6,103	12,328
49.39	6,219	12,944
49.49	6,335	13,572
49.59	6,451	14,211
49.69	6,567	14,862
49.79	6,683	15,524
49.89	6,799	16,198
49.99	6,915	16,884
50.09	7,031	17,581
50.19	7,147	18,290
50.29	7,262	19,011
50.39	7,378	19,743
50.49	7,494	20,486

Aspire - Proposed

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Type II 24-hr 2-YR Rainfall=3.40"

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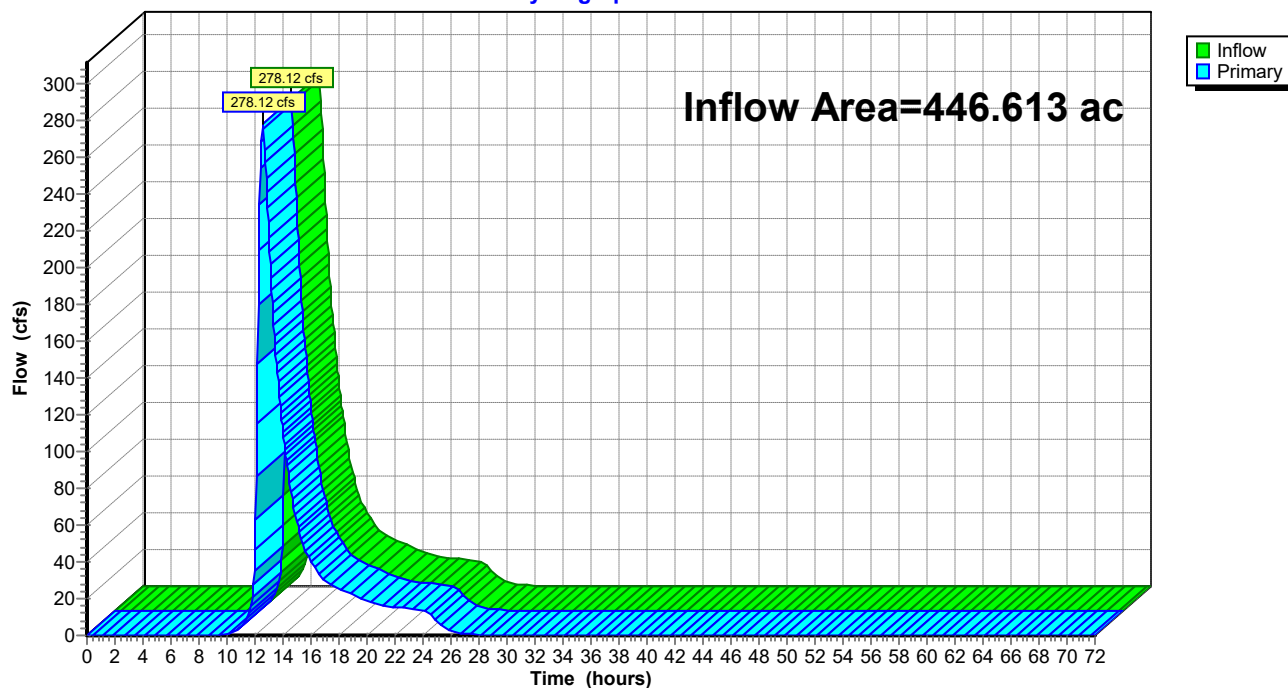
Summary for Link SP-1: Study Point #1

Inflow Area = 446.613 ac, 20.11% Impervious, Inflow Depth = 1.57" for 2-YR event
Inflow = 278.12 cfs @ 12.55 hrs, Volume= 58.285 af
Primary = 278.12 cfs @ 12.55 hrs, Volume= 58.285 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link SP-1: Study Point #1

Hydrograph



Aspire - Proposed

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Link SP-1: Study Point #1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.18	0.00	0.18	62.00	0.00	0.00	0.00
11.00	4.90	0.00	4.90	63.00	0.00	0.00	0.00
12.00	46.32	0.00	46.32	64.00	0.00	0.00	0.00
13.00	216.63	0.00	216.63	65.00	0.00	0.00	0.00
14.00	110.61	0.00	110.61	66.00	0.00	0.00	0.00
15.00	61.51	0.00	61.51	67.00	0.00	0.00	0.00
16.00	40.34	0.00	40.34	68.00	0.00	0.00	0.00
17.00	29.82	0.00	29.82	69.00	0.00	0.00	0.00
18.00	25.23	0.00	25.23	70.00	0.00	0.00	0.00
19.00	21.99	0.00	21.99	71.00	0.00	0.00	0.00
20.00	19.07	0.00	19.07	72.00	0.00	0.00	0.00
21.00	16.55	0.00	16.55				
22.00	15.30	0.00	15.30				
23.00	14.58	0.00	14.58				
24.00	14.00	0.00	14.00				
25.00	7.68	0.00	7.68				
26.00	2.48	0.00	2.48				
27.00	0.77	0.00	0.77				
28.00	0.24	0.00	0.24				
29.00	0.09	0.00	0.09				
30.00	0.04	0.00	0.04				
31.00	0.03	0.00	0.03				
32.00	0.02	0.00	0.02				
33.00	0.01	0.00	0.01				
34.00	0.01	0.00	0.01				
35.00	0.01	0.00	0.01				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2-Year Comparison

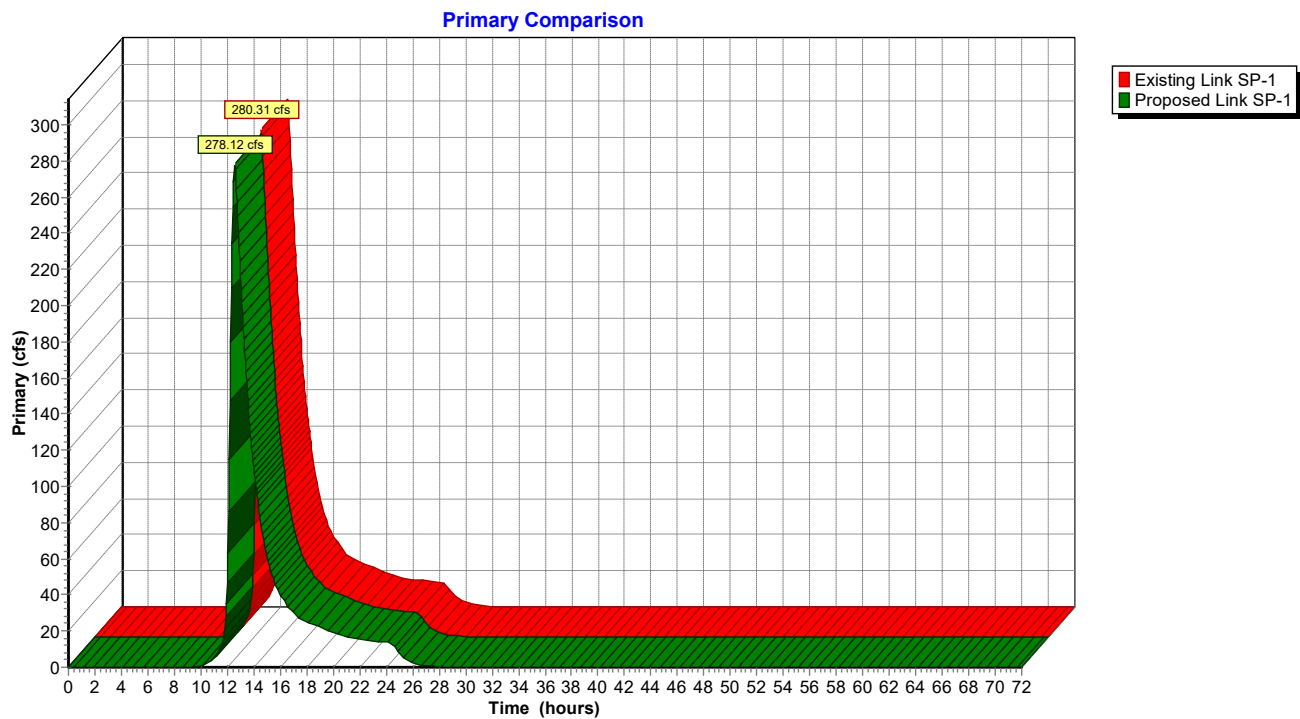
Aspire - Existing

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Type II 24-hr 2-YR Rainfall=3.40"

Printed 12/5/2022



10-Year Existing Conditions Analysis

Aspire - Existing

Type II 24-hr 10-YR Rainfall=5.30"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-DA-1: Existing DA 1 Runoff Area=18,645,844 sf 19.86% Impervious Runoff Depth=3.16"
Flow Length=4,740' Tc=43.0 min CN=80 Runoff=565.86 cfs 112.583 af

Subcatchment EX-DA-2: Existing DA 2 Runoff Area=417,449 sf 3.48% Impervious Runoff Depth=3.06"
Flow Length=1,003' Tc=16.3 min CN=79 Runoff=24.32 cfs 2.445 af

Subcatchment EX-DA-3: Existing DA 3 Runoff Area=391,168 sf 0.00% Impervious Runoff Depth=3.16"
Flow Length=788' Tc=15.3 min CN=80 Runoff=24.42 cfs 2.362 af

Reach 2R: Existing Reach 4 Avg. Flow Depth=1.28' Max Vel=0.95 fps Inflow=24.42 cfs 2.362 af
n=0.100 L=564.0' S=0.0168 '/' Capacity=3.82 cfs Outflow=19.53 cfs 2.362 af

Reach EX-R-1: Existing Reach 1 Avg. Flow Depth=6.29' Max Vel=4.26 fps Inflow=582.26 cfs 115.028 af
n=0.040 L=532.0' S=0.0038 '/' Capacity=177.63 cfs Outflow=580.20 cfs 115.028 af

Reach EX-R-2: Existing Reach 2 Avg. Flow Depth=7.50' Max Vel=3.50 fps Inflow=595.77 cfs 117.390 af
n=0.040 L=819.0' S=0.0024 '/' Capacity=143.16 cfs Outflow=586.96 cfs 117.390 af

Reach EX-R-3: Existing Reach 3 Avg. Flow Depth=1.77' Max Vel=1.41 fps Inflow=24.32 cfs 2.445 af
n=0.040 L=729.0' S=0.0014 '/' Capacity=27.19 cfs Outflow=20.83 cfs 2.445 af

Link SP-1: Study Point #1

Inflow=586.96 cfs 117.390 af
Primary=586.96 cfs 117.390 af

Aspire - Existing

Type II 24-hr 10-YR Rainfall=5.30"

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Summary for Subcatchment EX-DA-1: Existing DA 1

Runoff = 565.86 cfs @ 12.44 hrs, Volume= 112.583 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
150,521	61	1/4 acre lots, 38% imp, HSG A
2,950,162	75	1/4 acre lots, 38% imp, HSG B
704,124	55	Woods, Good, HSG B
1,014,991	78	Row crops, straight row, Good, HSG B
4,488,021	83	1/4 acre lots, 38% imp, HSG C
574,033	70	Woods, Good, HSG C
3,928,165	85	Row crops, straight row, Good, HSG C
2,157,149	87	1/4 acre lots, 38% imp, HSG D
1,857,395	77	Woods, Good, HSG D
821,283	89	Row crops, straight row, Good, HSG D
18,645,844	80	Weighted Average
14,942,420		80.14% Pervious Area
3,703,424		19.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
16.0	1,441	0.0100	1.50		Shallow Concentrated Flow, Ag Ditch Grassed Waterway Kv= 15.0 fps
11.5	1,035	0.0100	1.50		Shallow Concentrated Flow, Mathewstown Rd North Swale Grassed Waterway Kv= 15.0 fps
0.9	197	0.0030	3.85	6.80	Pipe Channel, Culvert under Mile Post Rd 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011 Concrete pipe, straight & clean
2.2	240	0.0150	1.84		Shallow Concentrated Flow, Mathewstown Rd - North Swale before Grassed Waterway Kv= 15.0 fps
0.1	51	0.0030	8.59	168.59	Pipe Channel, Culvert crossing Mathewstown Rd to Hosewells Branch 60.0" Round Area= 19.6 sf Perim= 15.7' r= 1.25' n= 0.011 Concrete pipe, straight & clean
7.7	1,676	0.0050	3.62	75.95	Channel Flow, Hosewells Branch Area= 21.0 sf Perim= 13.0' r= 1.62' n= 0.040 Winding stream, pools & shoals
43.0	4,740	Total			

Aspire - Existing

Prepared by {enter your company name here}

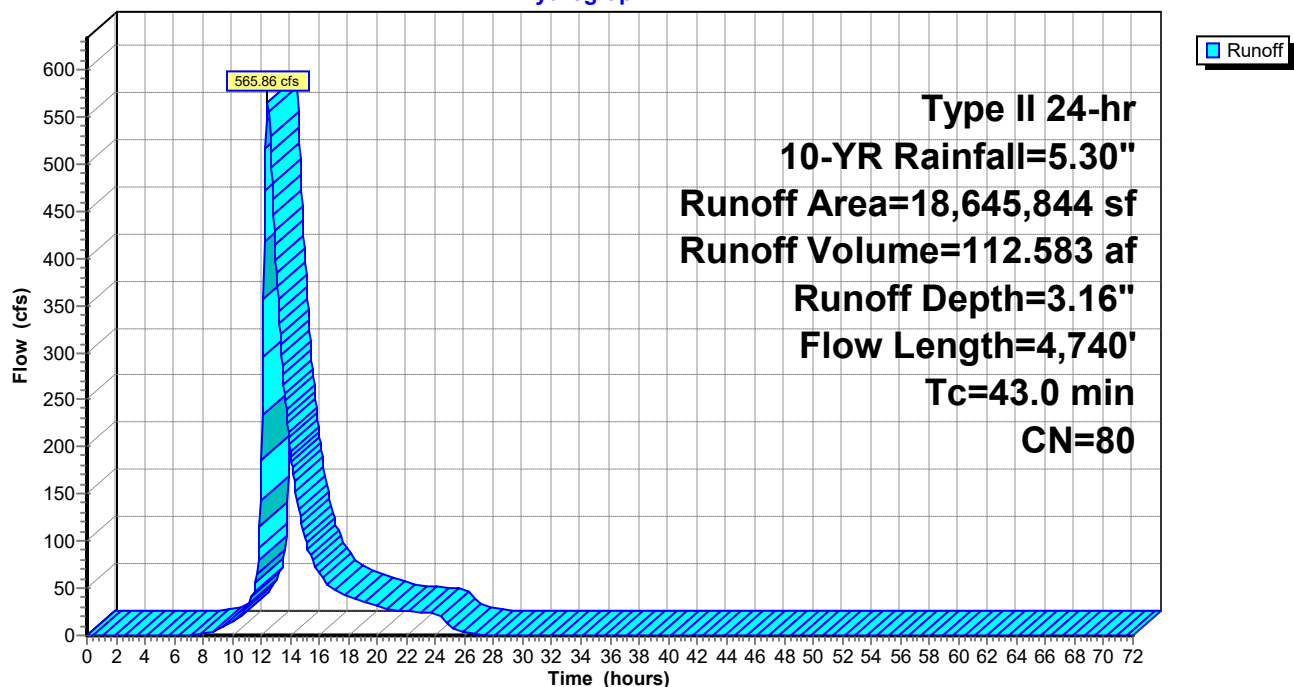
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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Subcatchment EX-DA-1: Existing DA 1

Hydrograph



Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Hydrograph for Subcatchment EX-DA-1: Existing DA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	3.16	0.00
1.00	0.06	0.00	0.00	53.00	5.30	3.16	0.00
2.00	0.12	0.00	0.00	54.00	5.30	3.16	0.00
3.00	0.18	0.00	0.00	55.00	5.30	3.16	0.00
4.00	0.25	0.00	0.00	56.00	5.30	3.16	0.00
5.00	0.33	0.00	0.00	57.00	5.30	3.16	0.00
6.00	0.42	0.00	0.00	58.00	5.30	3.16	0.00
7.00	0.52	0.00	0.01	59.00	5.30	3.16	0.00
8.00	0.64	0.01	1.46	60.00	5.30	3.16	0.00
9.00	0.78	0.03	5.63	61.00	5.30	3.16	0.00
10.00	0.96	0.07	13.14	62.00	5.30	3.16	0.00
11.00	1.25	0.17	28.97	63.00	5.30	3.16	0.00
12.00	3.51	1.65	185.66	64.00	5.30	3.16	0.00
13.00	4.09	2.12	398.60	65.00	5.30	3.16	0.00
14.00	4.35	2.33	196.01	66.00	5.30	3.16	0.00
15.00	4.52	2.48	102.71	67.00	5.30	3.16	0.00
16.00	4.66	2.60	66.67	68.00	5.30	3.16	0.00
17.00	4.78	2.70	48.98	69.00	5.30	3.16	0.00
18.00	4.88	2.79	41.68	70.00	5.30	3.16	0.00
19.00	4.97	2.87	36.33	71.00	5.30	3.16	0.00
20.00	5.05	2.93	31.38	72.00	5.30	3.16	0.00
21.00	5.11	2.99	27.39				
22.00	5.18	3.05	25.46				
23.00	5.24	3.10	24.27				
24.00	5.30	3.16	23.27				
25.00	5.30	3.16	10.03				
26.00	5.30	3.16	2.79				
27.00	5.30	3.16	0.58				
28.00	5.30	3.16	0.10				
29.00	5.30	3.16	0.00				
30.00	5.30	3.16	0.00				
31.00	5.30	3.16	0.00				
32.00	5.30	3.16	0.00				
33.00	5.30	3.16	0.00				
34.00	5.30	3.16	0.00				
35.00	5.30	3.16	0.00				
36.00	5.30	3.16	0.00				
37.00	5.30	3.16	0.00				
38.00	5.30	3.16	0.00				
39.00	5.30	3.16	0.00				
40.00	5.30	3.16	0.00				
41.00	5.30	3.16	0.00				
42.00	5.30	3.16	0.00				
43.00	5.30	3.16	0.00				
44.00	5.30	3.16	0.00				
45.00	5.30	3.16	0.00				
46.00	5.30	3.16	0.00				
47.00	5.30	3.16	0.00				
48.00	5.30	3.16	0.00				
49.00	5.30	3.16	0.00				
50.00	5.30	3.16	0.00				
51.00	5.30	3.16	0.00				

Aspire - Existing

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Subcatchment EX-DA-2: Existing DA 2

Runoff = 24.32 cfs @ 12.11 hrs, Volume= 2.445 af, Depth= 3.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
14,528	98	Paved parking, HSG B
111,725	78	Row crops, straight row, Good, HSG B
162,322	85	Row crops, straight row, Good, HSG C
128,874	70	Woods, Good, HSG C
417,449	79	Weighted Average
402,921		96.52% Pervious Area
14,528		3.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0140	0.32		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
6.2	637	0.0130	1.71		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
1.1	92	0.0050	1.44		Shallow Concentrated Flow, Camac Gutter Paved Kv= 20.3 fps
3.7	174	0.0240	0.77		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.3	1,003	Total			

Aspire - Existing

Prepared by {enter your company name here}

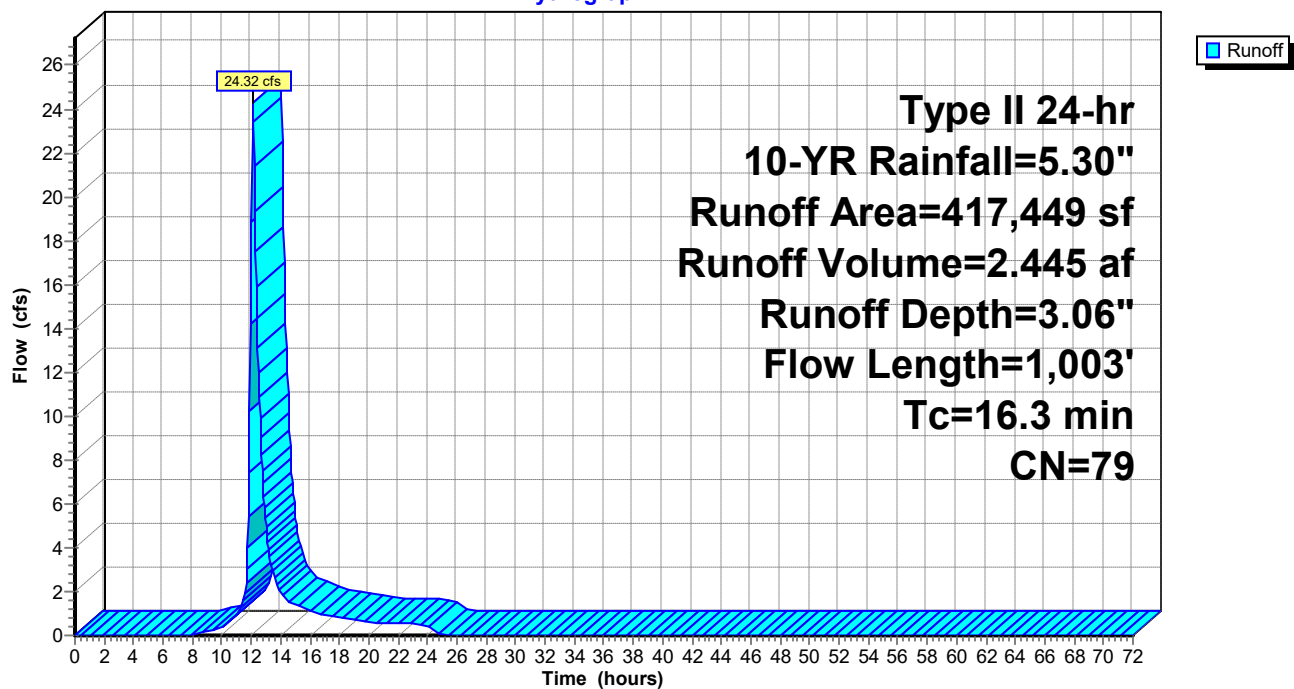
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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Subcatchment EX-DA-2: Existing DA 2

Hydrograph



Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Hydrograph for Subcatchment EX-DA-2: Existing DA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	3.06	0.00
1.00	0.06	0.00	0.00	53.00	5.30	3.06	0.00
2.00	0.12	0.00	0.00	54.00	5.30	3.06	0.00
3.00	0.18	0.00	0.00	55.00	5.30	3.06	0.00
4.00	0.25	0.00	0.00	56.00	5.30	3.06	0.00
5.00	0.33	0.00	0.00	57.00	5.30	3.06	0.00
6.00	0.42	0.00	0.00	58.00	5.30	3.06	0.00
7.00	0.52	0.00	0.00	59.00	5.30	3.06	0.00
8.00	0.64	0.00	0.05	60.00	5.30	3.06	0.00
9.00	0.78	0.02	0.18	61.00	5.30	3.06	0.00
10.00	0.96	0.06	0.39	62.00	5.30	3.06	0.00
11.00	1.25	0.15	0.96	63.00	5.30	3.06	0.00
12.00	3.51	1.58	18.87	64.00	5.30	3.06	0.00
13.00	4.09	2.04	4.93	65.00	5.30	3.06	0.00
14.00	4.35	2.25	1.96	66.00	5.30	3.06	0.00
15.00	4.52	2.40	1.42	67.00	5.30	3.06	0.00
16.00	4.66	2.51	1.12	68.00	5.30	3.06	0.00
17.00	4.78	2.61	0.94	69.00	5.30	3.06	0.00
18.00	4.88	2.70	0.83	70.00	5.30	3.06	0.00
19.00	4.97	2.78	0.73	71.00	5.30	3.06	0.00
20.00	5.05	2.84	0.62	72.00	5.30	3.06	0.00
21.00	5.11	2.90	0.56				
22.00	5.18	2.96	0.54				
23.00	5.24	3.01	0.52				
24.00	5.30	3.06	0.50				
25.00	5.30	3.06	0.02				
26.00	5.30	3.06	0.00				
27.00	5.30	3.06	0.00				
28.00	5.30	3.06	0.00				
29.00	5.30	3.06	0.00				
30.00	5.30	3.06	0.00				
31.00	5.30	3.06	0.00				
32.00	5.30	3.06	0.00				
33.00	5.30	3.06	0.00				
34.00	5.30	3.06	0.00				
35.00	5.30	3.06	0.00				
36.00	5.30	3.06	0.00				
37.00	5.30	3.06	0.00				
38.00	5.30	3.06	0.00				
39.00	5.30	3.06	0.00				
40.00	5.30	3.06	0.00				
41.00	5.30	3.06	0.00				
42.00	5.30	3.06	0.00				
43.00	5.30	3.06	0.00				
44.00	5.30	3.06	0.00				
45.00	5.30	3.06	0.00				
46.00	5.30	3.06	0.00				
47.00	5.30	3.06	0.00				
48.00	5.30	3.06	0.00				
49.00	5.30	3.06	0.00				
50.00	5.30	3.06	0.00				
51.00	5.30	3.06	0.00				

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Summary for Subcatchment EX-DA-3: Existing DA 3

Runoff = 24.42 cfs @ 12.10 hrs, Volume= 2.362 af, Depth= 3.16"

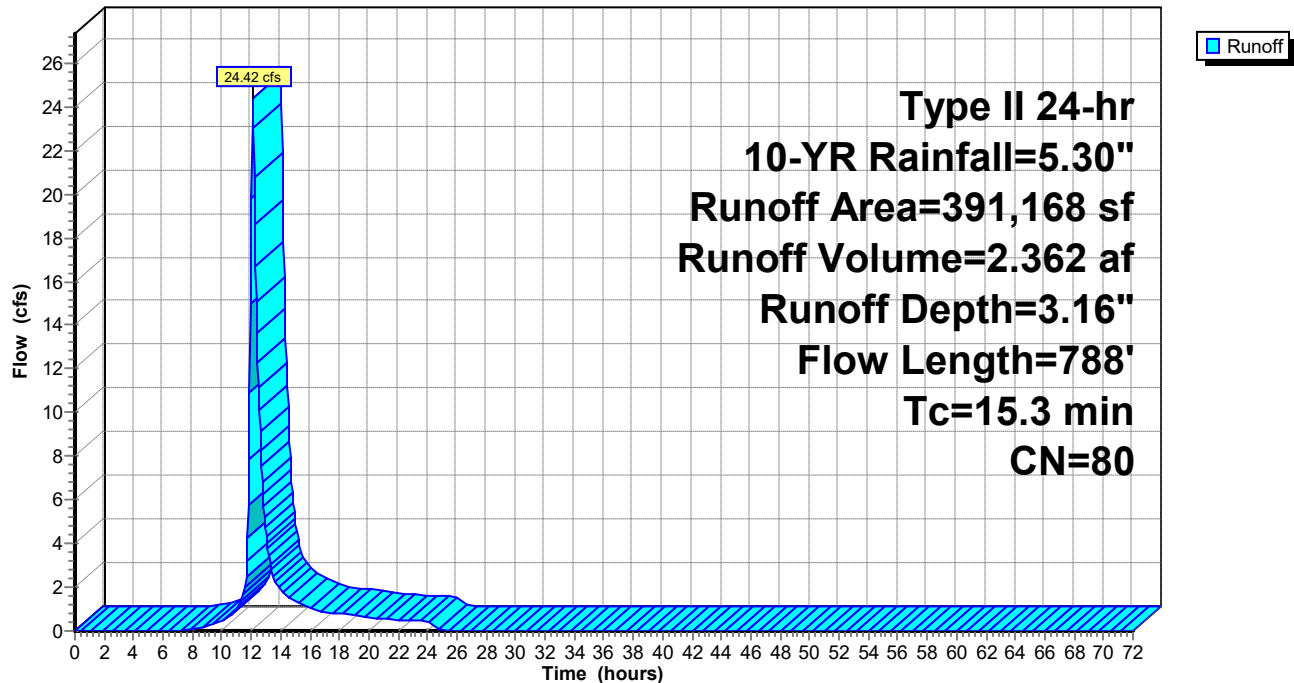
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
49,610	78	Row crops, straight row, Good, HSG B
227,428	85	Row crops, straight row, Good, HSG C
114,130	70	Woods, Good, HSG C
391,168	80	Weighted Average
391,168		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0110	0.29		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
4.3	477	0.0150	1.84		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
5.2	211	0.0180	0.67		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
15.3	788	Total			

Subcatchment EX-DA-3: Existing DA 3

Hydrograph



Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Hydrograph for Subcatchment EX-DA-3: Existing DA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	3.16	0.00
1.00	0.06	0.00	0.00	53.00	5.30	3.16	0.00
2.00	0.12	0.00	0.00	54.00	5.30	3.16	0.00
3.00	0.18	0.00	0.00	55.00	5.30	3.16	0.00
4.00	0.25	0.00	0.00	56.00	5.30	3.16	0.00
5.00	0.33	0.00	0.00	57.00	5.30	3.16	0.00
6.00	0.42	0.00	0.00	58.00	5.30	3.16	0.00
7.00	0.52	0.00	0.00	59.00	5.30	3.16	0.00
8.00	0.64	0.01	0.07	60.00	5.30	3.16	0.00
9.00	0.78	0.03	0.21	61.00	5.30	3.16	0.00
10.00	0.96	0.07	0.42	62.00	5.30	3.16	0.00
11.00	1.25	0.17	0.99	63.00	5.30	3.16	0.00
12.00	3.51	1.65	19.79	64.00	5.30	3.16	0.00
13.00	4.09	2.12	4.37	65.00	5.30	3.16	0.00
14.00	4.35	2.33	1.84	66.00	5.30	3.16	0.00
15.00	4.52	2.48	1.34	67.00	5.30	3.16	0.00
16.00	4.66	2.60	1.06	68.00	5.30	3.16	0.00
17.00	4.78	2.70	0.89	69.00	5.30	3.16	0.00
18.00	4.88	2.79	0.79	70.00	5.30	3.16	0.00
19.00	4.97	2.87	0.69	71.00	5.30	3.16	0.00
20.00	5.05	2.93	0.59	72.00	5.30	3.16	0.00
21.00	5.11	2.99	0.53				
22.00	5.18	3.05	0.51				
23.00	5.24	3.10	0.49				
24.00	5.30	3.16	0.47				
25.00	5.30	3.16	0.02				
26.00	5.30	3.16	0.00				
27.00	5.30	3.16	0.00				
28.00	5.30	3.16	0.00				
29.00	5.30	3.16	0.00				
30.00	5.30	3.16	0.00				
31.00	5.30	3.16	0.00				
32.00	5.30	3.16	0.00				
33.00	5.30	3.16	0.00				
34.00	5.30	3.16	0.00				
35.00	5.30	3.16	0.00				
36.00	5.30	3.16	0.00				
37.00	5.30	3.16	0.00				
38.00	5.30	3.16	0.00				
39.00	5.30	3.16	0.00				
40.00	5.30	3.16	0.00				
41.00	5.30	3.16	0.00				
42.00	5.30	3.16	0.00				
43.00	5.30	3.16	0.00				
44.00	5.30	3.16	0.00				
45.00	5.30	3.16	0.00				
46.00	5.30	3.16	0.00				
47.00	5.30	3.16	0.00				
48.00	5.30	3.16	0.00				
49.00	5.30	3.16	0.00				
50.00	5.30	3.16	0.00				
51.00	5.30	3.16	0.00				

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Summary for Reach 2R: Existing Reach 4

Inflow Area = 8.980 ac, 0.00% Impervious, Inflow Depth = 3.16" for 10-YR event
Inflow = 24.42 cfs @ 12.10 hrs, Volume= 2.362 af
Outflow = 19.53 cfs @ 12.23 hrs, Volume= 2.362 af, Atten= 20%, Lag= 8.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.95 fps, Min. Travel Time= 9.8 min

Avg. Velocity= 0.28 fps, Avg. Travel Time= 33.1 min

Peak Storage= 11,535 cf @ 12.23 hrs

Average Depth at Peak Storage= 1.28'

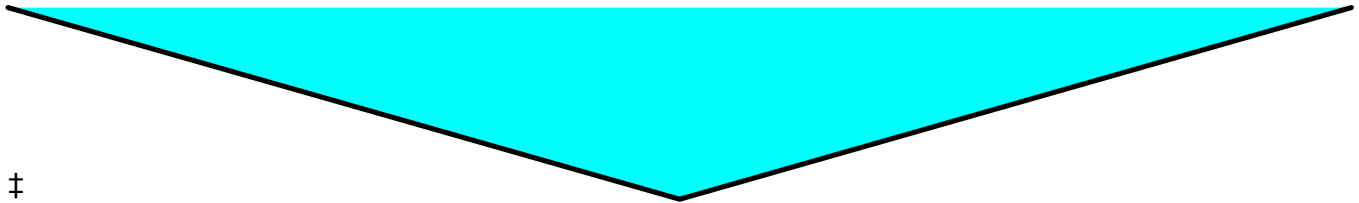
Bank-Full Depth= 0.50' Flow Area= 5.0 sf, Capacity= 3.82 cfs

0.00' x 0.50' deep channel, n= 0.100 Heavy timber, flow below branches

Side Slope Z-value= 20.0 ' Top Width= 20.00'

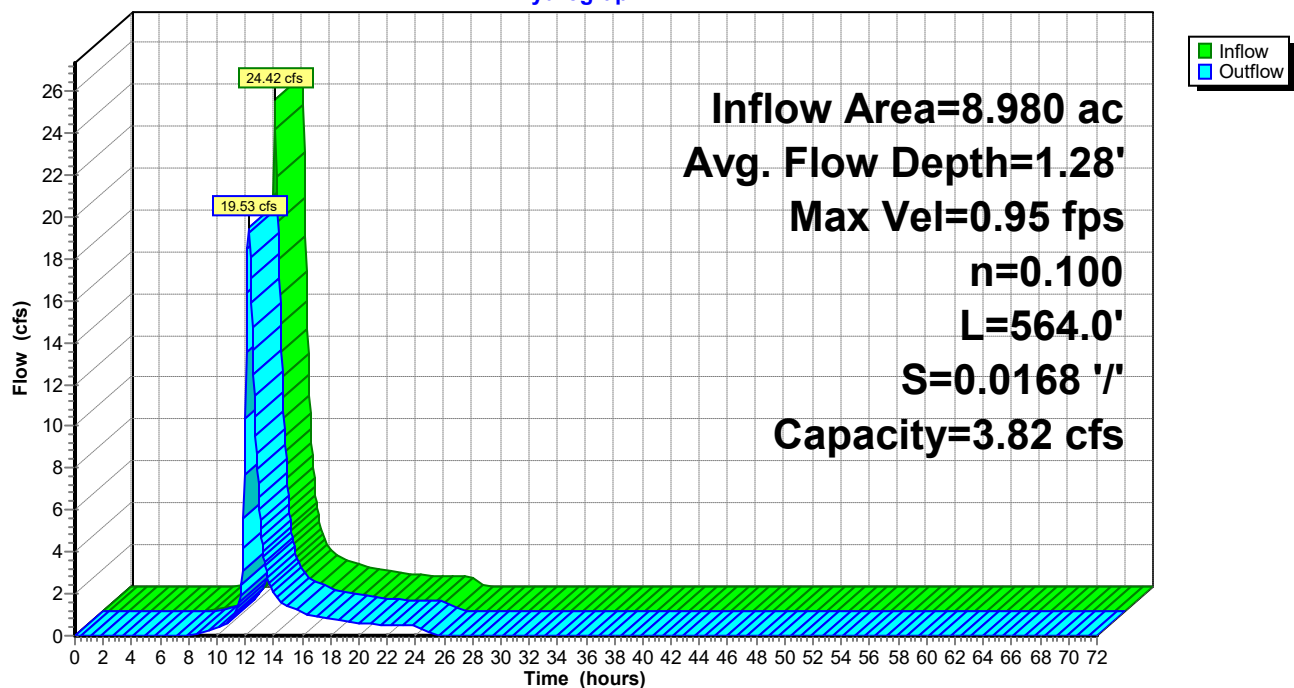
Length= 564.0' Slope= 0.0168 '/'

Inlet Invert= 49.50', Outlet Invert= 40.00'

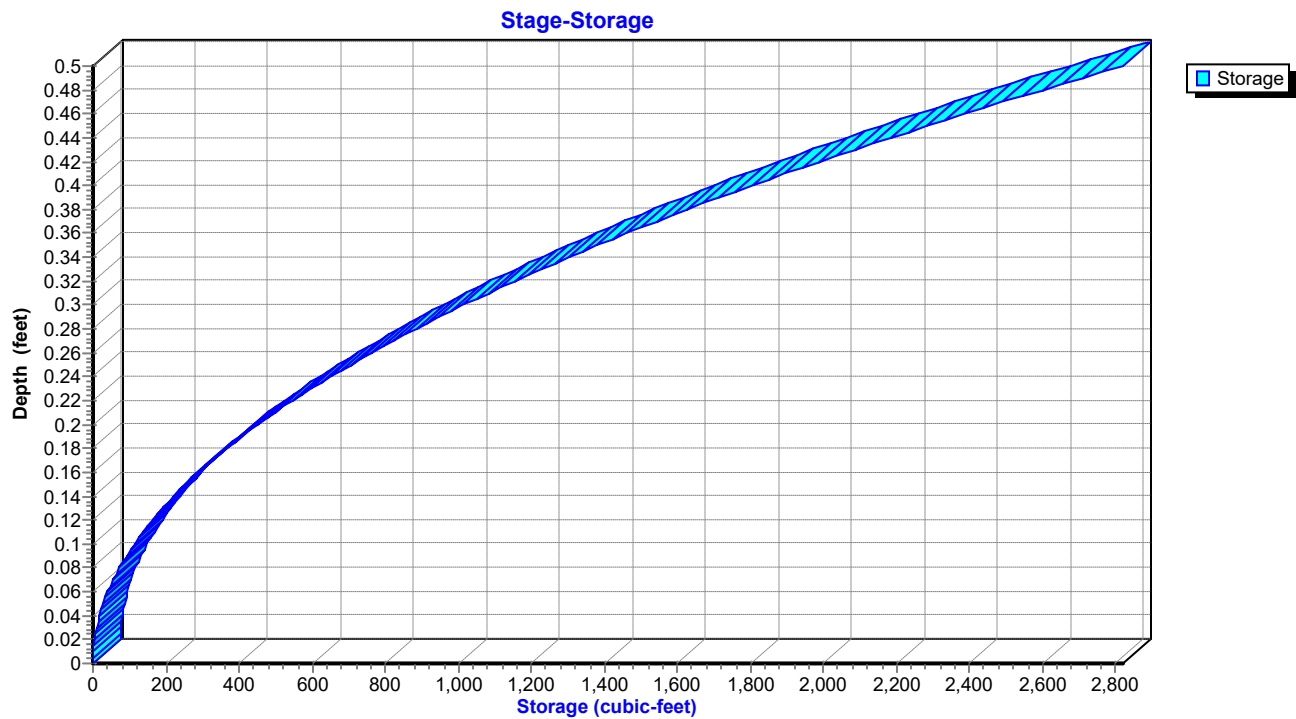


Reach 2R: Existing Reach 4

Hydrograph



Reach 2R: Existing Reach 4



Aspire - Existing

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach 2R: Existing Reach 4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	49.50	0.00
2.50	0.00	0	49.50	0.00
5.00	0.00	0	49.50	0.00
7.50	0.03	22	49.54	0.01
10.00	0.42	466	49.70	0.35
12.50	11.15	8,880	50.54	14.74
15.00	1.34	1,331	49.84	1.40
17.50	0.84	923	49.79	0.86
20.00	0.59	712	49.75	0.61
22.50	0.50	621	49.73	0.51
25.00	0.02	183	49.63	0.10
27.50	0.00	10	49.53	0.00
30.00	0.00	2	49.51	0.00
32.50	0.00	1	49.51	0.00
35.00	0.00	0	49.51	0.00
37.50	0.00	0	49.50	0.00
40.00	0.00	0	49.50	0.00
42.50	0.00	0	49.50	0.00
45.00	0.00	0	49.50	0.00
47.50	0.00	0	49.50	0.00
50.00	0.00	0	49.50	0.00
52.50	0.00	0	49.50	0.00
55.00	0.00	0	49.50	0.00
57.50	0.00	0	49.50	0.00
60.00	0.00	0	49.50	0.00
62.50	0.00	0	49.50	0.00
65.00	0.00	0	49.50	0.00
67.50	0.00	0	49.50	0.00
70.00	0.00	0	49.50	0.00

Aspire - Existing

Type II 24-hr 10-YR Rainfall=5.30"

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Printed 12/5/2022

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Stage-Area-Storage for Reach 2R: Existing Reach 4

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
49.50	0.0	0
49.51	0.0	1
49.52	0.0	5
49.53	0.0	10
49.54	0.0	18
49.55	0.1	28
49.56	0.1	41
49.57	0.1	55
49.58	0.1	72
49.59	0.2	91
49.60	0.2	113
49.61	0.2	136
49.62	0.3	162
49.63	0.3	191
49.64	0.4	221
49.65	0.4	254
49.66	0.5	289
49.67	0.6	326
49.68	0.6	365
49.69	0.7	407
49.70	0.8	451
49.71	0.9	497
49.72	1.0	546
49.73	1.1	597
49.74	1.2	650
49.75	1.3	705
49.76	1.4	763
49.77	1.5	822
49.78	1.6	884
49.79	1.7	949
49.80	1.8	1,015
49.81	1.9	1,084
49.82	2.0	1,155
49.83	2.2	1,228
49.84	2.3	1,304
49.85	2.5	1,382
49.86	2.6	1,462
49.87	2.7	1,544
49.88	2.9	1,629
49.89	3.0	1,716
49.90	3.2	1,805
49.91	3.4	1,896
49.92	3.5	1,990
49.93	3.7	2,086
49.94	3.9	2,184
49.95	4.0	2,284
49.96	4.2	2,387
49.97	4.4	2,492
49.98	4.6	2,599
49.99	4.8	2,708
50.00	5.0	2,820

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Summary for Reach EX-R-1: Existing Reach 1

Inflow Area = 437.633 ac, 19.50% Impervious, Inflow Depth = 3.15" for 10-YR event
Inflow = 582.26 cfs @ 12.43 hrs, Volume= 115.028 af
Outflow = 580.20 cfs @ 12.47 hrs, Volume= 115.028 af, Atten= 0%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 4.26 fps, Min. Travel Time= 2.1 min

Avg. Velocity= 1.41 fps, Avg. Travel Time= 6.3 min

Peak Storage= 72,463 cf @ 12.47 hrs

Average Depth at Peak Storage= 6.29'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 177.63 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 26.00'

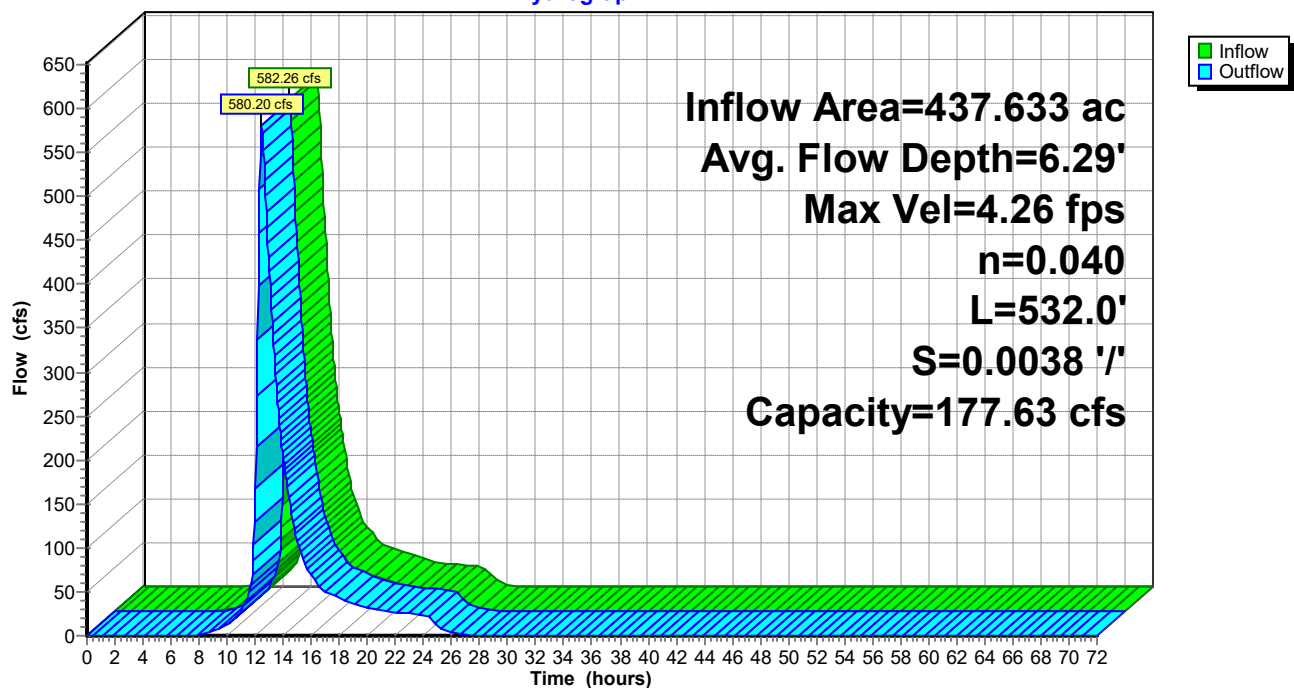
Length= 532.0' Slope= 0.0038 '/'

Inlet Invert= 42.00', Outlet Invert= 40.00'

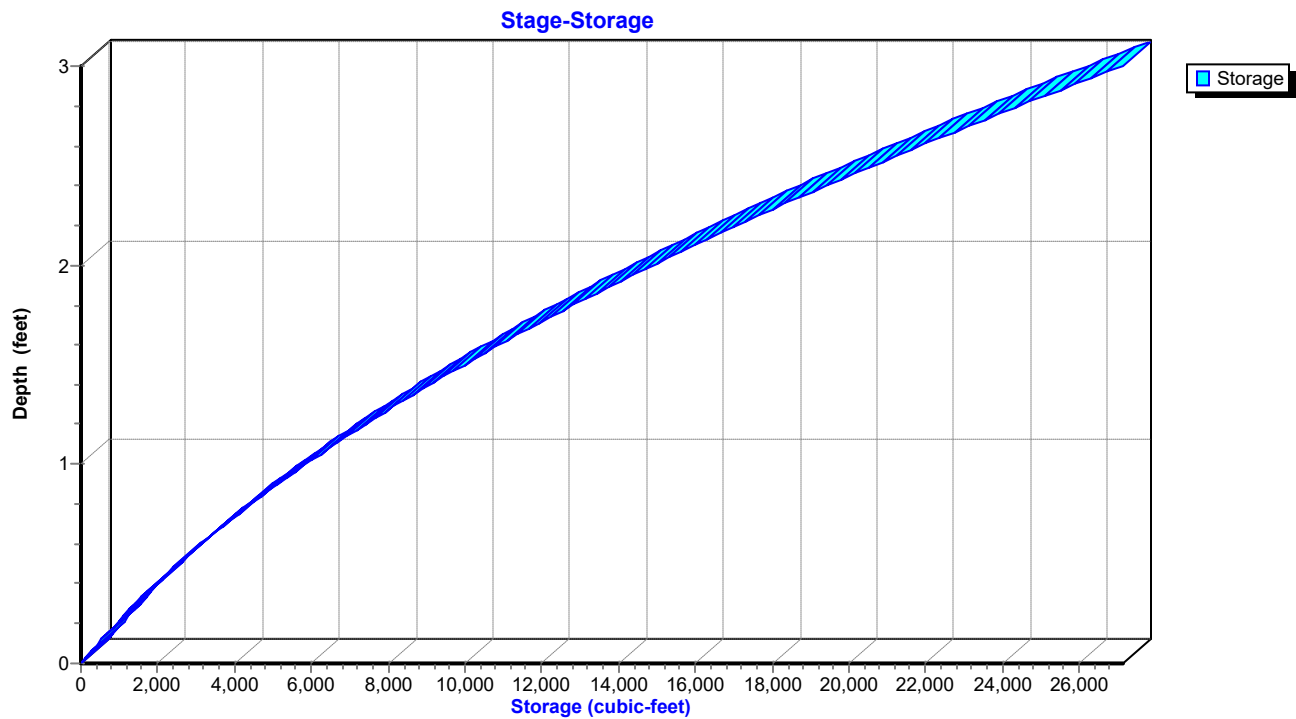


Reach EX-R-1: Existing Reach 1

Hydrograph



Reach EX-R-1: Existing Reach 1



Aspire - Existing

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach EX-R-1: Existing Reach 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	42.00	0.00
2.50	0.00	0	42.00	0.00
5.00	0.00	0	42.00	0.00
7.50	0.38	188	42.04	0.10
10.00	13.45	4,176	42.76	12.89
12.50	572.86	72,161	48.27	577.52
15.00	104.20	18,660	44.34	106.54
17.50	45.81	10,195	43.52	46.13
20.00	32.03	7,909	43.26	32.27
22.50	25.36	6,685	43.11	25.42
25.00	10.16	3,751	42.70	11.01
27.50	0.25	411	42.09	0.36
30.00	0.00	21	42.00	0.01
32.50	0.00	2	42.00	0.00
35.00	0.00	0	42.00	0.00
37.50	0.00	0	42.00	0.00
40.00	0.00	0	42.00	0.00
42.50	0.00	0	42.00	0.00
45.00	0.00	0	42.00	0.00
47.50	0.00	0	42.00	0.00
50.00	0.00	0	42.00	0.00
52.50	0.00	0	42.00	0.00
55.00	0.00	0	42.00	0.00
57.50	0.00	0	42.00	0.00
60.00	0.00	0	42.00	0.00
62.50	0.00	0	42.00	0.00
65.00	0.00	0	42.00	0.00
67.50	0.00	0	42.00	0.00
70.00	0.00	0	42.00	0.00

Aspire - Existing

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Stage-Area-Storage for Reach EX-R-1: Existing Reach 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
42.00	0.0	0	44.60	41.1	21,855
42.05	0.4	217	44.65	42.3	22,487
42.10	0.8	442	44.70	43.5	23,126
42.15	1.3	674	44.75	44.7	23,774
42.20	1.7	915	44.80	45.9	24,430
42.25	2.2	1,164	44.85	47.2	25,093
42.30	2.7	1,420	44.90	48.4	25,765
42.35	3.2	1,685	44.95	49.7	26,445
42.40	3.7	1,958	45.00	51.0	27,132
42.45	4.2	2,238			
42.50	4.8	2,527			
42.55	5.3	2,824			
42.60	5.9	3,128			
42.65	6.5	3,441			
42.70	7.1	3,762			
42.75	7.7	4,090			
42.80	8.3	4,427			
42.85	9.0	4,771			
42.90	9.6	5,123			
42.95	10.3	5,484			
43.00	11.0	5,852			
43.05	11.7	6,228			
43.10	12.4	6,613			
43.15	13.2	7,005			
43.20	13.9	7,405			
43.25	14.7	7,814			
43.30	15.5	8,230			
43.35	16.3	8,654			
43.40	17.1	9,087			
43.45	17.9	9,527			
43.50	18.8	9,975			
43.55	19.6	10,432			
43.60	20.5	10,896			
43.65	21.4	11,368			
43.70	22.3	11,848			
43.75	23.2	12,336			
43.80	24.1	12,832			
43.85	25.1	13,336			
43.90	26.0	13,848			
43.95	27.0	14,368			
44.00	28.0	14,896			
44.05	29.0	15,432			
44.10	30.0	15,976			
44.15	31.1	16,528			
44.20	32.1	17,088			
44.25	33.2	17,656			
44.30	34.3	18,232			
44.35	35.4	18,816			
44.40	36.5	19,407			
44.45	37.6	20,008			
44.50	38.8	20,615			
44.55	39.9	21,231			

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Summary for Reach EX-R-2: Existing Reach 2

Inflow Area = 446.613 ac, 19.11% Impervious, Inflow Depth = 3.15" for 10-YR event
Inflow = 595.77 cfs @ 12.46 hrs, Volume= 117.390 af
Outflow = 586.96 cfs @ 12.53 hrs, Volume= 117.390 af, Atten= 1%, Lag= 4.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.50 fps, Min. Travel Time= 3.9 min

Avg. Velocity= 1.11 fps, Avg. Travel Time= 12.3 min

Peak Storage= 137,223 cf @ 12.53 hrs

Average Depth at Peak Storage= 7.50'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 143.16 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 26.00'

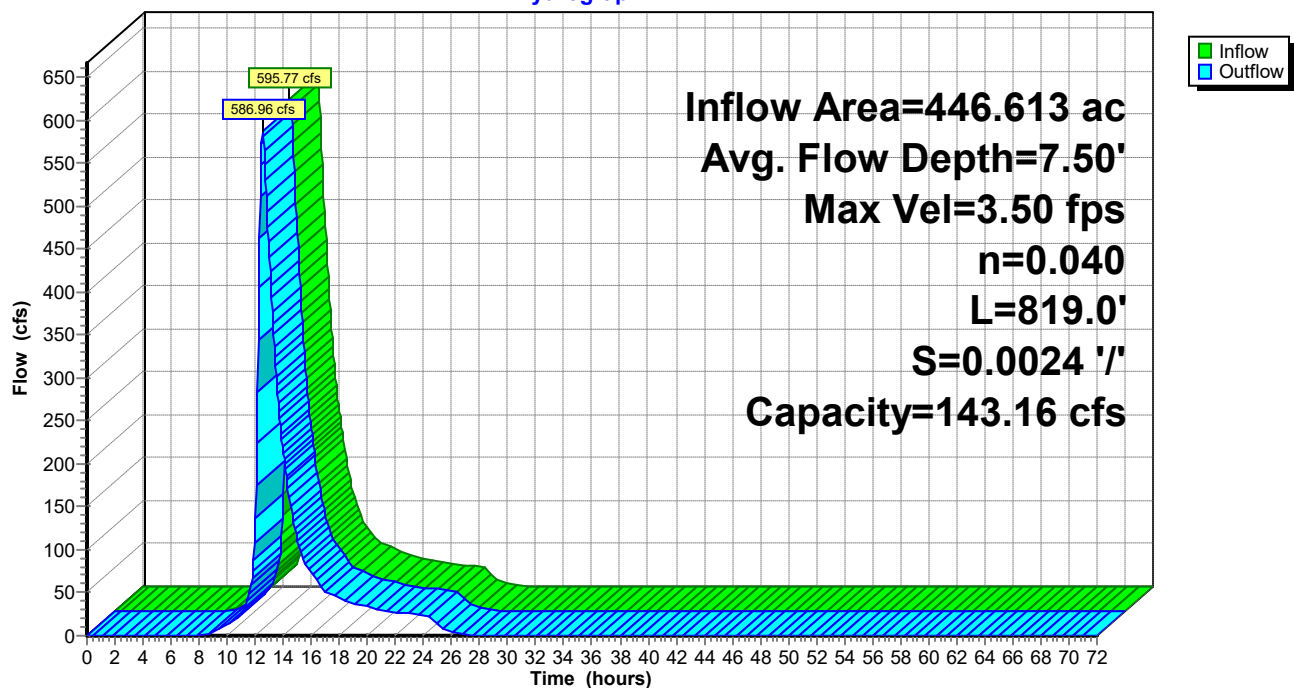
Length= 819.0' Slope= 0.0024 '/'

Inlet Invert= 40.00', Outlet Invert= 38.00'

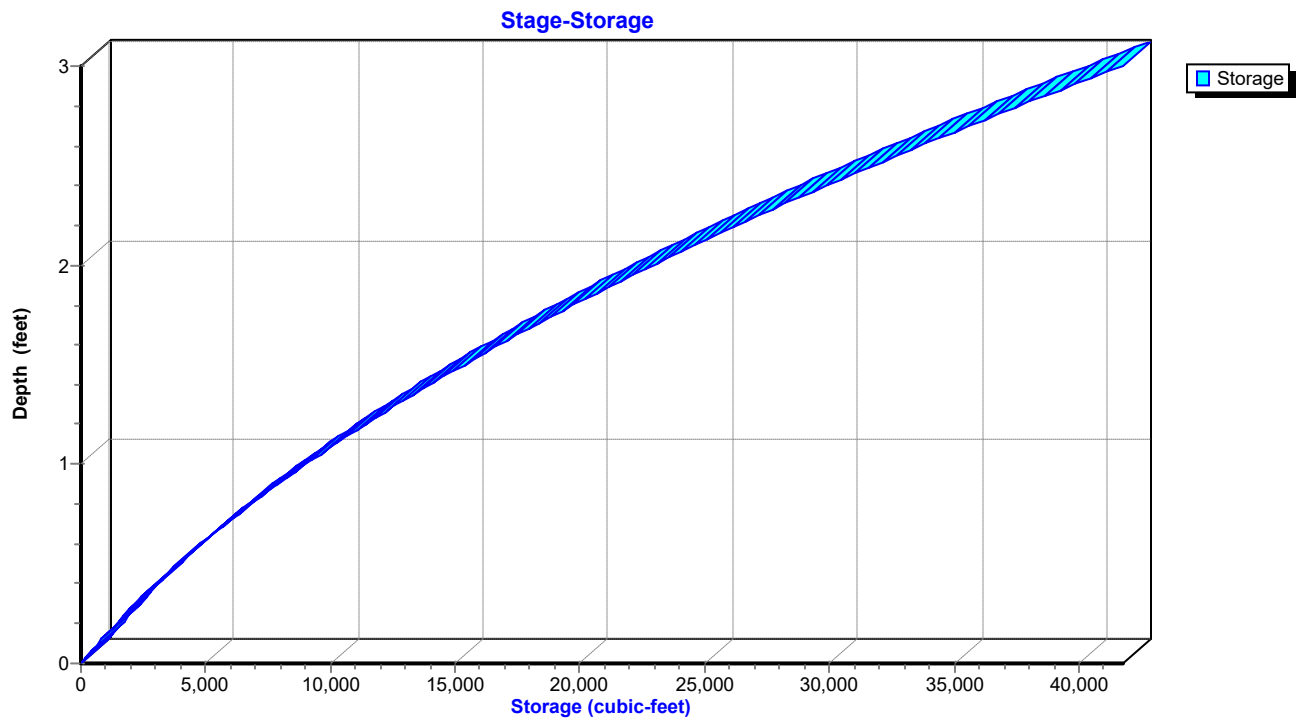


Reach EX-R-2: Existing Reach 2

Hydrograph



Reach EX-R-2: Existing Reach 2



Aspire - Existing

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach EX-R-2: Existing Reach 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	40.00	0.00
2.50	0.00	0	40.00	0.00
5.00	0.00	0	40.00	0.00
7.50	0.11	42	40.01	0.01
10.00	13.24	7,194	40.84	12.24
12.50	592.26	136,936	47.48	585.62
15.00	107.94	34,946	42.67	112.28
17.50	46.99	18,737	41.73	47.60
20.00	32.88	14,515	41.44	33.32
22.50	25.93	12,187	41.26	26.04
25.00	11.11	7,407	40.86	12.77
27.50	0.36	980	40.14	0.58
30.00	0.01	169	40.03	0.04
32.50	0.00	33	40.01	0.01
35.00	0.00	6	40.00	0.00
37.50	0.00	1	40.00	0.00
40.00	0.00	0	40.00	0.00
42.50	0.00	0	40.00	0.00
45.00	0.00	0	40.00	0.00
47.50	0.00	0	40.00	0.00
50.00	0.00	0	40.00	0.00
52.50	0.00	0	40.00	0.00
55.00	0.00	0	40.00	0.00
57.50	0.00	0	40.00	0.00
60.00	0.00	0	40.00	0.00
62.50	0.00	0	40.00	0.00
65.00	0.00	0	40.00	0.00
67.50	0.00	0	40.00	0.00
70.00	0.00	0	40.00	0.00

Aspire - Existing

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Stage-Area-Storage for Reach EX-R-2: Existing Reach 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
40.00	0.0	0	42.60	41.1	33,645
40.05	0.4	334	42.65	42.3	34,618
40.10	0.8	680	42.70	43.5	35,602
40.15	1.3	1,038	42.75	44.7	36,600
40.20	1.7	1,409	42.80	45.9	37,609
40.25	2.2	1,792	42.85	47.2	38,630
40.30	2.7	2,187	42.90	48.4	39,665
40.35	3.2	2,595	42.95	49.7	40,711
40.40	3.7	3,014	43.00	51.0	41,769
40.45	4.2	3,446			
40.50	4.8	3,891			
40.55	5.3	4,347			
40.60	5.9	4,816			
40.65	6.5	5,297			
40.70	7.1	5,791			
40.75	7.7	6,296			
40.80	8.3	6,815			
40.85	9.0	7,345			
40.90	9.6	7,887			
40.95	10.3	8,442			
41.00	11.0	9,009			
41.05	11.7	9,588			
41.10	12.4	10,181			
41.15	13.2	10,785			
41.20	13.9	11,400			
41.25	14.7	12,030			
41.30	15.5	12,670			
41.35	16.3	13,323			
41.40	17.1	13,989			
41.45	17.9	14,667			
41.50	18.8	15,356			
41.55	19.6	16,059			
41.60	20.5	16,774			
41.65	21.4	17,500			
41.70	22.3	18,240			
41.75	23.2	18,991			
41.80	24.1	19,754			
41.85	25.1	20,531			
41.90	26.0	21,319			
41.95	27.0	22,119			
42.00	28.0	22,932			
42.05	29.0	23,758			
42.10	30.0	24,595			
42.15	31.1	25,445			
42.20	32.1	26,307			
42.25	33.2	27,181			
42.30	34.3	28,068			
42.35	35.4	28,966			
42.40	36.5	29,877			
42.45	37.6	30,801			
42.50	38.8	31,737			
42.55	39.9	32,684			

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Summary for Reach EX-R-3: Existing Reach 3

Inflow Area = 9.583 ac, 3.48% Impervious, Inflow Depth = 3.06" for 10-YR event
Inflow = 24.32 cfs @ 12.11 hrs, Volume= 2.445 af
Outflow = 20.83 cfs @ 12.22 hrs, Volume= 2.445 af, Atten= 14%, Lag= 6.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.41 fps, Min. Travel Time= 8.6 min

Avg. Velocity= 0.36 fps, Avg. Travel Time= 33.8 min

Peak Storage= 10,765 cf @ 12.22 hrs

Average Depth at Peak Storage= 1.77'

Bank-Full Depth= 2.00' Flow Area= 18.0 sf, Capacity= 27.19 cfs

3.00' x 2.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 ' Top Width= 15.00'

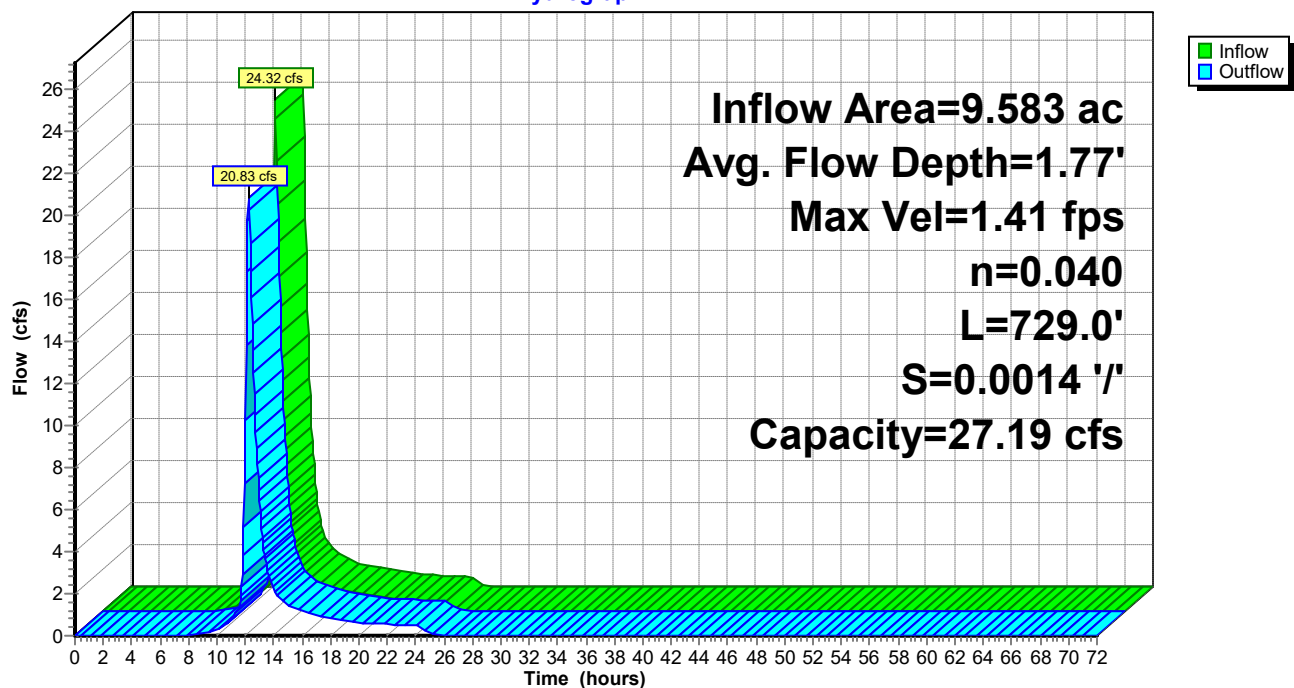
Length= 729.0' Slope= 0.0014 ' /'

Inlet Invert= 43.00', Outlet Invert= 42.00'

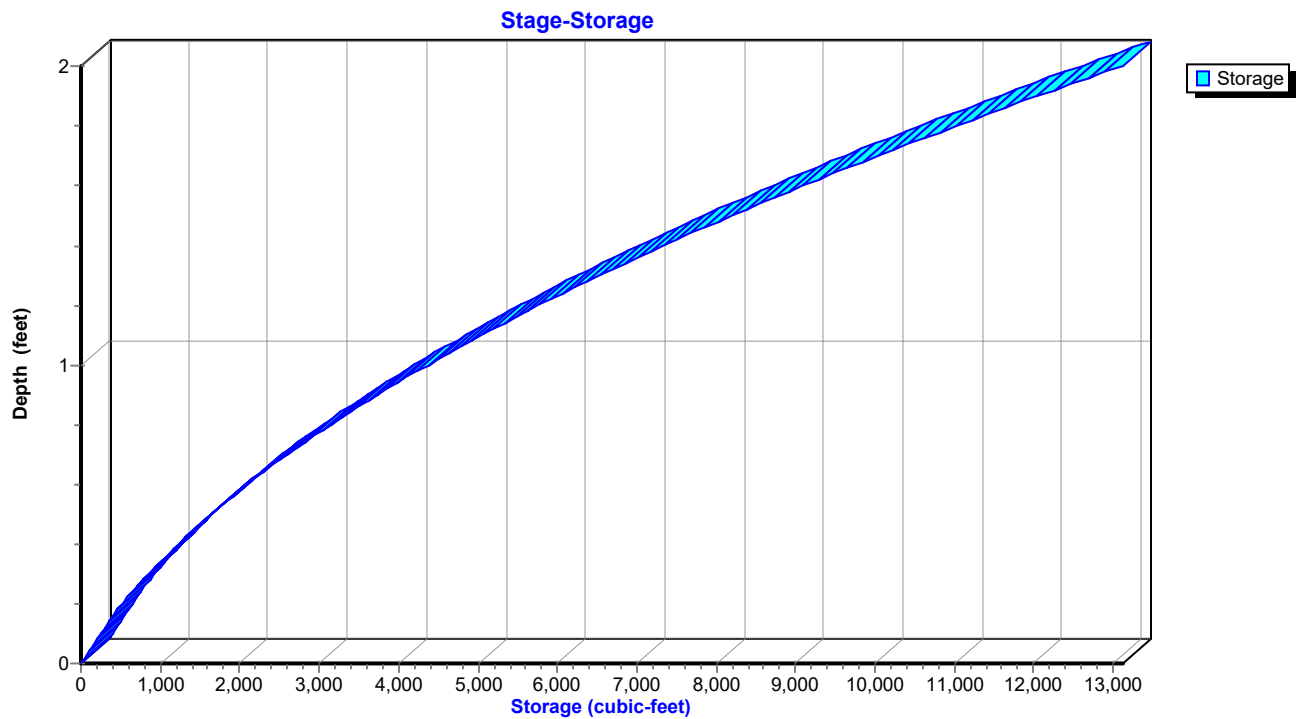


Reach EX-R-3: Existing Reach 3

Hydrograph



Reach EX-R-3: Existing Reach 3



Aspire - Existing

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach EX-R-3: Existing Reach 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	43.00	0.00
2.50	0.00	0	43.00	0.00
5.00	0.00	0	43.00	0.00
7.50	0.01	4	43.00	0.00
10.00	0.39	531	43.20	0.31
12.50	11.96	8,354	44.52	14.80
15.00	1.42	1,573	43.48	1.49
17.50	0.89	1,113	43.37	0.91
20.00	0.62	878	43.31	0.65
22.50	0.53	773	43.28	0.54
25.00	0.02	294	43.12	0.13
27.50	0.00	40	43.02	0.01
30.00	0.00	12	43.01	0.00
32.50	0.00	3	43.00	0.00
35.00	0.00	1	43.00	0.00
37.50	0.00	0	43.00	0.00
40.00	0.00	0	43.00	0.00
42.50	0.00	0	43.00	0.00
45.00	0.00	0	43.00	0.00
47.50	0.00	0	43.00	0.00
50.00	0.00	0	43.00	0.00
52.50	0.00	0	43.00	0.00
55.00	0.00	0	43.00	0.00
57.50	0.00	0	43.00	0.00
60.00	0.00	0	43.00	0.00
62.50	0.00	0	43.00	0.00
65.00	0.00	0	43.00	0.00
67.50	0.00	0	43.00	0.00
70.00	0.00	0	43.00	0.00

Aspire - Existing

Prepared by {enter your company name here}

Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

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Stage-Area-Storage for Reach EX-R-3: Existing Reach 3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
43.00	0.0	0	44.04	6.4	4,640
43.02	0.1	45	44.06	6.6	4,776
43.04	0.1	91	44.08	6.7	4,913
43.06	0.2	139	44.10	6.9	5,052
43.08	0.3	189	44.12	7.1	5,193
43.10	0.3	241	44.14	7.3	5,335
43.12	0.4	294	44.16	7.5	5,480
43.14	0.5	349	44.18	7.7	5,626
43.16	0.6	406	44.20	7.9	5,774
43.18	0.6	465	44.22	8.1	5,923
43.20	0.7	525	44.24	8.3	6,075
43.22	0.8	587	44.26	8.5	6,228
43.24	0.9	651	44.28	8.8	6,383
43.26	1.0	716	44.30	9.0	6,539
43.28	1.1	784	44.32	9.2	6,697
43.30	1.2	853	44.34	9.4	6,858
43.32	1.3	924	44.36	9.6	7,019
43.34	1.4	996	44.38	9.9	7,183
43.36	1.5	1,071	44.40	10.1	7,348
43.38	1.6	1,147	44.42	10.3	7,515
43.40	1.7	1,225	44.44	10.5	7,684
43.42	1.8	1,304	44.46	10.8	7,855
43.44	1.9	1,386	44.48	11.0	8,027
43.46	2.0	1,469	44.50	11.3	8,201
43.48	2.1	1,554	44.52	11.5	8,377
43.50	2.3	1,640	44.54	11.7	8,555
43.52	2.4	1,729	44.56	12.0	8,734
43.54	2.5	1,819	44.58	12.2	8,915
43.56	2.6	1,911	44.60	12.5	9,098
43.58	2.7	2,004	44.62	12.7	9,283
43.60	2.9	2,100	44.64	13.0	9,469
43.62	3.0	2,197	44.66	13.2	9,657
43.64	3.1	2,295	44.68	13.5	9,847
43.66	3.3	2,396	44.70	13.8	10,038
43.68	3.4	2,498	44.72	14.0	10,232
43.70	3.6	2,603	44.74	14.3	10,427
43.72	3.7	2,708	44.76	14.6	10,624
43.74	3.9	2,816	44.78	14.8	10,822
43.76	4.0	2,925	44.80	15.1	11,022
43.78	4.2	3,036	44.82	15.4	11,225
43.80	4.3	3,149	44.84	15.7	11,428
43.82	4.5	3,264	44.86	16.0	11,634
43.84	4.6	3,380	44.88	16.2	11,841
43.86	4.8	3,498	44.90	16.5	12,050
43.88	5.0	3,618	44.92	16.8	12,261
43.90	5.1	3,740	44.94	17.1	12,474
43.92	5.3	3,863	44.96	17.4	12,688
43.94	5.5	3,988	44.98	17.7	12,904
43.96	5.6	4,115	45.00	18.0	13,122
43.98	5.8	4,244			
44.00	6.0	4,374			
44.02	6.2	4,506			

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

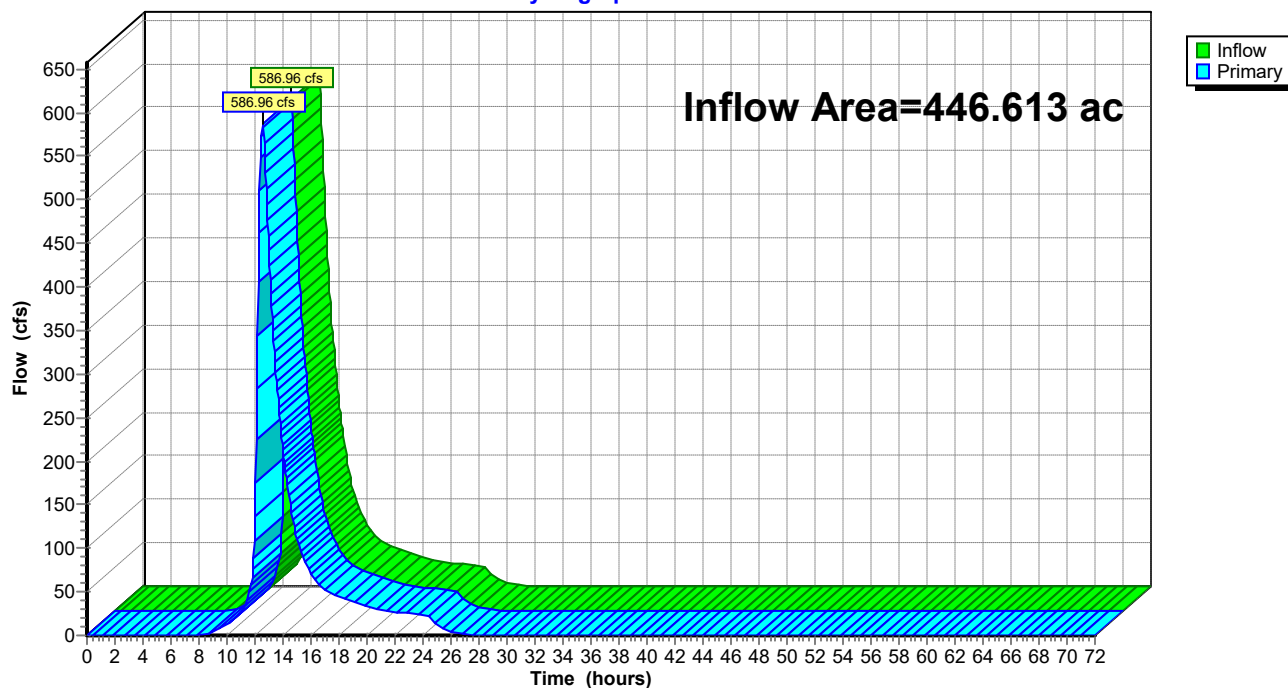
Summary for Link SP-1: Study Point #1

Inflow Area = 446.613 ac, 19.11% Impervious, Inflow Depth = 3.15" for 10-YR event
Inflow = 586.96 cfs @ 12.53 hrs, Volume= 117.390 af
Primary = 586.96 cfs @ 12.53 hrs, Volume= 117.390 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link SP-1: Study Point #1

Hydrograph



Aspire - Existing

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Link SP-1: Study Point #1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.41	0.00	0.41	60.00	0.00	0.00	0.00
9.00	4.51	0.00	4.51	61.00	0.00	0.00	0.00
10.00	12.24	0.00	12.24	62.00	0.00	0.00	0.00
11.00	27.09	0.00	27.09	63.00	0.00	0.00	0.00
12.00	136.27	0.00	136.27	64.00	0.00	0.00	0.00
13.00	441.33	0.00	441.33	65.00	0.00	0.00	0.00
14.00	212.86	0.00	212.86	66.00	0.00	0.00	0.00
15.00	112.28	0.00	112.28	67.00	0.00	0.00	0.00
16.00	71.65	0.00	71.65	68.00	0.00	0.00	0.00
17.00	52.16	0.00	52.16	69.00	0.00	0.00	0.00
18.00	44.13	0.00	44.13	70.00	0.00	0.00	0.00
19.00	38.47	0.00	38.47	71.00	0.00	0.00	0.00
20.00	33.32	0.00	33.32	72.00	0.00	0.00	0.00
21.00	28.91	0.00	28.91				
22.00	26.75	0.00	26.75				
23.00	25.45	0.00	25.45				
24.00	24.40	0.00	24.40				
25.00	12.77	0.00	12.77				
26.00	3.95	0.00	3.95				
27.00	1.12	0.00	1.12				
28.00	0.31	0.00	0.31				
29.00	0.10	0.00	0.10				
30.00	0.04	0.00	0.04				
31.00	0.02	0.00	0.02				
32.00	0.01	0.00	0.01				
33.00	0.01	0.00	0.01				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

10-Year Proposed Conditions Analysis

Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-DA-1: Existing DA 1 Runoff Area=18,637,760 sf 19.87% Impervious Runoff Depth=3.16"
Flow Length=4,740' Tc=43.0 min CN=80 Runoff=565.61 cfs 112.534 af

Subcatchment EX-DA-2: Existing DA 2 Runoff Area=232,668 sf 6.24% Impervious Runoff Depth=3.45"
Flow Length=932' Tc=12.9 min CN=83 Runoff=17.60 cfs 1.534 af

Subcatchment EX-DA-3A: Existing DA 3A Runoff Area=108,633 sf 0.88% Impervious Runoff Depth=3.55"
Flow Length=1,226' Tc=12.6 min CN=84 Runoff=8.55 cfs 0.737 af

Subcatchment EX-DA-3B: Existing DA 3B Runoff Area=190,236 sf 0.22% Impervious Runoff Depth=3.55"
Flow Length=1,010' Tc=11.4 min CN=84 Runoff=15.82 cfs 1.291 af

Subcatchment PR-DA-1: Proposed DA 1 Runoff Area=143,973 sf 69.42% Impervious Runoff Depth=4.27"
Flow Length=521' Tc=8.4 min CN=91 Runoff=16.24 cfs 1.177 af

Subcatchment PR-DA-2: Proposed DA 2 Runoff Area=141,172 sf 66.40% Impervious Runoff Depth=4.17"
Flow Length=582' Tc=11.7 min CN=90 Runoff=13.26 cfs 1.125 af

Reach EX-R-1: Existing Reach 1 Avg. Flow Depth=6.30' Max Vel=4.26 fps Inflow=584.15 cfs 115.588 af
n=0.040 L=532.0' S=0.0038 '/' Capacity=177.63 cfs Outflow=582.05 cfs 115.588 af

Reach EX-R-2: Existing Reach 2 Avg. Flow Depth=7.49' Max Vel=3.50 fps Inflow=594.45 cfs 117.995 af
n=0.040 L=819.0' S=0.0024 '/' Capacity=143.16 cfs Outflow=585.67 cfs 117.995 af

Reach EX-R-3: Existing Reach 3 Avg. Flow Depth=1.83' Max Vel=1.43 fps Inflow=26.63 cfs 3.054 af
n=0.040 L=729.0' S=0.0014 '/' Capacity=27.19 cfs Outflow=22.33 cfs 3.054 af

Reach EX-R-4: Existing Reach 4 Avg. Flow Depth=1.09' Max Vel=0.89 fps Inflow=17.46 cfs 2.407 af
n=0.100 L=464.0' S=0.0151 '/' Capacity=3.62 cfs Outflow=14.97 cfs 2.407 af

Reach PR-R-1: Proposed Reach 1 Avg. Flow Depth=1.24' Max Vel=3.77 fps Inflow=17.69 cfs 2.407 af
n=0.022 L=221.0' S=0.0063 '/' Capacity=112.93 cfs Outflow=17.46 cfs 2.407 af

Reach PR-R-2: Proposed Reach 2 Avg. Flow Depth=1.49' Max Vel=2.97 fps Inflow=17.60 cfs 1.534 af
n=0.025 L=100.0' S=0.0050 '/' Capacity=7.67 cfs Outflow=17.56 cfs 1.534 af

Pond FB-1: FB to SGW 1 Peak Elev=48.10' Storage=23,263 cf Inflow=16.24 cfs 1.177 af
Outflow=8.51 cfs 0.783 af

Pond FB-2: FB to SGW 2 Peak Elev=50.29' Storage=8,265 cf Inflow=13.26 cfs 1.125 af
Outflow=12.57 cfs 1.125 af

Pond SGW-1: SGW 1 Peak Elev=47.82' Storage=8,136 cf Inflow=8.51 cfs 0.783 af
Primary=5.55 cfs 0.783 af Secondary=0.00 cfs 0.000 af Outflow=5.55 cfs 0.783 af

Pond SGW-2: SGW 2 Peak Elev=50.25' Storage=18,738 cf Inflow=12.57 cfs 1.125 af
Outflow=5.08 cfs 1.117 af

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Link SP-1: Study Point #1

Inflow=585.67 cfs 117.995 af

Primary=585.67 cfs 117.995 af

Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Subcatchment EX-DA-1: Existing DA 1

Runoff = 565.61 cfs @ 12.44 hrs, Volume= 112.534 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
150,521	61	1/4 acre lots, 38% imp, HSG A
2,950,162	75	1/4 acre lots, 38% imp, HSG B
704,124	55	Woods, Good, HSG B
1,014,991	78	Row crops, straight row, Good, HSG B
4,488,021	83	1/4 acre lots, 38% imp, HSG C
561,418	70	Woods, Good, HSG C
3,928,165	85	Row crops, straight row, Good, HSG C
2,157,149	87	1/4 acre lots, 38% imp, HSG D
1,857,395	77	Woods, Good, HSG D
821,283	89	Row crops, straight row, Good, HSG D
4,531	74	>75% Grass cover, Good, HSG C
18,637,760	80	Weighted Average
14,934,336		80.13% Pervious Area
3,703,424		19.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
16.0	1,441	0.0100	1.50		Shallow Concentrated Flow, Ag Ditch Grassed Waterway Kv= 15.0 fps
11.5	1,035	0.0100	1.50		Shallow Concentrated Flow, Mathewstown Rd North Swale Grassed Waterway Kv= 15.0 fps
0.9	197	0.0030	3.85	6.80	Pipe Channel, Culvert under Mile Post Rd 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011 Concrete pipe, straight & clean
2.2	240	0.0150	1.84		Shallow Concentrated Flow, Mathewstown Rd - North Swale before Grassed Waterway Kv= 15.0 fps
0.1	51	0.0030	8.59	168.59	Pipe Channel, Culvert crossing Mathewstown Rd to Hosewells Branch 60.0" Round Area= 19.6 sf Perim= 15.7' r= 1.25' n= 0.011 Concrete pipe, straight & clean
7.7	1,676	0.0050	3.62	75.95	Channel Flow, Hosewells Branch Area= 21.0 sf Perim= 13.0' r= 1.62' n= 0.040 Winding stream, pools & shoals
43.0	4,740	Total			

Aspire - Proposed

Prepared by {enter your company name here}

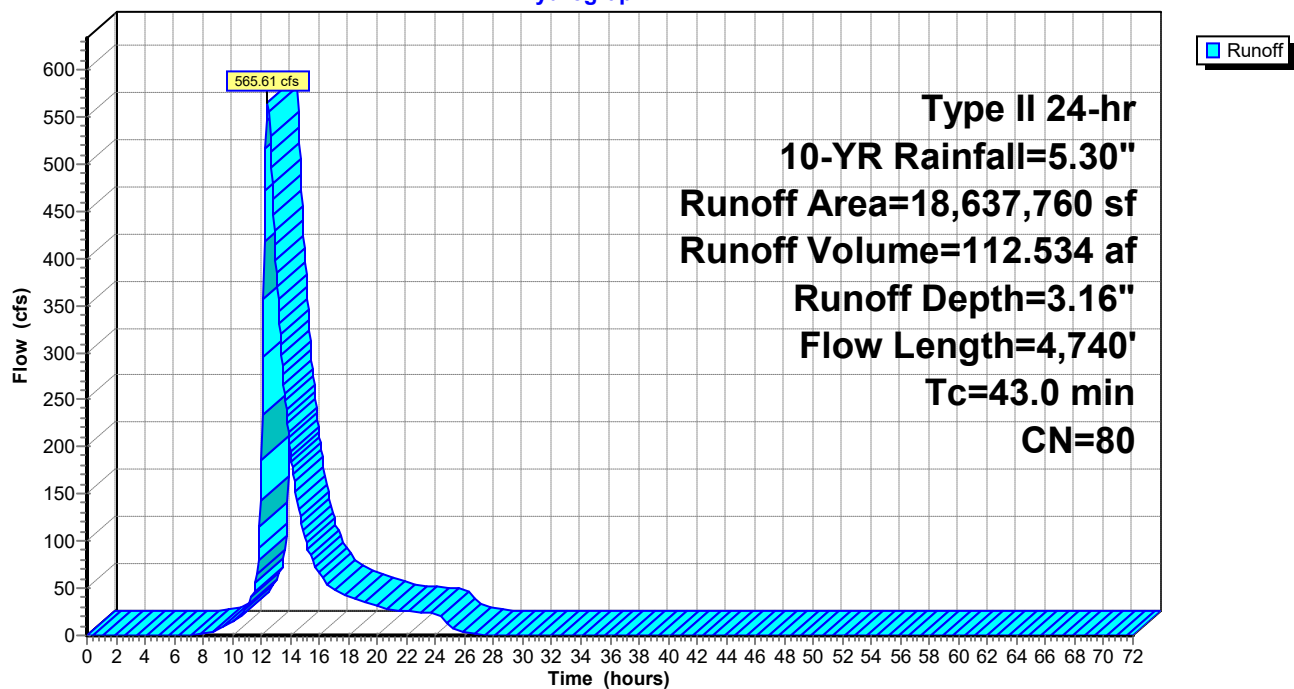
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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Subcatchment EX-DA-1: Existing DA 1

Hydrograph



Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Hydrograph for Subcatchment EX-DA-1: Existing DA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	3.16	0.00
1.00	0.06	0.00	0.00	53.00	5.30	3.16	0.00
2.00	0.12	0.00	0.00	54.00	5.30	3.16	0.00
3.00	0.18	0.00	0.00	55.00	5.30	3.16	0.00
4.00	0.25	0.00	0.00	56.00	5.30	3.16	0.00
5.00	0.33	0.00	0.00	57.00	5.30	3.16	0.00
6.00	0.42	0.00	0.00	58.00	5.30	3.16	0.00
7.00	0.52	0.00	0.01	59.00	5.30	3.16	0.00
8.00	0.64	0.01	1.46	60.00	5.30	3.16	0.00
9.00	0.78	0.03	5.63	61.00	5.30	3.16	0.00
10.00	0.96	0.07	13.14	62.00	5.30	3.16	0.00
11.00	1.25	0.17	28.96	63.00	5.30	3.16	0.00
12.00	3.51	1.65	185.58	64.00	5.30	3.16	0.00
13.00	4.09	2.12	398.42	65.00	5.30	3.16	0.00
14.00	4.35	2.33	195.92	66.00	5.30	3.16	0.00
15.00	4.52	2.48	102.66	67.00	5.30	3.16	0.00
16.00	4.66	2.60	66.65	68.00	5.30	3.16	0.00
17.00	4.78	2.70	48.96	69.00	5.30	3.16	0.00
18.00	4.88	2.79	41.67	70.00	5.30	3.16	0.00
19.00	4.97	2.87	36.31	71.00	5.30	3.16	0.00
20.00	5.05	2.93	31.37	72.00	5.30	3.16	0.00
21.00	5.11	2.99	27.37				
22.00	5.18	3.05	25.45				
23.00	5.24	3.10	24.26				
24.00	5.30	3.16	23.26				
25.00	5.30	3.16	10.03				
26.00	5.30	3.16	2.79				
27.00	5.30	3.16	0.58				
28.00	5.30	3.16	0.10				
29.00	5.30	3.16	0.00				
30.00	5.30	3.16	0.00				
31.00	5.30	3.16	0.00				
32.00	5.30	3.16	0.00				
33.00	5.30	3.16	0.00				
34.00	5.30	3.16	0.00				
35.00	5.30	3.16	0.00				
36.00	5.30	3.16	0.00				
37.00	5.30	3.16	0.00				
38.00	5.30	3.16	0.00				
39.00	5.30	3.16	0.00				
40.00	5.30	3.16	0.00				
41.00	5.30	3.16	0.00				
42.00	5.30	3.16	0.00				
43.00	5.30	3.16	0.00				
44.00	5.30	3.16	0.00				
45.00	5.30	3.16	0.00				
46.00	5.30	3.16	0.00				
47.00	5.30	3.16	0.00				
48.00	5.30	3.16	0.00				
49.00	5.30	3.16	0.00				
50.00	5.30	3.16	0.00				
51.00	5.30	3.16	0.00				

Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Subcatchment EX-DA-2: Existing DA 2

Runoff = 17.60 cfs @ 12.06 hrs, Volume= 1.534 af, Depth= 3.45"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
14,528	98	Paved parking, HSG B
92,133	78	Row crops, straight row, Good, HSG B
126,007	85	Row crops, straight row, Good, HSG C
232,668	83	Weighted Average
218,140		93.76% Pervious Area
14,528		6.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0140	0.32		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
6.2	637	0.0130	1.71		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
1.1	92	0.0050	1.44		Shallow Concentrated Flow, Camac Gutter Paved Kv= 20.3 fps
0.3	103	0.0034	5.28	25.91	Pipe Channel, Pipe to EX-R-3 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Corrugated PP, smooth interior
12.9	932	Total			

Aspire - Proposed

Prepared by {enter your company name here}

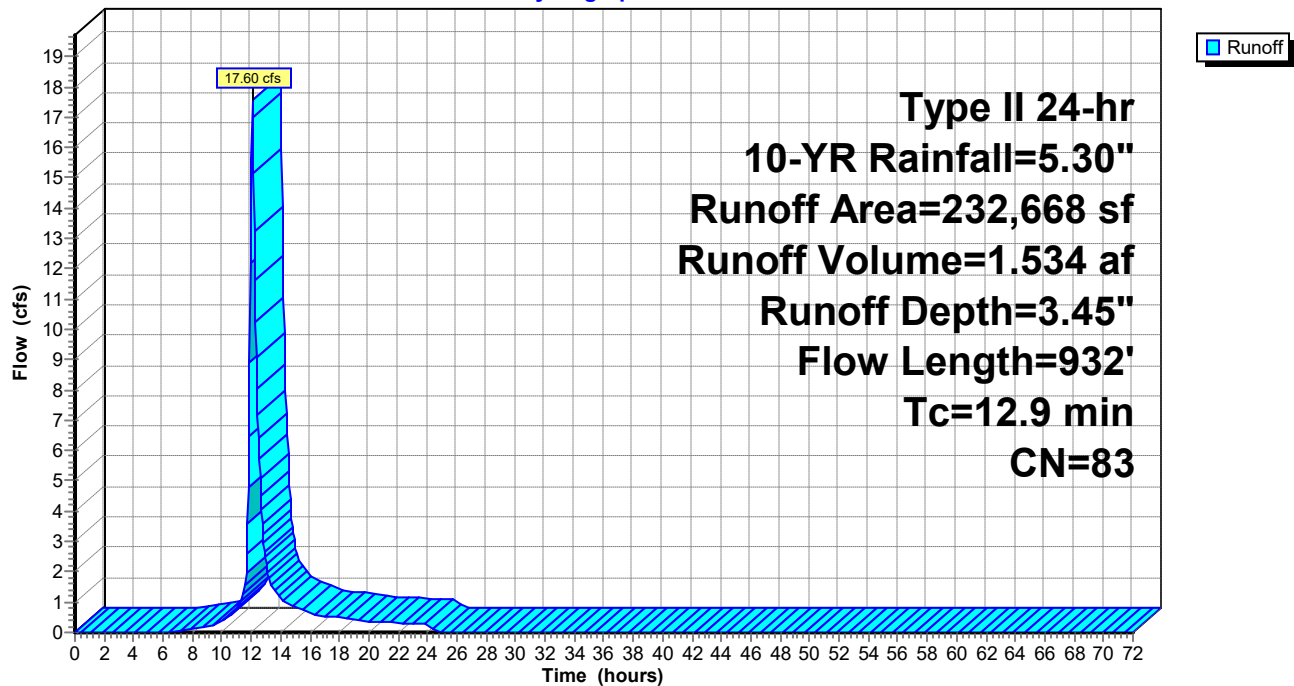
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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Subcatchment EX-DA-2: Existing DA 2

Hydrograph



Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Hydrograph for Subcatchment EX-DA-2: Existing DA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	3.45	0.00
1.00	0.06	0.00	0.00	53.00	5.30	3.45	0.00
2.00	0.12	0.00	0.00	54.00	5.30	3.45	0.00
3.00	0.18	0.00	0.00	55.00	5.30	3.45	0.00
4.00	0.25	0.00	0.00	56.00	5.30	3.45	0.00
5.00	0.33	0.00	0.00	57.00	5.30	3.45	0.00
6.00	0.42	0.00	0.00	58.00	5.30	3.45	0.00
7.00	0.52	0.01	0.04	59.00	5.30	3.45	0.00
8.00	0.64	0.02	0.10	60.00	5.30	3.45	0.00
9.00	0.78	0.06	0.21	61.00	5.30	3.45	0.00
10.00	0.96	0.12	0.35	62.00	5.30	3.45	0.00
11.00	1.25	0.24	0.78	63.00	5.30	3.45	0.00
12.00	3.51	1.87	15.62	64.00	5.30	3.45	0.00
13.00	4.09	2.37	2.32	65.00	5.30	3.45	0.00
14.00	4.35	2.59	1.10	66.00	5.30	3.45	0.00
15.00	4.52	2.75	0.82	67.00	5.30	3.45	0.00
16.00	4.66	2.87	0.65	68.00	5.30	3.45	0.00
17.00	4.78	2.98	0.55	69.00	5.30	3.45	0.00
18.00	4.88	3.07	0.48	70.00	5.30	3.45	0.00
19.00	4.97	3.15	0.42	71.00	5.30	3.45	0.00
20.00	5.05	3.22	0.36	72.00	5.30	3.45	0.00
21.00	5.11	3.28	0.33				
22.00	5.18	3.34	0.32				
23.00	5.24	3.39	0.30				
24.00	5.30	3.45	0.29				
25.00	5.30	3.45	0.00				
26.00	5.30	3.45	0.00				
27.00	5.30	3.45	0.00				
28.00	5.30	3.45	0.00				
29.00	5.30	3.45	0.00				
30.00	5.30	3.45	0.00				
31.00	5.30	3.45	0.00				
32.00	5.30	3.45	0.00				
33.00	5.30	3.45	0.00				
34.00	5.30	3.45	0.00				
35.00	5.30	3.45	0.00				
36.00	5.30	3.45	0.00				
37.00	5.30	3.45	0.00				
38.00	5.30	3.45	0.00				
39.00	5.30	3.45	0.00				
40.00	5.30	3.45	0.00				
41.00	5.30	3.45	0.00				
42.00	5.30	3.45	0.00				
43.00	5.30	3.45	0.00				
44.00	5.30	3.45	0.00				
45.00	5.30	3.45	0.00				
46.00	5.30	3.45	0.00				
47.00	5.30	3.45	0.00				
48.00	5.30	3.45	0.00				
49.00	5.30	3.45	0.00				
50.00	5.30	3.45	0.00				
51.00	5.30	3.45	0.00				

Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Summary for Subcatchment EX-DA-3A: Existing DA 3A

Runoff = 8.55 cfs @ 12.06 hrs, Volume= 0.737 af, Depth= 3.55"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
10,398	78	Row crops, straight row, Good, HSG B
97,279	85	Row crops, straight row, Good, HSG C
956	98	Paved parking, HSG C
108,633	84	Weighted Average
107,677		99.12% Pervious Area
956		0.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0110	0.29		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
3.7	408	0.0150	1.84		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
0.9	214	0.0093	4.09	20.44	Channel Flow, rear yard swale Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.025
2.2	504	0.0024	3.82	12.01	Pipe Channel, Pipe to EX-R-4 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
12.6	1,226	Total			

Aspire - Proposed

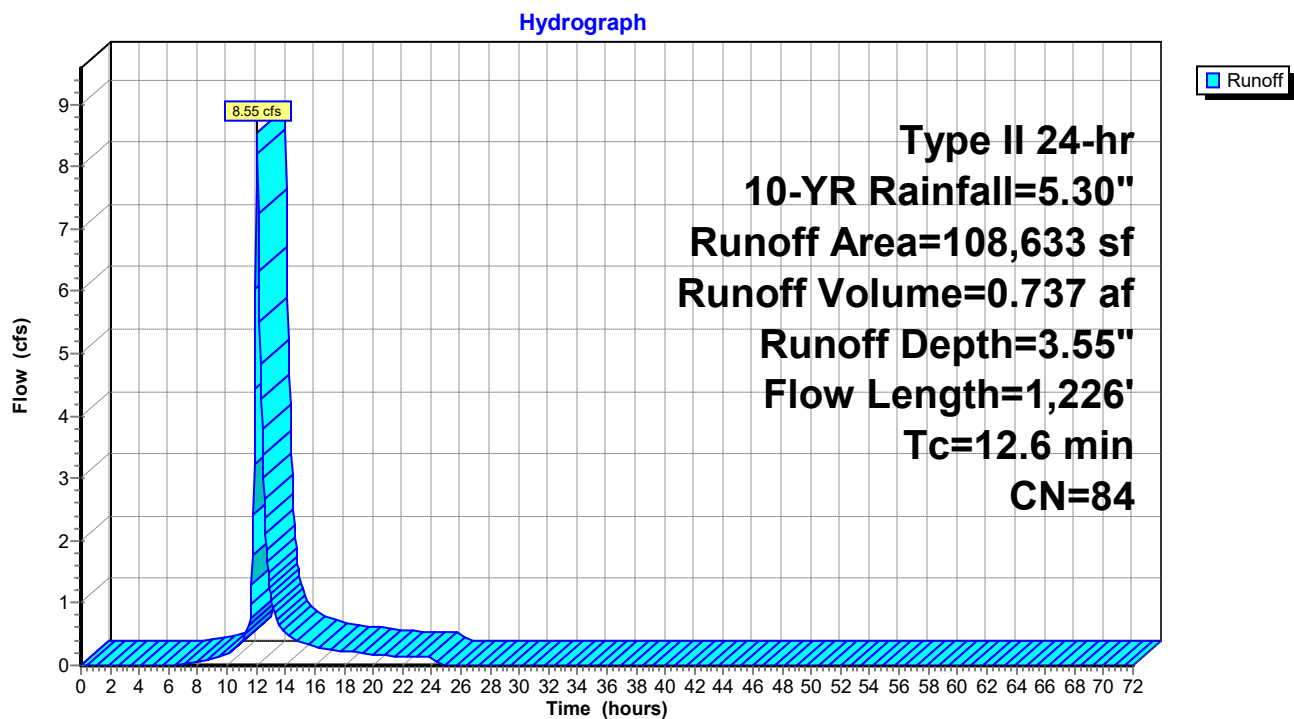
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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Subcatchment EX-DA-3A: Existing DA 3A



Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Hydrograph for Subcatchment EX-DA-3A: Existing DA 3A

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	3.55	0.00
1.00	0.06	0.00	0.00	53.00	5.30	3.55	0.00
2.00	0.12	0.00	0.00	54.00	5.30	3.55	0.00
3.00	0.18	0.00	0.00	55.00	5.30	3.55	0.00
4.00	0.25	0.00	0.00	56.00	5.30	3.55	0.00
5.00	0.33	0.00	0.00	57.00	5.30	3.55	0.00
6.00	0.42	0.00	0.00	58.00	5.30	3.55	0.00
7.00	0.52	0.01	0.03	59.00	5.30	3.55	0.00
8.00	0.64	0.03	0.06	60.00	5.30	3.55	0.00
9.00	0.78	0.07	0.11	61.00	5.30	3.55	0.00
10.00	0.96	0.13	0.18	62.00	5.30	3.55	0.00
11.00	1.25	0.27	0.39	63.00	5.30	3.55	0.00
12.00	3.51	1.95	7.68	64.00	5.30	3.55	0.00
13.00	4.09	2.45	1.08	65.00	5.30	3.55	0.00
14.00	4.35	2.68	0.52	66.00	5.30	3.55	0.00
15.00	4.52	2.84	0.39	67.00	5.30	3.55	0.00
16.00	4.66	2.96	0.30	68.00	5.30	3.55	0.00
17.00	4.78	3.07	0.26	69.00	5.30	3.55	0.00
18.00	4.88	3.16	0.23	70.00	5.30	3.55	0.00
19.00	4.97	3.24	0.20	71.00	5.30	3.55	0.00
20.00	5.05	3.31	0.17	72.00	5.30	3.55	0.00
21.00	5.11	3.37	0.15				
22.00	5.18	3.43	0.15				
23.00	5.24	3.49	0.14				
24.00	5.30	3.55	0.14				
25.00	5.30	3.55	0.00				
26.00	5.30	3.55	0.00				
27.00	5.30	3.55	0.00				
28.00	5.30	3.55	0.00				
29.00	5.30	3.55	0.00				
30.00	5.30	3.55	0.00				
31.00	5.30	3.55	0.00				
32.00	5.30	3.55	0.00				
33.00	5.30	3.55	0.00				
34.00	5.30	3.55	0.00				
35.00	5.30	3.55	0.00				
36.00	5.30	3.55	0.00				
37.00	5.30	3.55	0.00				
38.00	5.30	3.55	0.00				
39.00	5.30	3.55	0.00				
40.00	5.30	3.55	0.00				
41.00	5.30	3.55	0.00				
42.00	5.30	3.55	0.00				
43.00	5.30	3.55	0.00				
44.00	5.30	3.55	0.00				
45.00	5.30	3.55	0.00				
46.00	5.30	3.55	0.00				
47.00	5.30	3.55	0.00				
48.00	5.30	3.55	0.00				
49.00	5.30	3.55	0.00				
50.00	5.30	3.55	0.00				
51.00	5.30	3.55	0.00				

Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Subcatchment EX-DA-3B: Existing DA 3B

Runoff = 15.82 cfs @ 12.05 hrs, Volume= 1.291 af, Depth= 3.55"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
39,212	78	Row crops, straight row, Good, HSG B
150,604	85	Row crops, straight row, Good, HSG C
420	98	Paved parking, HSG C
190,236	84	Weighted Average
189,816		99.78% Pervious Area
420		0.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0100	0.28		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
3.4	421	0.0190	2.07		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
0.1	66	0.0700	11.22	56.09	Channel Flow, rear yard swale Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.025
1.9	423	0.0023	3.74	11.75	Pipe Channel, Pipe to EX-R-4 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
11.4	1,010	Total			

Aspire - Proposed

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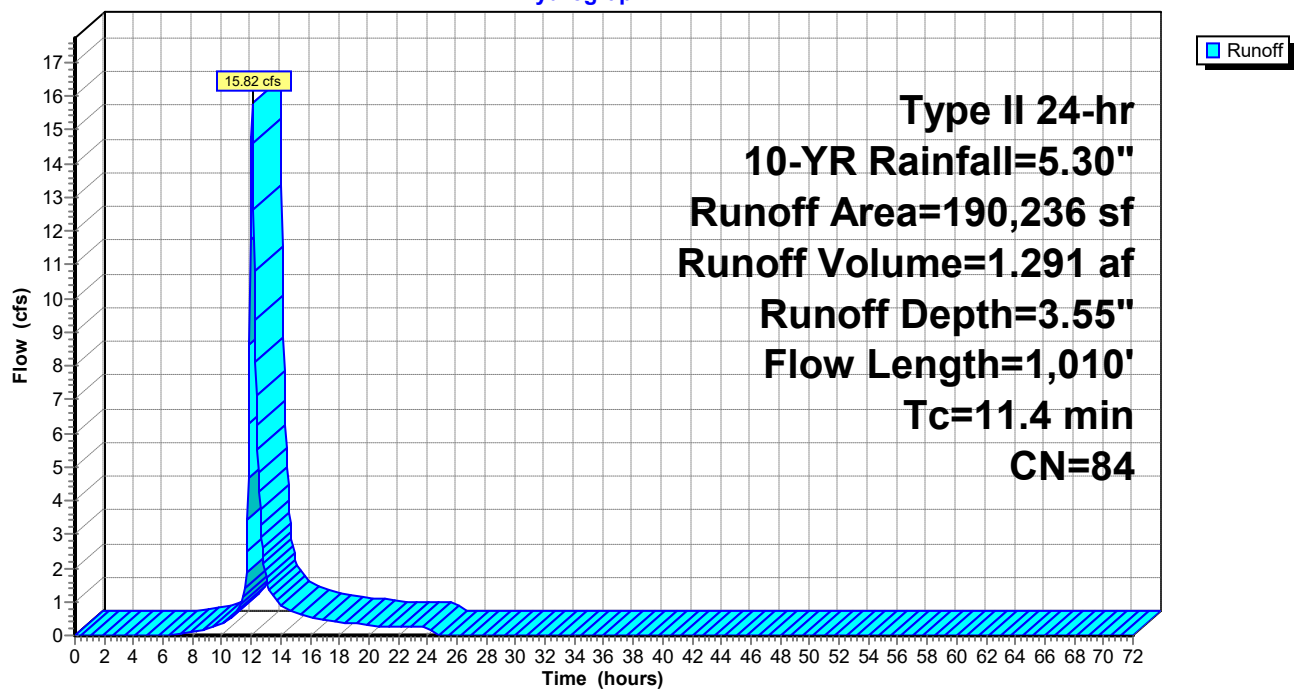
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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Subcatchment EX-DA-3B: Existing DA 3B

Hydrograph



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Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Subcatchment EX-DA-3B: Existing DA 3B

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	3.55	0.00
1.00	0.06	0.00	0.00	53.00	5.30	3.55	0.00
2.00	0.12	0.00	0.00	54.00	5.30	3.55	0.00
3.00	0.18	0.00	0.00	55.00	5.30	3.55	0.00
4.00	0.25	0.00	0.00	56.00	5.30	3.55	0.00
5.00	0.33	0.00	0.00	57.00	5.30	3.55	0.00
6.00	0.42	0.00	0.01	58.00	5.30	3.55	0.00
7.00	0.52	0.01	0.05	59.00	5.30	3.55	0.00
8.00	0.64	0.03	0.10	60.00	5.30	3.55	0.00
9.00	0.78	0.07	0.20	61.00	5.30	3.55	0.00
10.00	0.96	0.13	0.32	62.00	5.30	3.55	0.00
11.00	1.25	0.27	0.70	63.00	5.30	3.55	0.00
12.00	3.51	1.95	14.75	64.00	5.30	3.55	0.00
13.00	4.09	2.45	1.76	65.00	5.30	3.55	0.00
14.00	4.35	2.68	0.90	66.00	5.30	3.55	0.00
15.00	4.52	2.84	0.67	67.00	5.30	3.55	0.00
16.00	4.66	2.96	0.53	68.00	5.30	3.55	0.00
17.00	4.78	3.07	0.45	69.00	5.30	3.55	0.00
18.00	4.88	3.16	0.40	70.00	5.30	3.55	0.00
19.00	4.97	3.24	0.35	71.00	5.30	3.55	0.00
20.00	5.05	3.31	0.29	72.00	5.30	3.55	0.00
21.00	5.11	3.37	0.27				
22.00	5.18	3.43	0.26				
23.00	5.24	3.49	0.25				
24.00	5.30	3.55	0.24				
25.00	5.30	3.55	0.00				
26.00	5.30	3.55	0.00				
27.00	5.30	3.55	0.00				
28.00	5.30	3.55	0.00				
29.00	5.30	3.55	0.00				
30.00	5.30	3.55	0.00				
31.00	5.30	3.55	0.00				
32.00	5.30	3.55	0.00				
33.00	5.30	3.55	0.00				
34.00	5.30	3.55	0.00				
35.00	5.30	3.55	0.00				
36.00	5.30	3.55	0.00				
37.00	5.30	3.55	0.00				
38.00	5.30	3.55	0.00				
39.00	5.30	3.55	0.00				
40.00	5.30	3.55	0.00				
41.00	5.30	3.55	0.00				
42.00	5.30	3.55	0.00				
43.00	5.30	3.55	0.00				
44.00	5.30	3.55	0.00				
45.00	5.30	3.55	0.00				
46.00	5.30	3.55	0.00				
47.00	5.30	3.55	0.00				
48.00	5.30	3.55	0.00				
49.00	5.30	3.55	0.00				
50.00	5.30	3.55	0.00				
51.00	5.30	3.55	0.00				

Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Summary for Subcatchment PR-DA-1: Proposed DA 1

Runoff = 16.24 cfs @ 12.01 hrs, Volume= 1.177 af, Depth= 4.27"

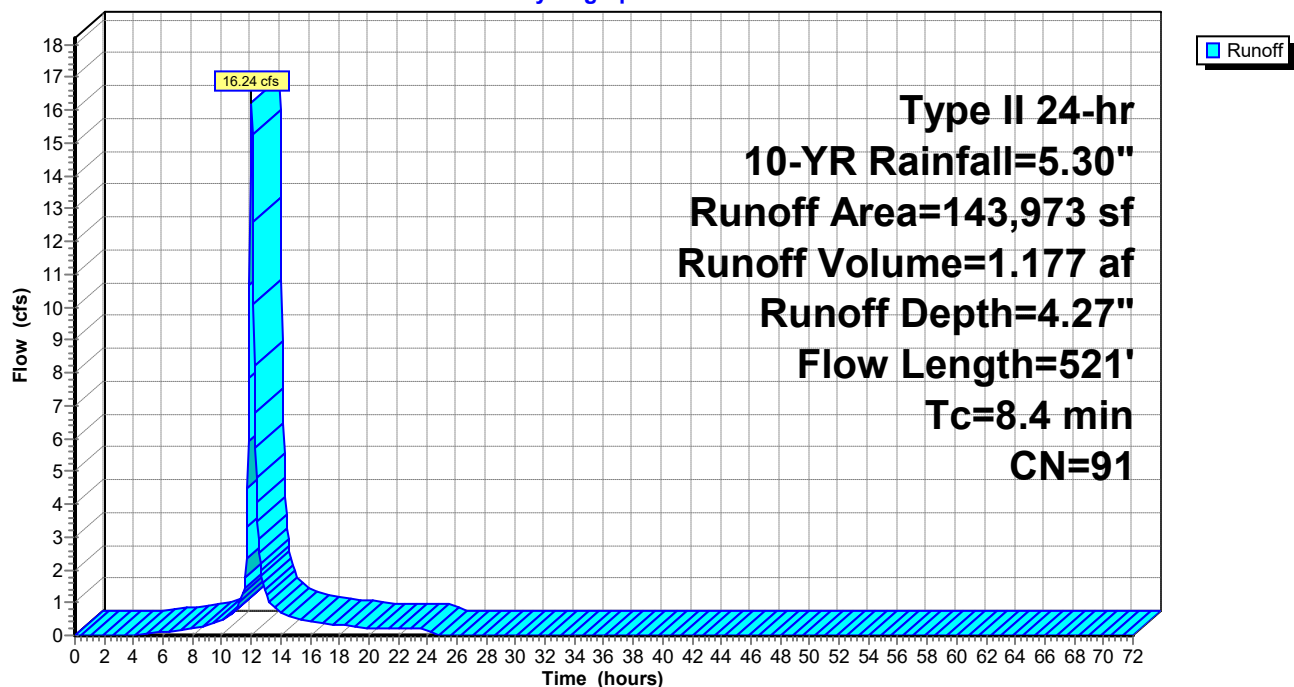
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
44,023	74	>75% Grass cover, Good, HSG C
99,950	98	Paved parking, HSG C
143,973	91	Weighted Average
44,023		30.58% Pervious Area
99,950		69.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	100	0.0410	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
1.3	421	0.0050	5.52	17.33	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
8.4	521	Total			

Subcatchment PR-DA-1: Proposed DA 1

Hydrograph



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Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Subcatchment PR-DA-1: Proposed DA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	4.27	0.00
1.00	0.06	0.00	0.00	53.00	5.30	4.27	0.00
2.00	0.12	0.00	0.00	54.00	5.30	4.27	0.00
3.00	0.18	0.00	0.00	55.00	5.30	4.27	0.00
4.00	0.25	0.00	0.02	56.00	5.30	4.27	0.00
5.00	0.33	0.02	0.06	57.00	5.30	4.27	0.00
6.00	0.42	0.04	0.10	58.00	5.30	4.27	0.00
7.00	0.52	0.08	0.14	59.00	5.30	4.27	0.00
8.00	0.64	0.13	0.19	60.00	5.30	4.27	0.00
9.00	0.78	0.22	0.31	61.00	5.30	4.27	0.00
10.00	0.96	0.33	0.43	62.00	5.30	4.27	0.00
11.00	1.25	0.54	0.84	63.00	5.30	4.27	0.00
12.00	3.51	2.55	16.18	64.00	5.30	4.27	0.00
13.00	4.09	3.11	1.24	65.00	5.30	4.27	0.00
14.00	4.35	3.35	0.70	66.00	5.30	4.27	0.00
15.00	4.52	3.52	0.54	67.00	5.30	4.27	0.00
16.00	4.66	3.66	0.42	68.00	5.30	4.27	0.00
17.00	4.78	3.77	0.36	69.00	5.30	4.27	0.00
18.00	4.88	3.87	0.32	70.00	5.30	4.27	0.00
19.00	4.97	3.95	0.27	71.00	5.30	4.27	0.00
20.00	5.05	4.03	0.23	72.00	5.30	4.27	0.00
21.00	5.11	4.09	0.22				
22.00	5.18	4.16	0.21				
23.00	5.24	4.22	0.20				
24.00	5.30	4.27	0.19				
25.00	5.30	4.27	0.00				
26.00	5.30	4.27	0.00				
27.00	5.30	4.27	0.00				
28.00	5.30	4.27	0.00				
29.00	5.30	4.27	0.00				
30.00	5.30	4.27	0.00				
31.00	5.30	4.27	0.00				
32.00	5.30	4.27	0.00				
33.00	5.30	4.27	0.00				
34.00	5.30	4.27	0.00				
35.00	5.30	4.27	0.00				
36.00	5.30	4.27	0.00				
37.00	5.30	4.27	0.00				
38.00	5.30	4.27	0.00				
39.00	5.30	4.27	0.00				
40.00	5.30	4.27	0.00				
41.00	5.30	4.27	0.00				
42.00	5.30	4.27	0.00				
43.00	5.30	4.27	0.00				
44.00	5.30	4.27	0.00				
45.00	5.30	4.27	0.00				
46.00	5.30	4.27	0.00				
47.00	5.30	4.27	0.00				
48.00	5.30	4.27	0.00				
49.00	5.30	4.27	0.00				
50.00	5.30	4.27	0.00				
51.00	5.30	4.27	0.00				

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Type II 24-hr 10-YR Rainfall=5.30"

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Summary for Subcatchment PR-DA-2: Proposed DA 2

Runoff = 13.26 cfs @ 12.05 hrs, Volume= 1.125 af, Depth= 4.17"

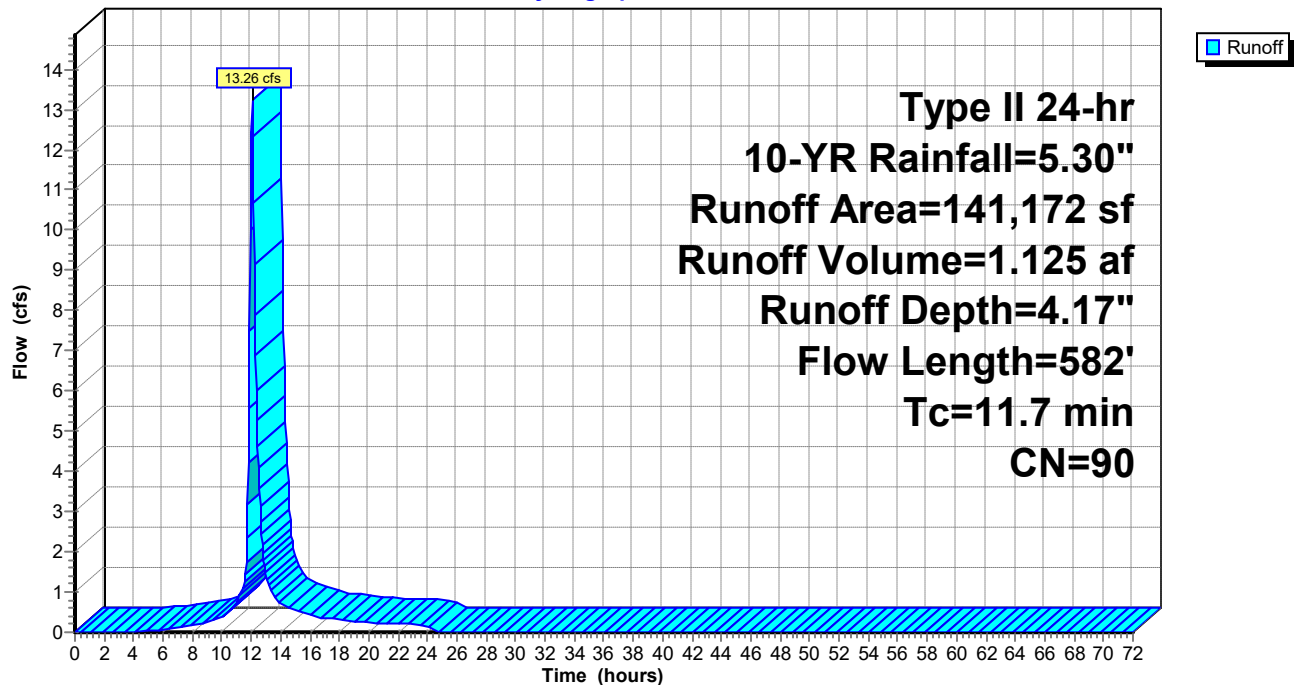
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
47,428	74	>75% Grass cover, Good, HSG C
93,744	98	Paved parking, HSG C
141,172	90	Weighted Average
47,428		33.60% Pervious Area
93,744		66.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0055	0.22		Sheet Flow, ag field Cultivated: Residue<=20% n= 0.060 P2= 3.40"
1.2	170	0.0247	2.36		Shallow Concentrated Flow, ag field Grassed Waterway Kv= 15.0 fps
1.3	111	0.0050	1.44		Shallow Concentrated Flow, gutter pan Paved Kv= 20.3 fps
1.5	201	0.0016	2.28	2.80	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
11.7	582	Total			

Subcatchment PR-DA-2: Proposed DA 2

Hydrograph



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Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Subcatchment PR-DA-2: Proposed DA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	4.17	0.00
1.00	0.06	0.00	0.00	53.00	5.30	4.17	0.00
2.00	0.12	0.00	0.00	54.00	5.30	4.17	0.00
3.00	0.18	0.00	0.00	55.00	5.30	4.17	0.00
4.00	0.25	0.00	0.01	56.00	5.30	4.17	0.00
5.00	0.33	0.01	0.04	57.00	5.30	4.17	0.00
6.00	0.42	0.03	0.08	58.00	5.30	4.17	0.00
7.00	0.52	0.06	0.12	59.00	5.30	4.17	0.00
8.00	0.64	0.11	0.16	60.00	5.30	4.17	0.00
9.00	0.78	0.19	0.27	61.00	5.30	4.17	0.00
10.00	0.96	0.29	0.38	62.00	5.30	4.17	0.00
11.00	1.25	0.49	0.74	63.00	5.30	4.17	0.00
12.00	3.51	2.46	12.39	64.00	5.30	4.17	0.00
13.00	4.09	3.01	1.44	65.00	5.30	4.17	0.00
14.00	4.35	3.25	0.71	66.00	5.30	4.17	0.00
15.00	4.52	3.42	0.53	67.00	5.30	4.17	0.00
16.00	4.66	3.55	0.42	68.00	5.30	4.17	0.00
17.00	4.78	3.66	0.35	69.00	5.30	4.17	0.00
18.00	4.88	3.76	0.31	70.00	5.30	4.17	0.00
19.00	4.97	3.85	0.27	71.00	5.30	4.17	0.00
20.00	5.05	3.92	0.23	72.00	5.30	4.17	0.00
21.00	5.11	3.99	0.21				
22.00	5.18	4.05	0.20				
23.00	5.24	4.11	0.20				
24.00	5.30	4.17	0.19				
25.00	5.30	4.17	0.00				
26.00	5.30	4.17	0.00				
27.00	5.30	4.17	0.00				
28.00	5.30	4.17	0.00				
29.00	5.30	4.17	0.00				
30.00	5.30	4.17	0.00				
31.00	5.30	4.17	0.00				
32.00	5.30	4.17	0.00				
33.00	5.30	4.17	0.00				
34.00	5.30	4.17	0.00				
35.00	5.30	4.17	0.00				
36.00	5.30	4.17	0.00				
37.00	5.30	4.17	0.00				
38.00	5.30	4.17	0.00				
39.00	5.30	4.17	0.00				
40.00	5.30	4.17	0.00				
41.00	5.30	4.17	0.00				
42.00	5.30	4.17	0.00				
43.00	5.30	4.17	0.00				
44.00	5.30	4.17	0.00				
45.00	5.30	4.17	0.00				
46.00	5.30	4.17	0.00				
47.00	5.30	4.17	0.00				
48.00	5.30	4.17	0.00				
49.00	5.30	4.17	0.00				
50.00	5.30	4.17	0.00				
51.00	5.30	4.17	0.00				

Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Summary for Reach EX-R-1: Existing Reach 1

Inflow Area = 439.004 ac, 19.97% Impervious, Inflow Depth = 3.16" for 10-YR event
Inflow = 584.15 cfs @ 12.44 hrs, Volume= 115.588 af
Outflow = 582.05 cfs @ 12.47 hrs, Volume= 115.588 af, Atten= 0%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.26 fps, Min. Travel Time= 2.1 min
Avg. Velocity= 0.81 fps, Avg. Travel Time= 11.0 min

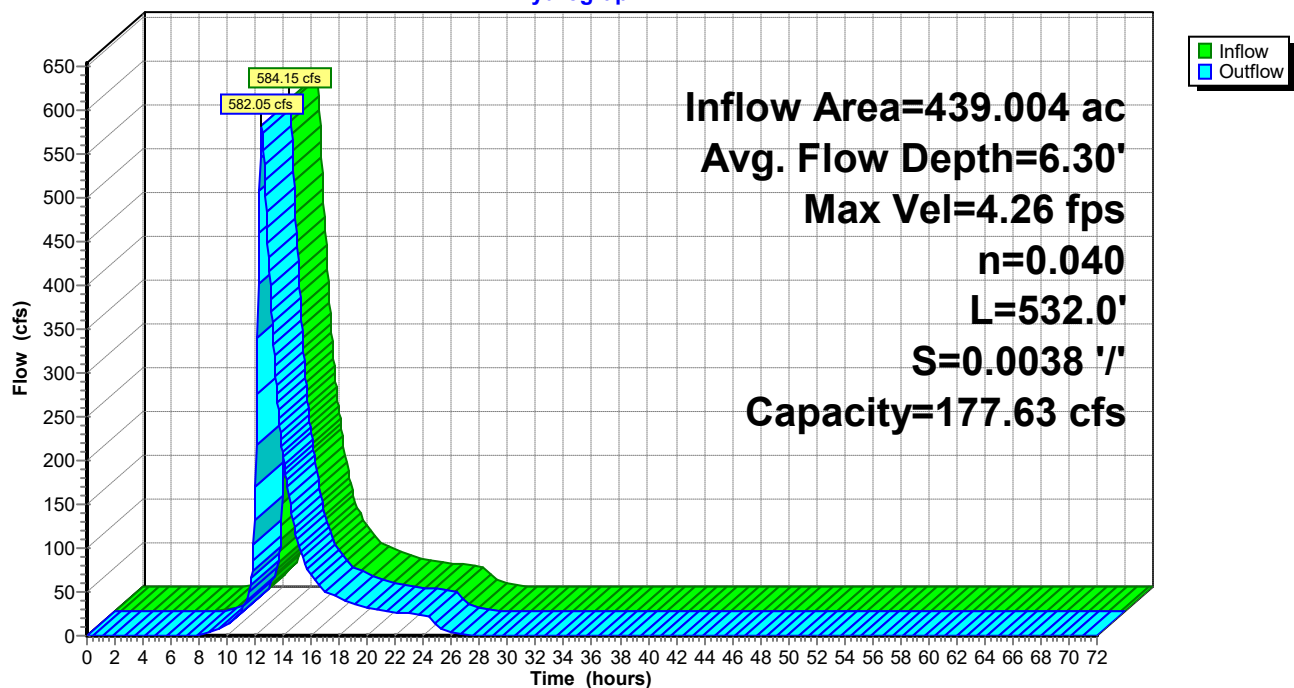
Peak Storage= 72,671 cf @ 12.47 hrs
Average Depth at Peak Storage= 6.30'
Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 177.63 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals
Side Slope Z-value= 3.0 '/' Top Width= 26.00'
Length= 532.0' Slope= 0.0038 '/'
Inlet Invert= 42.00', Outlet Invert= 40.00'

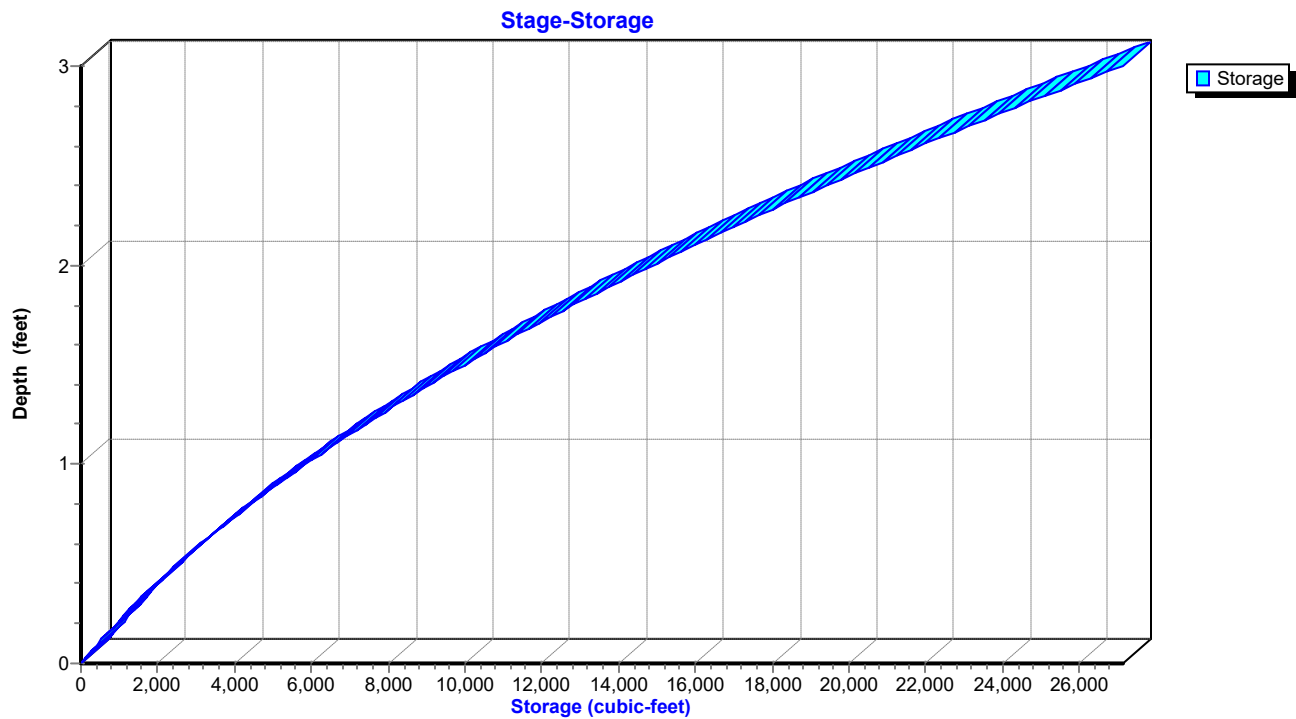


Reach EX-R-1: Existing Reach 1

Hydrograph



Reach EX-R-1: Existing Reach 1



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Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Reach EX-R-1: Existing Reach 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	42.00	0.00
2.50	0.00	0	42.00	0.00
5.00	0.00	0	42.00	0.00
7.50	0.43	240	42.06	0.15
10.00	13.59	4,207	42.77	13.03
12.50	574.98	72,388	48.28	579.54
15.00	105.04	18,767	44.35	107.38
17.50	46.14	10,249	43.53	46.47
20.00	32.20	7,938	43.26	32.44
22.50	25.48	6,708	43.11	25.54
25.00	10.22	3,765	42.70	11.08
27.50	0.26	420	42.10	0.37
30.00	0.01	32	42.01	0.01
32.50	0.00	9	42.00	0.00
35.00	0.00	4	42.00	0.00
37.50	0.00	2	42.00	0.00
40.00	0.00	1	42.00	0.00
42.50	0.00	1	42.00	0.00
45.00	0.00	1	42.00	0.00
47.50	0.00	0	42.00	0.00
50.00	0.00	0	42.00	0.00
52.50	0.00	0	42.00	0.00
55.00	0.00	0	42.00	0.00
57.50	0.00	0	42.00	0.00
60.00	0.00	0	42.00	0.00
62.50	0.00	0	42.00	0.00
65.00	0.00	0	42.00	0.00
67.50	0.00	0	42.00	0.00
70.00	0.00	0	42.00	0.00

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Type II 24-hr 10-YR Rainfall=5.30"

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Stage-Area-Storage for Reach EX-R-1: Existing Reach 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
42.00	0.0	0	44.60	41.1	21,855
42.05	0.4	217	44.65	42.3	22,487
42.10	0.8	442	44.70	43.5	23,126
42.15	1.3	674	44.75	44.7	23,774
42.20	1.7	915	44.80	45.9	24,430
42.25	2.2	1,164	44.85	47.2	25,093
42.30	2.7	1,420	44.90	48.4	25,765
42.35	3.2	1,685	44.95	49.7	26,445
42.40	3.7	1,958	45.00	51.0	27,132
42.45	4.2	2,238			
42.50	4.8	2,527			
42.55	5.3	2,824			
42.60	5.9	3,128			
42.65	6.5	3,441			
42.70	7.1	3,762			
42.75	7.7	4,090			
42.80	8.3	4,427			
42.85	9.0	4,771			
42.90	9.6	5,123			
42.95	10.3	5,484			
43.00	11.0	5,852			
43.05	11.7	6,228			
43.10	12.4	6,613			
43.15	13.2	7,005			
43.20	13.9	7,405			
43.25	14.7	7,814			
43.30	15.5	8,230			
43.35	16.3	8,654			
43.40	17.1	9,087			
43.45	17.9	9,527			
43.50	18.8	9,975			
43.55	19.6	10,432			
43.60	20.5	10,896			
43.65	21.4	11,368			
43.70	22.3	11,848			
43.75	23.2	12,336			
43.80	24.1	12,832			
43.85	25.1	13,336			
43.90	26.0	13,848			
43.95	27.0	14,368			
44.00	28.0	14,896			
44.05	29.0	15,432			
44.10	30.0	15,976			
44.15	31.1	16,528			
44.20	32.1	17,088			
44.25	33.2	17,656			
44.30	34.3	18,232			
44.35	35.4	18,816			
44.40	36.5	19,407			
44.45	37.6	20,008			
44.50	38.8	20,615			
44.55	39.9	21,231			

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Summary for Reach EX-R-2: Existing Reach 2

Inflow Area = 446.613 ac, 20.11% Impervious, Inflow Depth = 3.17" for 10-YR event
Inflow = 594.45 cfs @ 12.47 hrs, Volume= 117.995 af
Outflow = 585.67 cfs @ 12.53 hrs, Volume= 117.995 af, Atten= 1%, Lag= 4.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.50 fps, Min. Travel Time= 3.9 min

Avg. Velocity= 0.69 fps, Avg. Travel Time= 19.8 min

Peak Storage= 136,945 cf @ 12.53 hrs

Average Depth at Peak Storage= 7.49'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 143.16 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 26.00'

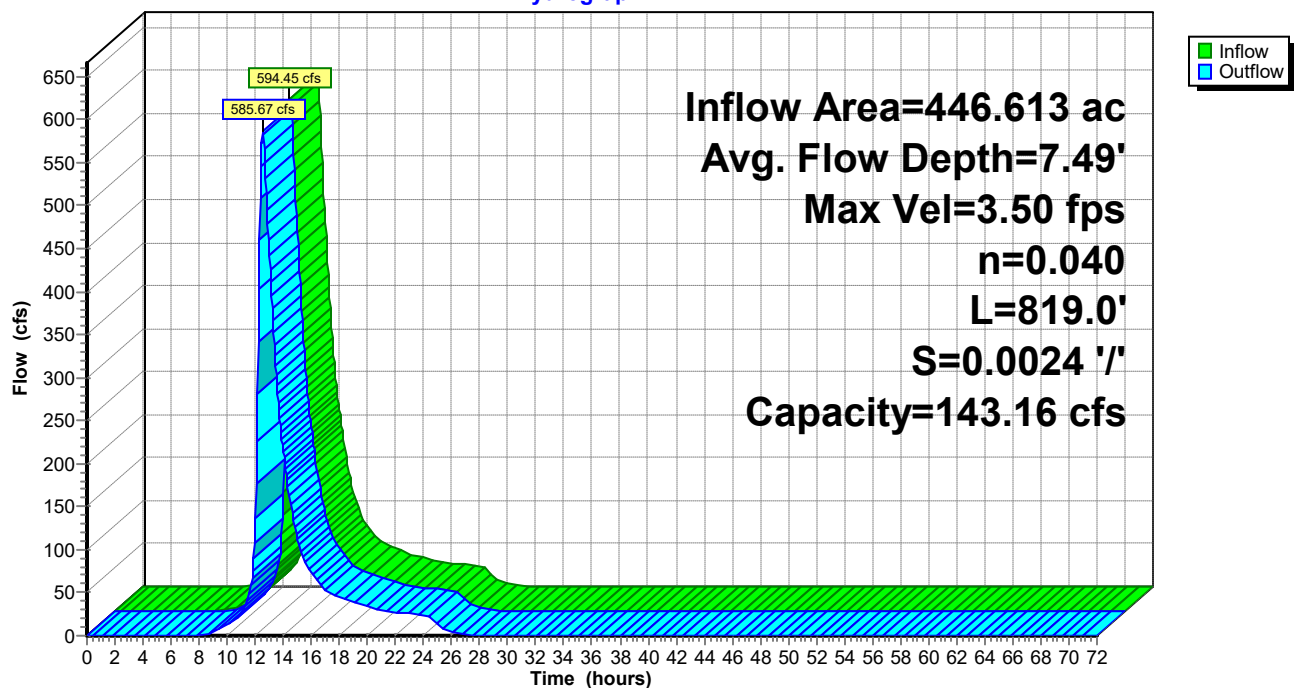
Length= 819.0' Slope= 0.0024 '/'

Inlet Invert= 40.00', Outlet Invert= 38.00'

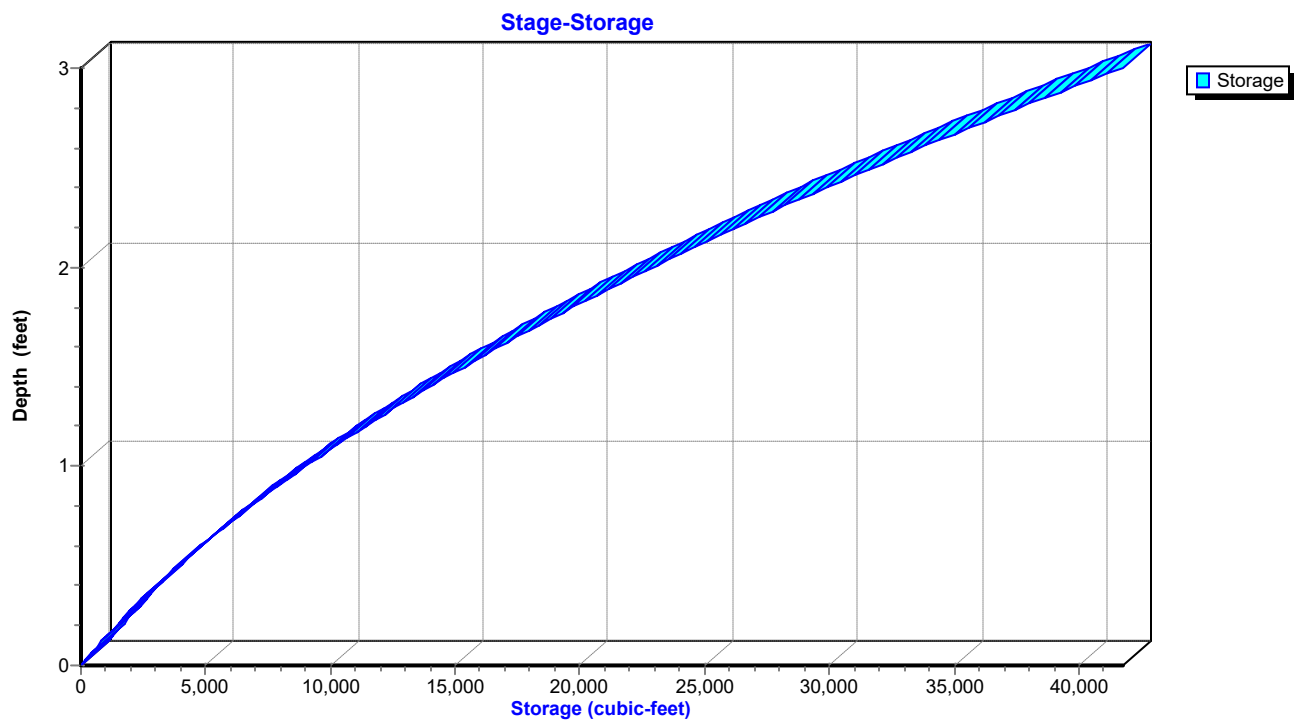


Reach EX-R-2: Existing Reach 2

Hydrograph



Reach EX-R-2: Existing Reach 2



Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

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Hydrograph for Reach EX-R-2: Existing Reach 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	40.00	0.00
2.50	0.00	0	40.00	0.00
5.00	0.00	0	40.00	0.00
7.50	0.20	149	40.02	0.03
10.00	13.52	7,309	40.85	12.52
12.50	591.47	136,561	47.47	583.88
15.00	109.15	35,220	42.68	113.48
17.50	47.64	18,925	41.75	48.27
20.00	33.16	14,602	41.45	33.60
22.50	26.04	12,223	41.27	26.16
25.00	11.30	7,479	40.86	12.95
27.50	0.40	1,030	40.15	0.62
30.00	0.02	212	40.03	0.05
32.50	0.01	74	40.01	0.02
35.00	0.00	29	40.00	0.01
37.50	0.00	15	40.00	0.00
40.00	0.00	9	40.00	0.00
42.50	0.00	6	40.00	0.00
45.00	0.00	4	40.00	0.00
47.50	0.00	3	40.00	0.00
50.00	0.00	2	40.00	0.00
52.50	0.00	2	40.00	0.00
55.00	0.00	1	40.00	0.00
57.50	0.00	1	40.00	0.00
60.00	0.00	1	40.00	0.00
62.50	0.00	1	40.00	0.00
65.00	0.00	0	40.00	0.00
67.50	0.00	0	40.00	0.00
70.00	0.00	0	40.00	0.00

Aspire - Proposed

Prepared by {enter your company name here}

Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

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Stage-Area-Storage for Reach EX-R-2: Existing Reach 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
40.00	0.0	0	42.60	41.1	33,645
40.05	0.4	334	42.65	42.3	34,618
40.10	0.8	680	42.70	43.5	35,602
40.15	1.3	1,038	42.75	44.7	36,600
40.20	1.7	1,409	42.80	45.9	37,609
40.25	2.2	1,792	42.85	47.2	38,630
40.30	2.7	2,187	42.90	48.4	39,665
40.35	3.2	2,595	42.95	49.7	40,711
40.40	3.7	3,014	43.00	51.0	41,769
40.45	4.2	3,446			
40.50	4.8	3,891			
40.55	5.3	4,347			
40.60	5.9	4,816			
40.65	6.5	5,297			
40.70	7.1	5,791			
40.75	7.7	6,296			
40.80	8.3	6,815			
40.85	9.0	7,345			
40.90	9.6	7,887			
40.95	10.3	8,442			
41.00	11.0	9,009			
41.05	11.7	9,588			
41.10	12.4	10,181			
41.15	13.2	10,785			
41.20	13.9	11,400			
41.25	14.7	12,030			
41.30	15.5	12,670			
41.35	16.3	13,323			
41.40	17.1	13,989			
41.45	17.9	14,667			
41.50	18.8	15,356			
41.55	19.6	16,059			
41.60	20.5	16,774			
41.65	21.4	17,500			
41.70	22.3	18,240			
41.75	23.2	18,991			
41.80	24.1	19,754			
41.85	25.1	20,531			
41.90	26.0	21,319			
41.95	27.0	22,119			
42.00	28.0	22,932			
42.05	29.0	23,758			
42.10	30.0	24,595			
42.15	31.1	25,445			
42.20	32.1	26,307			
42.25	33.2	27,181			
42.30	34.3	28,068			
42.35	35.4	28,966			
42.40	36.5	29,877			
42.45	37.6	30,801			
42.50	38.8	31,737			
42.55	39.9	32,684			

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Summary for Reach EX-R-3: Existing Reach 3

Inflow Area = 11.140 ac, 23.79% Impervious, Inflow Depth = 3.29" for 10-YR event
Inflow = 26.63 cfs @ 12.07 hrs, Volume= 3.054 af
Outflow = 22.33 cfs @ 12.18 hrs, Volume= 3.054 af, Atten= 16%, Lag= 6.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.43 fps, Min. Travel Time= 8.5 min

Avg. Velocity= 0.25 fps, Avg. Travel Time= 48.6 min

Peak Storage= 11,334 cf @ 12.18 hrs

Average Depth at Peak Storage= 1.83'

Bank-Full Depth= 2.00' Flow Area= 18.0 sf, Capacity= 27.19 cfs

3.00' x 2.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 15.00'

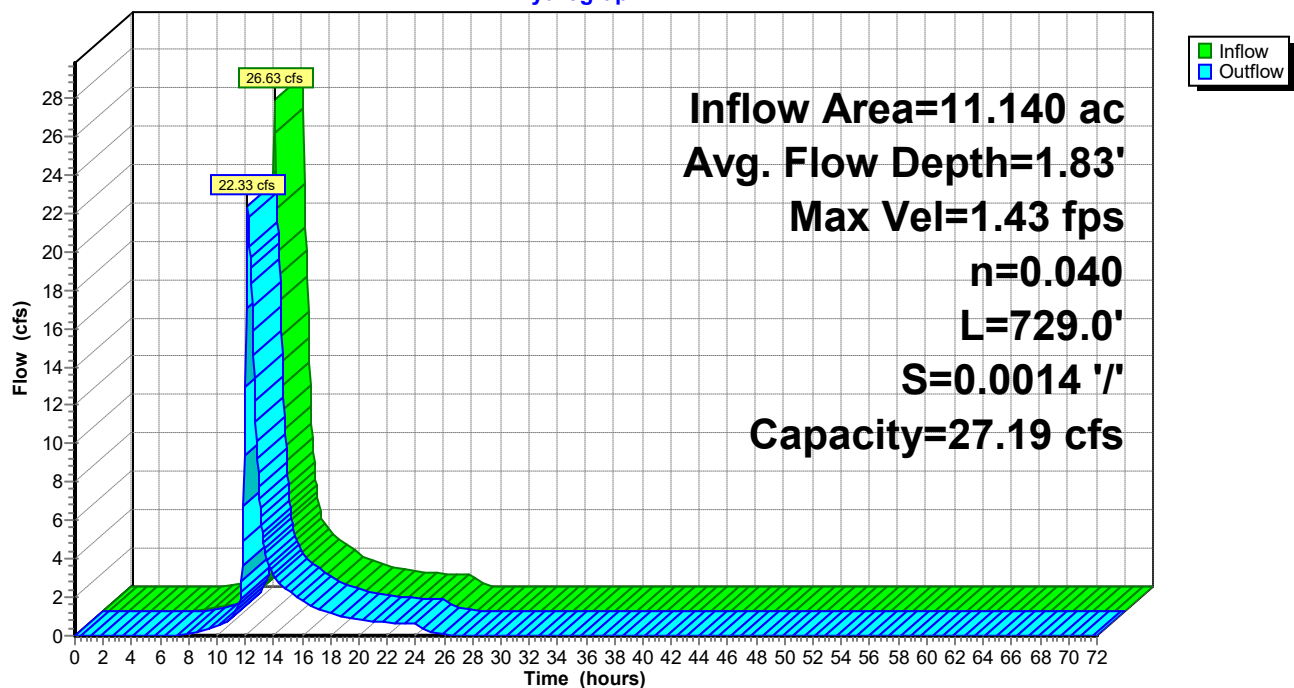
Length= 729.0' Slope= 0.0014 '/'

Inlet Invert= 43.00', Outlet Invert= 42.00'

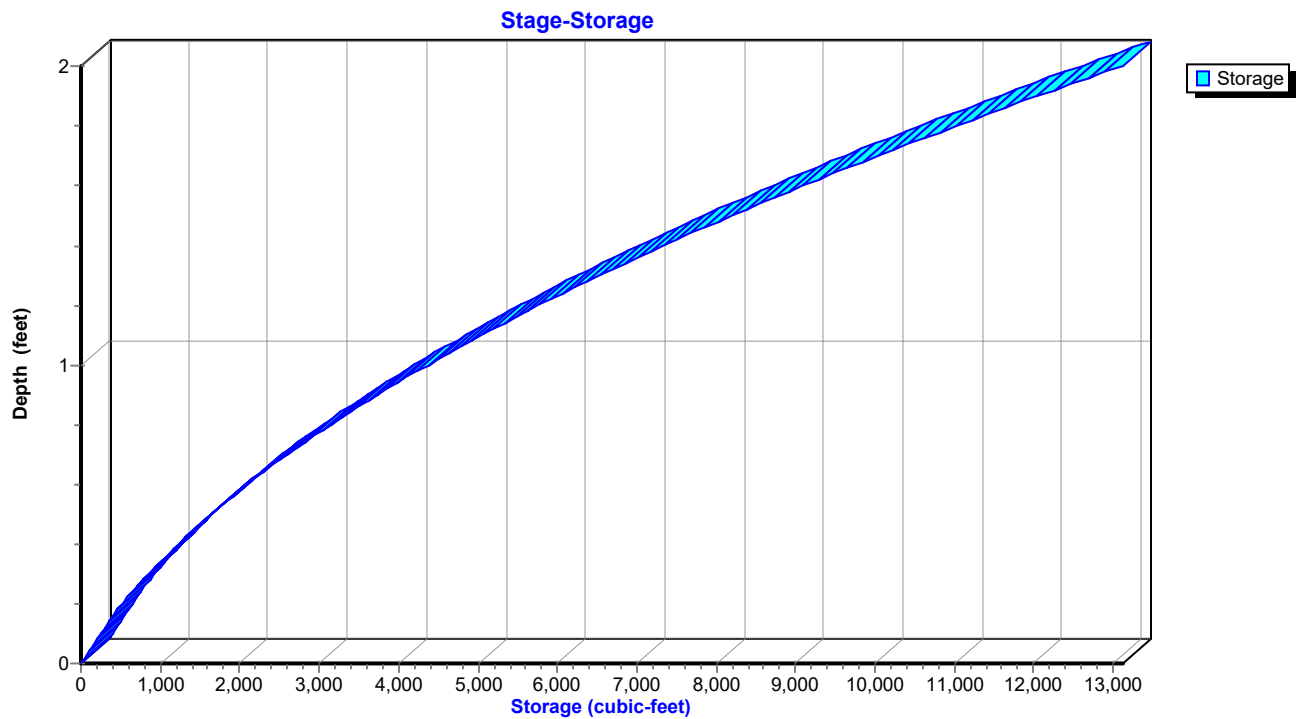


Reach EX-R-3: Existing Reach 3

Hydrograph



Reach EX-R-3: Existing Reach 3



Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Reach EX-R-3: Existing Reach 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	43.00	0.00
2.50	0.00	0	43.00	0.00
5.00	0.00	0	43.00	0.00
7.50	0.11	182	43.08	0.06
10.00	0.53	687	43.25	0.45
12.50	14.31	9,320	44.62	17.16
15.00	2.28	2,193	43.62	2.38
17.50	1.21	1,401	43.44	1.27
20.00	0.80	1,041	43.35	0.83
22.50	0.66	901	43.31	0.67
25.00	0.08	387	43.15	0.19
27.50	0.01	85	43.04	0.02
30.00	0.00	40	43.02	0.01
32.50	0.00	20	43.01	0.00
35.00	0.00	10	43.00	0.00
37.50	0.00	5	43.00	0.00
40.00	0.00	3	43.00	0.00
42.50	0.00	2	43.00	0.00
45.00	0.00	1	43.00	0.00
47.50	0.00	1	43.00	0.00
50.00	0.00	1	43.00	0.00
52.50	0.00	1	43.00	0.00
55.00	0.00	0	43.00	0.00
57.50	0.00	0	43.00	0.00
60.00	0.00	0	43.00	0.00
62.50	0.00	0	43.00	0.00
65.00	0.00	0	43.00	0.00
67.50	0.00	0	43.00	0.00
70.00	0.00	0	43.00	0.00

Aspire - Proposed

Prepared by {enter your company name here}

Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

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Stage-Area-Storage for Reach EX-R-3: Existing Reach 3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
43.00	0.0	0	44.04	6.4	4,640
43.02	0.1	45	44.06	6.6	4,776
43.04	0.1	91	44.08	6.7	4,913
43.06	0.2	139	44.10	6.9	5,052
43.08	0.3	189	44.12	7.1	5,193
43.10	0.3	241	44.14	7.3	5,335
43.12	0.4	294	44.16	7.5	5,480
43.14	0.5	349	44.18	7.7	5,626
43.16	0.6	406	44.20	7.9	5,774
43.18	0.6	465	44.22	8.1	5,923
43.20	0.7	525	44.24	8.3	6,075
43.22	0.8	587	44.26	8.5	6,228
43.24	0.9	651	44.28	8.8	6,383
43.26	1.0	716	44.30	9.0	6,539
43.28	1.1	784	44.32	9.2	6,697
43.30	1.2	853	44.34	9.4	6,858
43.32	1.3	924	44.36	9.6	7,019
43.34	1.4	996	44.38	9.9	7,183
43.36	1.5	1,071	44.40	10.1	7,348
43.38	1.6	1,147	44.42	10.3	7,515
43.40	1.7	1,225	44.44	10.5	7,684
43.42	1.8	1,304	44.46	10.8	7,855
43.44	1.9	1,386	44.48	11.0	8,027
43.46	2.0	1,469	44.50	11.3	8,201
43.48	2.1	1,554	44.52	11.5	8,377
43.50	2.3	1,640	44.54	11.7	8,555
43.52	2.4	1,729	44.56	12.0	8,734
43.54	2.5	1,819	44.58	12.2	8,915
43.56	2.6	1,911	44.60	12.5	9,098
43.58	2.7	2,004	44.62	12.7	9,283
43.60	2.9	2,100	44.64	13.0	9,469
43.62	3.0	2,197	44.66	13.2	9,657
43.64	3.1	2,295	44.68	13.5	9,847
43.66	3.3	2,396	44.70	13.8	10,038
43.68	3.4	2,498	44.72	14.0	10,232
43.70	3.6	2,603	44.74	14.3	10,427
43.72	3.7	2,708	44.76	14.6	10,624
43.74	3.9	2,816	44.78	14.8	10,822
43.76	4.0	2,925	44.80	15.1	11,022
43.78	4.2	3,036	44.82	15.4	11,225
43.80	4.3	3,149	44.84	15.7	11,428
43.82	4.5	3,264	44.86	16.0	11,634
43.84	4.6	3,380	44.88	16.2	11,841
43.86	4.8	3,498	44.90	16.5	12,050
43.88	5.0	3,618	44.92	16.8	12,261
43.90	5.1	3,740	44.94	17.1	12,474
43.92	5.3	3,863	44.96	17.4	12,688
43.94	5.5	3,988	44.98	17.7	12,904
43.96	5.6	4,115	45.00	18.0	13,122
43.98	5.8	4,244			
44.00	6.0	4,374			
44.02	6.2	4,506			

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Summary for Reach EX-R-4: Existing Reach 4

Inflow Area = 7.608 ac, 28.41% Impervious, Inflow Depth = 3.80" for 10-YR event
Inflow = 17.46 cfs @ 12.12 hrs, Volume= 2.407 af
Outflow = 14.97 cfs @ 12.23 hrs, Volume= 2.407 af, Atten= 14%, Lag= 6.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.89 fps, Min. Travel Time= 8.7 min

Avg. Velocity= 0.21 fps, Avg. Travel Time= 37.7 min

Peak Storage= 7,796 cf @ 12.23 hrs

Average Depth at Peak Storage= 1.09'

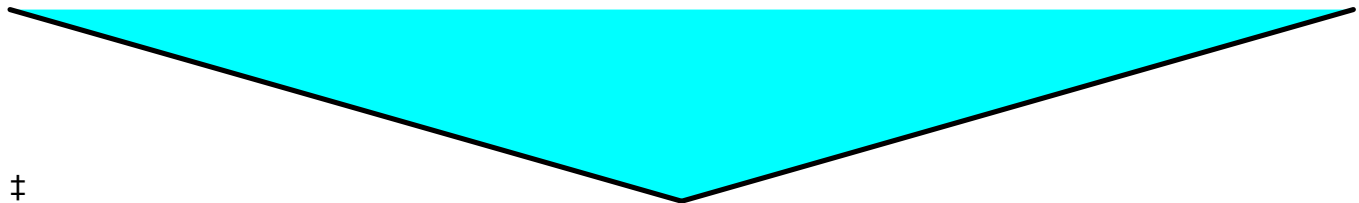
Bank-Full Depth= 0.50' Flow Area= 5.0 sf, Capacity= 3.62 cfs

0.00' x 0.50' deep channel, n= 0.100 Heavy timber, flow below branches

Side Slope Z-value= 20.0 ' Top Width= 20.00'

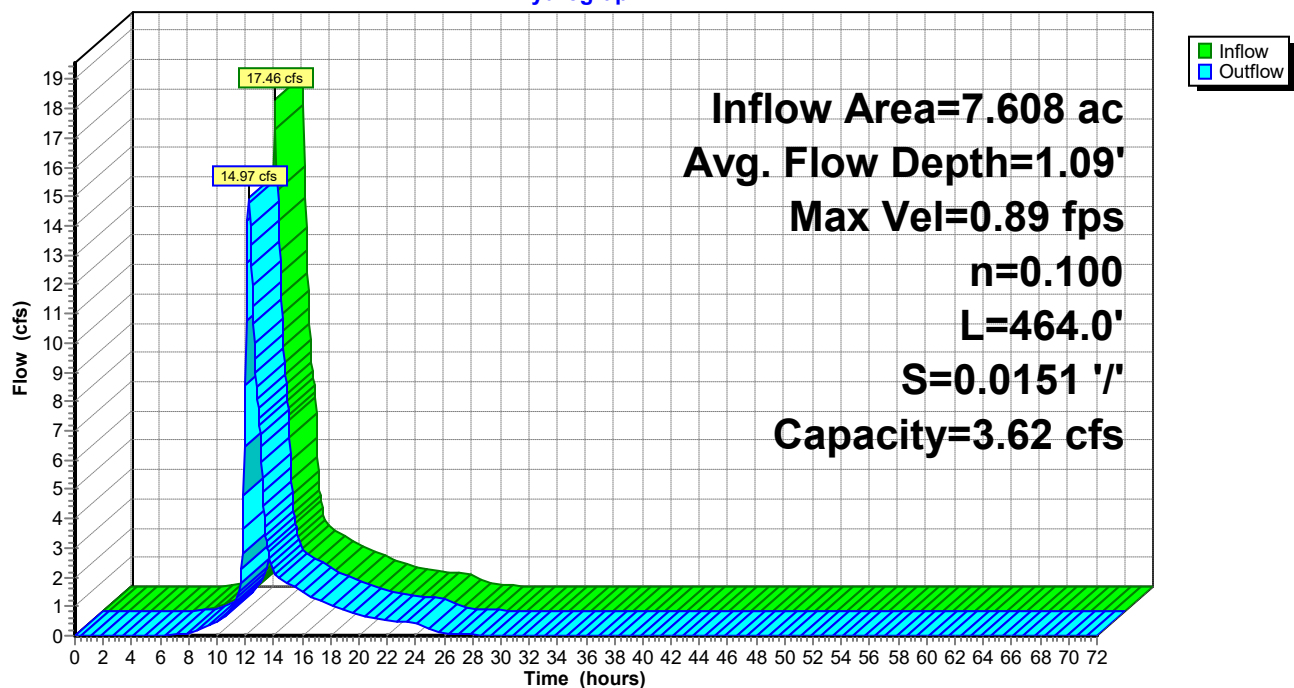
Length= 464.0' Slope= 0.0151 '/'

Inlet Invert= 47.00', Outlet Invert= 40.00'



Reach EX-R-4: Existing Reach 4

Hydrograph



Aspire - Proposed

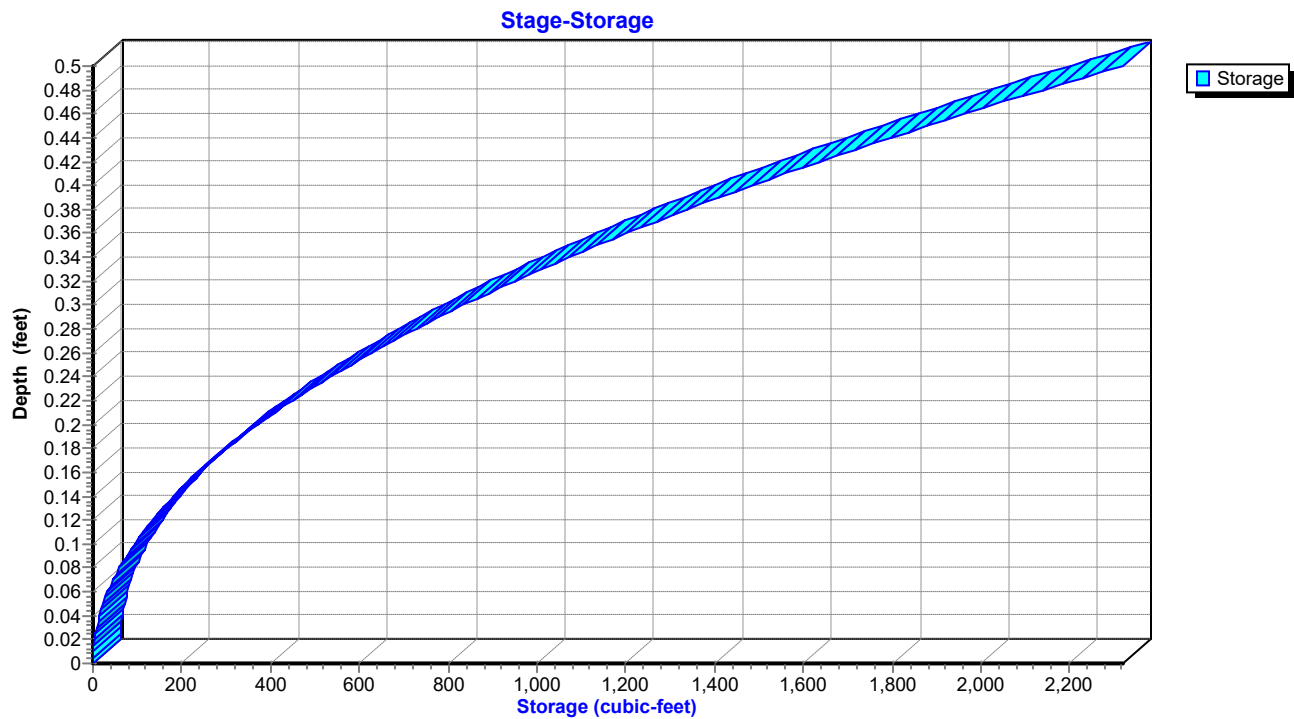
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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Reach EX-R-4: Existing Reach 4



Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach EX-R-4: Existing Reach 4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	47.00	0.00
2.50	0.00	0	47.00	0.00
5.00	0.00	0	47.00	0.00
7.50	0.07	95	47.10	0.05
10.00	0.54	515	47.24	0.49
12.50	10.08	6,333	47.93	11.94
15.00	1.73	1,360	47.38	1.78
17.50	1.14	995	47.33	1.17
20.00	0.68	688	47.27	0.72
22.50	0.48	520	47.24	0.49
25.00	0.18	290	47.18	0.23
27.50	0.04	73	47.09	0.04
30.00	0.00	30	47.06	0.01
32.50	0.00	13	47.04	0.00
35.00	0.00	8	47.03	0.00
37.50	0.00	6	47.03	0.00
40.00	0.00	5	47.02	0.00
42.50	0.00	4	47.02	0.00
45.00	0.00	3	47.02	0.00
47.50	0.00	2	47.02	0.00
50.00	0.00	2	47.01	0.00
52.50	0.00	1	47.01	0.00
55.00	0.00	1	47.01	0.00
57.50	0.00	1	47.01	0.00
60.00	0.00	1	47.01	0.00
62.50	0.00	1	47.01	0.00
65.00	0.00	0	47.01	0.00
67.50	0.00	0	47.01	0.00
70.00	0.00	0	47.00	0.00

Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

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Stage-Area-Storage for Reach EX-R-4: Existing Reach 4

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
47.00	0.0	0
47.01	0.0	1
47.02	0.0	4
47.03	0.0	8
47.04	0.0	15
47.05	0.1	23
47.06	0.1	33
47.07	0.1	45
47.08	0.1	59
47.09	0.2	75
47.10	0.2	93
47.11	0.2	112
47.12	0.3	134
47.13	0.3	157
47.14	0.4	182
47.15	0.4	209
47.16	0.5	238
47.17	0.6	268
47.18	0.6	301
47.19	0.7	335
47.20	0.8	371
47.21	0.9	409
47.22	1.0	449
47.23	1.1	491
47.24	1.2	535
47.25	1.3	580
47.26	1.4	627
47.27	1.5	677
47.28	1.6	728
47.29	1.7	780
47.30	1.8	835
47.31	1.9	892
47.32	2.0	950
47.33	2.2	1,011
47.34	2.3	1,073
47.35	2.5	1,137
47.36	2.6	1,203
47.37	2.7	1,270
47.38	2.9	1,340
47.39	3.0	1,411
47.40	3.2	1,485
47.41	3.4	1,560
47.42	3.5	1,637
47.43	3.7	1,716
47.44	3.9	1,797
47.45	4.0	1,879
47.46	4.2	1,964
47.47	4.4	2,050
47.48	4.6	2,138
47.49	4.8	2,228
47.50	5.0	2,320

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Summary for Reach PR-R-1: Proposed Reach 1

Inflow Area = 7.608 ac, 28.41% Impervious, Inflow Depth = 3.80" for 10-YR event
Inflow = 17.69 cfs @ 12.10 hrs, Volume= 2.407 af
Outflow = 17.46 cfs @ 12.12 hrs, Volume= 2.407 af, Atten= 1%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.77 fps, Min. Travel Time= 1.0 min

Avg. Velocity= 0.86 fps, Avg. Travel Time= 4.3 min

Peak Storage= 1,022 cf @ 12.12 hrs

Average Depth at Peak Storage= 1.24'

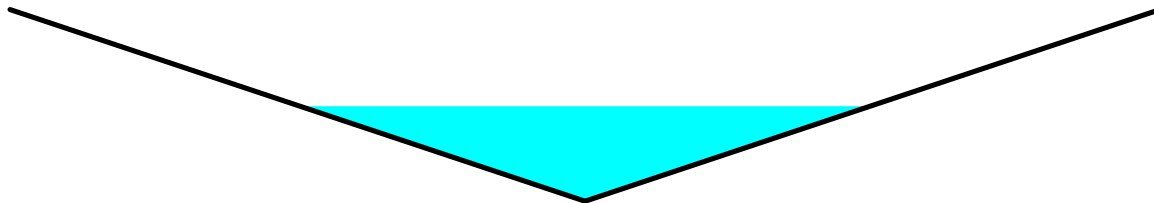
Bank-Full Depth= 2.50' Flow Area= 18.8 sf, Capacity= 112.93 cfs

0.00' x 2.50' deep channel, n= 0.022 Earth, clean & straight

Side Slope Z-value= 3.0 '/' Top Width= 15.00'

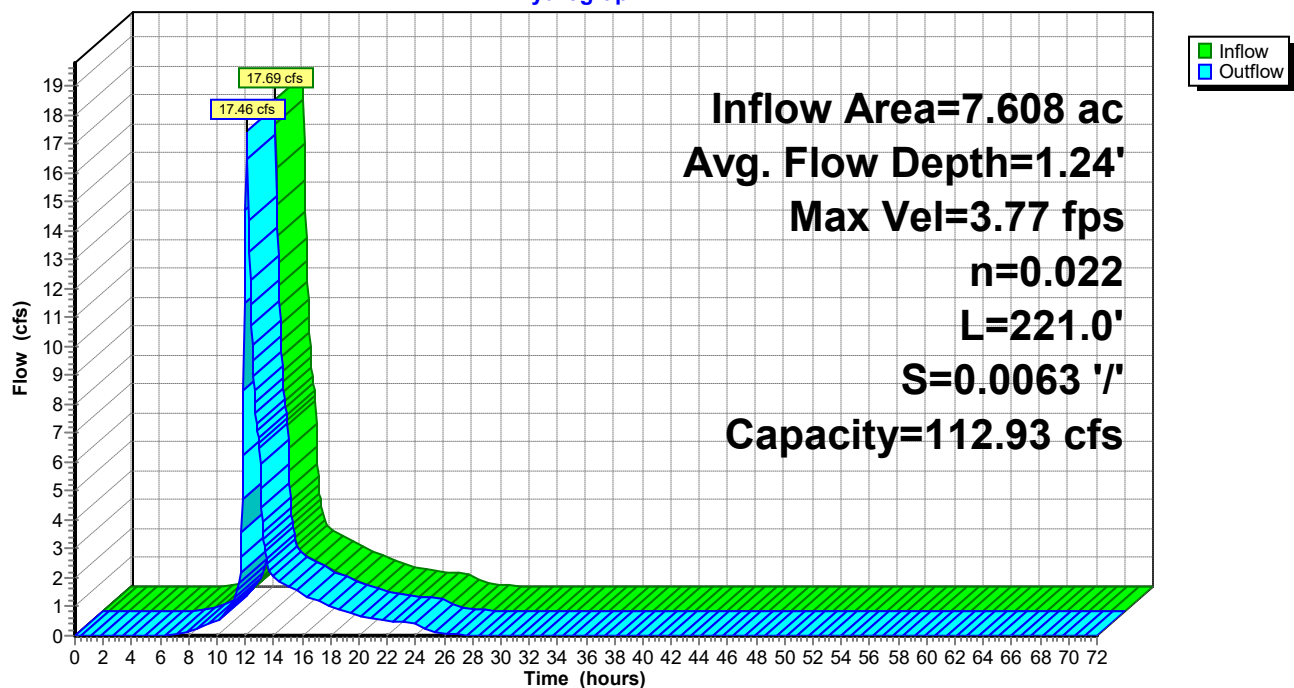
Length= 221.0' Slope= 0.0063 '/'

Inlet Invert= 47.40', Outlet Invert= 46.00'



Reach PR-R-1: Proposed Reach 1

Hydrograph



Aspire - Proposed

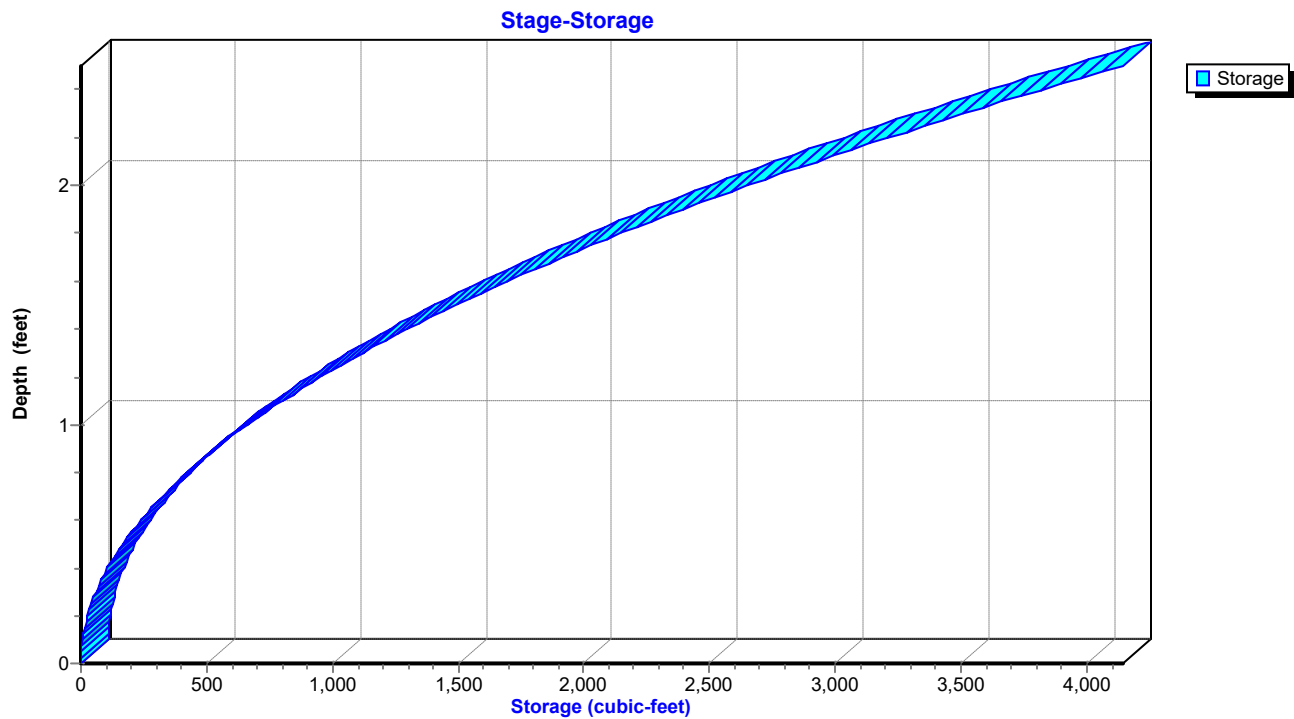
Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022

Reach PR-R-1: Proposed Reach 1



Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

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Hydrograph for Reach PR-R-1: Proposed Reach 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	47.40	0.00
2.50	0.00	0	47.40	0.00
5.00	0.00	0	47.40	0.00
7.50	0.07	16	47.56	0.07
10.00	0.55	75	47.74	0.54
12.50	9.91	677	48.41	10.08
15.00	1.73	181	47.92	1.73
17.50	1.13	132	47.85	1.14
20.00	0.68	90	47.77	0.68
22.50	0.48	69	47.72	0.48
25.00	0.17	32	47.62	0.18
27.50	0.05	10	47.52	0.04
30.00	0.00	2	47.45	0.00
32.50	0.00	1	47.44	0.00
35.00	0.00	1	47.43	0.00
37.50	0.00	2	47.45	0.00
40.00	0.01	1	47.43	0.00
42.50	0.00	1	47.43	0.00
45.00	0.00	0	47.42	0.00
47.50	0.00	0	47.42	0.00
50.00	0.00	0	47.40	0.00
52.50	0.00	0	47.40	0.00
55.00	0.00	0	47.42	0.00
57.50	0.00	0	47.40	0.00
60.00	0.00	0	47.40	0.00
62.50	0.00	0	47.40	0.00
65.00	0.00	0	47.40	0.00
67.50	0.00	0	47.40	0.00
70.00	0.00	0	47.40	0.00

Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

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Stage-Area-Storage for Reach PR-R-1: Proposed Reach 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
47.40	0.0	0
47.45	0.0	2
47.50	0.0	7
47.55	0.1	15
47.60	0.1	27
47.65	0.2	41
47.70	0.3	60
47.75	0.4	81
47.80	0.5	106
47.85	0.6	134
47.90	0.8	166
47.95	0.9	201
48.00	1.1	239
48.05	1.3	280
48.10	1.5	325
48.15	1.7	373
48.20	1.9	424
48.25	2.2	479
48.30	2.4	537
48.35	2.7	598
48.40	3.0	663
48.45	3.3	731
48.50	3.6	802
48.55	4.0	877
48.60	4.3	955
48.65	4.7	1,036
48.70	5.1	1,120
48.75	5.5	1,208
48.80	5.9	1,299
48.85	6.3	1,394
48.90	6.8	1,492
48.95	7.2	1,593
49.00	7.7	1,697
49.05	8.2	1,805
49.10	8.7	1,916
49.15	9.2	2,030
49.20	9.7	2,148
49.25	10.3	2,269
49.30	10.8	2,393
49.35	11.4	2,521
49.40	12.0	2,652
49.45	12.6	2,786
49.50	13.2	2,924
49.55	13.9	3,065
49.60	14.5	3,209
49.65	15.2	3,356
49.70	15.9	3,507
49.75	16.6	3,661
49.80	17.3	3,819
49.85	18.0	3,980
49.90	18.8	4,144

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 10-YR Rainfall=5.30"

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Summary for Reach PR-R-2: Proposed Reach 2

Inflow Area = 5.341 ac, 6.24% Impervious, Inflow Depth = 3.45" for 10-YR event
Inflow = 17.60 cfs @ 12.06 hrs, Volume= 1.534 af
Outflow = 17.56 cfs @ 12.07 hrs, Volume= 1.534 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.97 fps, Min. Travel Time= 0.6 min

Avg. Velocity= 1.21 fps, Avg. Travel Time= 1.4 min

Peak Storage= 591 cf @ 12.07 hrs

Average Depth at Peak Storage= 1.49'

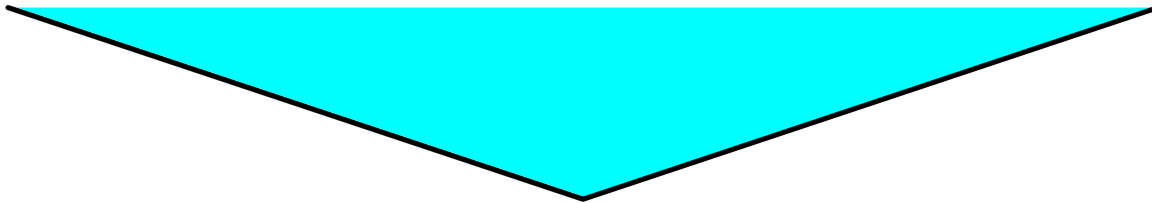
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 7.67 cfs

0.00' x 1.00' deep channel, n= 0.025

Side Slope Z-value= 3.0 '/' Top Width= 6.00'

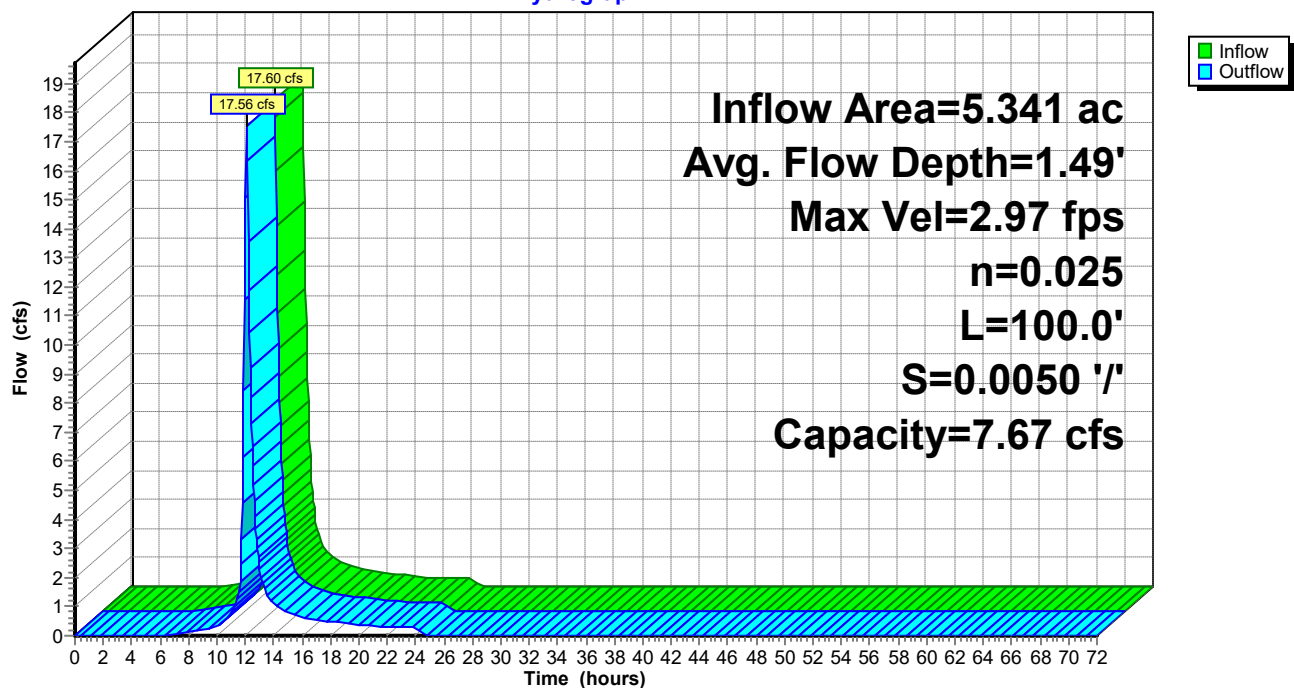
Length= 100.0' Slope= 0.0050 '/'

Inlet Invert= 47.50', Outlet Invert= 47.00'

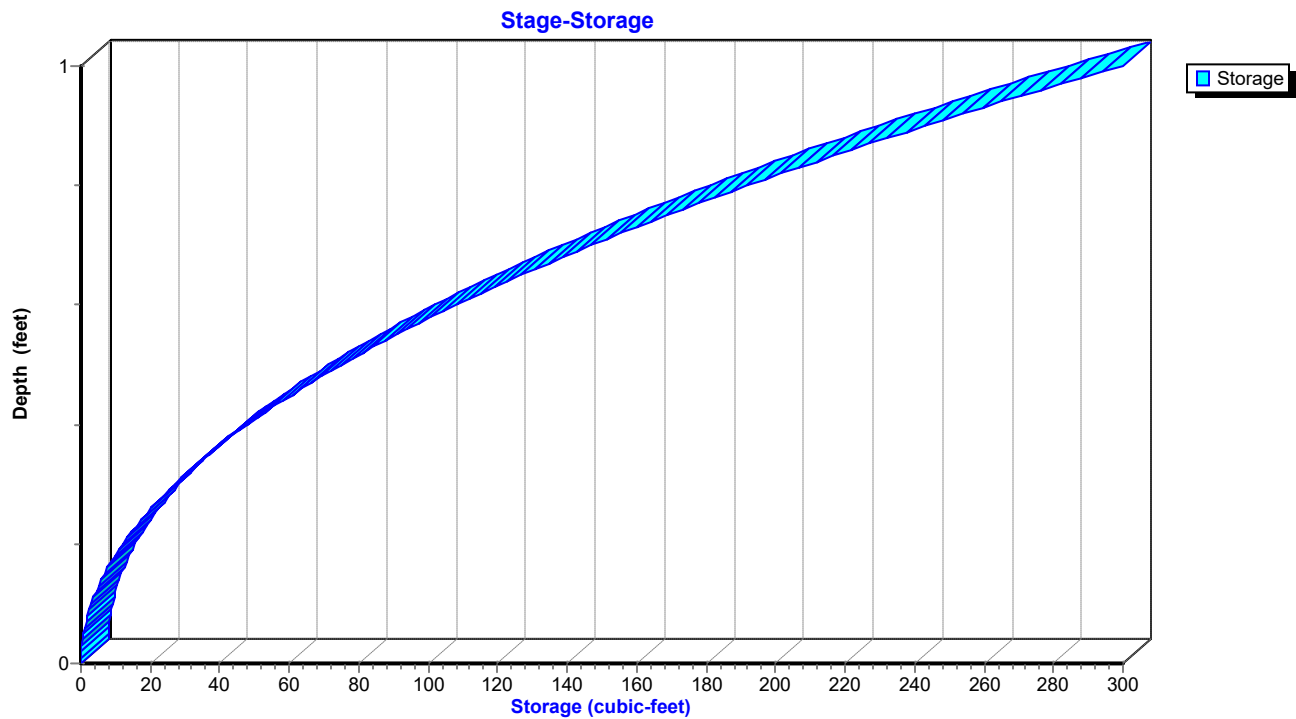


Reach PR-R-2: Proposed Reach 2

Hydrograph



Reach PR-R-2: Proposed Reach 2



Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Reach PR-R-2: Proposed Reach 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	47.50	0.00
2.50	0.00	0	47.50	0.00
5.00	0.00	0	47.50	0.00
7.50	0.07	9	47.67	0.07
10.00	0.35	29	47.81	0.35
12.50	6.40	266	48.44	6.52
15.00	0.82	56	47.93	0.82
17.50	0.52	40	47.86	0.52
20.00	0.36	30	47.82	0.36
22.50	0.31	27	47.80	0.31
25.00	0.00	1	47.57	0.01
27.50	0.00	0	47.50	0.00
30.00	0.00	0	47.50	0.00
32.50	0.00	0	47.50	0.00
35.00	0.00	0	47.50	0.00
37.50	0.00	0	47.50	0.00
40.00	0.00	0	47.50	0.00
42.50	0.00	0	47.50	0.00
45.00	0.00	0	47.50	0.00
47.50	0.00	0	47.50	0.00
50.00	0.00	0	47.50	0.00
52.50	0.00	0	47.50	0.00
55.00	0.00	0	47.50	0.00
57.50	0.00	0	47.50	0.00
60.00	0.00	0	47.50	0.00
62.50	0.00	0	47.50	0.00
65.00	0.00	0	47.50	0.00
67.50	0.00	0	47.50	0.00
70.00	0.00	0	47.50	0.00

Aspire - Proposed

Prepared by {enter your company name here}

Type II 24-hr 10-YR Rainfall=5.30"

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Stage-Area-Storage for Reach PR-R-2: Proposed Reach 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
47.50	0.0	0	48.02	0.8	81
47.51	0.0	0	48.03	0.8	84
47.52	0.0	0	48.04	0.9	87
47.53	0.0	0	48.05	0.9	91
47.54	0.0	0	48.06	0.9	94
47.55	0.0	1	48.07	1.0	97
47.56	0.0	1	48.08	1.0	101
47.57	0.0	1	48.09	1.0	104
47.58	0.0	2	48.10	1.1	108
47.59	0.0	2	48.11	1.1	112
47.60	0.0	3	48.12	1.2	115
47.61	0.0	4	48.13	1.2	119
47.62	0.0	4	48.14	1.2	123
47.63	0.1	5	48.15	1.3	127
47.64	0.1	6	48.16	1.3	131
47.65	0.1	7	48.17	1.3	135
47.66	0.1	8	48.18	1.4	139
47.67	0.1	9	48.19	1.4	143
47.68	0.1	10	48.20	1.5	147
47.69	0.1	11	48.21	1.5	151
47.70	0.1	12	48.22	1.6	156
47.71	0.1	13	48.23	1.6	160
47.72	0.1	15	48.24	1.6	164
47.73	0.2	16	48.25	1.7	169
47.74	0.2	17	48.26	1.7	173
47.75	0.2	19	48.27	1.8	178
47.76	0.2	20	48.28	1.8	183
47.77	0.2	22	48.29	1.9	187
47.78	0.2	24	48.30	1.9	192
47.79	0.3	25	48.31	2.0	197
47.80	0.3	27	48.32	2.0	202
47.81	0.3	29	48.33	2.1	207
47.82	0.3	31	48.34	2.1	212
47.83	0.3	33	48.35	2.2	217
47.84	0.3	35	48.36	2.2	222
47.85	0.4	37	48.37	2.3	227
47.86	0.4	39	48.38	2.3	232
47.87	0.4	41	48.39	2.4	238
47.88	0.4	43	48.40	2.4	243
47.89	0.5	46	48.41	2.5	248
47.90	0.5	48	48.42	2.5	254
47.91	0.5	50	48.43	2.6	259
47.92	0.5	53	48.44	2.7	265
47.93	0.6	55	48.45	2.7	271
47.94	0.6	58	48.46	2.8	276
47.95	0.6	61	48.47	2.8	282
47.96	0.6	63	48.48	2.9	288
47.97	0.7	66	48.49	2.9	294
47.98	0.7	69	48.50	3.0	300
47.99	0.7	72			
48.00	0.8	75			
48.01	0.8	78			

Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

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Summary for Pond FB-1: FB to SGW 1

Inflow Area = 3.305 ac, 69.42% Impervious, Inflow Depth = 4.27" for 10-YR event
 Inflow = 16.24 cfs @ 12.01 hrs, Volume= 1.177 af
 Outflow = 8.51 cfs @ 12.20 hrs, Volume= 0.783 af, Atten= 48%, Lag= 11.4 min
 Primary = 8.51 cfs @ 12.20 hrs, Volume= 0.783 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 48.10' @ 12.20 hrs Surf.Area= 10,470 sf Storage= 23,263 cf

Plug-Flow detention time= 194.4 min calculated for 0.783 af (66% of inflow)
 Center-of-Mass det. time= 94.5 min (883.5 - 789.0)

Volume	Invert	Avail.Storage	Storage Description
#1	45.50'	27,690 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.50	7,419	0	0
48.50	10,938	27,536	27,536
48.51	20,000	155	27,690

Device	Routing	Invert	Outlet Devices
#1	Primary	47.50'	7.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=8.51 cfs @ 12.20 hrs HW=48.10' TW=46.94' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 8.51 cfs @ 2.02 fps)

Aspire - Proposed

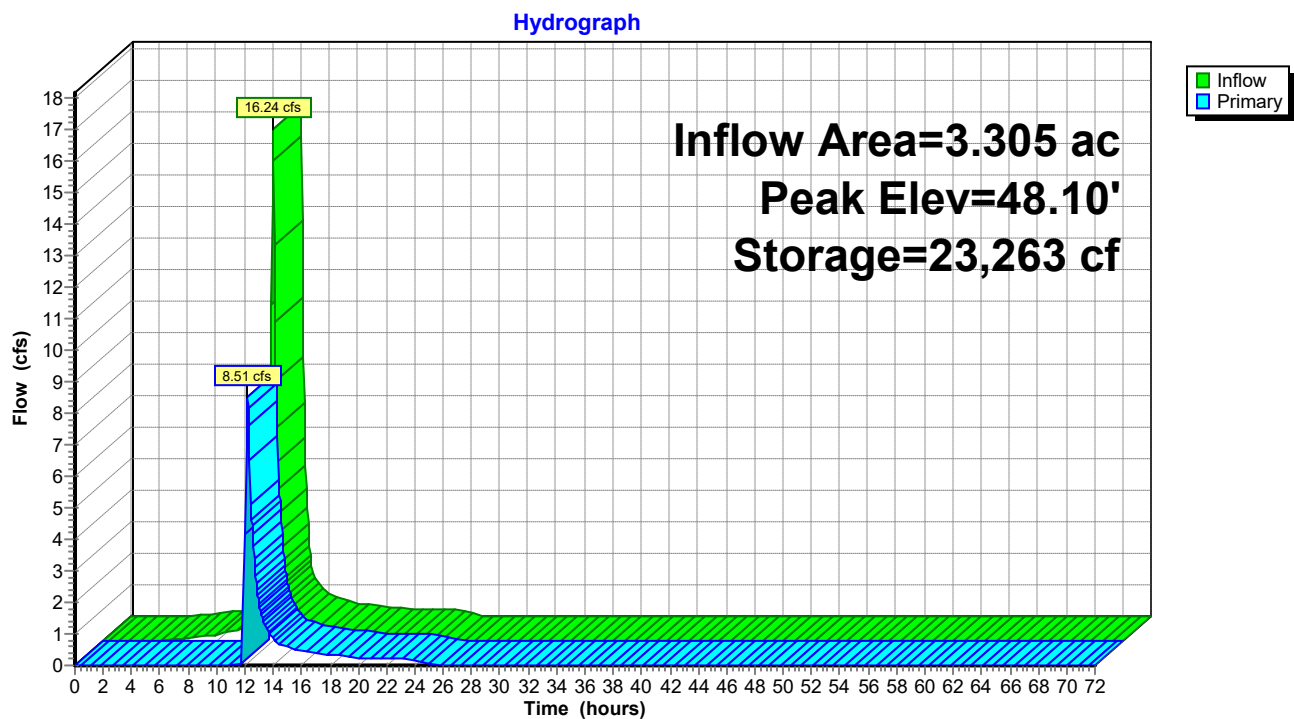
Prepared by {enter your company name here}

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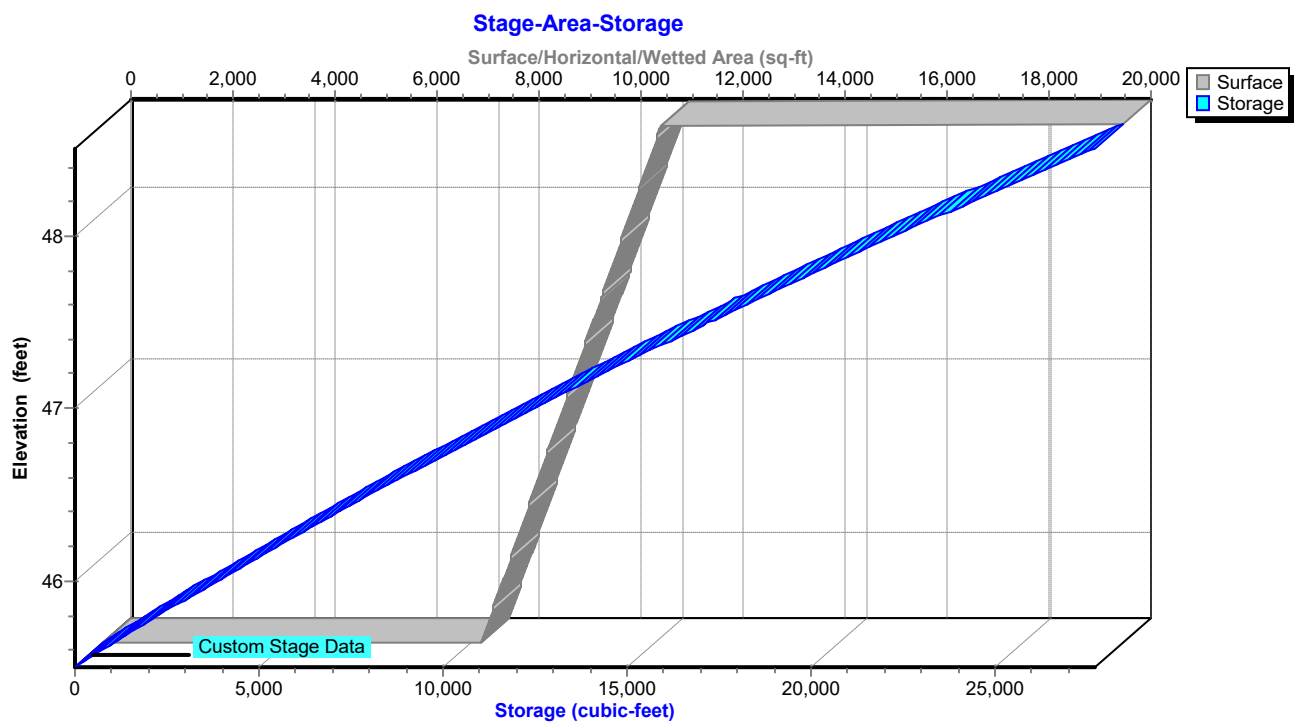
Type II 24-hr 10-YR Rainfall=5.30"

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Pond FB-1: FB to SGW 1



Pond FB-1: FB to SGW 1



Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Pond FB-1: FB to SGW 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	45.50	0.00
2.50	0.00	0	45.50	0.00
5.00	0.06	153	45.52	0.00
7.50	0.17	1,141	45.65	0.00
10.00	0.43	3,631	45.97	0.00
12.50	2.94	21,808	47.96	4.42
15.00	0.54	18,189	47.60	0.58
17.50	0.34	17,906	47.57	0.36
20.00	0.23	17,755	47.56	0.25
22.50	0.20	17,688	47.55	0.21
25.00	0.00	17,384	47.52	0.05
27.50	0.00	17,226	47.50	0.01
30.00	0.00	17,202	47.50	0.00
32.50	0.00	17,194	47.50	0.00
35.00	0.00	17,190	47.50	0.00
37.50	0.00	17,188	47.50	0.00
40.00	0.00	17,187	47.50	0.00
42.50	0.00	17,186	47.50	0.00
45.00	0.00	17,186	47.50	0.00
47.50	0.00	17,185	47.50	0.00
50.00	0.00	17,185	47.50	0.00
52.50	0.00	17,185	47.50	0.00
55.00	0.00	17,185	47.50	0.00
57.50	0.00	17,185	47.50	0.00
60.00	0.00	17,185	47.50	0.00
62.50	0.00	17,184	47.50	0.00
65.00	0.00	17,184	47.50	0.00
67.50	0.00	17,184	47.50	0.00
70.00	0.00	17,184	47.50	0.00

Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

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Stage-Area-Storage for Pond FB-1: FB to SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
45.50	7,419	0	48.10	10,469	23,254
45.55	7,478	372	48.15	10,527	23,779
45.60	7,536	748	48.20	10,586	24,307
45.65	7,595	1,126	48.25	10,645	24,838
45.70	7,654	1,507	48.30	10,703	25,371
45.75	7,712	1,891	48.35	10,762	25,908
45.80	7,771	2,278	48.40	10,821	26,448
45.85	7,830	2,668	48.45	10,879	26,990
45.90	7,888	3,061	48.50	10,938	27,536
45.95	7,947	3,457			
46.00	8,006	3,856			
46.05	8,064	4,258			
46.10	8,123	4,663			
46.15	8,181	5,070			
46.20	8,240	5,481			
46.25	8,299	5,894			
46.30	8,357	6,311			
46.35	8,416	6,730			
46.40	8,475	7,152			
46.45	8,533	7,577			
46.50	8,592	8,006			
46.55	8,651	8,437			
46.60	8,709	8,871			
46.65	8,768	9,307			
46.70	8,827	9,747			
46.75	8,885	10,190			
46.80	8,944	10,636			
46.85	9,003	11,085			
46.90	9,061	11,536			
46.95	9,120	11,991			
47.00	9,179	12,448			
47.05	9,237	12,909			
47.10	9,296	13,372			
47.15	9,354	13,838			
47.20	9,413	14,307			
47.25	9,472	14,779			
47.30	9,530	15,254			
47.35	9,589	15,732			
47.40	9,648	16,213			
47.45	9,706	16,697			
47.50	9,765	17,184			
47.55	9,824	17,674			
47.60	9,882	18,166			
47.65	9,941	18,662			
47.70	10,000	19,160			
47.75	10,058	19,662			
47.80	10,117	20,166			
47.85	10,176	20,674			
47.90	10,234	21,184			
47.95	10,293	21,697			
48.00	10,352	22,213			
48.05	10,410	22,732			

Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Pond FB-2: FB to SGW 2

Inflow Area = 3.241 ac, 66.40% Impervious, Inflow Depth = 4.17" for 10-YR event
 Inflow = 13.26 cfs @ 12.05 hrs, Volume= 1.125 af
 Outflow = 12.57 cfs @ 12.09 hrs, Volume= 1.125 af, Atten= 5%, Lag= 2.6 min
 Primary = 12.57 cfs @ 12.09 hrs, Volume= 1.125 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Starting Elev= 49.50' Surf.Area= 3,371 sf Storage= 5,375 cf

Peak Elev= 50.29' @ 12.42 hrs Surf.Area= 3,913 sf Storage= 8,265 cf (2,890 cf above start)

Plug-Flow detention time= 93.0 min calculated for 1.001 af (89% of inflow)

Center-of-Mass det. time= 9.0 min (806.9 - 797.9)

Volume	Invert	Avail.Storage	Storage Description
#1	47.50'	9,157 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.50	2,004	0	0
50.50	4,054	9,087	9,087
50.51	10,000	70	9,157

Device	Routing	Invert	Outlet Devices
#1	Primary	49.50'	7.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=12.09 cfs @ 12.09 hrs HW=50.28' TW=49.64' (Dynamic Tailwater)↑1=**Broad-Crested Rectangular Weir** (Weir Controls 12.09 cfs @ 2.22 fps)

Aspire - Proposed

Prepared by {enter your company name here}

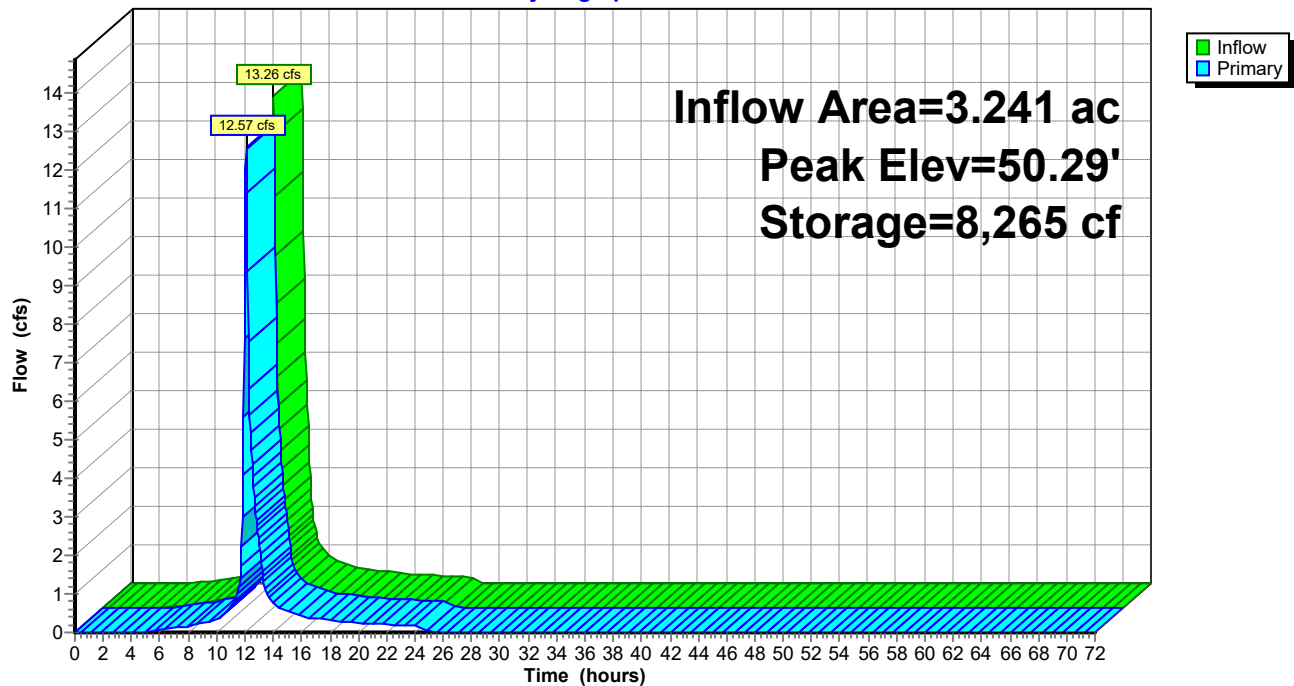
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Type II 24-hr 10-YR Rainfall=5.30"

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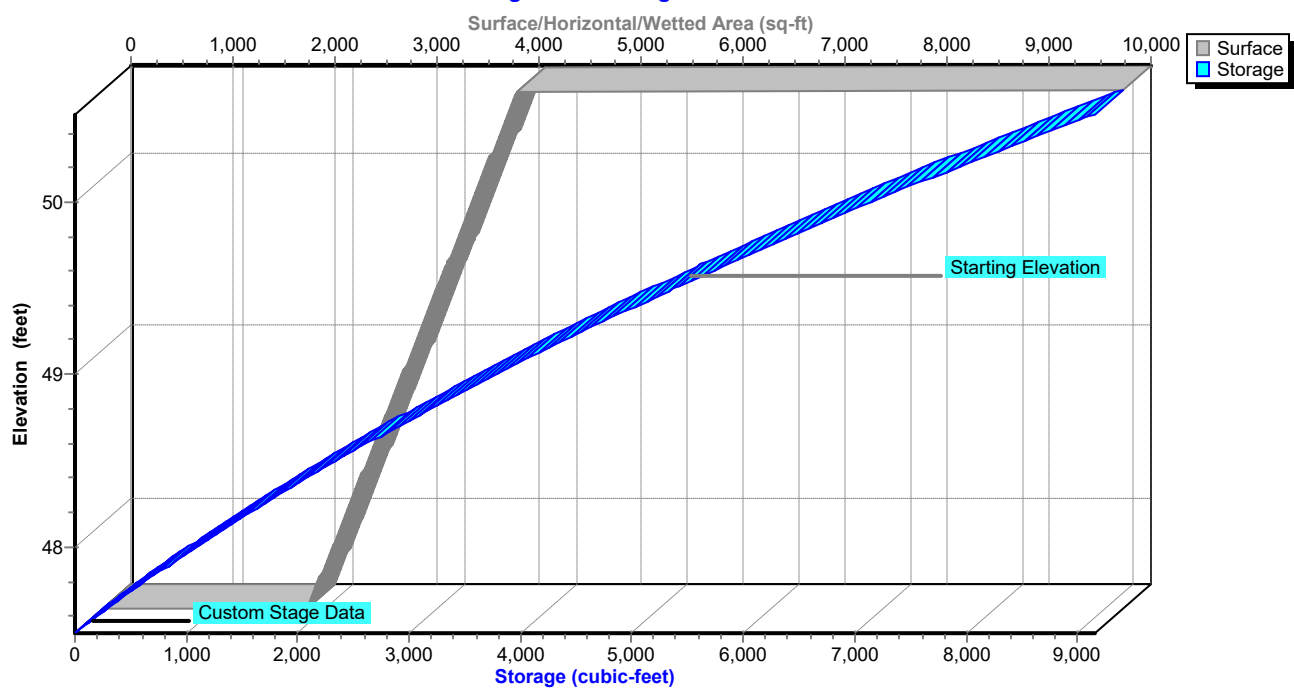
Pond FB-2: FB to SGW 2

Hydrograph



Pond FB-2: FB to SGW 2

Stage-Area-Storage



Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Pond FB-2: FB to SGW 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	5,375	49.50	0.00
2.50	0.00	5,375	49.50	0.00
5.00	0.04	5,417	49.51	0.02
7.50	0.14	5,504	49.54	0.13
10.00	0.38	5,626	49.57	0.36
12.50	4.08	8,223	50.28	4.36
15.00	0.53	5,708	49.60	0.55
17.50	0.33	5,617	49.57	0.34
20.00	0.23	5,565	49.56	0.24
22.50	0.20	5,545	49.55	0.20
25.00	0.00	5,409	49.51	0.02
27.50	0.00	5,378	49.50	0.00
30.00	0.00	5,376	49.50	0.00
32.50	0.00	5,375	49.50	0.00
35.00	0.00	5,375	49.50	0.00
37.50	0.00	5,375	49.50	0.00
40.00	0.00	5,375	49.50	0.00
42.50	0.00	5,375	49.50	0.00
45.00	0.00	5,375	49.50	0.00
47.50	0.00	5,375	49.50	0.00
50.00	0.00	5,375	49.50	0.00
52.50	0.00	5,375	49.50	0.00
55.00	0.00	5,375	49.50	0.00
57.50	0.00	5,375	49.50	0.00
60.00	0.00	5,375	49.50	0.00
62.50	0.00	5,375	49.50	0.00
65.00	0.00	5,375	49.50	0.00
67.50	0.00	5,375	49.50	0.00
70.00	0.00	5,375	49.50	0.00

Aspire - Proposed

Prepared by {enter your company name here}

Type II 24-hr 10-YR Rainfall=5.30"

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Stage-Area-Storage for Pond FB-2: FB to SGW 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
47.50	2,004	0	50.10	3,781	7,520
47.55	2,038	101	50.15	3,815	7,710
47.60	2,072	204	50.20	3,849	7,902
47.65	2,106	308	50.25	3,883	8,095
47.70	2,141	414	50.30	3,917	8,290
47.75	2,175	522	50.35	3,952	8,487
47.80	2,209	632	50.40	3,986	8,685
47.85	2,243	743	50.45	4,020	8,885
47.90	2,277	856	50.50	4,054	9,087
47.95	2,312	971			
48.00	2,346	1,087			
48.05	2,380	1,206			
48.10	2,414	1,325			
48.15	2,448	1,447			
48.20	2,482	1,570			
48.25	2,517	1,695			
48.30	2,551	1,822			
48.35	2,585	1,950			
48.40	2,619	2,080			
48.45	2,653	2,212			
48.50	2,687	2,346			
48.55	2,721	2,481			
48.60	2,756	2,618			
48.65	2,790	2,756			
48.70	2,824	2,897			
48.75	2,858	3,039			
48.80	2,892	3,183			
48.85	2,927	3,328			
48.90	2,961	3,475			
48.95	2,995	3,624			
49.00	3,029	3,775			
49.05	3,063	3,927			
49.10	3,097	4,081			
49.15	3,131	4,237			
49.20	3,166	4,394			
49.25	3,200	4,553			
49.30	3,234	4,714			
49.35	3,268	4,877			
49.40	3,302	5,041			
49.45	3,337	5,207			
49.50	3,371	5,375			
49.55	3,405	5,544			
49.60	3,439	5,715			
49.65	3,473	5,888			
49.70	3,507	6,062			
49.75	3,542	6,239			
49.80	3,576	6,417			
49.85	3,610	6,596			
49.90	3,644	6,778			
49.95	3,678	6,961			
50.00	3,712	7,145			
50.05	3,746	7,332			

Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Pond SGW-1: SGW 1

Inflow Area = 3.305 ac, 69.42% Impervious, Inflow Depth = 2.84" for 10-YR event
 Inflow = 8.51 cfs @ 12.20 hrs, Volume= 0.783 af
 Outflow = 5.55 cfs @ 12.38 hrs, Volume= 0.783 af, Atten= 35%, Lag= 10.9 min
 Primary = 5.55 cfs @ 12.38 hrs, Volume= 0.783 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Starting Elev= 45.17' Surf.Area= 2,056 sf Storage= 1,382 cf

Peak Elev= 47.82' @ 12.39 hrs Surf.Area= 3,526 sf Storage= 8,136 cf (6,754 cf above start)

Plug-Flow detention time= 70.8 min calculated for 0.751 af (96% of inflow)

Center-of-Mass det. time= 37.9 min (921.3 - 883.5)

Volume	Invert	Avail.Storage	Storage Description	
#1	43.49'	11,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.49	2,056	0.0	0	0
43.50	2,056	40.0	8	8
45.49	2,056	40.0	1,637	1,645
45.50	2,056	100.0	21	1,665
48.50	3,958	100.0	9,021	10,686
48.51	100,000	100.0	520	11,206

Device	Routing	Invert	Outlet Devices
#1	Primary	45.17'	12.0" Round Culvert L= 28.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.17' / 45.00' S= 0.0060 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	47.50'	24.0" x 24.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads
#3	Device 1	45.17'	6.0" Vert. Collector Pipe C= 0.600
#4	Secondary	48.50'	75.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=5.54 cfs @ 12.38 hrs HW=47.81' TW=44.72' (Dynamic Tailwater)

1=Culvert (Inlet Controls 5.54 cfs @ 7.05 fps)

2=Rim (Passes < 4.57 cfs potential flow)

3=Collector Pipe (Passes < 1.46 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.17' TW=47.50' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Aspire - Proposed

Prepared by {enter your company name here}

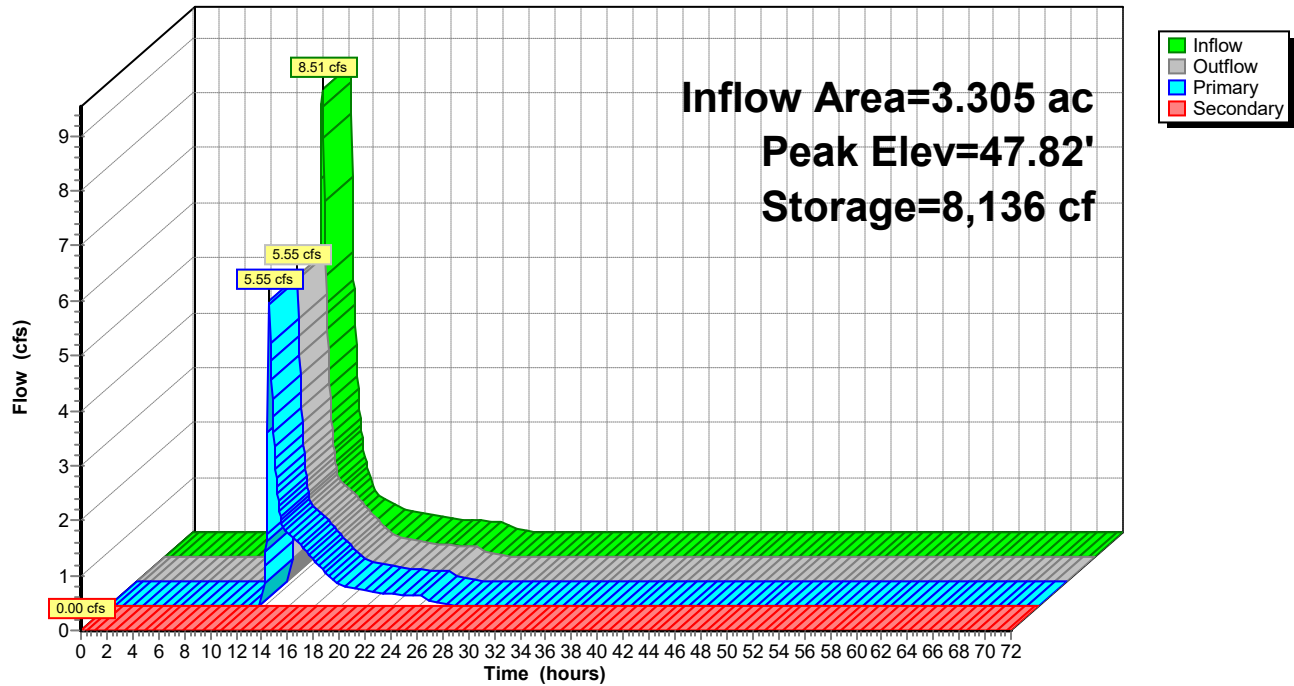
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Type II 24-hr 10-YR Rainfall=5.30"

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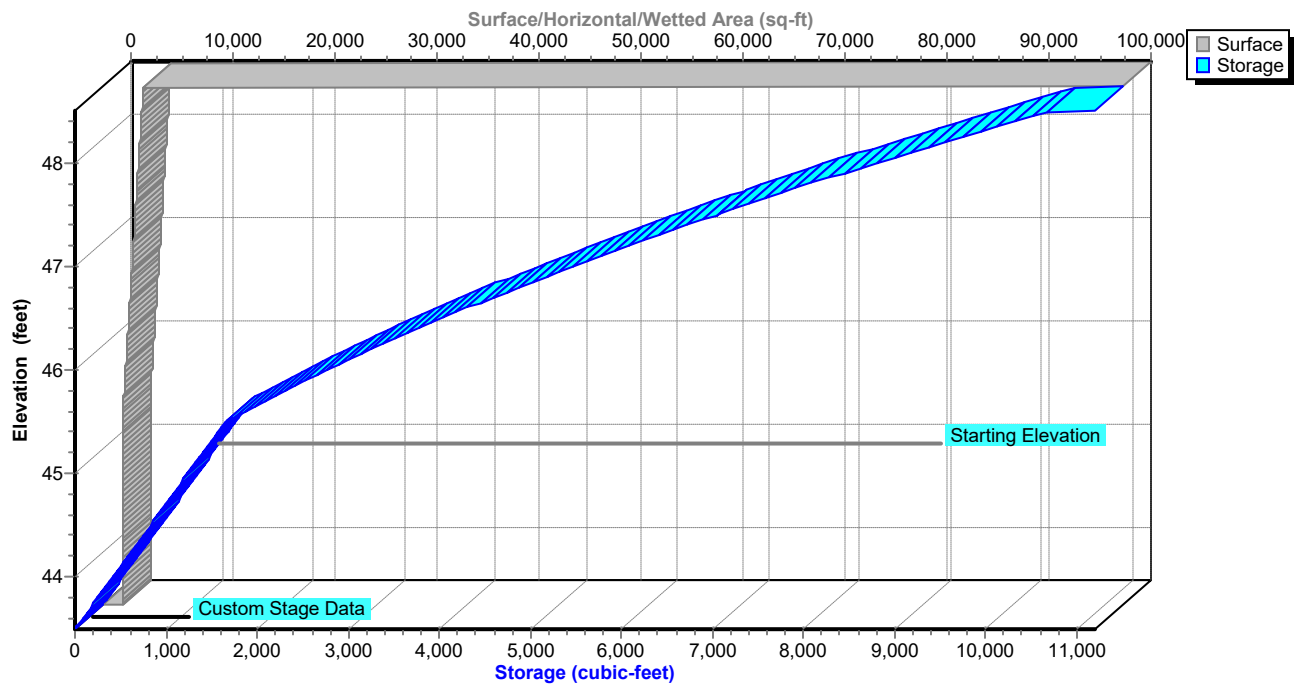
Pond SGW-1: SGW 1

Hydrograph



Pond SGW-1: SGW 1

Stage-Area-Storage



Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Pond SGW-1: SGW 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	1,382	45.17	0.00	0.00	0.00
2.50	0.00	1,382	45.17	0.00	0.00	0.00
5.00	0.00	1,382	45.17	0.00	0.00	0.00
7.50	0.00	1,382	45.17	0.00	0.00	0.00
10.00	0.00	1,382	45.17	0.00	0.00	0.00
12.50	4.42	7,909	47.75	4.79	4.79	0.00
15.00	0.58	4,592	46.70	1.07	1.07	0.00
17.50	0.36	1,965	45.64	0.45	0.45	0.00
20.00	0.25	1,664	45.50	0.27	0.27	0.00
22.50	0.21	1,615	45.45	0.21	0.21	0.00
25.00	0.05	1,517	45.33	0.08	0.08	0.00
27.50	0.01	1,425	45.22	0.01	0.01	0.00
30.00	0.00	1,406	45.20	0.00	0.00	0.00
32.50	0.00	1,399	45.19	0.00	0.00	0.00
35.00	0.00	1,395	45.19	0.00	0.00	0.00
37.50	0.00	1,392	45.18	0.00	0.00	0.00
40.00	0.00	1,390	45.18	0.00	0.00	0.00
42.50	0.00	1,389	45.18	0.00	0.00	0.00
45.00	0.00	1,388	45.18	0.00	0.00	0.00
47.50	0.00	1,387	45.18	0.00	0.00	0.00
50.00	0.00	1,387	45.18	0.00	0.00	0.00
52.50	0.00	1,386	45.18	0.00	0.00	0.00
55.00	0.00	1,386	45.17	0.00	0.00	0.00
57.50	0.00	1,385	45.17	0.00	0.00	0.00
60.00	0.00	1,385	45.17	0.00	0.00	0.00
62.50	0.00	1,385	45.17	0.00	0.00	0.00
65.00	0.00	1,385	45.17	0.00	0.00	0.00
67.50	0.00	1,384	45.17	0.00	0.00	0.00
70.00	0.00	1,384	45.17	0.00	0.00	0.00

Aspire - Proposed*Type II 24-hr 10-YR Rainfall=5.30"*

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Stage-Area-Storage for Pond SGW-1: SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
43.49	2,056	0
43.59	2,056	82
43.69	2,056	164
43.79	2,056	247
43.89	2,056	329
43.99	2,056	411
44.09	2,056	493
44.19	2,056	576
44.29	2,056	658
44.39	2,056	740
44.49	2,056	822
44.59	2,056	905
44.69	2,056	987
44.79	2,056	1,069
44.89	2,056	1,151
44.99	2,056	1,234
45.09	2,056	1,316
45.19	2,056	1,398
45.29	2,056	1,480
45.39	2,056	1,563
45.49	2,056	1,645
45.59	2,113	1,853
45.69	2,176	2,067
45.79	2,240	2,288
45.89	2,303	2,515
45.99	2,367	2,749
46.09	2,430	2,989
46.19	2,493	3,235
46.29	2,557	3,487
46.39	2,620	3,746
46.49	2,684	4,011
46.59	2,747	4,283
46.69	2,810	4,561
46.79	2,874	4,845
46.89	2,937	5,136
46.99	3,001	5,433
47.09	3,064	5,736
47.19	3,127	6,045
47.29	3,191	6,361
47.39	3,254	6,684
47.49	3,318	7,012
47.59	3,381	7,347
47.69	3,444	7,688
47.79	3,508	8,036
47.89	3,571	8,390
47.99	3,635	8,750
48.09	3,698	9,117
48.19	3,761	9,490
48.29	3,825	9,869
48.39	3,888	10,255
48.49	3,952	10,647

Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

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Summary for Pond SGW-2: SGW 2

Inflow Area = 3.241 ac, 66.40% Impervious, Inflow Depth = 4.17" for 10-YR event
 Inflow = 12.57 cfs @ 12.09 hrs, Volume= 1.125 af
 Outflow = 5.08 cfs @ 12.54 hrs, Volume= 1.117 af, Atten= 60%, Lag= 26.7 min
 Primary = 5.08 cfs @ 12.54 hrs, Volume= 1.117 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Starting Elev= 47.17' Surf.Area= 4,027 sf Storage= 2,706 cf
 Peak Elev= 50.25' @ 12.42 hrs Surf.Area= 7,219 sf Storage= 18,738 cf (16,032 cf above start)

Plug-Flow detention time= 147.5 min calculated for 1.054 af (94% of inflow)
 Center-of-Mass det. time= 95.4 min (902.3 - 806.9)

Volume	Invert	Avail.Storage	Storage Description	
#1	45.49'	20,699 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.49	4,027	0.0	0	0
45.50	4,027	40.0	16	16
47.49	4,027	40.0	3,205	3,222
47.50	4,027	100.0	40	3,262
50.50	7,506	100.0	17,300	20,561
50.51	20,000	100.0	138	20,699

Device	Routing	Invert	Outlet Devices
#1	Primary	47.25'	12.0" Round Culvert L= 25.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.25' / 47.00' S= 0.0098 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	49.50'	24.0" x 24.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads
#3	Device 1	47.16'	6.0" Vert. Collector Pipe C= 0.600
#4	Primary	50.50'	159.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=5.11 cfs @ 12.54 hrs HW=50.22' TW=48.39' (Dynamic Tailwater)

- 1=Culvert (Inlet Controls 5.11 cfs @ 6.51 fps)
 2=Rim (Passes < 16.01 cfs potential flow)
 3=Collector Pipe (Passes < 1.28 cfs potential flow)
 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Aspire - Proposed

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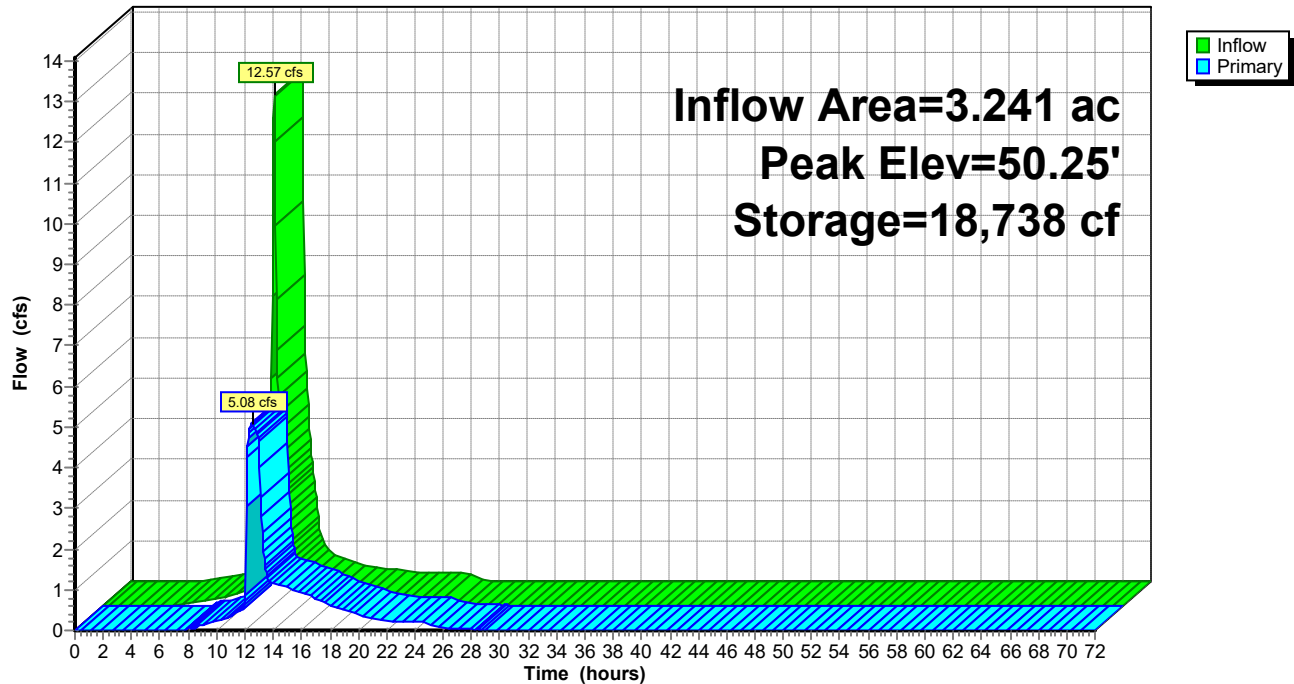
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Type II 24-hr 10-YR Rainfall=5.30"

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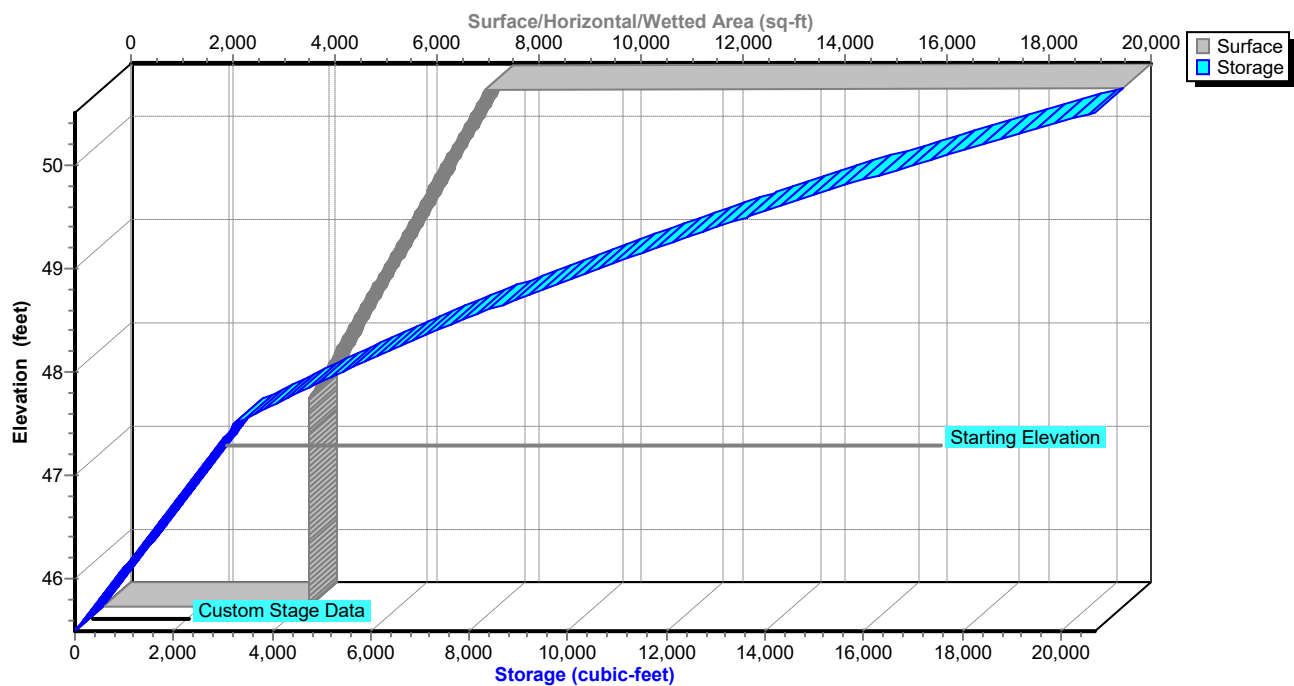
Pond SGW-2: SGW 2

Hydrograph



Pond SGW-2: SGW 2

Stage-Area-Storage



Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Pond SGW-2: SGW 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	2,706	47.17	0.00
2.50	0.00	2,706	47.17	0.00
5.00	0.02	2,740	47.19	0.00
7.50	0.13	3,440	47.54	0.00
10.00	0.36	4,489	47.79	0.23
12.50	4.36	18,624	50.24	5.08
15.00	0.55	11,595	49.17	1.05
17.50	0.34	7,385	48.41	0.71
20.00	0.24	5,134	47.94	0.39
22.50	0.20	4,443	47.78	0.23
25.00	0.02	3,907	47.66	0.17
27.50	0.00	3,316	47.51	0.05
30.00	0.00	3,179	47.46	0.00
32.50	0.00	3,137	47.44	0.00
35.00	0.00	3,119	47.43	0.00
37.50	0.00	3,106	47.42	0.00
40.00	0.00	3,097	47.41	0.01
42.50	0.00	3,091	47.41	0.00
45.00	0.00	3,087	47.41	0.00
47.50	0.00	3,084	47.40	0.00
50.00	0.00	3,082	47.40	0.00
52.50	0.00	3,080	47.40	0.00
55.00	0.00	3,079	47.40	0.00
57.50	0.00	3,078	47.40	0.00
60.00	0.00	3,077	47.40	0.00
62.50	0.00	3,077	47.40	0.00
65.00	0.00	3,077	47.40	0.00
67.50	0.00	3,077	47.40	0.00
70.00	0.00	3,077	47.40	0.00

Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

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Stage-Area-Storage for Pond SGW-2: SGW 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
45.49	4,027	0
45.59	4,027	161
45.69	4,027	322
45.79	4,027	483
45.89	4,027	644
45.99	4,027	805
46.09	4,027	966
46.19	4,027	1,128
46.29	4,027	1,289
46.39	4,027	1,450
46.49	4,027	1,611
46.59	4,027	1,772
46.69	4,027	1,933
46.79	4,027	2,094
46.89	4,027	2,255
46.99	4,027	2,416
47.09	4,027	2,577
47.19	4,027	2,738
47.29	4,027	2,899
47.39	4,027	3,061
47.49	4,027	3,222
47.59	4,131	3,629
47.69	4,247	4,048
47.79	4,363	4,478
47.89	4,479	4,921
47.99	4,595	5,374
48.09	4,711	5,840
48.19	4,827	6,317
48.29	4,943	6,805
48.39	5,059	7,305
48.49	5,175	7,817
48.59	5,291	8,340
48.69	5,407	8,875
48.79	5,523	9,422
48.89	5,639	9,980
48.99	5,755	10,549
49.09	5,871	11,131
49.19	5,987	11,724
49.29	6,103	12,328
49.39	6,219	12,944
49.49	6,335	13,572
49.59	6,451	14,211
49.69	6,567	14,862
49.79	6,683	15,524
49.89	6,799	16,198
49.99	6,915	16,884
50.09	7,031	17,581
50.19	7,147	18,290
50.29	7,262	19,011
50.39	7,378	19,743
50.49	7,494	20,486

Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

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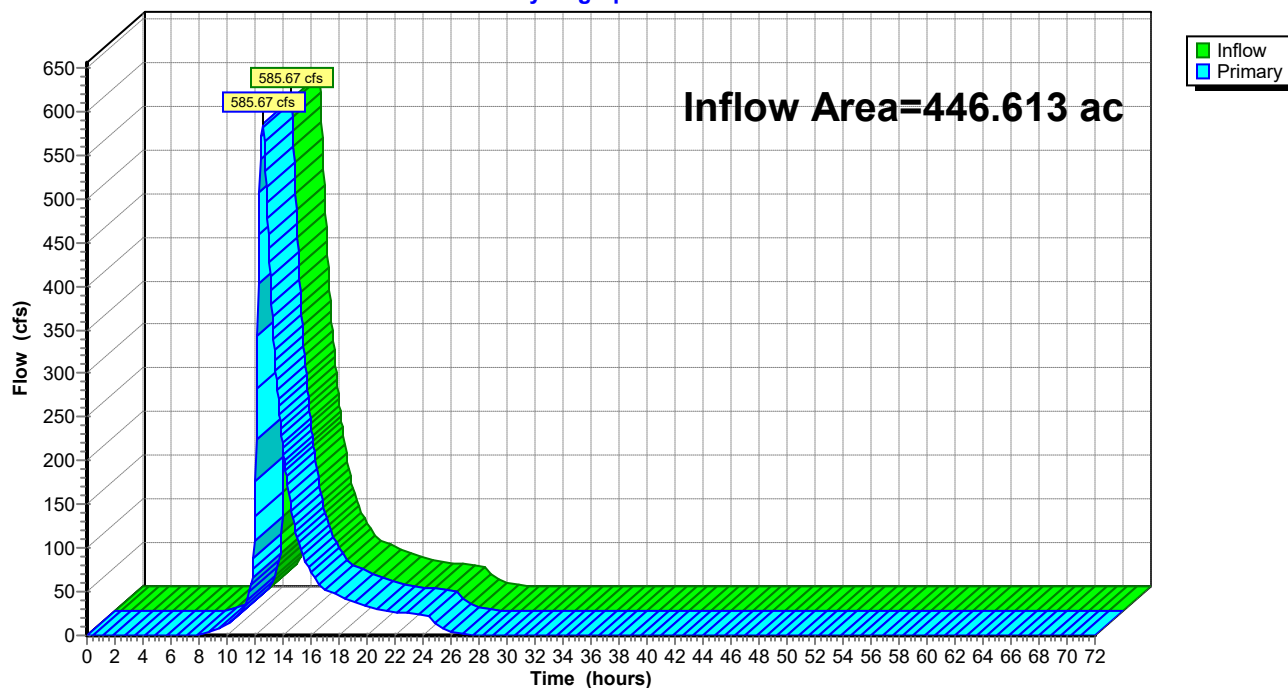
Summary for Link SP-1: Study Point #1

Inflow Area = 446.613 ac, 20.11% Impervious, Inflow Depth = 3.17" for 10-YR event
Inflow = 585.67 cfs @ 12.53 hrs, Volume= 117.995 af
Primary = 585.67 cfs @ 12.53 hrs, Volume= 117.995 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link SP-1: Study Point #1

Hydrograph



Aspire - Proposed

Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Link SP-1: Study Point #1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	59.00	0.00	0.00	0.00
8.00	0.58	0.00	0.58	60.00	0.00	0.00	0.00
9.00	4.77	0.00	4.77	61.00	0.00	0.00	0.00
10.00	12.52	0.00	12.52	62.00	0.00	0.00	0.00
11.00	27.37	0.00	27.37	63.00	0.00	0.00	0.00
12.00	136.74	0.00	136.74	64.00	0.00	0.00	0.00
13.00	442.83	0.00	442.83	65.00	0.00	0.00	0.00
14.00	213.78	0.00	213.78	66.00	0.00	0.00	0.00
15.00	113.48	0.00	113.48	67.00	0.00	0.00	0.00
16.00	72.70	0.00	72.70	68.00	0.00	0.00	0.00
17.00	52.96	0.00	52.96	69.00	0.00	0.00	0.00
18.00	44.68	0.00	44.68	70.00	0.00	0.00	0.00
19.00	38.85	0.00	38.85	71.00	0.00	0.00	0.00
20.00	33.60	0.00	33.60	72.00	0.00	0.00	0.00
21.00	29.11	0.00	29.11				
22.00	26.88	0.00	26.88				
23.00	25.55	0.00	25.55				
24.00	24.49	0.00	24.49				
25.00	12.95	0.00	12.95				
26.00	4.07	0.00	4.07				
27.00	1.19	0.00	1.19				
28.00	0.35	0.00	0.35				
29.00	0.12	0.00	0.12				
30.00	0.05	0.00	0.05				
31.00	0.03	0.00	0.03				
32.00	0.02	0.00	0.02				
33.00	0.01	0.00	0.01				
34.00	0.01	0.00	0.01				
35.00	0.01	0.00	0.01				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

10-Year Comparison

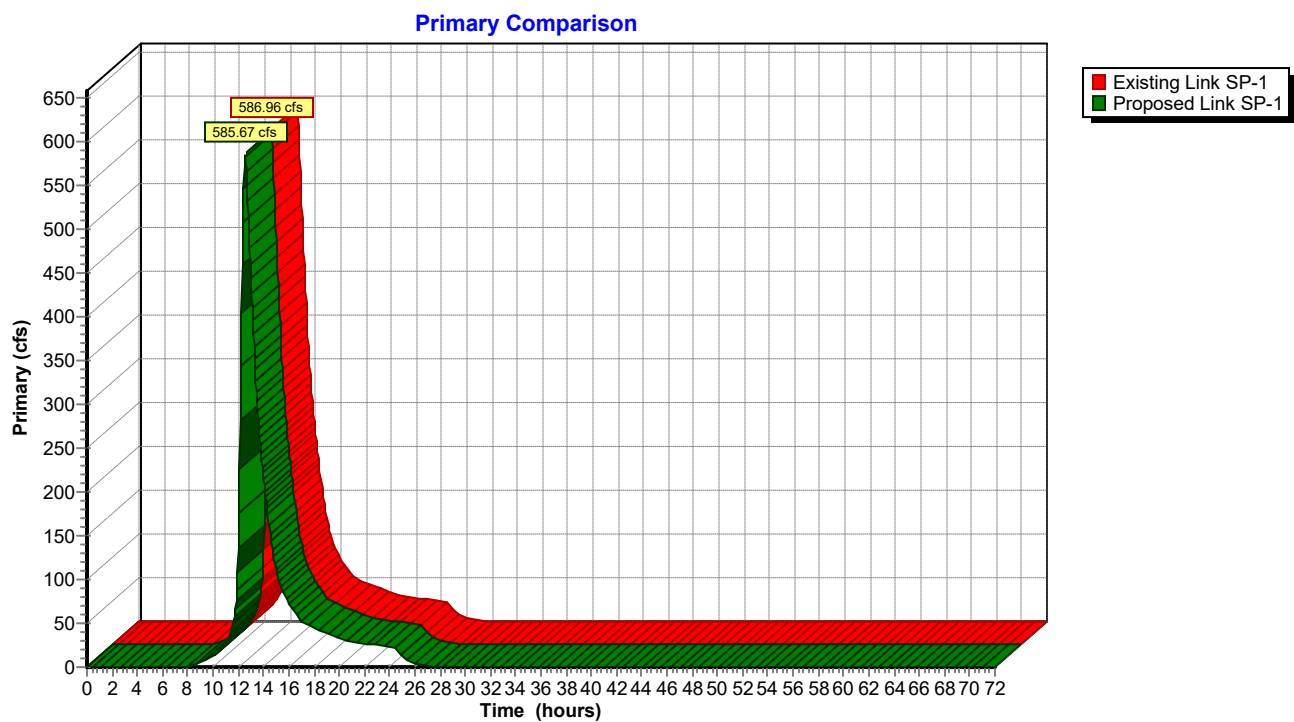
Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 12/5/2022



100-Year Existing Conditions Analysis

Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-DA-1: Existing DA 1 Runoff Area=18,645,844 sf 19.86% Impervious Runoff Depth=5.25"
Flow Length=4,740' Tc=43.0 min CN=80 Runoff=946.03 cfs 187.309 af

Subcatchment EX-DA-2: Existing DA 2 Runoff Area=417,449 sf 3.48% Impervious Runoff Depth=5.14"
Flow Length=1,003' Tc=16.3 min CN=79 Runoff=40.69 cfs 4.102 af

Subcatchment EX-DA-3: Existing DA 3 Runoff Area=391,168 sf 0.00% Impervious Runoff Depth=5.25"
Flow Length=788' Tc=15.3 min CN=80 Runoff=40.40 cfs 3.930 af

Reach 2R: Existing Reach 4 Avg. Flow Depth=1.92' Max Vel=0.98 fps Inflow=40.40 cfs 3.930 af
n=0.100 L=564.0' S=0.0168 '/' Capacity=3.82 cfs Outflow=32.52 cfs 3.930 af

Reach EX-R-1: Existing Reach 1 Avg. Flow Depth=9.47' Max Vel=4.43 fps Inflow=973.73 cfs 191.411 af
n=0.040 L=532.0' S=0.0038 '/' Capacity=177.63 cfs Outflow=969.76 cfs 191.411 af

Reach EX-R-2: Existing Reach 2 Avg. Flow Depth=11.50' Max Vel=3.62 fps Inflow=995.57 cfs 195.341 af
n=0.040 L=819.0' S=0.0024 '/' Capacity=143.16 cfs Outflow=981.54 cfs 195.341 af

Reach EX-R-3: Existing Reach 3 Avg. Flow Depth=2.28' Max Vel=1.61 fps Inflow=40.69 cfs 4.102 af
n=0.040 L=729.0' S=0.0014 '/' Capacity=27.19 cfs Outflow=35.72 cfs 4.102 af

Link SP-1: Study Point #1 Inflow=981.54 cfs 195.341 af
Primary=981.54 cfs 195.341 af

Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Subcatchment EX-DA-1: Existing DA 1

Runoff = 946.03 cfs @ 12.43 hrs, Volume= 187.309 af, Depth= 5.25"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
150,521	61	1/4 acre lots, 38% imp, HSG A
2,950,162	75	1/4 acre lots, 38% imp, HSG B
704,124	55	Woods, Good, HSG B
1,014,991	78	Row crops, straight row, Good, HSG B
4,488,021	83	1/4 acre lots, 38% imp, HSG C
574,033	70	Woods, Good, HSG C
3,928,165	85	Row crops, straight row, Good, HSG C
2,157,149	87	1/4 acre lots, 38% imp, HSG D
1,857,395	77	Woods, Good, HSG D
821,283	89	Row crops, straight row, Good, HSG D
18,645,844	80	Weighted Average
14,942,420		80.14% Pervious Area
3,703,424		19.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
16.0	1,441	0.0100	1.50		Shallow Concentrated Flow, Ag Ditch Grassed Waterway Kv= 15.0 fps
11.5	1,035	0.0100	1.50		Shallow Concentrated Flow, Mathewstown Rd North Swale Grassed Waterway Kv= 15.0 fps
0.9	197	0.0030	3.85	6.80	Pipe Channel, Culvert under Mile Post Rd 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011 Concrete pipe, straight & clean
2.2	240	0.0150	1.84		Shallow Concentrated Flow, Mathewstown Rd - North Swale before Grassed Waterway Kv= 15.0 fps
0.1	51	0.0030	8.59	168.59	Pipe Channel, Culvert crossing Mathewstown Rd to Hosewells Branch 60.0" Round Area= 19.6 sf Perim= 15.7' r= 1.25' n= 0.011 Concrete pipe, straight & clean
7.7	1,676	0.0050	3.62	75.95	Channel Flow, Hosewells Branch Area= 21.0 sf Perim= 13.0' r= 1.62' n= 0.040 Winding stream, pools & shoals
43.0	4,740	Total			

Aspire - Existing

Prepared by {enter your company name here}

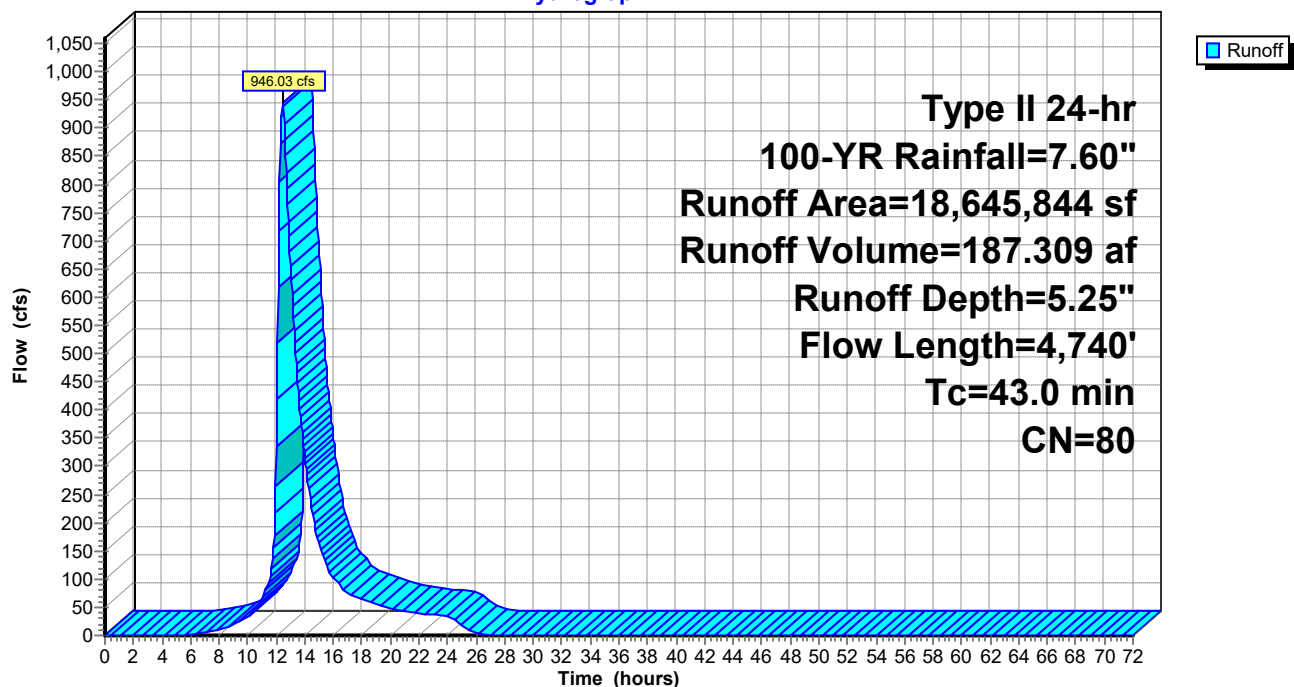
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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Subcatchment EX-DA-1: Existing DA 1

Hydrograph



Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Subcatchment EX-DA-1: Existing DA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	5.25	0.00
1.00	0.08	0.00	0.00	53.00	7.60	5.25	0.00
2.00	0.17	0.00	0.00	54.00	7.60	5.25	0.00
3.00	0.26	0.00	0.00	55.00	7.60	5.25	0.00
4.00	0.36	0.00	0.00	56.00	7.60	5.25	0.00
5.00	0.48	0.00	0.00	57.00	7.60	5.25	0.00
6.00	0.61	0.00	0.76	58.00	7.60	5.25	0.00
7.00	0.75	0.02	4.93	59.00	7.60	5.25	0.00
8.00	0.91	0.06	11.09	60.00	7.60	5.25	0.00
9.00	1.12	0.12	20.35	61.00	7.60	5.25	0.00
10.00	1.38	0.23	34.94	62.00	7.60	5.25	0.00
11.00	1.79	0.44	64.40	63.00	7.60	5.25	0.00
12.00	5.04	2.93	336.33	64.00	7.60	5.25	0.00
13.00	5.87	3.66	654.50	65.00	7.60	5.25	0.00
14.00	6.23	3.99	314.80	66.00	7.60	5.25	0.00
15.00	6.49	4.22	161.14	67.00	7.60	5.25	0.00
16.00	6.69	4.41	103.08	68.00	7.60	5.25	0.00
17.00	6.85	4.56	75.05	69.00	7.60	5.25	0.00
18.00	7.00	4.69	63.70	70.00	7.60	5.25	0.00
19.00	7.13	4.81	55.40	71.00	7.60	5.25	0.00
20.00	7.24	4.91	47.79	72.00	7.60	5.25	0.00
21.00	7.33	5.00	41.65				
22.00	7.43	5.09	38.68				
23.00	7.51	5.17	36.82				
24.00	7.60	5.25	35.27				
25.00	7.60	5.25	15.20				
26.00	7.60	5.25	4.23				
27.00	7.60	5.25	0.88				
28.00	7.60	5.25	0.14				
29.00	7.60	5.25	0.00				
30.00	7.60	5.25	0.00				
31.00	7.60	5.25	0.00				
32.00	7.60	5.25	0.00				
33.00	7.60	5.25	0.00				
34.00	7.60	5.25	0.00				
35.00	7.60	5.25	0.00				
36.00	7.60	5.25	0.00				
37.00	7.60	5.25	0.00				
38.00	7.60	5.25	0.00				
39.00	7.60	5.25	0.00				
40.00	7.60	5.25	0.00				
41.00	7.60	5.25	0.00				
42.00	7.60	5.25	0.00				
43.00	7.60	5.25	0.00				
44.00	7.60	5.25	0.00				
45.00	7.60	5.25	0.00				
46.00	7.60	5.25	0.00				
47.00	7.60	5.25	0.00				
48.00	7.60	5.25	0.00				
49.00	7.60	5.25	0.00				
50.00	7.60	5.25	0.00				
51.00	7.60	5.25	0.00				

Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Subcatchment EX-DA-2: Existing DA 2

Runoff = 40.69 cfs @ 12.10 hrs, Volume= 4.102 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
14,528	98	Paved parking, HSG B
111,725	78	Row crops, straight row, Good, HSG B
162,322	85	Row crops, straight row, Good, HSG C
128,874	70	Woods, Good, HSG C
417,449	79	Weighted Average
402,921		96.52% Pervious Area
14,528		3.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0140	0.32		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
6.2	637	0.0130	1.71		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
1.1	92	0.0050	1.44		Shallow Concentrated Flow, Camac Gutter Paved Kv= 20.3 fps
3.7	174	0.0240	0.77		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.3	1,003	Total			

Aspire - Existing

Prepared by {enter your company name here}

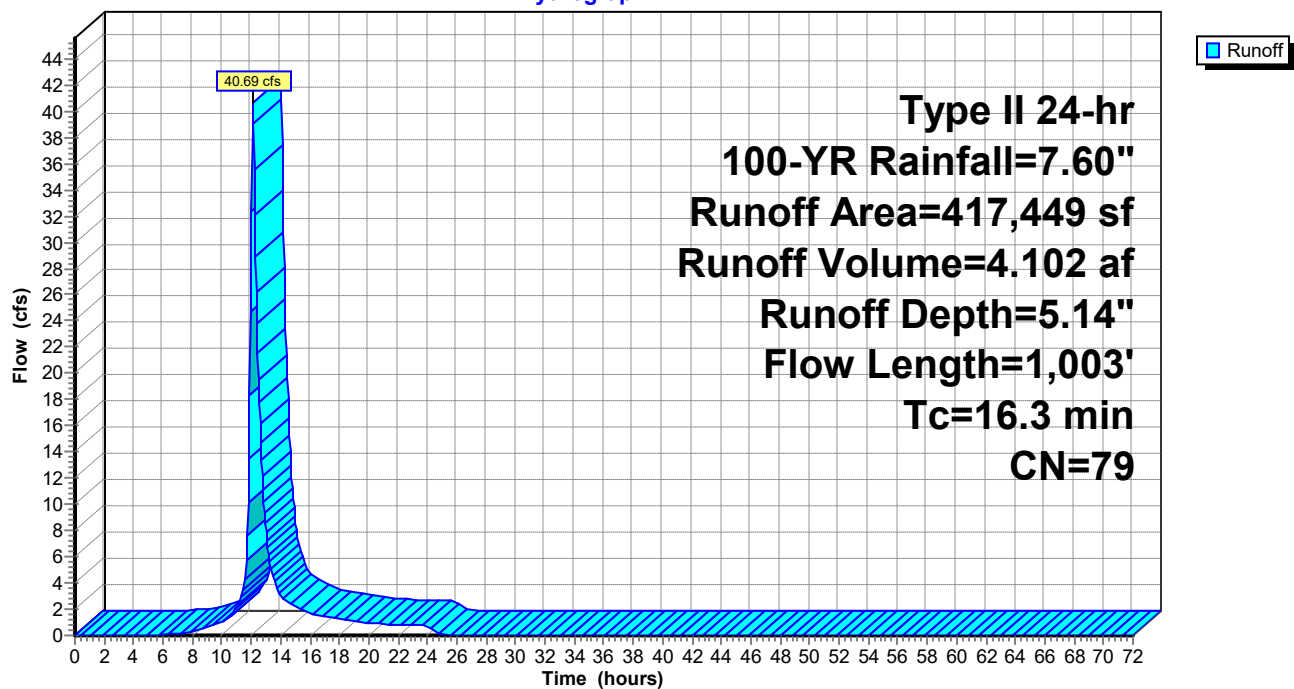
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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Subcatchment EX-DA-2: Existing DA 2

Hydrograph



Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Subcatchment EX-DA-2: Existing DA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	5.14	0.00
1.00	0.08	0.00	0.00	53.00	7.60	5.14	0.00
2.00	0.17	0.00	0.00	54.00	7.60	5.14	0.00
3.00	0.26	0.00	0.00	55.00	7.60	5.14	0.00
4.00	0.36	0.00	0.00	56.00	7.60	5.14	0.00
5.00	0.48	0.00	0.00	57.00	7.60	5.14	0.00
6.00	0.61	0.00	0.03	58.00	7.60	5.14	0.00
7.00	0.75	0.02	0.15	59.00	7.60	5.14	0.00
8.00	0.91	0.05	0.31	60.00	7.60	5.14	0.00
9.00	1.12	0.11	0.59	61.00	7.60	5.14	0.00
10.00	1.38	0.20	0.98	62.00	7.60	5.14	0.00
11.00	1.79	0.40	2.05	63.00	7.60	5.14	0.00
12.00	5.04	2.84	32.35	64.00	7.60	5.14	0.00
13.00	5.87	3.56	7.85	65.00	7.60	5.14	0.00
14.00	6.23	3.89	3.04	66.00	7.60	5.14	0.00
15.00	6.49	4.12	2.19	67.00	7.60	5.14	0.00
16.00	6.69	4.30	1.73	68.00	7.60	5.14	0.00
17.00	6.85	4.45	1.44	69.00	7.60	5.14	0.00
18.00	7.00	4.58	1.28	70.00	7.60	5.14	0.00
19.00	7.13	4.70	1.11	71.00	7.60	5.14	0.00
20.00	7.24	4.80	0.95	72.00	7.60	5.14	0.00
21.00	7.33	4.89	0.86				
22.00	7.43	4.98	0.83				
23.00	7.51	5.06	0.79				
24.00	7.60	5.14	0.76				
25.00	7.60	5.14	0.04				
26.00	7.60	5.14	0.00				
27.00	7.60	5.14	0.00				
28.00	7.60	5.14	0.00				
29.00	7.60	5.14	0.00				
30.00	7.60	5.14	0.00				
31.00	7.60	5.14	0.00				
32.00	7.60	5.14	0.00				
33.00	7.60	5.14	0.00				
34.00	7.60	5.14	0.00				
35.00	7.60	5.14	0.00				
36.00	7.60	5.14	0.00				
37.00	7.60	5.14	0.00				
38.00	7.60	5.14	0.00				
39.00	7.60	5.14	0.00				
40.00	7.60	5.14	0.00				
41.00	7.60	5.14	0.00				
42.00	7.60	5.14	0.00				
43.00	7.60	5.14	0.00				
44.00	7.60	5.14	0.00				
45.00	7.60	5.14	0.00				
46.00	7.60	5.14	0.00				
47.00	7.60	5.14	0.00				
48.00	7.60	5.14	0.00				
49.00	7.60	5.14	0.00				
50.00	7.60	5.14	0.00				
51.00	7.60	5.14	0.00				

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Subcatchment EX-DA-3: Existing DA 3

Runoff = 40.40 cfs @ 12.09 hrs, Volume= 3.930 af, Depth= 5.25"

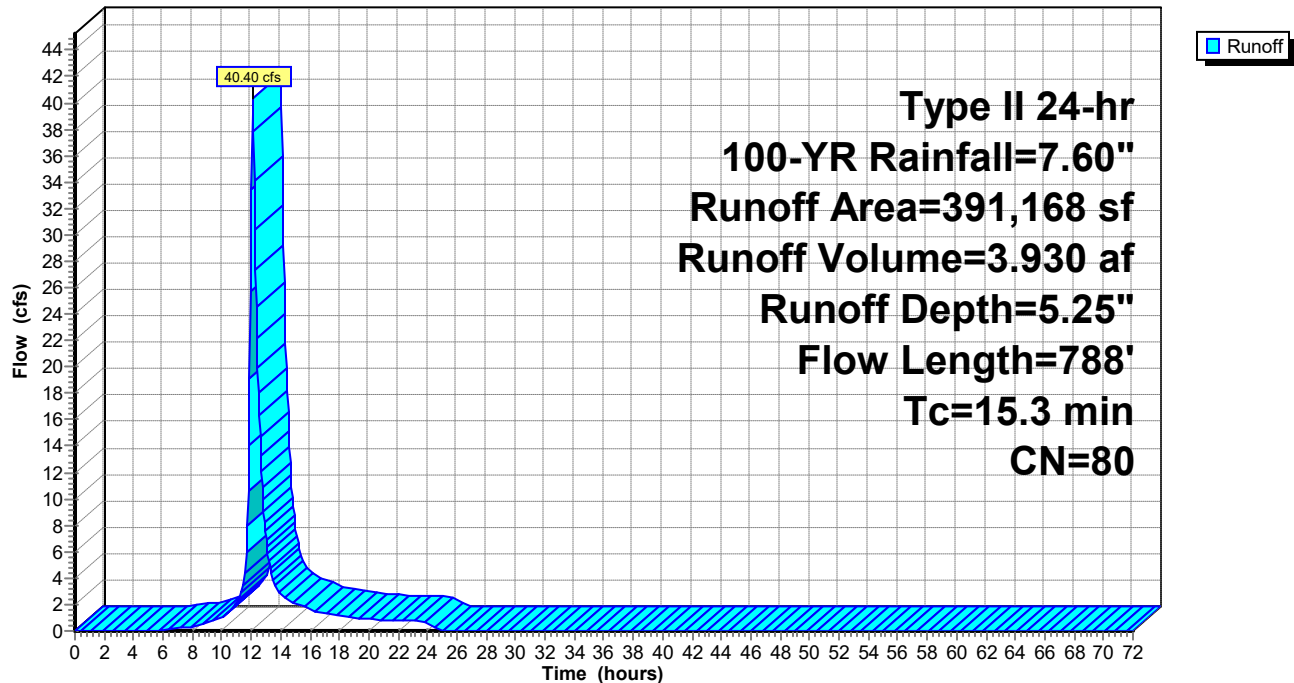
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
49,610	78	Row crops, straight row, Good, HSG B
227,428	85	Row crops, straight row, Good, HSG C
114,130	70	Woods, Good, HSG C
391,168	80	Weighted Average
391,168		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0110	0.29		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
4.3	477	0.0150	1.84		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
5.2	211	0.0180	0.67		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
15.3	788	Total			

Subcatchment EX-DA-3: Existing DA 3

Hydrograph



Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

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Printed 12/5/2022

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Hydrograph for Subcatchment EX-DA-3: Existing DA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	5.25	0.00
1.00	0.08	0.00	0.00	53.00	7.60	5.25	0.00
2.00	0.17	0.00	0.00	54.00	7.60	5.25	0.00
3.00	0.26	0.00	0.00	55.00	7.60	5.25	0.00
4.00	0.36	0.00	0.00	56.00	7.60	5.25	0.00
5.00	0.48	0.00	0.00	57.00	7.60	5.25	0.00
6.00	0.61	0.00	0.05	58.00	7.60	5.25	0.00
7.00	0.75	0.02	0.18	59.00	7.60	5.25	0.00
8.00	0.91	0.06	0.34	60.00	7.60	5.25	0.00
9.00	1.12	0.12	0.62	61.00	7.60	5.25	0.00
10.00	1.38	0.23	0.99	62.00	7.60	5.25	0.00
11.00	1.79	0.44	2.06	63.00	7.60	5.25	0.00
12.00	5.04	2.93	33.40	64.00	7.60	5.25	0.00
13.00	5.87	3.66	6.89	65.00	7.60	5.25	0.00
14.00	6.23	3.99	2.84	66.00	7.60	5.25	0.00
15.00	6.49	4.22	2.06	67.00	7.60	5.25	0.00
16.00	6.69	4.41	1.62	68.00	7.60	5.25	0.00
17.00	6.85	4.56	1.36	69.00	7.60	5.25	0.00
18.00	7.00	4.69	1.20	70.00	7.60	5.25	0.00
19.00	7.13	4.81	1.05	71.00	7.60	5.25	0.00
20.00	7.24	4.91	0.89	72.00	7.60	5.25	0.00
21.00	7.33	5.00	0.81				
22.00	7.43	5.09	0.78				
23.00	7.51	5.17	0.75				
24.00	7.60	5.25	0.72				
25.00	7.60	5.25	0.03				
26.00	7.60	5.25	0.00				
27.00	7.60	5.25	0.00				
28.00	7.60	5.25	0.00				
29.00	7.60	5.25	0.00				
30.00	7.60	5.25	0.00				
31.00	7.60	5.25	0.00				
32.00	7.60	5.25	0.00				
33.00	7.60	5.25	0.00				
34.00	7.60	5.25	0.00				
35.00	7.60	5.25	0.00				
36.00	7.60	5.25	0.00				
37.00	7.60	5.25	0.00				
38.00	7.60	5.25	0.00				
39.00	7.60	5.25	0.00				
40.00	7.60	5.25	0.00				
41.00	7.60	5.25	0.00				
42.00	7.60	5.25	0.00				
43.00	7.60	5.25	0.00				
44.00	7.60	5.25	0.00				
45.00	7.60	5.25	0.00				
46.00	7.60	5.25	0.00				
47.00	7.60	5.25	0.00				
48.00	7.60	5.25	0.00				
49.00	7.60	5.25	0.00				
50.00	7.60	5.25	0.00				
51.00	7.60	5.25	0.00				

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Reach 2R: Existing Reach 4

Inflow Area = 8.980 ac, 0.00% Impervious, Inflow Depth = 5.25" for 100-YR event
Inflow = 40.40 cfs @ 12.09 hrs, Volume= 3.930 af
Outflow = 32.52 cfs @ 12.22 hrs, Volume= 3.930 af, Atten= 20%, Lag= 7.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.98 fps, Min. Travel Time= 9.6 min

Avg. Velocity= 0.32 fps, Avg. Travel Time= 29.5 min

Peak Storage= 18,744 cf @ 12.22 hrs

Average Depth at Peak Storage= 1.92'

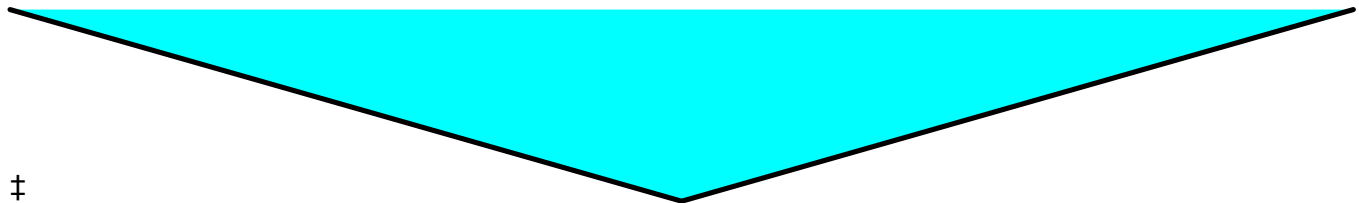
Bank-Full Depth= 0.50' Flow Area= 5.0 sf, Capacity= 3.82 cfs

0.00' x 0.50' deep channel, n= 0.100 Heavy timber, flow below branches

Side Slope Z-value= 20.0 '/' Top Width= 20.00'

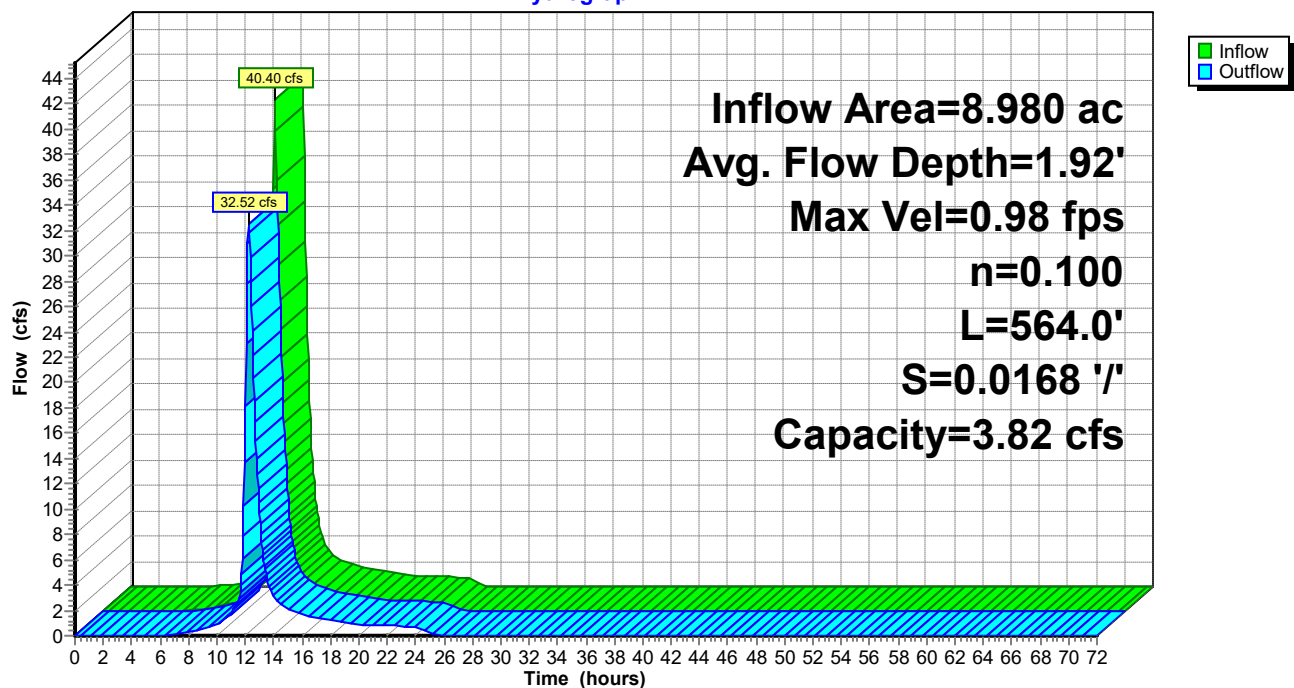
Length= 564.0' Slope= 0.0168 '/'

Inlet Invert= 49.50', Outlet Invert= 40.00'

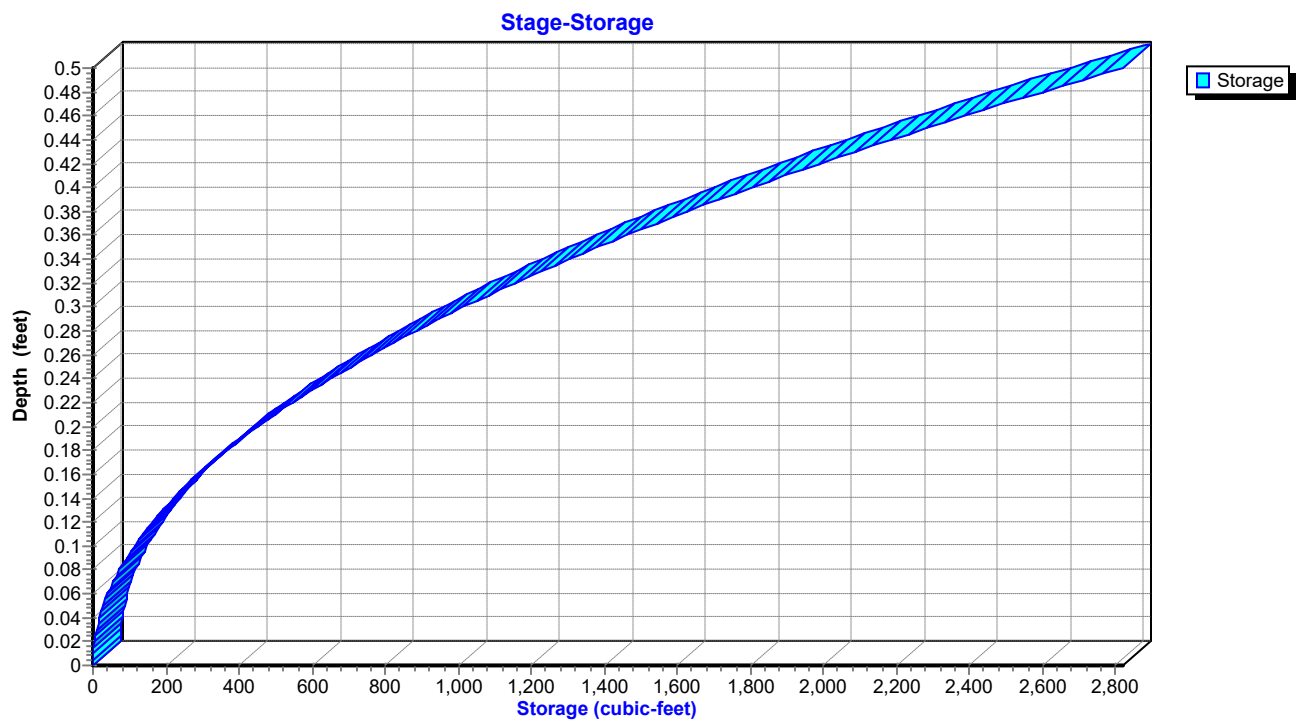


Reach 2R: Existing Reach 4

Hydrograph



Reach 2R: Existing Reach 4



Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach 2R: Existing Reach 4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	49.50	0.00
2.50	0.00	0	49.50	0.00
5.00	0.00	0	49.50	0.00
7.50	0.26	317	49.67	0.21
10.00	0.99	947	49.79	0.89
12.50	18.03	14,069	51.00	24.09
15.00	2.06	1,830	49.90	2.15
17.50	1.28	1,265	49.83	1.31
20.00	0.89	973	49.79	0.93
22.50	0.76	849	49.77	0.77
25.00	0.03	232	49.64	0.14
27.50	0.00	11	49.53	0.00
30.00	0.00	3	49.51	0.00
32.50	0.00	1	49.51	0.00
35.00	0.00	0	49.51	0.00
37.50	0.00	0	49.50	0.00
40.00	0.00	0	49.50	0.00
42.50	0.00	0	49.50	0.00
45.00	0.00	0	49.50	0.00
47.50	0.00	0	49.50	0.00
50.00	0.00	0	49.50	0.00
52.50	0.00	0	49.50	0.00
55.00	0.00	0	49.50	0.00
57.50	0.00	0	49.50	0.00
60.00	0.00	0	49.50	0.00
62.50	0.00	0	49.50	0.00
65.00	0.00	0	49.50	0.00
67.50	0.00	0	49.50	0.00
70.00	0.00	0	49.50	0.00

Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Stage-Area-Storage for Reach 2R: Existing Reach 4

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
49.50	0.0	0
49.51	0.0	1
49.52	0.0	5
49.53	0.0	10
49.54	0.0	18
49.55	0.1	28
49.56	0.1	41
49.57	0.1	55
49.58	0.1	72
49.59	0.2	91
49.60	0.2	113
49.61	0.2	136
49.62	0.3	162
49.63	0.3	191
49.64	0.4	221
49.65	0.4	254
49.66	0.5	289
49.67	0.6	326
49.68	0.6	365
49.69	0.7	407
49.70	0.8	451
49.71	0.9	497
49.72	1.0	546
49.73	1.1	597
49.74	1.2	650
49.75	1.3	705
49.76	1.4	763
49.77	1.5	822
49.78	1.6	884
49.79	1.7	949
49.80	1.8	1,015
49.81	1.9	1,084
49.82	2.0	1,155
49.83	2.2	1,228
49.84	2.3	1,304
49.85	2.5	1,382
49.86	2.6	1,462
49.87	2.7	1,544
49.88	2.9	1,629
49.89	3.0	1,716
49.90	3.2	1,805
49.91	3.4	1,896
49.92	3.5	1,990
49.93	3.7	2,086
49.94	3.9	2,184
49.95	4.0	2,284
49.96	4.2	2,387
49.97	4.4	2,492
49.98	4.6	2,599
49.99	4.8	2,708
50.00	5.0	2,820

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Reach EX-R-1: Existing Reach 1

Inflow Area = 437.633 ac, 19.50% Impervious, Inflow Depth = 5.25" for 100-YR event
Inflow = 973.73 cfs @ 12.42 hrs, Volume= 191.411 af
Outflow = 969.76 cfs @ 12.46 hrs, Volume= 191.411 af, Atten= 0%, Lag= 2.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.43 fps, Min. Travel Time= 2.0 min
Avg. Velocity= 1.59 fps, Avg. Travel Time= 5.6 min

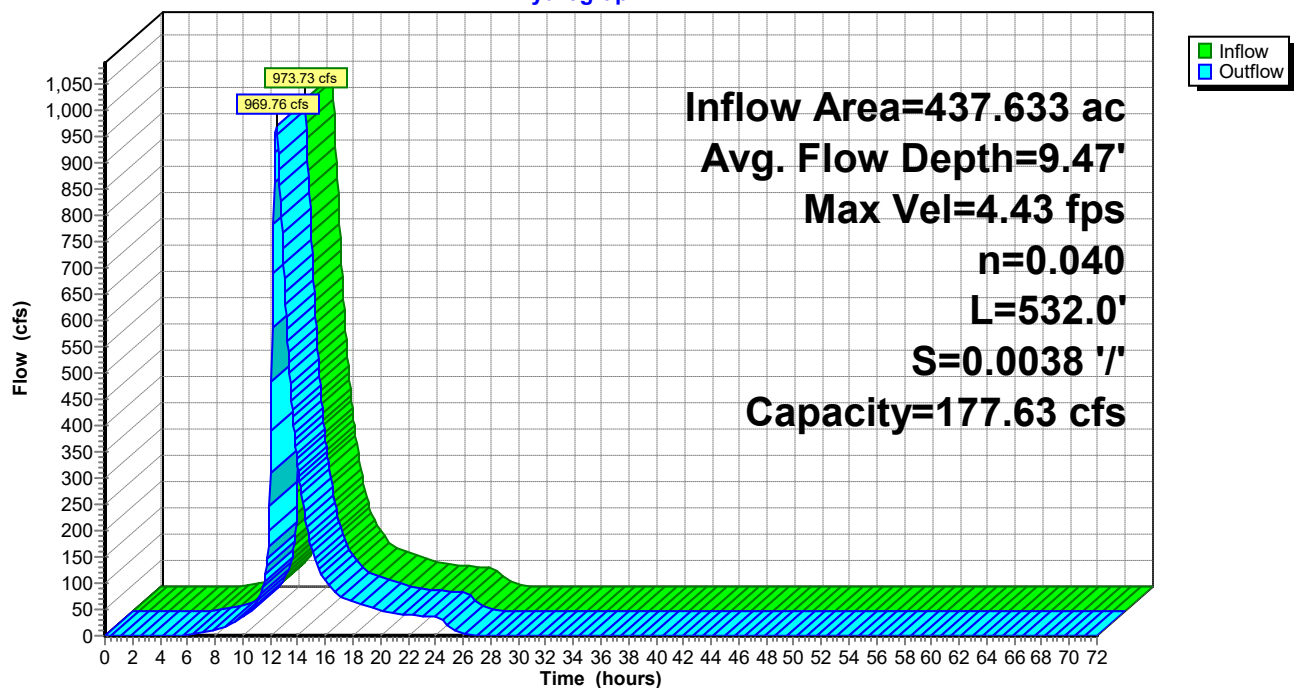
Peak Storage= 116,328 cf @ 12.46 hrs
Average Depth at Peak Storage= 9.47'
Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 177.63 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals
Side Slope Z-value= 3.0 '/' Top Width= 26.00'
Length= 532.0' Slope= 0.0038 '/'
Inlet Invert= 42.00', Outlet Invert= 40.00'

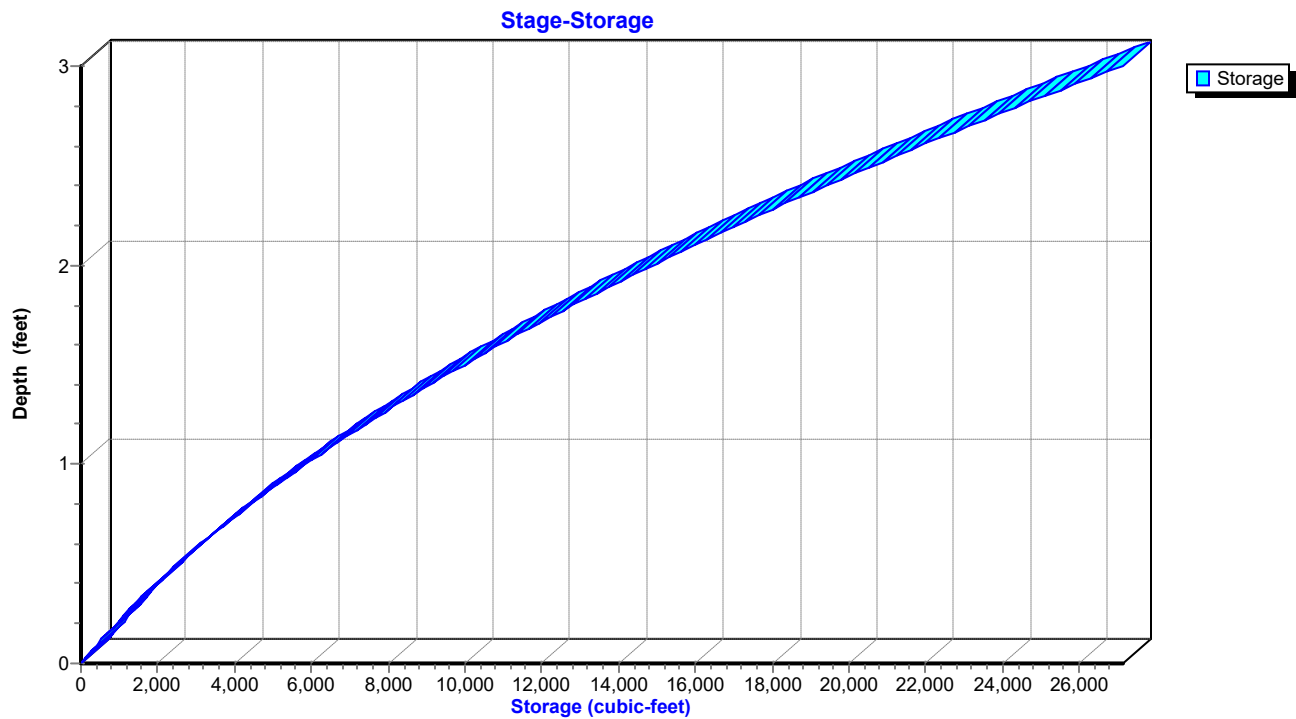


Reach EX-R-1: Existing Reach 1

Hydrograph



Reach EX-R-1: Existing Reach 1



Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Reach EX-R-1: Existing Reach 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	42.00	0.00
2.50	0.00	0	42.00	0.00
5.00	0.00	0	42.00	0.00
7.50	7.99	2,903	42.56	7.54
10.00	35.80	8,378	43.32	35.01
12.50	953.83	115,590	51.42	963.20
15.00	163.44	25,911	44.91	166.84
17.50	70.09	13,833	43.90	70.54
20.00	48.78	10,661	43.57	49.11
22.50	38.50	8,976	43.39	38.58
25.00	15.37	4,953	42.88	16.52
27.50	0.38	516	42.12	0.51
30.00	0.00	25	42.01	0.01
32.50	0.00	2	42.00	0.00
35.00	0.00	1	42.00	0.00
37.50	0.00	0	42.00	0.00
40.00	0.00	0	42.00	0.00
42.50	0.00	0	42.00	0.00
45.00	0.00	0	42.00	0.00
47.50	0.00	0	42.00	0.00
50.00	0.00	0	42.00	0.00
52.50	0.00	0	42.00	0.00
55.00	0.00	0	42.00	0.00
57.50	0.00	0	42.00	0.00
60.00	0.00	0	42.00	0.00
62.50	0.00	0	42.00	0.00
65.00	0.00	0	42.00	0.00
67.50	0.00	0	42.00	0.00
70.00	0.00	0	42.00	0.00

Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

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Stage-Area-Storage for Reach EX-R-1: Existing Reach 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
42.00	0.0	0	44.60	41.1	21,855
42.05	0.4	217	44.65	42.3	22,487
42.10	0.8	442	44.70	43.5	23,126
42.15	1.3	674	44.75	44.7	23,774
42.20	1.7	915	44.80	45.9	24,430
42.25	2.2	1,164	44.85	47.2	25,093
42.30	2.7	1,420	44.90	48.4	25,765
42.35	3.2	1,685	44.95	49.7	26,445
42.40	3.7	1,958	45.00	51.0	27,132
42.45	4.2	2,238			
42.50	4.8	2,527			
42.55	5.3	2,824			
42.60	5.9	3,128			
42.65	6.5	3,441			
42.70	7.1	3,762			
42.75	7.7	4,090			
42.80	8.3	4,427			
42.85	9.0	4,771			
42.90	9.6	5,123			
42.95	10.3	5,484			
43.00	11.0	5,852			
43.05	11.7	6,228			
43.10	12.4	6,613			
43.15	13.2	7,005			
43.20	13.9	7,405			
43.25	14.7	7,814			
43.30	15.5	8,230			
43.35	16.3	8,654			
43.40	17.1	9,087			
43.45	17.9	9,527			
43.50	18.8	9,975			
43.55	19.6	10,432			
43.60	20.5	10,896			
43.65	21.4	11,368			
43.70	22.3	11,848			
43.75	23.2	12,336			
43.80	24.1	12,832			
43.85	25.1	13,336			
43.90	26.0	13,848			
43.95	27.0	14,368			
44.00	28.0	14,896			
44.05	29.0	15,432			
44.10	30.0	15,976			
44.15	31.1	16,528			
44.20	32.1	17,088			
44.25	33.2	17,656			
44.30	34.3	18,232			
44.35	35.4	18,816			
44.40	36.5	19,407			
44.45	37.6	20,008			
44.50	38.8	20,615			
44.55	39.9	21,231			

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Reach EX-R-2: Existing Reach 2

Inflow Area = 446.613 ac, 19.11% Impervious, Inflow Depth = 5.25" for 100-YR event
Inflow = 995.57 cfs @ 12.45 hrs, Volume= 195.341 af
Outflow = 981.54 cfs @ 12.52 hrs, Volume= 195.341 af, Atten= 1%, Lag= 3.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.62 fps, Min. Travel Time= 3.8 min

Avg. Velocity= 1.25 fps, Avg. Travel Time= 10.9 min

Peak Storage= 222,092 cf @ 12.52 hrs

Average Depth at Peak Storage= 11.50'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 143.16 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 ' Top Width= 26.00'

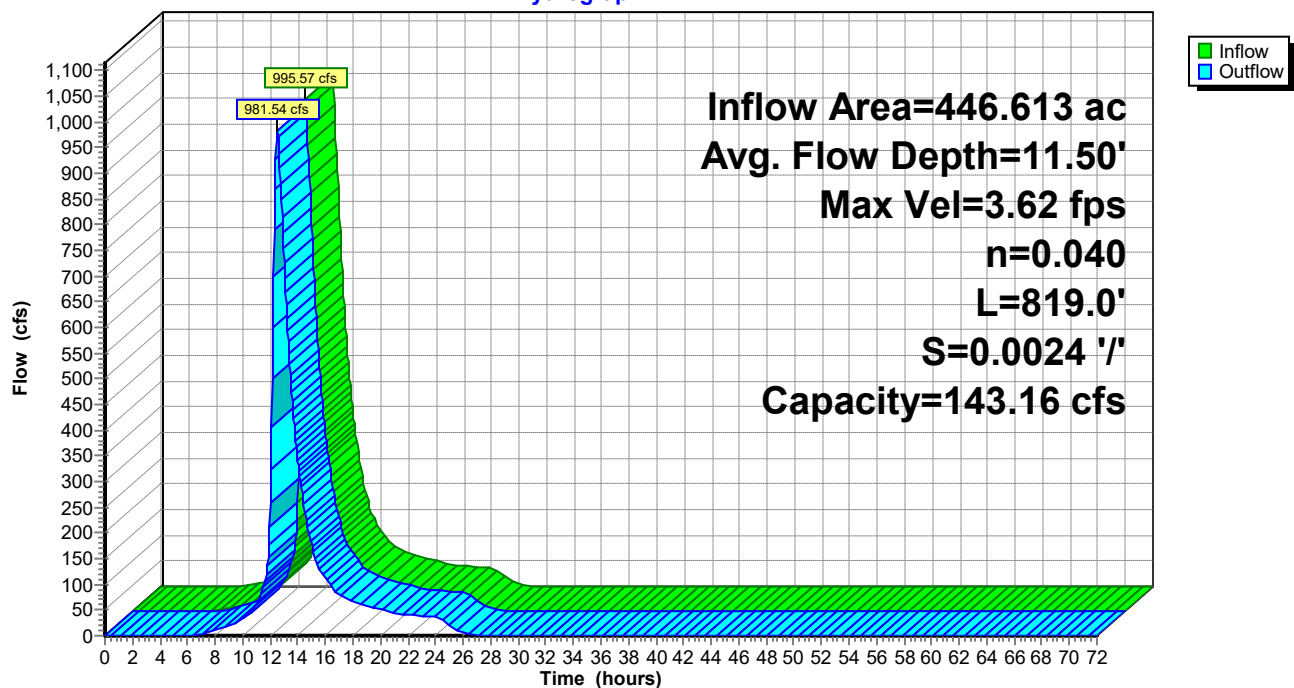
Length= 819.0' Slope= 0.0024 '/'

Inlet Invert= 40.00', Outlet Invert= 38.00'

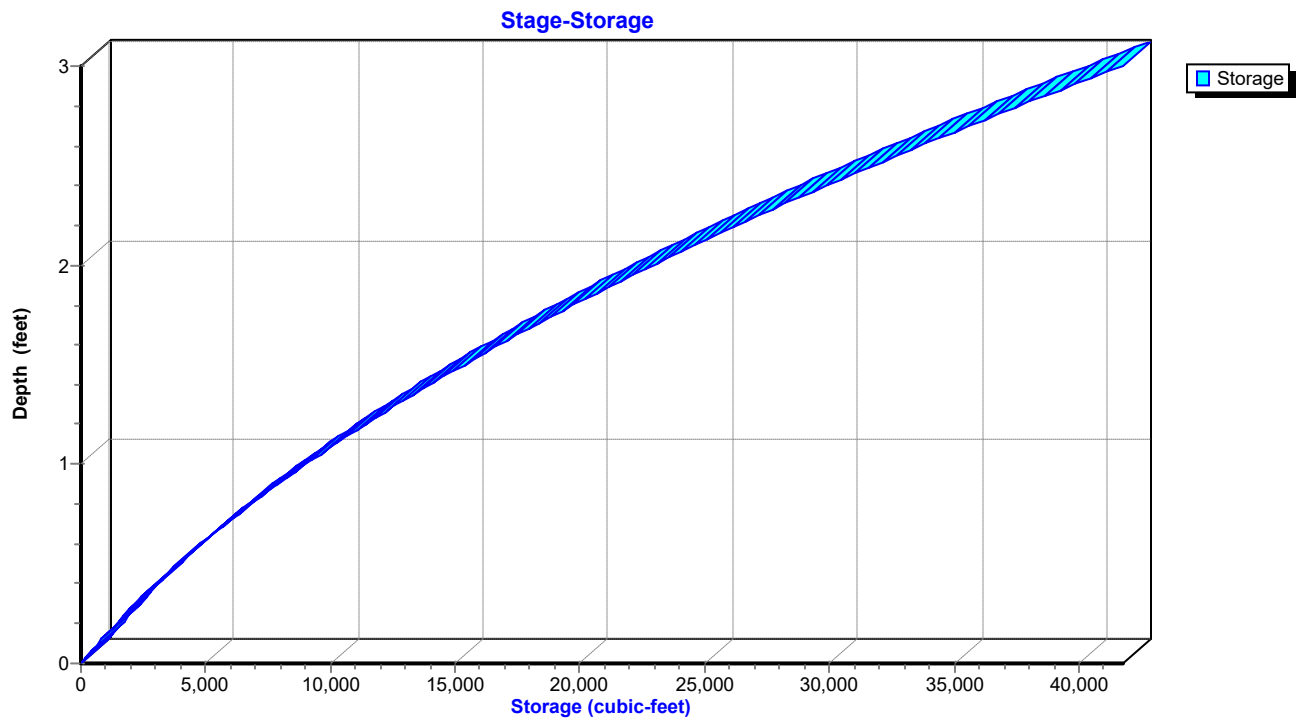


Reach EX-R-2: Existing Reach 2

Hydrograph



Reach EX-R-2: Existing Reach 2



Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach EX-R-2: Existing Reach 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	40.00	0.00
2.50	0.00	0	40.00	0.00
5.00	0.00	0	40.00	0.00
7.50	7.74	4,855	40.60	6.87
10.00	35.91	14,883	41.47	34.51
12.50	987.30	221,803	51.48	980.20
15.00	168.99	48,773	43.33	175.72
17.50	71.85	25,448	42.15	72.69
20.00	50.03	19,591	41.79	50.64
22.50	39.35	16,394	41.57	39.52
25.00	16.66	9,724	41.06	18.89
27.50	0.52	1,198	40.17	0.80
30.00	0.01	184	40.03	0.04
32.50	0.00	37	40.01	0.01
35.00	0.00	7	40.00	0.00
37.50	0.00	1	40.00	0.00
40.00	0.00	0	40.00	0.00
42.50	0.00	0	40.00	0.00
45.00	0.00	0	40.00	0.00
47.50	0.00	0	40.00	0.00
50.00	0.00	0	40.00	0.00
52.50	0.00	0	40.00	0.00
55.00	0.00	0	40.00	0.00
57.50	0.00	0	40.00	0.00
60.00	0.00	0	40.00	0.00
62.50	0.00	0	40.00	0.00
65.00	0.00	0	40.00	0.00
67.50	0.00	0	40.00	0.00
70.00	0.00	0	40.00	0.00

Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

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Stage-Area-Storage for Reach EX-R-2: Existing Reach 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
40.00	0.0	0	42.60	41.1	33,645
40.05	0.4	334	42.65	42.3	34,618
40.10	0.8	680	42.70	43.5	35,602
40.15	1.3	1,038	42.75	44.7	36,600
40.20	1.7	1,409	42.80	45.9	37,609
40.25	2.2	1,792	42.85	47.2	38,630
40.30	2.7	2,187	42.90	48.4	39,665
40.35	3.2	2,595	42.95	49.7	40,711
40.40	3.7	3,014	43.00	51.0	41,769
40.45	4.2	3,446			
40.50	4.8	3,891			
40.55	5.3	4,347			
40.60	5.9	4,816			
40.65	6.5	5,297			
40.70	7.1	5,791			
40.75	7.7	6,296			
40.80	8.3	6,815			
40.85	9.0	7,345			
40.90	9.6	7,887			
40.95	10.3	8,442			
41.00	11.0	9,009			
41.05	11.7	9,588			
41.10	12.4	10,181			
41.15	13.2	10,785			
41.20	13.9	11,400			
41.25	14.7	12,030			
41.30	15.5	12,670			
41.35	16.3	13,323			
41.40	17.1	13,989			
41.45	17.9	14,667			
41.50	18.8	15,356			
41.55	19.6	16,059			
41.60	20.5	16,774			
41.65	21.4	17,500			
41.70	22.3	18,240			
41.75	23.2	18,991			
41.80	24.1	19,754			
41.85	25.1	20,531			
41.90	26.0	21,319			
41.95	27.0	22,119			
42.00	28.0	22,932			
42.05	29.0	23,758			
42.10	30.0	24,595			
42.15	31.1	25,445			
42.20	32.1	26,307			
42.25	33.2	27,181			
42.30	34.3	28,068			
42.35	35.4	28,966			
42.40	36.5	29,877			
42.45	37.6	30,801			
42.50	38.8	31,737			
42.55	39.9	32,684			

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Reach EX-R-3: Existing Reach 3

Inflow Area = 9.583 ac, 3.48% Impervious, Inflow Depth = 5.14" for 100-YR event
Inflow = 40.69 cfs @ 12.10 hrs, Volume= 4.102 af
Outflow = 35.72 cfs @ 12.20 hrs, Volume= 4.102 af, Atten= 12%, Lag= 6.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.61 fps, Min. Travel Time= 7.6 min

Avg. Velocity= 0.41 fps, Avg. Travel Time= 29.6 min

Peak Storage= 16,194 cf @ 12.20 hrs

Average Depth at Peak Storage= 2.28'

Bank-Full Depth= 2.00' Flow Area= 18.0 sf, Capacity= 27.19 cfs

3.00' x 2.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 15.00'

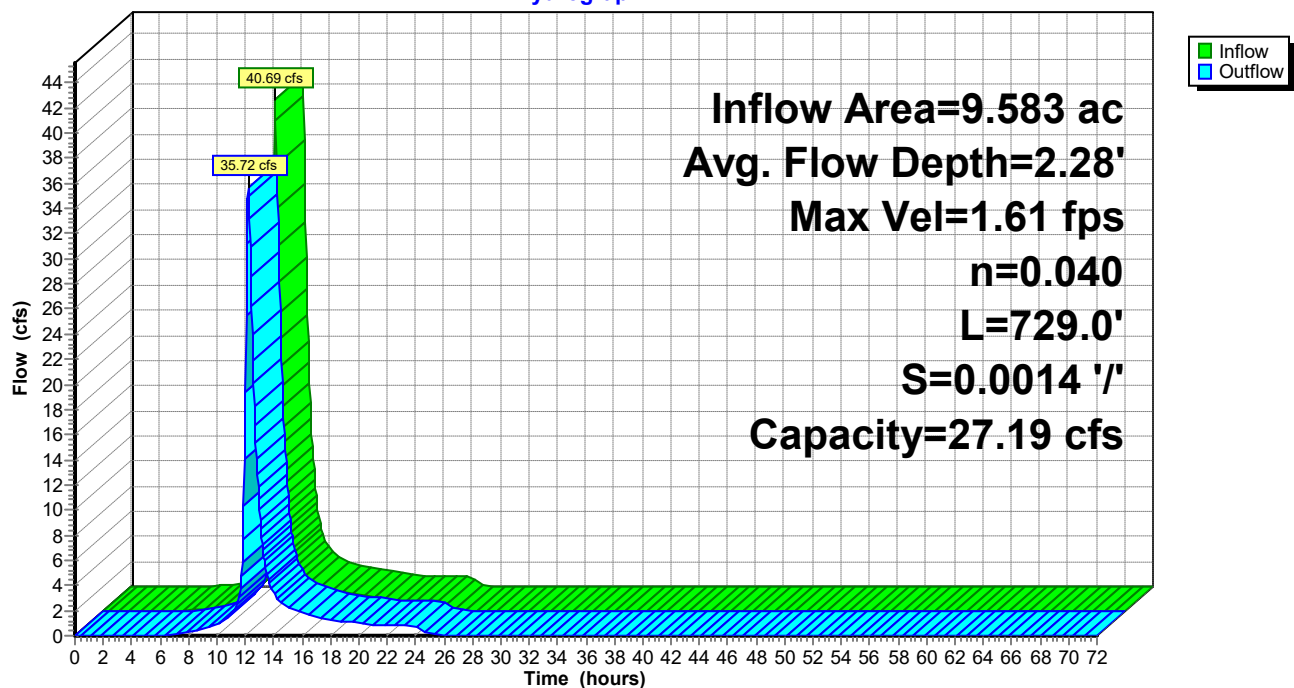
Length= 729.0' Slope= 0.0014 '/'

Inlet Invert= 43.00', Outlet Invert= 42.00'

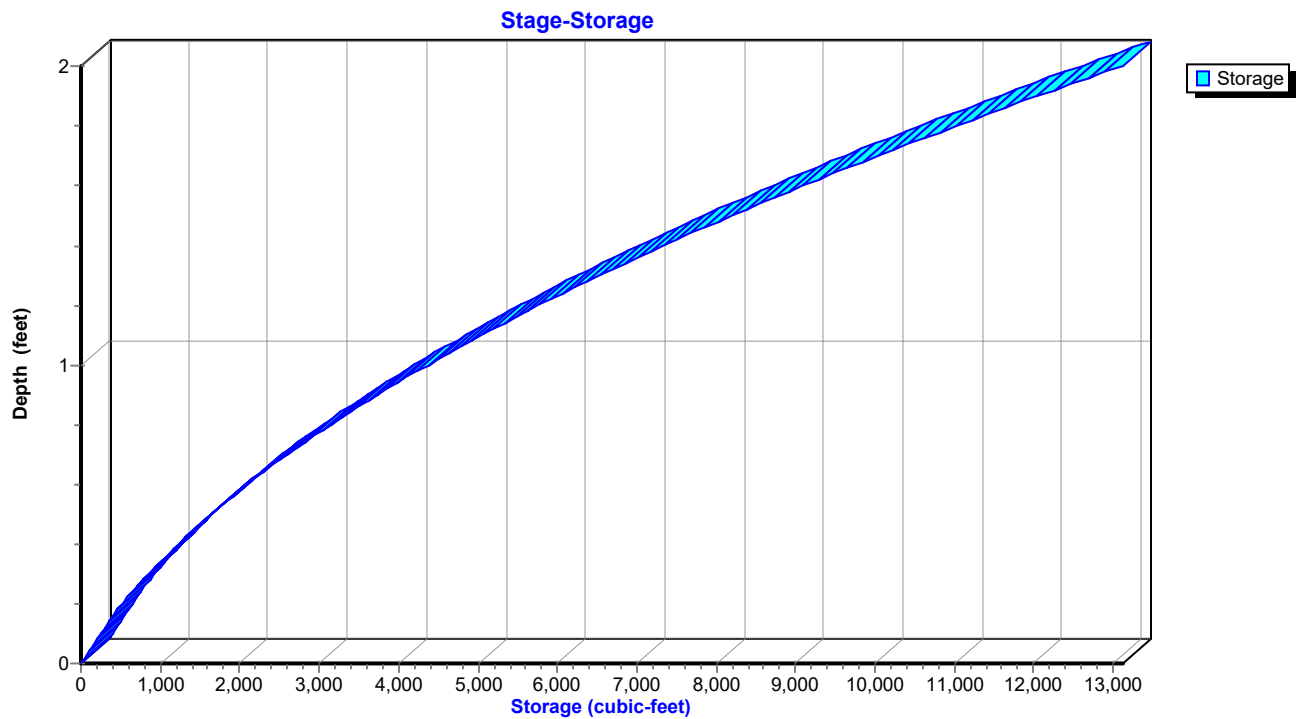


Reach EX-R-3: Existing Reach 3

Hydrograph



Reach EX-R-3: Existing Reach 3



Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Reach EX-R-3: Existing Reach 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	43.00	0.00
2.50	0.00	0	43.00	0.00
5.00	0.00	0	43.00	0.00
7.50	0.23	350	43.14	0.16
10.00	0.98	1,075	43.36	0.87
12.50	19.57	11,944	44.89	23.96
15.00	2.19	2,138	43.61	2.29
17.50	1.36	1,501	43.47	1.40
20.00	0.95	1,176	43.39	0.99
22.50	0.81	1,033	43.35	0.82
25.00	0.04	361	43.14	0.17
27.50	0.00	42	43.02	0.01
30.00	0.00	12	43.01	0.00
32.50	0.00	4	43.00	0.00
35.00	0.00	1	43.00	0.00
37.50	0.00	0	43.00	0.00
40.00	0.00	0	43.00	0.00
42.50	0.00	0	43.00	0.00
45.00	0.00	0	43.00	0.00
47.50	0.00	0	43.00	0.00
50.00	0.00	0	43.00	0.00
52.50	0.00	0	43.00	0.00
55.00	0.00	0	43.00	0.00
57.50	0.00	0	43.00	0.00
60.00	0.00	0	43.00	0.00
62.50	0.00	0	43.00	0.00
65.00	0.00	0	43.00	0.00
67.50	0.00	0	43.00	0.00
70.00	0.00	0	43.00	0.00

Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

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Stage-Area-Storage for Reach EX-R-3: Existing Reach 3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
43.00	0.0	0	44.04	6.4	4,640
43.02	0.1	45	44.06	6.6	4,776
43.04	0.1	91	44.08	6.7	4,913
43.06	0.2	139	44.10	6.9	5,052
43.08	0.3	189	44.12	7.1	5,193
43.10	0.3	241	44.14	7.3	5,335
43.12	0.4	294	44.16	7.5	5,480
43.14	0.5	349	44.18	7.7	5,626
43.16	0.6	406	44.20	7.9	5,774
43.18	0.6	465	44.22	8.1	5,923
43.20	0.7	525	44.24	8.3	6,075
43.22	0.8	587	44.26	8.5	6,228
43.24	0.9	651	44.28	8.8	6,383
43.26	1.0	716	44.30	9.0	6,539
43.28	1.1	784	44.32	9.2	6,697
43.30	1.2	853	44.34	9.4	6,858
43.32	1.3	924	44.36	9.6	7,019
43.34	1.4	996	44.38	9.9	7,183
43.36	1.5	1,071	44.40	10.1	7,348
43.38	1.6	1,147	44.42	10.3	7,515
43.40	1.7	1,225	44.44	10.5	7,684
43.42	1.8	1,304	44.46	10.8	7,855
43.44	1.9	1,386	44.48	11.0	8,027
43.46	2.0	1,469	44.50	11.3	8,201
43.48	2.1	1,554	44.52	11.5	8,377
43.50	2.3	1,640	44.54	11.7	8,555
43.52	2.4	1,729	44.56	12.0	8,734
43.54	2.5	1,819	44.58	12.2	8,915
43.56	2.6	1,911	44.60	12.5	9,098
43.58	2.7	2,004	44.62	12.7	9,283
43.60	2.9	2,100	44.64	13.0	9,469
43.62	3.0	2,197	44.66	13.2	9,657
43.64	3.1	2,295	44.68	13.5	9,847
43.66	3.3	2,396	44.70	13.8	10,038
43.68	3.4	2,498	44.72	14.0	10,232
43.70	3.6	2,603	44.74	14.3	10,427
43.72	3.7	2,708	44.76	14.6	10,624
43.74	3.9	2,816	44.78	14.8	10,822
43.76	4.0	2,925	44.80	15.1	11,022
43.78	4.2	3,036	44.82	15.4	11,225
43.80	4.3	3,149	44.84	15.7	11,428
43.82	4.5	3,264	44.86	16.0	11,634
43.84	4.6	3,380	44.88	16.2	11,841
43.86	4.8	3,498	44.90	16.5	12,050
43.88	5.0	3,618	44.92	16.8	12,261
43.90	5.1	3,740	44.94	17.1	12,474
43.92	5.3	3,863	44.96	17.4	12,688
43.94	5.5	3,988	44.98	17.7	12,904
43.96	5.6	4,115	45.00	18.0	13,122
43.98	5.8	4,244			
44.00	6.0	4,374			
44.02	6.2	4,506			

Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Link SP-1: Study Point #1

Inflow Area = 446.613 ac, 19.11% Impervious, Inflow Depth = 5.25" for 100-YR event

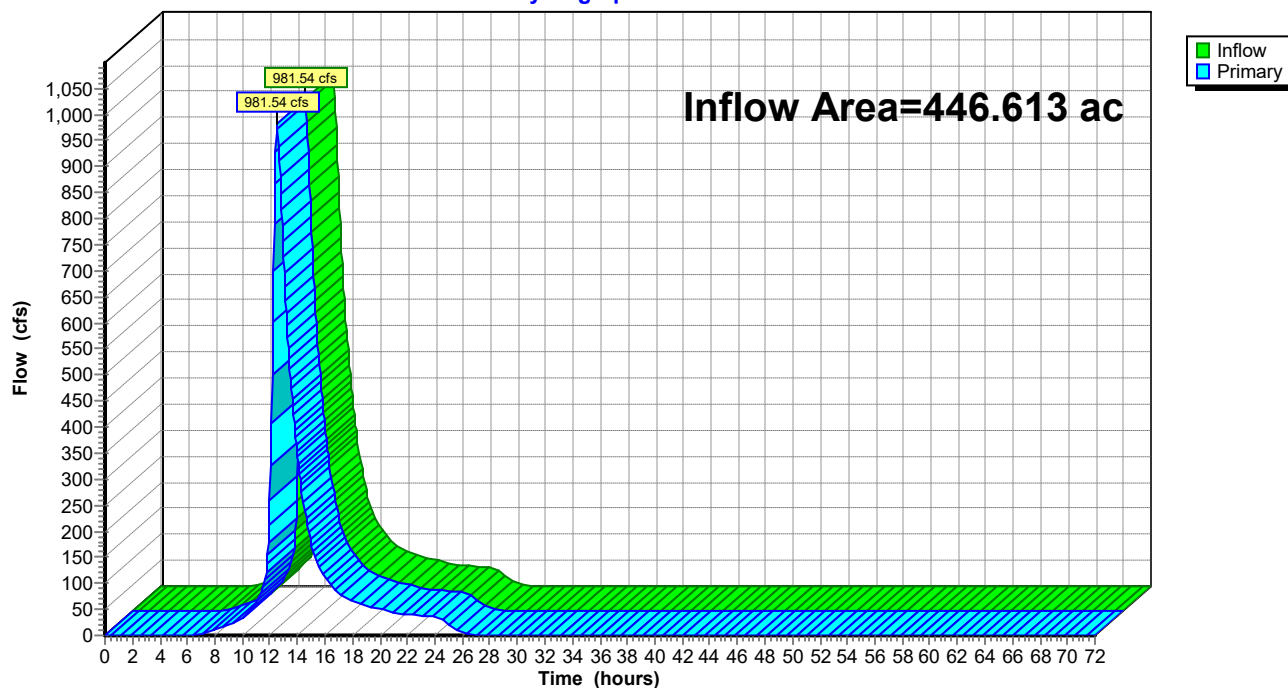
Inflow = 981.54 cfs @ 12.52 hrs, Volume= 195.341 af

Primary = 981.54 cfs @ 12.52 hrs, Volume= 195.341 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link SP-1: Study Point #1

Hydrograph



Aspire - Existing

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Link SP-1: Study Point #1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.03	0.00	0.03	58.00	0.00	0.00	0.00
7.00	3.75	0.00	3.75	59.00	0.00	0.00	0.00
8.00	10.33	0.00	10.33	60.00	0.00	0.00	0.00
9.00	19.39	0.00	19.39	61.00	0.00	0.00	0.00
10.00	34.51	0.00	34.51	62.00	0.00	0.00	0.00
11.00	62.69	0.00	62.69	63.00	0.00	0.00	0.00
12.00	260.23	0.00	260.23	64.00	0.00	0.00	0.00
13.00	725.45	0.00	725.45	65.00	0.00	0.00	0.00
14.00	342.21	0.00	342.21	66.00	0.00	0.00	0.00
15.00	175.72	0.00	175.72	67.00	0.00	0.00	0.00
16.00	110.40	0.00	110.40	68.00	0.00	0.00	0.00
17.00	79.71	0.00	79.71	69.00	0.00	0.00	0.00
18.00	67.33	0.00	67.33	70.00	0.00	0.00	0.00
19.00	58.57	0.00	58.57	71.00	0.00	0.00	0.00
20.00	50.64	0.00	50.64	72.00	0.00	0.00	0.00
21.00	43.91	0.00	43.91				
22.00	40.60	0.00	40.60				
23.00	38.60	0.00	38.60				
24.00	36.97	0.00	36.97				
25.00	18.89	0.00	18.89				
26.00	5.76	0.00	5.76				
27.00	1.59	0.00	1.59				
28.00	0.42	0.00	0.42				
29.00	0.11	0.00	0.11				
30.00	0.04	0.00	0.04				
31.00	0.02	0.00	0.02				
32.00	0.01	0.00	0.01				
33.00	0.01	0.00	0.01				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

100-Year Proposed Conditions Analysis

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-DA-1: Existing DA 1 Runoff Area=18,637,760 sf 19.87% Impervious Runoff Depth=5.25"
Flow Length=4,740' Tc=43.0 min CN=80 Runoff=945.62 cfs 187.228 af

Subcatchment EX-DA-2: Existing DA 2 Runoff Area=232,668 sf 6.24% Impervious Runoff Depth=5.60"
Flow Length=932' Tc=12.9 min CN=83 Runoff=28.21 cfs 2.491 af

Subcatchment EX-DA-3A: Existing DA 3A Runoff Area=108,633 sf 0.88% Impervious Runoff Depth=5.71"
Flow Length=1,226' Tc=12.6 min CN=84 Runoff=13.57 cfs 1.187 af

Subcatchment EX-DA-3B: Existing DA 3B Runoff Area=190,236 sf 0.22% Impervious Runoff Depth=5.71"
Flow Length=1,010' Tc=11.4 min CN=84 Runoff=25.08 cfs 2.079 af

Subcatchment PR-DA-1: Proposed DA 1 Runoff Area=143,973 sf 69.42% Impervious Runoff Depth=6.53"
Flow Length=521' Tc=8.4 min CN=91 Runoff=24.25 cfs 1.798 af

Subcatchment PR-DA-2: Proposed DA 2 Runoff Area=141,172 sf 66.40% Impervious Runoff Depth=6.41"
Flow Length=582' Tc=11.7 min CN=90 Runoff=19.98 cfs 1.732 af

Reach EX-R-1: Existing Reach 1 Avg. Flow Depth=9.50' Max Vel=4.44 fps Inflow=976.67 cfs 192.310 af
n=0.040 L=532.0' S=0.0038 '/' Capacity=177.63 cfs Outflow=972.72 cfs 192.310 af

Reach EX-R-2: Existing Reach 2 Avg. Flow Depth=11.49' Max Vel=3.62 fps Inflow=994.43 cfs 196.112 af
n=0.040 L=819.0' S=0.0024 '/' Capacity=143.16 cfs Outflow=980.50 cfs 196.112 af

Reach EX-R-3: Existing Reach 3 Avg. Flow Depth=2.55' Max Vel=1.67 fps Inflow=49.15 cfs 5.082 af
n=0.040 L=729.0' S=0.0014 '/' Capacity=27.19 cfs Outflow=43.80 cfs 5.082 af

Reach EX-R-4: Existing Reach 4 Avg. Flow Depth=1.88' Max Vel=0.92 fps Inflow=42.22 cfs 3.802 af
n=0.100 L=464.0' S=0.0151 '/' Capacity=3.62 cfs Outflow=29.99 cfs 3.802 af

Reach PR-R-1: Proposed Reach 1 Avg. Flow Depth=1.73' Max Vel=4.71 fps Inflow=46.79 cfs 3.802 af
n=0.022 L=221.0' S=0.0063 '/' Capacity=112.93 cfs Outflow=42.22 cfs 3.802 af

Reach PR-R-2: Proposed Reach 2 Avg. Flow Depth=2.12' Max Vel=3.14 fps Inflow=31.60 cfs 2.559 af
n=0.025 L=100.0' S=0.0050 '/' Capacity=7.67 cfs Outflow=30.30 cfs 2.559 af

Pond FB-1: FB to SGW 1 Peak Elev=49.63' Storage=27,690 cf Inflow=24.25 cfs 1.798 af
Outflow=18.16 cfs 1.404 af

Pond FB-2: FB to SGW 2 Peak Elev=50.83' Storage=9,157 cf Inflow=19.98 cfs 1.732 af
Outflow=20.75 cfs 1.732 af

Pond SGW-1: SGW 1 Peak Elev=49.62' Storage=11,206 cf Inflow=18.16 cfs 1.404 af
Primary=7.51 cfs 1.336 af Secondary=7.74 cfs 0.068 af Outflow=15.26 cfs 1.404 af

Pond SGW-2: SGW 2 Peak Elev=50.64' Storage=20,699 cf Inflow=20.75 cfs 1.732 af
Outflow=26.69 cfs 1.723 af

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Link SP-1: Study Point #1

Inflow=980.50 cfs 196.112 af
Primary=980.50 cfs 196.112 af

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Summary for Subcatchment EX-DA-1: Existing DA 1

Runoff = 945.62 cfs @ 12.43 hrs, Volume= 187.228 af, Depth= 5.25"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
150,521	61	1/4 acre lots, 38% imp, HSG A
2,950,162	75	1/4 acre lots, 38% imp, HSG B
704,124	55	Woods, Good, HSG B
1,014,991	78	Row crops, straight row, Good, HSG B
4,488,021	83	1/4 acre lots, 38% imp, HSG C
561,418	70	Woods, Good, HSG C
3,928,165	85	Row crops, straight row, Good, HSG C
2,157,149	87	1/4 acre lots, 38% imp, HSG D
1,857,395	77	Woods, Good, HSG D
821,283	89	Row crops, straight row, Good, HSG D
4,531	74	>75% Grass cover, Good, HSG C
18,637,760	80	Weighted Average
14,934,336		80.13% Pervious Area
3,703,424		19.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
16.0	1,441	0.0100	1.50		Shallow Concentrated Flow, Ag Ditch Grassed Waterway Kv= 15.0 fps
11.5	1,035	0.0100	1.50		Shallow Concentrated Flow, Mathewstown Rd North Swale Grassed Waterway Kv= 15.0 fps
0.9	197	0.0030	3.85	6.80	Pipe Channel, Culvert under Mile Post Rd 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011 Concrete pipe, straight & clean
2.2	240	0.0150	1.84		Shallow Concentrated Flow, Mathewstown Rd - North Swale before Grassed Waterway Kv= 15.0 fps
0.1	51	0.0030	8.59	168.59	Pipe Channel, Culvert crossing Mathewstown Rd to Hosewells Branch 60.0" Round Area= 19.6 sf Perim= 15.7' r= 1.25' n= 0.011 Concrete pipe, straight & clean
7.7	1,676	0.0050	3.62	75.95	Channel Flow, Hosewells Branch Area= 21.0 sf Perim= 13.0' r= 1.62' n= 0.040 Winding stream, pools & shoals
43.0	4,740	Total			

Aspire - Proposed

Prepared by {enter your company name here}

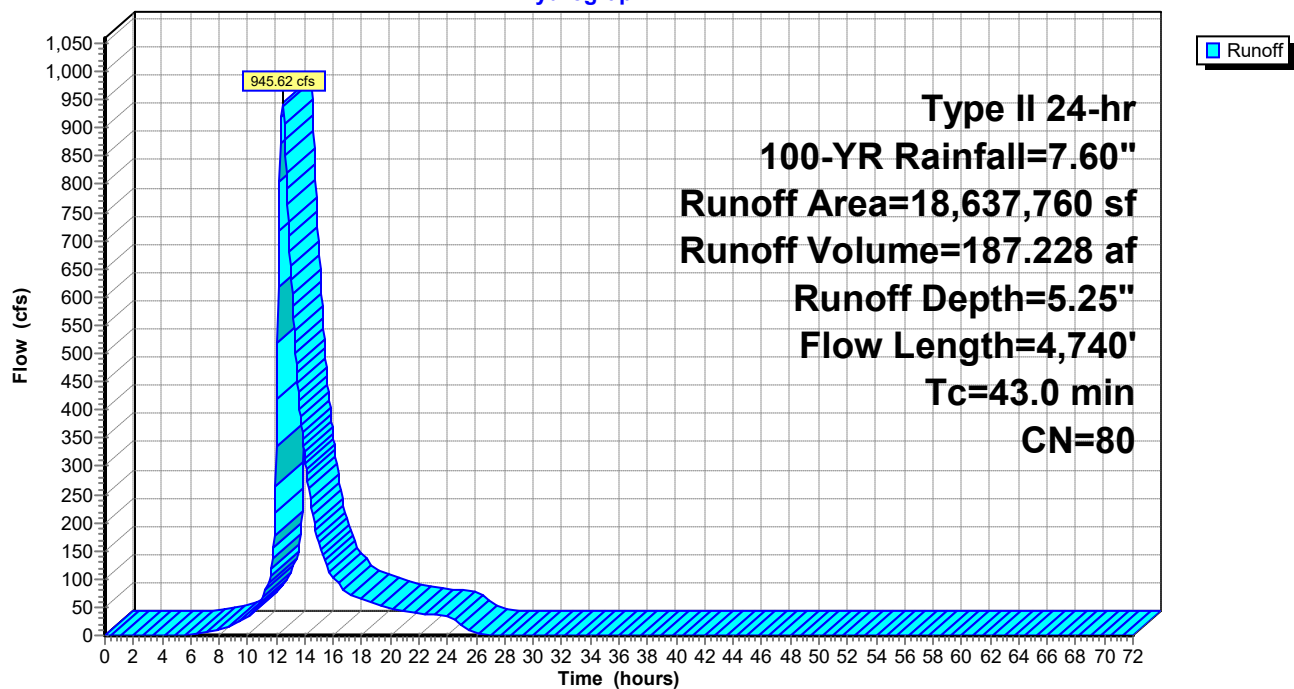
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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Subcatchment EX-DA-1: Existing DA 1

Hydrograph



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Subcatchment EX-DA-1: Existing DA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	5.25	0.00
1.00	0.08	0.00	0.00	53.00	7.60	5.25	0.00
2.00	0.17	0.00	0.00	54.00	7.60	5.25	0.00
3.00	0.26	0.00	0.00	55.00	7.60	5.25	0.00
4.00	0.36	0.00	0.00	56.00	7.60	5.25	0.00
5.00	0.48	0.00	0.00	57.00	7.60	5.25	0.00
6.00	0.61	0.00	0.76	58.00	7.60	5.25	0.00
7.00	0.75	0.02	4.92	59.00	7.60	5.25	0.00
8.00	0.91	0.06	11.09	60.00	7.60	5.25	0.00
9.00	1.12	0.12	20.34	61.00	7.60	5.25	0.00
10.00	1.38	0.23	34.92	62.00	7.60	5.25	0.00
11.00	1.79	0.44	64.37	63.00	7.60	5.25	0.00
12.00	5.04	2.93	336.19	64.00	7.60	5.25	0.00
13.00	5.87	3.66	654.21	65.00	7.60	5.25	0.00
14.00	6.23	3.99	314.66	66.00	7.60	5.25	0.00
15.00	6.49	4.22	161.07	67.00	7.60	5.25	0.00
16.00	6.69	4.41	103.03	68.00	7.60	5.25	0.00
17.00	6.85	4.56	75.02	69.00	7.60	5.25	0.00
18.00	7.00	4.69	63.67	70.00	7.60	5.25	0.00
19.00	7.13	4.81	55.38	71.00	7.60	5.25	0.00
20.00	7.24	4.91	47.77	72.00	7.60	5.25	0.00
21.00	7.33	5.00	41.63				
22.00	7.43	5.09	38.66				
23.00	7.51	5.17	36.81				
24.00	7.60	5.25	35.26				
25.00	7.60	5.25	15.20				
26.00	7.60	5.25	4.23				
27.00	7.60	5.25	0.88				
28.00	7.60	5.25	0.14				
29.00	7.60	5.25	0.00				
30.00	7.60	5.25	0.00				
31.00	7.60	5.25	0.00				
32.00	7.60	5.25	0.00				
33.00	7.60	5.25	0.00				
34.00	7.60	5.25	0.00				
35.00	7.60	5.25	0.00				
36.00	7.60	5.25	0.00				
37.00	7.60	5.25	0.00				
38.00	7.60	5.25	0.00				
39.00	7.60	5.25	0.00				
40.00	7.60	5.25	0.00				
41.00	7.60	5.25	0.00				
42.00	7.60	5.25	0.00				
43.00	7.60	5.25	0.00				
44.00	7.60	5.25	0.00				
45.00	7.60	5.25	0.00				
46.00	7.60	5.25	0.00				
47.00	7.60	5.25	0.00				
48.00	7.60	5.25	0.00				
49.00	7.60	5.25	0.00				
50.00	7.60	5.25	0.00				
51.00	7.60	5.25	0.00				

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Subcatchment EX-DA-2: Existing DA 2

Runoff = 28.21 cfs @ 12.06 hrs, Volume= 2.491 af, Depth= 5.60"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
14,528	98	Paved parking, HSG B
92,133	78	Row crops, straight row, Good, HSG B
126,007	85	Row crops, straight row, Good, HSG C
232,668	83	Weighted Average
218,140		93.76% Pervious Area
14,528		6.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0140	0.32		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
6.2	637	0.0130	1.71		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
1.1	92	0.0050	1.44		Shallow Concentrated Flow, Camac Gutter Paved Kv= 20.3 fps
0.3	103	0.0034	5.28	25.91	Pipe Channel, Pipe to EX-R-3 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Corrugated PP, smooth interior
12.9	932	Total			

Aspire - Proposed

Prepared by {enter your company name here}

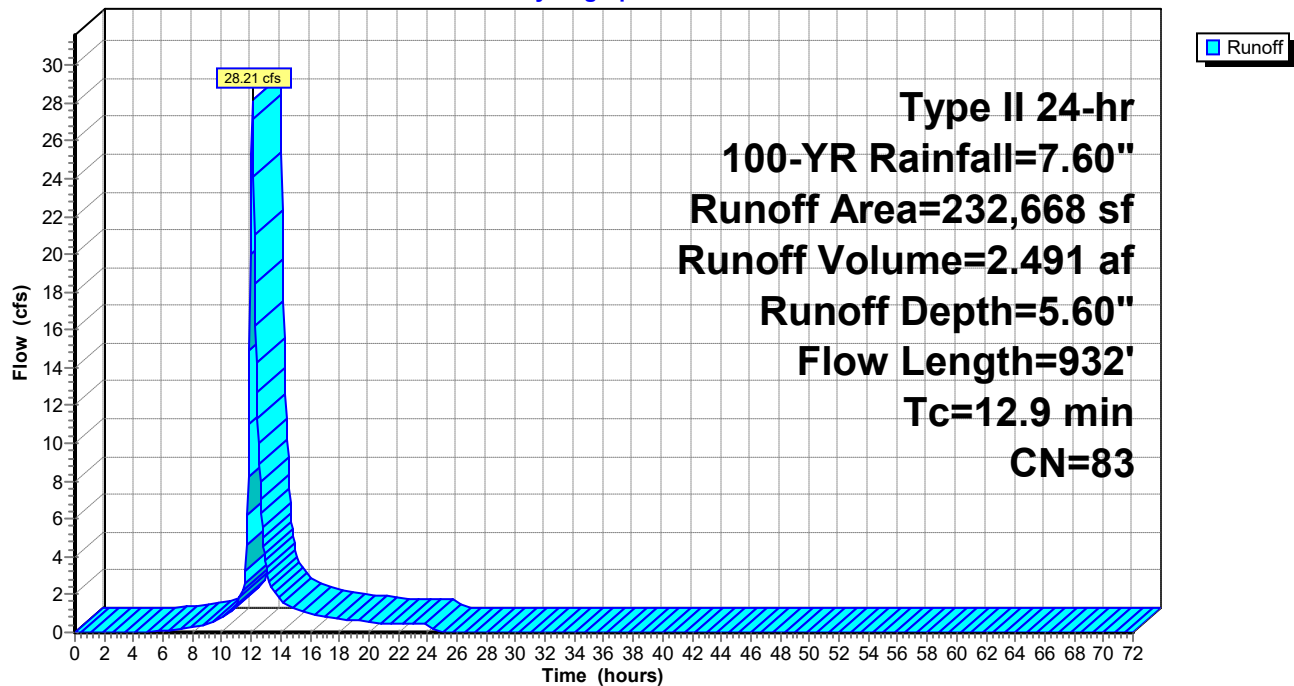
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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Subcatchment EX-DA-2: Existing DA 2

Hydrograph



Aspire - Proposed

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Hydrograph for Subcatchment EX-DA-2: Existing DA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	5.60	0.00
1.00	0.08	0.00	0.00	53.00	7.60	5.60	0.00
2.00	0.17	0.00	0.00	54.00	7.60	5.60	0.00
3.00	0.26	0.00	0.00	55.00	7.60	5.60	0.00
4.00	0.36	0.00	0.00	56.00	7.60	5.60	0.00
5.00	0.48	0.00	0.02	57.00	7.60	5.60	0.00
6.00	0.61	0.02	0.10	58.00	7.60	5.60	0.00
7.00	0.75	0.05	0.19	59.00	7.60	5.60	0.00
8.00	0.91	0.10	0.29	60.00	7.60	5.60	0.00
9.00	1.12	0.18	0.49	61.00	7.60	5.60	0.00
10.00	1.38	0.31	0.74	62.00	7.60	5.60	0.00
11.00	1.79	0.55	1.48	63.00	7.60	5.60	0.00
12.00	5.04	3.21	25.31	64.00	7.60	5.60	0.00
13.00	5.87	3.97	3.56	65.00	7.60	5.60	0.00
14.00	6.23	4.31	1.67	66.00	7.60	5.60	0.00
15.00	6.49	4.55	1.24	67.00	7.60	5.60	0.00
16.00	6.69	4.73	0.97	68.00	7.60	5.60	0.00
17.00	6.85	4.89	0.82	69.00	7.60	5.60	0.00
18.00	7.00	5.03	0.73	70.00	7.60	5.60	0.00
19.00	7.13	5.15	0.63	71.00	7.60	5.60	0.00
20.00	7.24	5.25	0.54	72.00	7.60	5.60	0.00
21.00	7.33	5.34	0.49				
22.00	7.43	5.43	0.47				
23.00	7.51	5.51	0.45				
24.00	7.60	5.60	0.43				
25.00	7.60	5.60	0.01				
26.00	7.60	5.60	0.00				
27.00	7.60	5.60	0.00				
28.00	7.60	5.60	0.00				
29.00	7.60	5.60	0.00				
30.00	7.60	5.60	0.00				
31.00	7.60	5.60	0.00				
32.00	7.60	5.60	0.00				
33.00	7.60	5.60	0.00				
34.00	7.60	5.60	0.00				
35.00	7.60	5.60	0.00				
36.00	7.60	5.60	0.00				
37.00	7.60	5.60	0.00				
38.00	7.60	5.60	0.00				
39.00	7.60	5.60	0.00				
40.00	7.60	5.60	0.00				
41.00	7.60	5.60	0.00				
42.00	7.60	5.60	0.00				
43.00	7.60	5.60	0.00				
44.00	7.60	5.60	0.00				
45.00	7.60	5.60	0.00				
46.00	7.60	5.60	0.00				
47.00	7.60	5.60	0.00				
48.00	7.60	5.60	0.00				
49.00	7.60	5.60	0.00				
50.00	7.60	5.60	0.00				
51.00	7.60	5.60	0.00				

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Summary for Subcatchment EX-DA-3A: Existing DA 3A

Runoff = 13.57 cfs @ 12.06 hrs, Volume= 1.187 af, Depth= 5.71"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
10,398	78	Row crops, straight row, Good, HSG B
97,279	85	Row crops, straight row, Good, HSG C
956	98	Paved parking, HSG C
108,633	84	Weighted Average
107,677		99.12% Pervious Area
956		0.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0110	0.29		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
3.7	408	0.0150	1.84		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
0.9	214	0.0093	4.09	20.44	Channel Flow, rear yard swale Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.025
2.2	504	0.0024	3.82	12.01	Pipe Channel, Pipe to EX-R-4 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
12.6	1,226	Total			

Aspire - Proposed

Prepared by {enter your company name here}

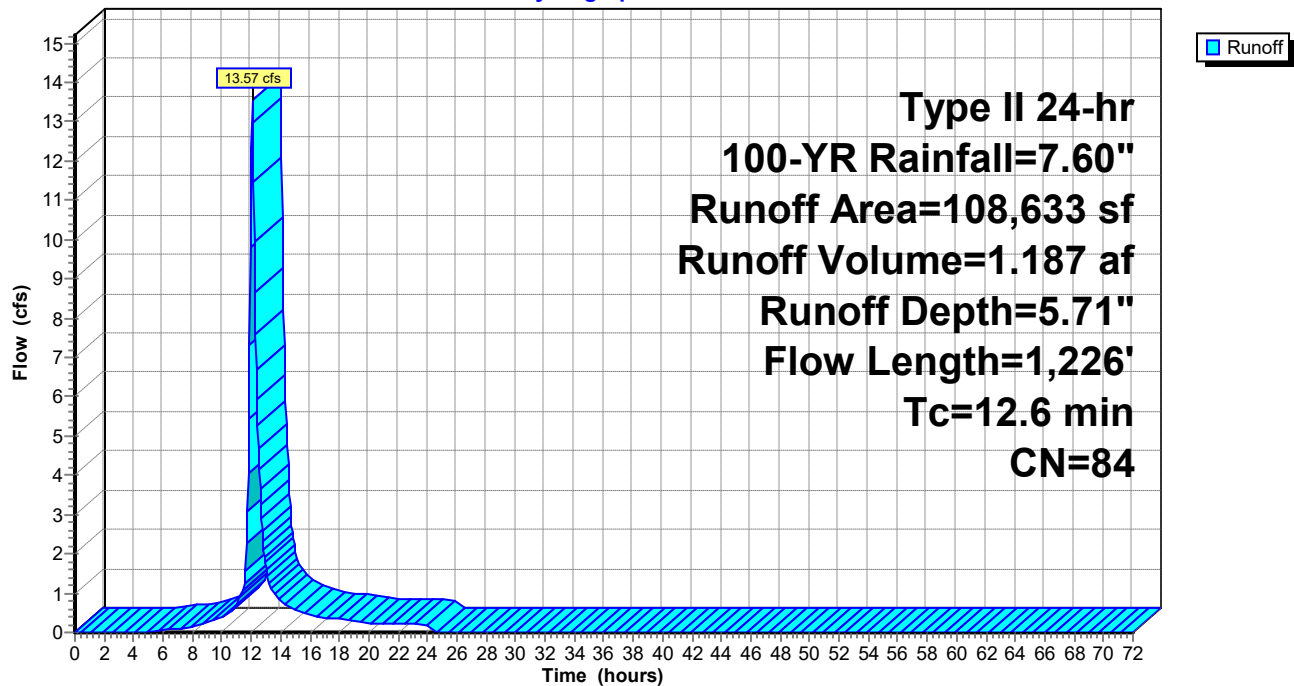
HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Subcatchment EX-DA-3A: Existing DA 3A

Hydrograph



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Subcatchment EX-DA-3A: Existing DA 3A

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	5.71	0.00
1.00	0.08	0.00	0.00	53.00	7.60	5.71	0.00
2.00	0.17	0.00	0.00	54.00	7.60	5.71	0.00
3.00	0.26	0.00	0.00	55.00	7.60	5.71	0.00
4.00	0.36	0.00	0.00	56.00	7.60	5.71	0.00
5.00	0.48	0.00	0.02	57.00	7.60	5.71	0.00
6.00	0.61	0.02	0.06	58.00	7.60	5.71	0.00
7.00	0.75	0.06	0.10	59.00	7.60	5.71	0.00
8.00	0.91	0.12	0.15	60.00	7.60	5.71	0.00
9.00	1.12	0.21	0.25	61.00	7.60	5.71	0.00
10.00	1.38	0.34	0.37	62.00	7.60	5.71	0.00
11.00	1.79	0.60	0.73	63.00	7.60	5.71	0.00
12.00	5.04	3.31	12.32	64.00	7.60	5.71	0.00
13.00	5.87	4.07	1.65	65.00	7.60	5.71	0.00
14.00	6.23	4.41	0.78	66.00	7.60	5.71	0.00
15.00	6.49	4.65	0.58	67.00	7.60	5.71	0.00
16.00	6.69	4.84	0.46	68.00	7.60	5.71	0.00
17.00	6.85	5.00	0.39	69.00	7.60	5.71	0.00
18.00	7.00	5.14	0.34	70.00	7.60	5.71	0.00
19.00	7.13	5.26	0.30	71.00	7.60	5.71	0.00
20.00	7.24	5.36	0.25	72.00	7.60	5.71	0.00
21.00	7.33	5.46	0.23				
22.00	7.43	5.54	0.22				
23.00	7.51	5.63	0.21				
24.00	7.60	5.71	0.20				
25.00	7.60	5.71	0.00				
26.00	7.60	5.71	0.00				
27.00	7.60	5.71	0.00				
28.00	7.60	5.71	0.00				
29.00	7.60	5.71	0.00				
30.00	7.60	5.71	0.00				
31.00	7.60	5.71	0.00				
32.00	7.60	5.71	0.00				
33.00	7.60	5.71	0.00				
34.00	7.60	5.71	0.00				
35.00	7.60	5.71	0.00				
36.00	7.60	5.71	0.00				
37.00	7.60	5.71	0.00				
38.00	7.60	5.71	0.00				
39.00	7.60	5.71	0.00				
40.00	7.60	5.71	0.00				
41.00	7.60	5.71	0.00				
42.00	7.60	5.71	0.00				
43.00	7.60	5.71	0.00				
44.00	7.60	5.71	0.00				
45.00	7.60	5.71	0.00				
46.00	7.60	5.71	0.00				
47.00	7.60	5.71	0.00				
48.00	7.60	5.71	0.00				
49.00	7.60	5.71	0.00				
50.00	7.60	5.71	0.00				
51.00	7.60	5.71	0.00				

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Subcatchment EX-DA-3B: Existing DA 3B

Runoff = 25.08 cfs @ 12.05 hrs, Volume= 2.079 af, Depth= 5.71"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
39,212	78	Row crops, straight row, Good, HSG B
150,604	85	Row crops, straight row, Good, HSG C
420	98	Paved parking, HSG C
190,236	84	Weighted Average
189,816		99.78% Pervious Area
420		0.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0100	0.28		Sheet Flow, Ag Field SF Cultivated: Residue<=20% n= 0.060 P2= 3.40"
3.4	421	0.0190	2.07		Shallow Concentrated Flow, Ag Field Grassed Waterway Kv= 15.0 fps
0.1	66	0.0700	11.22	56.09	Channel Flow, rear yard swale Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.025
1.9	423	0.0023	3.74	11.75	Pipe Channel, Pipe to EX-R-4 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
11.4	1,010	Total			

Aspire - Proposed

Prepared by {enter your company name here}

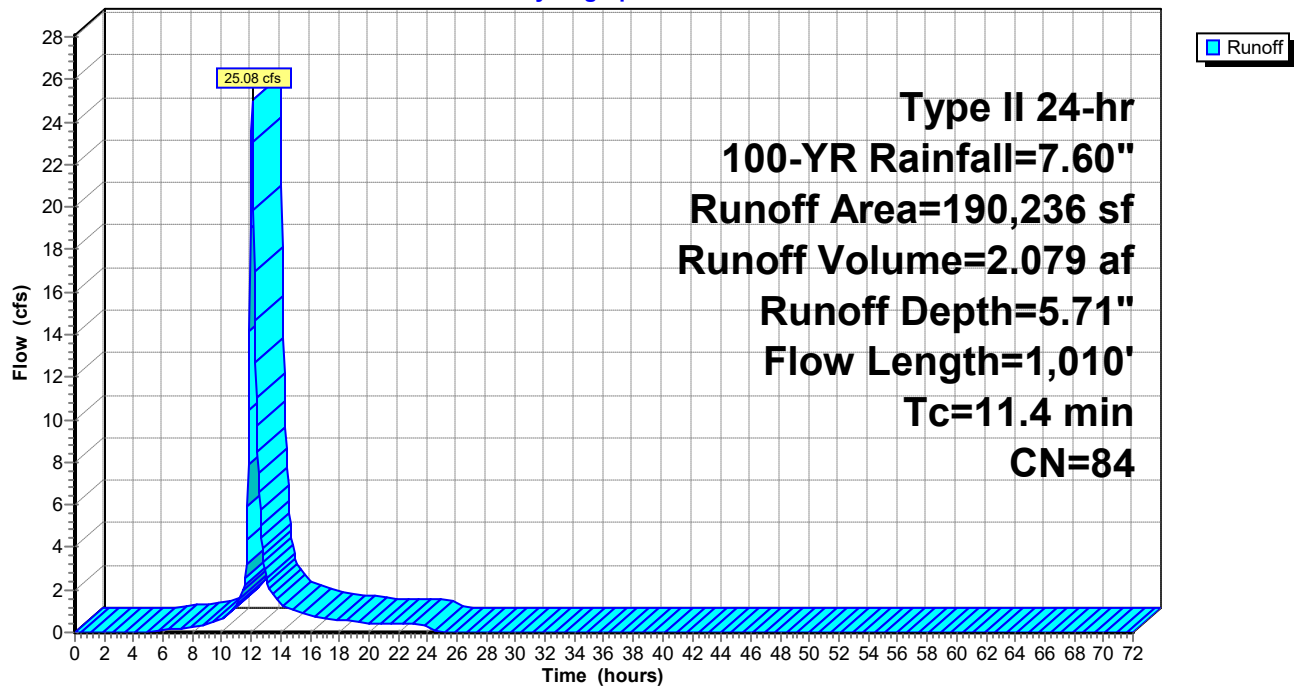
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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Subcatchment EX-DA-3B: Existing DA 3B

Hydrograph



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Subcatchment EX-DA-3B: Existing DA 3B

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	5.71	0.00
1.00	0.08	0.00	0.00	53.00	7.60	5.71	0.00
2.00	0.17	0.00	0.00	54.00	7.60	5.71	0.00
3.00	0.26	0.00	0.00	55.00	7.60	5.71	0.00
4.00	0.36	0.00	0.00	56.00	7.60	5.71	0.00
5.00	0.48	0.00	0.03	57.00	7.60	5.71	0.00
6.00	0.61	0.02	0.10	58.00	7.60	5.71	0.00
7.00	0.75	0.06	0.18	59.00	7.60	5.71	0.00
8.00	0.91	0.12	0.26	60.00	7.60	5.71	0.00
9.00	1.12	0.21	0.44	61.00	7.60	5.71	0.00
10.00	1.38	0.34	0.65	62.00	7.60	5.71	0.00
11.00	1.79	0.60	1.30	63.00	7.60	5.71	0.00
12.00	5.04	3.31	23.57	64.00	7.60	5.71	0.00
13.00	5.87	4.07	2.67	65.00	7.60	5.71	0.00
14.00	6.23	4.41	1.35	66.00	7.60	5.71	0.00
15.00	6.49	4.65	1.01	67.00	7.60	5.71	0.00
16.00	6.69	4.84	0.79	68.00	7.60	5.71	0.00
17.00	6.85	5.00	0.67	69.00	7.60	5.71	0.00
18.00	7.00	5.14	0.60	70.00	7.60	5.71	0.00
19.00	7.13	5.26	0.52	71.00	7.60	5.71	0.00
20.00	7.24	5.36	0.44	72.00	7.60	5.71	0.00
21.00	7.33	5.46	0.40				
22.00	7.43	5.54	0.39				
23.00	7.51	5.63	0.37				
24.00	7.60	5.71	0.36				
25.00	7.60	5.71	0.00				
26.00	7.60	5.71	0.00				
27.00	7.60	5.71	0.00				
28.00	7.60	5.71	0.00				
29.00	7.60	5.71	0.00				
30.00	7.60	5.71	0.00				
31.00	7.60	5.71	0.00				
32.00	7.60	5.71	0.00				
33.00	7.60	5.71	0.00				
34.00	7.60	5.71	0.00				
35.00	7.60	5.71	0.00				
36.00	7.60	5.71	0.00				
37.00	7.60	5.71	0.00				
38.00	7.60	5.71	0.00				
39.00	7.60	5.71	0.00				
40.00	7.60	5.71	0.00				
41.00	7.60	5.71	0.00				
42.00	7.60	5.71	0.00				
43.00	7.60	5.71	0.00				
44.00	7.60	5.71	0.00				
45.00	7.60	5.71	0.00				
46.00	7.60	5.71	0.00				
47.00	7.60	5.71	0.00				
48.00	7.60	5.71	0.00				
49.00	7.60	5.71	0.00				
50.00	7.60	5.71	0.00				
51.00	7.60	5.71	0.00				

Aspire - Proposed

Prepared by {enter your company name here}

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Subcatchment PR-DA-1: Proposed DA 1

Runoff = 24.25 cfs @ 12.01 hrs, Volume= 1.798 af, Depth= 6.53"

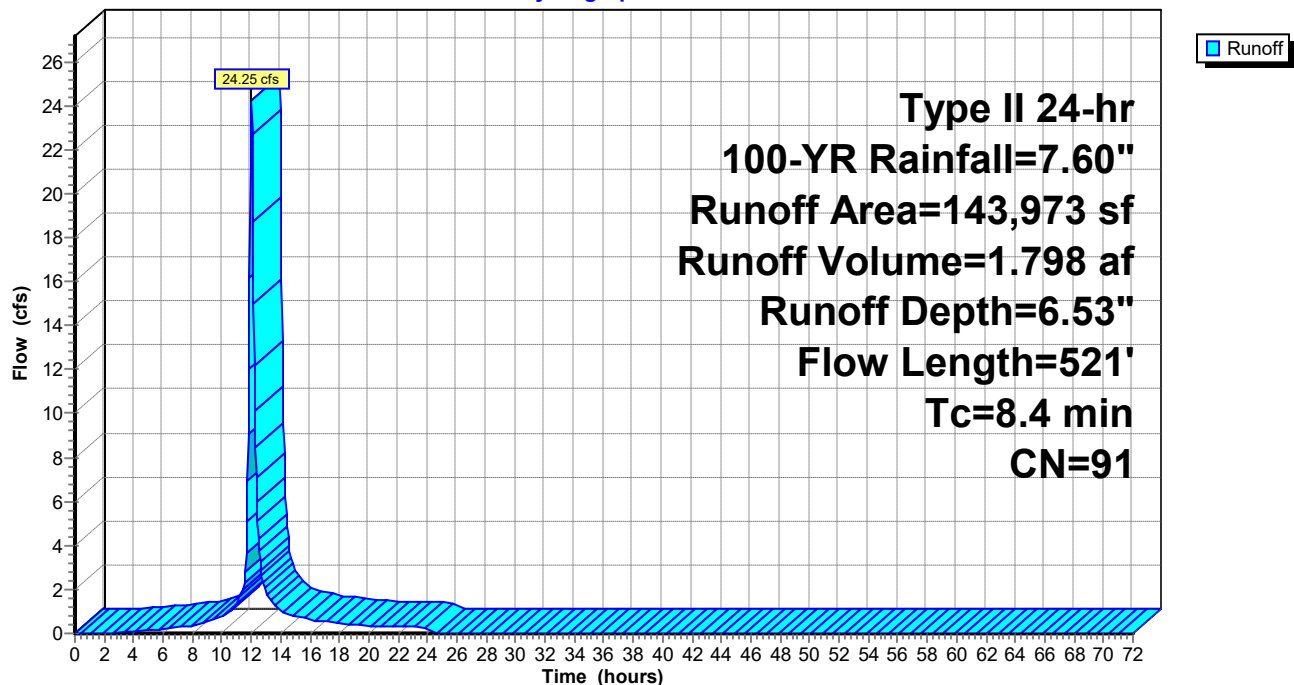
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
44,023	74	>75% Grass cover, Good, HSG C
99,950	98	Paved parking, HSG C
143,973	91	Weighted Average
44,023		30.58% Pervious Area
99,950		69.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	100	0.0410	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
1.3	421	0.0050	5.52	17.33	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
8.4	521	Total			

Subcatchment PR-DA-1: Proposed DA 1

Hydrograph



Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Hydrograph for Subcatchment PR-DA-1: Proposed DA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	6.53	0.00
1.00	0.08	0.00	0.00	53.00	7.60	6.53	0.00
2.00	0.17	0.00	0.00	54.00	7.60	6.53	0.00
3.00	0.26	0.00	0.03	55.00	7.60	6.53	0.00
4.00	0.36	0.02	0.08	56.00	7.60	6.53	0.00
5.00	0.48	0.06	0.15	57.00	7.60	6.53	0.00
6.00	0.61	0.12	0.21	58.00	7.60	6.53	0.00
7.00	0.75	0.20	0.28	59.00	7.60	6.53	0.00
8.00	0.91	0.30	0.35	60.00	7.60	6.53	0.00
9.00	1.12	0.44	0.54	61.00	7.60	6.53	0.00
10.00	1.38	0.64	0.72	62.00	7.60	6.53	0.00
11.00	1.79	0.98	1.35	63.00	7.60	6.53	0.00
12.00	5.04	4.02	24.17	64.00	7.60	6.53	0.00
13.00	5.87	4.83	1.81	65.00	7.60	6.53	0.00
14.00	6.23	5.18	1.03	66.00	7.60	6.53	0.00
15.00	6.49	5.43	0.78	67.00	7.60	6.53	0.00
16.00	6.69	5.63	0.61	68.00	7.60	6.53	0.00
17.00	6.85	5.79	0.52	69.00	7.60	6.53	0.00
18.00	7.00	5.94	0.46	70.00	7.60	6.53	0.00
19.00	7.13	6.06	0.40	71.00	7.60	6.53	0.00
20.00	7.24	6.17	0.34	72.00	7.60	6.53	0.00
21.00	7.33	6.27	0.31				
22.00	7.43	6.36	0.30				
23.00	7.51	6.45	0.29				
24.00	7.60	6.53	0.28				
25.00	7.60	6.53	0.00				
26.00	7.60	6.53	0.00				
27.00	7.60	6.53	0.00				
28.00	7.60	6.53	0.00				
29.00	7.60	6.53	0.00				
30.00	7.60	6.53	0.00				
31.00	7.60	6.53	0.00				
32.00	7.60	6.53	0.00				
33.00	7.60	6.53	0.00				
34.00	7.60	6.53	0.00				
35.00	7.60	6.53	0.00				
36.00	7.60	6.53	0.00				
37.00	7.60	6.53	0.00				
38.00	7.60	6.53	0.00				
39.00	7.60	6.53	0.00				
40.00	7.60	6.53	0.00				
41.00	7.60	6.53	0.00				
42.00	7.60	6.53	0.00				
43.00	7.60	6.53	0.00				
44.00	7.60	6.53	0.00				
45.00	7.60	6.53	0.00				
46.00	7.60	6.53	0.00				
47.00	7.60	6.53	0.00				
48.00	7.60	6.53	0.00				
49.00	7.60	6.53	0.00				
50.00	7.60	6.53	0.00				
51.00	7.60	6.53	0.00				

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Subcatchment PR-DA-2: Proposed DA 2

Runoff = 19.98 cfs @ 12.05 hrs, Volume= 1.732 af, Depth= 6.41"

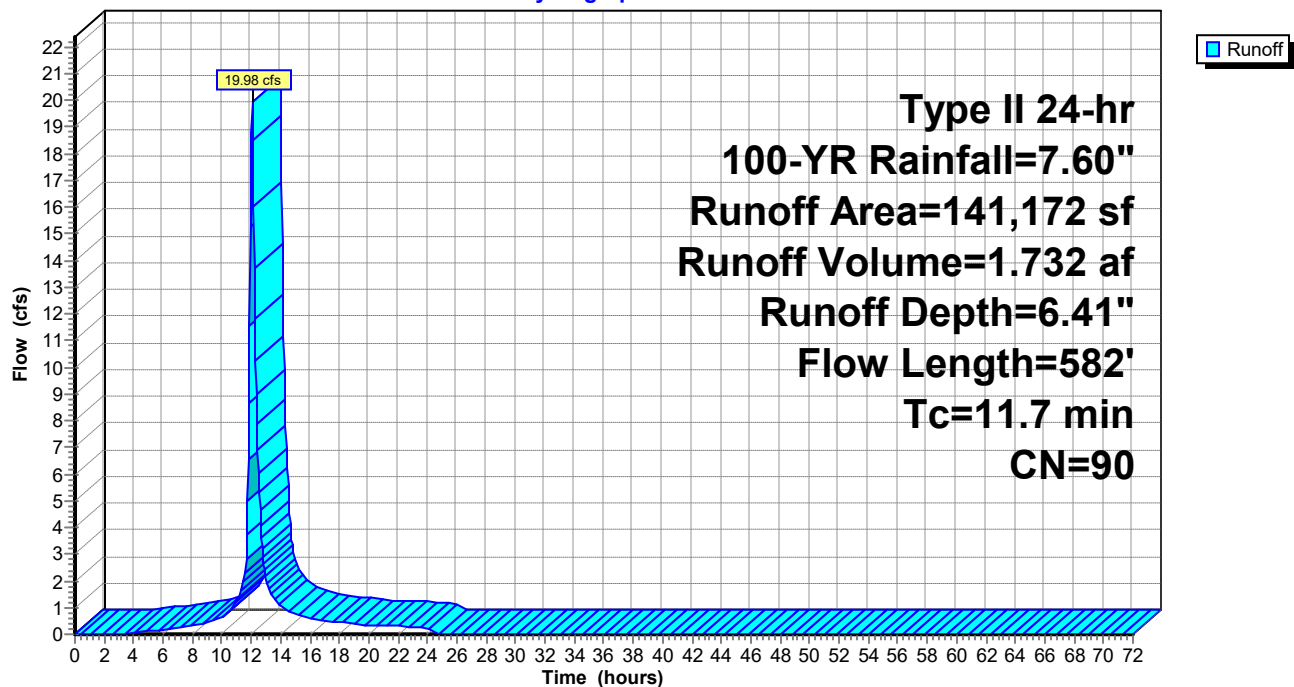
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
47,428	74	>75% Grass cover, Good, HSG C
93,744	98	Paved parking, HSG C
141,172	90	Weighted Average
47,428		33.60% Pervious Area
93,744		66.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0055	0.22		Sheet Flow, ag field Cultivated: Residue<=20% n= 0.060 P2= 3.40"
1.2	170	0.0247	2.36		Shallow Concentrated Flow, ag field Grassed Waterway Kv= 15.0 fps
1.3	111	0.0050	1.44		Shallow Concentrated Flow, gutter pan Paved Kv= 20.3 fps
1.5	201	0.0016	2.28	2.80	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
11.7	582	Total			

Subcatchment PR-DA-2: Proposed DA 2

Hydrograph



Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Hydrograph for Subcatchment PR-DA-2: Proposed DA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	6.41	0.00
1.00	0.08	0.00	0.00	53.00	7.60	6.41	0.00
2.00	0.17	0.00	0.00	54.00	7.60	6.41	0.00
3.00	0.26	0.00	0.01	55.00	7.60	6.41	0.00
4.00	0.36	0.02	0.06	56.00	7.60	6.41	0.00
5.00	0.48	0.05	0.12	57.00	7.60	6.41	0.00
6.00	0.61	0.10	0.18	58.00	7.60	6.41	0.00
7.00	0.75	0.17	0.25	59.00	7.60	6.41	0.00
8.00	0.91	0.26	0.32	60.00	7.60	6.41	0.00
9.00	1.12	0.40	0.48	61.00	7.60	6.41	0.00
10.00	1.38	0.59	0.66	62.00	7.60	6.41	0.00
11.00	1.79	0.91	1.21	63.00	7.60	6.41	0.00
12.00	5.04	3.91	18.75	64.00	7.60	6.41	0.00
13.00	5.87	4.72	2.12	65.00	7.60	6.41	0.00
14.00	6.23	5.07	1.05	66.00	7.60	6.41	0.00
15.00	6.49	5.32	0.78	67.00	7.60	6.41	0.00
16.00	6.69	5.52	0.61	68.00	7.60	6.41	0.00
17.00	6.85	5.68	0.52	69.00	7.60	6.41	0.00
18.00	7.00	5.82	0.46	70.00	7.60	6.41	0.00
19.00	7.13	5.95	0.40	71.00	7.60	6.41	0.00
20.00	7.24	6.05	0.34	72.00	7.60	6.41	0.00
21.00	7.33	6.15	0.31				
22.00	7.43	6.24	0.30				
23.00	7.51	6.33	0.28				
24.00	7.60	6.41	0.27				
25.00	7.60	6.41	0.00				
26.00	7.60	6.41	0.00				
27.00	7.60	6.41	0.00				
28.00	7.60	6.41	0.00				
29.00	7.60	6.41	0.00				
30.00	7.60	6.41	0.00				
31.00	7.60	6.41	0.00				
32.00	7.60	6.41	0.00				
33.00	7.60	6.41	0.00				
34.00	7.60	6.41	0.00				
35.00	7.60	6.41	0.00				
36.00	7.60	6.41	0.00				
37.00	7.60	6.41	0.00				
38.00	7.60	6.41	0.00				
39.00	7.60	6.41	0.00				
40.00	7.60	6.41	0.00				
41.00	7.60	6.41	0.00				
42.00	7.60	6.41	0.00				
43.00	7.60	6.41	0.00				
44.00	7.60	6.41	0.00				
45.00	7.60	6.41	0.00				
46.00	7.60	6.41	0.00				
47.00	7.60	6.41	0.00				
48.00	7.60	6.41	0.00				
49.00	7.60	6.41	0.00				
50.00	7.60	6.41	0.00				
51.00	7.60	6.41	0.00				

Aspire - Proposed

Prepared by {enter your company name here}

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Reach EX-R-1: Existing Reach 1

Inflow Area = 439.004 ac, 19.97% Impervious, Inflow Depth = 5.26" for 100-YR event
Inflow = 976.67 cfs @ 12.42 hrs, Volume= 192.310 af
Outflow = 972.72 cfs @ 12.46 hrs, Volume= 192.310 af, Atten= 0%, Lag= 2.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 4.44 fps, Min. Travel Time= 2.0 min

Avg. Velocity= 0.92 fps, Avg. Travel Time= 9.6 min

Peak Storage= 116,662 cf @ 12.46 hrs

Average Depth at Peak Storage= 9.50'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 177.63 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 ' Top Width= 26.00'

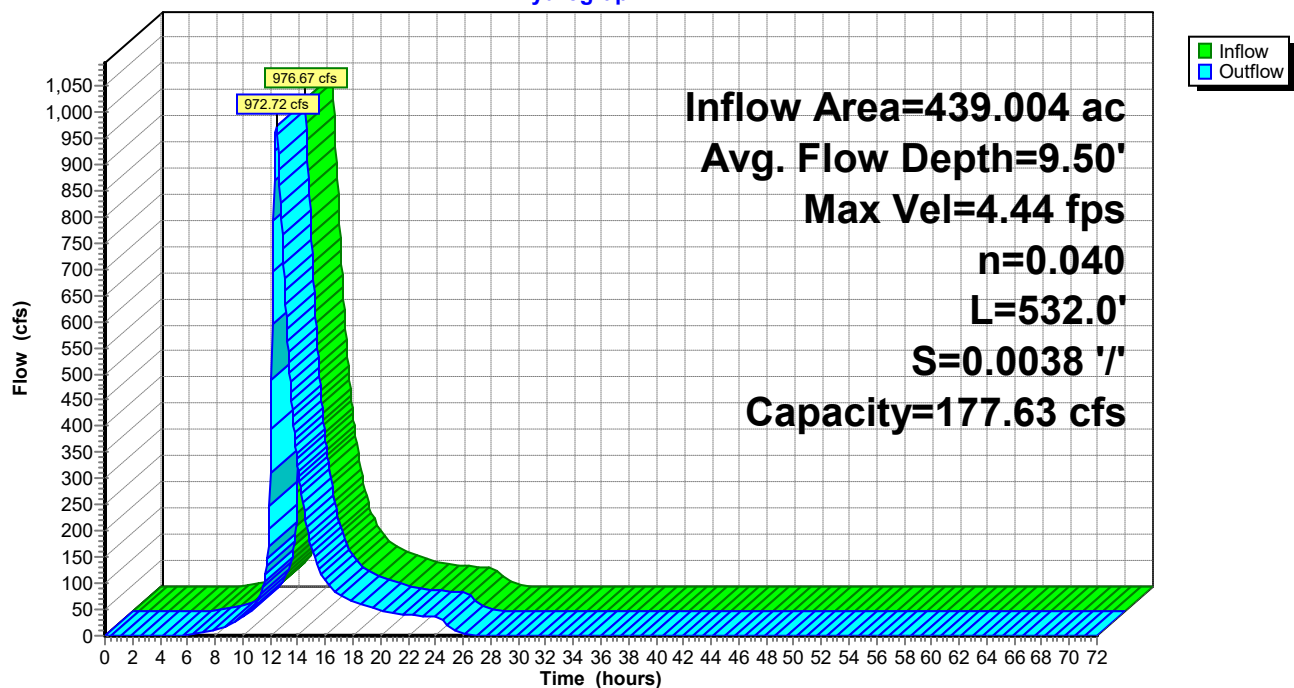
Length= 532.0' Slope= 0.0038 '/'

Inlet Invert= 42.00', Outlet Invert= 40.00'

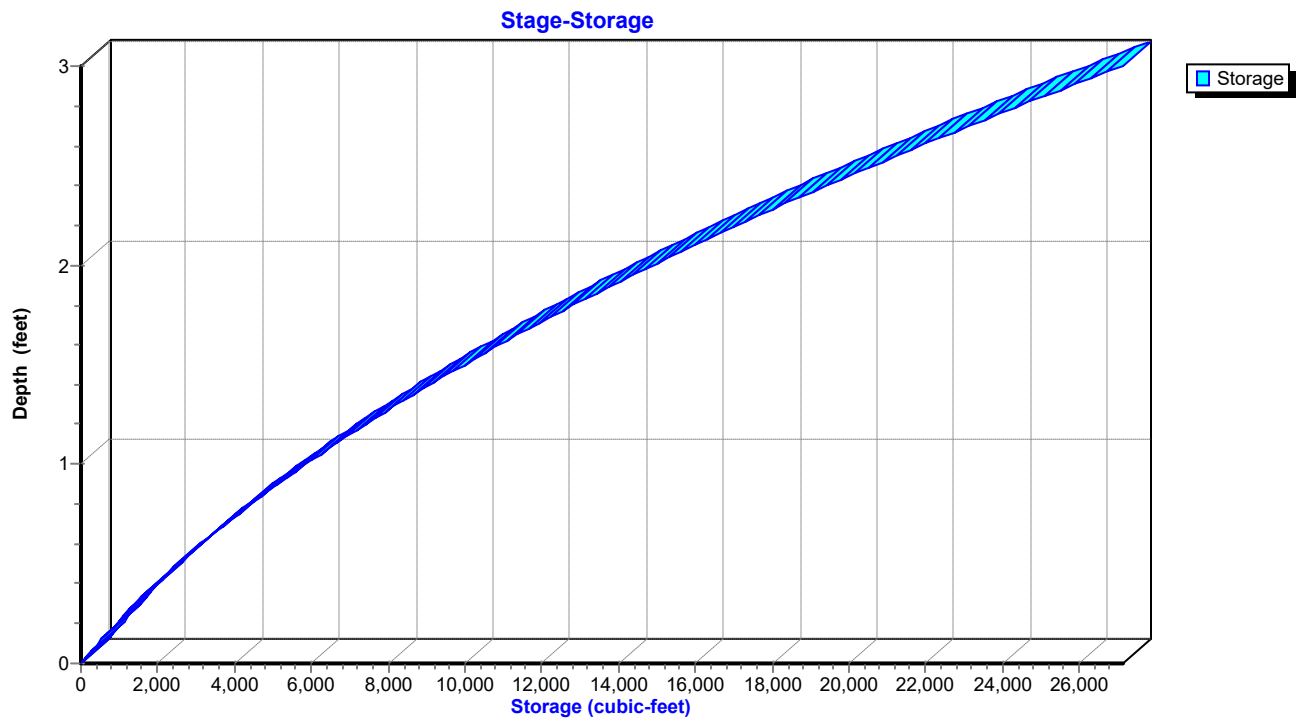


Reach EX-R-1: Existing Reach 1

Hydrograph



Reach EX-R-1: Existing Reach 1



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

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Hydrograph for Reach EX-R-1: Existing Reach 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	42.00	0.00
2.50	0.00	0	42.00	0.00
5.00	0.00	2	42.00	0.00
7.50	8.13	2,940	42.57	7.68
10.00	35.91	8,397	43.32	35.12
12.50	955.80	115,852	51.44	965.53
15.00	164.25	26,004	44.92	167.65
17.50	70.60	13,906	43.91	71.05
20.00	49.01	10,698	43.58	49.35
22.50	38.66	9,003	43.39	38.75
25.00	15.45	4,970	42.88	16.60
27.50	0.39	525	42.12	0.53
30.00	0.01	35	42.01	0.01
32.50	0.00	9	42.00	0.00
35.00	0.00	4	42.00	0.00
37.50	0.00	2	42.00	0.00
40.00	0.00	1	42.00	0.00
42.50	0.00	1	42.00	0.00
45.00	0.00	1	42.00	0.00
47.50	0.00	0	42.00	0.00
50.00	0.00	0	42.00	0.00
52.50	0.00	0	42.00	0.00
55.00	0.00	0	42.00	0.00
57.50	0.00	0	42.00	0.00
60.00	0.00	0	42.00	0.00
62.50	0.00	0	42.00	0.00
65.00	0.00	0	42.00	0.00
67.50	0.00	0	42.00	0.00
70.00	0.00	0	42.00	0.00

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Stage-Area-Storage for Reach EX-R-1: Existing Reach 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
42.00	0.0	0	44.60	41.1	21,855
42.05	0.4	217	44.65	42.3	22,487
42.10	0.8	442	44.70	43.5	23,126
42.15	1.3	674	44.75	44.7	23,774
42.20	1.7	915	44.80	45.9	24,430
42.25	2.2	1,164	44.85	47.2	25,093
42.30	2.7	1,420	44.90	48.4	25,765
42.35	3.2	1,685	44.95	49.7	26,445
42.40	3.7	1,958	45.00	51.0	27,132
42.45	4.2	2,238			
42.50	4.8	2,527			
42.55	5.3	2,824			
42.60	5.9	3,128			
42.65	6.5	3,441			
42.70	7.1	3,762			
42.75	7.7	4,090			
42.80	8.3	4,427			
42.85	9.0	4,771			
42.90	9.6	5,123			
42.95	10.3	5,484			
43.00	11.0	5,852			
43.05	11.7	6,228			
43.10	12.4	6,613			
43.15	13.2	7,005			
43.20	13.9	7,405			
43.25	14.7	7,814			
43.30	15.5	8,230			
43.35	16.3	8,654			
43.40	17.1	9,087			
43.45	17.9	9,527			
43.50	18.8	9,975			
43.55	19.6	10,432			
43.60	20.5	10,896			
43.65	21.4	11,368			
43.70	22.3	11,848			
43.75	23.2	12,336			
43.80	24.1	12,832			
43.85	25.1	13,336			
43.90	26.0	13,848			
43.95	27.0	14,368			
44.00	28.0	14,896			
44.05	29.0	15,432			
44.10	30.0	15,976			
44.15	31.1	16,528			
44.20	32.1	17,088			
44.25	33.2	17,656			
44.30	34.3	18,232			
44.35	35.4	18,816			
44.40	36.5	19,407			
44.45	37.6	20,008			
44.50	38.8	20,615			
44.55	39.9	21,231			

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Reach EX-R-2: Existing Reach 2

Inflow Area = 446.613 ac, 20.11% Impervious, Inflow Depth = 5.27" for 100-YR event
Inflow = 994.43 cfs @ 12.45 hrs, Volume= 196.112 af
Outflow = 980.50 cfs @ 12.52 hrs, Volume= 196.112 af, Atten= 1%, Lag= 3.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.62 fps, Min. Travel Time= 3.8 min

Avg. Velocity= 0.78 fps, Avg. Travel Time= 17.5 min

Peak Storage= 221,867 cf @ 12.52 hrs

Average Depth at Peak Storage= 11.49'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 143.16 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 26.00'

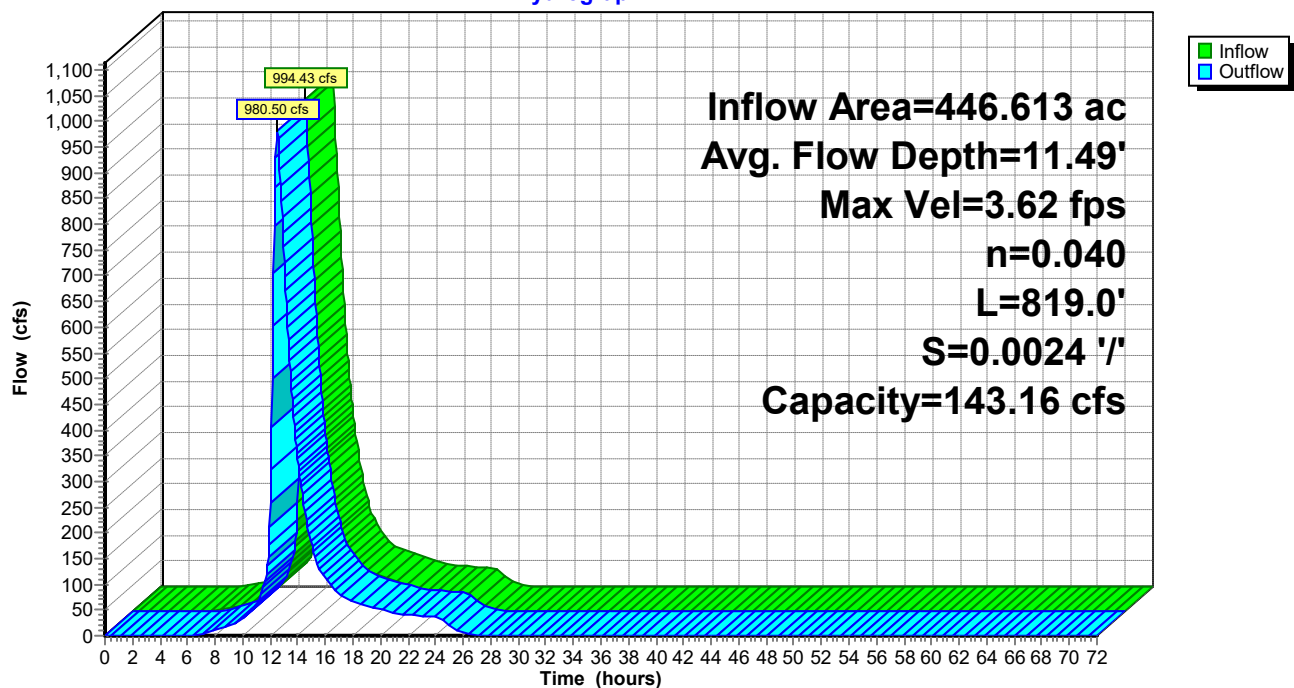
Length= 819.0' Slope= 0.0024 '/'

Inlet Invert= 40.00', Outlet Invert= 38.00'

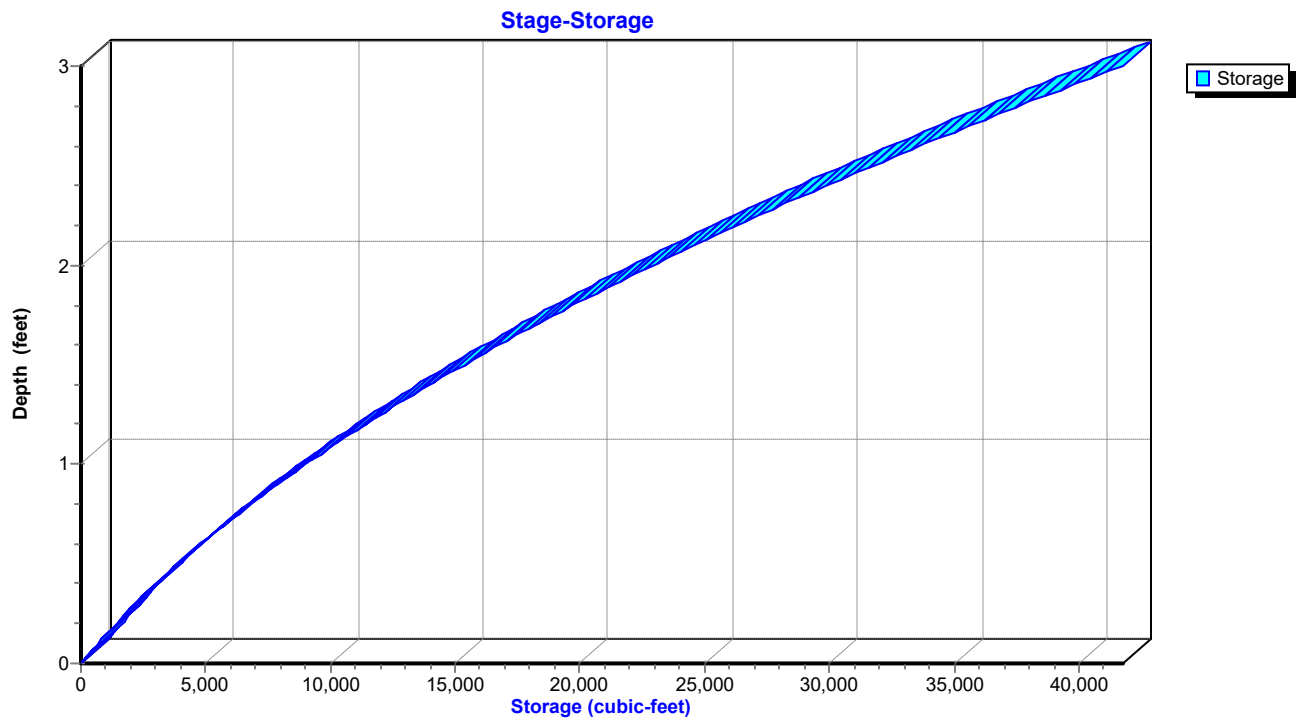


Reach EX-R-2: Existing Reach 2

Hydrograph



Reach EX-R-2: Existing Reach 2



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach EX-R-2: Existing Reach 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	40.00	0.00
2.50	0.00	0	40.00	0.00
5.00	0.01	5	40.00	0.00
7.50	8.02	4,991	40.62	7.16
10.00	36.10	14,946	41.47	34.72
12.50	985.27	221,659	51.48	979.53
15.00	169.84	48,953	43.34	176.56
17.50	72.61	25,643	42.16	73.46
20.00	50.41	19,698	41.80	51.02
22.50	39.51	16,441	41.58	39.67
25.00	16.92	9,813	41.07	19.14
27.50	0.57	1,252	40.18	0.85
30.00	0.03	230	40.03	0.06
32.50	0.01	81	40.01	0.02
35.00	0.00	32	40.00	0.01
37.50	0.00	16	40.00	0.00
40.00	0.00	9	40.00	0.00
42.50	0.00	6	40.00	0.00
45.00	0.00	4	40.00	0.00
47.50	0.00	3	40.00	0.00
50.00	0.00	2	40.00	0.00
52.50	0.00	2	40.00	0.00
55.00	0.00	1	40.00	0.00
57.50	0.00	1	40.00	0.00
60.00	0.00	1	40.00	0.00
62.50	0.00	1	40.00	0.00
65.00	0.00	0	40.00	0.00
67.50	0.00	0	40.00	0.00
70.00	0.00	0	40.00	0.00

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Stage-Area-Storage for Reach EX-R-2: Existing Reach 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
40.00	0.0	0	42.60	41.1	33,645
40.05	0.4	334	42.65	42.3	34,618
40.10	0.8	680	42.70	43.5	35,602
40.15	1.3	1,038	42.75	44.7	36,600
40.20	1.7	1,409	42.80	45.9	37,609
40.25	2.2	1,792	42.85	47.2	38,630
40.30	2.7	2,187	42.90	48.4	39,665
40.35	3.2	2,595	42.95	49.7	40,711
40.40	3.7	3,014	43.00	51.0	41,769
40.45	4.2	3,446			
40.50	4.8	3,891			
40.55	5.3	4,347			
40.60	5.9	4,816			
40.65	6.5	5,297			
40.70	7.1	5,791			
40.75	7.7	6,296			
40.80	8.3	6,815			
40.85	9.0	7,345			
40.90	9.6	7,887			
40.95	10.3	8,442			
41.00	11.0	9,009			
41.05	11.7	9,588			
41.10	12.4	10,181			
41.15	13.2	10,785			
41.20	13.9	11,400			
41.25	14.7	12,030			
41.30	15.5	12,670			
41.35	16.3	13,323			
41.40	17.1	13,989			
41.45	17.9	14,667			
41.50	18.8	15,356			
41.55	19.6	16,059			
41.60	20.5	16,774			
41.65	21.4	17,500			
41.70	22.3	18,240			
41.75	23.2	18,991			
41.80	24.1	19,754			
41.85	25.1	20,531			
41.90	26.0	21,319			
41.95	27.0	22,119			
42.00	28.0	22,932			
42.05	29.0	23,758			
42.10	30.0	24,595			
42.15	31.1	25,445			
42.20	32.1	26,307			
42.25	33.2	27,181			
42.30	34.3	28,068			
42.35	35.4	28,966			
42.40	36.5	29,877			
42.45	37.6	30,801			
42.50	38.8	31,737			
42.55	39.9	32,684			

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Reach EX-R-3: Existing Reach 3

Inflow Area = 11.140 ac, 23.79% Impervious, Inflow Depth = 5.47" for 100-YR event
Inflow = 49.15 cfs @ 12.15 hrs, Volume= 5.082 af
Outflow = 43.80 cfs @ 12.21 hrs, Volume= 5.082 af, Atten= 11%, Lag= 3.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.67 fps, Min. Travel Time= 7.3 min

Avg. Velocity= 0.28 fps, Avg. Travel Time= 43.4 min

Peak Storage= 19,105 cf @ 12.21 hrs

Average Depth at Peak Storage= 2.55'

Bank-Full Depth= 2.00' Flow Area= 18.0 sf, Capacity= 27.19 cfs

3.00' x 2.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 15.00'

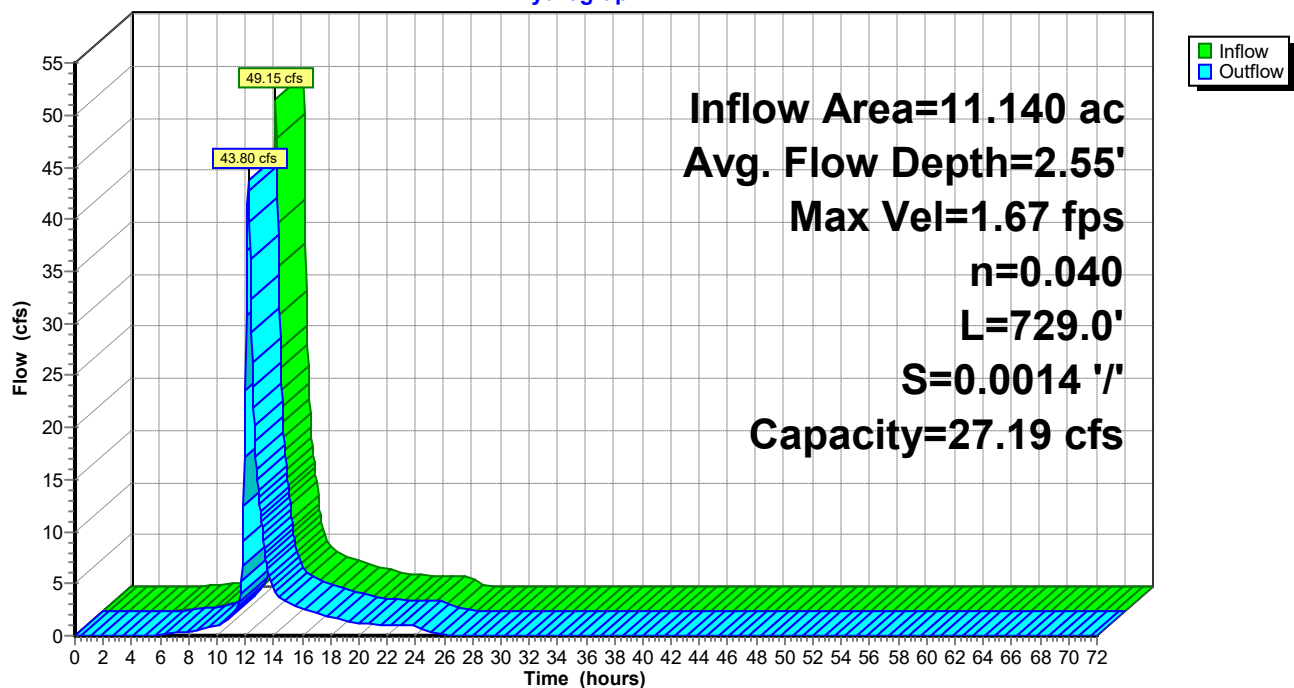
Length= 729.0' Slope= 0.0014 '/'

Inlet Invert= 43.00', Outlet Invert= 42.00'

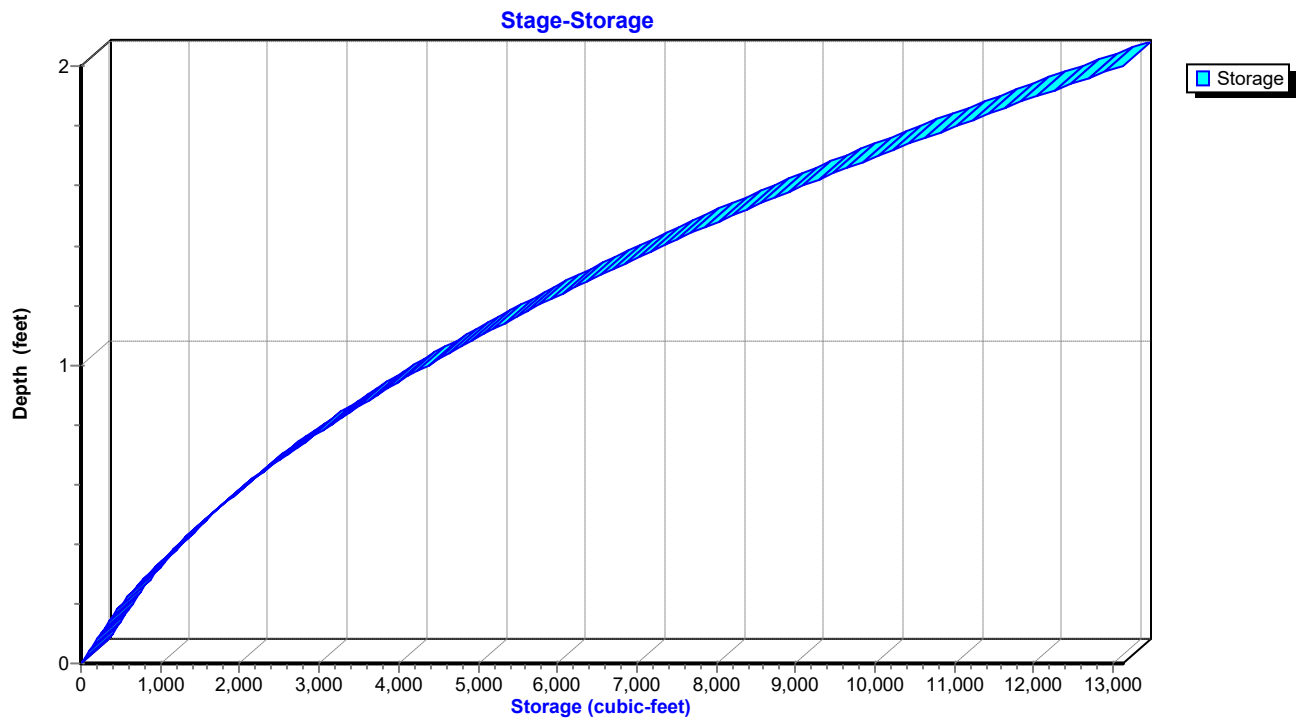


Reach EX-R-3: Existing Reach 3

Hydrograph



Reach EX-R-3: Existing Reach 3



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach EX-R-3: Existing Reach 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	43.00	0.00
2.50	0.00	0	43.00	0.00
5.00	0.04	27	43.01	0.00
7.50	0.36	530	43.20	0.31
10.00	1.10	1,179	43.39	0.99
12.50	21.22	12,811	44.97	26.33
15.00	3.08	2,703	43.72	3.18
17.50	1.87	1,894	43.56	1.94
20.00	1.19	1,381	43.44	1.24
22.50	0.99	1,185	43.39	1.00
25.00	0.11	468	43.18	0.26
27.50	0.01	91	43.04	0.02
30.00	0.00	41	43.02	0.01
32.50	0.00	21	43.01	0.00
35.00	0.00	11	43.00	0.00
37.50	0.00	6	43.00	0.00
40.00	0.00	3	43.00	0.00
42.50	0.00	2	43.00	0.00
45.00	0.00	1	43.00	0.00
47.50	0.00	1	43.00	0.00
50.00	0.00	1	43.00	0.00
52.50	0.00	1	43.00	0.00
55.00	0.00	0	43.00	0.00
57.50	0.00	0	43.00	0.00
60.00	0.00	0	43.00	0.00
62.50	0.00	0	43.00	0.00
65.00	0.00	0	43.00	0.00
67.50	0.00	0	43.00	0.00
70.00	0.00	0	43.00	0.00

Aspire - Proposed

Prepared by {enter your company name here}

Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

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Stage-Area-Storage for Reach EX-R-3: Existing Reach 3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
43.00	0.0	0	44.04	6.4	4,640
43.02	0.1	45	44.06	6.6	4,776
43.04	0.1	91	44.08	6.7	4,913
43.06	0.2	139	44.10	6.9	5,052
43.08	0.3	189	44.12	7.1	5,193
43.10	0.3	241	44.14	7.3	5,335
43.12	0.4	294	44.16	7.5	5,480
43.14	0.5	349	44.18	7.7	5,626
43.16	0.6	406	44.20	7.9	5,774
43.18	0.6	465	44.22	8.1	5,923
43.20	0.7	525	44.24	8.3	6,075
43.22	0.8	587	44.26	8.5	6,228
43.24	0.9	651	44.28	8.8	6,383
43.26	1.0	716	44.30	9.0	6,539
43.28	1.1	784	44.32	9.2	6,697
43.30	1.2	853	44.34	9.4	6,858
43.32	1.3	924	44.36	9.6	7,019
43.34	1.4	996	44.38	9.9	7,183
43.36	1.5	1,071	44.40	10.1	7,348
43.38	1.6	1,147	44.42	10.3	7,515
43.40	1.7	1,225	44.44	10.5	7,684
43.42	1.8	1,304	44.46	10.8	7,855
43.44	1.9	1,386	44.48	11.0	8,027
43.46	2.0	1,469	44.50	11.3	8,201
43.48	2.1	1,554	44.52	11.5	8,377
43.50	2.3	1,640	44.54	11.7	8,555
43.52	2.4	1,729	44.56	12.0	8,734
43.54	2.5	1,819	44.58	12.2	8,915
43.56	2.6	1,911	44.60	12.5	9,098
43.58	2.7	2,004	44.62	12.7	9,283
43.60	2.9	2,100	44.64	13.0	9,469
43.62	3.0	2,197	44.66	13.2	9,657
43.64	3.1	2,295	44.68	13.5	9,847
43.66	3.3	2,396	44.70	13.8	10,038
43.68	3.4	2,498	44.72	14.0	10,232
43.70	3.6	2,603	44.74	14.3	10,427
43.72	3.7	2,708	44.76	14.6	10,624
43.74	3.9	2,816	44.78	14.8	10,822
43.76	4.0	2,925	44.80	15.1	11,022
43.78	4.2	3,036	44.82	15.4	11,225
43.80	4.3	3,149	44.84	15.7	11,428
43.82	4.5	3,264	44.86	16.0	11,634
43.84	4.6	3,380	44.88	16.2	11,841
43.86	4.8	3,498	44.90	16.5	12,050
43.88	5.0	3,618	44.92	16.8	12,261
43.90	5.1	3,740	44.94	17.1	12,474
43.92	5.3	3,863	44.96	17.4	12,688
43.94	5.5	3,988	44.98	17.7	12,904
43.96	5.6	4,115	45.00	18.0	13,122
43.98	5.8	4,244			
44.00	6.0	4,374			
44.02	6.2	4,506			

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Reach EX-R-4: Existing Reach 4

Inflow Area = 7.608 ac, 28.41% Impervious, Inflow Depth = 6.00" for 100-YR event
Inflow = 42.22 cfs @ 12.15 hrs, Volume= 3.802 af
Outflow = 29.99 cfs @ 12.22 hrs, Volume= 3.802 af, Atten= 29%, Lag= 4.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.92 fps, Min. Travel Time= 8.4 min

Avg. Velocity= 0.23 fps, Avg. Travel Time= 34.2 min

Peak Storage= 15,043 cf @ 12.22 hrs

Average Depth at Peak Storage= 1.88'

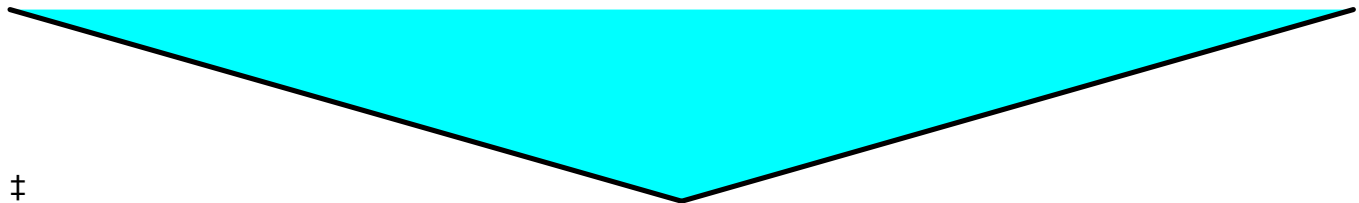
Bank-Full Depth= 0.50' Flow Area= 5.0 sf, Capacity= 3.62 cfs

0.00' x 0.50' deep channel, n= 0.100 Heavy timber, flow below branches

Side Slope Z-value= 20.0 ' Top Width= 20.00'

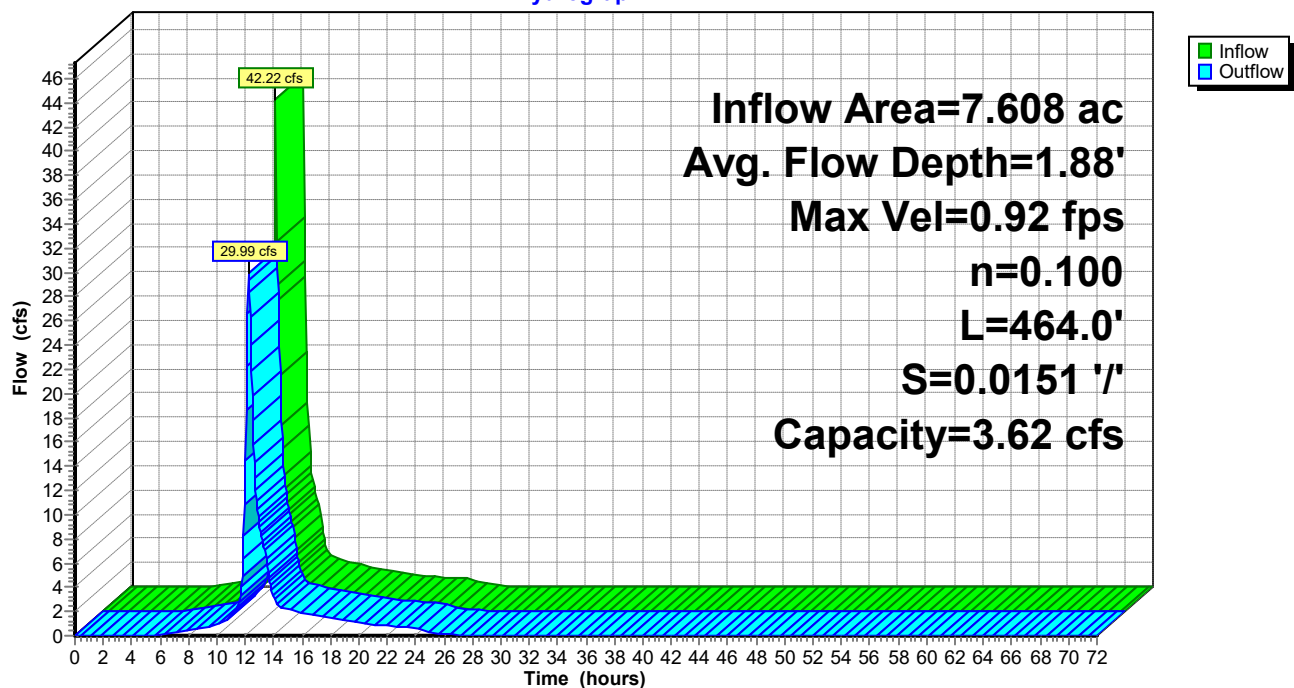
Length= 464.0' Slope= 0.0151 '/'

Inlet Invert= 47.00', Outlet Invert= 40.00'



Reach EX-R-4: Existing Reach 4

Hydrograph



Aspire - Proposed

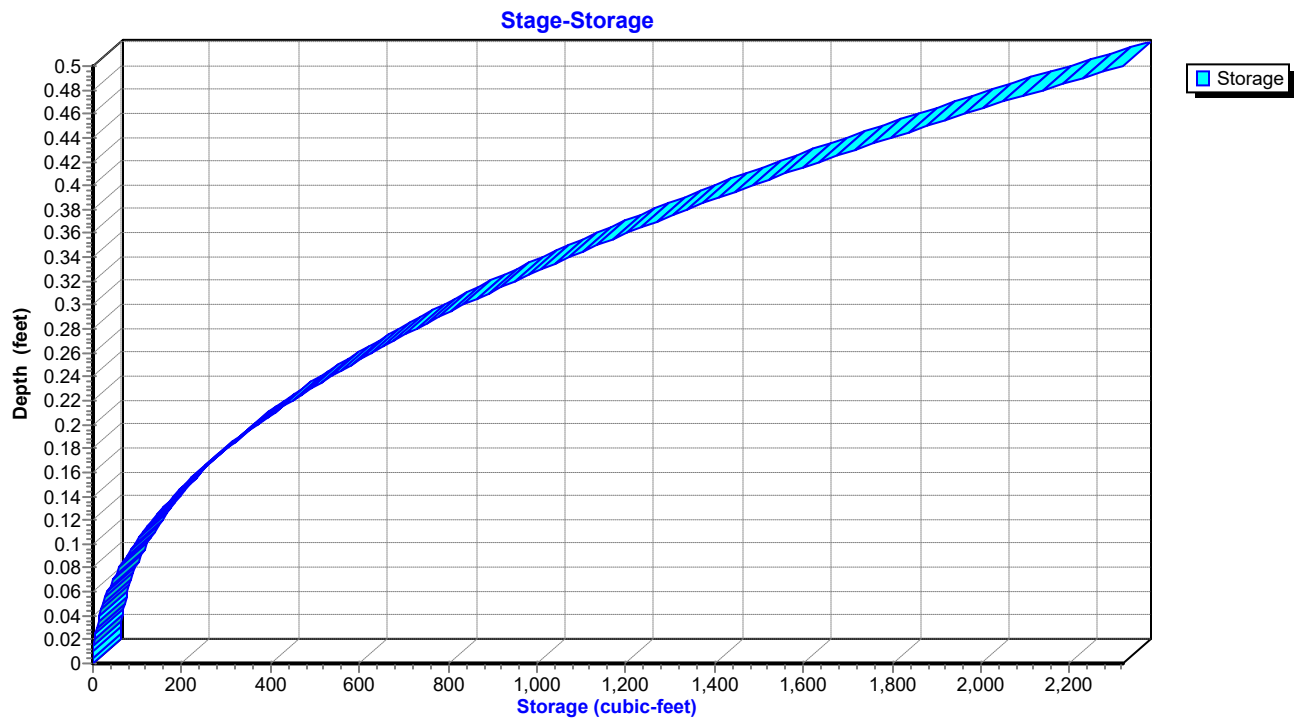
Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Reach EX-R-4: Existing Reach 4



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Reach EX-R-4: Existing Reach 4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	47.00	0.00
2.50	0.00	0	47.00	0.00
5.00	0.03	23	47.05	0.01
7.50	0.39	395	47.21	0.34
10.00	1.05	869	47.31	0.98
12.50	15.05	10,098	48.34	19.74
15.00	2.15	1,592	47.41	2.19
17.50	1.52	1,231	47.36	1.55
20.00	1.03	928	47.32	1.07
22.50	0.75	720	47.28	0.76
25.00	0.25	374	47.20	0.32
27.50	0.03	85	47.10	0.04
30.00	0.01	35	47.06	0.01
32.50	0.00	15	47.04	0.00
35.00	0.00	9	47.03	0.00
37.50	0.00	6	47.03	0.00
40.00	0.00	5	47.02	0.00
42.50	0.00	4	47.02	0.00
45.00	0.00	3	47.02	0.00
47.50	0.00	3	47.02	0.00
50.00	0.00	2	47.01	0.00
52.50	0.00	2	47.01	0.00
55.00	0.00	1	47.01	0.00
57.50	0.00	1	47.01	0.00
60.00	0.00	1	47.01	0.00
62.50	0.00	1	47.01	0.00
65.00	0.00	0	47.01	0.00
67.50	0.00	0	47.01	0.00
70.00	0.00	0	47.00	0.00

Aspire - Proposed*Type II 24-hr 100-YR Rainfall=7.60"*

Prepared by {enter your company name here}

Printed 12/5/2022

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Stage-Area-Storage for Reach EX-R-4: Existing Reach 4

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
47.00	0.0	0
47.01	0.0	1
47.02	0.0	4
47.03	0.0	8
47.04	0.0	15
47.05	0.1	23
47.06	0.1	33
47.07	0.1	45
47.08	0.1	59
47.09	0.2	75
47.10	0.2	93
47.11	0.2	112
47.12	0.3	134
47.13	0.3	157
47.14	0.4	182
47.15	0.4	209
47.16	0.5	238
47.17	0.6	268
47.18	0.6	301
47.19	0.7	335
47.20	0.8	371
47.21	0.9	409
47.22	1.0	449
47.23	1.1	491
47.24	1.2	535
47.25	1.3	580
47.26	1.4	627
47.27	1.5	677
47.28	1.6	728
47.29	1.7	780
47.30	1.8	835
47.31	1.9	892
47.32	2.0	950
47.33	2.2	1,011
47.34	2.3	1,073
47.35	2.5	1,137
47.36	2.6	1,203
47.37	2.7	1,270
47.38	2.9	1,340
47.39	3.0	1,411
47.40	3.2	1,485
47.41	3.4	1,560
47.42	3.5	1,637
47.43	3.7	1,716
47.44	3.9	1,797
47.45	4.0	1,879
47.46	4.2	1,964
47.47	4.4	2,050
47.48	4.6	2,138
47.49	4.8	2,228
47.50	5.0	2,320

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Reach PR-R-1: Proposed Reach 1

Inflow Area = 7.608 ac, 28.41% Impervious, Inflow Depth = 6.00" for 100-YR event
Inflow = 46.79 cfs @ 12.14 hrs, Volume= 3.802 af
Outflow = 42.22 cfs @ 12.15 hrs, Volume= 3.802 af, Atten= 10%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 4.71 fps, Min. Travel Time= 0.8 min

Avg. Velocity= 0.94 fps, Avg. Travel Time= 3.9 min

Peak Storage= 1,981 cf @ 12.15 hrs

Average Depth at Peak Storage= 1.73'

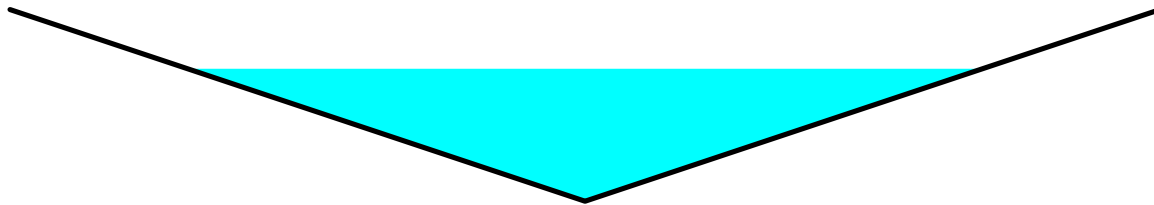
Bank-Full Depth= 2.50' Flow Area= 18.8 sf, Capacity= 112.93 cfs

0.00' x 2.50' deep channel, n= 0.022 Earth, clean & straight

Side Slope Z-value= 3.0 ' Top Width= 15.00'

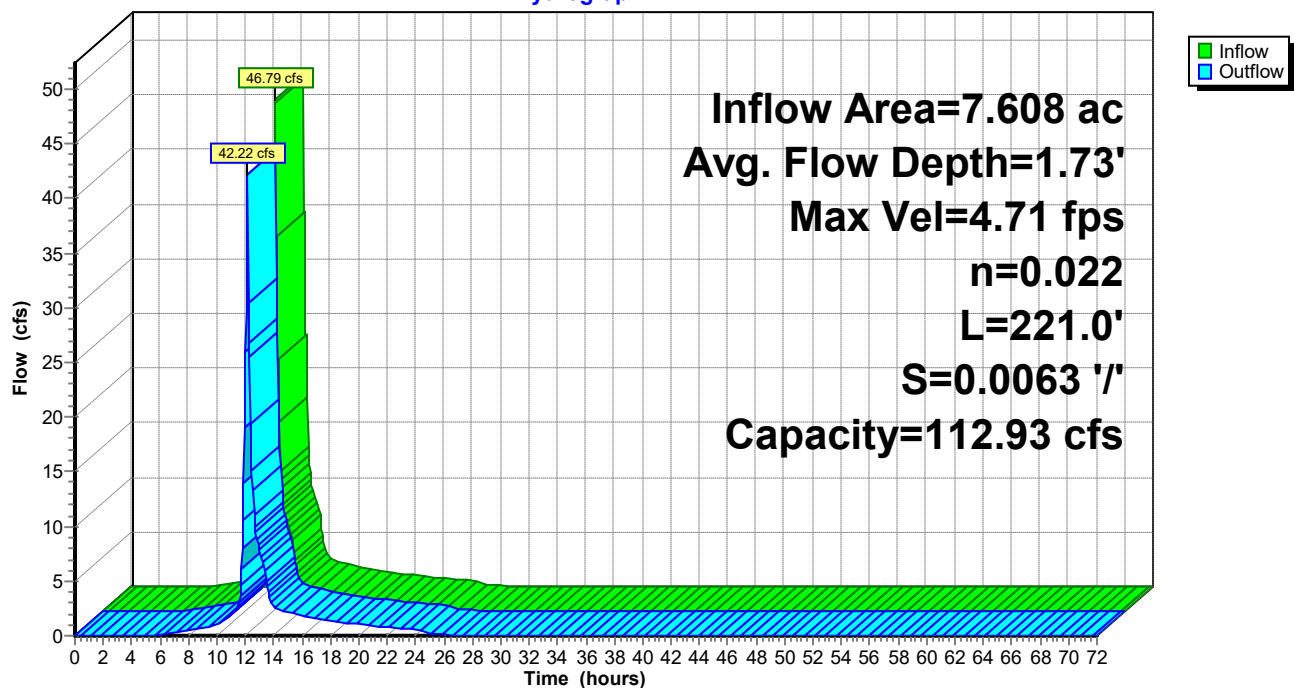
Length= 221.0' Slope= 0.0063 '/'

Inlet Invert= 47.40', Outlet Invert= 46.00'



Reach PR-R-1: Proposed Reach 1

Hydrograph



Aspire - Proposed

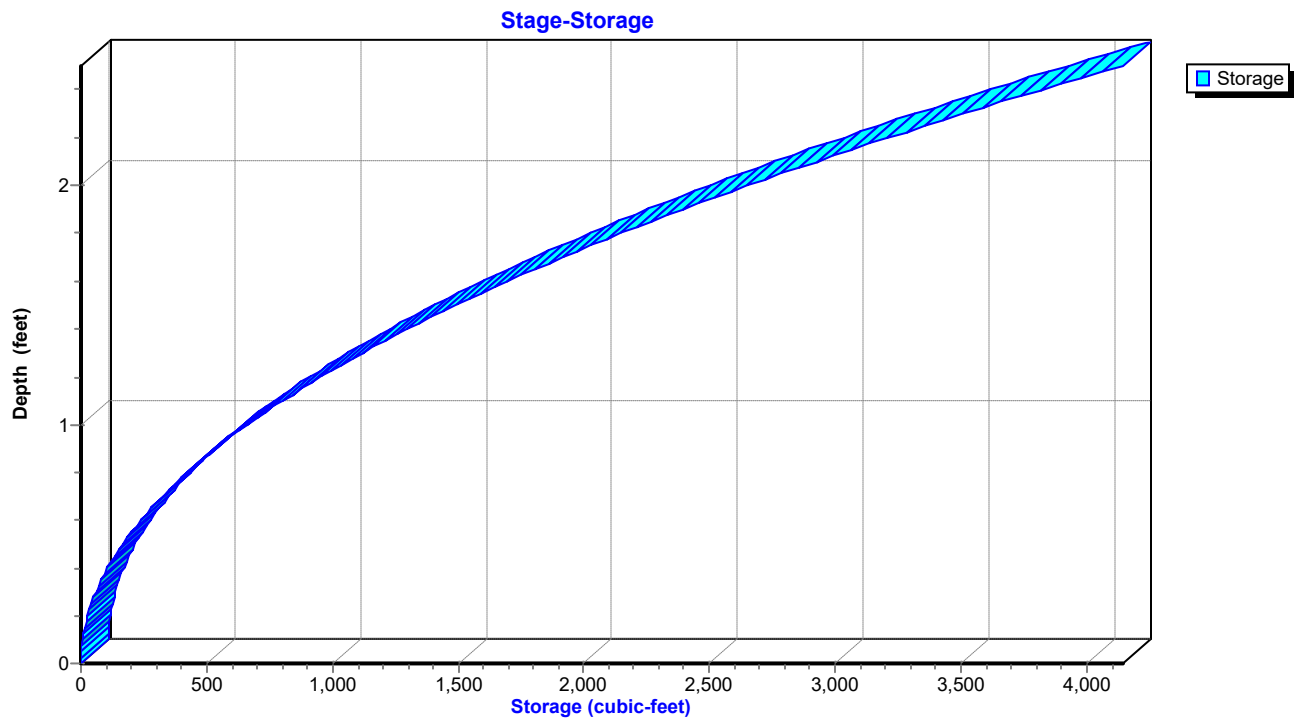
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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Reach PR-R-1: Proposed Reach 1



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Reach PR-R-1: Proposed Reach 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	47.40	0.00
2.50	0.00	0	47.40	0.00
5.00	0.03	8	47.51	0.03
7.50	0.39	59	47.70	0.39
10.00	1.06	124	47.83	1.05
12.50	12.82	914	48.57	15.05
15.00	2.14	212	47.97	2.15
17.50	1.52	164	47.90	1.52
20.00	1.03	122	47.83	1.03
22.50	0.74	96	47.78	0.75
25.00	0.25	43	47.65	0.25
27.50	0.03	9	47.52	0.03
30.00	0.03	4	47.47	0.01
32.50	0.00	1	47.44	0.00
35.00	0.00	1	47.44	0.00
37.50	0.00	0	47.42	0.00
40.00	0.00	1	47.43	0.00
42.50	0.00	0	47.43	0.00
45.00	0.00	0	47.41	0.00
47.50	0.00	0	47.41	0.00
50.00	0.00	0	47.43	0.00
52.50	0.00	0	47.41	0.00
55.00	0.00	0	47.40	0.00
57.50	0.00	0	47.40	0.00
60.00	0.00	0	47.40	0.00
62.50	0.00	0	47.40	0.00
65.00	0.00	0	47.40	0.00
67.50	0.00	0	47.40	0.00
70.00	0.00	0	47.40	0.00

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

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Stage-Area-Storage for Reach PR-R-1: Proposed Reach 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
47.40	0.0	0
47.45	0.0	2
47.50	0.0	7
47.55	0.1	15
47.60	0.1	27
47.65	0.2	41
47.70	0.3	60
47.75	0.4	81
47.80	0.5	106
47.85	0.6	134
47.90	0.8	166
47.95	0.9	201
48.00	1.1	239
48.05	1.3	280
48.10	1.5	325
48.15	1.7	373
48.20	1.9	424
48.25	2.2	479
48.30	2.4	537
48.35	2.7	598
48.40	3.0	663
48.45	3.3	731
48.50	3.6	802
48.55	4.0	877
48.60	4.3	955
48.65	4.7	1,036
48.70	5.1	1,120
48.75	5.5	1,208
48.80	5.9	1,299
48.85	6.3	1,394
48.90	6.8	1,492
48.95	7.2	1,593
49.00	7.7	1,697
49.05	8.2	1,805
49.10	8.7	1,916
49.15	9.2	2,030
49.20	9.7	2,148
49.25	10.3	2,269
49.30	10.8	2,393
49.35	11.4	2,521
49.40	12.0	2,652
49.45	12.6	2,786
49.50	13.2	2,924
49.55	13.9	3,065
49.60	14.5	3,209
49.65	15.2	3,356
49.70	15.9	3,507
49.75	16.6	3,661
49.80	17.3	3,819
49.85	18.0	3,980
49.90	18.8	4,144

Aspire - Proposed

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Type II 24-hr 100-YR Rainfall=7.60"

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Summary for Reach PR-R-2: Proposed Reach 2

Inflow Area = 5.341 ac, 6.24% Impervious, Inflow Depth = 5.75" for 100-YR event
Inflow = 31.60 cfs @ 12.15 hrs, Volume= 2.559 af
Outflow = 30.30 cfs @ 12.15 hrs, Volume= 2.559 af, Atten= 4%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.14 fps, Min. Travel Time= 0.5 min

Avg. Velocity= 1.34 fps, Avg. Travel Time= 1.2 min

Peak Storage= 966 cf @ 12.15 hrs

Average Depth at Peak Storage= 2.12'

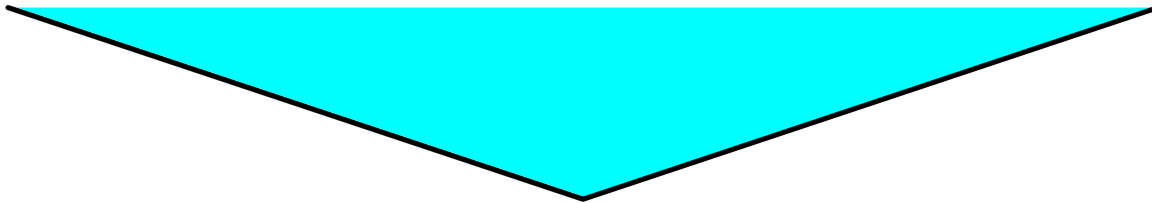
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 7.67 cfs

0.00' x 1.00' deep channel, n= 0.025

Side Slope Z-value= 3.0 '/' Top Width= 6.00'

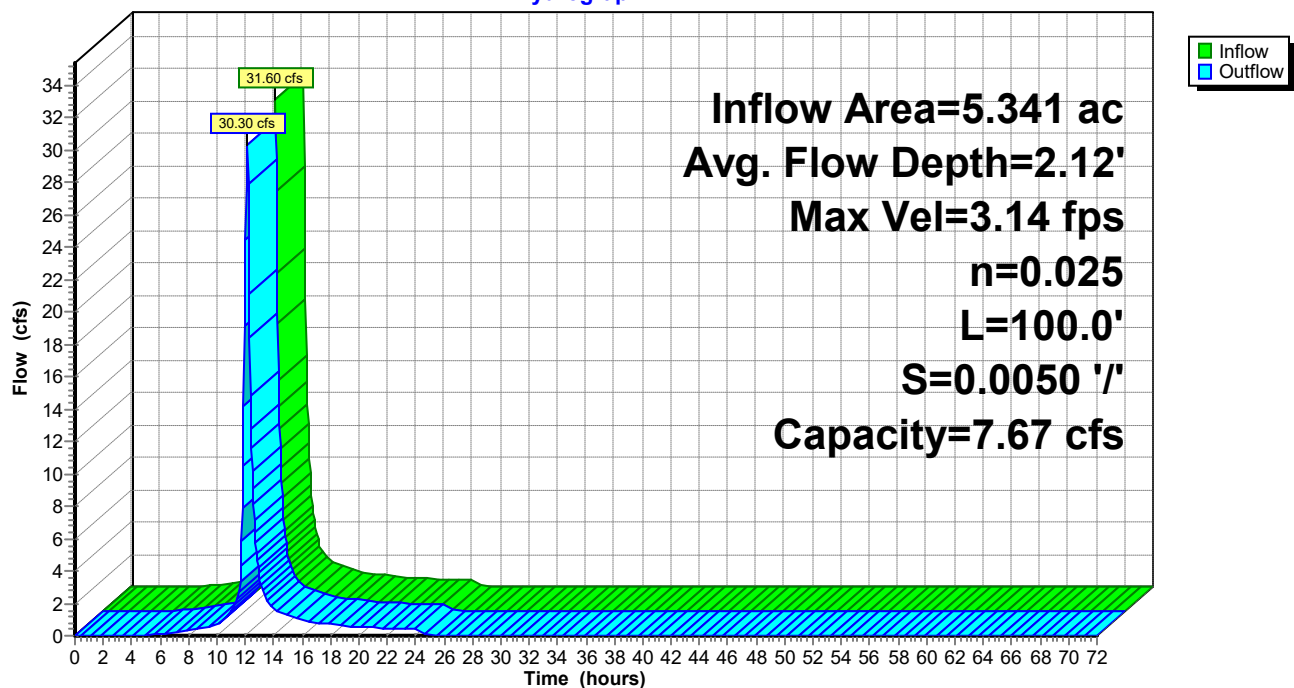
Length= 100.0' Slope= 0.0050 '/'

Inlet Invert= 47.50', Outlet Invert= 47.00'

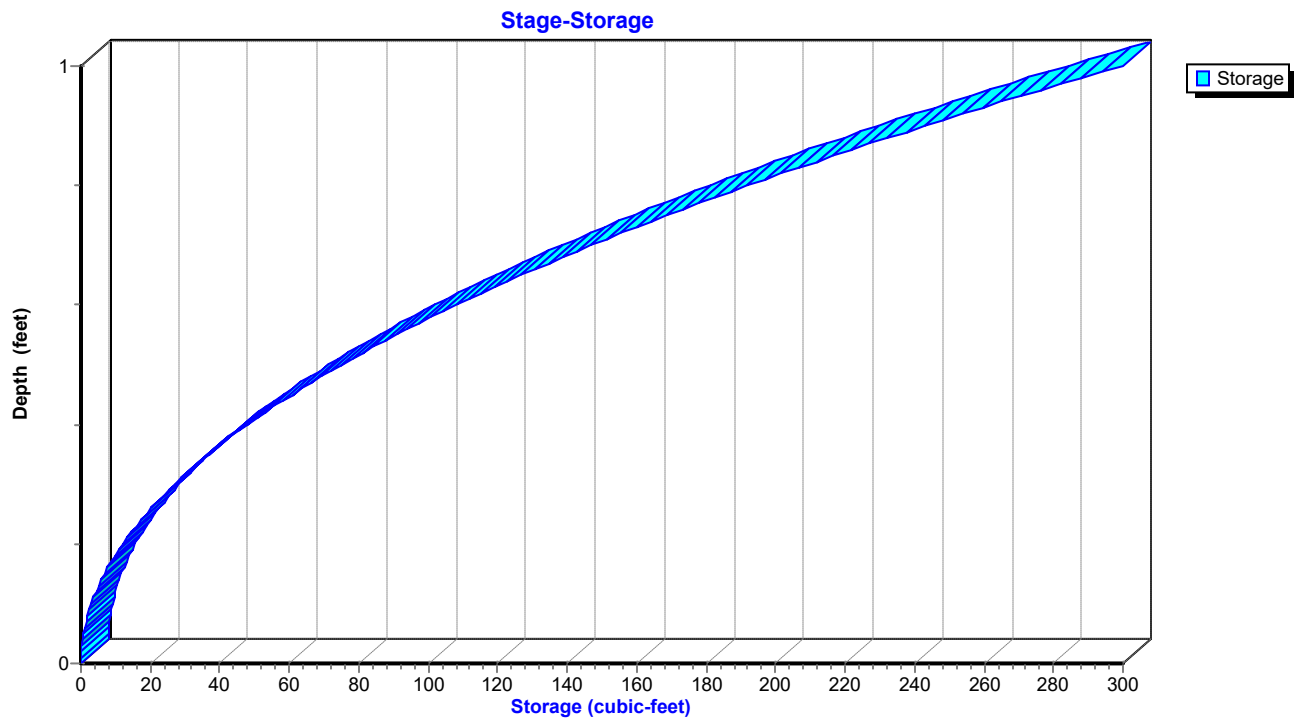


Reach PR-R-2: Proposed Reach 2

Hydrograph



Reach PR-R-2: Proposed Reach 2



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Reach PR-R-2: Proposed Reach 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	47.50	0.00
2.50	0.00	0	47.50	0.00
5.00	0.02	3	47.60	0.02
7.50	0.23	22	47.77	0.23
10.00	0.74	51	47.91	0.73
12.50	10.03	374	48.62	10.20
15.00	1.24	77	48.01	1.24
17.50	0.77	54	47.92	0.78
20.00	0.54	41	47.87	0.54
22.50	0.46	37	47.85	0.46
25.00	0.01	2	47.58	0.01
27.50	0.00	0	47.50	0.00
30.00	0.00	0	47.50	0.00
32.50	0.00	0	47.50	0.00
35.00	0.00	0	47.50	0.00
37.50	0.00	0	47.50	0.00
40.00	0.00	0	47.50	0.00
42.50	0.00	0	47.50	0.00
45.00	0.00	0	47.50	0.00
47.50	0.00	0	47.50	0.00
50.00	0.00	0	47.50	0.00
52.50	0.00	0	47.50	0.00
55.00	0.00	0	47.50	0.00
57.50	0.00	0	47.50	0.00
60.00	0.00	0	47.50	0.00
62.50	0.00	0	47.50	0.00
65.00	0.00	0	47.50	0.00
67.50	0.00	0	47.50	0.00
70.00	0.00	0	47.50	0.00

Aspire - Proposed

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Type II 24-hr 100-YR Rainfall=7.60"

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Stage-Area-Storage for Reach PR-R-2: Proposed Reach 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
47.50	0.0	0	48.02	0.8	81
47.51	0.0	0	48.03	0.8	84
47.52	0.0	0	48.04	0.9	87
47.53	0.0	0	48.05	0.9	91
47.54	0.0	0	48.06	0.9	94
47.55	0.0	1	48.07	1.0	97
47.56	0.0	1	48.08	1.0	101
47.57	0.0	1	48.09	1.0	104
47.58	0.0	2	48.10	1.1	108
47.59	0.0	2	48.11	1.1	112
47.60	0.0	3	48.12	1.2	115
47.61	0.0	4	48.13	1.2	119
47.62	0.0	4	48.14	1.2	123
47.63	0.1	5	48.15	1.3	127
47.64	0.1	6	48.16	1.3	131
47.65	0.1	7	48.17	1.3	135
47.66	0.1	8	48.18	1.4	139
47.67	0.1	9	48.19	1.4	143
47.68	0.1	10	48.20	1.5	147
47.69	0.1	11	48.21	1.5	151
47.70	0.1	12	48.22	1.6	156
47.71	0.1	13	48.23	1.6	160
47.72	0.1	15	48.24	1.6	164
47.73	0.2	16	48.25	1.7	169
47.74	0.2	17	48.26	1.7	173
47.75	0.2	19	48.27	1.8	178
47.76	0.2	20	48.28	1.8	183
47.77	0.2	22	48.29	1.9	187
47.78	0.2	24	48.30	1.9	192
47.79	0.3	25	48.31	2.0	197
47.80	0.3	27	48.32	2.0	202
47.81	0.3	29	48.33	2.1	207
47.82	0.3	31	48.34	2.1	212
47.83	0.3	33	48.35	2.2	217
47.84	0.3	35	48.36	2.2	222
47.85	0.4	37	48.37	2.3	227
47.86	0.4	39	48.38	2.3	232
47.87	0.4	41	48.39	2.4	238
47.88	0.4	43	48.40	2.4	243
47.89	0.5	46	48.41	2.5	248
47.90	0.5	48	48.42	2.5	254
47.91	0.5	50	48.43	2.6	259
47.92	0.5	53	48.44	2.7	265
47.93	0.6	55	48.45	2.7	271
47.94	0.6	58	48.46	2.8	276
47.95	0.6	61	48.47	2.8	282
47.96	0.6	63	48.48	2.9	288
47.97	0.7	66	48.49	2.9	294
47.98	0.7	69	48.50	3.0	300
47.99	0.7	72			
48.00	0.8	75			
48.01	0.8	78			

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Pond FB-1: FB to SGW 1

Inflow Area = 3.305 ac, 69.42% Impervious, Inflow Depth = 6.53" for 100-YR event
 Inflow = 24.25 cfs @ 12.01 hrs, Volume= 1.798 af
 Outflow = 18.16 cfs @ 12.08 hrs, Volume= 1.404 af, Atten= 25%, Lag= 4.4 min
 Primary = 18.16 cfs @ 12.08 hrs, Volume= 1.404 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 49.63' @ 12.25 hrs Surf.Area= 20,000 sf Storage= 27,690 cf

Plug-Flow detention time= 161.3 min calculated for 1.404 af (78% of inflow)
 Center-of-Mass det. time= 77.1 min (855.0 - 777.9)

Volume	Invert	Avail.Storage	Storage Description
#1	45.50'	27,690 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.50	7,419	0	0
48.50	10,938	27,536	27,536
48.51	20,000	155	27,690

Device	Routing	Invert	Outlet Devices
#1	Primary	47.50'	7.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=13.90 cfs @ 12.08 hrs HW=48.49' TW=48.14' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 13.90 cfs @ 2.00 fps)

Aspire - Proposed

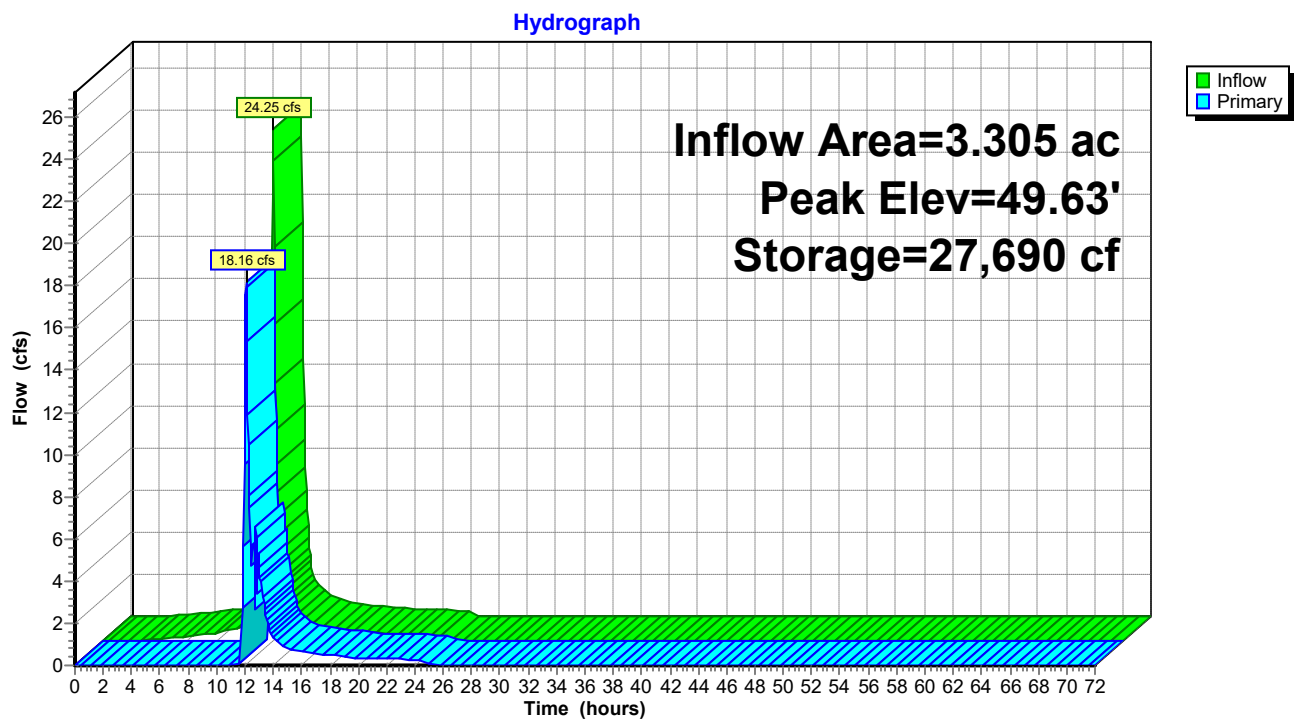
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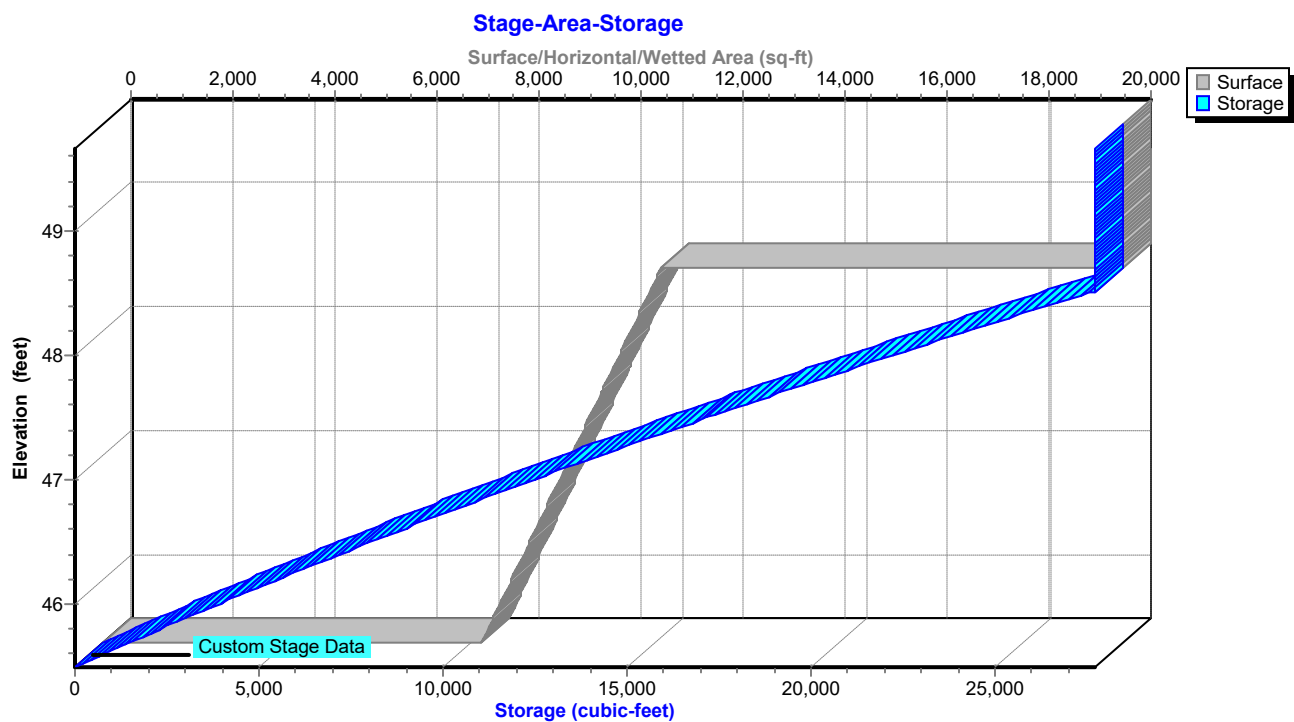
Type II 24-hr 100-YR Rainfall=7.60"

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Pond FB-1: FB to SGW 1



Pond FB-1: FB to SGW 1



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Pond FB-1: FB to SGW 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	45.50	0.00
2.50	0.00	0	45.50	0.00
5.00	0.15	630	45.58	0.00
7.50	0.32	2,710	45.86	0.00
10.00	0.72	7,105	46.39	0.00
12.50	4.32	27,690	48.52	3.95
15.00	0.78	18,473	47.63	0.84
17.50	0.49	18,109	47.59	0.51
20.00	0.34	17,913	47.57	0.36
22.50	0.30	17,830	47.57	0.30
25.00	0.00	17,418	47.52	0.07
27.50	0.00	17,230	47.50	0.01
30.00	0.00	17,203	47.50	0.00
32.50	0.00	17,194	47.50	0.00
35.00	0.00	17,190	47.50	0.00
37.50	0.00	17,188	47.50	0.00
40.00	0.00	17,187	47.50	0.00
42.50	0.00	17,186	47.50	0.00
45.00	0.00	17,186	47.50	0.00
47.50	0.00	17,185	47.50	0.00
50.00	0.00	17,185	47.50	0.00
52.50	0.00	17,185	47.50	0.00
55.00	0.00	17,185	47.50	0.00
57.50	0.00	17,185	47.50	0.00
60.00	0.00	17,185	47.50	0.00
62.50	0.00	17,184	47.50	0.00
65.00	0.00	17,184	47.50	0.00
67.50	0.00	17,184	47.50	0.00
70.00	0.00	17,184	47.50	0.00

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

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Stage-Area-Storage for Pond FB-1: FB to SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
45.50	7,419	0	48.10	10,469	23,254
45.55	7,478	372	48.15	10,527	23,779
45.60	7,536	748	48.20	10,586	24,307
45.65	7,595	1,126	48.25	10,645	24,838
45.70	7,654	1,507	48.30	10,703	25,371
45.75	7,712	1,891	48.35	10,762	25,908
45.80	7,771	2,278	48.40	10,821	26,448
45.85	7,830	2,668	48.45	10,879	26,990
45.90	7,888	3,061	48.50	10,938	27,536
45.95	7,947	3,457	48.55	20,000	27,690
46.00	8,006	3,856	48.60	20,000	27,690
46.05	8,064	4,258	48.65	20,000	27,690
46.10	8,123	4,663	48.70	20,000	27,690
46.15	8,181	5,070	48.75	20,000	27,690
46.20	8,240	5,481	48.80	20,000	27,690
46.25	8,299	5,894	48.85	20,000	27,690
46.30	8,357	6,311	48.90	20,000	27,690
46.35	8,416	6,730	48.95	20,000	27,690
46.40	8,475	7,152	49.00	20,000	27,690
46.45	8,533	7,577	49.05	20,000	27,690
46.50	8,592	8,006	49.10	20,000	27,690
46.55	8,651	8,437	49.15	20,000	27,690
46.60	8,709	8,871	49.20	20,000	27,690
46.65	8,768	9,307	49.25	20,000	27,690
46.70	8,827	9,747	49.30	20,000	27,690
46.75	8,885	10,190	49.35	20,000	27,690
46.80	8,944	10,636	49.40	20,000	27,690
46.85	9,003	11,085	49.45	20,000	27,690
46.90	9,061	11,536	49.50	20,000	27,690
46.95	9,120	11,991	49.55	20,000	27,690
47.00	9,179	12,448	49.60	20,000	27,690
47.05	9,237	12,909	49.65	20,000	27,690
47.10	9,296	13,372			
47.15	9,354	13,838			
47.20	9,413	14,307			
47.25	9,472	14,779			
47.30	9,530	15,254			
47.35	9,589	15,732			
47.40	9,648	16,213			
47.45	9,706	16,697			
47.50	9,765	17,184			
47.55	9,824	17,674			
47.60	9,882	18,166			
47.65	9,941	18,662			
47.70	10,000	19,160			
47.75	10,058	19,662			
47.80	10,117	20,166			
47.85	10,176	20,674			
47.90	10,234	21,184			
47.95	10,293	21,697			
48.00	10,352	22,213			
48.05	10,410	22,732			

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

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Summary for Pond FB-2: FB to SGW 2

Inflow Area = 3.241 ac, 66.40% Impervious, Inflow Depth = 6.41" for 100-YR event
 Inflow = 19.98 cfs @ 12.05 hrs, Volume= 1.732 af
 Outflow = 20.75 cfs @ 12.09 hrs, Volume= 1.732 af, Atten= 0%, Lag= 2.5 min
 Primary = 20.75 cfs @ 12.09 hrs, Volume= 1.732 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Starting Elev= 49.50' Surf.Area= 3,371 sf Storage= 5,375 cf
 Peak Elev= 50.83' @ 12.19 hrs Surf.Area= 10,000 sf Storage= 9,157 cf (3,783 cf above start)

Plug-Flow detention time= 73.9 min calculated for 1.608 af (93% of inflow)
 Center-of-Mass det. time= 8.5 min (794.9 - 786.4)

Volume	Invert	Avail.Storage	Storage Description
#1	47.50'	9,157 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

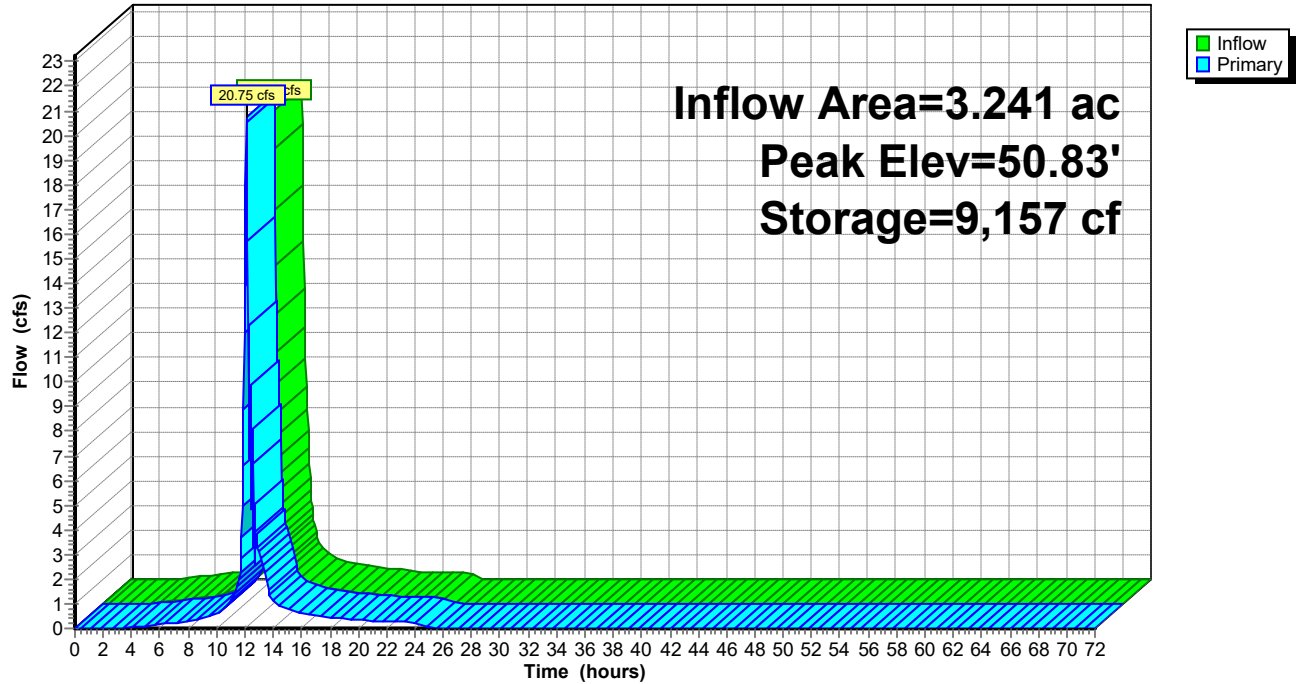
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.50	2,004	0	0
50.50	4,054	9,087	9,087
50.51	10,000	70	9,157

Device	Routing	Invert	Outlet Devices
#1	Primary	49.50'	7.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=14.43 cfs @ 12.09 hrs HW=50.68' TW=50.46' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 14.43 cfs @ 1.75 fps)

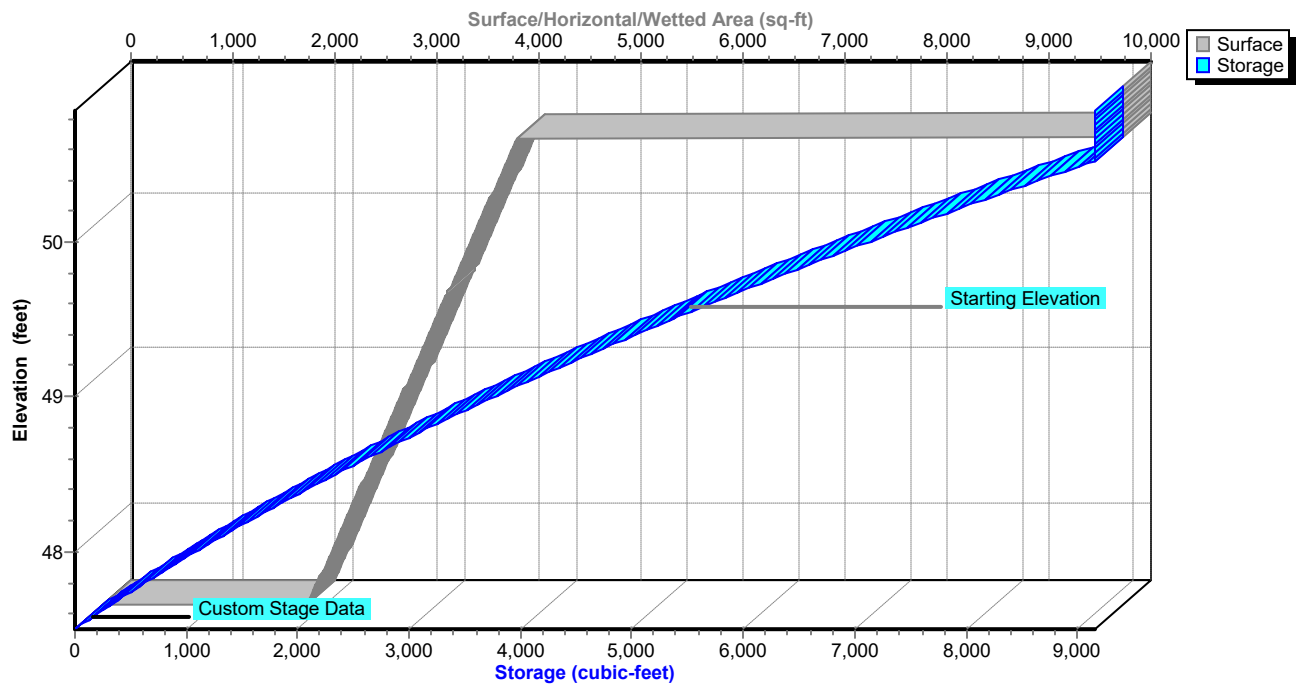
Pond FB-2: FB to SGW 2

Hydrograph



Pond FB-2: FB to SGW 2

Stage-Area-Storage



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

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Hydrograph for Pond FB-2: FB to SGW 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	5,375	49.50	0.00
2.50	0.00	5,375	49.50	0.00
5.00	0.12	5,484	49.53	0.10
7.50	0.28	5,584	49.56	0.27
10.00	0.66	5,741	49.61	0.63
12.50	6.07	9,157	50.60	8.10
15.00	0.78	5,805	49.63	0.80
17.50	0.49	5,687	49.59	0.49
20.00	0.34	5,619	49.57	0.34
22.50	0.29	5,594	49.56	0.29
25.00	0.00	5,414	49.51	0.02
27.50	0.00	5,378	49.50	0.00
30.00	0.00	5,376	49.50	0.00
32.50	0.00	5,375	49.50	0.00
35.00	0.00	5,375	49.50	0.00
37.50	0.00	5,375	49.50	0.00
40.00	0.00	5,375	49.50	0.00
42.50	0.00	5,375	49.50	0.00
45.00	0.00	5,375	49.50	0.00
47.50	0.00	5,375	49.50	0.00
50.00	0.00	5,375	49.50	0.00
52.50	0.00	5,375	49.50	0.00
55.00	0.00	5,375	49.50	0.00
57.50	0.00	5,375	49.50	0.00
60.00	0.00	5,375	49.50	0.00
62.50	0.00	5,375	49.50	0.00
65.00	0.00	5,375	49.50	0.00
67.50	0.00	5,375	49.50	0.00
70.00	0.00	5,375	49.50	0.00

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

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Stage-Area-Storage for Pond FB-2: FB to SGW 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
47.50	2,004	0	50.10	3,781	7,520
47.55	2,038	101	50.15	3,815	7,710
47.60	2,072	204	50.20	3,849	7,902
47.65	2,106	308	50.25	3,883	8,095
47.70	2,141	414	50.30	3,917	8,290
47.75	2,175	522	50.35	3,952	8,487
47.80	2,209	632	50.40	3,986	8,685
47.85	2,243	743	50.45	4,020	8,885
47.90	2,277	856	50.50	4,054	9,087
47.95	2,312	971	50.55	10,000	9,157
48.00	2,346	1,087	50.60	10,000	9,157
48.05	2,380	1,206	50.65	10,000	9,157
48.10	2,414	1,325	50.70	10,000	9,157
48.15	2,448	1,447	50.75	10,000	9,157
48.20	2,482	1,570	50.80	10,000	9,157
48.25	2,517	1,695			
48.30	2,551	1,822			
48.35	2,585	1,950			
48.40	2,619	2,080			
48.45	2,653	2,212			
48.50	2,687	2,346			
48.55	2,721	2,481			
48.60	2,756	2,618			
48.65	2,790	2,756			
48.70	2,824	2,897			
48.75	2,858	3,039			
48.80	2,892	3,183			
48.85	2,927	3,328			
48.90	2,961	3,475			
48.95	2,995	3,624			
49.00	3,029	3,775			
49.05	3,063	3,927			
49.10	3,097	4,081			
49.15	3,131	4,237			
49.20	3,166	4,394			
49.25	3,200	4,553			
49.30	3,234	4,714			
49.35	3,268	4,877			
49.40	3,302	5,041			
49.45	3,337	5,207			
49.50	3,371	5,375			
49.55	3,405	5,544			
49.60	3,439	5,715			
49.65	3,473	5,888			
49.70	3,507	6,062			
49.75	3,542	6,239			
49.80	3,576	6,417			
49.85	3,610	6,596			
49.90	3,644	6,778			
49.95	3,678	6,961			
50.00	3,712	7,145			
50.05	3,746	7,332			

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Pond SGW-1: SGW 1

Inflow Area = 3.305 ac, 69.42% Impervious, Inflow Depth = 5.10" for 100-YR event
 Inflow = 18.16 cfs @ 12.08 hrs, Volume= 1.404 af
 Outflow = 15.26 cfs @ 12.16 hrs, Volume= 1.404 af, Atten= 16%, Lag= 4.9 min
 Primary = 7.51 cfs @ 12.20 hrs, Volume= 1.336 af
 Secondary = 7.74 cfs @ 12.16 hrs, Volume= 0.068 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Starting Elev= 45.17' Surf.Area= 2,056 sf Storage= 1,382 cf

Peak Elev= 49.62' @ 12.20 hrs Surf.Area= 100,000 sf Storage= 11,206 cf (9,825 cf above start)

Plug-Flow detention time= 49.2 min calculated for 1.371 af (98% of inflow)

Center-of-Mass det. time= 31.3 min (886.3 - 855.0)

Volume	Invert	Avail.Storage	Storage Description	
#1	43.49'	11,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.49	2,056	0.0	0	0
43.50	2,056	40.0	8	8
45.49	2,056	40.0	1,637	1,645
45.50	2,056	100.0	21	1,665
48.50	3,958	100.0	9,021	10,686
48.51	100,000	100.0	520	11,206

Device	Routing	Invert	Outlet Devices
#1	Primary	45.17'	12.0" Round Culvert L= 28.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.17' / 45.00' S= 0.0060 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	47.50'	24.0" x 24.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads
#3	Device 1	45.17'	6.0" Vert. Collector Pipe C= 0.600
#4	Secondary	48.50'	75.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=7.51 cfs @ 12.20 hrs HW=49.61' TW=45.55' (Dynamic Tailwater)

1=Culvert (Inlet Controls 7.51 cfs @ 9.56 fps)

2=Rim (Passes < 27.98 cfs potential flow)

3=Collector Pipe (Passes < 1.91 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 12.16 hrs HW=49.51' TW=49.59' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Aspire - Proposed

Prepared by {enter your company name here}

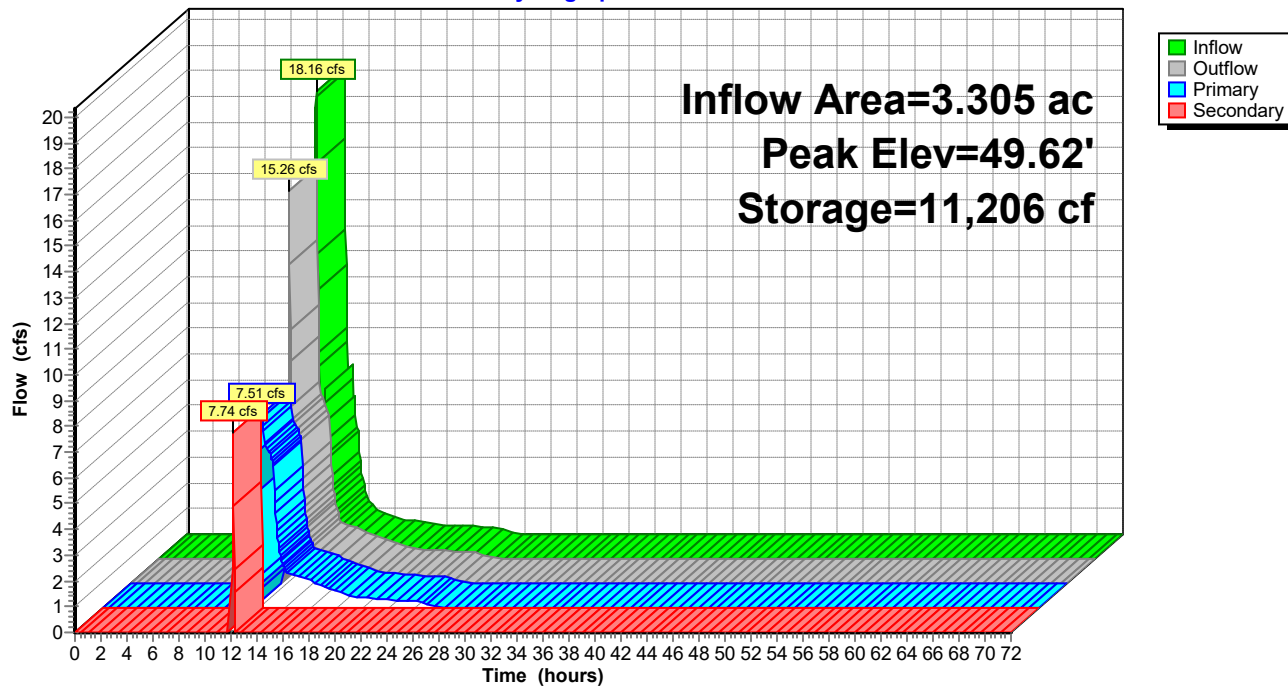
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Type II 24-hr 100-YR Rainfall=7.60"

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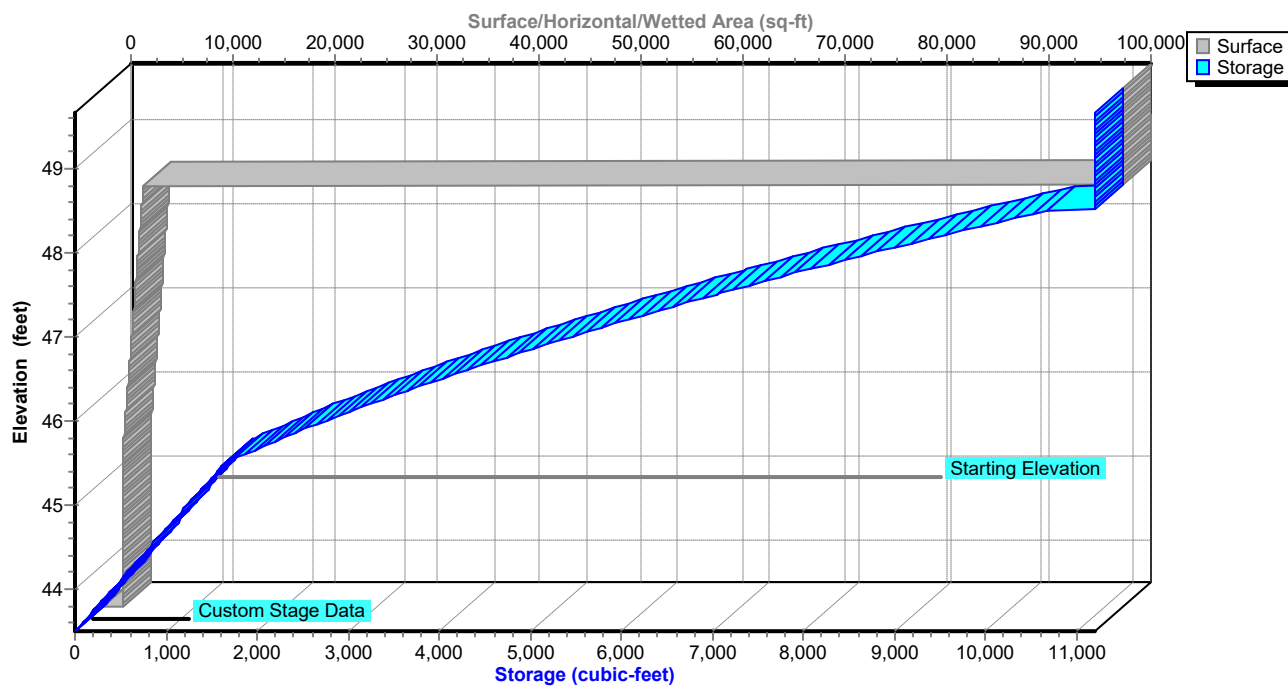
Pond SGW-1: SGW 1

Hydrograph



Pond SGW-1: SGW 1

Stage-Area-Storage



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Pond SGW-1: SGW 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	1,382	45.17	0.00	0.00	0.00
2.50	0.00	1,382	45.17	0.00	0.00	0.00
5.00	0.00	1,382	45.17	0.00	0.00	0.00
7.50	0.00	1,382	45.17	0.00	0.00	0.00
10.00	0.00	1,382	45.17	0.00	0.00	0.00
12.50	3.95	10,740	48.50	6.37	6.37	0.00
15.00	0.84	6,012	47.18	1.25	1.25	0.00
17.50	0.51	2,808	46.01	0.73	0.73	0.00
20.00	0.36	1,875	45.60	0.40	0.40	0.00
22.50	0.30	1,724	45.53	0.31	0.31	0.00
25.00	0.07	1,536	45.36	0.10	0.10	0.00
27.50	0.01	1,428	45.23	0.01	0.01	0.00
30.00	0.00	1,407	45.20	0.00	0.00	0.00
32.50	0.00	1,399	45.19	0.00	0.00	0.00
35.00	0.00	1,395	45.19	0.00	0.00	0.00
37.50	0.00	1,392	45.18	0.00	0.00	0.00
40.00	0.00	1,390	45.18	0.00	0.00	0.00
42.50	0.00	1,389	45.18	0.00	0.00	0.00
45.00	0.00	1,388	45.18	0.00	0.00	0.00
47.50	0.00	1,387	45.18	0.00	0.00	0.00
50.00	0.00	1,387	45.18	0.00	0.00	0.00
52.50	0.00	1,386	45.18	0.00	0.00	0.00
55.00	0.00	1,386	45.17	0.00	0.00	0.00
57.50	0.00	1,385	45.17	0.00	0.00	0.00
60.00	0.00	1,385	45.17	0.00	0.00	0.00
62.50	0.00	1,385	45.17	0.00	0.00	0.00
65.00	0.00	1,385	45.17	0.00	0.00	0.00
67.50	0.00	1,384	45.17	0.00	0.00	0.00
70.00	0.00	1,384	45.17	0.00	0.00	0.00

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

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Stage-Area-Storage for Pond SGW-1: SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
43.49	2,056	0	48.69	100,000	11,206
43.59	2,056	82	48.79	100,000	11,206
43.69	2,056	164	48.89	100,000	11,206
43.79	2,056	247	48.99	100,000	11,206
43.89	2,056	329	49.09	100,000	11,206
43.99	2,056	411	49.19	100,000	11,206
44.09	2,056	493	49.29	100,000	11,206
44.19	2,056	576	49.39	100,000	11,206
44.29	2,056	658	49.49	100,000	11,206
44.39	2,056	740	49.59	100,000	11,206
44.49	2,056	822			
44.59	2,056	905			
44.69	2,056	987			
44.79	2,056	1,069			
44.89	2,056	1,151			
44.99	2,056	1,234			
45.09	2,056	1,316			
45.19	2,056	1,398			
45.29	2,056	1,480			
45.39	2,056	1,563			
45.49	2,056	1,645			
45.59	2,113	1,853			
45.69	2,176	2,067			
45.79	2,240	2,288			
45.89	2,303	2,515			
45.99	2,367	2,749			
46.09	2,430	2,989			
46.19	2,493	3,235			
46.29	2,557	3,487			
46.39	2,620	3,746			
46.49	2,684	4,011			
46.59	2,747	4,283			
46.69	2,810	4,561			
46.79	2,874	4,845			
46.89	2,937	5,136			
46.99	3,001	5,433			
47.09	3,064	5,736			
47.19	3,127	6,045			
47.29	3,191	6,361			
47.39	3,254	6,684			
47.49	3,318	7,012			
47.59	3,381	7,347			
47.69	3,444	7,688			
47.79	3,508	8,036			
47.89	3,571	8,390			
47.99	3,635	8,750			
48.09	3,698	9,117			
48.19	3,761	9,490			
48.29	3,825	9,869			
48.39	3,888	10,255			
48.49	3,952	10,647			
48.59	100,000	11,206			

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Summary for Pond SGW-2: SGW 2

Inflow Area = 3.241 ac, 66.40% Impervious, Inflow Depth = 6.41" for 100-YR event
 Inflow = 20.75 cfs @ 12.09 hrs, Volume= 1.732 af
 Outflow = 26.69 cfs @ 12.15 hrs, Volume= 1.723 af, Atten= 0%, Lag= 3.5 min
 Primary = 26.69 cfs @ 12.15 hrs, Volume= 1.723 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Starting Elev= 47.17' Surf.Area= 4,027 sf Storage= 2,706 cf
 Peak Elev= 50.64' @ 12.15 hrs Surf.Area= 20,000 sf Storage= 20,699 cf (17,993 cf above start)

Plug-Flow detention time= 120.0 min calculated for 1.660 af (96% of inflow)
 Center-of-Mass det. time= 81.9 min (876.9 - 794.9)

Volume	Invert	Avail.Storage	Storage Description
#1	45.49'	20,699 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.49	4,027	0.0	0	0
45.50	4,027	40.0	16	16
47.49	4,027	40.0	3,205	3,222
47.50	4,027	100.0	40	3,262
50.50	7,506	100.0	17,300	20,561
50.51	20,000	100.0	138	20,699

Device	Routing	Invert	Outlet Devices
#1	Primary	47.25'	12.0" Round Culvert L= 25.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.25' / 47.00' S= 0.0098 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	49.50'	24.0" x 24.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads
#3	Device 1	47.16'	6.0" Vert. Collector Pipe C= 0.600
#4	Primary	50.50'	159.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=25.39 cfs @ 12.15 hrs HW=50.64' TW=49.12' (Dynamic Tailwater)

1=Culvert (Inlet Controls 4.66 cfs @ 5.93 fps)
 2=Rim (Passes < 20.55 cfs potential flow)
 3=Collector Pipe (Passes < 1.16 cfs potential flow)
 4=Broad-Crested Rectangular Weir (Weir Controls 20.73 cfs @ 0.94 fps)

Aspire - Proposed

Prepared by {enter your company name here}

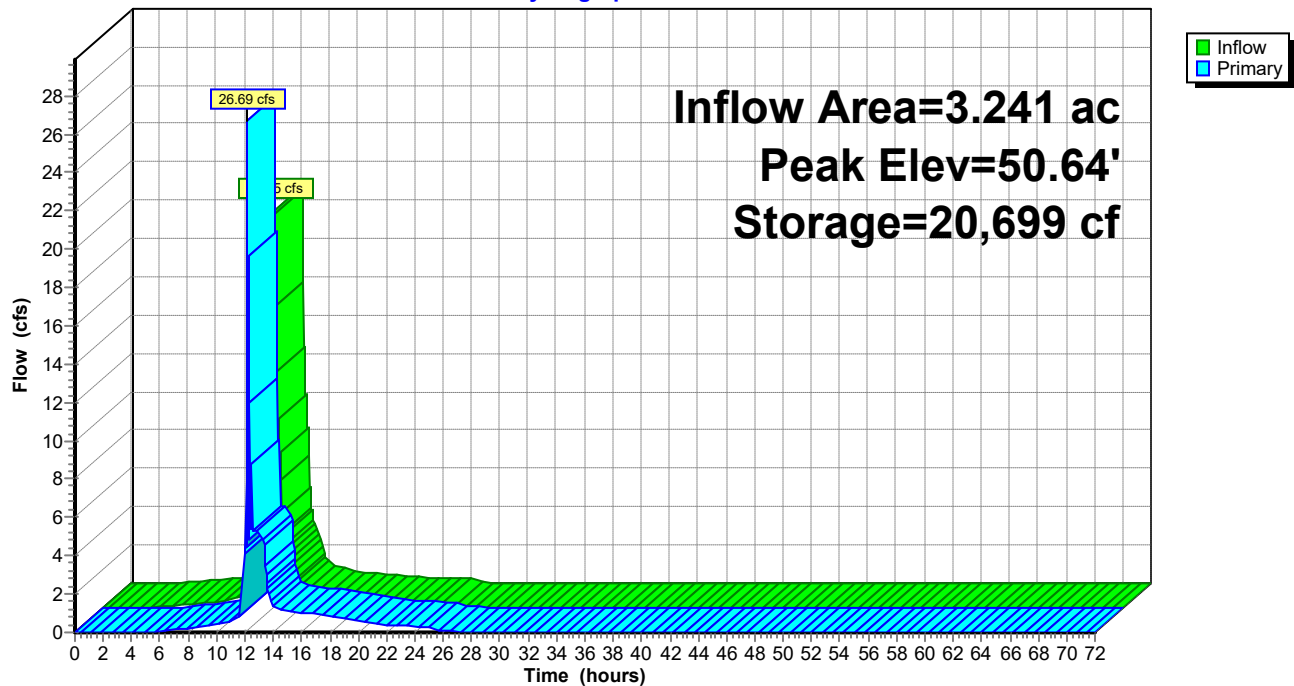
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Type II 24-hr 100-YR Rainfall=7.60"

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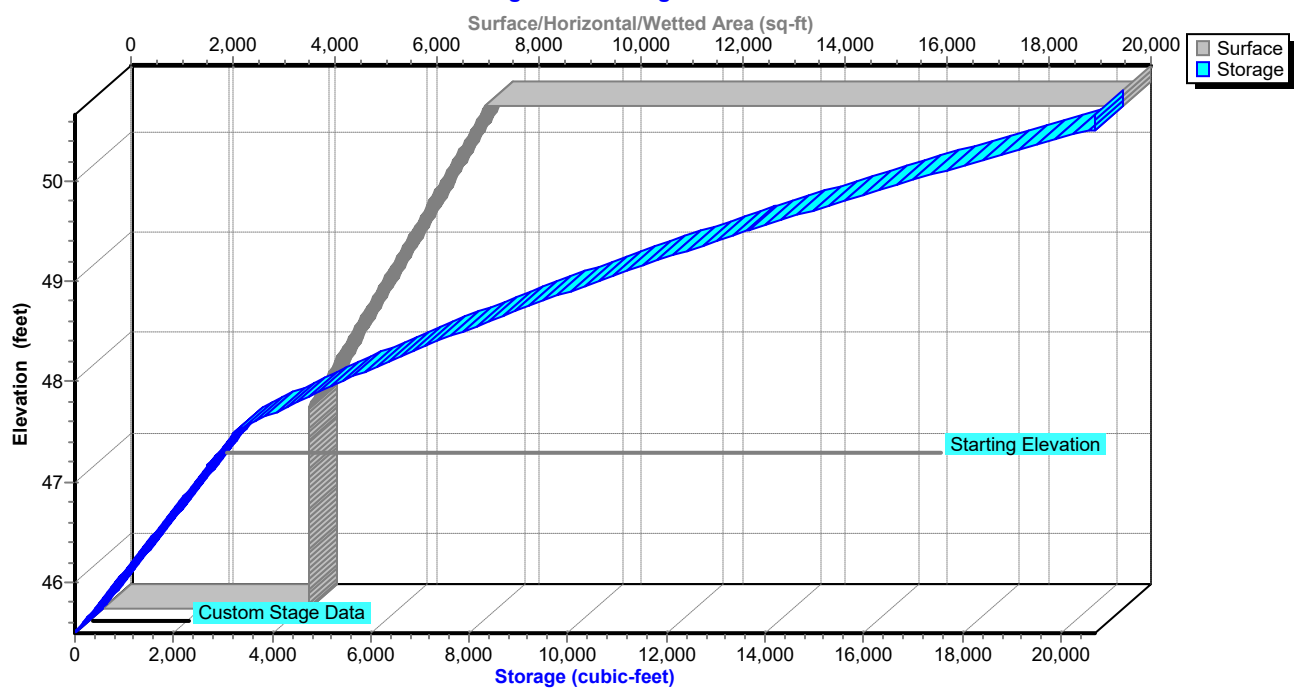
Pond SGW-2: SGW 2

Hydrograph



Pond SGW-2: SGW 2

Stage-Area-Storage



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

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Hydrograph for Pond SGW-2: SGW 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	2,706	47.17	0.00
2.50	0.00	2,706	47.17	0.00
5.00	0.10	3,032	47.37	0.00
7.50	0.27	4,212	47.73	0.17
10.00	0.63	5,501	48.02	0.41
12.50	8.10	20,593	50.50	5.33
15.00	0.80	12,962	49.39	1.13
17.50	0.49	9,316	48.77	0.88
20.00	0.34	6,459	48.22	0.59
22.50	0.29	5,093	47.93	0.36
25.00	0.02	4,195	47.72	0.24
27.50	0.00	3,358	47.52	0.03
30.00	0.00	3,188	47.47	0.03
32.50	0.00	3,141	47.44	0.00
35.00	0.00	3,121	47.43	0.00
37.50	0.00	3,109	47.42	0.00
40.00	0.00	3,099	47.41	0.00
42.50	0.00	3,093	47.41	0.00
45.00	0.00	3,089	47.41	0.00
47.50	0.00	3,085	47.41	0.00
50.00	0.00	3,082	47.40	0.00
52.50	0.00	3,080	47.40	0.00
55.00	0.00	3,079	47.40	0.00
57.50	0.00	3,078	47.40	0.00
60.00	0.00	3,077	47.40	0.00
62.50	0.00	3,077	47.40	0.00
65.00	0.00	3,077	47.40	0.00
67.50	0.00	3,077	47.40	0.00
70.00	0.00	3,077	47.40	0.00

Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Stage-Area-Storage for Pond SGW-2: SGW 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
45.49	4,027	0
45.59	4,027	161
45.69	4,027	322
45.79	4,027	483
45.89	4,027	644
45.99	4,027	805
46.09	4,027	966
46.19	4,027	1,128
46.29	4,027	1,289
46.39	4,027	1,450
46.49	4,027	1,611
46.59	4,027	1,772
46.69	4,027	1,933
46.79	4,027	2,094
46.89	4,027	2,255
46.99	4,027	2,416
47.09	4,027	2,577
47.19	4,027	2,738
47.29	4,027	2,899
47.39	4,027	3,061
47.49	4,027	3,222
47.59	4,131	3,629
47.69	4,247	4,048
47.79	4,363	4,478
47.89	4,479	4,921
47.99	4,595	5,374
48.09	4,711	5,840
48.19	4,827	6,317
48.29	4,943	6,805
48.39	5,059	7,305
48.49	5,175	7,817
48.59	5,291	8,340
48.69	5,407	8,875
48.79	5,523	9,422
48.89	5,639	9,980
48.99	5,755	10,549
49.09	5,871	11,131
49.19	5,987	11,724
49.29	6,103	12,328
49.39	6,219	12,944
49.49	6,335	13,572
49.59	6,451	14,211
49.69	6,567	14,862
49.79	6,683	15,524
49.89	6,799	16,198
49.99	6,915	16,884
50.09	7,031	17,581
50.19	7,147	18,290
50.29	7,262	19,011
50.39	7,378	19,743
50.49	7,494	20,486
50.59	20,000	20,699

Aspire - Proposed

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022

Summary for Link SP-1: Study Point #1

Inflow Area = 446.613 ac, 20.11% Impervious, Inflow Depth = 5.27" for 100-YR event

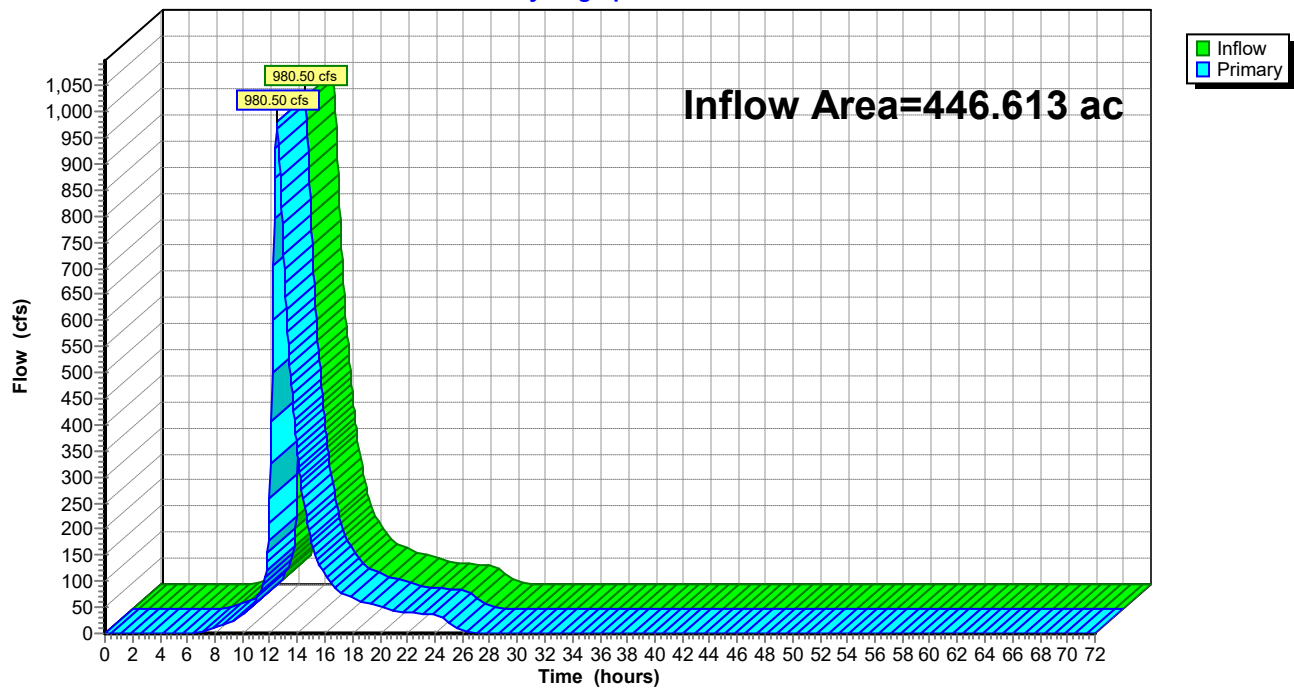
Inflow = 980.50 cfs @ 12.52 hrs, Volume= 196.112 af

Primary = 980.50 cfs @ 12.52 hrs, Volume= 196.112 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link SP-1: Study Point #1

Hydrograph



Aspire - Proposed

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 12/5/2022

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Hydrograph for Link SP-1: Study Point #1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.09	0.00	0.09	58.00	0.00	0.00	0.00
7.00	4.02	0.00	4.02	59.00	0.00	0.00	0.00
8.00	10.61	0.00	10.61	60.00	0.00	0.00	0.00
9.00	19.65	0.00	19.65	61.00	0.00	0.00	0.00
10.00	34.72	0.00	34.72	62.00	0.00	0.00	0.00
11.00	62.72	0.00	62.72	63.00	0.00	0.00	0.00
12.00	259.83	0.00	259.83	64.00	0.00	0.00	0.00
13.00	726.10	0.00	726.10	65.00	0.00	0.00	0.00
14.00	343.26	0.00	343.26	66.00	0.00	0.00	0.00
15.00	176.56	0.00	176.56	67.00	0.00	0.00	0.00
16.00	111.33	0.00	111.33	68.00	0.00	0.00	0.00
17.00	80.58	0.00	80.58	69.00	0.00	0.00	0.00
18.00	68.00	0.00	68.00	70.00	0.00	0.00	0.00
19.00	59.07	0.00	59.07	71.00	0.00	0.00	0.00
20.00	51.02	0.00	51.02	72.00	0.00	0.00	0.00
21.00	44.19	0.00	44.19				
22.00	40.79	0.00	40.79				
23.00	38.73	0.00	38.73				
24.00	37.08	0.00	37.08				
25.00	19.14	0.00	19.14				
26.00	5.93	0.00	5.93				
27.00	1.66	0.00	1.66				
28.00	0.46	0.00	0.46				
29.00	0.14	0.00	0.14				
30.00	0.06	0.00	0.06				
31.00	0.03	0.00	0.03				
32.00	0.02	0.00	0.02				
33.00	0.01	0.00	0.01				
34.00	0.01	0.00	0.01				
35.00	0.01	0.00	0.01				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

100-Year Comparison

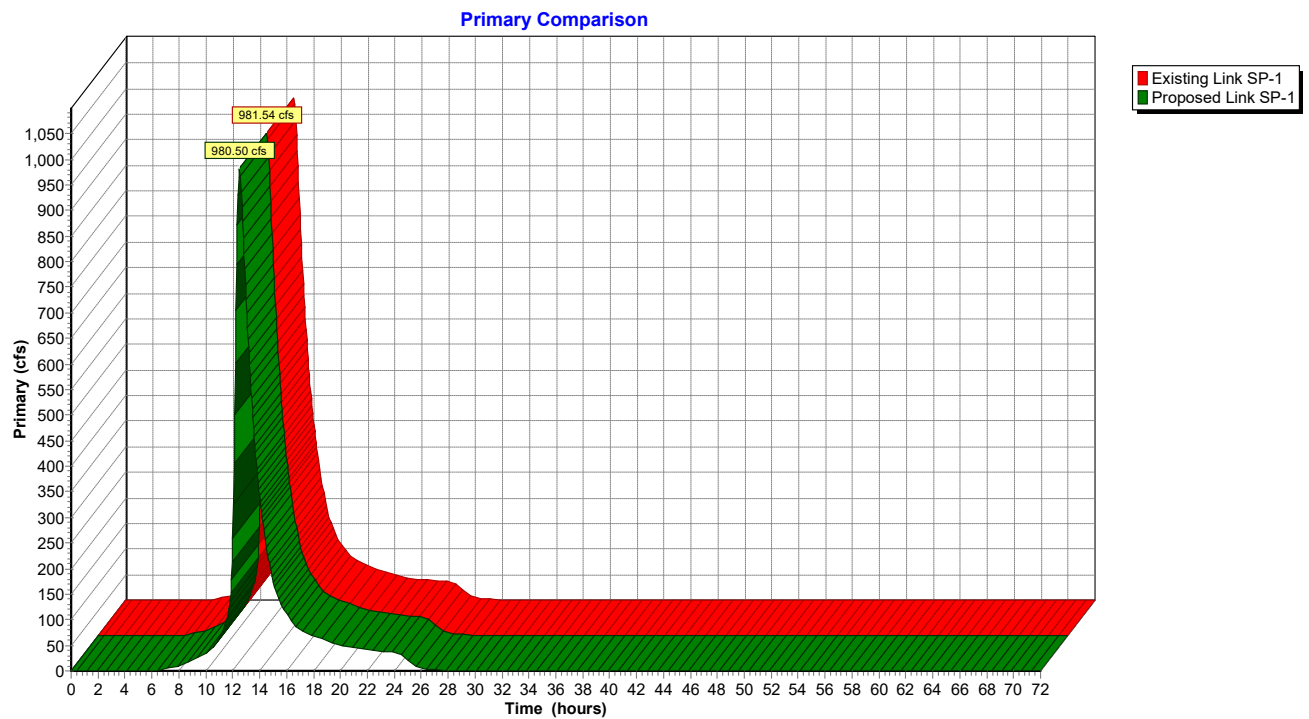
Aspire - Existing

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 12/5/2022



Web Soil Survey Report



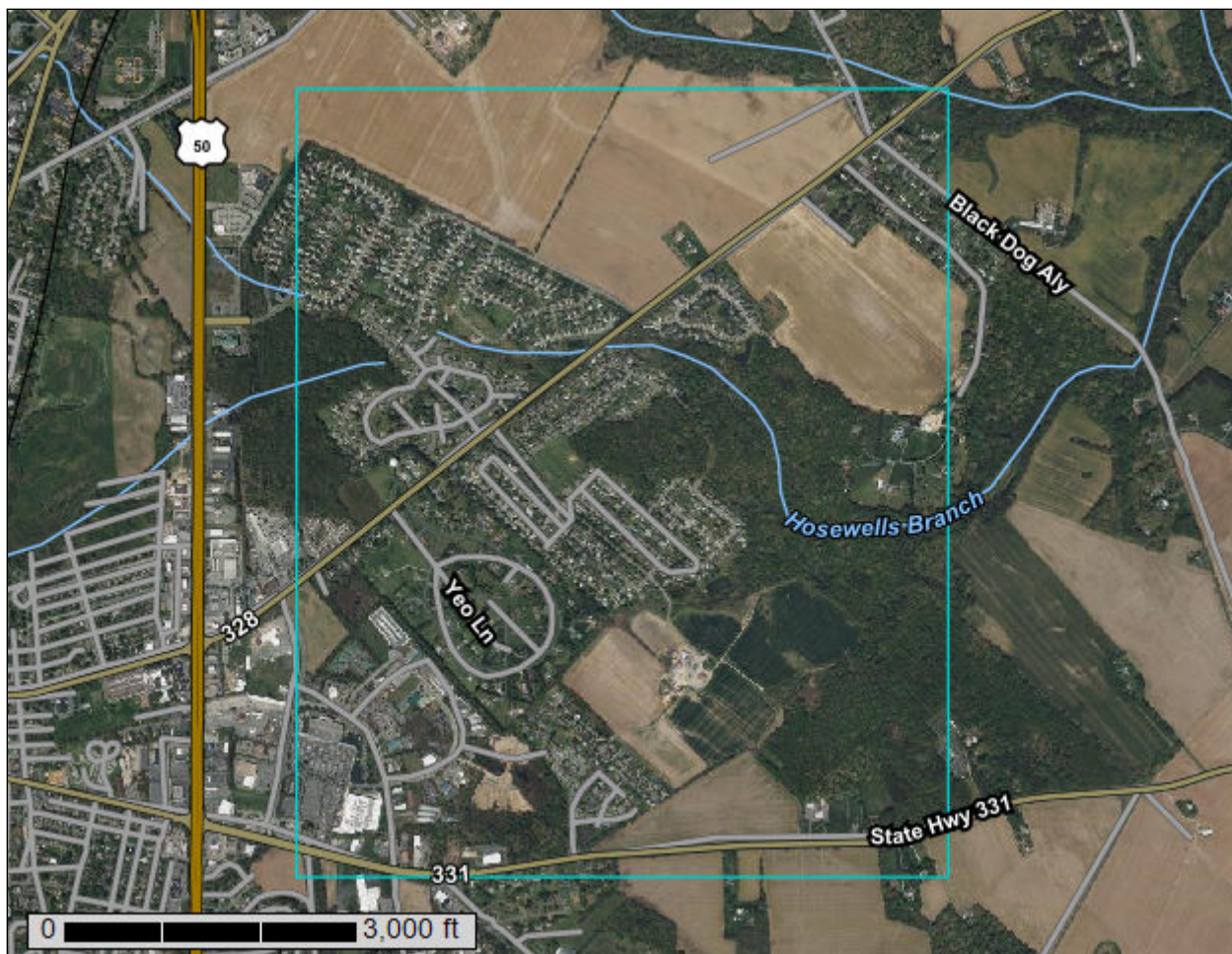
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Talbot County, Maryland**



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

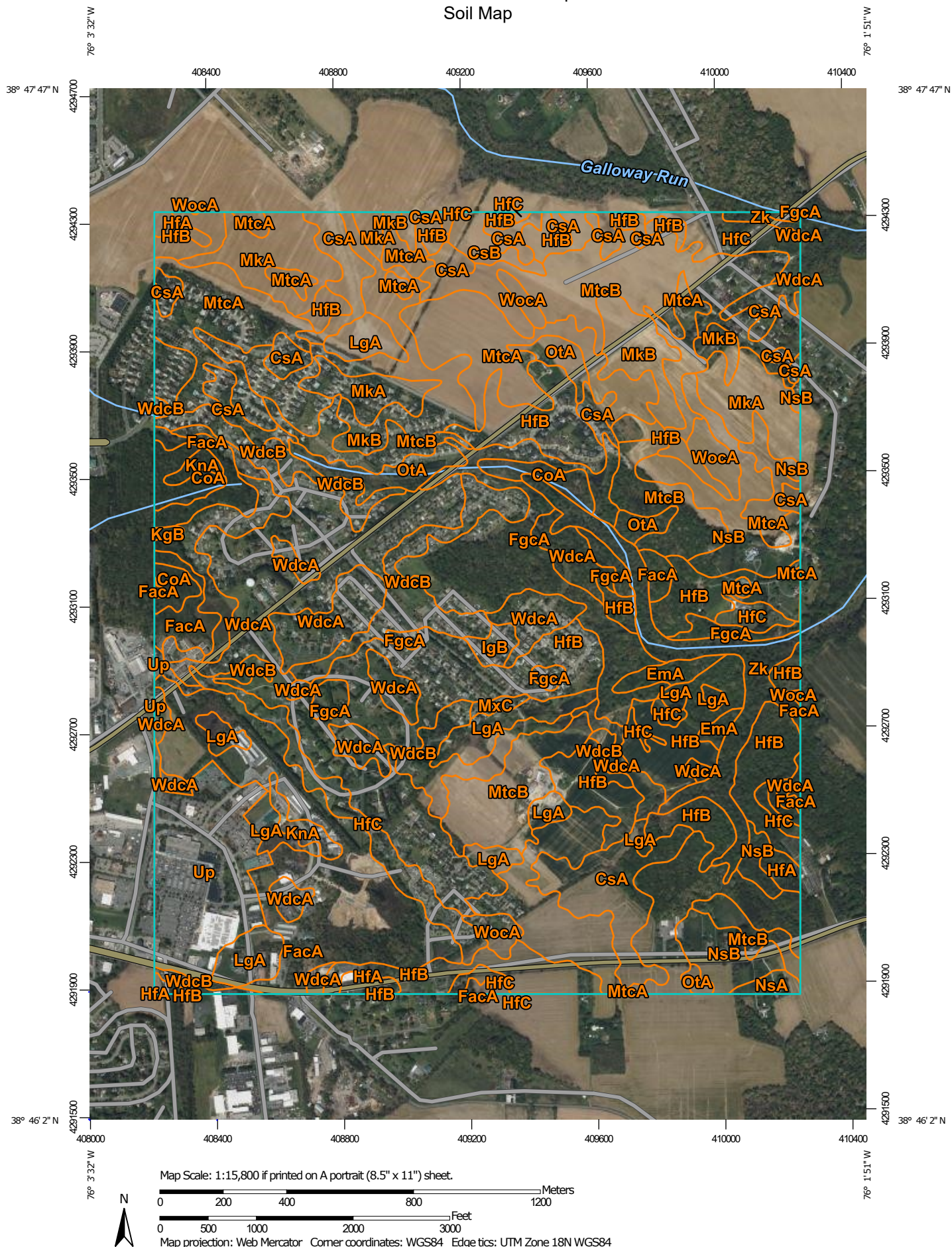
identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report

Soil Map



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Talbot County, Maryland

Survey Area Data: Version 19, Sep 14, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 1, 2021—Oct 1, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CoA	Corsica mucky loam, 0 to 2 percent slopes	16.0	1.3%
CsA	Crosiadore silt loam, 0 to 2 percent slopes	62.7	5.1%
CsB	Crosiadore silt loam, 2 to 5 percent slopes	5.8	0.5%
EmA	Elkton silt loam, 0 to 2 percent slopes	6.5	0.5%
FacA	Fallsington sandy loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	90.5	7.3%
FgcA	Fallsington loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	61.7	5.0%
HfA	Hambrook-Sassafras complex, 0 to 2 percent slopes	7.7	0.6%
HfB	Hambrook-Sassafras complex, 2 to 5 percent slopes	268.0	21.7%
HfC	Hambrook-Sassafras complex, 5 to 10 percent slopes	39.2	3.2%
IgB	Ingleside sandy loam, 2 to 5 percent slopes	3.5	0.3%
KgB	Klej-Galloway complex, 0 to 5 percent slopes	0.7	0.1%
KnA	Kentuck mucky silt loam, 0 to 2 percent slopes	6.4	0.5%
LgA	Lenni loam, 0 to 2 percent slopes	38.8	3.1%
MkA	Matapeake silt loam, 0 to 2 percent slopes	46.6	3.8%
MkB	Matapeake silt loam, 2 to 5 percent slopes	54.5	4.4%
MtcA	Mattapex silt loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	139.7	11.3%
MtcB	Mattapex silt loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain	108.7	8.8%
MxC	Mattapex-Woodstown complex, 5 to 10 percent slopes	2.4	0.2%
NsA	Nassawango silt loam, 0 to 2 percent slopes	2.7	0.2%
NsB	Nassawango silt loam, 2 to 5 percent slopes	39.3	3.2%

Custom Soil Resource Report

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
OtA	Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	18.1	1.5%
Up	Urban land	46.6	3.8%
WdcA	Woodstown sandy loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	71.6	5.8%
WdcB	Woodstown sandy loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain	54.5	4.4%
WocA	Woodstown loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	11.3	0.9%
Zk	Zekiah silt loam, frequently flooded	32.6	2.6%
Totals for Area of Interest		1,235.9	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Talbot County, Maryland

CoA—Corsica mucky loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1vh02

Elevation: 0 to 200 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Corsica, undrained, and similar soils: 55 percent

Corsica, drained, and similar soils: 25 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Corsica, Undrained

Setting

Landform: Depressions, drainageways, swales, flats

Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material

A - 2 to 12 inches: mucky loam

BEg - 12 to 18 inches: sandy loam

Btg - 18 to 40 inches: sandy clay loam

BCg - 40 to 48 inches: sandy loam

2Cg - 48 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: High (about 11.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: B/D

Hydric soil rating: Yes

Description of Corsica, Drained

Setting

Landform: Swales, flats, depressions

Custom Soil Resource Report

Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

Typical profile

Ap - 0 to 12 inches: mucky loam
BEg - 12 to 18 inches: sandy loam
Btg - 18 to 40 inches: sandy clay loam
BCg - 40 to 48 inches: sandy loam
2Cg - 48 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: None
Frequency of ponding: Rare
Available water supply, 0 to 60 inches: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Fallsington, drained

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Hurlock, drained

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Kentuck, undrained

Percent of map unit: 5 percent
Landform: Swales, depressions
Down-slope shape: Concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Woodstown

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Rise

Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

CsA—Crosiadore silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: nmd5
Elevation: 0 to 100 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Crosiadore and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crosiadore

Setting

Landform: Depressions, flats
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 28 inches: silt loam
2Btg - 28 to 33 inches: sandy loam
2Cg - 33 to 50 inches: sandy loam
2C1 - 50 to 57 inches: gravelly loamy sand
2C2 - 57 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Mattapex

Percent of map unit: 10 percent
Landform: Flats
Landform position (three-dimensional): Rise
Hydric soil rating: No

Kentuck

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Elkton

Percent of map unit: 5 percent
Landform: Swales, flats, depressions
Hydric soil rating: Yes

Othello

Percent of map unit: 5 percent
Landform: Flats, depressions, drainageways, swales
Landform position (three-dimensional): Dip
Hydric soil rating: Yes

CsB—Crosiadore silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vh03
Elevation: 0 to 100 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Crosiadore and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crosiadore

Setting

Landform: Depressions, flats
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 28 inches: silt loam
2Btg - 28 to 33 inches: sandy loam
2Cg - 33 to 50 inches: sandy loam
2C1 - 50 to 57 inches: gravelly loamy sand
2C2 - 57 to 80 inches: fine sandy loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Mattapex

Percent of map unit: 10 percent
Landform: Flats
Landform position (three-dimensional): Rise
Hydric soil rating: No

Elkton

Percent of map unit: 5 percent
Landform: Swales, flats, depressions
Landform position (three-dimensional): Dip
Hydric soil rating: Yes

Othello

Percent of map unit: 5 percent
Landform: Flats, depressions, drainageways, swales
Landform position (three-dimensional): Dip
Hydric soil rating: Yes

EmA—Elkton silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: spvy
Elevation: 0 to 210 feet

Custom Soil Resource Report

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Elkton, undrained, and similar soils: 40 percent

Elkton, drained, and similar soils: 35 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elkton, Undrained

Setting

Landform: Depressions, flats, drainageways, swales

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Silty eolian deposits and/or fluviomarine sediments

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material

A - 3 to 4 inches: silt loam

Eg - 4 to 13 inches: silt loam

Btg - 13 to 43 inches: silty clay loam

2BCg - 43 to 80 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Occasional

Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Description of Elkton, Drained

Setting

Landform: Swales, depressions, flats

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Silty eolian deposits and/or fluviomarine sediments

Typical profile

Ap - 0 to 10 inches: silt loam

BEg - 10 to 13 inches: silt loam

Custom Soil Resource Report

Btg - 13 to 43 inches: silty clay loam
2BCg - 43 to 80 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: Rare
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Crosiadore

Percent of map unit: 10 percent
Landform: Depressions, flats
Landform position (three-dimensional): Rise
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Keyport

Percent of map unit: 5 percent
Landform: Flats, depressions, fluviomarine terraces
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Kentuck, undrained

Percent of map unit: 5 percent
Landform: Depressions, swales
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

FacA—Fallsington sandy loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2s96z

Elevation: 40 to 50 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Fallsington, undrained, and similar soils: 48 percent

Fallsington, drained, and similar soils: 25 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fallsington, Undrained

Setting

Landform: Depressions, flats, drainageways, swales

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Loamy fluviomarine deposits

Typical profile

Oe - 0 to 2 inches: mucky peat

A - 2 to 10 inches: sandy loam

Btg - 10 to 32 inches: sandy clay loam

BCg - 32 to 39 inches: loamy sand

Cg1 - 39 to 46 inches: sandy clay loam

Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.01 to 1.98 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Occasional

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Description of Fallsington, Drained

Setting

Landform: Swales, depressions, flats
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 10 inches: sandy loam
Btg - 10 to 32 inches: sandy clay loam
BCg - 32 to 39 inches: loamy sand
Cg1 - 39 to 46 inches: sandy clay loam
Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.01 to 1.98 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: Rare
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Marshyhope

Percent of map unit: 8 percent
Landform: Drainageways, flats, depressions
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Hydric soil rating: No

Woodstown

Percent of map unit: 7 percent
Landform: Flats, broad interstream divides, depressions, fluviomarine terraces
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Hammonton

Percent of map unit: 5 percent
Landform: Drainageways, flats
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear
Hydric soil rating: No

Othello

Percent of map unit: 5 percent
Landform: Drainageways, swales, depressions, flats
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

FgcA—Fallsington loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2s96t
Elevation: 10 to 70 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Fallsington, undrained, and similar soils: 38 percent
Fallsington, drained, and similar soils: 37 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fallsington, Undrained

Setting

Landform: Swales, depressions, flats, drainageways
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Oe - 0 to 2 inches: mucky peat
A - 2 to 10 inches: loam
Btg - 10 to 32 inches: sandy clay loam
BCg - 32 to 39 inches: loamy sand

Custom Soil Resource Report

Cg1 - 39 to 46 inches: sandy clay loam

Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.01 to 1.98 in/hr)*

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Occasional

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Description of Fallsington, Drained

Setting

Landform: Swales, depressions, flats

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 10 inches: loam

Btg - 10 to 32 inches: sandy clay loam

BCg - 32 to 39 inches: loamy sand

Cg1 - 39 to 46 inches: sandy clay loam

Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.01 to 1.98 in/hr)*

Depth to water table: About 10 to 20 inches

Frequency of flooding: None

Frequency of ponding: Rare

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Minor Components

Hammonton

Percent of map unit: 7 percent
Landform: Drainageways, flats
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear
Hydric soil rating: No

Woodstown

Percent of map unit: 7 percent
Landform: Broad interstream divides, depressions, fluviomarine terraces, flats
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Othello

Percent of map unit: 6 percent
Landform: Flats, drainageways, swales, depressions
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Marshyhope

Percent of map unit: 5 percent
Landform: Drainageways, flats, depressions
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Hydric soil rating: No

HfA—Hambrook-Sassafras complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1vh08
Elevation: 0 to 330 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Hambrook and similar soils: 41 percent
Sassafras and similar soils: 39 percent

Custom Soil Resource Report

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hambrook

Setting

Landform: Depressions, flats, fluviomarine terraces

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Typical profile

Ap - 0 to 10 inches: sandy loam

BE - 10 to 14 inches: loam

Bt - 14 to 28 inches: sandy clay loam

BC - 28 to 65 inches: loamy sand

2Cg - 65 to 80 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 1.98 in/hr)

Depth to water table: About 42 to 72 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 1

Hydrologic Soil Group: B

Hydric soil rating: No

Description of Sassafras

Setting

Landform: Low hills, flats, fluviomarine terraces, knolls

Landform position (three-dimensional): Riser, dip

Down-slope shape: Convex, linear

Across-slope shape: Convex, linear

Typical profile

Ap - 0 to 9 inches: sandy loam

E - 9 to 15 inches: sandy loam

Bt - 15 to 30 inches: loam

BC - 30 to 37 inches: sandy loam

C - 37 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Custom Soil Resource Report

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 1

Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Woodstown

Percent of map unit: 10 percent

Landform: Flats, depressions

Landform position (three-dimensional): Dip

Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent

Landform: Depressions, flats

Landform position (three-dimensional): Dip

Hydric soil rating: No

Ingleside

Percent of map unit: 5 percent

Landform: Flats

Landform position (three-dimensional): Talf

Hydric soil rating: No

HfB—Hambrook-Sassafras complex, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vh09

Elevation: 0 to 330 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Hambrook and similar soils: 41 percent

Sassafras and similar soils: 39 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hambrook

Setting

Landform: Depressions, knolls, fluvio-marine terraces, flats

Custom Soil Resource Report

Landform position (three-dimensional): Rise
Down-slope shape: Concave, convex, linear
Across-slope shape: Concave, convex, linear

Typical profile

Ap - 0 to 10 inches: sandy loam
BE - 10 to 14 inches: loam
Bt - 14 to 28 inches: sandy clay loam
BC - 28 to 65 inches: loamy sand
2Cg - 65 to 80 inches: silt loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 1.98 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Sassafras

Setting

Landform: Low hills, flats, fluviomarine terraces, knolls
Landform position (three-dimensional): Riser, dip
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

Typical profile

Ap - 0 to 9 inches: sandy loam
E - 9 to 15 inches: sandy loam
Bt - 15 to 30 inches: loam
BC - 30 to 37 inches: sandy loam
C - 37 to 80 inches: loamy sand

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Woodstown

Percent of map unit: 10 percent
Landform: Flats, depressions
Landform position (three-dimensional): Dip
Hydric soil rating: No

Ingleside

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Talf
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Flats, depressions
Landform position (three-dimensional): Dip
Hydric soil rating: No

HfC—Hambrook-Sassafras complex, 5 to 10 percent slopes

Map Unit Setting

National map unit symbol: 1vh0b
Elevation: 20 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hambrook and similar soils: 60 percent
Sassafras and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hambrook

Setting

Landform: Knolls, fluviomarine terraces, low hills
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

Typical profile

Ap - 0 to 10 inches: sandy loam

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BE - 10 to 14 inches: loam
Bt - 14 to 28 inches: sandy clay loam
BC - 28 to 65 inches: loamy sand
2Cg - 65 to 80 inches: silt loam

Properties and qualities

Slope: 5 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 1.98 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Sassafras

Setting

Landform: Low hills, fluviomarine terraces, knolls
Landform position (three-dimensional): Side slope, riser
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

Typical profile

Ap - 0 to 9 inches: sandy loam
E - 9 to 15 inches: sandy loam
Bt - 15 to 30 inches: loam
BC - 30 to 37 inches: sandy loam
C - 37 to 80 inches: loamy sand

Properties and qualities

Slope: 5 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Galestown

Percent of map unit: 5 percent

Landform: Knolls, low hills

Landform position (three-dimensional): Side slope

Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent

Landform: Low hills

Landform position (three-dimensional): Base slope

Hydric soil rating: No

IgB—Ingleside sandy loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vh0f

Elevation: 10 to 140 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Ingleside and similar soils: 75 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ingleside

Setting

Landform: Fluvio-marine terraces, depressions, flats

Landform position (three-dimensional): Rise

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Typical profile

Ap - 0 to 10 inches: sandy loam

E - 10 to 15 inches: sandy loam

Bt - 15 to 33 inches: sandy loam

BC - 33 to 43 inches: sandy loam

C1 - 43 to 56 inches: loamy sand

C2 - 56 to 80 inches: silt loam

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Custom Soil Resource Report

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 5.95 in/hr)

Depth to water table: About 40 to 72 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Woodstown

Percent of map unit: 5 percent

Landform: Depressions, flats, drainageways

Landform position (three-dimensional): Dip

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

Downer

Percent of map unit: 5 percent

Landform: Fluvio-marine terraces, knolls, flats

Landform position (three-dimensional): Rise

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Hydric soil rating: No

Hammonton

Percent of map unit: 5 percent

Landform: Depressions, drainageways, flats

Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

Cedartown

Percent of map unit: 5 percent

Landform: Flats, knolls, dunes

Landform position (three-dimensional): Talf

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Hydric soil rating: No

Rosedale

Percent of map unit: 5 percent

Landform: Flats

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

KgB—Klej-Galloway complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vh2v

Elevation: 0 to 200 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Klej and similar soils: 45 percent

Galloway and similar soils: 35 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Klej

Setting

Landform: Depressions, flats

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Sandy eolian deposits and/or fluvio marine sediments

Typical profile

A - 0 to 7 inches: loamy sand

E - 7 to 14 inches: loamy sand

Bw - 14 to 20 inches: loamy sand

C - 20 to 62 inches: loamy sand

Cg - 62 to 80 inches: sand

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (0.57 to 19.98 in/hr)

Depth to water table: About 10 to 20 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): 3w

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: A/D

Hydric soil rating: No

Description of Galloway

Setting

Landform: Depressions, flats

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Sandy eolian deposits and/or fluviomarine sediments

Typical profile

Ap - 0 to 12 inches: loamy sand

Bw - 12 to 15 inches: loamy sand

C1 - 15 to 30 inches: loamy sand

C2 - 30 to 80 inches: sand

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.38 to 99.90 in/hr)

Depth to water table: About 20 to 40 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Hurlock, drained

Percent of map unit: 5 percent

Landform: Flats, depressions, swales

Landform position (three-dimensional): Dip

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Berryland, drained

Percent of map unit: 5 percent

Landform: Depressions, swales, flats

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

Askecksy, drained

Percent of map unit: 5 percent

Landform: Swales, depressions, flats

Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Runclint

Percent of map unit: 5 percent
Landform: Fluviomarine terraces, flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

KnA—Kentuck mucky silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 216cy
Elevation: 0 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Kentuck, undrained, and similar soils: 45 percent
Kentuck, drained, and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kentuck, Undrained

Setting

Landform: Swales, depressions
Down-slope shape: Concave
Across-slope shape: Linear, concave
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
A - 3 to 13 inches: mucky silt loam
Eg - 13 to 24 inches: silt loam
Btg - 24 to 45 inches: silt loam
2BCg - 45 to 57 inches: fine sandy loam
2Cg - 57 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: None
Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: Very high (about 12.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Description of Kentuck, Drained

Setting

Landform: Swales, depressions

Down-slope shape: Concave

Across-slope shape: Linear, concave

Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 13 inches: mucky silt loam

Eg - 13 to 24 inches: silt loam

Btg - 24 to 45 inches: silt loam

2BCg - 45 to 57 inches: fine sandy loam

2Cg - 57 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Rare

Available water supply, 0 to 60 inches: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Minor Components

Whitemarsh, undrained

Percent of map unit: 10 percent

Landform: Flats, drainageways, depressions

Landform position (three-dimensional): Talf

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Othello, undrained

Percent of map unit: 5 percent

Landform: Depressions, drainageways, flats

Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: Yes

Crosiadore

Percent of map unit: 5 percent
Landform: Depressions, flats
Landform position (three-dimensional): Rise
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Depressions, flats
Landform position (three-dimensional): Rise
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

LgA—Lenni loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: spw3
Elevation: 10 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Lenni, undrained, and similar soils: 50 percent
Lenni, drained, and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lenni, Undrained

Setting

Landform: Flats, swales, depressions
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey fluviomarine sediments

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 7 inches: loam
Eg - 7 to 14 inches: loam
Btg - 14 to 51 inches: clay
2Cg - 51 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent

Custom Soil Resource Report

Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Description of Lenni, Drained

Setting

Landform: Flats, swales, depressions
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey fluviomarine sediments

Typical profile

Ap - 0 to 7 inches: loam
Eg - 7 to 14 inches: loam
Btg - 14 to 51 inches: clay
2Cg - 51 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: Rare
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Keyport

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Rise
Hydric soil rating: No

Rosedale

Percent of map unit: 5 percent

Landform: Dunes, knolls, flats
Landform position (three-dimensional): Rise
Hydric soil rating: No

Pepperbox

Percent of map unit: 5 percent
Landform: Flats, knolls
Landform position (three-dimensional): Rise
Hydric soil rating: No

MkA—Matapeake silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: spw7
Elevation: 10 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Matapeake and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Matapeake

Setting

Landform: Flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 5 inches: silt loam
E - 5 to 11 inches: silt loam
Bt - 11 to 34 inches: silt loam
2BC - 34 to 38 inches: sandy loam
2C - 38 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Custom Soil Resource Report

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 1

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Nassawango

Percent of map unit: 10 percent

Landform: Terraces, flats

Landform position (three-dimensional): Dip, talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Butlertown

Percent of map unit: 5 percent

Landform: Flats, broad interstream divides, interfluves

Landform position (three-dimensional): Dip

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent

Landform: Depressions, swales, flats

Landform position (three-dimensional): Dip

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

MkB—Matapeake silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vh0k

Elevation: 10 to 120 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Matapeake and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Matapeake

Setting

Landform: Flats, knolls
Landform position (three-dimensional): Talf
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 5 inches: silt loam
E - 5 to 11 inches: silt loam
Bt - 11 to 34 inches: silt loam
2BC - 34 to 38 inches: sandy loam
2C - 38 to 80 inches: loamy sand

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Nassawango

Percent of map unit: 10 percent
Landform: Terraces, flats
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Butlertown

Percent of map unit: 5 percent
Landform: Flats, interfluves, broad interstream divides
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Depressions, flats, swales
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear

Across-slope shape: Concave, linear
Hydric soil rating: No

MtcA—Mattapex silt loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thwt
Elevation: 0 to 90 feet
Mean annual precipitation: 42 to 46 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 190 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Mattapex and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mattapex

Setting

Landform: Depressions, flats, swales
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 11 inches: silt loam
BE - 11 to 15 inches: silt loam
Bt - 15 to 36 inches: silt loam
2C1 - 36 to 60 inches: fine sandy loam
2C2 - 60 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Nassawango

Percent of map unit: 10 percent
Landform: Terraces, flats
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Othello, drained

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Crosiadore

Percent of map unit: 5 percent
Landform: Flats, depressions
Landform position (three-dimensional): Dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

MtcB—Mattapex silt loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thwx
Elevation: 0 to 100 feet
Mean annual precipitation: 41 to 50 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 190 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Mattapex and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mattapex

Setting

Landform: Depressions, flats, swales
Landform position (three-dimensional): Dip, tal
Down-slope shape: Concave, linear

Custom Soil Resource Report

Across-slope shape: Concave, linear

Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 11 inches: silt loam

BE - 11 to 15 inches: silt loam

Bt - 15 to 36 inches: silt loam

2C1 - 36 to 60 inches: fine sandy loam

2C2 - 60 to 80 inches: loamy sand

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: About 20 to 40 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Nassawango

Percent of map unit: 10 percent

Landform: Flats, terraces

Landform position (three-dimensional): Rise

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Crosiadore

Percent of map unit: 5 percent

Landform: Depressions, flats

Landform position (three-dimensional): Dip

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

Othello, drained

Percent of map unit: 5 percent

Landform: Swales, flats, depressions

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Dip

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: Yes

MxC—Mattapex-Woodstown complex, 5 to 10 percent slopes

Map Unit Setting

National map unit symbol: 1vh0l

Elevation: 0 to 200 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Mattapex and similar soils: 45 percent

Woodstown and similar soils: 40 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mattapex

Setting

Landform: Swales, depressions, low hills

Landform position (three-dimensional): Side slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 11 inches: silt loam

BE - 11 to 15 inches: silt loam

Bt - 15 to 36 inches: silty clay loam

2C1 - 36 to 60 inches: fine sandy loam

2C2 - 60 to 80 inches: loamy sand

Properties and qualities

Slope: 5 to 10 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.28 in/hr)

Depth to water table: About 20 to 40 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Hydric soil rating: No

Description of Woodstown

Setting

Landform: Swales, low hills
Landform position (three-dimensional): Side slope, dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy fluviomarine sediments

Typical profile

Ap - 0 to 7 inches: loam
E - 7 to 11 inches: sandy loam
Bt - 11 to 29 inches: sandy clay loam
Cg1 - 29 to 45 inches: sandy loam
Cg2 - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 5 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Matapeake

Percent of map unit: 5 percent
Landform: Low hills
Landform position (three-dimensional): Side slope
Hydric soil rating: No

Ingleside

Percent of map unit: 5 percent
Landform: Low hills
Landform position (three-dimensional): Side slope
Hydric soil rating: No

Galestown

Percent of map unit: 5 percent
Landform: Low hills
Landform position (three-dimensional): Side slope
Hydric soil rating: No

NsA—Nassawango silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: spwc
Elevation: 0 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Nassawango and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nassawango

Setting

Landform: Terraces, flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 10 inches: silt loam
E - 10 to 16 inches: silt loam
Bt - 16 to 44 inches: silt loam
2C - 44 to 60 inches: loamy sand
2Cg - 60 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Othello, drained

Percent of map unit: 5 percent
Landform: Depressions, swales
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Crosiadore

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Matapeake

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

NsB—Nassawango silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: spwd
Elevation: 10 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Nassawango and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nassawango

Setting

Landform: Terraces, flats
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 10 inches: silt loam
E - 10 to 16 inches: silt loam
Bt - 16 to 44 inches: silt loam
2C - 44 to 60 inches: loamy sand
2Cg - 60 to 80 inches: fine sandy loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Mattapex

Percent of map unit: 5 percent
Landform: Flats, swales, depressions
Landform position (three-dimensional): Dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Matapeake

Percent of map unit: 5 percent
Landform: Knolls, flats
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Crosiadore

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear

Across-slope shape: Concave, linear
Hydric soil rating: No

Othello, drained

Percent of map unit: 5 percent
Landform: Depressions, swales
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

OtA—Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thwn
Elevation: 0 to 100 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 46 to 68 degrees F
Frost-free period: 210 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Othello, drained, and similar soils: 48 percent
Othello, undrained, and similar soils: 28 percent
Minor components: 24 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Othello, Drained

Setting

Landform: Swales, depressions, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Silty eolian deposits over fluviomarine deposits

Typical profile

Ap - 0 to 9 inches: silt loam
Btg - 9 to 29 inches: silt loam
2BCg - 29 to 34 inches: sandy loam
2Cg - 34 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None

Custom Soil Resource Report

Frequency of ponding: Rare

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Description of Othello, Undrained

Setting

Landform: Drainageways, swales, depressions, flats

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Silty eolian deposits over fluviomarine deposits

Typical profile

Oe - 0 to 2 inches: peat

A - 2 to 4 inches: silt loam

Eg - 4 to 10 inches: silt loam

Btg - 10 to 29 inches: silt loam

2BCg - 29 to 35 inches: sandy loam

2Cg - 35 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Occasional

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Minor Components

Crosiadore

Percent of map unit: 7 percent

Landform: Depressions, fluviomarine terraces, flats

Landform position (two-dimensional): Footslope, summit

Landform position (three-dimensional): Tread, dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

Mattapex

Percent of map unit: 7 percent
Landform: Broad interstream divides, swales, depressions, flats
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Kentuck, undrained

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Fallsington, undrained

Percent of map unit: 5 percent
Landform: Drainageways, swales, depressions, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Up—Urban land

Map Unit Setting

National map unit symbol: 1vh0w
Elevation: 0 to 300 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Flats
Down-slope shape: Linear
Across-slope shape: Linear

Minor Components

Udorthents, loamy

Percent of map unit: 10 percent
Landform: Broad interstream divides
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

WdcA—Woodstown sandy loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thvt
Elevation: 0 to 90 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Woodstown and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodstown

Setting

Landform: Flats, broad interstream divides, depressions, fluviomarine terraces
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: sandy loam
E - 7 to 11 inches: sandy loam
Bt - 11 to 29 inches: sandy loam
BCg - 29 to 45 inches: fine sandy loam
Cg - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None

Custom Soil Resource Report

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Hammonton

Percent of map unit: 6 percent

Landform: Broad interstream divides, flats

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Fallsington

Percent of map unit: 6 percent

Landform: Flats, swales, depressions, drainageways

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Talf, dip

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Hambrook

Percent of map unit: 4 percent

Landform: Flats, fluviomarine terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread, talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Mattapex

Percent of map unit: 4 percent

Landform: Depressions, flats, broad interstream divides, swales

Landform position (two-dimensional): Footslope, summit

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

WdcB—Woodstown sandy loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thvv

Elevation: 0 to 90 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Woodstown and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodstown

Setting

Landform: Flats, broad interstream divides, depressions, fluviomarine terraces

Landform position (two-dimensional): Shoulder, footslope

Landform position (three-dimensional): Riser, dip

Down-slope shape: Convex, concave

Across-slope shape: Linear, concave

Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: sandy loam

E - 7 to 11 inches: sandy loam

Bt - 11 to 29 inches: sandy loam

BCg - 29 to 45 inches: fine sandy loam

Cg - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: About 20 to 40 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Hammonton

Percent of map unit: 6 percent
Landform: Broad interstream divides, flats
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Dip
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Fallsington, occasionally ponded

Percent of map unit: 6 percent
Landform: Flats, swales, depressions, drainageways
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Hambrook

Percent of map unit: 4 percent
Landform: Flats, fluviomarine terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Riser, dip
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Mattapex

Percent of map unit: 4 percent
Landform: Broad interstream divides, swales, depressions, flats
Landform position (two-dimensional): Shoulder, footslope
Landform position (three-dimensional): Dip
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

WocA—Woodstown loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thx4
Elevation: 0 to 90 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 210 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Woodstown and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodstown

Setting

Landform: Flats, broad interstream divides, depressions, fluviomarine terraces

Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Tread, talf, dip

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: loam

E - 7 to 11 inches: sandy loam

Bt - 11 to 29 inches: sandy loam

BCg - 29 to 45 inches: fine sandy loam

Cg - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: About 20 to 40 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Hammonton

Percent of map unit: 6 percent

Landform: Broad interstream divides, flats

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Fallsington

Percent of map unit: 6 percent

Landform: Swales, depressions, flats, drainageways

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Hambrook

Percent of map unit: 4 percent
Landform: Flats, fluviomarine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, tal
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mattapex

Percent of map unit: 4 percent
Landform: Depressions, flats, broad interstream divides, swales
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Dip, tal
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Zk—Zekiah silt loam, frequently flooded

Map Unit Setting

National map unit symbol: 1vh0y
Elevation: 0 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Zekiah and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Zekiah

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

A - 0 to 3 inches: silt loam
Cg - 3 to 20 inches: silt loam
2Ab - 20 to 27 inches: sandy loam
2Cg1 - 27 to 37 inches: sandy loam
2Cg2 - 37 to 50 inches: loam
2Cg3 - 50 to 80 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.38 to 1.98 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Longmarsh

Percent of map unit: 10 percent
Landform: Flood plains
Hydric soil rating: Yes

Hurlock

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: Yes

Hammonton

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Rise
Hydric soil rating: No

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