STORMWATER ANALYSIS AND DRAINAGE REPORT

CAPE VIEW WAY BOURNE, MASSACHUSETTS

Prepared for:

PRESERVATION OF AFFORDABLE HOUSING

2 OLIVER STREET, SUITE 500

BOSTON, MA 02109

AND

HOUSING ASSISTANCE CORPORATION

460 WEST MAIN STREET

HYANNIS, MA 02601

Prepared by: Horsley Witten Group, Inc.

March 5, 2021

Horsley Witten Group Sustainable Environmental Solutions 90 Route 6A · Unit 1 · Sandwich, MA 02563 508-833-6600 · horsleywitten.com

TABLE OF CONTENTS

Page

1.0	STORMWATER AND DRAINAGE NARRATIVE	2
1.1.	. Existing Conditions	2
1.2.	P. Proposed Conditions	4
2.0	DRAINAGE DESIGN METHODOLOGY AND ANALYSIS	.6
3.0	COMPLIANCE WITH MADEP STORMWATER STANDARDS	.9
4.0	CONSTRUCTION ACTIVITIES AND GENERAL CONSTRUCTION SEQUENCE	12
5.0	POLLUTANT CONTROLS DURING CONSTRUCTION	13
5.0 5.1.		
	. Structural Practices	13
5.1.	 Structural Practices Stabilization Practices 	13 14
5.1. 5.2.	 Structural Practices Stabilization Practices 	13 14 15

FIGURES

Figure 1:	USGS Locus
Figure 2:	Soils Map
Figure 3:	FEMA Flood Zones
Figure 4:	Site Constraints

APPENDICES

- Appendix A: Site Soil Evaluations
- Appendix B: Drainage Area Maps
- Appendix C: GSI Sizing Calculations
- Appendix D: HydroCAD® Modeling
- Appendix E: TSS and Recharge Calculations
- Appendix F: Stormwater Operation and Maintenance Plan

1.0 STORMWATER AND DRAINAGE NARRATIVE

This Stormwater Management Report provides a summary of the proposed stormwater management for the Cape View Way housing development project (Project). The purpose of this report is to describe the pre- and post-development site conditions and the practices to be used for reducing stormwater runoff and pollutants during and after construction. The proposed project has been developed to incorporate a series of green stormwater infrastructure (GSI) practices into the overall site and landscape design. The design includes practices such as tree trenches, vegetated bioretention systems, and underground recharge areas to manage the onsite runoff.

Due to the proximity of the proposed Project to existing wetlands, adherence to the Massachusetts Stormwater Standards (MASWS) (revised in January 2008) is required. The proposed site design conforms to the Standards by providing stormwater runoff treatment or the first 1-inch runoff from proposed impervious areas contributing to site runoff. On-site attenuation and infiltration is provided to match or reduce peak runoff conditions for the 10 and 100-year storm events. The proposed stormwater controls will be maintained during as part of the development regular landscape maintenance as well as during the construction.

1.1. Existing Conditions

The project site is located at Cape View Way off of Meetinghouse Lane in the Town of Bourne, Massachusetts (Latitude: 41°46'57.8"N, Longitude: 70°32'17.2"W) (**Figure 1**) and includes the following parcels:

Map/Parcel	Street Address	Lot Size (acres)
Map 7, Parcel 23	0 Cape View Way	0.263
Map 7, Parcel 86	6 Cape View Way	0.478
Map 7, Parcel 87	8 Cape View Way	0.475
Map 7, Parcel 88	10 Cape View Way	0.491
Map 7, Parcel 89	12 Cape View Way	0.528
Map 7, Parcel 90	11 Cape View Way	0.542 ¹
Map 6, Parcel 38	0 Homestead Road Extension	0.159

Table 1. Project Site Parcel Information

¹ This is the value in the Bourne Assessors Database. HW's research indicates a slightly larger size lot.

The site is bordered by Cherry Hill Court to the east and Meetinghouse Lane and commercial properties to the south. The site abuts residential properties located on Homestead Road, Homestead Road Extension, and Andrew Road to the west. The site is near the Bourne Fire Department and United States Postal Service, located in an area near transit and amenities.

The site is currently undeveloped and is characterized by dense vegetation and invasive species. The existing Cape View Way road has a paved surface that extends approximately 145 feet from Meetinghouse Lane. The road then continues as a dirt road. There are two abandoned hydrants along the road.

There is a wetland on the western portion of the site, which was confirmed during a field survey conducted by Horsley Witten Group, Inc. in May 2019. This wetland was delineated and flagged in accordance with methods developed by MassDEP, the Massachusetts Wetlands Protection Act regulations, and the Bourne *Wetlands Protection* Regulations.

The existing drainage area is 7.96 acres (346,654 square feet) and is comprised of the following land cover:

Coverage	Area (ft2)	Area (acres)	%
Roadway	5,583	0.13	2%
Sidewalks	0	0.00	0%
Roof	9,642	0.22	3%
Gravel	1,705	0.04	0%
Pervious Pavers	0	0.00	0%
Pond/SW	0	0.00	0%
Forest (Type A)	297,534	6.63	86%
Grass (Type A)	32,190	0.74	9%
Subcatchment total	346,654	7.96	100%

Table 2: Existing Land Coverage

The site is divided into three sub catchments, DA1, DA2, and DA3, which discharges via overland flow to the wetlands Study Point 1 (SP1), Study Point 2 (SP2), and Study Point 3 (SP3).

DA1 is approximately 3.64 acres, includes the north and western portion of the site and is comprised of woodlands, grass, roofs and roadway from abutting properties. The area gently slopes from the northwest to a wetland on the western portion of the site, SP1.

DA2 is approximately 1.83 acres, includes the central part of the site and is comprised of woodlands and grass. The area gently slopes from the northeast and the ends in on the southwestern border of the site. Runoff appears to flow overland to SP2.

DA3 is approximately 2.48 acres and located in the eastern part of the property and is comprised of woodlands, roadway, gravel, and grass. The area gently slopes from the northwest to the south towards Meetinghouse Lane, SP3.

1.1.1. Soils

According to the "Soil Survey of Barnstable County, Massachusetts" (Fletcher, 1993) soils underlying the Site are classified as Carver Loamy Coarse Sand (Figure 2). This soil group is classified as hydrologic soil group A and described as "very deep, gently sloping, excessively drained soil generally is in broad areas on outwash plains but is also in areas of sandy glacial lake deposits."

Nine site soil evaluation test pits were performed in October 2019 to complete a Phase 2 environmental assessment and assess the subsurface conditions to determine its suitability for the construction of wastewater and stormwater management practices. Infiltrometer testing was conducted at one test pit. The test pits were conducted by a Massachusetts Licensed Soil Evaluator. The soils were determined to be a sandy permeable soil. No standing water was observed in any of the test pits. A memo describing the soil test pits is included in **Appendix A**.

1.2. Proposed Conditions

The Applicant proposes to construct the following:

- 51 dwelling units located in one building
- Approximately 800 linear feet of paved access road
- Paved parking areas for 89 spaces (24,837 sf)
- ADA accessible sidewalks (3,859 sf)
- Interior landscaped areas, open spaces, and lighting.

1.2.1. Stormwater Management

The proposed stormwater management includes a GSI approach to capture, treat, infiltrate, and detain runoff, when applicable and to the maximum extent practicable, by using the following BMPs.

Bioretention Areas (BIO)

A bioretention area (also referred to as a "rain garden" or a "biofilter") is a stormwater management practice to manage and treat stormwater runoff using a conditioned planting soil bed or "filter" media and plants to filter runoff captured in a shallow depression. The method combines physical filtering and adsorption with bio-geochemical processes to remove pollutants. The system consists of an inflow component, a pretreatment element, an overflow structure, an underdrain, a shallow ponding area (3 to 6 inches deep), a well-drained planting soil bed, and plants.

Tree Trench (TT)

A tree trench is a tree pit with underground infiltration trenches. The tree trench uses a stone reservoir and planting soils (within the tree pit). The systems are designed to be off-line; meaning the that the water quality treatment volume is diverted into the trenches and an overflow pipe is provided to convey larger storms to the drainage pipe network. The system consists of a perforated inflow pipe, pretreatment via deep sump catchbasins, an overflow pipe out of the catchbasins, the stone (and soil for tree trenches) storage reservoir, and street trees (for the tree trenches).

Underground Recharge Chambers (URC)

Underground recharge chambers and basins capture, and store stormwater collected from surrounding impervious areas. Riser pipes, curb cuts, and/or drainage structures direct surface stormwater to subsurface interconnected storage units. When site conditions are appropriate, stored water is released directly into the ground mimicking pre-development conditions. Use of stormwater recharge chambers allows stored water to infiltrate and recharge groundwater.

Dry Well (Recharge Basin (RB))

A subsurface stormwater facility that is designed to collect and temporarily store runoff before infiltration into the subsoil. Use of stormwater recharge basins allows stored water to infiltrate and recharge groundwater.

Sediment Forebays

Sediment forebays are also provided at the bioretention areas for pretreatment of the surface water runoff from the proposed pavement and concrete surfaces to allow for sediment to settle from the incoming stormwater runoff prior to conveyance to the bioretention and infiltration basin areas. The forebays are designed to provide less volume than required by the Massachusetts Stormwater Standards. This is due to limited space and to reduce unsightly large quantities of sediment accumulation over time. The sediment forebays are designed to be smaller and require more frequent cleaning. See the Stormwater Operation and Maintenance Plan.

Deep Sump Catch Basins (CB)

Deep sump catch basins equipped with a hooded outlet are also provided to remove trash, debris, and coarse sediment from stormwater runoff.

1.2.2. Drainage Area

The proposed site development includes a low impact stormwater management approach, private septic, public water, natural gas and other associated utilities. The total proposed development is comprised of the following land cover:

Coverage	Area (ft2)	Area (acres)	%
Roadway	47,446	1.09	14%
Sidewalks	3,859	0.09	1%
Roof	30,973	0.71	9%
Gravel	0	0	0&
Pervious Pavers	784	0.02	0%
Pond/SW	2,159	0.05	1%
Forest (Type A)	187,339	4.30	54%
Grass (Type A)	74,094	1.70	21%
Subcatchment total	346,654	7.96	100%

Table 3: Proposed Land Coverage

The proposed site drainage is divided into eight subcatchments: DA1, DA2a, DA2b, DA3a, DA3b, DA3c, DA3d, and R1. The eight drainage areas drain to same three study points (SP1, SP2, and SP4) as outlined in the existing conditions above. Pre and Post Drainage maps can be found in **Appendix B**.

DA1 is approximately 3.64 acres, located in the north and western portion of the site and is comprised of woodlands, grass, roofs and roadway from abutting properties and runoff will continue to drain via overland flow to the wetland (SP1). This drainage area remains unchanged from existing conditions.

DA2a is approximately 1.00 acres, located in the central portion of the property, and includes behind the building pervious pavers, grass, and woodlands. The area drains north to south and runoff will continue to drain via overland flow to SP2.

DA2b is approximately 0.45 acres, located in the central portion site and driveway turnaround area. The area includes sidewalks, roadway, and landscaped areas. The area slopes from north to south. Runoff is captured at a curb inlet/sediment forebay at BIO-2 for treatment and discharged to underground chambers (URC-3) for infiltration.

DA3a is approximately 1.26 acres, located along the northern boundary of the site and consists of the upper parking lot. The area includes driveway, parking areas, sidewalks, woodlands, and landscaped areas. The area slopes from north to south. Runoff is captured at a curb inlet/sediment forebay at BIO-1 for treatment and discharged to underground chambers (URC-1) for infiltration.

DA3b is approximately 0.33 acres, located on the southwestern boundary of the site. The area includes the lower parking lot, roadway, sidewalks, woodlands, and landscaped areas. Runoff is captured in a deep sump catch baingan direct to a tree trench (TT1) for treatment and underground chambers (URC-1) for infiltration.

DA3c is approximately 0.67 acres, located on the southern boundary of the site. The area includes roadway, sidewalks, woodlands, and landscaped areas. Runoff is directed to localized recharge basins for infiltration.

DA3d is approximately 0.11 acres, located in the southern part of the site. The area includes parking lot, roadway, sidewalks, and landscaped areas. Runoff is directed to a tree trench (TT2) for treatment and recharge basins for infiltration.

R1 is approximately 0.49 acres and it is the proposed building's roof. Runoff is directed via roof leaders to underground chambers (URC-2 and URC-4) for infiltration.

2.0 DRAINAGE DESIGN METHODOLOGY AND ANALYSIS

The drainage design was completed by performing the following series of tasks:

- Site soil evaluations (9 test pits) (Appendix A)
- Delineation of drainage areas and sub catchments (Appendix B)

- Sizing the bioretention areas, tree trenches and underground recharge chambers (Appendix C)
- Modeling the proposed drainage network with HydroCAD® software (Appendix D)
- TSS and Recharge calculations (Appendix E)

Nine soil test pits were excavated; six test pits were for the purposes of the Phase 2 environmental assessment and three test pits were for assess subsoil conditions for wastewater and stormwater practices. No standing water was found in any of the test pits. Redoximorphic features (mottling) were found in two test pits: TP-E & TP-F. In TP-E, two lenses of mottling were observed: one in the sandy loam just above the silt loam layer, and one within the sandy loam layer just below the silt loam layer. Based on the soil evaluator's judgement, both sets of mottles are due to the interface between the loamy sand and silt loam layers and is indicative of the restriction of infiltration of surface water caused by this textural change and that this is a sign of a perched water table in this area of the site. Based upon our field observations and the topography in this area, it appears that the wetland on the west side of the site is the result of runoff that most likely settles in the area and becomes "trapped" in the subsurface, unable to infiltrate and creating the perched water table. The soil test pit data are included in **Appendix A**.

The site is located approximately half a mile from the Cape Cod Canal, a navigable ocean channel connecting Cape Cod Bay with Buzzards Bay. The lowest test pit (TP-F) observed was at ground surface elevation 63.5 and was excavated to a depth of 10 feet. No redoximorphic features, seepage, or restrictive layers were encountered in this excavation. Comparable regional groundwater monitoring wells less than a mile from the ocean indicate a high groundwater elevation of approximately 5 to 10. This would correlate to a depth to estimated seasonal high groundwater elevation of approximately 55 feet.

A double-ring infiltrometer test was performed at TP-F which resulted in an infiltration rate of 7.0 inches/hour. Based on the infiltration test data results, existing subsoils, and deep depth to groundwater, this site is ideal for stormwater infiltration, confirming prior assumptions and expectations for the proposed site and drainage design other than the area of TP-E.

Soil logs are provided in **Appendix A** and the test pits locations are located on the Grading and Drainage Plan.

The Stormwater Management System has been designed to accomplish the following major objectives:

- To capture and treat, at a minimum, the "first flush" (first one-inch of stormwater runoff) from the impervious surfaces to maintain or improve water quality conditions when compared to existing conditions.
- To provide groundwater recharge to the greatest extent practicable in conformance with the Massachusetts Department of Environmental Protection groundwater recharge criteria.

• To minimize runoff from the post-developed conditions at the study point located along the periphery of the site.

These objectives are met through the use of the following stormwater management measures:

- Bioretention systems and tree trenches sized to treat the first one-inch of stormwater runoff for water quality treatment of runoff from the driveway, walkways, and parking areas. The systems are equipped with overflows to convey runoff from larger storm events into proposed underground recharge chambers. (Appendix C).
- Underground recharge chambers and recharge basins sized to retain and infiltrate onsite runoff.

The proposed Stormwater Management System was designed to accommodate predevelopment site hydrologic conditions as well reduce stormwater pollution from the proposed site conditions. Stormwater runoff quantity was evaluated for the 2-year, 10-year, 25-year, and 100-year Type III, 24-hour storm events for both pre-development and post-development conditions. Per the town's subdivision provisions, the Stormwater Management System was designed to detain runoff from the 25-year event. Pre-development and post-development conditions were modeled using HydroCAD software, which combines USDA Soil Conservation Service hydrology and hydraulic techniques (commonly known as SCS TR-55 and TR-20) to generate hydrographs (See **Appendix B** for both "Pre-developed" and "Post-developed" Drainage Area Maps). The model was run for the 100-year events to ensure peak flows would be managed. The rainfall amounts used for calculating runoff for the storm events were obtained from the Cornell University Extreme Precipitation Events for the area (**Appendix D**). A summary table of pre- and post-development runoff peak flow rates and volumes is provided in Table 3.

Stormwater runoff quality was evaluated to ensure that pollutant export from the project site was minimized to the maximum extent practicable. The stormwater management system for the site was designed in accordance with the MASWS and the applicable criteria within the Town's Subdivision Regulations and Zoning Bylaw.

Table 4: Peak Flow and Volume Comparison

DECION	PRE-DEVELOPMENT		POST-DEVELOPMENT		PERCENT F	REDUCTION
DESIGN STORM	PEAK FLOW (CFS)	VOLUME (AF)	PEAK FLOW (CFS)	VOLUME (AF)	PEAK FLOW	VOLUME
2 YR	0.00	0.000	0.00	0.000	0%	0%
10 YR	0.07	0.045	0.07	0.045	0%	0%
25 YR	0.52	0.129	0.52	0.129	0%	0%
100 YR	2.78	0.394	2.78	0.394	0%	0%

STUDY POINT 1

STUDY POINT 2

DECICN	PRE-DEVEL	PRE-DEVELOPMENT		POST-DEVELOPMENT		REDUCTION
DESIGN STORM	PEAK FLOW (CFS)	VOLUME (AF)	PEAK FLOW (CFS)	VOLUME (AF)	PEAK FLOW	VOLUME
2 YR	0.00	0.000	0.00	0.000	0%	0%
10 YR	0.00	0.001	0.00	0.000	0%	0%
25 YR	0.03	0.018	0.00	0.000	0%	0%
100 YR	0.33	0.098	0.29	0.075	12%	23%

STUDY POINT 3

DECICN	PRE-DEVELOPMENT		POST-DEVELOPMENT		PERCENT F	REDUCTION
DESIGN STORM	PEAK FLOW (CFS)	VOLUME (AF)	PEAK FLOW (CFS)	VOLUME (AF)	PEAK FLOW	VOLUME
2 YR	0.00	0.000	0.00	0.000	0%	0%
10 YR	0.00	0.002	0.00	0.000	0%	100%
25 YR	0.04	0.024	0.00	0.000	100%	100%
100 YR	0.44	0.132	0.42	0.017	5%	87%

3.0 COMPLIANCE WITH MADEP STORMWATER STANDARDS

The Massachusetts Stormwater Standards were revised in February 2008 to include ten stormwater management standards, established jointly by the DEP and the Office of Coastal Zone Management and published in the 2008 update of the Stormwater Management Handbook. Projects that are within the jurisdiction of the Wetlands Protection Act Regulations, 310 CMR 10.00 are subjected to these Stormwater Management Standards. For this project, adherence to the Handbook is required as the project is within the jurisdiction of the Wetlands Protection Act. Therefore, the stormwater management system was designed in accordance with the MASWS.

The following is a list of Stormwater Management Standards and accompanying documentation describing compliance of the proposed retrofit project with each Standard:

1. No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

No new untreated stormwater will discharge to wetland areas. .

2. Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.

Discharge rates for pre and post-development were calculated using HydroCAD® 2010, and SCS-TR20 based stormwater modeling computer program (**Appendix D**). Post-development peak discharge rates are less than pre-development rates for the 2-, 10-, 25- and 100-year storms. A summary table of these precipitation events is provided in **Table 4**. Rainfall values from the NRCC Extreme Precipitation for New England database were utilized for this analysis.

3. Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Under the proposed design, the stormwater runoff is being directed to recharge basins and underground recharge chambers. The intent is to recharge groundwater to the maximum extent practicable as required by Standard 3. Since the site is characterized with a high infiltration rate (greater than 2.4 in/hr.), at least 44% of the total suspended solids must be removed prior to discharge to the infiltration structure. The required TSS pretreatment will be done through deep sump catch basins, bioretention practices, and tree trenches. TSS and recharge calculations are provided in **Appendix E**.

4. Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:

- Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;
- Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and
- Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

The stormwater management practices are sized to capture the required water quality volume (**Appendix C**).

The stormwater management pretreatment and treatment systems for the sites have been selected and sized for the most removal of the average annual load of TSS possible. The following removal rates were taken from MA Stormwater Handbook:

Sediment Forebay or		
Deep Sump Hooded Catch Basin:	Recommended design rate:	25%
Tree Trench (Treebox filter)	Recommended design rate:	80%
Bioretention (with sediment forebay):	Recommended design rate:	90%

TSS calculations are provided in **Appendix E.** Source controls and pollution prevention will be controlled by the methods outlined in **Sections 5.0 and 7.0**. The proposed Operation and Maintenance Plan was developed to ensure that the stormwater system continues to function as it was designed into the future (**Appendix F**).

5. For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

The site is not considered a LUHPPL; thus, this standard is not applicable.

6. Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

The project site is not located within a Zone II or Interim Wellhead Protection Area. The stormwater discharges are near to a wetland on the western portion of the site.

The project proposes to use stormwater pretreatment, treatment, and infiltration BMPs identified in Standard 6. Sediment forebays and deep sump catch basins are approved pretreatment BMPs, filtering bioretention areas (included tree trenches) are approved treatment BMPs with 44% TSS reduction prior to treatment occurring, and dry wells and subsurface structures are approved infiltration BMPs.

7. A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

This project is not a redevelopment project, therefore, Standard 7 does not apply.

8. A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

An Erosion and Sediment Control Plan is included in construction documents, and a Pollutant Prevention Plan is included in this Report. Silt fence and/or silt socks are proposed at the limit of work; silt socks are proposed along the downgradient edges of the area of disturbance. Disturbed areas will be stabilized with seeding and/or erosion control blankets, if necessary, as soon as possible to minimize erosion and sedimentation. Additional pollutant controls during construction are described in **Section 5.0** and on the plans. A Stormwater Pollution Plan (SWPPP) is required as part of the NPDES Construction General Permit and will be submitted prior to construction.

The contractor will be required to establish erosion controls prior to beginning any other projectrelated work. The Erosion and Sediment Control Plan will also establish the limit of work, beyond which the contractor will not be allowed to perform any project work. It is the contractor's responsibility to monitor and correct erosion control practices throughout the duration of the project. Erosion control measures will not be removed until the project reaches completion as directed by the project engineer or landscape architect.

9. A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.

The long-term stormwater operation and maintenance plan for each stormwater best management practice is discussed in **Section 6.0** and provided with this report in **Appendix F**.

10. All illicit discharges to the stormwater management system are prohibited.

There will be no illicit discharges to the stormwater management system. The Long-Term Pollution Prevention Plan provided includes measures to prevent illicit discharges.

4.0 CONSTRUCTION ACTIVITIES AND GENERAL CONSTRUCTION SEQUENCE

Construction activities will involve site preparation and earthwork necessary for construction of the proposed project. These activities primarily include the following:

- Erosion control installation
- Clearing and grubbing of existing vegetation within the proposed limits of work
- Excavation stockpiling, and hauling of excavated foundation, topsoil and subsoils
- Rough grading of all disturbed areas
- Construction of new housing unit
- Construction of stormwater management system
- Installation of utilities

- Paving
- Finish grading, final site stabilization and landscaping

Erosion and sediment control (ESC) measures will be installed per the construction plans and specifications prior to commencement of any soil disturbing activities. ESC measures will remain in place until final site stabilization is complete. Topsoil will be separated from the remaining soil and stockpiled on-site for use during site finish grading. The stockpiled topsoil will be protected to prevent erosion and sedimentation.

5.0 POLLUTANT CONTROLS DURING CONSTRUCTION

Controls will be used to reduce erosion during the construction period. Perimeter controls and sediment settling devices will be installed during construction to minimize sediment movement in stormwater and to protect the adjacent properties and buffers on the property.

5.1. Structural Practices

The following are the structural practices that will be implemented as part of the construction activity.

- <u>Silt Fence & Sediment Silt Sock Barrier</u> will be installed prior to commencement of construction. This type of practice creates erosion control barriers to intercept sediment in diffuse runoff. The Town will be informed upon installation so that they may inspect these barriers prior to construction. Portions of the erosion control barriers will be replaced and/or repaired as necessary to prevent erosion. Barriers will be installed parallel to land slope at the perimeter of the work site. In addition, silt fence barriers will be installed around the bioretention areas during construction.
- <u>Silt Sacks (or approved equivalent)</u> will be installed at identified existing catch basins and structure following construction of the proposed catch basins to prevent sedimentation during the any additional construction. The Silt Sack will be replaced and disposed of off-site if damage is observed.
- <u>Bioretention Area(s)</u> will be graded to within one foot of design elevations until site is fully stabilized to capture sediment during construction. Heavy equipment will not be allowed to operate on the surface location where the systems are planned because soil compaction would adversely impact their long-term performance. Silt fence will be utilized around the perimeter of the bioretention systems during construction. Light earth-moving equipment will be used for excavation and construction of the systems. All excavated materials from the area will be removed and disposed of in an approved location. All bioretention areas will be inspected at least once every seven calendar days and immediately after storm events by the Site Superintendent.
- <u>Slope Stabilization</u> will be installed immediately upon obtaining final grades as shown on the project site plans. Areas that fail to stabilize will be re-graded to final grade and stabilized as necessary. Amount of land disturbed will be minimized to reduce potential

for erosion and sedimentation. Stabilization measures shall be initiated within 14 days following the end of construction at each portion of the site and as soon as practicable.

The entire stormwater management system including overflow spillway and sediment forebay will be inspected upon completion of construction. Sediment will be removed from all elements of the stormwater management system. All control measures must be installed and maintained in accordance with manufacturer's specifications, good engineering practices, and in accordance with this Plan (every seven calendar days and after storm events). If inspections show that a control has failed or been installed incorrectly, the Operator must replace or modify it within 24 hours.

Structural controls will be regularly inspected to ensure proper performance. The following operation and maintenance provisions will be provided:

- Silt fences will be inspected for depth of sediment, tears, to determine if the fabric is securely attached to the fence posts, and to determine if the fence posts are firmly in the ground. Silt fence will be replaced when necessary.
- Silt Socks shall be inspected for depth of sediment and any breaches will promptly be repaired or replaced when necessary.
- Sediment shall be removed where accumulation reaches one-third the above ground height of any barrier.
- Once each workday structural control measures receiving flows from areas that have not been stabilized shall be inspected.
- Remedial action shall be taken in areas where temporary and permanent seeding is deemed inefficient through weekly inspections to establish a stabilized surface.
- All BMP's will be cleared of accumulated foreign debris, including leaves and lawn cuttings.
- All BMP's will be inspected for slope integrity and erosion.
- All control measures will be inspected at least once every 7-calendar days and within 24 hours after storm events of 0.5 inches or more.
- All measures will be maintained in good working order, if a repair is necessary, it will be initiated within 24 hours of discovery.

5.2. Stabilization Practices

The amount of land disturbed during construction will be minimized to reduce the potential for erosion and sedimentation. Prompt surface stabilization will be practiced to control erosion in areas where disturbances cannot be avoided during construction. Stabilization measures shall be initiated within 14 days following the end of construction at each portion of the site. Exceptions to this requirement are allowable when snow cover prevents the initiation of

stabilization within 14 days, in which case such measures shall be undertaken as soon as possible.

Stabilization measures that may be used during construction are described below:

- <u>Temporary Seeding</u> Temporary seeding of disturbed surfaces with fast-growing grasses (annual rye) to provide greater resistance to stormwater runoff and/or wind erosion for areas where construction has temporarily ceased.
- <u>Permanent Seeding</u> Permanent seeding of surfaces with vegetation, including but not limited to grass, trees, bushes, and shrubs, to stabilize the soil. Establishing a permanent and sustainable ground cover at a site stabilizes the soil while reducing the sediment content in runoff.
- <u>Permanent Planting</u> the contractor shall install and adequately establish all planting as required at the completion of the project.
- <u>Mulching/Hydro mulching</u> hydro mulch will be placed on the soil surface to cover and hold in place disturbed soils.

Temporary seeding or other soil stabilization measures will be provided where construction activities have ceased at the site. Topsoil stockpiles will be temporarily seeded or covered to prevent erosion and will be surrounded with silt fence. When the site's final grade has been established, permanent vegetation will be planted on the disturbed areas. The vegetation will consist of grass, shrubs, bushes, and trees.

5.3. Other Types of Controls

Additional controls/practices will be undertaken to reduce pollution in stormwater runoff flows which include, but are not limited to, control of off-site mud tracking from construction site, dust suppression, proper sanitary waste disposal, earthwork procedures timed and conducted in manners aimed to minimize erosion and sedimentation, snow removal plans, proper management of waste materials, proper management of hazardous waste, proper material stockpiling, and spill prevention and control measures.

- <u>Dust Suppression</u> Water sprays shall be used to control dust during extended dry periods during construction.
- <u>Sanitary Wastes</u> All sanitary wastes will be collected from the portable units by a licensed sanitary waste management contractor (as required by local regulations).
- <u>Earthwork</u> The exposure of disturbed surfaces to stormwater and potential stormwater erosion will be minimized by well organized earthwork procedures. Stabilization procedures shall be undertaken in accordance with this report. Grubbing during wet seasons will be avoided if feasible.

- <u>Snow Removal Plan</u> Plowed snow collected from the parking areas will be deposited onto free draining, pervious surfaces, away from the site's drainage conveyance structures to maximize infiltration. Snowmelt runoff that is not infiltrated will be directed to the site's stormwater management system. Snow is not to be plowed or piled onto the stormwater management facility or wetlands.
- <u>Waste Materials</u> Dumpsters rented from a licensed solid waste management company will be used to store solid waste and debris that cannot be recycled, reused or salvaged. The dumpsters will meet all local and state solid waste management regulations. Dumpsters will be covered when refuse is not being directly deposited or withdrawn from them. Potentially hazardous wastes will be separated from normal wastes, including segregation of storage areas and proper labeling of containers. Removal of all waste from the site will be performed by licensed contractors in accordance with applicable regulatory requirements and disposed of at either local or regional approved facilities. Waste materials will not be buried on-site. All site personnel will be instructed regarding the correct procedures for waste disposal. Notices stating these procedures will be posted at the site. Solvents and flushing materials used during construction and preoperational cleaning will be provided, handled, managed, and removed by the contractor for appropriate off-site disposal.
- <u>Hazardous Waste Materials</u> Any disposal of hazardous materials will be completed using the required paperwork. Copies will be provided to the Engineer and to the Town.
- <u>Spill Prevention and Control Measures</u> To minimize the risk of spills or other accidental exposure of materials and substances to stormwater runoff, the following material management practices will be used throughout the project:
 - An effort will be made to store only enough products required to do the job.
 - All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
 - Products will be kept in their original containers with the original manufacturer's label.
 - Substances will not be mixed with one another unless recommended by the manufacturer.
 - Whenever possible, the maximum amount of a product will be used before disposing of the container.
 - Manufacturers' recommendations for proper use and disposal will be followed.
 - The site superintendent will conduct daily inspections to ensure proper use and disposal of materials.

To reduce the risk associated with hazardous materials used on the site, the following practices will be used:

• Products will be kept in original containers unless they are not resealable.

- Original labels and material safety data sheets will be retained and kept on-site; they contain important product information.
- If surplus product must be disposed of, manufacturers' or local and state recommended methods for proper disposal will be followed.
- <u>Materials List</u> Materials or substances listed below are expected to be present on-site during construction:

- Concrete - Asphalt - Paints (enamel and latex) - Metal Studs - Concrete	 Fertilizers Petroleum Based Products Cleaning Solvents Wood Tar
- Sealants	- Tar - Adhesives

The following product-specific practices will be followed on-site:

- <u>Petroleum Products</u> All on-site vehicles will be monitored for leaks and receive preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which area clearly labeled. Any asphalt substances used on-site will be applied according to the manufacturers' recommendations.
- <u>Fertilizers</u> Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. Products will be stored in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.
- <u>Paints</u> All containers will be tightly sealed and stored indoors when not required for use. Excess paint will not be discharged to the storm sewer system but will be properly disposed of according to the manufacturers' instructions or state and local regulations.
- <u>Concrete Trucks</u> Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site.

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted, and site personnel will be made aware of the procedures and location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area on-site. Equipment and materials will include, but not be limited to, brooms, dustpans, mops, rags, gloves, goggles, speedi-dry, sand, sawdust, and plastic and metal trash containers specifically for this purpose.

- All spills will be cleaned up immediately after discovery. Spills large enough to reach the storm water system will be reported to the National Response Center at 1-800-424-8802.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state or local government agency, regardless of the size.
- The site superintendent responsible for the day-to-day site operations will be the spill prevention and clean-up coordinator. He will designate at least three other site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and in the onsite office trailer.

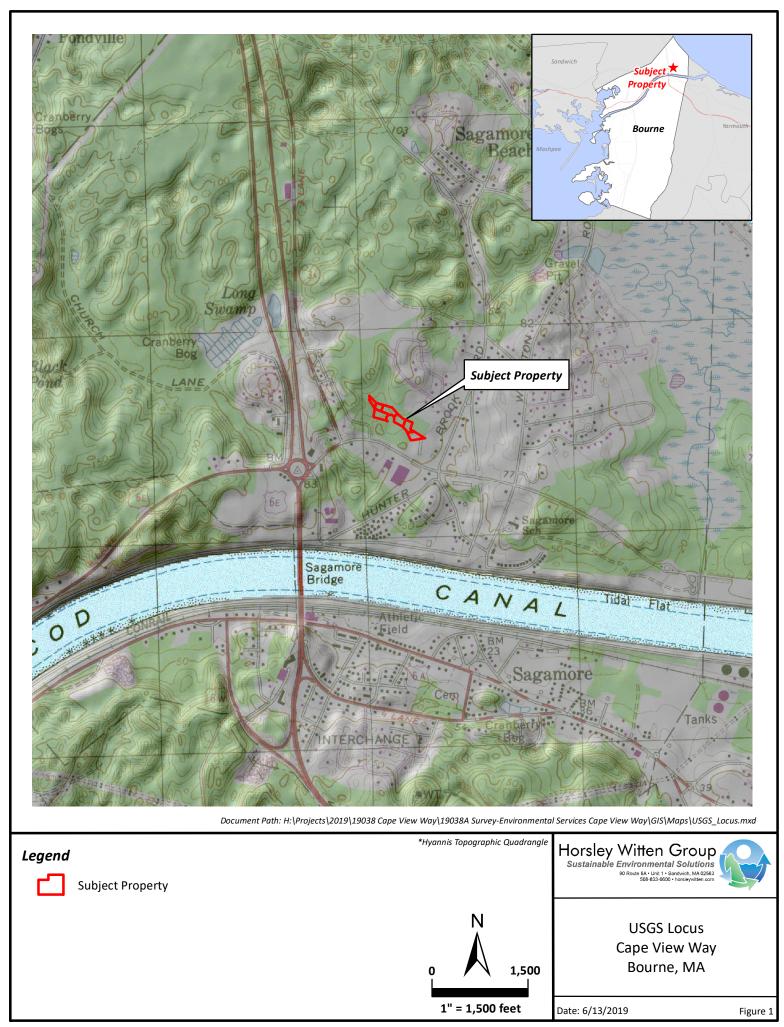
6.0 STORMWATER OPERATION AND MAINTENANCE PLAN

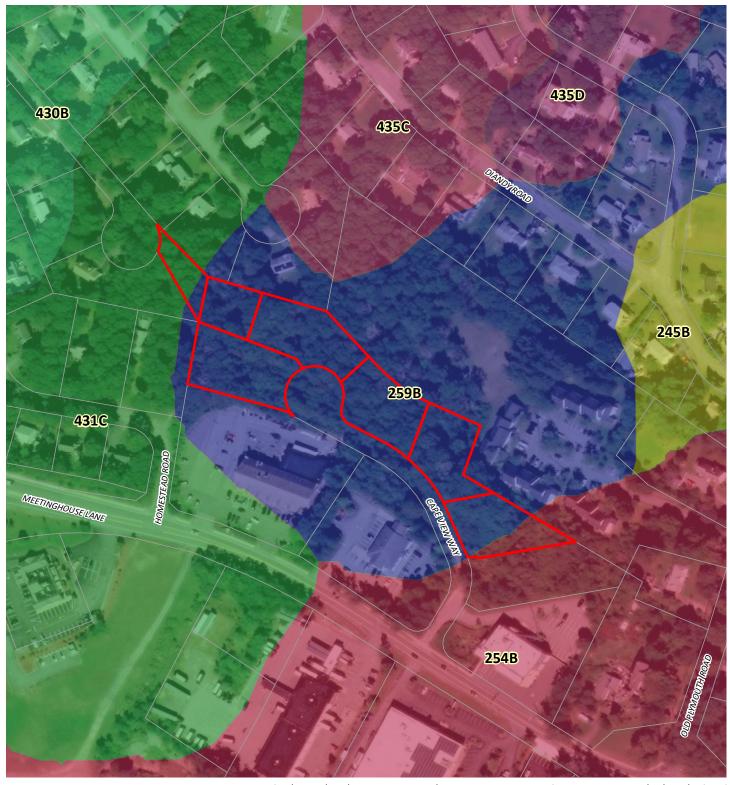
All stormwater management measures and controls identified in this report shall be operated and maintained appropriately during the construction phase of the project and during regular operation of the site in the post-construction period as required on the construction drawings and the separate Stormwater Management Maintenance Plan (Appendix F).

7.0 REFERENCES

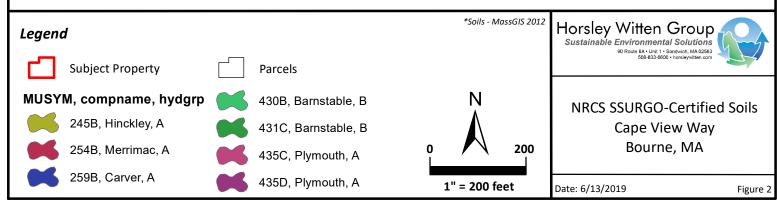
- 1. MADEP (Massachusetts Department of Environmental Protection). 2008. Massachusetts Stormwater Standards Manual.
- Northeast Regional Climate Center and Natural Resources Conservation Service. 2010-2018. Extreme Precipitation for New York and New England. Version 1.12. <u>http://precip.eas.cornell.edu/</u>

FIGURES





Document Path: H:\Projects\2019\19038 Cape View Way\19038A Survey-Environmental Services Cape View Way\GlS\Maps\Soils.mxd



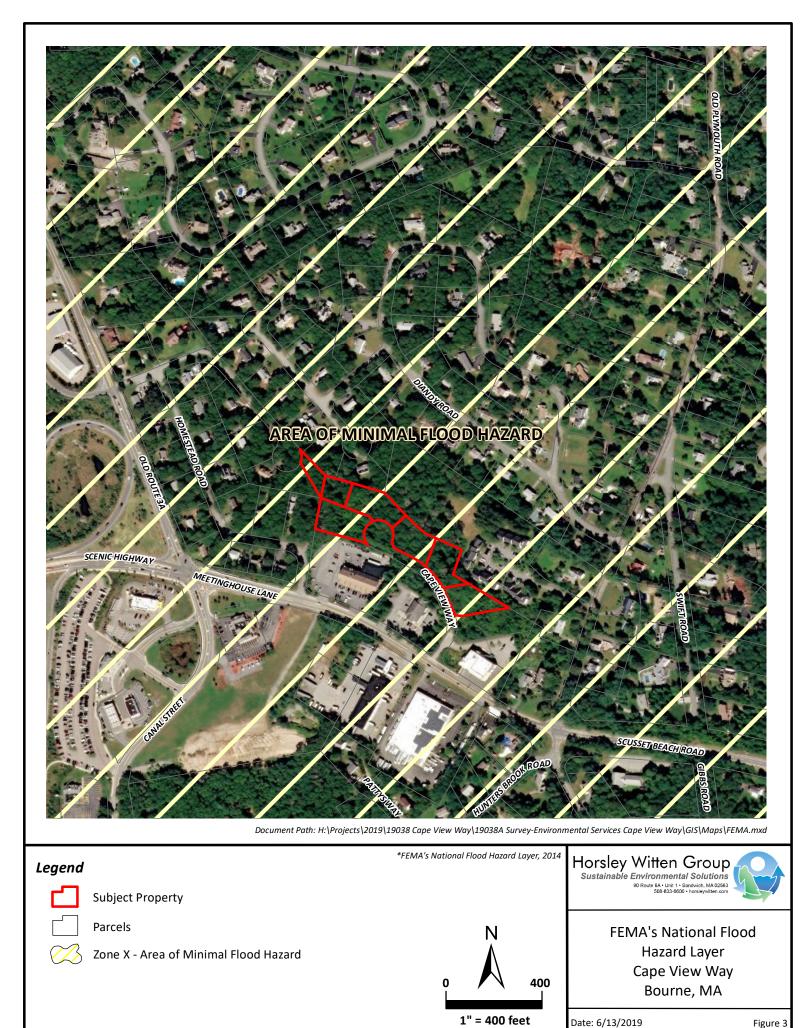
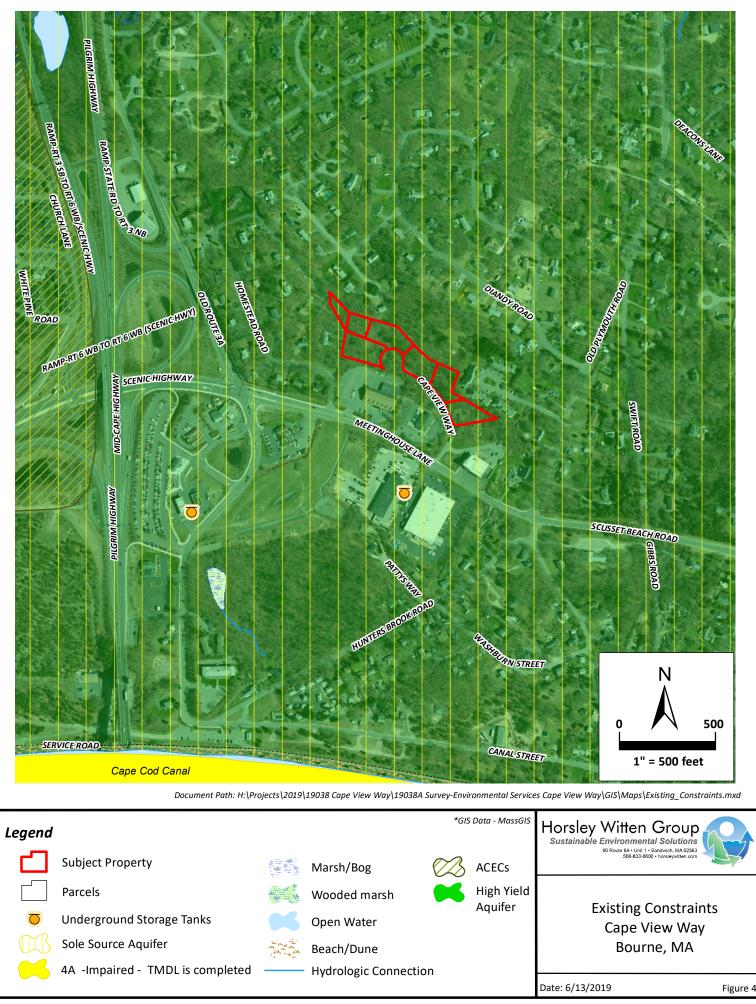


Figure 3





Site Soil Evaluations



MEMORANDUM

TO:	Meena Jacobs – Senior Project Manager – Real Estate Development Preservation of Affordable Housing, Inc.
FROM:	Joe Henderson, P.E.
DATE:	October 28, 2019
RE:	Cape View Way, Bourne MA Site Soil Evaluation
CC:	Brian Kuchar, RLA, P.E.

Horsley Witten Group, Inc. (HW) has conducted a total of 14 soil test pits at Cape View Way to complete a Phase 2 assessment and assess the subsurface conditions and determine its suitability for the construction of wastewater and stormwater management practices. The test pits were spread throughout the site and locations are shown on the attached plan. The results of the nine test pits for stormwater and wastewater soil test pit data are attached. For more information on the Phase 2 assessment, please see the Limited Investigation Subsurface Report dated November 22, 2019.

The soil map units according to the USDA Natural Resources Conservation Service for this location are "fine sandy loam" and "loamy coarse sand." The majority of test pits consisted of varying depths of loamy sand overlaying fine sand with a gravelly lens. The top layers of soil were generally friable and the underlying layers were more firm in place but generally friable in hand. The outlier test pit (TP-E) was closest to the existing wetland (approx. 100 ft away) and consisted of much tighter soils, including a silt loam layer from 66-116" with gleyed soils containing decomposed organic matter underlain by sandy soil.

No standing water was observed in any of the test pits; TP-E encountered seepage at 116" that was held above the restrictive silt loam layer but was determined to be not indicative of the groundwater table.

Redoximorphic features (mottling) were found in two test pits: TP-E & TP-F. In TP-E, two lenses of mottling were observed: one in the sandy loam just above the silt loam layer, and one within the sandy loam layer just below the silt loam layer. In our opinion, both sets of mottles are due to the interface between the loamy sand and silt loam layers and is indicative of the restriction of infiltration of surface water caused by this textural change. A gap between the two sets of mottles was observed where no redoximorphic features could be seen. In TP-F, a similar two lenses of mottling were observed, both of which we believe are a result of textural changes. Based on the soil textures, it is our opinion that the redox in these pits and the seepage in TP-E are not indication of a high water table in this area.

The site is located approximately half a mile from the Cape Cod Canal, a navigable ocean channel connecting Cape Cod Bay with Buzzards Bay. The lowest test pit (TP-F) observed was at ground surface elevation 63.5 and was excavated to a depth of 10 feet with no indication of a seasonal high water table. Comparable regional groundwater monitoring wells less than a mile from the ocean indicate a high groundwater elevation of approximately 5 to 10. The recommended design Estimated Seasonal High Ground Water (ESHGW) elevation is el. 10.0 ft.

Bourne Health Agent Terri Guarino observed percolation tests at TP-6 and TP-B on October 24, 2019. At TP-6, the percolation test was performed from 60" to 75" and the soil was unable to maintain a water height of 12". The full 24 gallons were applied to TP-6, giving the percolation test a default rate of 5 minutes/inch. At TP-B, the percolation test was performed from 44" to 59", resulting in a rate of 3.3 minutes/inch. The Health Agent also observed TP-A, TP-C and TP-D and concluded that the material was of similar nature and did not require further percolation tests. The design percolation rate for sizing wastewater leaching facilities is 5 minutes/inch.

In addition, HW performed a double-ring infiltrometer test at TP-F in the fine loamy sand layer, which resulted in an infiltration rate of 7.0 inches/hour. To be conservative, half of the average observed rate will be used in the design of infiltrating stormwater practices (e.g., 3.5in/hr). Although not tested with the infiltrometer, the underlying sandy layer would likely have an infiltration rate of 8.27 in/hr based on the percolation testing results.

Based upon the results of on-site soil evaluations, the underlying sandy soils onsite are acceptable for wastewater and stormwater infiltration. Stormwater practices located near TP-E and TP-F should be located in the underlying sandy layers below the restrictive soil layers (approx., El. 55 – 57). The extent of restrictive soil layers should be confirmed during construction if necessary.

Test Ho	le Number	:		TP-A	24-Oct-19	Time	1:30 PM		60F, sunny Weather		
				Dat	le	Time			weather		
1. Lo	cation										
	Ground Eleva	ation at Surface c	f Hole	60.8							
	Location (Ide	entify on Plan)	Northeast	t corner of site	e, closest to	Cherry Hill bu	iildings				
2. La	and Use: Wo	oodland				No			0-3		
	(e.ç	g. woodland, agricultu	ral field, vaca	ant lot, etc.)		Surface Sto	nes		Slope (%)		
		x of brush and tre	es	Landfor	m		Position on	landscape (at	tach sheet)		
			L .								
3. Di	stances from:	Open Water Boo	feet	Draina	age Way	feet	Possible	vvet Area	feet	_	
		Property Line		Drinking \	Water Well		Other				
			feet			feet				_	
4 Pa	rent Material:					Unsuitable M	laterials Pr	esent: Ye	s No x]	
lf Y	es: Disturb	bed Soil	Fill Materi	ial	Impervious	Layer(s)	We	eathered/F	ractured Rock	Bedrock	
5 Gr	oundwater Ob	oserved: Yes	No	X							
lf \	es: Depth	Weeping from P	it		Depth	Standing Wa	ter in Hole				
						J			Observed		
E9	umated Depti	n to High Groundv		feet		elevation			elevatio	on	
Τe	est Pit Num	ber:			TP-A						
Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redo	oximorphic Fe (mottles)	eatures	Soil Texture (USDA)		ragments Volume	Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-10	A	10 YR 4/2	-	-	-	SL	<5	-			
10-38	Bw	10YR 4/6	-	-	-	SL	-	-			
38-50	C1	10YR 6/3	-	-	-	FS	-	-			
50-68	C2	10YR 6/3	-	-	-	G-FS	50	10			

Test Ho	ole Number	r:		FP-B Dat	24-Oct-19	Time	2:00 PM		60F, sunny Weather		
1. Lo	ocation			20.							
	Ground Elev	ation at Surface c	f Hole	63.1			-				
	Location (Ide	entify on Plan)	North edg	e of the site,	near Cherry	Hill property	line (west o	of A, north	of C)		
2. La		oodland g. woodland, agricultu	ral field vaca	ant lot etc.)		No Surface Sto	nes		0-3 Slope (%)		
	mi	x of brush and tre									
	Ve	getation		Landfor	m		Position on	landscape (at	tach sheet)		
3. Di	stances from:	Open Water Boo	ly feet	Draina	age Way	feet	Possible	Wet Area	feet	-	
		Property Line	feet	Drinking	Water Well	feet	Other				
4 Pa	rent Material:					Unsuitable N	laterials Pr	esent: Ye	s No 🗴]	
lf Y	es: Disturt	bed Soil	Fill Materi	al	Impervious	Layer(s)	We	eathered/Fr	ractured Rock	Bedrock	
5 Gr	oundwater Ot	oserved: Yes	No	X							
lf Y	/es: Depth	Weeping from P	it		Depth	Standing Wa	ter in Hole				
Es	timated Depth	n to High Groundv							Observed		
				feet		elevation			elevatio	n	
Τe	est Pit Num	ber:			TP-B						
Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redo	oximorphic Fe (mottles)	eatures	Soil Texture (USDA)		ragments Volume	Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6	А	10 YR 4/2	-	-	-	SL	<5	-			
6-36	Bw	10YR 5/8	-	-	-	SL	-	-			
36-66	C1	10YR 6/4	-	-	-	MS	-	-			
66-84	C2	10YR 6/4	-	-	-	G-FS	30	10			

Test Ho	ole Number			TP-C Dat	24-Oct-19	Time	3:00 PM		60F, sunny Weather		
1. Lo	cation			Dui		Time			Would		
	Ground Eleva	ation at Surface c	of Hole	62.9							
		entify on Plan)		e of TP B (tov	vard Meetin	ahouse Rd)	-				
									0.2		
2. La		oodland g. woodland, agricultu	ral field, vaca	ant lot, etc.)		No Surface Sto	nes		0-3 Slope (%)		
		x of brush and tre	es								
	Veç	getation		Landfor	m		Position on	landscape (at	tach sheet)		
3. Di	stances from:	Open Water Boo	ly feet	Draina	age Way	feet	Possible	Wet Area	feet	_	
		Property Line	feet	Drinking	Water Well	feet	Other				
4 Pa	rent Material:					Unsuitable M	laterials Pr	resent: Ye	s No 🛛		
lf \	es: Disturb	oed Soil	Fill Materi	ial	Impervious	Layer(s)	We	eathered/Fi	ractured Rock	Bedrock	
5 Gr	oundwater Ob	served: Yes	No	X							
If ۱	es: Depth	Weeping from P	it		Depth	Standing Wa	ter in Hole				
F۹		n to High Ground				Ū			Observed		
20				feet		elevation			elevati	on	
Τe	est Pit Numl	ber:			TP-C						
Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redo	oximorphic Fe (mottles)	eatures	Soil Texture (USDA)	% by `	ragments Volume	Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-5	А	10 YR 4/2	-	-	-	SL	<5	-			
5-45	Bw	10YR 5/8	-	-	-	SL	-	-			
45-68	C1	10YR 6/4	-	-	-	MS	-	-			
68-80	C2	10YR 6/4	-	-	-	G-FS	30	10			

Test Ho	ole Number	r:		TP-D Dat	24-Oct-19	Time	4:00 PM		60F, sunny Weather		
1. Lo	cation										
	Ground Elev	ation at Surface o	of Hole	61			-				
	Location (Ide	entify on Plan)	South side	e of TP A (far	ther from C	herry Hill)					
2. La		oodland g. woodland, agricultu	ural field waar	ant lot oto)		No Surface Sto	200		0-3 Slope (%)		
		x of brush and tre		antiot, etc.)		Surface Sid	nes		Slope (%)		
		getation	,00	Landfor	m		Position on	landscape (at	tach sheet)		
3. Di	stances from:	Open Water Boo	dy feet	Draina	age Way	feet	Possible	Wet Area	feet		
		Property Line	feet	Drinking	Water Well	feet	Other				
4 Pa	rent Material:					Unsuitable N	laterials Pr	esent: Ye	s No	x	
lf \	es: Disturt	bed Soil	Fill Materi	ial	Impervious	Layer(s)	We	eathered/Fi	ractured Rock	Bedrock	
5 Gr	oundwater Ot	oserved: Yes	No No	X							
lf \	es: Depth	Weeping from P	it		Depth	Standing Wa	ter in Hole				
		n to High Ground				5			Observed		
E3	umateu Depti			feet		elevation			eleva	ation	
Τe	est Pit Num	ber:			TP-D						
Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redo	oximorphic Fe (mottles)	eatures	Soil Texture (USDA)	% by `	ragments Volume	Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-8	А	10 YR 4/2	-	-	-	SL	<5	-			
8-40	Bw	10YR 5/8	-	-	-	SL	-	-			
40-62	C1	10YR 6/4	-	-	-	MS	-	-			
62-74	C2	10YR 6/4	-	-	-	G-FS	30	10			

Test Ho	le Number	:		TP-E Dat	25-Oct-19	Time	9:00 AM		60F, sunny Weather		-
	_			Dat	le	Time			Weather		
1. Lo	cation										
	Ground Eleva	ation at Surface o	of Hole	66.2			-				
	Location (Ide	entify on Plan)	Between	proposed buil	ding footprii	nt and wetlan	d (Northwe	st side of b	uilding)		
2. La	and Use: Wo	oodland				No			0-3		
	(e.ç	g. woodland, agricultu	ıral field, vaca	ant lot, etc.)		Surface Sto	ones		Slope (%)		-
		mac trees, lower	brush	<u> </u>							_
	Veç	getation		Landfor	m		Position on	landscape (at	tach sheet)		
3. Dis	stances from:	Open Water Boo	ly feet	Draina	age Way	feet	Possible	Net Area	feet		
		Property Line		Drinking \	Mator Mall		Other				
		Property Line	feet		Water Well	feet					
4 Pa	rent Material:					Unsuitable M	laterials Pr	esent: Ye	s No	x	
lf V	′es: Disturb	bed Soil	Fill Mater		Impervious	s Laver(s)		athered/Fr	actured Rock	Bedrock	
			_		mpervioue					Decreok	
5 Gr	oundwater Ob	served: Yes	No								
lf Y	'es: Depth	Weeping from P	i <u>t</u>		Depth	Standing Wa	ter in Hole				
Es	timated Depth	n to High Ground	water:						Observed		
				feet		elevation			eleva	tion	
Te	est Pit Num	ber:			TP-E						
Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Red	oximorphic Fe (mottles)	eatures	Soil Texture (USDA)		ragments Volume	Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
								& Stories			
0-4	A	10YR 3/2	-	-	-	VFSL	-	-			
4-14	Bw	10YR 5/2	-	-	-	VFSL	-	-			
14-66	C1	10YR 5/2	-	-	-	VFLS	-	-			
66-116	C2	GLEY 1 2.5/N, GLEY 5/10Y	66	2.5 YR 4/6	100	SiL	-	-			clays, black

Test Ho	ole Number	-		TP-F Dat	25-Oct-19	Time	11:00 AM		60F, sunny Weather		
1. Lo	ocation			Dat	0						
	Ground Eleva	ation at Surface o	of Hole	63.8							
				ed circle in fro	ont of buildir	na	•				
		- ,							0.2		
2. La		oodland g. woodland, agricultu	ral field, vaca	ant lot, etc.)		No Surface Sto	nes		0-3 Slope (%)		
		mac trees, lower	brush								
	Veç	getation		Landfor	m		Position on	landscape (at	tach sheet)		
3. Di	stances from:	Open Water Bod	ly <u>feet</u>	Draina	age Way	feet	Possible	Wet Area	feet	_	
		Property Line	feet	Drinking \	Water Well	feet	Other				
4 Pa	rent Material:					Unsuitable M	laterials Pr	resent: Ye	s No 🛛		
lf N	Yes: Disturb	oed Soil	Fill Mater	ial	Impervious	s Layer(s)	We	eathered/Fi	ractured Rock	Bedrock	
5 Gr	oundwater Ob	served: Yes	No	X							
lf \	Yes: Depth	Weeping from Pi	it		Depth	Standing Wa	ter in Hole	1			
Fs	timated Depth	n to High Groundv	vater:			-			Observed		
				feet		elevation			elevati	on	
Τe	est Pit Numl	ber:			TP-F						
Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Rede	oximorphic Fe (mottles)	atures	Soil Texture (USDA)		ragments Volume	Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6	A	10YR 3/2	-	-	-	FLS	-	-			
6-18	Bw	10YR 5/2	-	-	-	FLS	-	-			
18-60	C1	10YR 5/2	48	10 YR 6/8	-	FLS	-	-			
60-78	C2	GLEY 1 2.5/N, GLEY 5/10Y	66	2.5 YR 4/6	-	SiL	-	-			

Test Ho	le Numbe	r:		TP-6 Dat	24-Oct-19 te	Time	10:00 AM		60F, sunny Weather		
1. Lo	cation										
	Ground Elev	ation at Surface o	of Hole	61.4			-				
	Location (Ide	entify on Plan)	Just south	nwest of Cher	ry Hill buildi	ngs					
2. La		oodland g. woodland, agricultu	ural field, vaca	ant lot etc.)		No Surface Sto	nes		0-3 Slope (%)		
		ix of brush and tre					103				
		getation		Landfor	m		Position on	landscape (at	tach sheet)		
3. Di	stances from	: Open Water Boo	dy	Draina	age Way	feet	Possible	Wet Area	feet	_	
		Property Line	feet	Drinking	Water Well	feet	Other				
4 Pa	rent Material:	:				Unsuitable N	laterials Pr	resent: Ye	s No	x	
lf Y	es: Distur	bed Soil	Fill Materi	al	Impervious	Layer(s)	We	eathered/Fi	ractured Rock	Bedrock	
5 Gr	oundwater O	bserved: Yes	No No	X							
lf Y	es: Dept/	NWeeping from P	it		Depth	Standing Wa	ter in Hole	·			
Es	timated Dept	h to High Ground		feet		elevation			Observed eleva	tion	
Τe	est Pit Num	ber:			TP-6						
Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redo	oximorphic Fe (mottles)	eatures	Soil Texture (USDA)		ragments Volume	Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-12	A	10 YR 4/2	-	-	-	FSL	-	-			
12-36	Bw	10YR 4/6	-	-	-	SL	-	-			
36-48	C1	10YR 6/3	-	-	-	G-FS	30	5			
48-120	C2	10YR 6/3	-	-	-	MS	-	-			

Test Ho	le Number	:	7	TP-7	23-Oct-19		10:30 AM		50F, cloudy and rainy		
				Dat	e	Time			Weather		
1. Lo	cation										
	Ground Eleva	ation at Surface c	of Hole	59.6							
	Location (Ide	entify on Plan)	North side	e of entrance	road, farthe	r into site thar	TP-8				
2. La		oodland g. woodland, agricultu		at late at a)		No			0-3		
				ant lot, etc.)		Surface Sto	nes		Slope (%)		
		x of brush and tre	es	Landfor	m		Position on	andscape (at	tach sheet)		
3. Di	stances from:	Open Water Boo	ly feet	Draina	age Way	feet	Possible \	Vet Area	feet	-	
		Property Line	feet	Drinking \	Water Well	feet	Other				
4 Pa	rent Material:					Unsuitable M	laterials Pr	esent: Ye	s No x]	
lf Y	es: Disturb	oed Soil	Fill Materi	al	Impervious	Layer(s)	We	eathered/Fi	ractured Rock	Bedrock	
5 Gr	oundwater Ob	served: Yes	No No	X							
lf Y	/es: Depth	Weeping from P	it		Depth	Standing Wa	ter in Hole				
		n to High Groundv			·	0			Observed		
LJ				feet		elevation			elevati	วท	
Τe	est Pit Numl	ber:			TP-7						
Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redo	oximorphic Fe (mottles)	atures	Soil Texture (USDA)	% by \	ragments √olume	Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-22	НТМ	10YR 3/4	-	-	-	FSL					
2-24	Ab	10YR 4/6	-	-	-	FSL					
24-32	Bw	10YR 6/6	-	-	-	FSL					
32-38	C1	10YR 6/3	-	-	-	G-FS					

Test Ho	le Number	:	7	ГР-8 	23-Oct-19		9:30 AM		50F, cloudy and rainy		
				Dat	e	Time			Weather		
1. Lo	cation										
	Ground Eleva	ation at Surface c	of Hole	58.7							
	Location (Ide	ntify on Plan)	North side	e of entrance	road, near p	ost office and	fire station	n			
2. La	and Use: Wo	oodland				No			0-3		
	(e.g	J. woodland, agricultu	ral field, vaca	ant lot, etc.)		Surface Sto	nes		Slope (%)		
		x of brush and tre	es, knotwe	eed Landfor	m		Position on	landscape (at	tach sheet)		
3. Di:	_	Open Water Boo	4.7		age Way		Possible \				
J. Di	stances nom.	Open water bot	feet		ige way	feet	- F 035IDIE 1	Net Alea	feet		
		Property Line	feet	Drinking \	Nater Well	feet	Other				
4.5.			leet				ata da Da			1	
4 Pa	rent Material:					Unsuitable M	aterials Pr	esent: Ye	s No x]	
lf Y	es: Disturb	ed Soil	Fill Materi	al	Impervious	Layer(s)	We	eathered/Fr	ractured Rock	Bedrock	
5 Gr	oundwater Ob	served: Yes	No	Х							
lf Y	es: Depth	Weeping from P	it		Depth	Standing Wa	ter in Hole				
Es	timated Depth	to High Groundv	water:						Observed		
				feet					elevatio	n	
Te	est Pit Numb	per:			TP-8						
Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redo	oximorphic Fe (mottles)	atures	Soil Texture (USDA)		ragments Volume	Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6	А	10YR 3/4	-	-	-	FSL	5	-	GRANULAR		
6-21	Bw	10YR 4/6	-	-	-	FSL	-	-	MASSIVE		
21-45	C1	10YR 6/6	-	-	-	G-FS	50	10	MASSIVE		
45-84	C2	10YR 6/3	-	-	-	MS	-	-	MASSIVE		



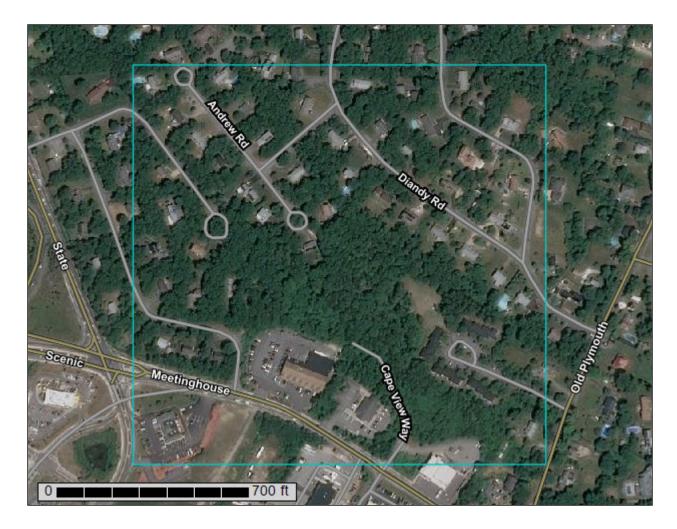
United States Department of Agriculture

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 Barnstable County, Massachusetts



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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface	2
How Soil Surveys Are Made	
Soil Map	
Soil Map	
Legend	10
Map Unit Legend	11
Map Unit Descriptions	11
Barnstable County, Massachusetts	13
245B—Hinckley loamy sand, 3 to 8 percent slopes	13
254B—Merrimac fine sandy loam, 3 to 8 percent slopes	14
259B—Carver loamy coarse sand, 3 to 8 percent slopes	16
430B—Barnstable sandy loam, 3 to 8 percent slopes	18
431C—Barnstable sandy loam, 8 to 15 percent slopes, very stony	19
435B—Plymouth loamy coarse sand, 3 to 8 percent slopes	20
435C—Plymouth loamy coarse sand, 8 to 15 percent slopes	22
435D—Plymouth loamy coarse sand, 15 to 35 percent slopes	23
References	25

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

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.



	MAP LEGEND	MAP INFORMATION
Area of Interest (AOI) Area of Intere Soils	a Stony Spot	The soil surveys that comprise your AOI were mapped at 1:25,000.
Soil Map Uni Soil Map Uni Soil Map Uni Soil Map Uni Special Point Features Blowout Borrow Pit Clay Spot	t Lines Wet Spot t Points Other Special Line Features Water Features Streams and Canals Transportation	Warning: Soil Map may not be valid at this scale. Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale. Please rely on the bar scale on each map sheet for map
Closed Depri Gravel Pit Gravel Vit Gravelly Spo Landfill Lava Flow Marsh or swa Mine or Quar O Perennial Wa	amp Major Roads Background Aerial Photography rry us Water	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.
 Rock Outcrop Saline Spot Sandy Spot Severely Ero Sinkhole Slide or Slip Sodic Spot 		Soil Survey Area: Barnstable County, Massachusetts Survey Area Data: Version 17, Jun 9, 2020 Soil map units are labeled (as space allows) for map scales 1:50,000 or larger. Date(s) aerial images were photographed: Jul 10, 2018—Nov 17, 2018 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 Symbol	Map Unit Name	Acres in AOI	Percent of AOI
245B	Hinckley loamy sand, 3 to 8 percent slopes	1.8	3.5%
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	5.0	9.9%
259B	Carver loamy coarse sand, 3 to 8 percent slopes	14.8	29.4%
430B	Barnstable sandy loam, 3 to 8 percent slopes	4.6	9.2%
431C	Barnstable sandy loam, 8 to 15 percent slopes, very stony	14.7	29.1%
435B	Plymouth loamy coarse sand, 3 to 8 percent slopes	0.0	0.0%
435C	Plymouth loamy coarse sand, 8 to 15 percent slopes	6.4	12.7%
435D	Plymouth loamy coarse sand, 15 to 35 percent slopes	3.2	6.3%
Totals for Area of Interest		50.4	100.0%

Map Unit Legend

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.

Barnstable County, Massachusetts

245B—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svm8 Elevation: 0 to 1,430 feet Mean annual precipitation: 36 to 53 inches Mean annual air temperature: 39 to 55 degrees F Frost-free period: 140 to 250 days Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent *Minor components:* 15 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Hinckley

Setting

Landform: Outwash terraces, eskers, moraines, outwash plains, kames, outwash deltas, kame terraces

Landform position (two-dimensional): Summit, shoulder, backslope, footslope

Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread

Down-slope shape: Linear, convex, concave

Across-slope shape: Convex, linear, concave

Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 8 inches: loamy sand

Bw1 - 8 to 11 inches: gravelly loamy sand

Bw2 - 11 to 16 inches: gravelly loamy sand

BC - 16 to 19 inches: very gravelly loamy sand

C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3s Hydrologic Soil Group: A *Ecological site:* F144AY022MA - Dry Outwash *Hydric soil rating:* No

Minor Components

Windsor

Percent of map unit: 8 percent

Landform: Kame terraces, outwash terraces, eskers, moraines, outwash plains, kames, outwash deltas

Landform position (two-dimensional): Summit, shoulder, backslope, footslope Landform position (three-dimensional): Nose slope, side slope, base slope, crest, tread, riser

Down-slope shape: Linear, convex, concave

Across-slope shape: Convex, linear, concave

Hydric soil rating: No

Sudbury

Percent of map unit: 5 percent
Landform: Outwash terraces, moraines, outwash plains, outwash deltas, kame terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope, head slope, tread
Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: No

Agawam

Percent of map unit: 2 percent

Landform: Eskers, moraines, outwash plains, kames, outwash deltas, kame terraces, outwash terraces

Landform position (two-dimensional): Summit, shoulder, backslope, footslope Landform position (three-dimensional): Nose slope, side slope, base slope, crest, troad riser

tread, riser

Down-slope shape: Linear, convex, concave *Across-slope shape:* Convex, linear, concave *Hydric soil rating:* No

254B—Merrimac fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tyqs Elevation: 0 to 1,290 feet Mean annual precipitation: 36 to 71 inches Mean annual air temperature: 39 to 55 degrees F Frost-free period: 140 to 240 days Farmland classification: All areas are prime farmland

Map Unit Composition

Merrimac and similar soils: 85 percent *Minor components:* 15 percent Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Merrimac

Setting

Landform: Outwash terraces, eskers, moraines, outwash plains, kames Landform position (two-dimensional): Backslope, footslope, summit, shoulder Landform position (three-dimensional): Side slope, crest, tread, riser Down-slope shape: Convex Across-slope shape: Convex

Parent material: Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

Typical profile

Ap - 0 to 10 inches: fine sandy loam Bw1 - 10 to 22 inches: fine sandy loam Bw2 - 22 to 26 inches: stratified gravel to gravelly loamy sand 2C - 26 to 65 inches: stratified gravel to very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline (0.0 to 1.4 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water capacity: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2s Hydrologic Soil Group: A Ecological site: F145XY008MA - Dry Outwash Hydric soil rating: No

Minor Components

Sudbury

Percent of map unit: 5 percent Landform: Terraces, deltas, outwash plains Landform position (two-dimensional): Footslope Landform position (three-dimensional): Tread, dip Down-slope shape: Concave Across-slope shape: Linear Hydric soil rating: No

Hinckley

Percent of map unit: 5 percent Landform: Kames, eskers, deltas, outwash plains Landform position (two-dimensional): Summit, shoulder, backslope Landform position (three-dimensional): Head slope, crest, side slope, nose slope, rise Down-slope shape: Convex Across-slope shape: Convex, linear Hydric soil rating: No

Windsor

Percent of map unit: 3 percent Landform: Outwash plains, outwash terraces, deltas, dunes Landform position (two-dimensional): Shoulder Landform position (three-dimensional): Tread, riser Down-slope shape: Linear, convex Across-slope shape: Linear, convex Hydric soil rating: No

Agawam

Percent of map unit: 2 percent Landform: Stream terraces, outwash plains, kames, outwash terraces, eskers, moraines Landform position (three-dimensional): Rise Down-slope shape: Convex Across-slope shape: Convex Hydric soil rating: No

259B—Carver loamy coarse sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2y07t Elevation: 0 to 240 feet Mean annual precipitation: 36 to 71 inches Mean annual air temperature: 39 to 55 degrees F Frost-free period: 140 to 240 days Farmland classification: Not prime farmland

Map Unit Composition

Carver, loamy coarse sand, and similar soils: 80 percent *Minor components:* 20 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Carver, Loamy Coarse Sand

Setting

Landform: Moraines, outwash plains Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope Landform position (three-dimensional): Nose slope, side slope, crest, head slope, tread Down-slope shape: Convex, linear Across-slope shape: Linear Parent material: Sandy glaciofluvial deposits

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material *Oe - 2 to 3 inches:* moderately decomposed plant material *A - 3 to 7 inches:* loamy coarse sand *E - 7 to 10 inches:* coarse sand *Bw1 - 10 to 15 inches:* coarse sand *Bw2 - 15 to 28 inches:* coarse sand *BC - 28 to 32 inches:* coarse sand *C - 32 to 67 inches:* coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3s Hydrologic Soil Group: A Ecological site: F149BY005MA - Dry Outwash Hydric soil rating: No

Minor Components

Deerfield

Percent of map unit: 10 percent Landform: Outwash terraces, outwash plains, outwash deltas, kame terraces Landform position (three-dimensional): Tread Down-slope shape: Linear Across-slope shape: Concave Hydric soil rating: No

Hinckley

Percent of map unit: 5 percent

Landform: Outwash plains, kames, outwash deltas, kame terraces, outwash terraces, eskers, moraines

Landform position (two-dimensional): Shoulder, backslope, footslope, summit, toeslope

Landform position (three-dimensional): Crest, head slope, nose slope, side slope, riser, tread

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Merrimac

Percent of map unit: 3 percent *Landform:* Outwash deltas, kame terraces, outwash terraces *Landform position (three-dimensional):* Tread, riser *Down-slope shape:* Linear *Across-slope shape:* Linear *Hydric soil rating:* No

Mashpee

Percent of map unit: 2 percent Landform: Drainageways, terraces, depressions Landform position (three-dimensional): Tread Down-slope shape: Concave Across-slope shape: Concave Hydric soil rating: Yes

430B—Barnstable sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 98ps Elevation: 0 to 1,000 feet Mean annual precipitation: 40 to 50 inches Mean annual air temperature: 48 to 54 degrees F Frost-free period: 160 to 240 days Farmland classification: Farmland of statewide importance

Map Unit Composition

Barnstable and similar soils: 75 percent *Minor components:* 25 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Barnstable

Setting

Landform: Ground moraines Landform position (two-dimensional): Shoulder Landform position (three-dimensional): Side slope Down-slope shape: Convex Across-slope shape: Convex Parent material: Friable loamy ablation till over reworked sandy glaciofluvial deposits

Typical profile

H1 - 0 to 1 inches: sandy loam H2 - 1 to 23 inches: sandy loam H3 - 23 to 64 inches: coarse sand

Properties and qualities

Slope: 3 to 8 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): High (2.00 to 6.00 in/hr) Depth to water table: More than 80 inches *Frequency of flooding:* None *Frequency of ponding:* None *Available water capacity:* Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2s Hydrologic Soil Group: A Ecological site: F149BY011MA - Well Drained Till Uplands Hydric soil rating: No

Minor Components

Plymouth

Percent of map unit: 8 percent Hydric soil rating: No

Nantucket

Percent of map unit: 7 percent Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent Hydric soil rating: No

Carver

Percent of map unit: 5 percent Hydric soil rating: No

431C—Barnstable sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 98pw Elevation: 0 to 1,000 feet Mean annual precipitation: 40 to 50 inches Mean annual air temperature: 48 to 54 degrees F Frost-free period: 160 to 240 days Farmland classification: Farmland of statewide importance

Map Unit Composition

Barnstable and similar soils: 70 percent *Minor components:* 30 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Barnstable

Setting

Landform: Ground moraines Landform position (two-dimensional): Backslope Landform position (three-dimensional): Side slope Down-slope shape: Linear Across-slope shape: Convex *Parent material:* Friable loamy ablation till over reworked sandy glaciofluvial deposits; loamy ablation till over reworked sandy outwash

Typical profile

H1 - 0 to 1 inches: sandy loam H2 - 1 to 23 inches: sandy loam

H3 - 23 to 64 inches: coarse sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 2.0 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): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 6s Hydrologic Soil Group: A Ecological site: F149BY011MA - Well Drained Till Uplands Hydric soil rating: No

Minor Components

Nantucket

Percent of map unit: 10 percent Hydric soil rating: No

Plymouth

Percent of map unit: 10 percent *Hydric soil rating:* No

Carver

Percent of map unit: 10 percent *Hydric soil rating:* No

435B—Plymouth loamy coarse sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 98rs Elevation: 0 to 1,000 feet Mean annual precipitation: 35 to 50 inches Mean annual air temperature: 45 to 55 degrees F Frost-free period: 140 to 240 days Farmland classification: Not prime farmland

Map Unit Composition

Plymouth and similar soils: 70 percent *Minor components:* 30 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Plymouth

Setting

Landform: Outwash plains Landform position (two-dimensional): Shoulder Landform position (three-dimensional): Riser Down-slope shape: Convex Across-slope shape: Convex Parent material: Loose sandy glaciofluvial deposits and/or loose sandy ablation till; loose sandy ablation till and/or loose sandy glaciofluvial deposits; loose sandy ablation till and/or loose sandy glaciofluvial deposits

Typical profile

H1 - 0 to 3 inches: loamy coarse sand H2 - 3 to 29 inches: gravelly loamy coarse sand H3 - 29 to 64 inches: gravelly coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3s Hydrologic Soil Group: A Ecological site: F149BY005MA - Dry Outwash Hydric soil rating: No

Minor Components

Hinckley

Percent of map unit: 8 percent Hydric soil rating: No

Carver

Percent of map unit: 8 percent Hydric soil rating: No

Barnstable

Percent of map unit: 6 percent Hydric soil rating: No

Nantucket

Percent of map unit: 6 percent

Hydric soil rating: No

Merrimac

Percent of map unit: 2 percent Hydric soil rating: No

435C—Plymouth loamy coarse sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 98rt Elevation: 0 to 1,000 feet Mean annual precipitation: 35 to 50 inches Mean annual air temperature: 45 to 55 degrees F Frost-free period: 140 to 240 days Farmland classification: Not prime farmland

Map Unit Composition

Plymouth and similar soils: 65 percent *Minor components:* 35 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Plymouth

Setting

Landform: Ice-contact slopes Landform position (two-dimensional): Backslope Landform position (three-dimensional): Riser Down-slope shape: Linear Across-slope shape: Convex Parent material: Loose sandy glaciofluvial deposits and/or loose sandy ablation till; loose sandy ablation till and/or loose sandy glaciofluvial deposits

Typical profile

H1 - 0 to 3 inches: loamy coarse sand H2 - 3 to 29 inches: gravelly loamy coarse sand H3 - 29 to 64 inches: gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4s Hydrologic Soil Group: A Ecological site: F149BY005MA - Dry Outwash Hydric soil rating: No

Minor Components

Carver

Percent of map unit: 15 percent *Hydric soil rating:* No

Hinckley

Percent of map unit: 8 percent Hydric soil rating: No

Barnstable

Percent of map unit: 6 percent Hydric soil rating: No

Nantucket

Percent of map unit: 6 percent Hydric soil rating: No

435D—Plymouth loamy coarse sand, 15 to 35 percent slopes

Map Unit Setting

National map unit symbol: 98rv Elevation: 0 to 1,000 feet Mean annual precipitation: 35 to 50 inches Mean annual air temperature: 45 to 55 degrees F Frost-free period: 140 to 240 days Farmland classification: Not prime farmland

Map Unit Composition

Plymouth and similar soils: 65 percent *Minor components:* 35 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Plymouth

Setting

Landform: Ice-contact slopes Landform position (two-dimensional): Backslope Landform position (three-dimensional): Riser Down-slope shape: Linear Across-slope shape: Convex Parent material: Loose sandy glaciofluvial deposits and/or loose sandy ablation till; loose sandy glaciofluvial deposits and/or loose sandy ablation till

Typical profile

H1 - 0 to 3 inches: loamy coarse sand *H2 - 3 to 29 inches:* gravelly loamy coarse sand H3 - 29 to 64 inches: gravelly coarse sand

Properties and qualities

Slope: 15 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 7s Hydrologic Soil Group: A Ecological site: F149BY005MA - Dry Outwash Hydric soil rating: No

Minor Components

Carver

Percent of map unit: 15 percent Hydric soil rating: No

Hinckley

Percent of map unit: 10 percent *Hydric soil rating:* No

Barnstable

Percent of map unit: 5 percent Hydric soil rating: No

Nantucket

Percent of map unit: 5 percent Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/ nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ home/?cid=nrcs142p2 053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/ detail/national/landuse/rangepasture/?cid=stelprdb1043084

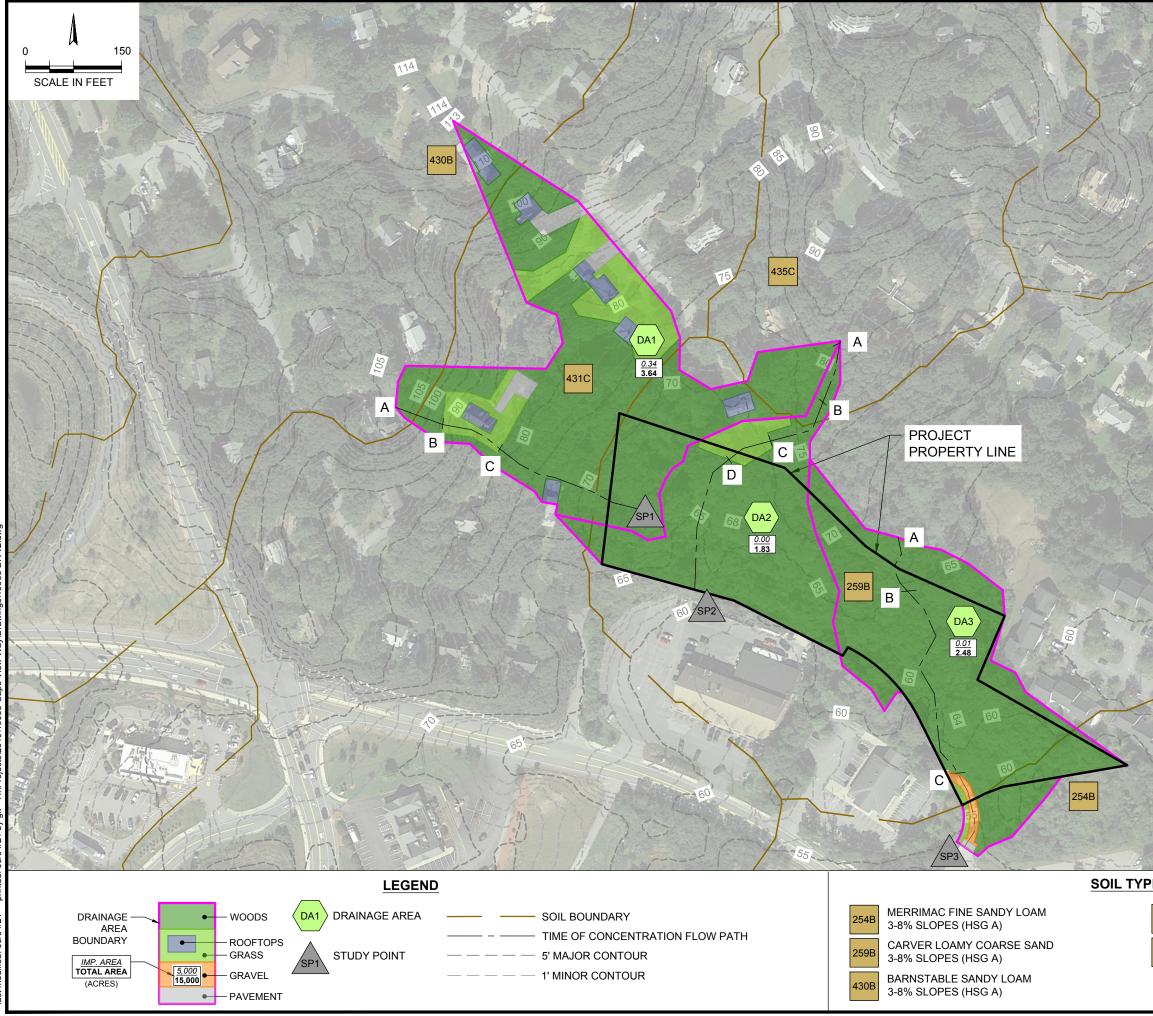
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/ nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/? cid=nrcs142p2_053624

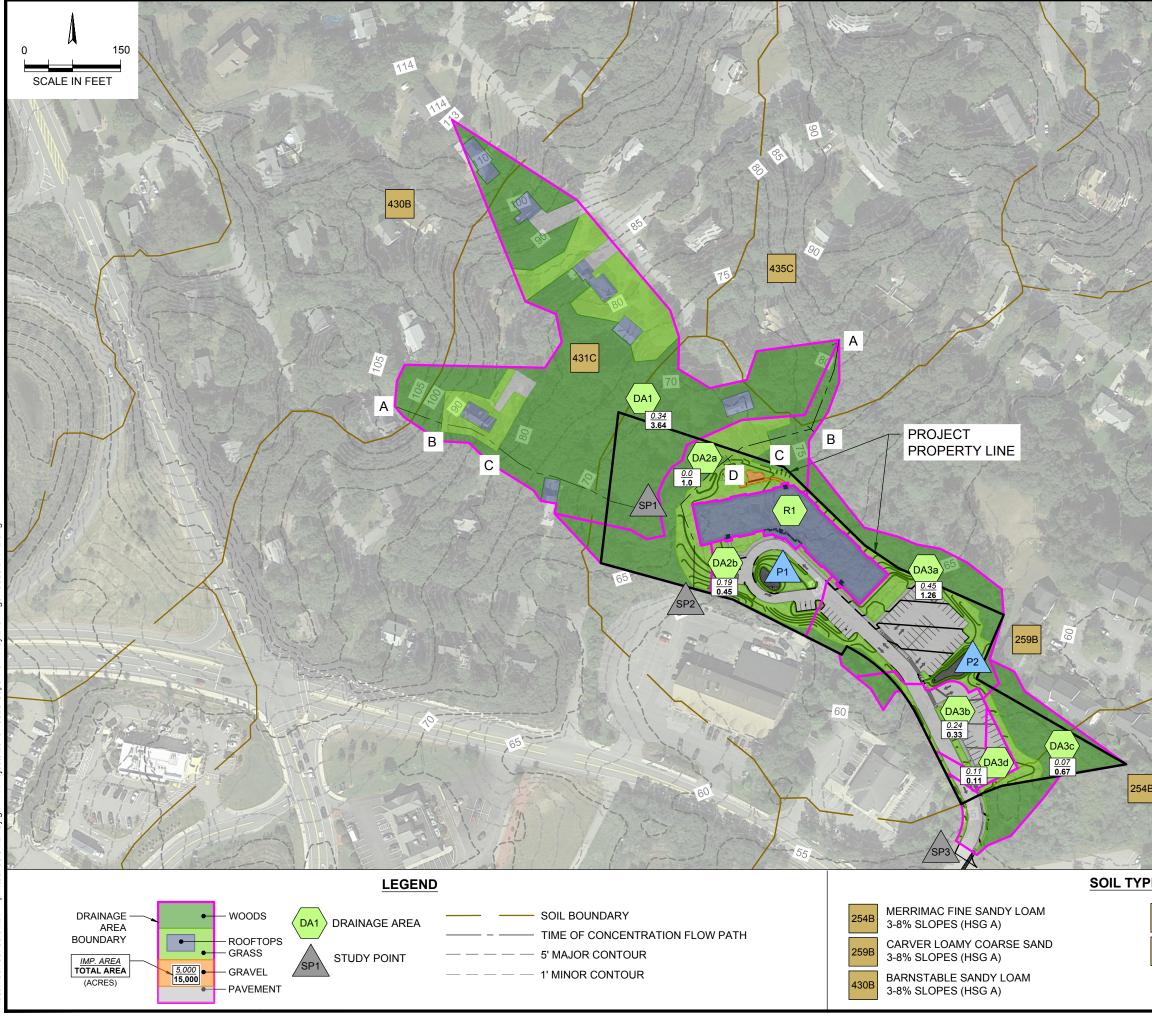
United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX B

Drainage Area Maps



	Revisions	Checked By: BRX Rev Date By Appr Description
	Horsley Witten Group, Inc. Sustainable Environmental Solutions 90 Route 6A Sandwich, MA 0265 908-333-6160 taxice 508-333-3150 fax	Date: Design By: Drawn By: GLK 3/4/2021
	PILATELE FOR AFFORDABLE HOUSING CAPE VIEW WAY BOURNE, MASSACHUSETTS	PRE-CONSTRUCTION DRAINAGE MAP
	Propared For: POAH, INC. 2 OLIVER STREET, SUITE 500 BOSTON, MA 02109 Phone:(617) 261-9898	
PES	Prepared By: Horsley Witten Group, Inc. 90 Route sA Phone(508) 833-6600 Dated: September 2019	
 431C BARNSTABLE VERY STONY SANDY LOAM 8-15% SLOPES (HSG A) 435C PLYMOUTH LOAMY COARSE SAND 8-15% SLOPES (HSG A) 	Project Number: 19038 Sheet Number: 1 of 2	



	Revisions	Checked By: BRX Rev Date By Appr Description
	Horsley Witten Group, Inc. Sustainable Environmental Solutions 90 Route 6A Sandwich, MA 02563 508-833-3600 voice 508-833-3150 fax	Date: Design By: Drawn By: MCL 9/5/2019
	Plen Set SITE FOR AFFORDABLE HOUSING CAPE VIEW WAY BOURNE, MASSACHUSETTS	POST-CONSTRUCTION DRAINAGE MAP
	Prepared For: POAH, INC. 2 OLIVER STREET, SUITE 500 BOSTON, MA 02109 Phone(617) 261-9898	- co.
PES	Bepared By: Horsley Witten Group, Inc. 90 Route 6A Phone(506) 333-6600 Dated: September 2019	
 431C BARNSTABLE VERY STONY SANDY LOAM 8-15% SLOPES (HSG A) PLYMOUTH LOAMY COARSE SAND 8-15% SLOPES (HSG A) 	Project Number:	
	19038 Sheet Number: 2 of 2	

APPENDIX C

GSI Sizing Calculations



Project:	Cape View Way	Project No:	19038	
Project Location:	Bourne, MA			-
				_
Calculated By:	GLK	Date :	2/10/2021	
Checked By:	BRK	Date :	3/5/2021	

Instructions: Enter values in

cells only. All other cells are formulas or links and do not need to be edited. See cell comments for descriptions and formulas used.

Water Quality Volume (WQv)

Based upon 1-inch of rainfall times the contributing impervious area contributing impervious area

WQv (cf) = (1" rainfall/12) * Imp. Area (sf)

Storm Type: 1 Inch

							WQv	WQv
		% Imp.	Draina	ge Area	Imp. A	rea	Required*	required
DA	Description	%	sf	ac	sf	ac	cf	af
3a	Upper parkin	36%	52,874	1.21	18,913	0.43	1,576	0.036
2b	Driveway loo	47%	17,418	0.40	8,176	0.19	681	0.016
	TOTALS		70292	1.21	27,089	0.43	2,257	0.052

Bioretention Sizing Calculations

Sizing Equations: Bioretention

Required Surface Area (sf) = (WQv) (df) / [(k) (hf + df) (tf)]

Where: df = Filter bed depth (ft) k = Coefficient of permeability of filter media (ft/day)hf = Ave. height of water above filter bed (ft) tf = Design filter bed drain time (days)

BIORETENTION SIZING:

					hmax-					Sediment				
					Height of	hf=avg		Surface	Surface	Forebay			Sediment	WQV
		WQv			water	of		Area	Area	Required	Sediment	Sediment	Forebay	Treatment
	Drainage	Required	df	K	above filter	above		Required	Provided	10% WQv	Forebay	Forebay	Provided	Provided
Bio Area	Area Name	(af)	(ft)	(ft/day)	(in.)	(ft)	tf (days)	(sf)	(sf)	(cf)	Depth (ft)	Area (sf)	(cf)	(af)
1	3a	0.036	2.00	1	9	0.375	1.67	795	801	158	0.50	132	66	0.036
2	2b	0.016	2.00	1	6	0.25	1.67	363	408	68	0.50	104	52	0.018
	TOTALS	0.052						1157	1209	226			118	0.054
				Perc	centage of Tr	reatment	Provided		104%				52%	

Project: Project Location:	Cape View Way Bourne, MA	Project No: 19038		
Calculated By:	GK	Date :	1/27/2021	
Checked By:	BRK	Date :	3/5/2021	
Revised By:	BRK	Date :	3/5/2021	

1 Inch

Instructions: Enter values in and do not need to be edited. See cell comments for descriptions and formulas used.

ENHANCED TREE TRENCH VOLUME CALCULATIONS

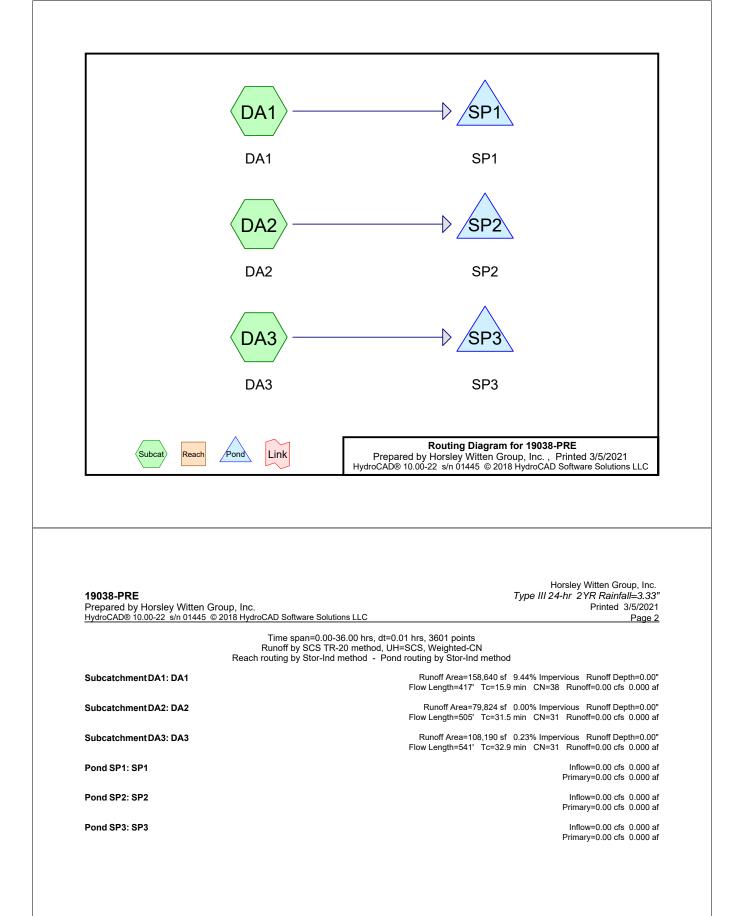
Storm Depth:

		PARAMETER			DESIGN									CALCULATION		
Tree Trench #	Location	Drainage Area (sf)	IC (sf)	WQv (cf)	Length (feet) "X"	Width (feet) "Y"	Area (sf)	Total Depth (feet) "Z"	Media Depth (feet)	% Voids (1.00)	Media Storage Volume (cf)	Soil Type	Infiltration	WQv Storage Volume Provided (%)	WQv Volume Treated (includes infiltration) ¹	% WQV
1	DA3b	14143	9883	823.58	103	9.9	1019.7	4.97	2.17	0.33	729	A -Sandy Loam	7.4	88.5%	844.0	102%
2	DA3d	4900	4675	389.58	30		1015.7		2.50			A -Sandy	8.27		389.0	102%

¹ From HydroCAD

APPENDIX D

HydroCAD Modeling



Summary for Subcatchment DA1: DA1

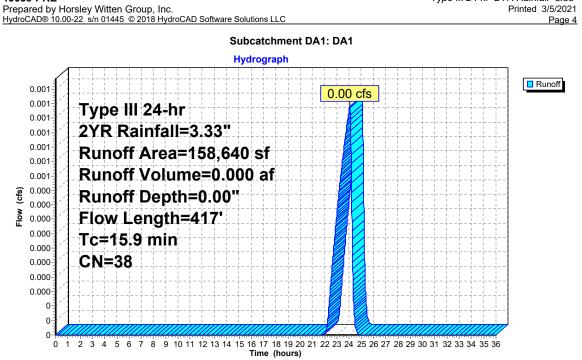
Runoff = 0.00 cfs @ 24.04 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr 2YR Rainfall=3.33"

Ar	ea (sf)	CN	Description					
11	18,297	30	Woods, Go	od, HSG A				
2	25,363	39	>75% Gras	s cover, Go	od, HSG A			
	9,642	98	Roofs, HSG	βA				
	5,338	98	Paved park	ing, HSG A				
15	158,640 38 Weighted Average							
14	13,660		90.56% Per	vious Area				
1	14,980		9.44% Impe	ervious Area	a			
Tc	Length	Slope		Capacity	Description			
(min)	(feet)	(ft/ft) (ft/sec)	(cfs)				
12.2	78	0.1730	0.11		Sheet Flow, A TO B			
					Woods: Dense underbrush n= 0.800 P2= 3.60"			
0.7	99	0.1110) 2.33		Shallow Concentrated Flow, B TO C			
					Short Grass Pasture Kv= 7.0 fps			
3.0	240	0.0690) 1.31		Shallow Concentrated Flow, C TO SP1			
					Woodland Kv= 5.0 fps			
15.9	417	Total						



Horsley Witten Group, Inc. Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 4



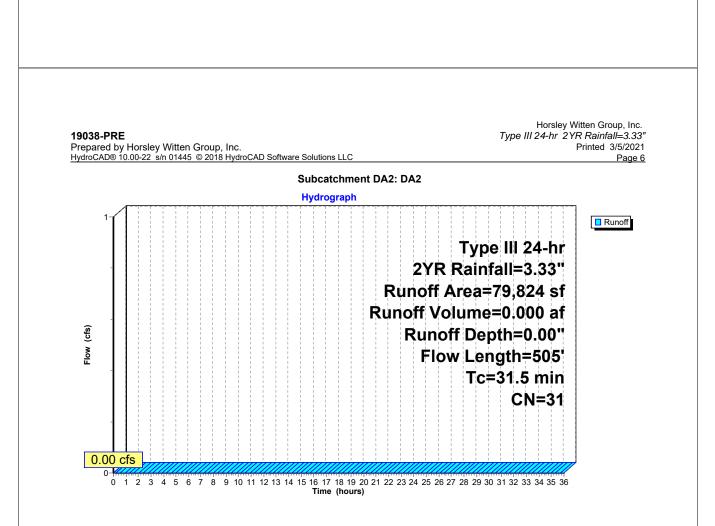
Summary for Subcatchment DA2: DA2

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr 2YR Rainfall=3.33"

_	A	rea (sf)	CN I	Description		
		73,961			od, HSG A	
		5,863	39 :	>75% Gras	s cover, Go	bod, HSG A
		79,824	31 \	Neighted A	verage	
		79,824		100.00% P	ervious Are	a
	Tc	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	24.4	100	0.0500	0.07		Sheet Flow, A TO B
						Woods: Dense underbrush n= 0.800 P2= 3.60"
	1.7	114	0.0530	1.15		Shallow Concentrated Flow, B to C
						Woodland Kv= 5.0 fps
	0.8	73	0.0480	1.53		Shallow Concentrated Flow, C to D
						Short Grass Pasture Kv= 7.0 fps
	4.6	218	0.0250	0.79		Shallow Concentrated Flow, D to SP2
						Woodland Kv= 5.0 fps
	04 5	505	T - 4 - 1			·

31.5 505 Total

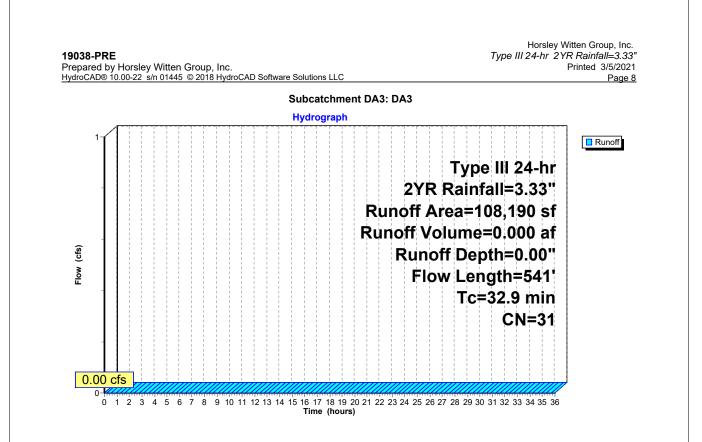


Summary for Subcatchment DA3: DA3

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr 2YR Rainfall=3.33"

_	А	rea (sf)	CN	Description									
	1	05,276	30	Woods, Go	ods, Good, HSG A								
		964	39	>75% Gras	s cover, Go	od, HSG A							
		245	98	Paved park	ing, HSG A								
		1,705	96	Gravel surfa	ace, HSG A	·							
	1	08,190	31	Weighted A	verage								
	1	07,945		99.77% Per	vious Area								
		245		0.23% Impe	ervious Area	a							
				-									
	Tc	Length	Slope	e Velocity	Capacity	Description							
_	(min)	(feet)	(ft/ft) (ft/sec)	(cfs)								
	24.5	93	0.0430	0.06		Sheet Flow, A TO B							
						Woods: Dense underbrush n= 0.800 P2= 3.60"							
	7.8	323	0.0190	0.69		Shallow Concentrated Flow, B to C							
						Woodland Kv= 5.0 fps							
	0.6	125	0.0340) 3.74		Shallow Concentrated Flow, C to SP2							
						Paved Kv= 20.3 fps							
-	32.9	541	Total										

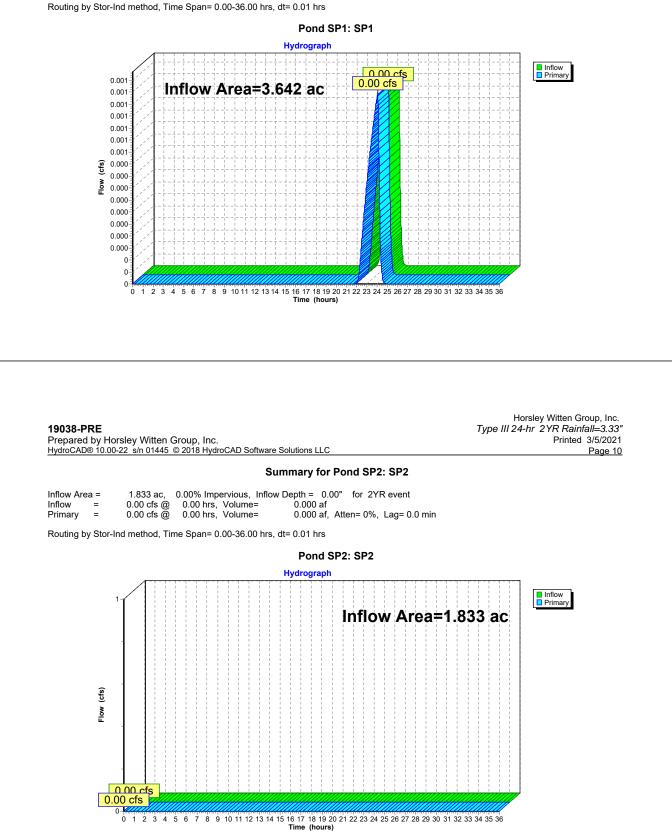


Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

Horsley Witten Group, Inc. Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 9

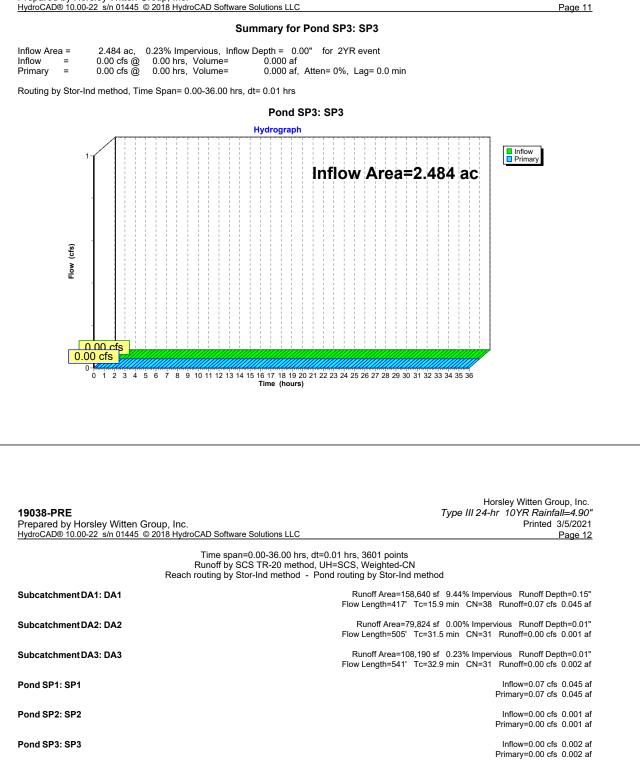


3.642 ac, 9.44% Impervious, Inflow Depth = 0.00" for 2YR event Inflow Area = 0.00 cfs @ 24.04 hrs, Volume= 0.00 cfs @ 24.04 hrs, Volume= 0.000 af Inflow = Primary = 0.000 af, Atten= 0%, Lag= 0.0 min





Prepared by Horsley Witten Group, Inc.



Summary for Subcatchment DA1: DA1

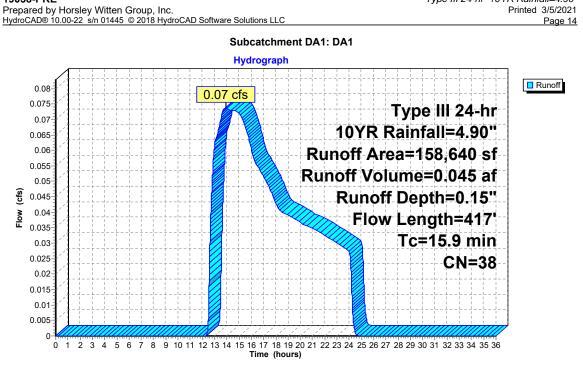
Runoff = 0.07 cfs @ 13.94 hrs, Volume= 0.045 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr 10YR Rainfall=4.90"

Are	ea (sf)	CN	Description					
11	8,297	30	Woods, Go	od, HSG A				
2	25,363	39	>75% Gras	s cover, Go	od, HSG A			
	9,642	98	Roofs, HSG	βA				
	5,338	98	Paved park	ing, HSG A				
15	158,640 38 Weighted Average							
14	3,660		90.56% Per	vious Area				
1	4,980		9.44% Impe	ervious Area	a			
Tc	Length	Slope		Capacity	Description			
(min)	(feet)	(ft/ft) (ft/sec)	(cfs)				
12.2	78	0.1730	0.11		Sheet Flow, A TO B			
					Woods: Dense underbrush n= 0.800 P2= 3.60"			
0.7	99	0.1110) 2.33		Shallow Concentrated Flow, B TO C			
					Short Grass Pasture Kv= 7.0 fps			
3.0	240	0.0690) 1.31		Shallow Concentrated Flow, C TO SP1			
					Woodland Kv= 5.0 fps			
15.9	417	Total						



Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 14



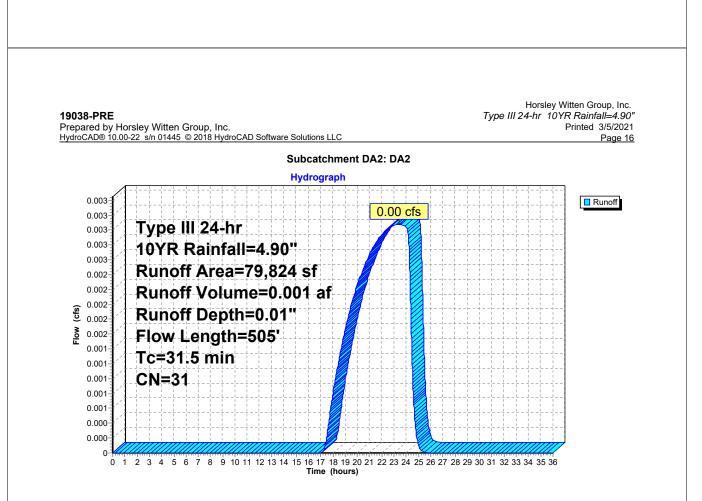
Summary for Subcatchment DA2: DA2

Runoff = 0.00 cfs @ 23.41 hrs, Volume= 0.001 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr 10YR Rainfall=4.90"

А	rea (sf)	CN D	Description								
	73,961	30 V	Voods, Go	od, HSG A							
5,863 39 >75% Grass cover, Good, HSG A											
79,824 31 Weighted Average											
	79,824	1	00.00% P	ervious Are	a						
-				• •							
Tc	5	Slope	Velocity	Capacity	Description						
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)							
24.4	100	0.0500	0.07		Sheet Flow, A TO B						
					Woods: Dense underbrush n= 0.800 P2= 3.60"						
1.7	114	0.0530	1.15		Shallow Concentrated Flow, B to C						
					Woodland Kv= 5.0 fps						
0.8	73	0.0480	1.53		Shallow Concentrated Flow, C to D						
					Short Grass Pasture Kv= 7.0 fps						
4.6	218	0.0250	0.79		Shallow Concentrated Flow, D to SP2						
					Woodland Kv= 5.0 fps						
31 5	505	Total									





Summary for Subcatchment DA3: DA3

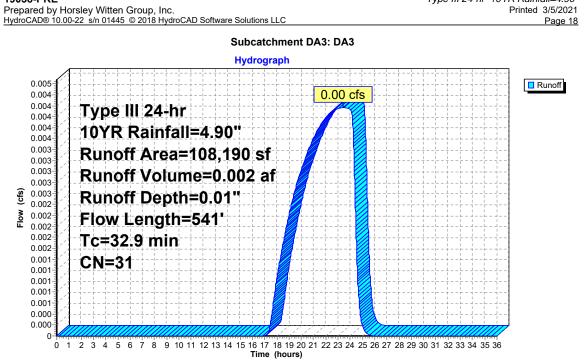
Runoff = 0.00 cfs @ 23.43 hrs, Volume= 0.002 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr 10YR Rainfall=4.90"

	A	rea (sf)	CN	Description							
_	1	05,276	30	Woods, Go	oods, Good, HSG A						
		964	39	>75% Gras	s cover, Go	od, HSG A					
		245	98	Paved park	ing, HSG A						
		1,705	96	Gravel surf	ace, HSG A	A					
_	1	08,190	31	Weighted A	verage						
	1	07,945		99.77% Pe	rvious Area						
		245		0.23% Impe	ervious Area	a					
	Tc	Length	Slope			Description					
_	(min)	(feet)	(ft/ft) (ft/sec)	(cfs)						
	24.5	93	0.0430	0.06		Sheet Flow, A TO B					
						Woods: Dense underbrush n= 0.800 P2= 3.60"					
	7.8	323	0.0190	0.69		Shallow Concentrated Flow, B to C					
						Woodland Kv= 5.0 fps					
	0.6	125	0.0340) 3.74		Shallow Concentrated Flow, C to SP2					
_						Paved Kv= 20.3 fps					
	32.9	541	Total								



Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 18



Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

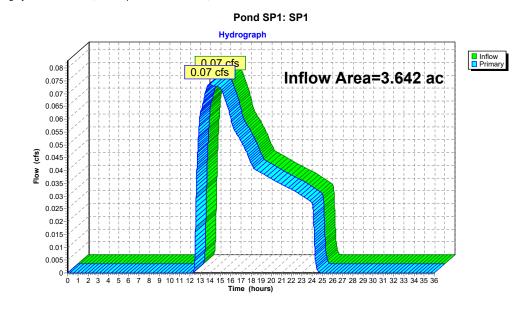


 Inflow Area =
 3.642 ac,
 9.44% Impervious, Inflow Depth =
 0.15"
 for 10YR event

 Inflow =
 0.07 cfs @
 13.94 hrs, Volume=
 0.045 af

 Primary =
 0.07 cfs @
 13.94 hrs, Volume=
 0.045 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



19038-PRE Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

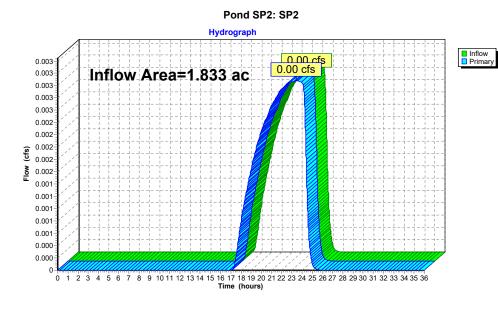
Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 20

Summary for Pond SP2: SP2

 Inflow Area =
 1.833 ac,
 0.00% Impervious,
 Inflow Depth =
 0.01"
 for
 10YR event

 Inflow =
 0.00 cfs @
 23.41 hrs,
 Volume =
 0.001 af
 0.001 af,
 Atten= 0%,
 Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



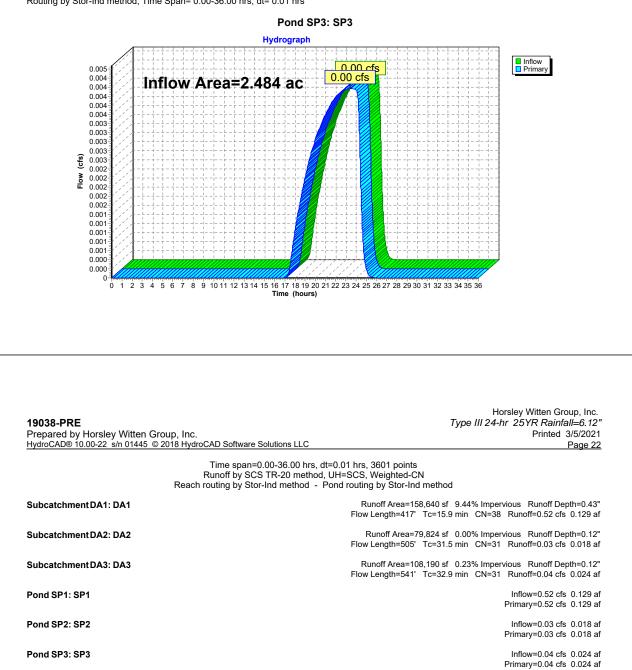
Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 21



Inflow Area	=	2.484 ac,	0.23% Impervious, Inflow E	Depth = 0.01" for 10YR event
Inflow	=	0.00 cfs @	23.43 hrs, Volume=	0.002 af
Primary	=	0.00 cfs @	23.43 hrs, Volume=	0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

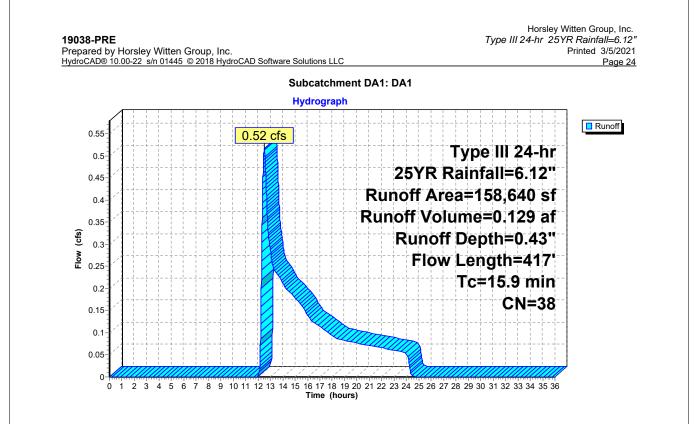


Summary for Subcatchment DA1: DA1

Runoff = 0.52 cfs @ 12.51 hrs, Volume= 0.129 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr 25YR Rainfall=6.12"

Are	ea (sf)	CN	Description		
11	8,297	30	Woods, Go	od, HSG A	
2	25,363	39	>75% Gras	s cover, Go	od, HSG A
	9,642	98	Roofs, HSG	βA	
	5,338	98	Paved park	ing, HSG A	
15	58,640	38	Weighted A	verage	
14	3,660		90.56% Per	vious Area	
1	4,980		9.44% Impe	ervious Area	a
Tc	Length	Slope		Capacity	Description
(min)	(feet)	(ft/ft) (ft/sec)	(cfs)	
12.2	78	0.1730	0.11		Sheet Flow, A TO B
					Woods: Dense underbrush n= 0.800 P2= 3.60"
0.7	99	0.1110) 2.33		Shallow Concentrated Flow, B TO C
					Short Grass Pasture Kv= 7.0 fps
3.0	240	0.0690) 1.31		Shallow Concentrated Flow, C TO SP1
					Woodland Kv= 5.0 fps
15.9	417	Total			



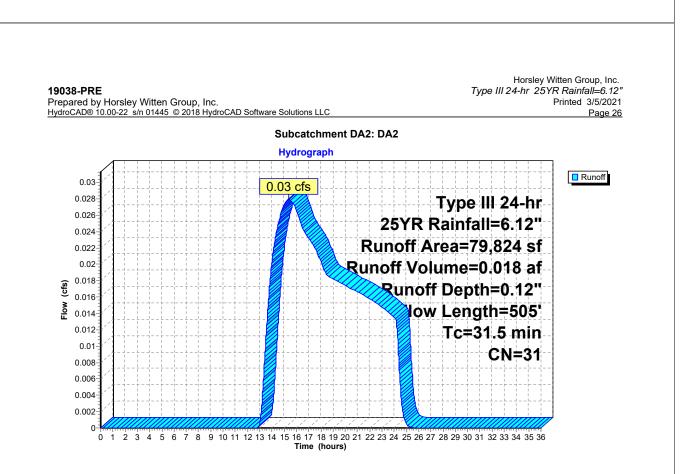
Summary for Subcatchment DA2: DA2

Runoff = 0.03 cfs @ 15.37 hrs, Volume= 0.018 af, Depth= 0.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr 25YR Rainfall=6.12"

	A	rea (sf)	CN D	escription						
	73,961 30 Woods, Good, HSG A									
	5,863 39 >75% Grass cover, Good, HSG A									
	79,824 31 Weighted Average									
		79,824	1	00.00% P	ervious Are	a				
	_									
		Length	Slope	Velocity	Capacity	Description				
-	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	24.4	100	0.0500	0.07		Sheet Flow, A TO B				
						Woods: Dense underbrush n= 0.800 P2= 3.60"				
	1.7	114	0.0530	1.15		Shallow Concentrated Flow, B to C				
						Woodland Kv= 5.0 fps				
	0.8	73	0.0480	1.53		Shallow Concentrated Flow, C to D				
						Short Grass Pasture Kv= 7.0 fps				
	4.6	218	0.0250	0.79		Shallow Concentrated Flow, D to SP2				
						Woodland Kv= 5.0 fps				
	21 5	EOE	Total							



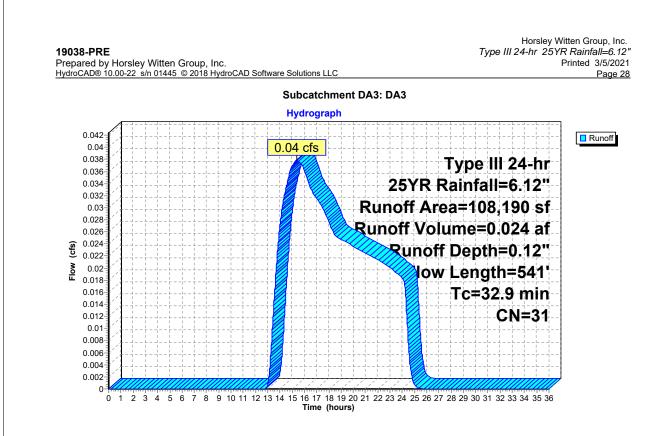


Summary for Subcatchment DA3: DA3

Runoff = 0.04 cfs @ 15.39 hrs, Volume= 0.024 af, Depth= 0.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr 25YR Rainfall=6.12"

	Aı	rea (sf)	CN	Description							
	1	05,276	30	Woods, Go	loods, Good, HSG A						
		964	39	>75% Gras	s cover, Go	od, HSG A					
		245	98	Paved park	ing, HSG A						
		1,705	96	Gravel surfa	ace, HSG A						
	1	08,190	31	Weighted A	verage						
	1	07,945		99.77% Per	vious Area						
		245		0.23% Impe	ervious Area	a					
	Тс	Length	Slope	e Velocity	Capacity	Description					
(m	in)	(feet)	(ft/ft) (ft/sec)	(cfs)						
24	1.5	93	0.0430	0.06		Sheet Flow, A TO B					
						Woods: Dense underbrush n= 0.800 P2= 3.60"					
7	7.8	323	0.0190	0.69		Shallow Concentrated Flow, B to C					
						Woodland Kv= 5.0 fps					
().6	125	0.0340) 3.74		Shallow Concentrated Flow, C to SP2					
						Paved Kv= 20.3 fps					
32	2.9	541	Total								



Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

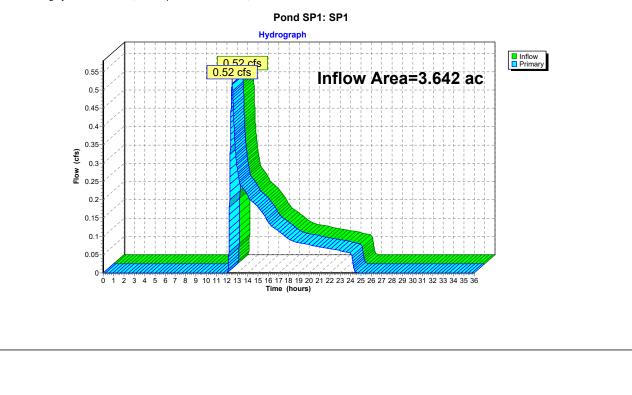
Summary for Pond SP1: SP1

 Inflow Area =
 3.642 ac,
 9.44% Impervious, Inflow Depth =
 0.43" for 25YR event

 Inflow =
 0.52 cfs @
 12.51 hrs, Volume=
 0.129 af

 Primary =
 0.52 cfs @
 12.51 hrs, Volume=
 0.129 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



19038-PRE

Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 30

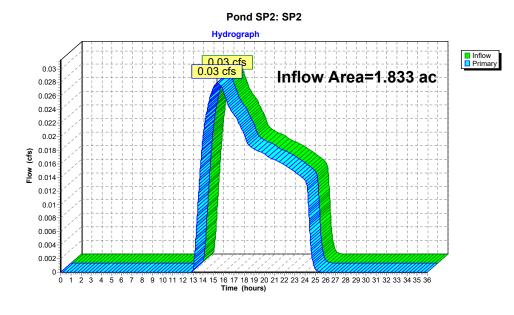
Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u> Summary for Pond SP2: SP2

 Inflow Area =
 1.833 ac,
 0.00% Impervious,
 Inflow Depth =
 0.12"
 for 25YR event

 Inflow =
 0.03 cfs @
 15.37 hrs,
 Volume=
 0.018 af

 Primary =
 0.03 cfs @
 15.37 hrs,
 Volume=
 0.018 af,
 Atten= 0%,
 Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

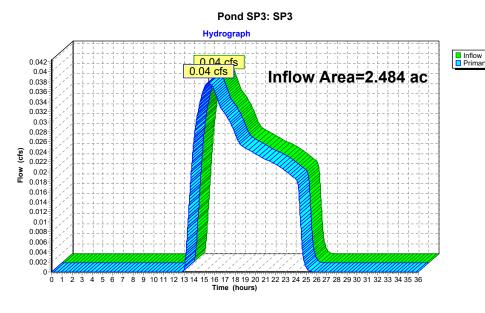


 Inflow Area =
 2.484 ac,
 0.23% Impervious,
 Inflow Depth =
 0.12"
 for 25YR event

 Inflow =
 0.04 cfs @
 15.39 hrs,
 Volume=
 0.024 af

 Primary =
 0.04 cfs @
 15.39 hrs,
 Volume=
 0.024 af,

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



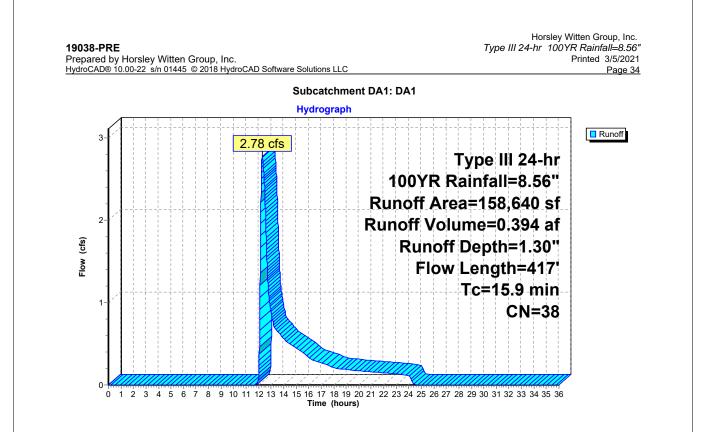
Horsley Witten Group, Inc. Type III 24-hr 100YR Rainfall=8.56" 19038-PRE Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Printed 3/5/2021 Page 32 Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind method - Pond routing by Stor-Ind method Runoff Area=158,640 sf 9.44% Impervious Runoff Depth=1.30" Subcatchment DA1: DA1 Flow Length=417' Tc=15.9 min CN=38 Runoff=2.78 cfs 0.394 af Subcatchment DA2: DA2 Runoff Area=79,824 sf 0.00% Impervious Runoff Depth=0.64" Flow Length=505' Tc=31.5 min CN=31 Runoff=0.33 cfs 0.098 af Runoff Area=108,190 sf 0.23% Impervious Runoff Depth=0.64" Subcatchment DA3: DA3 Flow Length=541' Tc=32.9 min CN=31 Runoff=0.44 cfs 0.132 af Pond SP1: SP1 Inflow=2.78 cfs 0.394 af Primary=2.78 cfs 0.394 af Pond SP2: SP2 Inflow=0.33 cfs 0.098 af Primary=0.33 cfs 0.098 af Pond SP3: SP3 Inflow=0.44 cfs 0.132 af Primary=0.44 cfs 0.132 af

Summary for Subcatchment DA1: DA1

Runoff = 2.78 cfs @ 12.30 hrs, Volume= 0.394 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr 100YR Rainfall=8.56"

A	vrea (sf)	CN	Description						
1	118,297	30	Woods, Good, HSG A						
	25,363	39	>75% Gras	s cover, Go	od, HSG A				
	9,642	98	Roofs, HSG	A SA					
	5,338	98	Paved park	ing, HSG A					
1	158,640	38	Weighted A	verage					
1	143,660		90.56% Per	vious Area					
	14,980		9.44% Impe	ervious Area	a				
Tc	Length	Slope	e Velocity	Capacity	Description				
(min)	(feet)	(ft/ft) (ft/sec)	(cfs)					
12.2	78	0.1730	0.11		Sheet Flow, A TO B				
					Woods: Dense underbrush n= 0.800 P2= 3.60"				
0.7	99	0.1110	2.33		Shallow Concentrated Flow, B TO C				
					Short Grass Pasture Kv= 7.0 fps				
3.0	240	0.0690) 1.31		Shallow Concentrated Flow, C TO SP1				
					Woodland Kv= 5.0 fps				
15.9	417	Total							

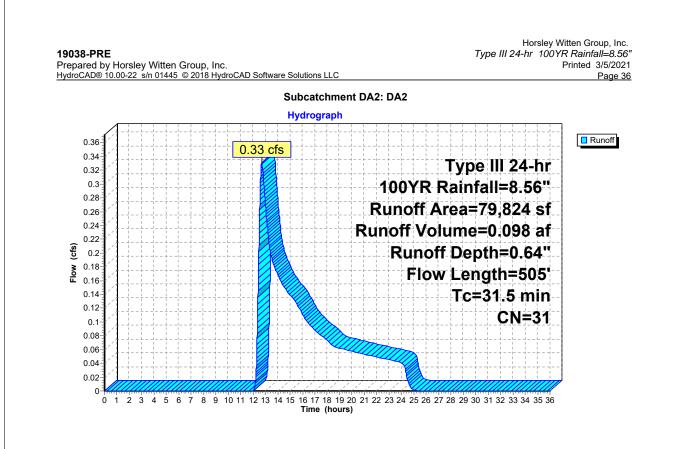


Summary for Subcatchment DA2: DA2

Runoff = 0.33 cfs @ 12.71 hrs, Volume= 0.098 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr 100YR Rainfall=8.56"

	A	rea (sf)	CN E	Description					
73,961 30 Woods, Good, HSG A									
	5,863 39 >75% Grass cover, Good, HSG A								
-	79,824 31 Weighted Average								
		79,824	1	00.00% Pe	ervious Are	а			
	Tc	Length	Slope	Velocity	Capacity	Description			
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	24.4	100	0.0500	0.07		Sheet Flow, A TO B			
						Woods: Dense underbrush n= 0.800 P2= 3.60"			
	1.7	114	0.0530	1.15		Shallow Concentrated Flow, B to C			
						Woodland Kv= 5.0 fps			
	0.8	73	0.0480	1.53		Shallow Concentrated Flow, C to D			
						Short Grass Pasture Kv= 7.0 fps			
	4.6	218	0.0250	0.79		Shallow Concentrated Flow, D to SP2			
						Woodland Kv= 5.0 fps			
	31.5	505	Total						

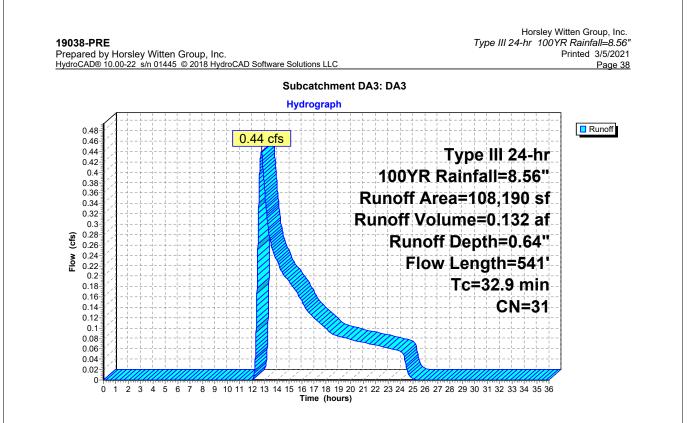


Summary for Subcatchment DA3: DA3

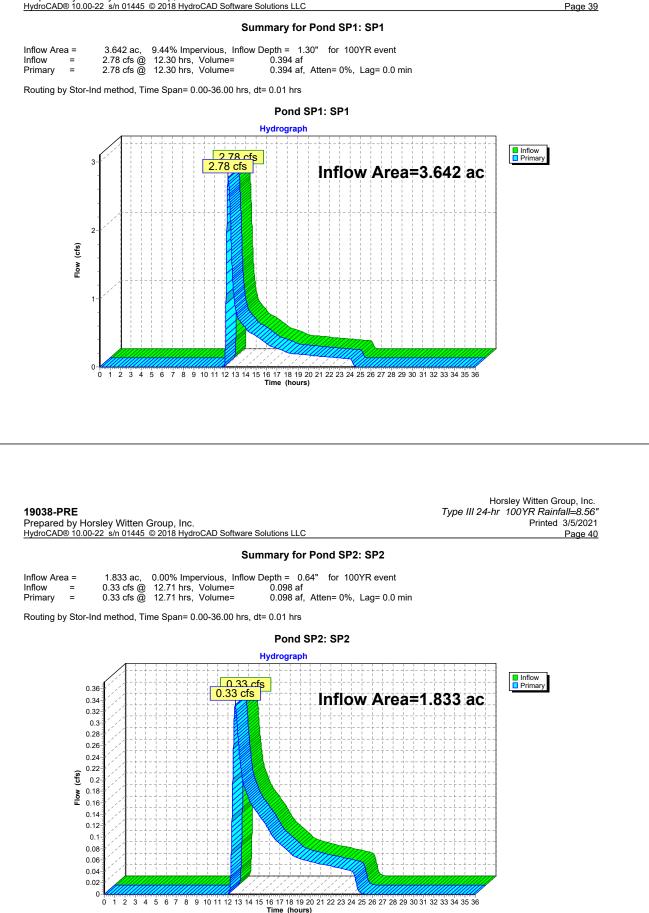
Runoff = 0.44 cfs @ 12.75 hrs, Volume= 0.132 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr 100YR Rainfall=8.56"

 A	rea (sf)	CN	Description							
1	05,276	30	Woods, Go	/oods, Good, HSG A						
	964	39	>75% Gras	s cover, Go	od, HSG A					
	245	98	Paved park	ing, HSG A						
	1,705	96	Gravel surfa	ace, HSG A	A					
1	08,190	31	Weighted A	verage						
1	07,945		99.77% Per	vious Area						
	245		0.23% Impe	ervious Area	a					
			•							
Tc	Length	Slope	e Velocity	Capacity	Description					
(min)	(feet)	(ft/ft) (ft/sec)	(cfs)						
24.5	93	0.0430	0.06		Sheet Flow, A TO B					
					Woods: Dense underbrush n= 0.800 P2= 3.60"					
7.8	323	0.0190	0.69		Shallow Concentrated Flow, B to C					
					Woodland Kv= 5.0 fps					
0.6	125	0.0340	3.74		Shallow Concentrated Flow, C to SP2					
					Paved Kv= 20.3 fps					
32.9	541	Total								



Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions

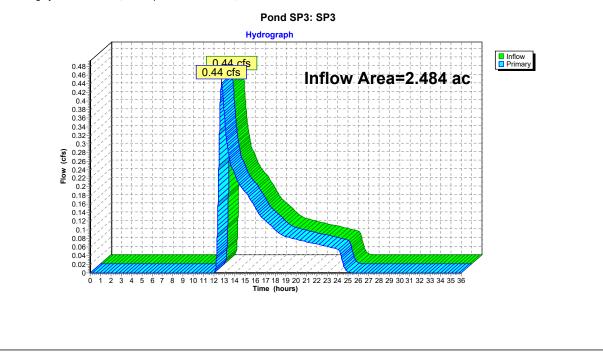


Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

Summary for Pond SP3: SP3

Inflow Area = 2.484 ac, 0.23% Impervious, Inflow Depth = 0.64" for 100YR event 0.44 cfs @ 12.75 hrs, Volume= 0.44 cfs @ 12.75 hrs, Volume= Inflow = 0.132 af Primary = 0.132 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



19038-PRE Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

Horsley Witten Group, Inc. Type III 24-hr WQv Rainfall=1.21"

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment DA1: DA1

Subcatchment DA2: DA2

Subcatchment DA3: DA3

Pond SP1: SP1

Pond SP2: SP2

Pond SP3: SP3

Printed 3/5/2021 Page 42

Runoff Area=158,640 sf 9.44% Impervious Runoff Depth=0.00" Flow Length=417' Tc=15.9 min CN=38 Runoff=0.00 cfs 0.000 af

Runoff Area=79,824 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=505' Tc=31.5 min CN=31 Runoff=0.00 cfs 0.000 af

Runoff Area=108,190 sf 0.23% Impervious Runoff Depth=0.00" Flow Length=541' Tc=32.9 min CN=31 Runoff=0.00 cfs 0.000 af

> Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af

> Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af

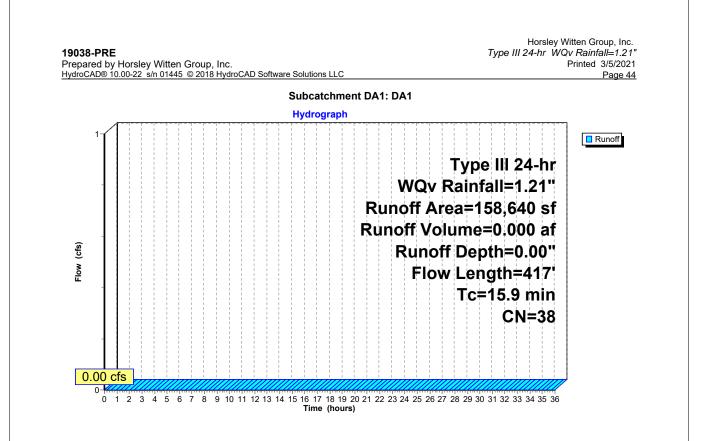
Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af

Summary for Subcatchment DA1: DA1

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr WQv Rainfall=1.21"

A	rea (sf)	CN	Description		
1	18,297	30	Woods, Go	od, HSG A	
	25,363	39	>75% Gras	s cover, Go	od, HSG A
	9,642	98	Roofs, HSG	A SA	
	5,338	98	Paved park	ing, HSG A	
1	58,640	38	Weighted A	verage	
1	43,660		90.56% Per	vious Area	
	14,980		9.44% Impe	ervious Area	a
Tc	Length	Slope	e Velocity	Capacity	Description
(min)	(feet)	(ft/ft) (ft/sec)	(cfs)	
12.2	78	0.1730	0.11		Sheet Flow, A TO B
					Woods: Dense underbrush n= 0.800 P2= 3.60"
0.7	99	0.1110) 2.33		Shallow Concentrated Flow, B TO C
					Short Grass Pasture Kv= 7.0 fps
3.0	240	0.0690) 1.31		Shallow Concentrated Flow, C TO SP1
					Woodland Kv= 5.0 fps
15.9	417	Total			



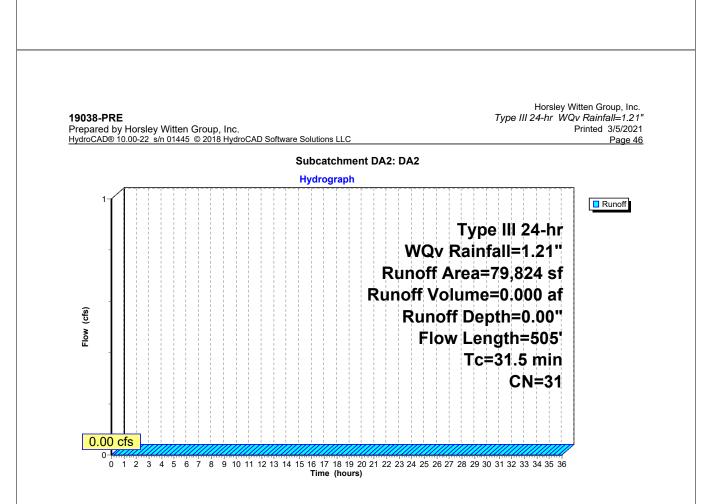
Summary for Subcatchment DA2: DA2

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr WQv Rainfall=1.21"

	A	rea (sf)	CN E	escription				
		73,961	30 V	Voods, Go	od, HSG A			
5,863 39 >75% Grass cover, Good, HSG A								
		79,824						
		79,824	1	00.00% Pe	ervious Are	a		
	Tc	Length	Slope	Velocity	Capacity	Description		
-	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)			
	24.4	100	0.0500	0.07		Sheet Flow, A TO B		
						Woods: Dense underbrush n= 0.800 P2= 3.60"		
	1.7	114	0.0530	1.15		Shallow Concentrated Flow, B to C		
						Woodland Kv= 5.0 fps		
	0.8	73	0.0480	1.53		Shallow Concentrated Flow, C to D		
						Short Grass Pasture Kv= 7.0 fps		
	4.6	218	0.0250	0.79		Shallow Concentrated Flow, D to SP2		
-						Woodland Kv= 5.0 fps		
	31.5	505	Total					



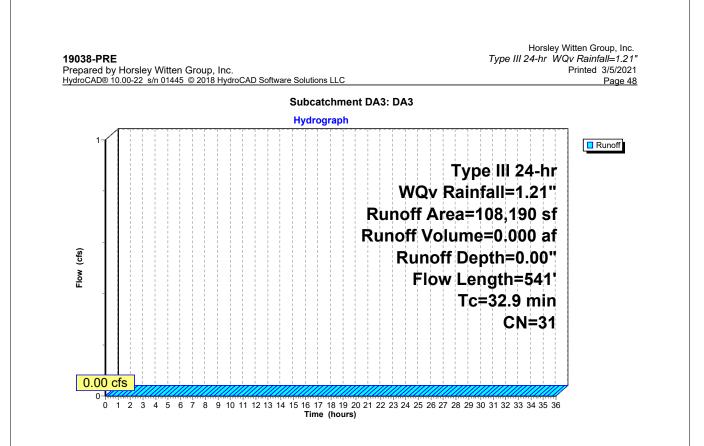


Summary for Subcatchment DA3: DA3

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

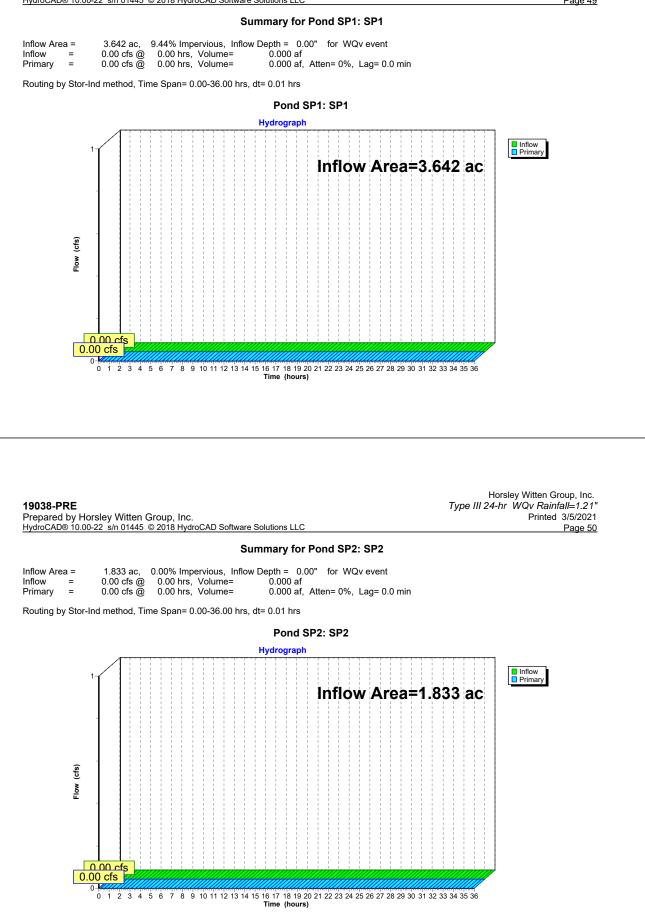
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs Type III 24-hr WQv Rainfall=1.21"

Are	ea (sf)	CN	Description		
10	5,276	30	Woods, Go	od, HSG A	
	964	39	>75% Gras	s cover, Go	od, HSG A
	245	98	Paved park	ing, HSG A	
	1,705	96	Gravel surfa	ace, HSG A	·
10	8,190	31	Weighted A	verage	
10	7,945		99.77% Per	vious Area	
	245		0.23% Impe	ervious Area	a
Tc I	Length	Slope	e Velocity	Capacity	Description
(min)	(feet)	(ft/ft) (ft/sec)	(cfs)	
24.5	93	0.0430	0.06		Sheet Flow, A TO B
					Woods: Dense underbrush n= 0.800 P2= 3.60"
7.8	323	0.0190	0.69		Shallow Concentrated Flow, B to C
					Woodland Kv= 5.0 fps
0.6	125	0.0340) 3.74		Shallow Concentrated Flow, C to SP2
					Paved Kv= 20.3 fps
32.9	541	Total			



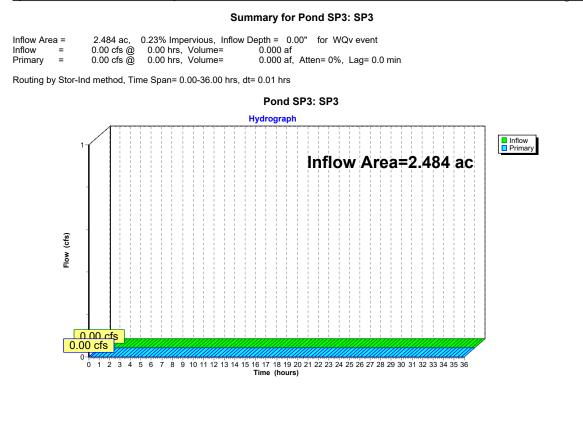


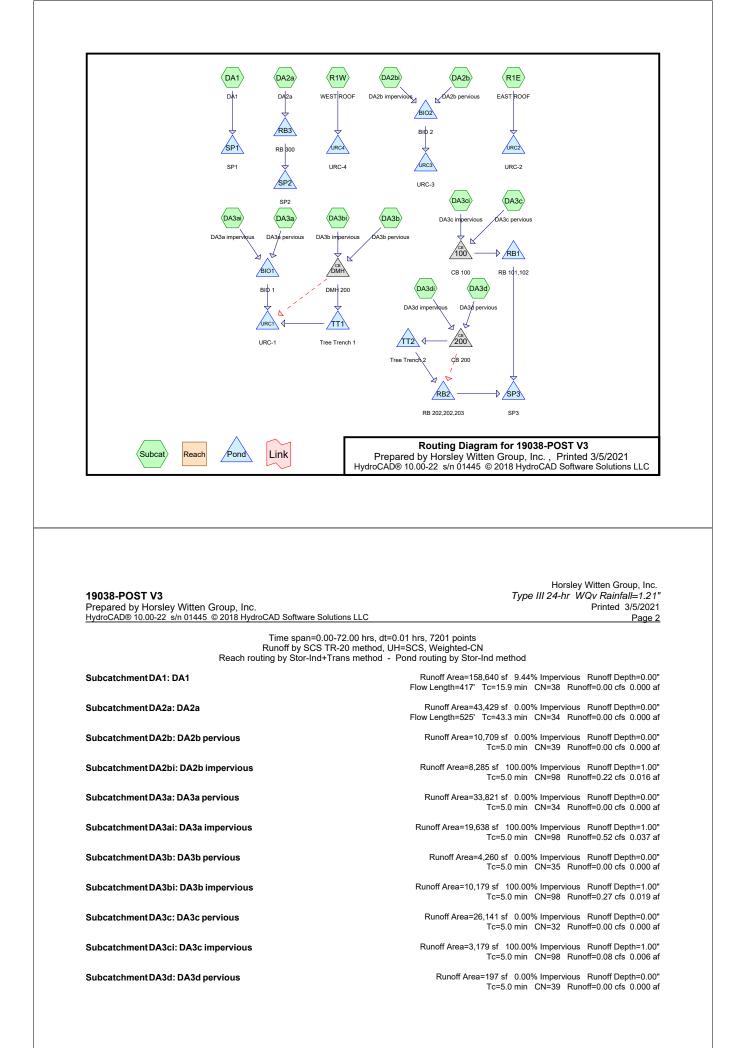
Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC





Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Horsley Witten Group, Inc. Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 51





19038-POST V3 Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u> Horsley Witten Group, Inc. Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 3

Subcatchment DA3di: DA3d impervious	Runoff Area=4,686 sf 100.00% Impervious Runoff Depth=1.00" Tc=5.0 min CN=98 Runoff=0.12 cfs 0.009 af
Subcatchment R1E: EAST ROOF	Runoff Area=11,331 sf 100.00% Impervious Runoff Depth=1.00" Tc=5.0 min CN=98 Runoff=0.30 cfs 0.022 af
Subcatchment R1W: WEST ROOF	Runoff Area=10,000 sf 100.00% Impervious Runoff Depth=1.00" Tc=5.0 min CN=98 Runoff=0.26 cfs 0.019 af
Pond 100: CB 100	Peak Elev=50.18' Inflow=0.08 cfs 0.006 af 12.0" Round Culvert n=0.013 L=4.0' S=0.0050 '/' Outflow=0.08 cfs 0.006 af
Pond 200: CB 200	Peak Elev=51.89' Inflow=0.12 cfs 0.009 af Primary=0.12 cfs 0.009 af Secondary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.009 af
Pond BIO1: BIO 1	Peak Elev=58.98' Storage=522 cf Inflow=0.52 cfs 0.037 af Outflow=0.08 cfs 0.037 af
Pond BIO2: BIO 2	Peak Elev=62.54' Storage=22 cf Inflow=0.22 cfs 0.016 af Outflow=0.21 cfs 0.016 af
Pond DMH: DMH 200	Peak Elev=54.25' Inflow=0.27 cfs 0.019 af Primary=0.27 cfs 0.019 af Secondary=0.00 cfs 0.000 af Outflow=0.27 cfs 0.019 af
Pond RB1: RB 101,102	Peak Elev=39.22' Storage=11 cf Inflow=0.08 cfs 0.006 af Discarded=0.06 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.006 af
Pond RB2: RB 202,202,203	Peak Elev=44.50' Storage=0 cf Inflow=0.00 cfs 0.000 af Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond RB3: RB 300	Peak Elev=58.50' Storage=0 cf Inflow=0.00 cfs 0.000 af Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond SP1: SP1	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af

19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroC	Horsley Witten Group, Inc. <i>Type III 24-hr WQv Rainfall=1.21"</i> Printed 3/5/2021 AD Software Solutions LLC Page 4
Pond SP2: SP2	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af
Pond SP3: SP3	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af
Pond TT1: Tree Trench 1	Peak Elev=52.43' Storage=30 cf Inflow=0.27 cfs 0.019 af Discarded=0.20 cfs 0.019 af Primary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.019 af
Pond TT2: Tree Trench 2	Peak Elev=51.78' Storage=81 cf Inflow=0.12 cfs 0.009 af Discarded=0.03 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.009 af
Pond URC1: URC-1	Peak Elev=48.61' Storage=0.000 af Inflow=0.08 cfs 0.037 af Outflow=0.08 cfs 0.037 af
Pond URC2: URC-2	Peak Elev=54.34' Storage=69 cf Inflow=0.30 cfs 0.022 af Outflow=0.17 cfs 0.022 af
Pond URC3: URC-3	Peak Elev=55.74' Storage=50 cf Inflow=0.21 cfs 0.016 af Outflow=0.12 cfs 0.016 af
Pond URC4: URC-4	Peak Elev=57.04' Storage=69 cf Inflow=0.26 cfs 0.019 af Outflow=0.14 cfs 0.019 af

Summary for Subcatchment DA1: DA1

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr WQv Rainfall=1.21"

	А	rea (sf)	CN	Description		
_	1	18,297	30	Woods, Go	od, HSG A	
		25,363	39	>75% Gras	s cover, Go	od, HSG A
		9,642	98	Roofs, HSC	βA	
_		5,338	98	Paved park	ing, HSG A	
	1	58,640	38	Weighted A	verage	
	1	43,660		90.56% Pe	vious Area	
		14,980		9.44% Impe	ervious Area	a
	Tc	Length	Slope		Capacity	Description
-	(min)	(feet)	(ft/ft) (ft/sec)	(cfs)	
	12.2	78	0.1730	0.11		Sheet Flow, A TO B
						Woods: Dense underbrush n= 0.800 P2= 3.60"
	0.7	99	0.1110	2.33		Shallow Concentrated Flow, B TO C
						Short Grass Pasture Kv= 7.0 fps
	3.0	240	0.0690) 1.31		Shallow Concentrated Flow, C TO SP1
_						Woodland Kv= 5.0 fps
	15.9	417	Total			

Horsley Witten Group, Inc. 19038-POST V3 Type III 24-hr WQv Rainfall=1.21" Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Printed 3/5/2021 Page 6 Subcatchment DA1: DA1 Hydrograph Runoff Type III 24-hr WQv Rainfall=1.21" Runoff Area=158,640 sf Runoff Volume=0.000 af (cfs) Runoff Depth=0.00" Flow Flow Length=417' Tc=15.9 min **CN=38** 0.00 cfs 0-0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)

Summary for	Subcatchment DA2a: DA2a
-------------	-------------------------

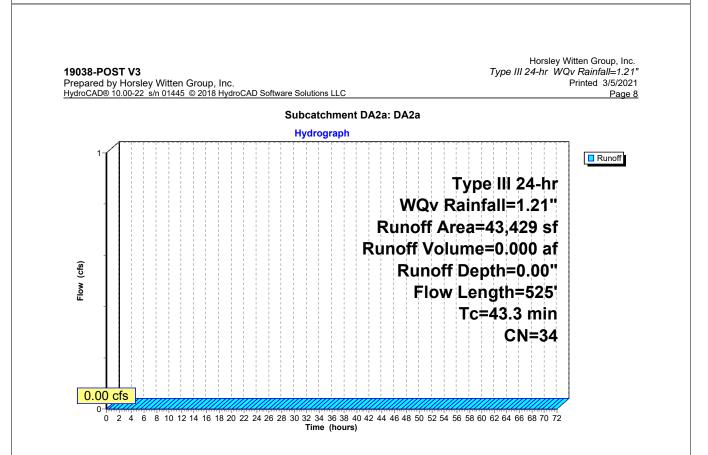
CN for permeable p	pavers taken	from RI	Stormwater	Design
--------------------	--------------	---------	------------	--------

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr WQv Rainfall=1.21"

	Area (sf)	CN	Description		
	25.414		Woods, Go		
	17.231	39	>75% Gras		
*	784		Pervious Pa		
	43,429	34	Weighted A		
	43,429		100.00% P	ervious Are	a
Т	c Lengt	n Slo	pe Velocity	Capacity	Description
(mir	n) (feet) (ft	ft) (ft/sec)	(cfs)	
36.	4 14	7 0.04	00 0.07		Sheet Flow, A TO B
					Woods: Dense underbrush n= 0.800 P2= 3.60"
0.	8 6	7 0.07	60 1.38		Shallow Concentrated Flow, B to C
0.	0 0	0.07	1.00		Woodland Kv= 5.0 fps
1.	1 7	3 0.04	80 1.10		Shallow Concentrated Flow, C to D
	1 1	0.04	1.10		Woodland Kv= 5.0 fps
F	0 23	3 0.02	50 0.79		Shallow Concentrated Flow. D to SP2
5.	0 23	5 0.02	50 0.79		
					Woodland Kv= 5.0 fps
43.	3 52	5 Tota	I		





								Jubcai			D. DA	zn he	rviou	S				
unoff	=	0.00	cfs @	0.00) hrs, '	Volum	e=	0.000) af, De	oth= 0.	00"							
	oy SCS T 24-hr W				CS, W	eighte	d-CN, Tir	ne Spar	n= 0.00-7	72.00 h	rs, dt= (0.01 hrs	s					
A	Area (sf)	CN	Desc			0.00												
	10,238	39 30	Wood	ls, Goo	od, HS	ĠΑ	d, HSG A											
	10,709 10,709	39			verage ervious													
Tc (min)	Length (feet)	Slop (ft/		locity /sec)		city [cfs)	Descriptio	n										
5.0		1.2	-/(Direct En	try, Dir	ect									
epare	POST N ed by Ho D® 10.00	sley V	Vitten (01445	Group	, Inc. <u>3 Hydro</u>	CAD S	Software S	olutions	LLC					Тур			Qv Ra	Group, Inc. infall=1.21" ad 3/5/2021 Page 10
repare	ed by Ho	sley V	Vitten 0 01445	Group © 2018	, Inc. 3 Hydro		Software S			: DA2	b perv	rious		Тур			Qv Ra	infall=1.21" ed 3/5/2021
repare	ed by Ho	rsley V	Vitten 0 01445	Group © 2018	, Inc. 3 Hydro		Subcate		t DA2b	: DA2	b perv	rious		Ту;			Qv Ra	infall=1.21" ed 3/5/2021
repare _{/droCA}	ed by Ho	rsley V	Vitten (01445	Group © 2018	, Inc. 3 Hydro		Subcate	hmen	t DA2b	: DA2	b perv	rious		Тур			Qv Ra	infall=1.21" ed 3/5/2021
repare _{/droCA}	ed by Ho	rsley V	Vitten 0 01445	Group © 2018	, Inc. 3 Hydro		Subcate	hmen	t DA2b	: DA2	b perv	rious	Tv		oe III 24	4-hr Ŵ	Qv Ra	infall=1.21" ed 3/5/2021 Page 10
repare _{/droCA}	ed by Ho	rsley V	Vitten (01445	Group © 2018	, Inc. 3 Hydro		Subcate	hmen	t DA2b	: DA2				pel	e III 24	4-hr Ŵ	Qv Ra	infall=1.21" ed 3/5/2021 Page 10
repare _{/droCA}	ed by Ho	rsley V	Vitten 1 01445	Group © 2018	, Inc. 3 Hydro		Subcate	hmen	t DA2b		wo	Qv F	Raiı	pe I nfal	e Ⅲ24 ■1.:	4-hr W -hr 21"	Qv Ra	infall=1.21" ed 3/5/2021 Page 10
repare _{/droCA}	ed by Ho	rsley V	Vitten (01445	Group © 2011	, Inc. 3 Hydro		Subcate	hmen	t DA2b raph	R	WC	Qv F ff A	Raiı rea	pe I nfal =10	e Ⅲ 24 24 =1.; ,70§	4-hr ₩ -hr 21" 9 sf	Qv Ra	infall=1.21" ed 3/5/2021 Page 10
repare ydroCA	ed by Ho	rsley V	Vitten 01445	Group © 2011	, Inc. 3 Hydro		Subcate	hmen	t DA2b raph	R	W(uno ioff	Qv F ff A Vol	Raiı rea um	pe I nfal =10 e=0	ll 24 =1.; ,709	4-hr ₩ 4-hr 21'' 9 sf) af	Qv Ra	infall=1.21" ed 3/5/2021 Page 10
repare ydroCA	ed by Ho	rsley V	Vitten (01445	Group © 2011	, Inc. 3 Hydro		Subcate	hmen	t DA2b raph	R	W(uno ioff	Qv F ff A Vol	Raiı rea um f De	pe I nfal =10 e=0	ll 24 =1.; ,709 .000	4-hr W 21" 9 sf 0 af 00"	Qv Ra	infall=1.21" ed 3/5/2021 Page 10
repare _{/droCA}	ed by Ho	rsley V	Vitten 01445	Group © 2011	, Inc. 3 Hydro		Subcate	hmen	t DA2b raph	R	W(uno ioff	Qv F ff A Vol	Raiı rea um f De	pe I nfal =10 e=0	ll 24 =1.: ,709 .000	4-hr W 21" 9 sf 0 af 00" nin	Qv Ra	infall=1.21" ed 3/5/2021 Page 10
repare ydroCA	ed by Ho	rsley V	Vitten (01445	Group © 2011	, Inc.		Subcate	hmen	t DA2b raph	R	W(uno ioff	Qv F ff A Vol	Raiı rea um f De	pe I nfal =10 e=0	ll 24 =1.; ,709 .000	4-hr W 21" 9 sf 0 af 00" nin	Qv Ra	infall=1.21" ed 3/5/2021 Page 10
repare ydroCA	ed by Ho	rsley V	Vitten 01445	Group © 2011	, Inc. 3 Hydro		Subcate	hmen	t DA2b raph	R	W(uno ioff	Qv F ff A Vol	Raiı rea um f De	pe I nfal =10 e=0	ll 24 =1.: ,709 .000	4-hr W 21" 9 sf 0 af 00" nin	Qv Ra	infall=1.21" ed 3/5/2021 Page 10
repare ydroCA	ed by Ho	rsley V	Vitten (01445	Group @ 2011	, Inc. 3 Hydro		Subcate	hmen	t DA2b raph	R	W(uno ioff	Qv F ff A Vol	Raiı rea um f De	pe I nfal =10 e=0	ll 24 =1.: ,709 .000	4-hr W 21" 9 sf 0 af 00" nin	Qv Ra	infall=1.21" ed 3/5/2021 Page 10
Elow (cfs)	ed by Ho	rsley V	Vitten (01445	Group © 2011	, Inc. 3 Hydro		Subcate	hmen	t DA2b raph	R	W(uno ioff	Qv F ff A Vol	Raiı rea um f De	pe I nfal =10 e=0	ll 24 =1.: ,709 .000	4-hr W 21" 9 sf 0 af 00" nin	Qv Ra	infall=1.21" ed 3/5/2021 Page 10

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

unoff					Sum	mar	y for	Subcat				∠o imp	pervic	us				
	=		cfs @							Depth=								
	y SCS TH 24-hr WC				CS, We	eighte	d-CN,	Time Spa	an= 0.0	00-72.00) hrs, dt=	0.01 hr	rs					
-	rea (sf)	CN	Descri															
	7,010 1,275	98 98	Paved Sidewa			G A												
	8,285 8,285	98	Weight 100.00	ted Av	erage		2											
Тс	Length	Slon	e Velo				Descrip	otion										
(min) 5.0	(feet)	(ft/f		sec)		fs)			root									
5.0						L	Jirect	Entry, Di	rect									
																Horsley	/ Witte	n Group, In
	POST V													Ту			VQv R	n Group, Ind
epare	d by Ho	sley W	/itten G)1445 @	}roup, ⊉ 2018	Inc. HydroC	CAD S	Software	e Solution:	s LLC					Ту			VQv R	
epare	d by Ho	sley W	′itten G)1445 €	3roup, ∋ 2018	Inc. HydroC					bi: DA	2h imp	erviou		Ту			VQv R	ainfall=1.2 ited 3/5/202
epare	d by Ho	sley W	′itten G)1445 €	3roup, ∋ 2018	Inc. HydroC			chment	DA2	bi: DA	2b imp	erviou	IS	Ту			VQv R	ainfall=1.2 ited 3/5/202
repare _{/droCA}	ed by Hor D® 10.00-	sley W	′itten G <u>)1445 €</u>	Group, € 2018	Inc. HydroC				DA2	bi: DA	2b imp	erviou	IS	Ту			VQv R	ainfall=1.2 ited 3/5/202
repare <u>/droCA</u> 0.	ed by Hor D® 10.00-	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2	bi: DA	2b imp	erviou	IS	<i>Ty</i>			VQv R Prin	ainfall=1.2 ited 3/5/202
epare <u>/droCA</u> 0. 0. 0.	24	sley W	/itten G 01445 @ 0.22	© 2018	Inc. HydroC			chment	DA2	bi: DA	2b imp	erviou				4-hr Ŵ	VQv R Prin	ainfall=1.2 ted 3/5/202 Page
0. 0. 0. 0.	24- 23-	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2	bi: DA				pe l	De III 2 11 24	4-hr V	 Prin	ainfall=1.2 ted 3/5/202 Page
0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	24	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2	bi: DA	W	Qv	Ty Raii	pe l nfal	be III 2 11 24 1=1.	4-hr V I-hr 21''	VQv R Prin	ainfall=1.2 ted 3/5/202 Page
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	24 1	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2		W Run	Qv	Ty Raii Are	pe I nfal a=8	ll 24 l=1. },28	₄-hr W I-hr 21'' 5 sf	VQv R Prin	ainfall=1.2 ted 3/5/202 Page
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	24 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2		W	Qv	Ty Raii Are	pe I nfal a=8	ll 24 l=1. },28	₄-hr W I-hr 21'' 5 sf	VQv R Prin	ainfall=1.2 ted 3/5/202 Page
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	24 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2		W Run	Qv Ioff Vo	Ty Raii Are Ium	pe l nfal a=8 e=0	ll 24 =1. ,28!	4-hr M -hr 21'' 5 sf 6 af	VQv R Prin	ainfall=1.2 ted 3/5/202 Page
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	24 24 22 22 22 22 22 22 22 22 22 22 22 2	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2		W Run	Qv	Ty Raii Are Ium f De	pe I nfal a=8 e=0	be /// 24 24 =1. ,28 ,01(=1.	4-hr M 21'' 5 sf 6 af	VQv R Prin	ainfall=1.2 ted 3/5/202 Page
Pepare <u>vdroCA</u> 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	24	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2		W Run	Qv Ioff Vo	Ty Raii Are Ium f De	pe I nfal a=8 e=0	ре III 24 I=1. I,28 I,01(h=1. 5.0 г	4-hr V 1-hr 21'' 5 sf 6 af 00'' nin	VQv R Prin	ainfall=1.2 ted 3/5/202 Page
Context Con	24 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2		W Run	Qv Ioff Vo	Ty Raii Are Ium f De	pe I nfal a=8 e=0	be /// 24 24 =1. ,28 ,01(=1.	4-hr V 1-hr 21'' 5 sf 6 af 00'' nin	VQv R Prin	ainfall=1.2 ted 3/5/202 Page
repared drocA2 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	24 23 22 21 21 22 21 21 22 21 21 22 21 21 22 21 21	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2		W Run	Qv Ioff Vo	Ty Raii Are Ium f De	pe I nfal a=8 e=0	ре III 24 I=1. I,28 I,01(h=1. 5.0 г	4-hr V 1-hr 21'' 5 sf 6 af 00'' nin	VQv R Prin	ainfall=1.2 ted 3/5/202 Page
repared A2010/2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	24 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2		W Run	Qv Ioff Vo	Ty Raii Are Ium f De	pe I nfal a=8 e=0	ре III 24 I=1. I,28 I,01(h=1. 5.0 г	4-hr V 1-hr 21'' 5 sf 6 af 00'' nin	VQv R Prin	ainfall=1.2 ted 3/5/202 Page
repared ydroCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	24 23 22 21 21	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2		W Run	Qv Ioff Vo	Ty Raii Are Ium f De	pe I nfal a=8 e=0	ре III 24 I=1. I,28 I,01(h=1. 5.0 г	4-hr V 1-hr 21'' 5 sf 6 af 00'' nin	VQv R Prin	ainfall=1.2 ted 3/5/202 Page
repared ydroCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	24 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	sley W	01445 @	© 2018	Inc. HydroC			chment	DA2		W Run	Qv Ioff Vo	Ty Raii Are Ium f De	pe I nfal a=8 e=0	ре III 24 I=1. I,28 I,01(h=1. 5.0 г	4-hr V 1-hr 21'' 5 sf 6 af 00'' nin	VQv R Prin	ainfall=1.2 ted 3/5/202 Page

inoff =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"	
Inoff by SCS	S TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs	
	WQv Rainfall=1.21"	
<u>Area (sf)</u> 14,079	79 39 >75% Grass cover, Good, HSG A	
<u>19,742</u> 33,821	21 34 Weighted Average	
33,821		
Tc Lengtl (min) (feet		
5.0	Direct Entry, Direct	
		Horsley Witten Group, Inc.
0038-POST		Horsley Witten Group, Inc. e <i>III 24-hr WQv Rainfall=1.21"</i> Printed 3/5/2021
epared by H	T V3 <i>Typ</i> e Horsley Witten Group, Inc. 0.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC	e III 24-hr WQv Rainfall=1.21"
epared by H	Horsley Witten Group, Inc.	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
epared by H	Horsley Witten Group, Inc. 0.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
epared by H	Horsley Witten Group, Inc. 0.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
epared by H	Horsley Witten Group, Inc. 0.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14
epared by H	Horsley Witten Group, Inc. 2.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph Type II	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14
epared by H	Horsley Witten Group, Inc. 0.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph Type II WQv Rainfall	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14
epared by H	Horsley Witten Group, Inc. 2.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph Type II	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14
epared by H	Horsley Witten Group, Inc. 0.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph Type II WQv Rainfall	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14 I 24-hr =1.21" 821 sf
epared by H droCAD® 10.0	Horsley Witten Group, Inc. 2.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph Type II WQv Rainfall Runoff Area=33 Runoff Volume=0.	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14 I 24-hr =1.21" 821 sf 000 af
epared by H droCAD® 10.0	Horsley Witten Group, Inc. 200-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph Type II WQv Rainfall Runoff Area=33, Runoff Volume=0. Runoff Depth	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14 I 24-hr =1.21" 821 sf .000 af =0.00"
epared by H	Horsley Witten Group, Inc. 200-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph Type II WQv Rainfall Runoff Area=33 Runoff Volume=0 Runoff Depth Tc=5	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14 I 24-hr =1.21" 821 sf 000 af =0.00" .0 min
epared by H droCAD® 10.0	Horsley Witten Group, Inc. 200-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph Type II WQv Rainfall Runoff Area=33 Runoff Volume=0 Runoff Depth Tc=5	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14 I 24-hr =1.21" 821 sf .000 af =0.00"
epared by H droCAD® 10.0	Horsley Witten Group, Inc. 200-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph Type II WQv Rainfall Runoff Area=33 Runoff Volume=0 Runoff Depth Tc=5	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14 I 24-hr =1.21" 821 sf 000 af =0.00" .0 min
epared by H droCAD® 10.0	Horsley Witten Group, Inc. 200-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph Type II WQv Rainfall Runoff Area=33 Runoff Volume=0 Runoff Depth Tc=5	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14 I 24-hr =1.21" 821 sf 000 af =0.00" .0 min
epared by H droCAD® 10.0	Horsley Witten Group, Inc. 200-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph Type II WQv Rainfall Runoff Area=33 Runoff Volume=0 Runoff Depth Tc=5	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14 I 24-hr =1.21" 821 sf 000 af =0.00" .0 min
epared by H droCAD® 10.0	Horsley Witten Group, Inc. 200-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3a: DA3a pervious Hydrograph Type II WQv Rainfall Runoff Area=33 Runoff Volume=0 Runoff Depth Tc=5	e III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 14 I 24-hr =1.21" 821 sf 000 af =0.00" .0 min

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Horsley Witten Group, Inc. Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 15

Runoff	=	0.52	cfs @ 12.0		ary for Subcatchment		-			
			-		•		1 bro			
ype III	24-hr W	Qv Rair	ifall=1.21"	Job, weigi	nted-CN, Time Span= 0.00-7	2.00 ms, ut- 0.0	1115			
A	Area (sf)	CN	Description							
	18,277 1,361	98 98	Paved park Sidewalk, h	ISG A	Ą					
	19,638 19,638	98	Weighted A 100.00% Ir		Area					
Тс	Length	Slop	e Velocity							
(min) 5.0	(feet)	(ft/f		(cfs)	Direct Entry, Direct					
0.0					Dirott Linky, Dirott					
										litter Orașe -
9038-	-POST V	/3						Type III 2		/itten Group, Inc. ₽v Rainfall=1.21"
9038- Prepare	-POST V ed by Ho	73 rsley V	/itten Group	o, Inc. 8 HydroCAI	D Software Solutions I.I.C.			Type III 2	24-hr ŴQ	V Rainfall=1.21" Printed 3/5/2021
9038- Prepare lydroCA	-POST V ed by Ho AD® 10.00-	/3 rsley V 22 s/n	/itten Grouµ 01445 ⊚ 201		D Software Solutions LLC			Туре III 2	24-hr ŴQ	v Rainfall=1.21"
9038- Prepare lydroCA	-POST V ed by Ho AD® 10.00	73 rsley V 22 s/n	/itten Grouµ 01445 © 201		Subcatchment DA3ai:	DA3a impervi	ious	Type III 2	24-hr ŴQ	V Rainfall=1.21" Printed 3/5/2021
9038- Prepare łydroCA	-POST V ed by Ho AD® 10.00	/3 rsley V 22 s/n	/itten Group 01445 © 201			DA3a impervi	ious	Type III 2	24-hr ŴQ	V Rainfall=1.21" Printed 3/5/2021
Prepare	ed by Hot	rsley V 22 s/n			Subcatchment DA3ai:	DA3a impervi	ious	Type III 2	24-hr ŴQ	V Rainfall=1.21" Printed 3/5/2021
Prepare lydroCA	ed by Ho <u>AD® 10.00</u>	rsley V 22 s/n	/itten Grouµ 01445 ⊚ 201 0.52 cfs		Subcatchment DA3ai:	DA3a impervi			24-hr ŴQ	0v Rainfali=1.21" Printed 3/5/2021 Page 16
Prepare lydroCA	ed by Ho AD® 10.00	rsley V 22 s/n			Subcatchment DA3ai:		Тур	De III 2	24-hr WQ 4-hr	0v Rainfali=1.21" Printed 3/5/2021 Page 16
Prepare lydroCA	ed by Ho <u>AD® 10.00</u>	rsley V 22 s/n			Subcatchment DA3ai:	WQ	Tyr v Rair	pe III 24 hfall=1	24-hr WG 4-hr .21"	0v Rainfali=1.21" Printed 3/5/2021 Page 16
Prepare lydroCA 0	ed by Ho AD® 10.00	rsley V 22 s/n			Subcatchment DA3ai: Hydrograph	WQv Runoff	Tyr v Rair Area	5e III 2 1fall=1 =19,63	24-hr WG 4-hr 21" 8 sf	0v Rainfali=1.21" Printed 3/5/2021 Page 16
Prepare iydroCA 0	ed by Hoi AD® 10.00	rsley V 22 s/n			Subcatchment DA3ai: Hydrograph	WQ	Tyr v Rair Area	5e III 2 1fall=1 =19,63	24-hr WG 4-hr 21" 8 sf	0v Rainfali=1.21" Printed 3/5/2021 Page 16
Prepare iydroCA 0 0	ed by Ho <u>Los</u> 1.55 0.5 0.5 0.5 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	rsley V 22 s/n			Subcatchment DA3ai: Hydrograph	WQ Runoff Runoff V	Tyr v Rair Area olum	pe III 2 nfall=1 =19,63 e=0.03	24-hr WG 4-hr 21" 8 sf 7 af	0v Rainfali=1.21" Printed 3/5/2021 Page 16
Prepare lydroCA 0 0 0	ed by Ho <u>AD® 10.00</u> 1.55 0.5 1.45 0.4 0.3 	rsley V 22 s/n			Subcatchment DA3ai: Hydrograph	WQ Runoff Runoff V	Typ v Rair Area olum off De	pe III 2 fall=1 =19,63 e=0.03 pth=1	24-hr WG 4-hr 21" 8 sf 7 af .00"	0v Rainfali=1.21" Printed 3/5/2021 Page 16
Prepare lydroCA 0 0 0	ed by Ho <u>Los</u> 1.55 0.5 0.5 0.5 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	rsley V 22 s/n			Subcatchment DA3ai: Hydrograph	WQ Runoff Runoff V	Typ v Rair Area olum off De	De III 2 Ifall=1 =19,63 e=0.03 pth=1 c=5.0	24-hr WG 4-hr 21" 8 sf 7 af .00" min	0v Rainfali=1.21" Printed 3/5/2021 Page 16
Prepare lydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Ho <u>AD® 10.00</u> 1.55 0.5 1.45 0.4 0.3 	rsley V 22 s/n			Subcatchment DA3ai: Hydrograph	WQ Runoff Runoff V	Typ v Rair Area olum off De	De III 2 Ifall=1 =19,63 e=0.03 pth=1 c=5.0	24-hr WG 4-hr 21" 8 sf 7 af .00"	0v Rainfali=1.21" Printed 3/5/2021 Page 16
Prepare tydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Ho <u>AD® 10.00</u> 1.55 0.5 0.5 0.4 1.55 0.4 0.4 0.3 0.4 0.3 0.2 0.2 0.2	rsley V 22 s/n			Subcatchment DA3ai: Hydrograph	WQ Runoff Runoff V	Typ v Rair Area olum off De	De III 2 Ifall=1 =19,63 e=0.03 pth=1 c=5.0	24-hr WG 4-hr 21" 8 sf 7 af .00" min	0v Rainfali=1.21" Printed 3/5/2021 Page 16
Prepare tydroCA 0 0 0 0 0 0 0 0 0 0 0	ed by Ho <u>AD® 10.00</u> 1.55 0.5 1.45 0.4 0.3 0.3 1.25 0.2 1.15 0.2	rsley V 22 s/n			Subcatchment DA3ai: Hydrograph	WQ Runoff Runoff V	Typ v Rair Area olum off De	De III 2 Ifall=1 =19,63 e=0.03 pth=1 c=5.0	24-hr WG 4-hr 21" 8 sf 7 af .00" min	0v Rainfali=1.21" Printed 3/5/2021 Page 16
Prepare tydroCA 0 0 0 0 0 0 0 0 0 0 0	ed by Ho <u>AD® 10.00</u> 1.55 0.5 0.5 0.4 1.55 0.4 0.4 0.3 0.4 0.3 0.2 0.2 0.2	rsley V 22 s/n			Subcatchment DA3ai: Hydrograph	WQ Runoff Runoff V	Typ v Rair Area olum off De	De III 2 Ifall=1 =19,63 e=0.03 pth=1 c=5.0	24-hr WG 4-hr 21" 8 sf 7 af .00" min	0v Rainfali=1.21" Printed 3/5/2021 Page 16
Prepare tydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Ho <u>AD® 10.00</u> 1.55 0.5 1.45 0.4 0.3 0.3 1.25 0.2 1.15 0.2	rsley V 22 s/n			Subcatchment DA3ai: Hydrograph	WQ Runoff Runoff V	Typ v Rair Area olum off De	De III 2 Ifall=1 =19,63 e=0.03 pth=1 c=5.0	24-hr WG 4-hr 21" 8 sf 7 af .00" min	0v Rainfali=1.21" Printed 3/5/2021 Page 16

unoff	=	0.00	cfs @	0.00	hrs, V	/olume	=	0.00	0 af, D	epth= (.00"								
unoff b	y SCS TF	8-20 me	ethod, U	IH=S	CS, We	ighted	-CN, Ti	me Spa	an= 0.00	-72.00	nrs, dt=	0.01 hr	s						
-	24-hr WC																		
A	<u>rea (sf)</u> 2,324	39	Descrip >75% (Grass			, HSG A	<u>۱</u>											-
	1,936 4,260		Woods Weight			<u>A</u>													-
	4,260		100.00	% Pe	rvious	Area													
Tc (min)	Length (feet)	Slope (ft/ft	e Velo :) (ft/s		Capac (ct		escriptio	on											
5.0	((121)	/ (****	/	1		irect Er	ntry, Di	rect										_
repare	POST V ed by Hor D® 10.00-	sley W	″itten G ୦1445 ©	roup. 2018	, Inc. B HydroC					<u>ь. Da</u>	3h non	lious		Туј			'Qv Rai	Group, Inc infall=1.21 id 3/5/202 Page 1	" 1
repare	ed by Hor	sley W	″itten G 01445 ©	roup. 2018	, Inc.		ubcat	chmer	nt DA3	b: DA	3b perv	vious		Туј			'Qv Rai	infall=1.21 d 3/5/202	" 1
repare /droCA	ed by Hor D® 10.00-	sley W	″itten G 01445 ©	roup 2018	, Inc. Hydro(ubcat		nt DA3	b: DA	Bb perv	vious		Tyj			'Qv Rai	infall=1.21 d 3/5/202	" 1
repare /droCA	ed by Hor	sley W	′itten G)1445 ©	roup 2018	, Inc.		ubcat	chmer	nt DA3	b: DA	3b perv	/ious		Tyj			Qv Rai	infall=1.21 d 3/5/202	" 1
repare /droCA	ed by Hor D® 10.00-	sley W	fitten G 01445 ©	roup. 2018	, Inc. Hydro(ubcat	chmer	nt DA3	b: DA	3b perv	/ious	Ту		be III 24	4-hr Ŵ	Qv Rai	infall=1.21 d 3/5/202 Page 1	" 1
repare /droCA	ed by Hor D® 10.00-	sley W	/itten Gi)1445 ©	roup. 2018	, Inc. 9 Hydro0		ubcat	chmer	nt DA3	b: DA				pel	De III 24	4-hr W	Qv Rai	infall=1.21 d 3/5/202 Page 1	" 1
repare /droCA	ed by Hor D® 10.00-	sley W	/itten G 01445 ©	roup. 2018	Inc. HydroC		ubcat	chmer	nt DA3		W	QV I	Raiı	pe I nfal	oe III 24 11 24 1=1.	4-hr W I-hr 21''	Qv Rai	infall=1.21 d 3/5/202 Page 1	" 1
repare /droCA	ed by Hor D® 10.00-	sley W	/itten G 01445 ©	roup 2018	, Inc. B Hydro(ubcat	chmer	nt DA3		Wo	QV I off	Raiı Are	pe I nfal a=4	ll 24 =1. ,26(4-hr W -hr 21") sf	Qv Rai	infall=1.21 d 3/5/202 Page 1	" 1
repare /droCA	ed by Hor D® 10.00-	sley W	fitten G 01445 ©	roup. > 2018	, Inc.		ubcat	chmer	nt DA3		W(Run noff	Qv I off Vo	Raiı Are lum	pe I nfal a=4 e=0	ll 24 =1. ,26(4-hr ₩ 21'' 0 sf 0 af	Qv Rai	infall=1.21 d 3/5/202 Page 1	" 1
repare /droCA	ed by Hor D® 10.00-	sley W	fitten G	roup, 3 2018	Inc. Hydro(ubcat	chmer	nt DA3		W(Run noff	Qv I off Vo	Raiı Are lum	pe I nfal a=4 e=0	ll 24 =1. ,26(4-hr ₩ 21'' 0 sf 0 af	Qv Rai	infall=1.21 d 3/5/202 Page 1	" 1
repare /droCA	ed by Hor D® 10.00-	sley W	/itten G 01445 ©	roup. 2018	, Inc.		ubcat	chmer	nt DA3		W(Run noff	Qv I off Vo	Raiı Are lum f De	pe I nfal e=0 epth	ll 24 =1. ,26(4-hr W 21") sf) af	Qv Rai	infall=1.21 d 3/5/202 Page 1	" 1
repare /droCA	ed by Hor D® 10.00-	sley W	fitten G	roup 2018	, Inc.		ubcat	chmer	nt DA3		W(Run noff	Qv I off Vo	Raiı Are lum f De	pe I nfal e=0 epth	ll 24 l=1. ,26(.00(n=0. 5.0 r	4-hr W 21" 2 sf 0 af 00" nin	Qv Rai	infall=1.21 d 3/5/202 Page 1	" 1
repare /droCA	ed by Hor D® 10.00-	sley W	/itten G	roup.	Inc.		ubcat	chmer	nt DA3		W(Run noff	Qv I off Vo	Raiı Are lum f De	pe I nfal e=0 epth	ll 24 l=1. ,26(.00(n=0.	4-hr W 21" 2 sf 0 af 00" nin	Qv Rai	infall=1.21 d 3/5/202 Page 1	" 1
repare /droCA	ed by Hor D® 10.00-	sley W	/itten G 01445 ©	roup, 2018	Inc.		ubcat	chmer	nt DA3		W(Run noff	Qv I off Vo	Raiı Are lum f De	pe I nfal e=0 epth	ll 24 l=1. ,26(.00(n=0. 5.0 r	4-hr W 21" 2 sf 0 af 00" nin	Qv Rai	infall=1.21 d 3/5/202 Page 1	" 1
repare /droCA	ed by Hor D® 10.00-	sley W	fitten G	roup, 2018	, Inc.		ubcat	chmer	nt DA3		W(Run noff	Qv I off Vo	Raiı Are lum f De	pe I nfal e=0 epth	ll 24 l=1. ,26(.00(n=0. 5.0 r	4-hr W 21" 2 sf 0 af 00" nin	Qv Rai	infall=1.21 d 3/5/202 Page 1	" 1
Flow (cfs)	ed by Hor D® 10.00-	sley W	/itten G	roup.	Inc.		ubcat	chmer	nt DA3		W(Run noff	Qv I off Vo	Raiı Are lum f De	pe I nfal e=0 epth	ll 24 l=1. ,26(.00(n=0. 5.0 r	4-hr W 21" 2 sf 0 af 00" nin	Qv Rai	infall=1.21 d 3/5/202 Page 1	" 1

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

		-					-			ent DA3bi: DA3b impervious
unoff	=		-	12.0						Depth= 1.00"
unoff b pe III	by SCS 24-hr V	FR-20 m /Qv Raii	ethod nfall=1	, UH=S .21"	ics, W	/eighte	ed-CN,	Time S	pan= 0.	.00-72.00 hrs, dt= 0.01 hrs
A	Area (sf)			ription						
	9,486 693	98 98		ed park walks,						
	10,179 10,179	98	Weig	hted A	verage	е	ea			
Тс	Lengt			elocity			Descri	ption		
<u>(min)</u> 5.0	(feet			ft/sec)		cfs)		Entry,	Direct	
0.0								, ,		
										Horsley Witten Group, Inc.
	POST		Witten	Group						Type III 24-hr WQv Rainfall=1.21"
		V3 orsley V 0-22 s/n	Vitten 01445	Group © 201	o, Inc. 8 Hydro	oCAD :	Softwar	e Solutio	ons LLC	Type III 24-hr WQv Rainfall=1.21"
			Vitten 01445	Group © 201	o, Inc. 8 Hydro					Type III 24-hr WQv Rainfall=1.21"
			Vitten 01445	Group © 201	o, Inc. 8 Hydro			tchme		Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious
					o, Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious
epare droCA				Group © 201	o, Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious
epare <u>droCA</u> 0. 0.	ed by H				o, Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious
epare <u>droCA</u> 0. 0.	28 26 24				o, Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious
epare droCA 0. 0. 0. 0.	28 26 24 24 22), Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious Type III 24-hr WQv Rainfall=1.21"
epare <u>droCA</u> 0. 0. 0. (ed by H D® 10.0 28 26 24 22 0.2				o, Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious Type III 24-hr WQv Rainfall=1.21" Runoff Area=10,179 sf
epare droCA 0. 0. 0. (0. 0.	28 10.0 28 26 26 24 22 0.2 18), Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious Type III 24-hr WQv Rainfall=1.21" WQv Rainfall=1.21" Runoff Area=10,179 sf Runoff Volume=0.019 af
epare droCA 0. 0. 0. (0. 0.	28 26 24 22 24 .22 .24 .22 .24 .22 .24 .22 .24 .22 .24 .22 .24 .22 .24 .24), Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious Type III 24-hr WQv Rainfall=1.21" Runoff Area=10,179 sf Runoff Volume=0.019 af Runoff Depth=1.00"
Epor (cts) .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	28 222 222 224 222 18 16 14				o, Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious Type III 24-hr WQv Rainfall=1.21" Runoff Area=10,179 sf Runoff Volume=0.019 af Runoff Depth=1.00" Tc=5.0 min
epare <u>droCA</u> 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	28 28 26 24 22 21 18 16 14 12), Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious Type III 24-hr WQv Rainfall=1.21" Runoff Area=10,179 sf Runoff Volume=0.019 af Runoff Depth=1.00"
epare droCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	28 10.0 28 26 24 22 28 26 24 20 20 20 20 20 20 20 20 20 20 20 20 20), Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious Type III 24-hr WQv Rainfall=1.21" Runoff Area=10,179 sf Runoff Volume=0.019 af Runoff Depth=1.00" Tc=5.0 min
2000 200 2000 2	28 26 24 22 0.2 18 16 10 10 10 10 10 10 10 10 10 10 10 10 10), Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious Type III 24-hr WQv Rainfall=1.21" Runoff Area=10,179 sf Runoff Volume=0.019 af Runoff Depth=1.00" Tc=5.0 min
epare droCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	28 26 22 22 22 22 22 22 22 22 22 22 22 22				o, Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious Type III 24-hr WQv Rainfall=1.21" Runoff Area=10,179 sf Runoff Volume=0.019 af Runoff Depth=1.00" Tc=5.0 min
epare droCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	28 26 24 22 0.2 18 16 10 10 10 10 10 10 10 10 10 10 10 10 10				o, Inc. 8 Hydro			tchme	nt DA3	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 20 3bi: DA3b impervious Type III 24-hr WQv Rainfall=1.21" Runoff Area=10,179 sf Runoff Volume=0.019 af Runoff Depth=1.00" Tc=5.0 min

	Summary for Subcatchment DA3c: DA3c pervious
unoff =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
unoff by SCS 1 /pe III 24-hr W	TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs WQv Rainfall=1.21"
Area (sf)	
4,662 21,479	9 30 Woods, Good, HSG A
26,141 26,141	
Tc Length	
(min) (feet 5.0	t) (ft/ft) (ft/sec) (cfs) Direct Entry, Direct
9038-POST repared by He rdroCAD® 10.00	Horsley Witten Group, Inc. Printed 3/5/2021 00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 22 Subcatchment DA3c: DA3c pervious
repared by Ho /droCAD® 10.00	V3 Type III 24-hr WQv Rainfall=1.21" Horsley Witten Group, Inc. Printed 3/5/2021 00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 22
	V3 Type III 24-hr WQv Rainfall=1.21" Horsley Witten Group, Inc. Printed 3/5/2021 00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 22 Subcatchment DA3c: DA3c pervious
repared by Ho /droCAD® 10.00	V3 Type III 24-hr WQv Rainfall=1.21" Horsley Witten Group, Inc. Printed 3/5/2021 00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 22 Subcatchment DA3c: DA3c pervious Hydrograph Type III 24-hr
repared by Ho /droCAD® 10.00	V3 Type III 24-hr WQv Rainfall=1.21" torsley Witten Group, Inc. Printed 3/5/2021 00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 22 Subcatchment DA3c: DA3c pervious Hydrograph
repared by Ho /droCAD® 10.00	V3 Type III 24-hr WQv Rainfall=1.21" Horsley Witten Group, Inc. Printed 3/5/2021 00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 22 Subcatchment DA3c: DA3c pervious Hydrograph Type III 24-hr
repared by Ho /droCAD® 10.00	V3 Type III 24-hr WQv Rainfall=1.21" torsley Witten Group, Inc. Printed 3/5/2021 00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 22 Subcatchment DA3c: DA3c pervious Hydrograph Type III 24-hr WQv Rainfall=1.21"
11	V3 Type III 24-hr WQv Rainfall=1.21" torsley Witten Group, Inc. Printed 3/5/2021 00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 22 Subcatchment DA3c: DA3c pervious Hydrograph Type III 24-hr WQv Rainfall=1.21" Warnoff Type III 24-hr WQv Rainfall=1.21" Runoff Runoff
11	V3 Type III 24-hr WQv Rainfall=1.21" torsley Witten Group, Inc. Printed 3/5/2021 D0-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 22 Subcatchment DA3c: DA3c pervious Hydrograph Type III 24-hr WQv Rainfall=1.21" Runoff Runoff Type III 24-hr WQv Rainfall=1.21" Runoff Runoff Runoff Runoff Runoff
repared by Ho /droCAD® 10.00	V3 Type III 24-hr WQv Rainfall=1.21" torsley Witten Group, Inc. Printed 3/5/2021 00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 22 Subcatchment DA3c: DA3c pervious Hydrograph Type III 24-hr WQv Rainfall=1.21" Warnoff Type III 24-hr WQv Rainfall=1.21" Runoff Runoff
11	V3 Type III 24-hr WQv Rainfall=1.21" Horsley Witten Group, Inc. Printed 3/5/2021 D0-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 22 Subcatchment DA3c: DA3c pervious Hydrograph Type III 24-hr WQv Rainfall=1.21" WQv Rainfall=1.21" Work Rainfall=1.21" Witten Group, Inc. Bubcatchment DA3c: DA3c pervious Hydrograph III 24-hr WQv Rainfall=1.21" WQv Rainfall=1.21" WQv Rainfall=1.21" Runoff Type III 24-hr WQv Rainfall=1.21" Runoff Runoff WQv Rainfall=1.21" Runoff Runoff Runoff Runoff Type III 24-hr WQv Rainfall=1.21" Runoff Runoff Type III 24-hr WQv Rainfall
11	V3 Type III 24-hr WQv Rainfall=1.21" Horsley Witten Group, Inc. Printed 3/5/2021 D0-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 22 Subcatchment DA3c: DA3c pervious Hydrograph Type III 24-hr WQv Rainfall=1.21" WQv Rainfall=1.21" Work Rainfall=1.21" Witten Group, Inc. Bubcatchment DA3c: DA3c pervious Hydrograph III 24-hr WQv Rainfall=1.21" WQv Rainfall=1.21" WQv Rainfall=1.21" Runoff Type III 24-hr WQv Rainfall=1.21" Runoff Runoff WQv Rainfall=1.21" Runoff Runoff Runoff Runoff Type III 24-hr WQv Rainfall=1.21" Runoff Runoff Type III 24-hr WQv Rainfall
11	V3 Type III 24-hr WQv Rainfall=1.21" Horsley Witten Group, Inc. Printed 3/5/2021 D0-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 22 Subcatchment DA3c: DA3c pervious Hydrograph Type III 24-hr WQv Rainfall=1.21" WQv Rainfall=1.21" Work Rainfall=1.21" Witten Group, Inc. Bubcatchment DA3c: DA3c pervious Hydrograph III 24-hr WQv Rainfall=1.21" WQv Rainfall=1.21" WQv Rainfall=1.21" Runoff Type III 24-hr WQv Rainfall=1.21" Runoff Runoff WQv Rainfall=1.21" Runoff Runoff Runoff Runoff Type III 24-hr WQv Rainfall=1.21" Runoff Runoff Type III 24-hr WQv Rainfall
11	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 22 Subcatchment DA3c: DA3c pervious Hydrograph Type III 24-hr WQv Rainfall=1.21" Runoff Area=26,141 sf Runoff Volume=0.000 af Runoff Depth=0.00" Tc=5.0 min CN=32

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

Runoff	=	0.08 cfs @	12.07	hrs. Vo	lume=	0	.006 af,	Depth=	1.00"								
1.111.111.111/		20 method								= 0 01	hrs						
ype III 24	4-hr WQ	Rainfall=	.21"	22, 11012		.,	-pun- 0.		• mo, ut-	0.011							
	ea (sf)		cription		•												
	2,649 530	98 Side	walks, ⊢		A												
	3,179 3,179		phted Av	/erage pervious	Area												
	Length	Slope V				ription											
(min) 5.0	(feet)		ft/sec)	(cfs)	t Entry,	Direct										
5.0					Direc	_ ind y ,	Direct										
																\\/i#o-	n Group In
	OST V3												Туре			Qv R	n Group, In ainfall=1.2
repared	l by Hors	ley Witten 2 s/n 01445	Group, © 2018	, Inc.	AD Softwa	are Soluti	ons LLC						Туре			Qv R	ainfall=1.2 ited 3/5/20
repared	l by Hors	ley Witten	Group, © 2018	, Inc. HydroC <i>F</i>				sci: DA	13c imp	ervio			Туре			Qv R	ainfall=1.2
repared	l by Hors	ley Witten	Group, © 2018	, Inc. HydroCA		atchme	ent DA3		A3c imp	ervio	ous		Туре			Qv R	ainfall=1.2 ited 3/5/20
repared	l by Hors	ley Witten	Group, © 2018	, Inc.		atchme			A3c imp	pervio	pus		Туре			Qv R	ainfall=1.2 ited 3/5/20
repared ydroCAD	l by Hors	ley Witten 2 s/n 01445	© 2018	Inc.		atchme	ent DA3		\3c imp	pervio	pus		Туре			Qv Ra Prin	ainfall=1.2 ited 3/5/20
repared ydroCAD 0.0	09 85	ley Witten 2 s/n 01445	Group, © 2018	Inc. HydroCA		atchme	ent DA3		\3c imp	ervio				• III 24	-hr Ŵ	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page
0.08 0.08	09 85 08	ley Witten 2 s/n 01445	© 2018	Inc. HydroCA		atchme	ent DA3						e 11	e III 24	-hr Ŵ	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page
0.0 0.0 0.0 0.0	09 85 08 75	ley Witten 2 s/n 01445	© 2018	, Inc. 9 HydroCA		atchme	ent DA3		W	Qγ	- 1	aint	e II fall	=1.2	-hr Ŵ	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page
0.08 0.08	09 09 08 08 08 08 07 07 07	ley Witten 2 s/n 01445	© 2018	Inc.		atchme	ent DA3			Qγ	- 1	aint	e II fall	=1.2	-hr Ŵ	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	09 09 09 08 08 08 07 07 07 06 06 06 06 06 06 06 07 07 07 06 07 07 07 07 07 07 07 07 07 07	ley Witten 2 s/n 01445	© 2018	Inc. HydroC/		atchme	ent DA3		W	/Qv noff	T Ri f A	aint rea	e II all =3,	24 =1.2 179	-hr W -hr 21" Sf	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	09 85 07 65 06 55	ley Witten 2 s/n 01445	© 2018	Inc. HydroC/		atchme	ent DA3		W Rur unof	/Qv noff f Vc	T Ra f A Dlu	aint rea me	e 11 fall =3,) 24 24 179 006	-hr W -hr 21" Sf	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	09 85 07 65 06 55 05	ley Witten 2 s/n 01445	© 2018	Inc. HydroC/		atchme	ent DA3		W Rur unof	/Qv noff f Vc	T Ra f A Dlu	aint rea me Dep	e II fall =3, =0.) 24 =1.2 179 006 =1.0	-hr W -hr 21" 3f af 00"	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	09 85 07 65 06 55 05 45	ley Witten 2 s/n 01445	© 2018	, Inc. HydroC/		atchme	ent DA3		W Rur unof	/Qv noff f Vc	T Ra f A Dlu	aint rea me Dep	e II fall =3, =0. oth) 24 =1.2 179 006 =1.0 .0 n	-hr Ŵ -hr 21" sf af 10" nin	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page
repared <u>vdroCAD</u> 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	1 by Hors 1 0.00-2 09 85 08 75 07 65 06 55 06 55 06 55 06 55 06 55 06 55 06 55 06 55 06 55 06 55 06 55 06 05 06 06 06 06 06 06 06 06 06 06	ley Witten 2 s/n 01445	© 2018	Inc. 		atchme	ent DA3		W Rur unof	/Qv noff f Vc	T Ra f A Dlu	aint rea me Dep	e II fall =3, =0. oth) 24 =1.2 179 006 =1.0	-hr Ŵ -hr 21" sf af 10" nin	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page
repared <u>vdroCAD0</u> 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	09 85 08 75 07 65 06 55 06 55 06 45 04 45 04 45 04 45 04	ley Witten 2 s/n 01445	© 2018	Inc. - HydroC/		atchme	ent DA3		W Rur unof	/Qv noff f Vc	T Ra f A Dlu	aint rea me Dep	e II fall =3, =0. oth) 24 =1.2 179 006 =1.0 .0 n	-hr Ŵ -hr 21" sf af 10" nin	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page
repared ydroCAD0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	09 85 08 75 07 65 06 55 06 55 06 45 04 35 04 25	ley Witten 2 s/n 01445	© 2018	Inc. HydroC/		atchme	ent DA3		W Rur unof	/Qv noff f Vc	T Ra f A Dlu	aint rea me Dep	e II fall =3, =0. oth) 24 =1.2 179 006 =1.0 .0 n	-hr Ŵ -hr 21" sf af 10" nin	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page
repared ydroCADd 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	1 by Hors 1 10.00-2 09 85 08 85 08 75 07 65 06 55 06 55 06 45 06 45 06 45 07 45 06 25 06 45 07 45 06 25 07 45 10 10 10 10 10 10 10 10 10 10	ley Witten 2 s/n 01445	© 2018	Inc. HydroC/		atchme	ent DA3		W Rur unof	/Qv noff f Vc	T Ra f A Dlu	aint rea me Dep	e II fall =3, =0. oth) 24 =1.2 179 006 =1.0 .0 n	-hr Ŵ -hr 21" sf af 10" nin	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page
repared ydroCADd 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	I by Hors 10.00-2 09 85 08 75 07 65 06 55 06 55 06 55 06 55 06 55 06 55 06 55 06 55 06 55 07 - - - - - - - - - - - - -	ley Witten 2 s/n 01445	© 2018	Inc. HydroC/		atchme	ent DA3		W Rur unof	/Qv noff f Vc	T Ra f A Dlu	aint rea me Dep	e II fall =3, =0. oth) 24 =1.2 179 006 =1.0 .0 n	-hr Ŵ -hr 21" sf af 10" nin	Qv Ra Prin	ainfall=1.2 ited 3/5/20 Page

10.00-22 S/N U	01445 © 2018 HydroCAD Software Solutions LLC Page Summary for Subcatchment DA3d: DA3d pervious
Runoff = 0.00 c	
	cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00" ethod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr WQv Rainf	fall=1.21"
	Description >75% Grass cover, Good, HSG A
	100.00% Pervious Area
Tc Length Slope (min) (feet) (ft/ft)	e Velocity Capacity Description t) (ft/sec) (cfs)
5.0	Direct Entry, Direct
	Subcatchment DA3d: DA3d pervious
	Type III 24-hr WQv Rainfall=1.21" Runoff Area=197 sf Runoff Volume=0.000 af Runoff Depth=0.00" Tc=5.0 min CN=39
	Horsley Witten Group, I
Prepared by Horsley Wi	Vitten Group, Inc. Type III 24-hr WQv Rainfall=1 Printed 3/5/20
Prepared by Horsley Wi	Vitten Group, Inc. Type III 24-hr WQv Rainfall=1 Printed 3/5/20 01445 © 2018 HydroCAD Software Solutions LLC Page
Prepared by Horsley Wi HydroCAD® 10.00-22 s/n 0	Vitten Group, Inc. 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di: DA3d impervious
Runoff = 0.12 c	Type III 24-hr WQv Rainfall=1.: Vitten Group, Inc. Printed 3/5/20 01445 © 2018 HydroCAD Software Solutions LLC Page Summary for Subcatchment DA3di: DA3d impervious cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 1.00"
Prepared by Horsley Wi <u>HydroCAD® 10.00-22 s/n 0</u> Runoff = 0.12 c Runoff by SCS TR-20 me Fype III 24-hr WQv Rainf	Type III 24-hr WQv Rainfall=1. Printed 3/5/20 01445 © 2018 HydroCAD Software Solutions LLC Page Summary for Subcatchment DA3di: DA3d impervious cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 1.00" ethod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs nfall=1.21"
Prepared by Horsley Wi HydroCAD® 10.00-22 s/n 0 Runoff = 0.12 c Runoff by SCS TR-20 me Fype III 24-hr WQv Rainf Area (sf) CN 4,686 98	Type III 24-hr WQv Rainfall=1. Printed 3/5/2(20145 © 2018 HydroCAD Software Solutions LLC Page Summary for Subcatchment DA3di: DA3d impervious cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 1.00" ethod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs ifall=1.21" Description Paved parking, HSG A
Prepared by Horsley Wi <u>lydroCAD® 10.00-22 s/n 0</u> Runoff = 0.12 c Runoff by SCS TR-20 me ype III 24-hr WQv Rainf <u>Area (sf) CN</u> <u>4,686 98</u> <u>4,686</u>	Type III 24-hr WQv Rainfall=1.: Printed 3/5/20 01445 © 2018 HydroCAD Software Solutions LLC Page Summary for Subcatchment DA3di: DA3d impervious cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 1.00" ethod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs fall=1.21" Description Paved parking, HSG A 100.00% Impervious Area
Prepared by Horsley Wi <u>HydroCAD® 10.00-22 s/n 0</u> Runoff = 0.12 c Runoff by SCS TR-20 me Fype III 24-hr WQv Rainf <u>Area (sf) CN</u> <u>4,686 98</u> <u>4,686</u> Tc Length Slope (min) (feet) (ft/ft)	Type III 24-hr WQv Rainfall=1.: Printed 3/5/20 Old#45 © 2018 HydroCAD Software Solutions LLC Printed 3/5/20 Summary for Subcatchment DA3di: DA3d impervious cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 1.00" ethod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs fall=1.21" Description Paved parking, HSG A 100.00% Impervious Area we Velocity Capacity Description (ff/sec)
Prepared by Horsley Wi <u>HydroCAD® 10.00-22 s/n 0</u> Runoff = 0.12 c Runoff by SCS TR-20 me Fype III 24-hr WQv Rainf <u>Area (sf) CN</u> <u>4,686 98</u> 4,686 Tc Length Slope	Type III 24-hr WQv Rainfall=1.: Printed 3/5/20 Old45 © 2018 HydroCAD Software Solutions LLC Printed 3/5/20 Summary for Subcatchment DA3di: DA3d impervious cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 1.00" ethod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs frain Span= 0.00-72.00 hrs, dt= 0.01
Prepared by Horsley Wi <u>HydroCAD® 10.00-22 s/n 0</u> Runoff = 0.12 c Runoff by SCS TR-20 me Fype III 24-hr WQv Rainf <u>Area (sf) CN</u> <u>4,686 98</u> <u>4,686</u> Tc Length Slope (min) (feet) (ft/ft)	Type III 24-hr WQv Rainfall=1.: Printed 3/5/20 Old#45 © 2018 HydroCAD Software Solutions LLC Printed 3/5/20 Summary for Subcatchment DA3di: DA3d impervious cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 1.00" ethod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs fall=1.21" Description Paved parking, HSG A 100.00% Impervious Area we Velocity Capacity Description (ff/sec)

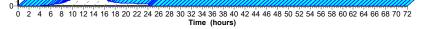
19038-POST V3 Prepared by Horsley Witten Group, Inc.

epared by Ho droCAD® 10.00			8 HydroC/	AD Soft	tware Sol	lutions LL	С											rinte		e 27
			Sı	umma	ary for	Subcat	chme	ent R1	E: E/	AST	ROC	OF								
unoff =	0.30 (cfs @ 12.0	7 hrs, Vc	olume=	<u>.</u>	0.022 a	f, Dep ⁱ	oth= 1.0	00"											
unoff by SCS T			3CS, Weiç	ghted-(CN, Time	e Span=	0.00-7	2.00 hr	rs, dt=	0.01	hrs									
pe III 24-hr W																				
<u>Area (sf)</u> 11,331		Description Roofs, HS																		
11,331		100.00% Ir	•																	
Tc Length (min) (feet)		e Velocity) (ft/sec)	Capacit (cfs	s)																
5.0				Dir	rect Entr	ry, Direc	t													
				5	Subcat	tchmen Hydrogr		: EAS	T RC	OOF										
		0.32 0.3 0.26 0.24 0.22 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.						Runo unoff	Qv R off Ar	ainf ea= ime Dep	11,3 =0.02 oth=1 :=5.0	1.21" 31 sf 22 af 1.00"	n = -							
			4 6 8 10 1:	2 14 16 18	3 20 22 24 26	28 30 32 34 : Time	6 38 40 42 (hours)	44 46 48 5	50 52 54 5	56 58 60	- + - - + + - - + 62 64 66	6 68 70 7	72		н	orsle	y Wil	tten (Group,	Inc.
epared by Ho	rsley W	itten Grou	o, Inc.			Time i	(hours)	2 44 46 48 5	50 52 54 5	56 58 60		6 68 70 7		уре			VQv	Rai	nfall=1 d 3/5/2	.21"
epared by Ho	rsley W	itten Grou	o, Inc. 8 HydroC/	AD Soft		Time 1	(hours)							уре			VQv	Rai	nfall=1 d 3/5/2	.21" 2021
9038-POST V epared by Ho droCAD® 10.00	-22 s/n 0	itten Grou	o, Inc. <u>8 HydroC</u> / Su	AD Soft	tware Sol	Time 1	(hours) C Chmei	nt R1\	w: w					уре			VQv	Rai	nfall=1 d 3/5/2	.21" 2021
epared by Hc droCAD® 10.00 unoff = unoff by SCS T	0.26 c R-20 me	Titten Grou 01445 © 20 ⁻ cfs @ 12.0 ethod, UH=t	o, Inc. <u>8 HydroC/</u> Su 17 hrs, Vc	AD Soft Imma Dlume=	tware Soli ary for S	lutions LL Subcate 0.019 a	C C f, Dept	nt R1\ oth= 1.0	W: W 00"	/EST	[RO			уре			VQv	Rai	nfall=1 d 3/5/2	.21" 2021
epared by Hc droCAD® 10.00 unoff = unoff by SCS T pe III 24-hr W	0.26 c R-20 me Qv Raint	fitten Grou 01445 © 201 Cfs @ 12.0 ethod, UH=t fall=1.21"	o, Inc. <u>8 HydroC/</u> Su 17 hrs, Vc SCS, Weig	AD Soft Imma Dlume=	tware Soli ary for S	lutions LL Subcate 0.019 a	C C f, Dept	nt R1\ oth= 1.0	W: W 00"	/EST	[RO			уре			VQv	Rai	nfall=1 d 3/5/2	.21" 2021
epared by Hc droCAD® 10.00 unoff = unoff by SCS T pe III 24-hr W <u>Area (sf)</u> 10,000	0.26 c 0.26 c R-20 me Qv Raint <u>CN</u> 98	ritten Grou 01445 © 201 ethod, UH=1 fall=1.21" Descriptior Roofs, HS(o, Inc. <u>8 HydroC/</u> Su 17 hrs, Vc SCS, Weig 3 A	AD Soft Imma blume=	tware Soli ary for S	lutions LL Subcate 0.019 a	C C f, Dept	nt R1\ oth= 1.0	W: W 00"	/EST	[RO			ype			VQv	Rai	nfall=1 d 3/5/2	.21" 2021
epared by Hc <u>droCAD® 10.00</u> unoff = unoff by SCS T pe III 24-hr W <u>Area (sf)</u> <u>10,000</u>	0.26 c 0.26 c R-20 me Qv Raint <u>CN</u> 98	itten Grou 11445 © 20' cfs @ 12.0 ethod, UH=3 fall=1.21" Description Roofs, HS0 100.00% Ir	o, Inc. <u>8 HydroC/</u> Su 17 hrs, Vc SCS, Weig <u>13 A</u> npervious	AD Soft Imma ghted-(Area	tware Soli Iry for S = CN, Time	lutions LL Subcate 0.019 a e Span=	C C f, Dept	nt R1\ oth= 1.0	W: W 00"	/EST	[RO			уре			VQv	Rai	nfall=1 d 3/5/2	.21" 2021
epared by Hc <u>droCAD® 10.00</u> unoff = unoff by SCS T pe III 24-hr W <u>Area (sf)</u> <u>10,000</u> 10,000 Tc Length (min) (feet)	0.26 c 0.26 c R-20 me Qv Raint <u>CN</u> 98	fitten Grou 21445 © 201 215 @ 12.0 216 @ 12.0 216 @ 12.0 216 @ 12.0 210 @ 1.0 210 @ 12.0 210 @	o, Inc. <u>8 HydroC/</u> Su 17 hrs, Vc SCS, Weig <u>13 A</u> npervious	AD Soft Imma Ighted-C Area y Dex: 3)	tware Soli ary for S = CN, Time scription	lutions LL Subcate 0.019 a e Span=	C chmei f, Depi 0.00-72	nt R1\ oth= 1.0	W: W 00"	/EST	[RO			ype			VQv	Rai	nfall=1 d 3/5/2	.21" 2021
epared by Hc <u>droCAD® 10.00</u> unoff = unoff by SCS T pe III 24-hr W <u>Area (sf)</u> <u>10,000</u> 10,000 Tc Length	0.26 c 0.26 c R-20 me Qv Raint <u>CN</u> 98	fitten Grou 21445 © 201 215 @ 12.0 216 @ 12.0 216 @ 12.0 216 @ 12.0 210 @ 1.0 210 @ 12.0 210 @	o, Inc. <u>8 HydroC/</u> Su 17 hrs, Vc SCS, Weig SA npervious Capacit	AD Soft Imma ghted-(tware Soli ary for S = CN, Time scription rect Entr	iutions LL Subcate 0.019 a e Span=	C chmei f, Dept 0.00-72	nt R1\ hth= 1.0 2.00 hr	W: W 00" rs, dt=	/EST	r RO			- ype			VQv	Rai	nfall=1 d 3/5/2	.21" 2021
repared by Hc Import of the second state unoff Import of the second state Import of the second state	0.26 c 0.26 c R-20 me Qv Raint <u>CN</u> 98	fitten Grou 21445 © 201 215 @ 12.0 216 @ 12.0 216 @ 12.0 216 @ 12.0 210 @ 1.0 210 @ 12.0 210 @	o, Inc. <u>8 HydroC/</u> Su 17 hrs, Vc SCS, Weig SA npervious Capacit	AD Soft Imma ghted-(tware Soli ary for S = CN, Time scription	iutions LL Subcate 0.019 a e Span=	C chmei f, Dept 0.00-72 t t	nt R1\ hth= 1.0 2.00 hr	W: W 00" rs, dt=	/EST	r RO			-уре 			VQv	Rai	nfall=1 d 3/5/2	.21" 2021

			Summary fo	r Pond 100: CB 10	0		
nflow Area =				0.11" for WQv even	t		
nflow = Dutflow =	0.08 cfs @ 12	2.07 hrs, Volume= 2.07 hrs, Volume=	= 0.006 ;	af, Atten= 0%, Lag= 0	0.0 min		
rimary =	0.08 cfs @ 12	2.07 hrs, Volume=	= 0.006	af			
	Ind method, Time 8' @ 12.07 hrs	Span= 0.00-72.00) hrs, dt= 0.01 hr	ſS			
evice Routing	g Invert	Outlet Devices					
#1 Primar		12.0" Round Cu	ulvert L= 4.0'	CPP, projecting, no he 8' S= 0.0050 '/' Cc=	adwall, Ke= 0.900		
				h interior, Flow Area=			
rimary OutFlo	w Max=0.08 cfs @ arrel Controls 0.08)) 12.07 hrs HW=	50.18' (Free Di	scharge)			
	arrer Controis 0.00	s cis @ 1.51 ips)					
						Horsley Wi	ten Group. Inc.
					Тур	e III 24-hr ŴQv	
repared by Ho	V3 orsley Witten Gro D-22_s/n 01445 © 2	ιup, Inc. 1018 HydroCAD Sof	ftware Solutions L	LC	Тур	e III 24-hr ŴQv	
repared by Ho	orsley Witten Gro	oup, Inc. 2018 HydroCAD Sof		LC 100: CB 100	Тур	e III 24-hr ŴQv	Rainfall=1.21" rinted 3/5/2021
repared by Ho	orsley Witten Gro	oup, Inc. <u>2018 HydroCAD Sof</u>	Pond	100: CB 100	Тур	e III 24-hr ŴQv	Rainfall=1.21" rinted 3/5/2021
repared by Ho	orsley Witten Gro	oup, Inc. 2018 HydroCAD Sof		100: CB 100	Тур	e III 24-hr ŴQv	Rainfall=1.21" rinted 3/5/2021 Page 30
repared by Ho ydroCAD® 10.0	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: CB 100	Тур	e III 24-hr ŴQv	Rainfall=1.21" rinted 3/5/2021
repared by Ho	orsley Witten Gro 0-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: CB 100 ph	тур Аrea=0.6	e III 24-hr ŴQv F	Rainfall=1.21" rinted 3/5/2021 Page 30
0.09 0.085 0.08	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: СВ 100 ^{ph} Inflow	Area=0.6	e III 24-hr WQv F 73 ac	Rainfall=1.21" rinted 3/5/2021 Page 30
0.09 0.085 0.085 0.075	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: СВ 100 ^{ph} Inflow		e III 24-hr WQv F 73 ac 50.18'	Rainfall=1.21" rinted 3/5/2021 Page 30
0.09 0.085 0.08	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: СВ 100 ^{ph} Inflow	Area=0.6	e III 24-hr WQv F 73 ac	Rainfall=1.21" rinted 3/5/2021 Page 30
0.09 0.085 0.085 0.075 0.075 0.065 0.065	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: CB 100 ph Inflow Pe	Area=0.6 ak Elev={	e III 24-hr WQv F 73 ac 50.18' 12.0"	Rainfall=1.21" rinted 3/5/2021 Page 30
0.09 0.09 0.085 0.08 0.075 0.065 0.065	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: CB 100 ph Inflow Pe	Area=0.6 ak Elev={ Round Cu	e III 24-hr WQv F 73 ac 50.18' 12.0'' Jlvert	Rainfall=1.21" rinted 3/5/2021 Page 30
0.09 0.09 0.085 0.08 0.075 0.065 0.065	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: CB 100 ph Inflow Pe	Area=0.6 ak Elev={ Round Cu	e III 24-hr WQv F 73 ac 50.18' 12.0'' Jlvert 0.013	Rainfall=1.21" rinted 3/5/2021 Page 30
0.09 0.085 0.085 0.075 0.065 0.065 0.065 0.065 0.055 0.065 0.055 0.055 0.055 0.045	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: CB 100 ph Inflow Pe	Area=0.6 ak Elev={ Round Cu	e III 24-hr WQv F 73 ac 50.18' 12.0'' Jlvert	Rainfall=1.21" rinted 3/5/2021 Page 30
0.09 0.085 0.085 0.075 0.065 0.065 0.065 0.055 0.055 0.055 0.055 0.045 0.045 0.035	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: CB 100 ph Inflow Pe	Area=0.6 ak Elev={ Round Cu n=	e III 24-hr WQv F 73 aC 50.18' 12.0" 12.0" 11vert 0.013 .=4.0'	Rainfall=1.21" rinted 3/5/2021 Page 30
0.09 0.085 0.085 0.075 0.065 0.065 0.065 0.065 0.055 0.055 0.055 0.055 0.045	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: CB 100 ph Inflow Pe	Area=0.6 ak Elev={ Round Cu	e III 24-hr WQv F 73 aC 50.18' 12.0" 12.0" 11vert 0.013 .=4.0'	Rainfall=1.21" rinted 3/5/2021 Page 30
0.09 0.085 0.085 0.085 0.075 0.065 0.065 0.055 0.055 0.055 0.055 0.055 0.045 0.045 0.035 0.035 0.035 0.035 0.035	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: CB 100 ph Inflow Pe	Area=0.6 ak Elev={ Round Cu n=	e III 24-hr WQv F 73 aC 50.18' 12.0" 12.0" 11vert 0.013 .=4.0'	Rainfall=1.21" rinted 3/5/2021 Page 30
repared by Ho ydroCAD® 10.00 0.085 0.085 0.075 0.065 0.065 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.045 0.035 0.035 0.035 0.035 0.035 0.025 0.025 0.021	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: CB 100 ph Inflow Pe	Area=0.6 ak Elev={ Round Cu n=	e III 24-hr WQv F 73 aC 50.18' 12.0" 12.0" 11vert 0.013 .=4.0'	Rainfall=1.21" rinted 3/5/2021 Page 30
0.09 0.085 0.085 0.085 0.075 0.065 0.065 0.065 0.065 0.065 0.055 0.055 0.055 0.045 0.045 0.035 0.035 0.035 0.035 0.035	orsley Witten Gro D-22 s/n 01445 © 2	2018 HydroCAD Sof	Pond	100: CB 100 ph Inflow Pe	Area=0.6 ak Elev={ Round Cu n=	e III 24-hr WQv F 73 aC 50.18' 12.0" 12.0" 11vert 0.013 .=4.0'	Rainfall=1.21" rinted 3/5/2021 Page 30

			S	ummary for I	Ponu 200. C	,В 200				
ow tflow mary	= 0.12 = 0.12 = 0.12	cfs @ 1 cfs @ 1 cfs @ 1	97% Impervious, Infl 2.07 hrs, Volume= 2.07 hrs, Volume= 2.07 hrs, Volume= 0.00 hrs, Volume=	0.009 af	, Atten= 0%,					
	by Stor-Ind me ev= 51.89' @ 12		Span= 0.00-72.00 hr	rs, dt= 0.01 hrs						
	Routing		Outlet Devices	ort 1 = 4.01	AD arrest	no her + "	Ko- 0 51	<u></u>		
#1	Secondary	52.70'	12.0" Round Culv Inlet / Outlet Invert= n= 0.013 Corrugate	= 52.70' / 52.68'	S= 0.0050 '/	Cc= 0.900		U		
#2	Primary	51.66'	8.0" Round Culve Inlet / Outlet Invert=	rt L= 50.0' CF	PP, projecting,	no headwall		00		
#3	Secondary	55.79'	n= 0.013 Corrugate 5.0' long x 5.0' bre	ed PE, smooth i	interior, Flow	Area= 0.35 s	f			
	· ,		Head (feet) 0.20 0 5.50	0.40 0.60 0.80	1.00 1.20 1.4	40 1.60 1.80				
			Coef. (English) 2.3 2.88	4 2.50 2.70 2.	.68 2.68 2.66	2.65 2.65	2.65 2.65	2.67 2.66	2.68 2.70	2.74 2.79
			@ 12.07 hrs HW=51.	.89' (Free Disc	harge)					
			2 cfs @ 1.67 fps) fs @ 0.00 hrs HW=5	1.66' (Eroc Di-	scharge)					
1=Cı	ulvert (Controls	s 0.00 cfs)	r Weir (Controls 0.00		sinarye)					
ום	Sua Siesieu K	canguid		,						
038-	-POST V3								orsley Witten -hr WQv Ra	
epare	ed by Horsley V		oup, Inc. 2018 HydroCAD Softwa	are Solutions LLC					-hr ŴQv Ra	
epare	ed by Horsley V				с 00: СВ 200				-hr ŴQv Ra	<i>infall=1.21"</i> ed 3/5/2021
epare	ed by Horsley V						;		-hr ŴQv Ra	<i>infall=1.21"</i> ed 3/5/2021
epare	ed by Horsley V	01445 © :	2018 HydroCAD Softwa	Pond 20			7		-hr ŴQv Ra Printe	hinfall=1.21" ed 3/5/2021 Page 32
epare	ed by Horsley V	01445 © :	2018 HydroCAD Softwa 12 cfs 2 cfs	Pond 20	00: CB 200)w Are		Гуре III 24		hinfall=1.21" ed 3/5/2021 Page 32 flow utflow imary
epare lroCA	ed by Horsley V	01445 ©)	2018 HydroCAD Softwa 12 cfs 2 cfs	Pond 20	00: CB 200	ow Are	a=0.1	Гуре III 24	-hr ŴQv Ra Printu	infali=1.21" ed 3/5/2021 Page 32
epare troCA	ed by Horsley N AD® 10.00-22 s/r	01445 © :	2018 HydroCAD Softwa 12 cfs 2 cfs	Pond 20	00: CB 200	ow Are Peak I	a=0.1	Гуре III 24	-hr ŴQv Ra Printu	hinfall=1.21" ed 3/5/2021 Page 32 flow utflow imary
epare IroCA 0 0	ed by Horsley N AD® 10.00-22 s/r 1.13 1.12 1.11	01445 © :	2018 HydroCAD Softwa 12 cfs 2 cfs	Pond 20	00: CB 200		a=0.1	Гуре III 24	-hr ŴQv Ra Printu	hinfall=1.21" ed 3/5/2021 Page 32 flow utflow imary
epare IroCA 0 0	ed by Horsley N AD® 10.00-22 s/r 1.13 1.12 1.11 0.1	01445 © :	2018 HydroCAD Softwa 12 cfs 2 cfs	Pond 20	00: CB 200		a=0.1	Гуре III 24	-hr ŴQv Ra Printu	hinfall=1.21" ed 3/5/2021 Page 32 flow utflow imary
epare iroCA 0 0 0	ed by Horsley N AD® 10.00-22 s/r 1.13 1.12 1.11	01445 © :	2018 HydroCAD Softwa 12 cfs 2 cfs	Pond 20	00: CB 200		a=0.1	Гуре III 24	-hr ŴQv Ra Printu	hinfall=1.21" ed 3/5/2021 Page 32 flow utflow imary
epare iroCA 0 0 0	ed by Horsley N <u>AD® 10.00-22 s/r</u> 1.13- 1.12- 1.11- 0.1- 0.1-	01445 © :	2018 HydroCAD Softwa 12 cfs 2 cfs	Pond 20	00: CB 200		a=0.1	Гуре III 24	-hr ŴQv Ra Printu	hinfall=1.21" ed 3/5/2021 Page 32 flow utflow imary
epare iroCA 0 0 0	ed by Horsley N AD® 10.00-22 s/r 113 112 111 0.12 109 108	01445 © :	2018 HydroCAD Softwa 12 cfs 2 cfs	Pond 20	00: CB 200		a=0.1	Гуре III 24	-hr ŴQv Ra Printu	hinfall=1.21" ed 3/5/2021 Page 32 flow utflow imary
Flow (cfs) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Horsley N 1000-22 s/r 113 112 111 0.1 0.09 0.08 0.07 0.06 0.05	01445 © :	2018 HydroCAD Softwa 12 cfs 2 cfs	Pond 20	00: CB 200		a=0.1	Гуре III 24	-hr ŴQv Ra Printu	hinfall=1.21" ed 3/5/2021 Page 32 flow utflow imary
How (cfs)	ed by Horsley M LD® 10.00-22 s/r 1.13 1.12 1.11 0.1 0.09 0.08 0.07 0.06 0.05	01445 © :	2018 HydroCAD Softwa 12 cfs 2 cfs	Pond 20	00: CB 200		a=0.1	Гуре III 24	-hr ŴQv Ra Printu	hinfall=1.21" ed 3/5/2021 Page 32 flow utflow imary
Liow (cts) 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Horsley M <u>AD® 10.00-22 s/r</u> 113 112 111 0.12 111 0.12 100 0.08 0.07 0.06 0.05 0.04 0.03	01445 © :	2018 HydroCAD Softwa 12 cfs 2 cfs	Pond 20	00: CB 200		a=0.1	Гуре III 24	-hr ŴQv Ra Printu	hinfall=1.21" ed 3/5/2021 Page 32 flow utflow imary
Liow (cts) Liow (cts) 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Horsley M LD® 10.00-22 s/r 1.13 1.12 1.11 0.1 0.09 0.08 0.07 0.06 0.05	01445 © :	2018 HydroCAD Softwa 12 cfs 2 cfs	Pond 20	00: CB 200		a=0.1	Гуре III 24	-hr ŴQv Ra Printu	hinfall=1.21" ed 3/5/2021 Page 32 flow utflow imary

Inflow A Inflow				Summary for Pond BIO1: BIO 1	
MOUL			3% Impervious, .07 hrs, Volume	, Inflow Depth = 0.37" for WQv event e= 0.037 af	
Outflow Primary	= 0.	08 cfs @ 12.	.55 hrs, Volume .55 hrs, Volume	e= 0.037 af, Atten= 85%, Lag= 28.6 min	
Routing	by Stor-Ind m	ethod, Time S	Span= 0.00-72.0	00 hrs, dt= 0.01 hrs	
				sf Storage= 522 cf	
			calculated for ((830.9 - 780.8	0.037 af (100% of inflow) 3)	
Volume #1	Invert 58.50'		age Storage D	Description Stage Data (Prismatic)Listed below (Recalc)	
# I Elevatio		₂,₂.rc	Inc.Store	Cum.Store	
(fee	et)	(sq-ft) (cubic-feet)	(cubic-feet)	
58.9 59.0		800 1,380	0 545	0 545	
60.0	00	1,950	1,665	2,210	
Device #1	Routing Primary		Outlet Devices	Culvert L= 45.0' CPP, projecting, no headwall, Ke= 0.900	
<i>"</i> ··	i iiiiaiy		Inlet / Outlet Inv	upperte 55.09' / 54.87' $S = 0.0049$ /' $Cc= 0.900$ upperte 95.09' / 54.87' $S = 0.0049$ /' $Cc= 0.900$	
#2	Device 1	59.25'	24.0" Horiz. Or	rifice/Grate C= 0.600 Limited to weir flow at low heads	
#3	Device 1		Inlet / Outlet Inv	ulvert L= 38.0' CPP, projecting, no headwall, Ke= 0.900 vert= 55.38' / 55.19' S= 0.0050 /' Cc= 0.900	
#4	Device 3			, smooth interior, Flow Area= 0.09 sf filtration over Surface area	
19038-	POST V3			Horsley Witten Grou Type III 24-hr WQv Rainfall	
Prepare	POST V3 ed by Horsley ND® 10.00-22 s			Type III 24-hr WQv Rainfall Printed 3/	=1. 5/2(
Prepare HydroCA Primary 1=Cu	ed by Horsley D® 10.00-22 s o OutFlow Ma ulvert (Passes -Orifice/Grate -Culvert (Pas	s/n 01445 © 20 ax=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. ses 0.08 cfs c	12.55 hrs HW 12.55 hrs HW	Type III 24-hr WQv Rainfall Printed 3/ Printed 3/ P =58.98' (Free Discharge) al flow) ntial flow) cfs)	=1. 5/2
Prepare HydroCA Primary 1=Cu	ed by Horsley D® 10.00-22 s o OutFlow Ma ulvert (Passes -Orifice/Grate -Culvert (Pas	s/n 01445 © 20 ax=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. ses 0.08 cfs c	12.55 hrs HW 12.55 hrs HW .50 cfs potentia 00 cfs) of 0.59 cfs poter	Type III 24-hr WQv Rainfall Printed 3/ 2=58.98' (Free Discharge) al flow) ntial flow) cfs) Pond BIO1: BIO 1	=1. 5/2(
Prepare HydroCA Primary 1=Cu	ed by Horsley D® 10.00-22 s o OutFlow Ma ulvert (Passes -Orifice/Grate -Culvert (Pas	s/n 01445 © 20 ax=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. ses 0.08 cfs c	12.55 hrs HW 12.55 hrs HW .50 cfs potentia 00 cfs) of 0.59 cfs poter	Type III 24-hr WQv Rainfall Printed 3/ Printed 3/ Printed 3/ P r=58.98' (Free Discharge) al flow) ntial flow) cfs) Pond BIO1: BIO 1 Hydrograph	=1. 5/2(
Prepare HydroCA Primary 1=Cu	ed by Horsley D® 10.00-22 s Y OutFlow Ma Jivert (Passes =Orifice/Grate Collvert (Pas =4=Exfiltratio	x/n 01445 © 20 x=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. sees 0.08 cfs c n (Exfiltration	12.55 hrs HW 12.55 hrs HW .50 cfs potentia 00 cfs) of 0.59 cfs poter	Type III 24-hr WQv Rainfall Printed 3/ 2=58.98' (Free Discharge) al flow) ntial flow) cfs) Pond BIO1: BIO 1 Hydrograph	=1. 5/2(
Prepare HydroCA Primary 1=Cu	ed by Horsley D® 10.00-22 s v OutFlow Ma ulvert (Passee Orifice/Grate Colvert (Pas -4=Exfiltratio	x/n 01445 © 20 x=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. sees 0.08 cfs c n (Exfiltration	918 HydroCAD So 12.55 hrs HW .50 cfs potentia 00 cfs) of 0.59 cfs poter controls 0.08 c	Type III 24-hr WQv Rainfall Printed 3/ Printed 3/ P =58.98' (Free Discharge) al flow) ntial flow) cfs) Pond BIO1: BIO 1 Hydrograph Inflow Area=1.227 ac	=1.2
Prepare HydroCA Primary 1=Cu	ed by Horsley D® 10.00-22 s v OutFlow Ma Jivert (Passes =Orifice/Grate =Culvert (Pas =4=Exfiltratio	x/n 01445 © 20 x=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. sees 0.08 cfs c n (Exfiltration	918 HydroCAD So 12.55 hrs HW .50 cfs potentia 00 cfs) of 0.59 cfs poter controls 0.08 c	Type III 24-hr WQv Rainfall Printed 3/ 2=58.98' (Free Discharge) al flow) ntial flow) cfs) Pond BIO1: BIO 1 Hydrograph	=1.2 5/20
Prepare HydroCA Primary 1=Cu	ed by Horsley D® 10.00-22 s v OutFlow Ma Jivert (Passe =Orifice/Grate =Culvert (Pas =4=Exfiltratio	x/n 01445 © 20 x=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. sees 0.08 cfs c n (Exfiltration	918 HydroCAD So 12.55 hrs HW .50 cfs potentia 00 cfs) of 0.59 cfs poter controls 0.08 c	Type III 24-hr WQv Rainfall Printed 3/ poftware Solutions LLC P *=58.98' (Free Discharge) al flow) rtial flow) cfs) Pond BIO1: BIO 1 Hydrograph Inflow Area=1.227 ac Peak Elev=58.98'	=1.2 5/20
Prepare HydroCA Primary 1=Cu	ed by Horsley D® 10.00-22 s v OutFlow Ma Jivert (Passes = Orifice/Grate = Culvert (Passes = 4 = Exfiltratio 0.55 0.5 0.4 0.4	x/n 01445 © 20 x=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. sees 0.08 cfs c n (Exfiltration	918 HydroCAD So 12.55 hrs HW .50 cfs potentia 00 cfs) of 0.59 cfs poter controls 0.08 c	Type III 24-hr WQv Rainfall Printed 3/ Printed 3/ P =58.98' (Free Discharge) al flow) ntial flow) cfs) Pond BIO1: BIO 1 Hydrograph Inflow Area=1.227 ac	=1.2 5/20
Prepare HydroCA Primary 1=Cu	ed by Horsley D® 10.00-22 s v OutFlow Ma Jivert (Passee Orifice/Grate Colivert (Pas -4=Exfiltratio	x/n 01445 © 20 x=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. sees 0.08 cfs c n (Exfiltration	918 HydroCAD So 12.55 hrs HW .50 cfs potentia 00 cfs) of 0.59 cfs poter controls 0.08 c	Type III 24-hr WQv Rainfall Printed 3/ poftware Solutions LLC P *=58.98' (Free Discharge) al flow) rtial flow) cfs) Pond BIO1: BIO 1 Hydrograph Inflow Area=1.227 ac Peak Elev=58.98'	=1.2 5/20
Prepare HydroCA Primary 1=Cu	d by Horsley D® 10.00-22 s v OutFlow Ma Jivert (Passee Orifice/Grate Colivert (Pas -4=Exfiltratio	x/n 01445 © 20 x=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. sees 0.08 cfs c n (Exfiltration	918 HydroCAD So 12.55 hrs HW .50 cfs potentia 00 cfs) of 0.59 cfs poter controls 0.08 c	Type III 24-hr WQv Rainfall Printed 3/ poftware Solutions LLC P *=58.98' (Free Discharge) al flow) rtial flow) cfs) Pond BIO1: BIO 1 Hydrograph Inflow Area=1.227 ac Peak Elev=58.98'	=1.2 5/20
Prepare HydroCA Primary 1=Cu	ed by Horsley D® 10.00-22 s y OutFlow Ma Jivert (Passee =Orifice/Grate =Culvert (Pas =Culvert (Pas =Culv	x/n 01445 © 20 x=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. sees 0.08 cfs c n (Exfiltration	918 HydroCAD So 12.55 hrs HW .50 cfs potentia 00 cfs) of 0.59 cfs poter controls 0.08 c	Type III 24-hr WQv Rainfall Printed 3/ poftware Solutions LLC P *=58.98' (Free Discharge) al flow) rtial flow) cfs) Pond BIO1: BIO 1 Hydrograph Inflow Area=1.227 ac Peak Elev=58.98'	=1.2 5/20
Prepare HydroCA Primary 1=Cu 1=2	ed by Horsley D® 10.00-22 s y OutFlow Ma Jivert (Passe Orifice/Grate Colivert (Pas -4=Exfiltratio 0.55 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.25 0.25 0.2	x/n 01445 © 20 x=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. sees 0.08 cfs c n (Exfiltration	918 HydroCAD So 12.55 hrs HW .50 cfs potentia 00 cfs) of 0.59 cfs poter controls 0.08 c	Type III 24-hr WQv Rainfall Printed 3/ poftware Solutions LLC P *=58.98' (Free Discharge) al flow) rtial flow) cfs) Pond BIO1: BIO 1 Hydrograph Inflow Area=1.227 ac Peak Elev=58.98'	=1.2 5/20
Prepare HydroCA Primary 1=Cu 1=2	ed by Horsley D® 10.00-22 s y OutFlow Ma Jivert (Passee =Orifice/Grate =Culvert (Pas =Culvert (Pas =Culv	x/n 01445 © 20 x=0.08 cfs @ s 0.08 cfs of 5 e (Controls 0. sees 0.08 cfs c n (Exfiltration	918 HydroCAD So 12.55 hrs HW .50 cfs potentia 00 cfs) of 0.59 cfs poter controls 0.08 c	Type III 24-hr WQv Rainfall Printed 3/ poftware Solutions LLC P *=58.98' (Free Discharge) al flow) rtial flow) cfs) Pond BIO1: BIO 1 Hydrograph Inflow Area=1.227 ac Peak Elev=58.98'	=1. 5/2



0.08 cfs

0.1·

=

Inflow Area = Inflow

Summary for Pond BIO2: BIO 2	
0.436 ac, 43.62% Impervious, Inflow Depth = 0.43" for WQv event	
0.22 cfs @ 12.07 hrs, Volume= 0.016 af	
0.21 cfs @ 12.09 hrs, Volume= 0.016 af, Atten= 5%, Lag= 1.4 min	

Outflow = Λ 0.21 cfs @ 12.09 hrs, Volume= 0.016 af Primary =

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 62.54' @ 12.09 hrs Surf.Area= 543 sf Storage= 22 cf

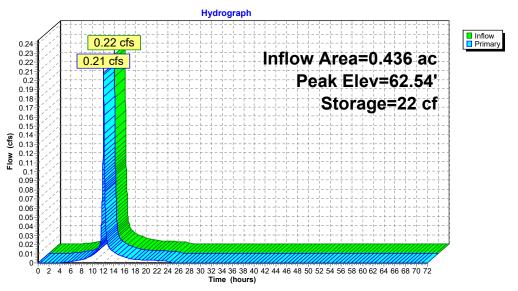
Plug-Flow detention time= 1.9 min calculated for 0.016 af (100% of inflow) Center-of-Mass det. time= 1.9 min (782.7 - 780.8)

Volume	Inve	rt Avail.Sto	rage Storage	Description	
#1	62.50)' 1,4	14 cf Custom	n Stage Data (Pri	smatic)Listed below (Recalc)
Elevatio (fee 62.5 63.0 64.0	50 00	Surf.Area (sq-ft) 522 775 1,405	Inc.Store (cubic-feet) 0 324 1,090	Cum.Store (cubic-feet) 0 324 1,414	
Device	Routing	Invert	Outlet Device	S	
#1	Primary	59.00'	12.0" Round	Culvert L= 25.0	CPP, end-section conforming to fill, Ke= 0.500
					.88' S= 0.0048 '/' Cc= 0.900 oth interior, Flow Area= 0.79 sf
#2	Device 1	62.50'	24.0" Horiz.	Orifice/Grate C=	= 0.600 Limited to weir flow at low heads
#3	Device 1	59.30'			CPP, projecting, no headwall, Ke= 0.900
#4	Device 3	62.50'	n= 0.010 PV		.18' S= 0.0048 // Cc= 0.900 , Flow Area= 0.20 sf
#4	Device 3	02.50	2.4/0 III/III E	Annuauon over 3	טוומני מודמ



Horsley Witten Group, Inc. Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 36

Primary OutFlow Max=0.21 cfs @ 12.09 hrs HW=62.54' (Free Discharge) 1=Culvert (Passes 0.21 cfs of 6.60 cfs potential flow) 2=Orifice/Grate (Weir Controls 0.17 cfs @ 0.67 fps) -3=Culvert (Passes 0.03 cfs of 1.29 cfs potential flow) -4=Exfiltration (Exfiltration Controls 0.03 cfs)



Pond BIO2: BIO 2

	Vitten Group, Inc. 01445 © 2018 HydroCAD Software Solutions LLC	Printed 3/5/2021 Page 37
	Summary for Por	nd DMH: DMH 200
Inflow = 0.2 Outflow = 0.2 Primary = 0.2	1 ac, 70.50% Impervious, Inflow Depth = 0.70 cfs @ 12.07 hrs, Volume= 0.019 af cfs @ 12.07 hrs, Volume= 0.019 af, J cfs @ 12.07 hrs, Volume= 0.019 af cfs @ 0.00 hrs, Volume= 0.019 af cfs @ 0.00 hrs, Volume= 0.000 af)" for WQv event Atten= 0%, Lag= 0.0 min
Routing by Stor-Ind me Peak Elev= 54.25' @ 1	nod, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs .07 hrs	
Device Routing	Invert Outlet Devices	
#1 Secondary #2 Primary	54.30' 12.0" Round Culvert L= 9.0' CMF Inlet / Outlet Invert= 54.30' /54.26' : n= 0.013 Corrugated PE, smooth int 53.78' 12.0" Round Culvert L= 98.0' CM Inlet / Outlet Invert= 53.78' 53.78' inlet / Outlet Invert= 53.78' 53.78'	S= 0.0044 '/' Cc= 0.900 erior, Flow Area= 0.79 sf IP, projecting, no headwall, Ke= 0.900 S= 0.0000 '/' Cc= 0.900
Primary OutFlow Max	0.27 cfs @ 12.07 hrs HW=54.25' (Free Discha Introls 0.27 cfs @ 1.10 fps)	irge)
19038-POST V3 Prepared by Horsley	Vitten Group, Inc. 01445 © 2018 HydroCAD Software Solutions I.I.C.	Horsley Witten Group, Inc. <i>Type III 24-hr WQv Rainfall=1.21"</i> Printed 3/5/2021 Bace 38
Prepared by Horsley	01445 © 2018 HydroCAD Software Solutions LLC	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 38
Prepared by Horsley	Vitten Group, Inc. 01445 © 2018 HydroCAD Software Solutions LLC Pond DMH Hydrograph	Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 38

IJUIUCAD@ 10.00-22 3	/ Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC	Printer	Page 39
	Summary for Pond RB1	RB 101,102	
flow = 0. utflow = 0. iscarded = 0.	.673 ac, 10.84% Impervious, Inflow Depth = 0.11" for 08 cfs @ 12.07 hrs, Volume = 0.006 af 06 cfs @ 12.03 hrs, Volume = 0.006 af, 06 cfs @ 12.03 hrs, Volume = 0.006 af 06 cfs @ 12.03 hrs, Volume = 0.006 af 00 cfs @ 0.00 hrs, Volume = 0.000 af	WQv event 8%, Lag= 0.0 min	
	ethod, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 12.14 hrs Surf.Area= 157 sf Storage= 11 cf		
	me= 1.5 min calculated for 0.006 af (100% of inflow) me= 1.5 min (782.3 - 780.8)		
/olume Invert	Avail.Storage Storage Description		
#1 41.00'	339 cf 6.00'D x 6.00'H Recharger x 2 Inside	#2	
#2 39.00'	355 cf 10.00'D x 9.00'H Stone x 2 1,414 cf Overall - 339 cf Embedded = 1	1,074 cf x 33.0% Voids	
	694 cf Total Available Storage		
Device Routing #1 Discarded #2 Primary	5.50		
Prepared by Horsley	[,] Witten Group, Inc.	Horsley Witten 0 <i>Type III 24-hr W</i> Qv <i>Raii</i> Printer	nfall=1.21" d 3/5/2021
Prepared by Horsley	s/n 01445 © 2018 HydroCAD Software Solutions LLC	Type III 24-hr ŴQv Raii Printer	nfall=1.21"
Prepared by Horsley	/ Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 10 Hydrograph	Type III 24-hr ŴQv Raii Printer	nfall=1.21" d 3/5/2021
19038-POST V3 Prepared by Horsley HydroCAD® 10.00-22 s	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 10 Hydrograph 0.08 cfs	Type III 24-hr ŴQv Rain Printer 1,102	nfali=1.21" d 3/5/2021 Page 40
Prepared by Horsley HydroCAD® 10.00-22	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 10 Hydrograph 0.08 cfs	Type III 24-hr WQv Rain Printer 1,102 nflow Area=0.673 ac	nfali=1.21" d 3/5/2021 Page 40 Page 40
Prepared by Horsley HydroCAD® 10.00-22 s	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 10 Hydrograph 0.08 cfs	Type III 24-hr WQv Rain Printer	nfali=1.21" d 3/5/2021 Page 40 Page 40
Prepared by Horsley HydroCAD® 10.00-22 s	S/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 10 Hydrograph	Type III 24-hr WQv Rain Printer 1,102 nflow Area=0.673 ac	nfali=1.21" d 3/5/2021 Page 40 Page 40
Prepared by Horsley HydroCAD® 10.00-22 s 0.09 0.085 0.08 0.075 0.07	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 10 Hydrograph 0.08 cfs	Type III 24-hr WQv Rain Printed 1,102 nflow Area=0.673 ac Peak Elev=39.22	nfali=1.21" d 3/5/2021 Page 40 Page 40
Prepared by Horsley HydroCAD® 10.00-22 s 0.09 0.085 0.08 0.075 0.07 0.065 0.06	S/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 10 Hydrograph	Type III 24-hr WQv Rain Printed 1,102 nflow Area=0.673 ac Peak Elev=39.22	nfali=1.21" d 3/5/2021 Page 40 Page 40
Prepared by Horsley HydroCAD® 10.00-22 s 0.09 0.085 0.08 0.075 0.065 0.065 0.065	S/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 10 Hydrograph	Type III 24-hr WQv Rain Printed 1,102 nflow Area=0.673 ac Peak Elev=39.22	nfali=1.21" d 3/5/2021 Page 40 Page 40
Prepared by Horsley HydroCAD® 10.00-22 s 0.09 0.085 0.085 0.075 0.075 0.075 0.065 0.065 0.065 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055	S/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 10 Hydrograph	Type III 24-hr WQv Rain Printed 1,102 nflow Area=0.673 ac Peak Elev=39.22	nfali=1.21" d 3/5/2021 Page 40 Page 40
Prepared by Horsley HydroCAD® 10.00-22 s 0.09 0.085 0.085 0.075 0.075 0.075 0.075 0.065 0.065 0.065 0.065 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055	S/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 10 Hydrograph	Type III 24-hr WQv Rain Printed 1,102 flow Area=0.673 ac Peak Elev=39.22	nfali=1.21" d 3/5/2021 Page 40 Page 40
Prepared by Horsley HydroCAD® 10.00-22 s 0.09 0.085 0.085 0.075 0.075 0.075 0.065 0.065 0.065 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055	S/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 10 Hydrograph	Type III 24-hr WQv Rain Printed 1,102 flow Area=0.673 ac Peak Elev=39.22	nfali=1.21" d 3/5/2021 Page 40 Page 40
Prepared by Horsley HydroCAD® 10.00-22 s 0.09 0.085 0.085 0.075 0.075 0.075 0.075 0.065 0.065 0.065 0.065 0.065 0.055 0.055 0.055 0.045 0.055 0.055 0.045 0.045 0.045 0.045 0.055 0.055 0.045 0.045 0.045 0.055 0.055 0.055 0.045 0.045 0.045 0.045 0.055 0.055 0.045 0.045 0.045 0.045 0.055 0.055 0.045 0.045 0.045 0.045 0.055 0.045 0.045 0.045 0.045 0.055 0.045 0.045 0.045 0.045 0.045 0.055 0.055 0.045 0.045 0.045 0.045 0.055 0.045 0.045 0.045 0.045 0.045 0.055 0.045	S/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 10 Hydrograph	Type III 24-hr WQv Rain Printed 1,102 flow Area=0.673 ac Peak Elev=39.22	nfali=1.21" d 3/5/2021 Page 40 Page 40

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)

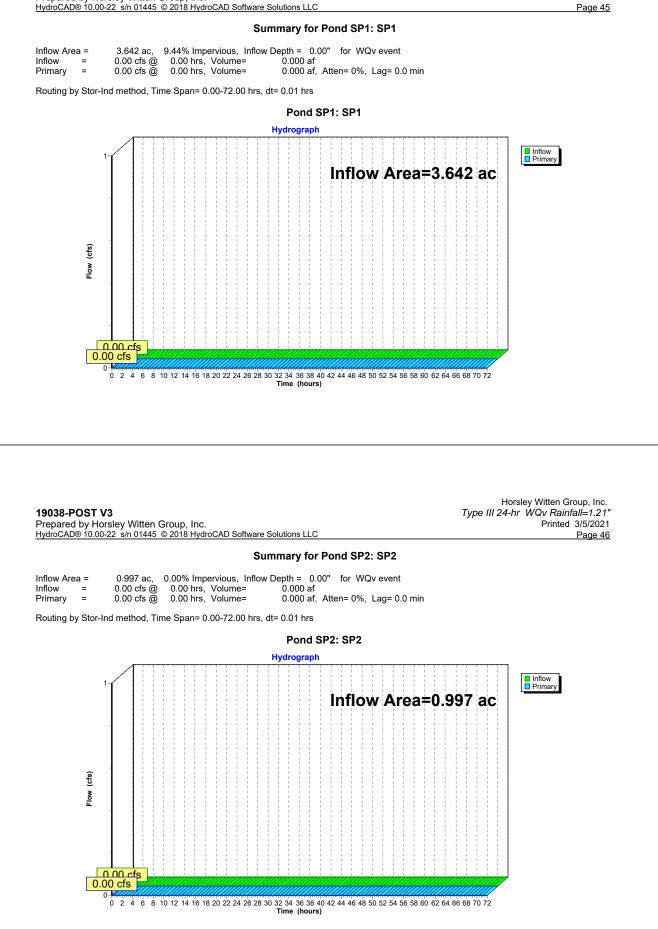
I 9038-POST V3 Prepared by Horsley Witten Group, Inc HydroCAD® 10.00-22 s/n 01445 © 2018 Hyd	· · · · · · · · · · · · · · · · · · ·	<i>I 24-hr WQv Rainfall=1.21"</i> Printed 3/5/2021 Page 41
	Summary for Pond RB2: RB 202,202,203	
nflow = 0.00 cfs @ 0.00 hrs, Dutflow = 0.00 cfs @ 0.00 hrs, Discarded = 0.00 cfs @ 0.00 hrs,	pervious, Inflow Depth = 0.00" for WQv event , Volume= 0.000 af , Volume= 0.000 af, Atten= 0%, Lag= 0.0 min , Volume= 0.000 af , Volume= 0.000 af	
Routing by Stor-Ind method, Time Span= (Peak Elev= 44.50' @ 0.00 hrs Surf.Area=		
Plug-Flow detention time= (not calculated: Center-of-Mass det. time= (not calculated:	initial storage exceeds outflow)	
,	Storage Description	
#2 44.50' 532 cf 1 2	00'D x 6.00'H Recharger x 3 Inside #2 0.00'D x 9.00'H Stone x 3 ,121 cf Overall - 509 cf Embedded = 1,612 cf x 33.0% Voids otal Available Storage	
Device Routing Invert Outlet #1 Discarded 44.50' 8.270 i	Devices in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01'	
#2 Primary 55.61' 5.0' lo i Head (5.50	mining x 5.0' breadth Broad-Crested Rectangular Weir X 2.00 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 (English) 2.34 2.50 2.70 2.68 2.66 2.65 2.65 2.65 2.65 2.67	
Discarded OutFlow Max=0.00 cfs @ 0.00 — 1=Exfiltration (Controls 0.00 cfs)	0 hrs HW=44.50' (Free Discharge)	
-2=Broad-Crested Rectangular Weir (9038-POST V3 Prepared by Horsley Witten Group, Inc		Horsley Witten Group, Inc. <i>I 24-hr WQv Rainfall=1.21"</i> Printed 3/5/2021
-2=Broad-Crested Rectangular Weir (19038-POST V3 Prepared by Horsley Witten Group, Inc	IroCAD Software Solutions LLC	I 24-hr WQv Rainfall=1.21"
Primary OutFlow Max=0.00 cfs @ 0.00 h -2=Broad-Crested Rectangular Weir (19038-POST V3 Prepared by Horsley Witten Group, Inc HydroCAD® 10.00-22 s/n 01445 © 2018 Hyd		I 24-hr WQv Rainfall=1.21" Printed 3/5/2021
2=Broad-Crested Rectangular Weir (19038-POST V3 Prepared by Horsley Witten Group, Inc	roCAD Software Solutions LLC Pond RB2: RB 202,202,203	AC AC AC AC AC AC AC AC AC AC
2=Broad-Crested Rectangular Weir (19038-POST V3 Prepared by Horsley Witten Group, Inc	roCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph Inflow Area=0.112 Peak Elev=44.	AC AC AC AC AC AC AC AC AC AC
Perpared by Horsley Witten Group, Inc HydroCAD® 10.00-22 s/n 01445 © 2018 Hyd	roCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph Inflow Area=0.112 Peak Elev=44.	AC AC AC AC AC AC AC AC AC AC
Pepared by Horsley Witten Group, Inc tydroCAD® 10.00-22 s/n 01445 © 2018 Hyd	roCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph Inflow Area=0.112 Peak Elev=44.	AC AC AC AC AC AC AC AC AC AC

	Summary for Pond RB3: RB 300	
nflow Area = 0.997 ad	c, 0.00% Impervious, Inflow Depth = 0.00" for WQv event	
nflow = 0.00 cfs	@ 0.00 hrs, Volume= 0.000 af	
utflow = 0.00 cfs iscarded = 0.00 cfs		
= 0.00 cfs $=$ 0.00 cfs		
	Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 rs Surf.Area= 57 sf Storage= 0 cf	
C C	not calculated: initial storage exceeds outflow)	
enter-of-Mass det. time= (r		
	ail.Storage Description	
#1 59.50' #2 58.50'	50 cf 4.00'D x 4.00'H Recharger Inside #2 95 cf 6.00'D x 6.00'H Stone x 2	
	339 cf Overall - 50 cf Embedded = 289 cf x 33.0% Voids	
	146 cf Total Available Storage	
	nvert Outlet Devices	
	 8.50' 8.270 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' 5.0' 5.0' long x 5.0' breadth Broad-Crested Rectangular Weir 	
"_ minary 0	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 4.00 4.50 5.00	
	5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.7	'9
	2.88	
scarded OutFlow Max=0	.00 cfs @ 0.00 hrs HW=58.50' (Free Discharge)	
-1=Exfiltration (Controls		
imany OutFlow Max=0.00	0 cfs @ 0.00 hrs HW=58.50' (Free Discharge)	
	ngular Weir (Controls 0.00 cfs)	
	Horsley Witten Group, J	
0038-POST V3 repared by Horsley Witte		
		.2 <i>1"</i> 021
droCAD® 10.00-22 s/n 0144	45 © 2018 HydroCAD Software Solutions LLC Page	.2 <i>1"</i> 021
arocad® 10.00-22 s/n 014-	Pond RB3: RB 300	.2 <i>1"</i> 021
/drocAD® 10.00-22 s/n 014-		.2 <i>1"</i> 021
/groCAD® 10.00-22 s/n 014-	Pond RB3: RB 300 Hydrograph	.2 <i>1"</i> 021
/droCAU® 10.00-22 s/n 014-	Pond RB3: RB 300 Hydrograph	.2 <i>1"</i> 021
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac	.2 <i>1"</i> 021
	Pond RB3: RB 300 Hydrograph	.2 <i>1"</i> 021
	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac	.2 <i>1"</i> 021
	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
Flow (cfs)	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
Low (cts)	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
(st) MOL NOOLCTS 0.00.cfs 0.00.cfs 0.00.cfs	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
1 1 1 1 1 1 1 1 1 1 1 1 1 1	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50'	.2 <i>1"</i> 021
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Pond RB3: RB 300 Hydrograph Inflow Area=0.997 ac Peak Elev=58.50' Storage=0 cf	.2 <i>1"</i> 021

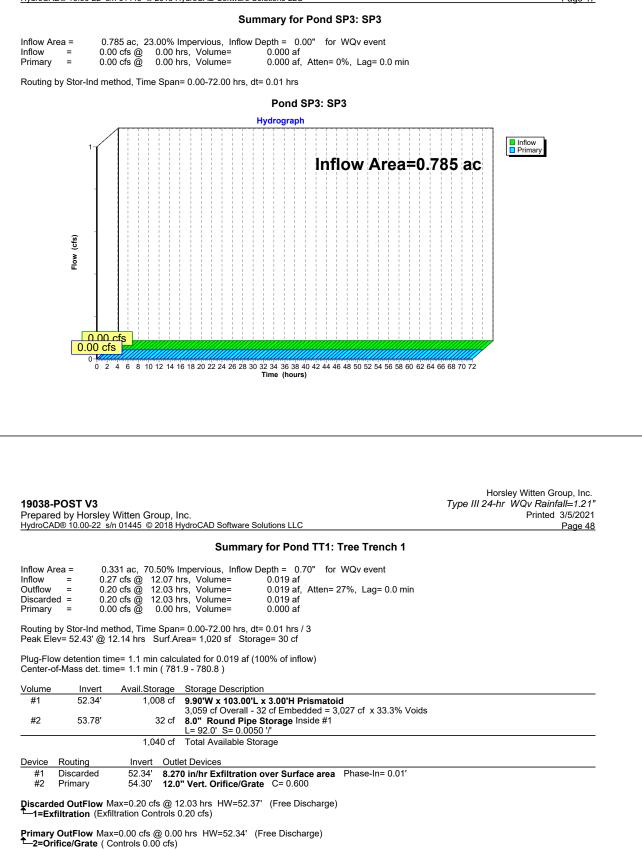


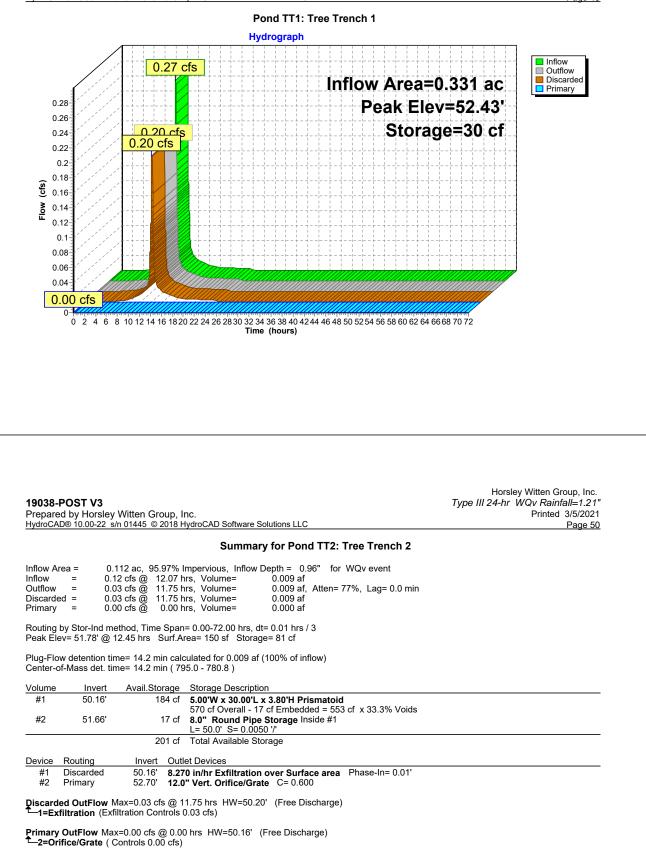
Prepared by Horsley Witten Group, Inc.

Horsley Witten Group, Inc. Type III 24-hr WQv Rainfall=1.21" Printed 3/5/2021 Page 45

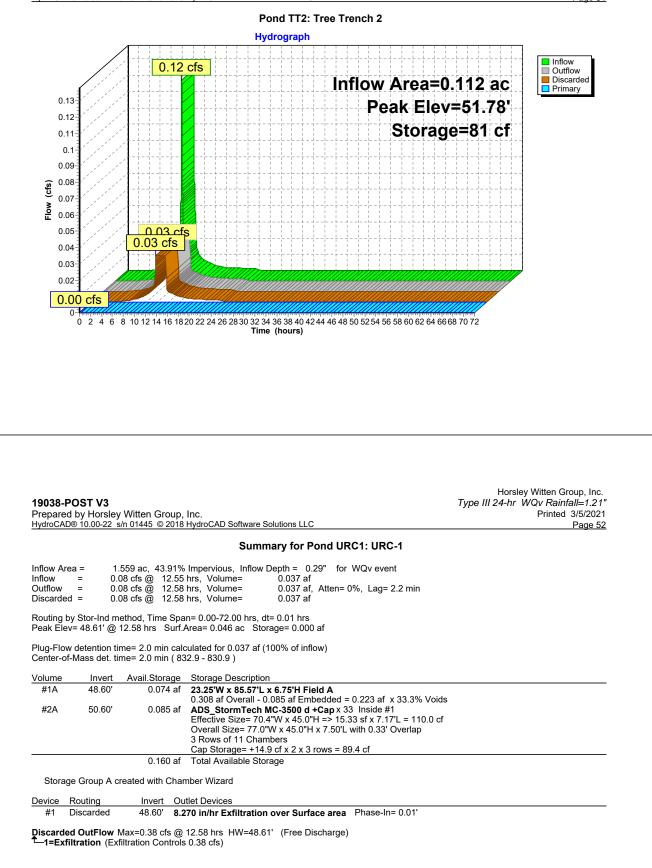


Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

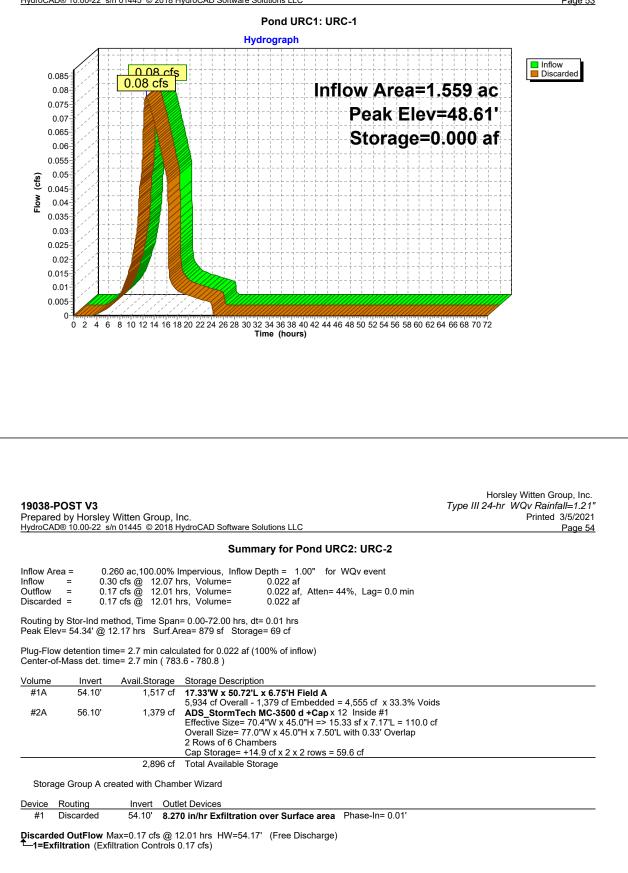




19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC



19038-POST V3 Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u>



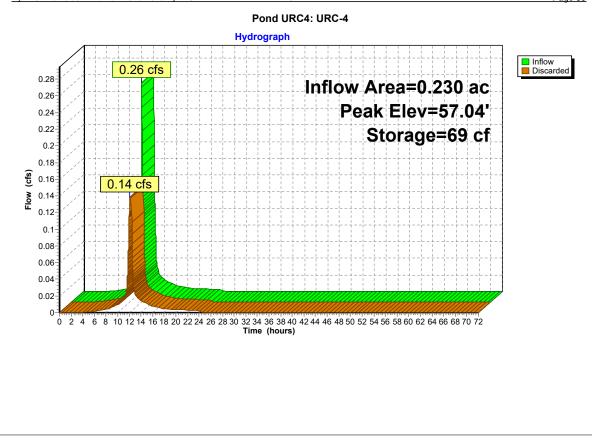
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

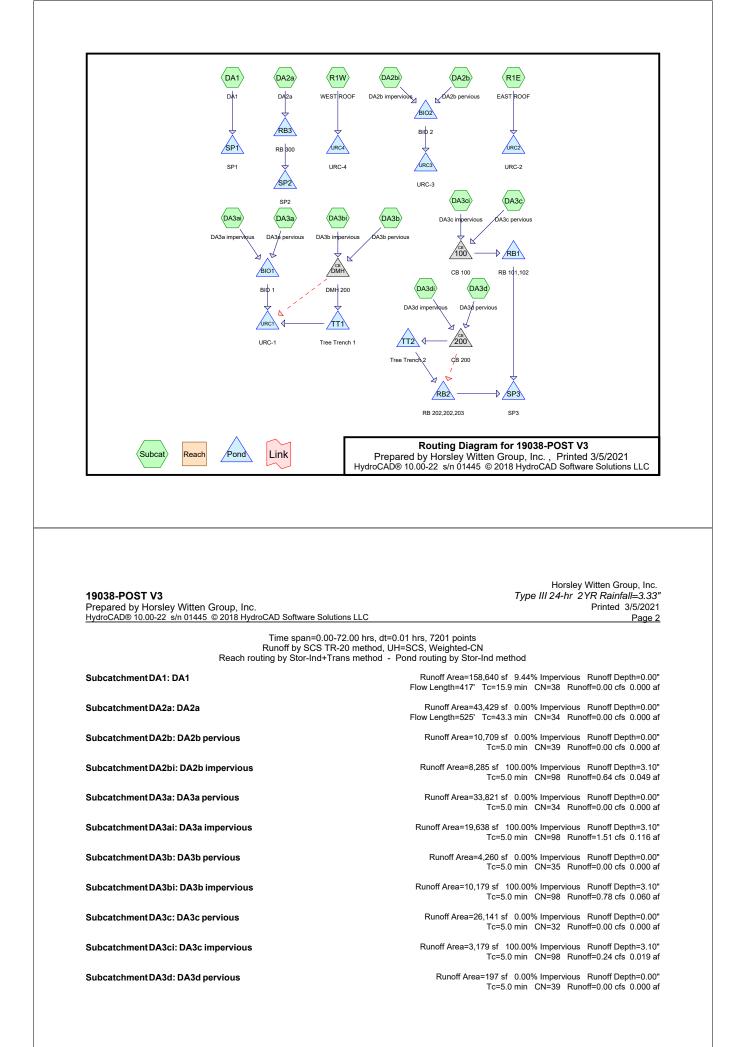
		Pond URC2: URC-2	
л		Hydrograph	
	0.30 cfs		
0.32		Inflow Area=0.2	
0.3- 0.28-		Peak Elev=5	
0.26			
0.24 0.22		Storage=	09 CI
0.2			
(c) 0.18			
0.10 U.14			
0.12			
0.1-			
0.06			
0.04			
0.02			
	6 8 10 12 14 16 18	20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66	6 68 70 72
		Time (hours)	
			Horsley Witten Group, Inc.
Prepared by Hors	ley Witten Group, I	nc.	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Hors	ley Witten Group, I	nc. HydroCAD Software Solutions LLC	/pe III 24-hr WQv Rainfall=1.21"
Prepared by Hors	ley Witten Group, I	nc.	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Hors HydroCAD® 10.00-2 Inflow Area =	ley Witten Group, lı <u>2 s/n 01445 © 2018 H</u> 0.436 ac, 43.62% I	nc. HydroCAD Software Solutions LLC Summary for Pond URC3: URC-3 Impervious, Inflow Depth = 0.43" for WQv event	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Hors HydroCAD® 10.00-2 Inflow Area = Inflow = Dutflow =	ley Witten Group, lı 2 s/n 01445 © 2018 F 0.436 ac, 43.62% l 0.21 cfs @ 12.09 h 0.12 cfs @ 12.04 h	nc. HydroCAD Software Solutions LLC Summary for Pond URC3: URC-3 Impervious, Inflow Depth = 0.43" for WQv event rrs, Volume= 0.016 af rrs, Volume= 0.016 af, Atten= 40%, Lag= 0.0 min	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Hors HydroCAD® 10.00-2 Inflow Area = Inflow = Outflow = Discarded =	ley Witten Group, li 2 s/n 01445 © 2018 H 0.436 ac, 43.62% I 0.21 cfs @ 12.09 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h	nc. HydroCAD Software Solutions LLC Summary for Pond URC3: URC-3 Impervious, Inflow Depth = 0.43" for WQv event hrs, Volume= 0.016 af hrs, Volume= 0.016 af, Atten= 40%, Lag= 0.0 min hrs, Volume= 0.016 af	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Hors HydroCAD® 10.00-2 Inflow Area = Inflow = Outflow = Discarded = Routing by Stor-Inc	ley Witten Group, li 2 s/n 01445 © 2018 H 0.436 ac, 43.62% I 0.21 cfs @ 12.09 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h	nc. HydroCAD Software Solutions LLC Summary for Pond URC3: URC-3 Impervious, Inflow Depth = 0.43" for WQv event rrs, Volume= 0.016 af rrs, Volume= 0.016 af, Atten= 40%, Lag= 0.0 min	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Hors HydroCAD® 10.00-2 nflow = Dutflow = Discarded = Routing by Stor-Inc Peak Elev= 55.74' Plug-Flow detention	ley Witten Group, li 2 s/n 01445 © 2018 H 0.436 ac, 43.62% l 0.21 cfs @ 12.09 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h 1.12 cfs @ 12.04 h method, Time Span @ 12.21 hrs Surf.Au	nc. HydroCAD Software Solutions LLC Summary for Pond URC3: URC-3 Impervious, Inflow Depth = 0.43" for WQv event hrs, Volume= 0.016 af hrs, Volume= 0.016 af, Atten= 40%, Lag= 0.0 min hrs, Volume= 0.016 af a= 0.00-72.00 hrs, dt= 0.01 hrs rea= 765 sf Storage= 50 cf ulated for 0.016 af (100% of inflow)	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Hors HydroCAD® 10.00-2 Inflow Area = Dufflow = Discarded = Routing by Stor-Inc Peak Elev= 55.74' Plug-Flow detention Center-of-Mass del Volume Inve	ley Witten Group, li 2 s/n 01445 © 2018 H 0.21 cfs @ 12.09 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h method, Time Span @ 12.21 hrs Surf.An n time= 3.0 min calcu. time= 3.0 min (785 t Avail.Storage	nc. <u>HydroCAD Software Solutions LLC</u> Summary for Pond URC3: URC-3 Impervious, Inflow Depth = 0.43" for WQv event nrs, Volume= 0.016 af nrs, Volume= 0.016 af, Atten= 40%, Lag= 0.0 min nrs, Volume= 0.016 af a= 0.00-72.00 hrs, dt= 0.01 hrs rea= 765 sf Storage= 50 cf ulated for 0.016 af (100% of inflow) 5.8 - 782.7) Storage Description	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Hors HydroCAD® 10.00-2 Inflow = Outflow = Discarded = Routing by Stor-Inc Peak Elev= 55.74' Plug-Flow detention Center-of-Mass del Volume Inve #1A 55.55	ley Witten Group, li 2 s/n 01445 © 2018 H 0.436 ac, 43.62% I 0.21 cfs @ 12.09 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h 1.12 cfs @ 12.04 h 1.	nc. HydroCAD Software Solutions LLC Summary for Pond URC3: URC-3 Impervious, Inflow Depth = 0.43" for WQv event hrs, Volume= 0.016 af, Atten= 40%, Lag= 0.0 min hrs, Volume= 0.016 af, Atten= 40%, Lag= 0.0 min hrs, Volume= 0.016 af h= 0.00-72.00 hrs, dt= 0.01 hrs rea= 765 sf Storage= 50 cf ulated for 0.016 af (100% of inflow) 5.8 - 782.7) Storage Description 22.25'W x 34.38'L x 6.75'H Field A 5,163 cf Overall - 1,409 cf Embedded = 3,755 cf x 33.3% Voids	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Hors HydroCAD® 10.00-2 Inflow Area = Dufflow = Discarded = Routing by Stor-Inc Peak Elev= 55.74' Plug-Flow detention Center-of-Mass del Volume Inve	ley Witten Group, li 2 s/n 01445 © 2018 H 0.436 ac, 43.62% I 0.21 cfs @ 12.09 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h 1.12 cfs @ 12.04 h 1.	nc. HydroCAD Software Solutions LLC Summary for Pond URC3: URC-3 Impervious, Inflow Depth = 0.43" for WQv event nrs, Volume= 0.016 af nrs, Volume= 0.016 af, Atten= 40%, Lag= 0.0 min nrs, Volume= 0.016 af = 0.00-72.00 hrs, dt= 0.01 hrs rea= 765 sf Storage= 50 cf ulated for 0.016 af (100% of inflow) 5.8 - 782.7) Storage Description 22.25'W x 34.38'L x 6.75'H Field A	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Hors HydroCAD® 10.00-2 Inflow = Outflow = Discarded = Routing by Stor-Inc Peak Elev= 55.74' Plug-Flow detention Center-of-Mass del Volume Inve #1A 55.55	ley Witten Group, li 2 s/n 01445 © 2018 H 0.436 ac, 43.62% l 0.21 cfs @ 12.09 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h 1.12 cfs @ 12.04 h 1.	nc. <u>HydroCAD Software Solutions LLC</u> Summary for Pond URC3: URC-3 Impervious, Inflow Depth = 0.43" for WQv event nrs, Volume= 0.016 af nrs, Volume= 0.016 af, Atten= 40%, Lag= 0.0 min nrs, Volume= 0.016 af 0.00-72.00 hrs, dt= 0.01 hrs rea= 765 sf Storage= 50 cf Lated for 0.016 af (100% of inflow) 5.8 - 782.7) Storage Description 22.25'W x 34.38'L x 6.75'H Field A 5,163 cf Overall - 1,409 cf Embedded = 3,755 cf x 33.3% Voids ADS_StormTech MC-3500 d +Cap x 12 Inside #1 Effective Size= 70.4'W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0''W x 45.0''H x 7.50'L with 0.33' Overlap 3 Rows of 4 Chambers Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Hors HydroCAD® 10.00-2 Inflow = Dutflow = Discarded = Routing by Stor-Inc Peak Elev= 55.74' Plug-Flow detention Center-of-Mass def Volume Inve #1A 55.55 #2A 57.55	ley Witten Group, li 2 s/n 01445 © 2018 H 0.21 cfs @ 12.09 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h method, Time Span @ 12.21 hrs Surf.Au h time= 3.0 min calcu. time= 3.0 min calcu. time= 3.0 min (785 ct Avail.Storage 5 1,409 cf 2,659 cf	nc. HydroCAD Software Solutions LLC Summary for Pond URC3: URC-3 Impervious, Inflow Depth = 0.43" for WQv event trs, Volume= 0.016 af trs, Volume= 0.016 af, Atten= 40%, Lag= 0.0 min trs, Volume= 0.016 af = 0.00-72.00 hrs, dt= 0.01 hrs rea= 765 sf Storage= 50 cf ulated for 0.016 af (100% of inflow) 5.8 - 782.7) Storage Description 22.25'W x 34.38'L x 6.75'H Field A 5,163 cf Overall - 1,409 cf Embedded = 3,755 cf x 33.3% Voids ADS_StormTech MC-3500 d + Cap x 12 Inside #1 Effective Size= 70.4'W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 71.4''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Storage = +14.9 cf x 2 x 3 rows = 89.4 cf Total Available Storage	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Hors HydroCAD® 10.00-2 Inflow = Dufflow = Discarded = Routing by Stor-Inc Peak Elev= 55.74' Plug-Flow detention Center-of-Mass del Volume Inve #1A 55.54 #2A 57.55	ley Witten Group, li 2 s/n 01445 © 2018 H 0.436 ac, 43.62% l 0.21 cfs @ 12.09 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h 10.12 cfs @ 12.04 h 12.04 h 12.05 h 12.04	nc. HydroCAD Software Solutions LLC Summary for Pond URC3: URC-3 Impervious, Inflow Depth = 0.43" for WQv event trs, Volume= 0.016 af trs, Volume= 0.016 af, Atten= 40%, Lag= 0.0 min trs, Volume= 0.016 af 1000-72.00 hrs, dt= 0.01 hrs trea= 765 sf Storage= 50 cf Lated for 0.016 af (100% of inflow) 5.8 - 782.7) Storage Description 22.25'W x 34.38'L x 6.75'H Field A 5,163 cf Overall - 1,409 cf Embedded = 3,755 cf x 33.3% Voids ADS_StormTech MC-3500 d +Cap x 12 Inside #1 Effective Size= 70.4'W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0''W x 45.0''H x 7.50'L with 0.33' Overlap 3 Rows of 4 Chambers Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf Total Available Storage	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021
HydroCAD® 10.00-2 Inflow Area = Inflow = Outflow = Discarded = Routing by Stor-Inc Peak Elev= 55.74' Plug-Flow detention Center-of-Mass def Volume Inve #1A 55.55 #2A 57.55	ley Witten Group, li 2 s/n 01445 © 2018 H 0.436 ac, 43.62% l 0.21 cfs @ 12.09 h 0.12 cfs @ 12.04 h 0.12 cfs @ 12.04 h 1 method, Time Span @ 12.21 hrs Surf.Au h time= 3.0 min calcu. time= 3.0 min (785 t Avail.Storage 5' 1,409 cf 2,659 cf A created with Chami	nc. HydroCAD Software Solutions LLC Summary for Pond URC3: URC-3 Impervious, Inflow Depth = 0.43" for WQv event trs, Volume= 0.016 af trs, Volume= 0.016 af, Atten= 40%, Lag= 0.0 min trs, Volume= 0.016 af 1000-72.00 hrs, dt= 0.01 hrs trea= 765 sf Storage= 50 cf Lated for 0.016 af (100% of inflow) 5.8 - 782.7) Storage Description 22.25'W x 34.38'L x 6.75'H Field A 5,163 cf Overall - 1,409 cf Embedded = 3,755 cf x 33.3% Voids ADS_StormTech MC-3500 d +Cap x 12 Inside #1 Effective Size= 70.4'W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0''W x 45.0''H x 7.50'L with 0.33' Overlap 3 Rows of 4 Chambers Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf Total Available Storage	/pe III 24-hr WQv Rainfall=1.21" Printed 3/5/2021

19038-POST V3 Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u>

	Pond URC3: URC-3	
	Hydrograph	
0.23	0.21 cfs	 Inflow Discarded
0.22 0.21	Inflow Area=0.436 ac	L <u></u>
0.2	Peak Elev=55.74'	
0.18 0.17 0.16	Storage=50 cf	
0.15		
(s) 0.13	0.12 cfs	
8 0.11 ■ 0.1		
0.09	┝╴╴╄╴ <mark>┫╴╶╞╴╶</mark> ╞╶╶╞╴┙╴╛╼╘╴┙╕╌┝╴┥╴┪╸┪╸┶╶┝╶┥╸┪╸┪╸┪╸┪╸┪╸┪╸╸╸┥╸┝╸┥╴┥╸┥╸╸╸╸╸╸╸╸╸╸╸╸╸╸╸	
0.07		
0.05		
0.03-0.02-0.02-0.02-0.02-0.02-0.02-0.02-		
0.01		
02468	3 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)	
	Type III 24-hr N	y Witten Group, Inc. ₩Qv Rainfall=1.21" Printed 3/5/2021
Prepared by Horsley \	Type III 24-hr N	WQv Rainfall=1.21"
Prepared by Horsley \	Witten Group, Inc.	WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Horsley \ <u>HydroCAD® 10.00-22 s/n</u> nflow Area = 0.22 nflow = 0.26	Type III 24-hr N Witten Group, Inc. 101445 © 2018 HydroCAD Software Solutions LLC Summary for Pond URC4: URC-4 30 ac,100.00% Impervious, Inflow Depth = 1.00" for WQv event Software 0.019 af	WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Horsley \ HydroCAD® 10.00-22 s/m nflow Area = 0.27 nflow = 0.26 Dutflow = 0.14	Type III 24-hr N 101445 © 2018 HydroCAD Software Solutions LLC Summary for Pond URC4: URC-4 30 ac,100.00% Impervious, Inflow Depth = 1.00" for WQv event	WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Horsley \ lydroCAD® 10.00-22 s/m nflow Area = 0.21 nflow = 0.26 Dutflow = 0.14 Discarded = 0.14 Routing by Stor-Ind met 0.14	Type III 24-hr N Witten Group, Inc. 0.1445 © 2018 HydroCAD Software Solutions LLC Summary for Pond URC4: URC-4 30 ac,100.00% Impervious, Inflow Depth = 1.00" for WQv event 6.5f @ 12.07 hrs, Volume= 0.019 af 4.0fs @ 12.00 hrs, Volume= 0.019 af, Atten= 48%, Lag= 0.0 min	WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Horsley \ lydroCAD® 10.00-22 s/m Inflow Area = 0.23 Inflow = 0.26 Dutflow = 0.14 Discarded = 0.14 Routing by Stor-Ind met Pack Elev= 57.04' @ 12 Plug-Flow detention tim	Type III 24-hr I Witten Group, Inc. 101445 © 2018 HydroCAD Software Solutions LLC Summary for Pond URC4: URC-4 30 ac,100.00% Impervious, Inflow Depth = 1.00" for WQv event 5 cfs @ 12.07 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af thod, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs 2.19 hrs Surf.Area= 851 sf Storage= 69 cf the= 3.2 min calculated for 0.019 af (100% of inflow)	WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Horsley V <u>HydroCAD® 10.00-22 s/m</u> nflow Area = 0.22 nflow = 0.26 Dutflow = 0.14 Discarded = 0.14 Routing by Stor-Ind met Peak Elev= 57.04' @ 12 Plug-Flow detention tim Center-of-Mass det. tim	Type III 24-hr N Witten Group, Inc. n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Pond URC4: URC-4 30 ac,100.00% Impervious, Inflow Depth = 1.00° for WQv event 5 cfs @ 12.07 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af thod, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs 2.19 hrs Surf.Area= 851 sf Storage= 69 cf the 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min (784.1 - 780.8)	WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Horsley V <u>HydroCAD® 10.00-22 s/m</u> nflow Area = 0.22 nflow = 0.26 Dutflow = 0.14 Discarded = 0.14 Routing by Stor-Ind met Peak Elev= 57.04' @ 12 Plug-Flow detention tim Center-of-Mass det. tim	Type III 24-hr I Witten Group, Inc. 101445 © 2018 HydroCAD Software Solutions LLC Summary for Pond URC4: URC-4 30 ac,100.00% Impervious, Inflow Depth = 1.00" for WQv event 3 of colspan="2">0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af thod, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs 2.19 hrs Surf.Area= 851 sf Storage= 69 cf te 3.2 min calculated for 0.019 af (100% of inflow) thod, T84.1 - 780.8) Avail.Storage Storage Description 1,292 cf 30.17'W x 28.21'L x 6.25'H Field A	WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Horsley \	Type III 24-hr I Witten Group, Inc. 101445 © 2018 HydroCAD Software Solutions LLC Summary for Pond URC4: URC-4 30 ac,100.00% Impervious, Inflow Depth = 1.00" for WQv event 5 cfs @ 12.07 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af 1.00" for WQv event 6 cfs @ 12.00 hrs, Volume= 0.019 af 1.00 hrs, Volume= 0.019 af 1.01 hrs 2.19 hrs Surf.Area= 851 sf Storage= 69 cf the algoright for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min (784.1 - 780.8) Avail.Storage Avail.Storage Avail.Storage 5.319 cf Overall - 1,439 cf Embedded = 3,880 cf x 33.3% Voids 1,439 cf ADS_StormTech MC-3500 d +Cap x 12	WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Horsley \	Type III 24-hr I Witten Group, Inc. 0.11445 © 2018 HydroCAD Software Solutions LLC Summary for Pond URC4: URC-4 30 ac,100.00% Impervious, Inflow Depth = 1.00° for WQv event 30 cfs @ 12.07 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af thod, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs 2.19 hrs Surf.Area= 851 sf Storage 69 cf tel 3.2 min calculated for 0.019 af (100% of inflow) tel 3.2 min (784.1 - 780.8) Avail.Storage Storage Description 1,292 cf 30.17'W x 28.21'L x 6.25'H Field A 5,319 of Overall - 1,439 of Embedded = 3,880 cf x 33.3% Voids	WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Horsley \	Type III 24-hr I Witten Group, Inc. 101445 © 2018 HydroCAD Software Solutions LLC Summary for Pond URC4: URC-4 30 ac,100.00% Impervious, Inflow Depth = 1.00" for WQv event 5 cfs @ 12.07 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af 10.00-72.00 hrs, dt= 0.01 hrs 2.19 hrs Surf.Area= 851 sf Storage= 69 cf the associate for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of tinflow) 1.202 of 30.17 W x 28.21 L x 6.25 H Field A 5.319 of Overall - 1,439 of Embedded = 3,880 cf x 33.3% Voids 1,439 cf Embedded = 3,880 cf x 33.3% Voids	WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Horsley \	Type III 24-hr IWitten Group, Inc. 101445 @ 2018 HydroCAD Software Solutions LLCSummary for Pond URC4: URC-430 ac, 100.00% Impervious, Inflow Depth = 1.00" for WQv event 3 ofs @ 12.07 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af thod, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs 2.19 hrs Surf.Area= 851 sf Storage= 69 cfee 3.2 min calculated for 0.019 af (100% of inflow) ee 3.2 min (784.1 - 780.8)Avail.Storage Storage Description1,292 cf30.17'W x 28.21'L x 6.25'H Field A 5,319 cf Overall - 1,439 cf Embedded = 3,880 cf x 33.3% Voids 1,439 cfAvail.Storage Storage Termeth MC-3500 d +Cap x 12 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 71.4"y x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 71.4"y x 45.0"H => 15.33 sf x 7.17'L = Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf2,731 cf Total Available Storage	WQv Rainfall=1.21" Printed 3/5/2021
Prepared by Horsley \ <u>HydroCAD® 10.00-22 s/m</u> nflow Area = 0.22 nflow = 0.26 Duffow = 0.14 Routing by Stor-Ind met Peak Elev= 57.04' @ 12 Plug-Flow detention tim Center-of-Mass det. tim <u>/olume Invert</u> #1A 56.80' #2A 58.30' Storage Group A cree	Type III 24-hr I Witten Group, Inc. 101445 © 2018 HydroCAD Software Solutions LLC Summary for Pond URC4: URC-4 30 ac,100.00% Impervious, Inflow Depth = 1.00" for WQv event 5 cfs @ 12.07 hrs, Volume= 0.019 af 4 cfs @ 12.00 hrs, Volume= 0.019 af 10.00-72.00 hrs, dt= 0.01 hrs 2.19 hrs Surf.Area= 851 sf Storage= 69 cf the associate for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) e= 3.2 min calculated for 0.019 af (100% of inflow) 1.202 of 30.17 W x 28.21 L x 6.25 H Field A 5.319 of Overall - 1,439 of Embedded = 3,880 cf x 33.3% Voids 1,439 of ADS_StormTech MC-3500 d +Cap x 12 Inside #1<	WQv Rainfall=1.21" Printed 3/5/2021
Inflow Area = 0.23 Inflow = 0.26 Outflow = 0.14 Discarded = 0.14 Routing by Stor-Ind met Peak Elev= 57.04' @ 12 Plug-Flow detention tim Center-of-Mass det. tim <u>Volume Invert</u> #1A 56.80' #2A 58.30'	Type III 24-hr IWitten Group, Inc. no1445 © 2018 HydroCAD Software Solutions LLCSummary for Pond URC4: URC-430 ac, 100.00% Impervious, Inflow Depth = 1.00° for WQv event 5 of \$\$\overline{2}\$ of \$\$\overline{2}\$ 0.019 af 4 of \$\$\overline{2}\$ 12.00 hrs, Volume= 0.019 af, Atten= 48%, Lag= 0.0 min 4 of \$\$\overline{2}\$ 12.00 hrs, Volume= 0.019 af, Atten= 48%, Lag= 0.0 min 4 of \$\$\overline{2}\$ 12.00 hrs, Volume= 0.019 af, Atten= 48%, Lag= 0.0 min 4 of \$\$\overline{2}\$ 12.00 hrs, Volume= 0.019 af, Atten= 48%, Lag= 0.0 min 4 of \$\$\overline{2}\$ 12.00 hrs, Volume= 0.019 af (12.00 hrs, Volume= 0.019 af (100% of inflow)) ee 3.2 min calculated for 0.019 af (100% of inflow) ee 3.2 min (784.1 - 780.8)Avail Storage Storage Description1,292 of 30.17 W x 28.21 L x 6.25 H Field A 5,319 of Overall - 1,439 of Embedded = 3,880 cf x 33.3% Voids 1,439 of ADS_StormTech MC-3500 d + Cap x 12 Inside #1 Effective Size= 70.4 "W x 45.0" H => 15.33 sf x 7.17 L = 110.0 cf Overall Size= 77.0" W x 45.0" H => 15.33 sf x 7.17 L = 110.0 cf Overalp 4 Rows of 3 Chambers Cap Storage = +14.9 cf x 2 x 4 rows = 119.2 cf2,731 cfTotal Available Storage eated with Chamber Wizard	WQv Rainfall=1.21" Printed 3/5/2021

19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC





19038-POST V3
Prepared by Horsley Witten Group, Inc.
HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

Horsley Witten Group, Inc. Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page <u>3</u>

Subcatchment DA3di: DA3d impervious	Runoff Area=4,686 sf 100.00% Impervious Runoff Depth=3.10" Tc=5.0 min CN=98 Runoff=0.36 cfs 0.028 af
Subcatchment R1E: EAST ROOF	Runoff Area=11,331 sf 100.00% Impervious Runoff Depth=3.10" Tc=5.0 min CN=98 Runoff=0.87 cfs 0.067 af
Subcatchment R1W: WEST ROOF	Runoff Area=10,000 sf 100.00% Impervious Runoff Depth=3.10" Tc=5.0 min CN=98 Runoff=0.77 cfs 0.059 af
Pond 100: CB 100	Peak Elev=50.32' Inflow=0.24 cfs 0.019 af 12.0" Round Culvert n=0.013 L=4.0' S=0.0050 '/' Outflow=0.24 cfs 0.019 af
Pond 200: CB 200	Peak Elev=52.08' Inflow=0.36 cfs 0.028 af Primary=0.36 cfs 0.028 af Secondary=0.00 cfs 0.000 af Outflow=0.36 cfs 0.028 af
Pond BIO1: BIO 1	Peak Elev=59.40' Storage=1,145 cf Inflow=1.51 cfs 0.116 af Outflow=1.30 cfs 0.116 af
Pond BIO2: BIO 2	Peak Elev=62.59' Storage=51 cf Inflow=0.64 cfs 0.049 af Outflow=0.62 cfs 0.049 af
Pond DMH: DMH 200	Peak Elev=54.50' Inflow=0.78 cfs 0.060 af Primary=0.67 cfs 0.059 af Secondary=0.11 cfs 0.001 af Outflow=0.78 cfs 0.060 af
Pond RB1: RB 101,102	Peak Elev=41.57' Storage=155 cf Inflow=0.24 cfs 0.019 af Discarded=0.06 cfs 0.019 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.019 af
Pond RB2: RB 202,202,203	Peak Elev=46.18' Storage=130 cf Inflow=0.33 cfs 0.007 af Discarded=0.09 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.007 af
Pond RB3: RB 300	Peak Elev=58.50' Storage=0 cf Inflow=0.00 cfs 0.000 af Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond SP1: SP1	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af

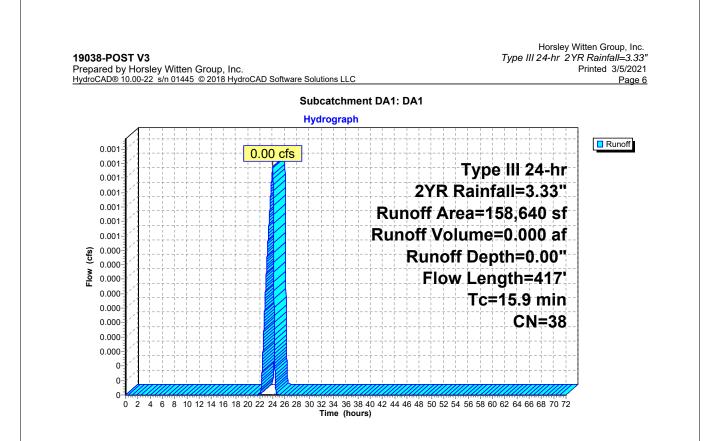
Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021
Solutions LLC Page 4
Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af
Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af
Peak Elev=53.64' Storage=441 cf Inflow=0.67 cfs 0.059 af Discarded=0.20 cfs 0.059 af Primary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.059 af
Peak Elev=52.98' Storage=153 cf Inflow=0.36 cfs 0.028 af Discarded=0.03 cfs 0.021 af Primary=0.33 cfs 0.007 af Outflow=0.36 cfs 0.028 af
Peak Elev=49.67' Storage=0.016 af Inflow=1.38 cfs 0.117 af Outflow=0.38 cfs 0.117 af
Peak Elev=56.25' Storage=682 cf Inflow=0.87 cfs 0.067 af Outflow=0.17 cfs 0.067 af
Peak Elev=57.50' Storage=497 cf Inflow=0.62 cfs 0.049 af Outflow=0.12 cfs 0.049 af

Summary for Subcatchment DA1: DA1

Runoff = 0.00 cfs @ 24.04 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 2YR Rainfall=3.33"

_	A	rea (sf)	CN	Description		
_	1	18,297	30	Woods, Go	od, HSG A	
		25,363	39	>75% Gras	s cover, Go	od, HSG A
		9,642	98	Roofs, HSG	βA	
		5,338	98	Paved park	ing, HSG A	
	1	58,640	38	Weighted A	verage	
	1	43,660		90.56% Per	vious Area	
		14,980		9.44% Impe	ervious Area	a
	Tc	Length	Slope		Capacity	Description
_	(min)	(feet)	(ft/ft) (ft/sec)	(cfs)	
	12.2	78	0.1730	0.11		Sheet Flow, A TO B
						Woods: Dense underbrush n= 0.800 P2= 3.60"
	0.7	99	0.1110) 2.33		Shallow Concentrated Flow, B TO C
						Short Grass Pasture Kv= 7.0 fps
	3.0	240	0.0690) 1.31		Shallow Concentrated Flow, C TO SP1
_						Woodland Kv= 5.0 fps
	15.9	417	Total			



	= by SCS TI 24-hr 2Y		thod, UH=S) hrs, Volum CS, Weighte	me= 0.000 af, Depth= 0.00" ed-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs	
	Area (sf) 25,414	<u>CN</u> 30	Description Woods, Goo	d, HSG A		
	17,231 784		>75% Grass Pervious Pa	s cover, Good	od, HSG A	
	43,429 43,429		Weighted A			
	Length		e Velocity	Capacity [- Description	
<u>min)</u> 36.4	(feet) 147	(ft/ft 0.0400		(cfs)	Sheet Flow, A TO B	
0.8	67	0.0760) 1.38		Woods: Dense underbrush n= 0.800 P2= 3.60" Shallow Concentrated Flow, B to C	
1.1	73	0.0480) 1.10	١	Woodland Kv= 5.0 fps Shallow Concentrated Flow, C to D	
5.0		0.0250		١	Woodland Kv= 5.0 fps Shallow Concentrated Flow, D to SP2	
43.3		Total			Woodland Kv= 5.0 fps	
						o, Inc
pare	- POST V ed by Ho AD® 10.00	rsley W	itten Group 1445 ⊚ 2011	Inc.	Horsley Witten Group <i>Type III 24-hr 2 YR Rainfall=</i> Printed 3/5 Software Solutions LLC P	=3.33 5/202
epare	ed by Ho	rsley W	itten Group 1445 © 2018	, Inc. HydroCAD S	Type III 24-hr 2YR Rainfali Printed 3/5 Software Solutions LLC P Subcatchment DA2a: DA2a	=3.33
epare	ed by Ho	rsley W	itten Group 1445 © 201	, Inc. 3 HydroCAD S	Type III 24-hr 2YR Rainfali= Printed 3/5 Software Solutions LLC P	=3.33 5/202 ⁻ Page {
Flow (cfs)	ed by Ho	rsley W	itten Group 1445 © 201	, Inc. 3 HydroCAD S	Type III 24-hr 2YR Rainfall= Printed 3/5 P Subcatchment DA2a: DA2a Hydrograph Type III 24-hr 2YR Rainfall=3.33" Runoff Area=43,429 sf Runoff Volume=0.000 af Runoff Depth=0.00" Flow Length=525' Tc=43.3 min	=3.33 5/202 Page

Summary for Subcatchment DA2a: DA2a

n off	0.00-1 0	-	or Subcatchment DA2b: DA2b pervious
noff =	-	24.00 hrs, Volume=	0.000 af, Depth= 0.00"
pe III 24-hr	2YR Rainfall=3.33	3"	, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Area (s			
10,23 47	1 30 Woods	Grass cover, Good, HSG s, Good, HSG A	G A
10,70 10,70		ited Average)% Pervious Area	
Tc Len		ocity Capacity Descrip	iption
(<u>min) (fe</u> 5.0	et) (ft/ft) (ft/s	(cfs) (cfs) Direct	t Entry, Direct
038-POS			Horsley Witten Group, Inc Type III 24-hr 2 YR Rainfall=3.3
038-POS	Horsley Witten G	Jroup, Inc.	Type III 24-hr 2YR Rainfall=3.3: Printed 3/5/202
epared by	Horsley Witten G	© 2018 HydroCAD Software	Type III 24-hr 2YR Rainfall=3.3: Printed 3/5/202 re Solutions LLC Page 1
epared by	Horsley Witten G	© 2018 HydroCAD Software	Type III 24-hr 2YR Rainfall=3.3: Printed 3/5/202 re Solutions LLC Page 1 catchment DA2b: DA2b pervious
epared by	Horsley Witten G	© 2018 HydroCAD Software	Type III 24-hr 2YR Rainfall=3.3: Printed 3/5/202 re Solutions LLC Page 1
epared by	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3: Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph
epared by droCAD® 10 0.000 0.000	Horsley Witten G	© 2018 HydroCAD Software	Type III 24-hr 2YR Rainfall=3.3: Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph
epared by droCAD® 10 0.000	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3: Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph
epared by droCAD® 10 0.000 0.000 0.000 0.000 0.000	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3: Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph Type III 24-hr 2YR Rainfall=3.33"
epared by droCAD® 10 0.000 0.000 0.000 0.000 0.000 0.000	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3 Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph Type III 24-hr 2YR Rainfall=3.33" Runoff Area=10,709 sf
epared by droCAD® 10 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3: Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph Type III 24-hr 2YR Rainfall=3.33"
epared by droCAD® 10 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3 Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph Type III 24-hr 2YR Rainfall=3.33" Runoff Area=10,709 sf Runoff Volume=0.000 af
epared by droCAD® 10 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3 Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph Type III 24-hr 2YR Rainfall=3.33" Runoff Area=10,709 sf Runoff Volume=0.000 af Runoff Depth=0.00"
epared by droCAD® 10 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3 Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph Type III 24-hr 2YR Rainfall=3.33" Runoff Area=10,709 sf Runoff Volume=0.000 af Runoff Depth=0.00" Tc=5.0 min
epared by droCAD® 10 0.0000 0.000000	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3 Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph Type III 24-hr 2YR Rainfall=3.33" Runoff Area=10,709 sf Runoff Volume=0.000 af Runoff Depth=0.00"
epared by droCAD® 10 0.000000	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3 Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph Type III 24-hr 2YR Rainfall=3.33" Runoff Area=10,709 sf Runoff Volume=0.000 af Runoff Depth=0.00" Tc=5.0 min
epared by droCAD® 10 0.0000 0.000000	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3 Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph Type III 24-hr 2YR Rainfall=3.33" Runoff Area=10,709 sf Runoff Volume=0.000 af Runoff Depth=0.00" Tc=5.0 min
epared by droCAD® 10 0.0000 0.000000	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3 Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph Type III 24-hr 2YR Rainfall=3.33" Runoff Area=10,709 sf Runoff Volume=0.000 af Runoff Depth=0.00" Tc=5.0 min
epared by droCAD® 10 0.0000 0.000000	Horsley Witten G	© 2018 HydroCAD Software Subca	Type III 24-hr 2YR Rainfall=3.3 Printed 3/5/202 Page 1 catchment DA2b: DA2b pervious Hydrograph Type III 24-hr 2YR Rainfall=3.33" Runoff Area=10,709 sf Runoff Volume=0.000 af Runoff Depth=0.00" Tc=5.0 min

Runoff	_	0.04	ofc 🔿	40.0			-		hment D		P		-				
unoff I-	=		-			Volum			af, Depth		0.04	_					
ype III 2	24-hr 2Y	λ-∠υ m R Rain	all=3.	33"	503, V	veignte	u-uin, I	ine opar	ו= 0.00-72.	.oo ms, at=	- 0.01 nrs	5					
Aı	rea (sf)	CN		ription													
	7,010 1,275	98 98	Side	walks,	ting, H HSG /	A											
	8,285 8,285	98			Averag npervio	e ous Are	a										
Тс	Length	Slon			•		Descripti	ion									
(min) 5.0	(feet)	(ft/f		ft/sec)		(cfs)		ntry, Dir	ect								
0.0																	
																AF:4 0	
	POST												Ty				oup, Inc.
			/itten	Group © 201	o, Inc.	TOCAD S	Goftware	Solutions	ЦС				Туј			r Rainf	all=3.33" 3/5/2021
			/itten 01445	Group © 201	o, Inc. 8 Hydr			Solutions		A2h im-			Tyj			r Rainf	all=3.33"
			/itten 01445	Group © 201	o, Inc. I8 Hydr		ubcatc	hment	DA2bi: D	A2b imp	ervious	5	Туј			r Rainf	all=3.33" 3/5/2021
			/itten 01445	Group © 201	o, Inc. 8 Hydr		ubcatc		DA2bi: D	A2b imp	ervious	5	Tyl			/R Rainf	all=3.33" 3/5/2021 Page 12
epare		sley V	+		o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D	A2b imp	ervious	6	Ту,			/R Rainf	all=3.33" 3/5/2021
eparer r <u>droCAI</u> 0.0	d by Ho D® 10.00	sley V	+	Group © 201	o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D	A2b imp				be III 24	1-hr 2\	/R Rainf	all=3.33" 3/5/2021 Page 12
repared / <u>droCAI</u> 0 0.6	d by Ho D® 10.00	sley V	+		o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D			Тур	e II	e III 24	1-hr 2)	/R Rainf	all=3.33" 3/5/2021 Page 12
0.6 0.5 0.6	d by Ho D® 10.00	sley V	+		o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D	2	YRF	Typ Rain	e II fall	e III 24 24 =3.3	-hr 2) -hr 33"	/R Rainf	all=3.33" 3/5/2021 Page 12
0 0 0.6 0.5 0.5	d by Ho D® 10.00	sley V	+		o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D	2 Rur	YR F hoff	Typ Rain Area)e fall a=8	e III 24 24 3.3	-hr 2) -hr 33" 55	/R Rainf	all=3.33" 3/5/2021 Page 12
0 0 0.6 0.5 0.2 0.2	d by Ho D® 10.00	sley V	+		o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D	2	YR F hoff	Typ Rain Area)e fall a=8	e III 24 24 3.3	-hr 2) -hr 33" 55	/R Rainf	all=3.33" 3/5/2021 Page 12
0 0 0.6 0.5 0.2 0.2	d by Ho D® 10.00	rsley W 22 s/n	+		o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D	2 Rur unofi	YR F noff /	Typ Rain Area ume	pe II Ifall a=8 e=0	l 24 =3.3 049	-hr 2) -hr 33" 55 af	/R Rainf	all=3.33" 3/5/2021 Page 12
0 0 0.6 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0 0.2 0 0 0 0	d by Ho D® 10.00	rsley W 22 s/n	+		o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D	2 Rur unofi	YR F hoff	Typ Rain Area ume f De	pe II fall a=8 e=0 pth	l 24 =3.3 ,285 =3.1	-hr 33" 55 af	/R Rainf	all=3.33" 3/5/2021 Page 12
0 0 0.6 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0 0.2 0 0 0 0	d by Ho D® 10.00	rsley W 22 s/n	+		o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D	2 Rur unofi	YR F noff /	Typ Rain Area ume f De	pe II fall a=8 e=0 pth c=5	l 24 =3.: 285 049 =3.1	-hr -hr 33" 5f af 10"	/R Rainf	all=3.33" 3/5/2021 Page 12
0 0 0.6 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0.2 0 0 0.2 0 0 0 0	d by Ho D® 10.00 0.7 65 55 0.6 	rsley W 22 s/n	+		o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D	2 Rur unofi	YR F noff /	Typ Rain Area ume f De	pe II fall a=8 e=0 pth c=5	l 24 =3.3 ,285 =3.1	-hr -hr 33" 5f af 10"	/R Rainf	all=3.33" 3/5/2021 Page 12
0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 0.0 0.0	d by Ho D® 10.00 0.7 65 55 0.6 	rsley W 22 s/n	+		o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D	2 Rur unofi	YR F noff /	Typ Rain Area ume f De	pe II fall a=8 e=0 pth c=5	l 24 =3.: 285 049 =3.1	-hr -hr 33" 5f af 10"	/R Rainf	all=3.33" 3/5/2021 Page 12
0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 0.0 0.0	d by Ho D® 10.00	rsley W 22 s/n	+		o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D	2 Rur unofi	YR F noff /	Typ Rain Area ume f De	pe II fall a=8 e=0 pth c=5	l 24 =3.: 285 049 =3.1	-hr -hr 33" 5f af 10"	/R Rainf	all=3.33" 3/5/2021 Page 12
0 0.0.00 0.0.00 0.0.00 0.0.000000	d by Ho D® 10.00	rsley W 22 s/n	+		o, Inc. 8 Hydr		ubcatc	hment	DA2bi: D	2 Rur unofi	YR F noff /	Typ Rain Area ume f De	pe II fall a=8 e=0 pth c=5	l 24 =3.: 285 049 =3.1	-hr -hr 33" 5f af 10"	/R Rainf	all=3.33" 3/5/2021 Page 12

noff =	0.00 cfs @	0.00 hrs, Vo	lume= 0.000	f, Depth= 0.00"		
noff by SCS T	R-20 method, L	JH=SCS, Weig	hted-CN, Time Span	0.00-72.00 hrs, dt= 0.01 hrs	3	
Area (sf)	YR Rainfall=3.33 CN Descri					
14,079	39 >75%	Grass cover, C				
<u>19,742</u> 33,821	34 Weigh	s, Good, HSG ted Average				
33,821)% Pervious Ai	ea y Description			
Tc Length (min) (feet) 5.0		sec) (cfs		•		
5.0			Direct Entry, Dire			
038-POST epared by Ho droCAD® 10.00	orsley Witten G	Group, Inc. © 2018 HydroCA	AD Software Solutions L			y Witten Group, Inc. 2 <i>YR Rainfall=</i> 3.33″ Printed 3/5/2021 Page 14
epared by Ho	orsley Witten G	Group, Inc. © 2018 HydroCA	Subcatchment	DA3a: DA3a pervious		2YR Rainfall=3.33" Printed 3/5/2021
epared by Ho droCAD® 10.00	orsley Witten G	Group, Inc. © 2018 HydroCA		DA3a: DA3a pervious		2YR Rainfall=3.33" Printed 3/5/2021 Page 14
epared by Ho	orsley Witten G	Group, Inc. 2018 HydroCA	Subcatchment	DA3a: DA3a pervious		2YR Rainfall=3.33" Printed 3/5/2021
epared by Ho droCAD® 10.00	orsley Witten G	Group, Inc. 2018 HydroC/	Subcatchment	DA3a: DA3a pervious ph	Type III 24-hr	2YR Rainfall=3.33" Printed 3/5/2021 Page 14
epared by Ho droCAD® 10.00	orsley Witten G	Group, Inc. 2018 HydroCA	Subcatchment	DA3a: DA3a pervious ph	Type III 24-hr	2YR Rainfall=3.33" Printed 3/5/2021 Page 14
epared by Ho droCAD® 10.00	orsley Witten G	Group, Inc. 2018 HydroC/	Subcatchment	DA3a: DA3a pervious ph 2YR F	Type III 24-hr Type III 24-hr Rainfall=3.33"	2YR Rainfall=3.33" Printed 3/5/2021 Page 14
epared by Ho droCAD® 10.00	orsley Witten G	Group, Inc. 2018 HydroCA	Subcatchment	DA3a: DA3a pervious ph 2YR F Runoff A	Type III 24-hr Type III 24-hr Rainfall=3.33" rea=33,821 sf	2YR Rainfall=3.33" Printed 3/5/2021 Page 14
Pared by Ho droCAD® 10.00	orsley Witten G	Group, Inc. 2018 HydroC/	Subcatchment	DA3a: DA3a pervious ph 2YR F Runoff A Runoff Vol	Type III 24-hr Type III 24-hr Rainfall=3.33' rea=33,821 sf ume=0.000 af	2YR Rainfall=3.33" Printed 3/5/2021 Page 14
Pared by Ho droCAD® 10.00	orsley Witten G	Sroup, Inc. © 2018 HydroC/	Subcatchment	DA3a: DA3a pervious ph 2YR F Runoff A Runoff Vol	Type III 24-hr Type III 24-hr Rainfall=3.33" rea=33,821 sf ume=0.000 af Depth=0.00"	2 YR Rainfall=3.33" Printed 3/5/2021 Page 14
epared by Ho droCAD® 10.00	orsley Witten G	Group, Inc. 2018 HydroC/	Subcatchment	DA3a: DA3a pervious ph 2YR F Runoff A Runoff Vol	Type III 24-hr Type III 24-hr Rainfall=3.33" rea=33,821 sf ume=0.000 af Depth=0.00" Tc=5.0 min	2YR Rainfall=3.33" Printed 3/5/2021 Page 14
Pared by Ho droCAD® 10.00	orsley Witten G	Sroup, Inc. © 2018 HydroC/	Subcatchment	DA3a: DA3a pervious ph 2YR F Runoff A Runoff Vol	Type III 24-hr Type III 24-hr Rainfall=3.33" rea=33,821 sf ume=0.000 af Depth=0.00"	2YR Rainfall=3.33" Printed 3/5/2021 Page 14
Pared by Ho droCAD® 10.00	orsley Witten G	Group, Inc.	Subcatchment	DA3a: DA3a pervious ph 2YR F Runoff A Runoff Vol	Type III 24-hr Type III 24-hr Rainfall=3.33" rea=33,821 sf ume=0.000 af Depth=0.00" Tc=5.0 min	2YR Rainfall=3.33" Printed 3/5/2021 Page 14
Pared by Ho droCAD® 10.00	orsley Witten G	Group, Inc. 2018 HydroC/	Subcatchment	DA3a: DA3a pervious ph 2YR F Runoff A Runoff Vol	Type III 24-hr Type III 24-hr Rainfall=3.33" rea=33,821 sf ume=0.000 af Depth=0.00" Tc=5.0 min	2YR Rainfall=3.33" Printed 3/5/2021 Page 14
Pared by Ho droCAD® 10.00	orsley Witten G	Sroup, Inc. 2018 HydroC/	Subcatchment	DA3a: DA3a pervious ph 2YR F Runoff A Runoff Vol	Type III 24-hr Type III 24-hr Rainfall=3.33" rea=33,821 sf ume=0.000 af Depth=0.00" Tc=5.0 min	2YR Rainfall=3.33" Printed 3/5/2021 Page 14

inoff b ne III	= by SCS T 24-hr 2Y	R-20 m	cfs @ 12. ethod, UH= fall=3 33"							i= 3.10" .00 hrs, di	= 0.01 h	rs						
	24-11 21 Area (sf)	CN	Descriptic	'n														
,	18,277 1,361	98 98	Paved pa Sidewalk,	rking, H														
	19,638 19,638	98	Weighted 100.00%	Averag	je	rea												
To	Length	Slon	e Velocit				iption											
(min) 5.0	(feet)	(ft/f			(cfs)		Entry,	Direct										
5.0							y,	2.1001										
																	tten Grou	
0 38-	•POST \	73 rslev W	/itten Grou	up, Inc.									Tj	/pe III		2YR	tten Grou <i>Rainfal</i>	l=3.33"
epare	ed by Ho	rsley W	/itten Grou 01445 © 20	up, Inc.)18 Hydi	roCAD	Softwar	re Soluti	ons LLC					Ту	/pe III		2YR	Rainfal	l=3.33"
epare	ed by Ho	rsley W	/itten Grou 01445 © 20	ıp, İnc. 18 Hydı	roCAD					A3a imj	perviou	IS	Тј	/pe III		2YR	Rainfal	l=3.33" /5/2021
epare	ed by Ho	rsley W	/itten Grou 01445 © 20	up, Inc.)18 Hydi	roCAD		tchme		.3ai: D	A3a imp	perviou	IS	73	/pe III		2YR	Rainfal	l=3.33" /5/2021
epare	ed by Ho	rsley W -22 s/n	01445 © 20) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D	A3a imj	perviou	IS	<i>T</i> 3	/pe III		2YR	Rainfal	/=3.33" /5/2021 Page 16
epare	ed by Ho	rsley W -22 s/n	/itten Grou 01445 © 20 1.51 cfs) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D	A3a im	perviou			-	24-hr	2YR P	rinted 3, F	/=3.33" /5/2021 Page 16
epare	ed by Ho	rsley W -22 s/n	01445 © 20) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D			Ту	pel	11 2	24-hr 4-h	2YR Pi	rinted 3, F	/=3.33" /5/2021 Page 16
epare	ed by Ho	rsley W -22 s/n	01445 © 20) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D		?YR	Ty Rai	pe l nfal	II 2 I=3	24-hr 4-h .33	2YR P	rinted 3, F	/=3.33" /5/2021 Page 16
epare	ed by Ho	rsley W -22 s/n	01445 © 20) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D h	Run	?YR off A	Ty Rai Area	pe l nfal ı=19	II 2 I=3 9,63	24-hr 4-h .33	2YR P	rinted 3, F	/=3.33" /5/2021 Page 16
epare	ed by Ho	rsley W -22 s/n	01445 © 20) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D h		?YR off A	Ty Rai Area	pe l nfal ı=19	II 2 I=3 9,63	24-hr 4-h .33	2YR P	rinted 3, F	/=3.33" /5/2021 Page 16
epare droCA	ed by Ho	rsley W -22 s/n	01445 © 20) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D h	Run unof	YR off A f Vo	Ty Rai Area Ium	pe I nfal 1=19 1e=0	II 2 I=3 9,63	24-hr .33' 88 s 6 a	27R P	rinted 3, F	/=3.33" /5/2021 Page 16
epare droCA	ed by Ho	rsley W -22 s/n	01445 © 20) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D h	Run unof	?YR off A	Ty Rai Area Ium ff D	pe I nfal u=19 ue=0 epth	II 2 I=3),63).11 1=3	24-hr 4-h .33 8 s 6 a .10	2 <i>YR</i> Pi	rinted 3, F	/=3.33" /5/2021 Page 16
epare	ed by Ho	rsley W -22 s/n	01445 © 20) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D h	Run unof	YR off A f Vo	Ty Rai Area Ium ff D	pe I nfal 1=19 1e=0	II 2 I=3),63).11 n=3 5.0	24-hr 4-h .33' 8 s 6 a .10' mir	297R PI	rinted 3, F	/=3.33" /5/2021 Page 16
epare droCA	ed by Ho	rsley W -22 s/n	01445 © 20) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D h	Run unof	YR off A f Vo	Ty Rai Area Ium ff D	pe I nfal u=19 ue=0 epth	II 2 I=3),63).11 n=3 5.0	24-hr 4-h .33 8 s 6 a .10	297R PI	rinted 3, F	/=3.33" /5/2021 Page 16
epare droCA	ed by Ho	rsley W -22 s/n	01445 © 20) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D h	Run unof	YR off A f Vo	Ty Rai Area Ium ff D	pe I nfal u=19 ue=0 epth	II 2 I=3),63).11 n=3 5.0	24-hr 4-h .33' 8 s 6 a .10' mir	297R PI	rinted 3, F	/=3.33" /5/2021 Page 16
epare droCA	ed by Ho	rsley W -22 s/n	01445 © 20) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D h	Run unof	YR off A f Vo	Ty Rai Area Ium ff D	pe I nfal u=19 ue=0 epth	II 2 I=3),63).11 n=3 5.0	24-hr 4-h .33' 8 s 6 a .10' mir	297R PI	rinted 3, F	/=3.33" /5/2021 Page 16
epare droCA	ed by Ho	rsley W -22 s/n	01445 © 20) <u>18 Hyd</u> i	roCAD		tchme	ent DA	.3ai: D h	Run unof	YR off A f Vo	Ty Rai Area Ium ff D	pe I nfal u=19 ue=0 epth	II 2 I=3),63).11 n=3 5.0	24-hr 4-h .33' 8 s 6 a .10' mir	297R PI	rinted 3, F	/=3.33" /5/2021 Page 16

unoff	=	0.00	:fs @ 0	.00 hrs,	Volum	ne=	0.00	0 af, De	pth= 0.0	0"						
unoff b	y SCS TF	R-20 me	thod, UH:								1 hrs					
/pe III :	24-hr 2Y	R Rainf	all=3.33"		-		·									
A	<u>rea (sf)</u> 2,324		Descriptio >75% Gra		r. Goo	d. HSG	4									
	1,936 4,260	30	Woods, C Weighted	Good, HS	ĠΑ											
	4,260		100.00%													
	Length (feet)	Slope (ft/ft	Velocit		city l cfs)	Descripti	on									
<u>(min)</u> 5.0	(ieet)	(IVIL	(11/580	•) (Direct E	ntry, Di	rect								
repare	POST V ed by Hor D® 10.00-	sley W	itten Gro 1445 © 2	up, Inc. D18 Hydro		Subcat	chmei	nt DA3I	p: DA3t) pervic	bus	7			Printed	oup, Inc. a/I=3.33" 3/5/2021 Page 18
repare	ed by Hor	sley W	itten Gro 1445 © 21	up, Inc.)18 Hydra		Subcat		nt DA3I	p: DA3k) pervic	pus	7			<i>R Rainfa</i> Printed	all=3.33" 3/5/2021
repare	ed by Hor	sley W	itten Gro 1445 © 2	up, Inc. D18 Hydro		Subcat	chmei	nt DA3I yraph	Run		T R Ra ff Ar ⁄olur	ype infa ea= ne= Dept	III 24 II=3. 4,26 0.00 h=0. 5.0	1-hr 33" 0 sf 0 af 00"	/R Rainfa Printed	all=3.33" 3/5/2021

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Horsley Witten Group, Inc. Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 19

Runoff	=	0.78	cfs @ 12.0	07 hrs. V	olume=	= 0.060 af, Depth= 3.10"
			-			CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III	24-hr 2YI	R Rainf	all=3.33"	, 110	J	· · · · · · · · · · · · · · · · · · ·
A	Area (sf)	CN	Description		2.0	
	9,486 693	98 98	Paved par Sidewalks	, HŜG A	ЪА	
	10,179 10,179	98	Weighted 100.00%	Average mperviou	s Area	
	Length		e Velocity	Capac	ty Desc	scription
(min) 5.0	(feet)	(ft/ft			s)	rect Entry, Direct
						Horeley Witten Group, Inc.
	POST V					Horsley Witten Group, Inc. <i>Type III 24-hr</i> 2YR Rainfall=3.33"
Prepare	ed by Hor	slev W	itten Grou)1445 © 20	p, Inc. 18 HydroC	CAD Softw	
Prepare	ed by Hor	slev W	itten Grou)1445 © 20	p, Inc. 18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 tware Solutions LLC Page 20
Prepare	ed by Hor	slev W	itten Grou 11445 © 20	p, Inc. 18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 ware Solutions LLC Page 20 Printed 3/5/2021 Page 20
Prepare	ed by Hor	slev W	itten Grou 01445 © 20	p, Inc. 18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Page 20 Page 20 Page 20 Page 20 Page 20
Prepare <u>lydroCA</u> 0.	ed by Hor <u>AD® 10.00-</u> .85	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 ware Solutions LLC Page 20 Printed 3/5/2021 Page 20
Prepare <u>lydroCA</u> 0.	ed by Hor AD® 10.00-	sley W 22 s/n (itten Grou 11445 © 20 	18 HydroC		Type III 24-hr 2YR Rainfali=3.33" Printed 3/5/2021 Page 20 Creatchment DA3bi: DA3b impervious Hydrograph
Prepare HydroCA 0. 0.	ed by Hor AD® 10.00-	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Protectchment DA3bi: DA3b impervious Hydrograph
Prepare HydroCA 0. 0.	ed by Hor AD® 10.00-	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Page 20 Pag
Prepare HydroCA 0. 0. 0. 0. 0. 0.	ed by Hor AD® 10.00-	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Prage 2
Prepare HydroCA 0. 0. 0. 0. 0. 0. 0.	ed by Hor AD® 10.00-	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Page 20 Pag
Prepare HydroCA 0. 0. 0. 0. 0. 0. 0.	.85 .75 .65 .65	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Page
Prepare HydroCA 0. 0. 0. 0. 0. 0. 0.	ed by Hor <u>D</u> ® 10.00- .85 .75 .75 .75 .75 .75 .75 .75 .7	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Prage 2
Prepare HydroCA 10 10 10 10 10 10 10 10 10 10 10 10 10	ed by Hor <u>D</u> ® 10.00- .85 0.8 .75 0.7 .65 0.6 .55 .55 .45 0.4	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Page
• 100 Ctransformed Prepare HydroCA 100 Ctransformed (Ctransformed Ctransformed Ct	ed by Hor <u>D</u> ® 10.00- 8.85 0.8 75 0.7 0.7 0.6 0.6 0.6 0.6 0.5 0.5 0.5 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Prace 2
Prepare HydroCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	85 .85 .75 .65 .65 .65 .65 .45 .45 .35 .45 .35 .45 .35 .45 .35 .45 .45 .45 .45 .45 .45 .45 .4	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Prace 2
Prepare HydroCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed by Hor <u>D</u> ® 10.00- .85 0.8 .75 0.7 .65 0.6 .55 0.5 .45 0.4 .35 0.3 .25 .25 	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Prace 2
Prepare HydroCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed by Hor <u>D</u> ® 10.00- .85 0.8 .75 0.7 .65 0.6 .55 0.6 .55 0.6 .55 0.4 .35 0.4 .35 0.3 .25 0.2 .25 0.2	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Prace 2
Prepare HydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Hor <u>D</u> ® 10.00- .85 0.8 .75 0.7 .65 0.6 .55 0.5 .45 0.4 .35 0.3 .25 .25 	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Prace 2
Prepare HydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Hor <u>D</u> ® 10.00- 85 0.8 0.8 0.7 0.7 0.6 0.6 0.6 0.5 0.5 0.5 0.4 0.4 0.3 0.3 0.3 0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	sley W 22 s/n ()1445 © 20	18 HydroC		Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 20 Prace 2

unoff =	0.00 cfs @	0.00 hrs, Volume=		ent DA3c: DA3c perviou Depth= 0.00"		
				0-72.00 hrs, dt= 0.01 hrs		
pe III 24-hr	2YR Rainfall=3.33	3"	, ,	,		
Area (s 4,66		ption Grass cover, Good,	HSG A			
21,47	9 30 Woods	s, Good, HSG A				
26,14 26,14		ted Average 1% Pervious Area				
Tc Leng		ocity Capacity De	scription			
<u>(min) (fe</u> 5.0	et) (ft/ft) (ft/s	sec) (cfs) Dir	ect Entry, Direct			
					Harolavi	Mittee Crown Jac
9038-POS						Nitten Group, Inc. /R Rainfall=3.33"
epared by	Horsley Witten G	iroup, Inc. ∋ 2018 HydroCAD Sof	tware Solutions LLC			
epared by	Horsley Witten G	2018 HydroCAD Sof		3c: DA3c pervious		(R Rainfall=3.33" Printed 3/5/2021
epared by	Horsley Witten G	2018 HydroCAD Sof		3c: DA3c pervious		/R Rainfall=3.33" Printed 3/5/2021
epared by	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA	3c: DA3c pervious		/R Rainfall=3.33" Printed 3/5/2021 Page 22
repared by /droCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA		Type III 24-hr 2	/R Rainfall=3.33" Printed 3/5/2021
repared by /droCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA			/R Rainfall=3.33" Printed 3/5/2021 Page 22
repared by /droCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA	Ту	Type III 24-hr 2	/R Rainfall=3.33" Printed 3/5/2021 Page 22
repared by /droCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA	Ty 2YR Rai	Type III 24-hr 2 pe III 24-hr nfall=3.33"	/R Rainfall=3.33" Printed 3/5/2021 Page 22
repared by /droCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA	Ty 2YR Rai Runoff Area	Type III 24-hr 2 pe III 24-hr nfall=3.33" i=26,141 sf	/R Rainfall=3.33" Printed 3/5/2021 Page 22
Tepared by IdroCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA	Ty 2YR Rai Runoff Area Runoff Volum	Type III 24-hr 2 pe III 24-hr nfall=3.33" i=26,141 sf ie=0.000 af	/R Rainfall=3.33" Printed 3/5/2021 Page 22
Tepared by IdroCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA	Ty 2YR Rai Runoff Area Runoff Volum Runoff Do	Type III 24-hr 2 pe III 24-hr nfall=3.33" i=26,141 sf ie=0.000 af epth=0.00"	/R Rainfall=3.33" Printed 3/5/2021 Page 22
repared by /droCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA	Ty 2YR Rai Runoff Area Runoff Volum Runoff Do	Type III 24-hr 2 pe III 24-hr nfall=3.33" i=26,141 sf ie=0.000 af epth=0.00" Γc=5.0 min	/R Rainfall=3.33" Printed 3/5/2021 Page 22
Tepared by IdroCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA	Ty 2YR Rai Runoff Area Runoff Volum Runoff Do	Type III 24-hr 2 pe III 24-hr nfall=3.33" i=26,141 sf ie=0.000 af epth=0.00"	/R Rainfall=3.33" Printed 3/5/2021 Page 22
Tepared by IdroCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA	Ty 2YR Rai Runoff Area Runoff Volum Runoff Do	Type III 24-hr 2 pe III 24-hr nfall=3.33" i=26,141 sf ie=0.000 af epth=0.00" Γc=5.0 min	/R Rainfall=3.33" Printed 3/5/2021 Page 22
Tepared by IdroCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA	Ty 2YR Rai Runoff Area Runoff Volum Runoff Do	Type III 24-hr 2 pe III 24-hr nfall=3.33" i=26,141 sf ie=0.000 af epth=0.00" Γc=5.0 min	/R Rainfall=3.33" Printed 3/5/2021 Page 22
Tepared by IdroCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA	Ty 2YR Rai Runoff Area Runoff Volum Runoff Do	Type III 24-hr 2 pe III 24-hr nfall=3.33" i=26,141 sf ie=0.000 af epth=0.00" Γc=5.0 min	/R Rainfall=3.33" Printed 3/5/2021 Page 22
Tepared by IdroCAD® 10	Horsley Witten G	2018 HydroCAD Sof	ıbcatchment DA	Ty 2YR Rai Runoff Area Runoff Volum Runoff Do	Type III 24-hr 2 pe III 24-hr nfall=3.33" i=26,141 sf ie=0.000 af epth=0.00" Γc=5.0 min	/R Rainfall=3.33" Printed 3/5/2021 Page 22

unoff							-		chment DA				-					
	=		_			s, Vol			9 af, Depth=									
unoff by /pe III 2	y SCS T 24-hr 2	R-20 m YR Rair	ethod fall=3	, UH= .33"	SCS,	Weigh	nted-CN	N, Time Spa	n= 0.00-72.00) hrs, dt	= 0.01 hrs							
A	rea (sf)	CN	Des	criptio	<u>n</u>													
	2,649 530	98 98		ed par walks		HSG A	4											
	3,179 3,179	98	Wei	ghted	Avera		Area											
То	Length	Slo			•		Desc	ription										
(min)	(feet)			ft/sec		(cfs)												
5.0							Direc	ct Entry, Di	rect									
															lorslav	Witte	an Group	Inc
	POST												Тур			?YR F	en Group, Rainfall=2	3.33″
			Vitten 01445	Grou 5 © 20	ıp, İn	c. rdroCAI	D Softwa	are Solutions	S LLC				Тур			YR F	Rainfall=3 nted 3/5/	3.33″
			Vitten 01445	Grou 5 © 20	ıp, İn 18 Hy	C. rdroCAl		are Solutions		3c imp	pervious		Тур			YR F	Rainfall=3 nted 3/5/	3.33″ 2021
			Vitten 01445	Grou 5 © 20	ıp, İnd 18 Hy	C. rdroCAl		atchment	DA3ci: DA	3c imp	pervious		Тур			YR F	Rainfall=3 nted 3/5/	3.33″ 2021
			Vitten 01445	Grou © 20	ıp, İnd 18 Hy	C. rdroCAl			DA3ci: DA	3c imp	pervious		Тур			YR F	Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
epare <u>/droCAI</u>						C. rdroCAl		atchment	DA3ci: DA	3c imp	pervious		Тур			YR F	Rainfall=3 nted 3/5/	3.33" 2021 <u>je 24</u>
epare <u>/droCAI</u>	ed by Ho D® 10.00			Grou © 20		c. rdroCAl		atchment	DA3ci: DA	3c imp				e III 24	4-hr 2	Pri	Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
0.2 0.2	26 24					C. /droCAl		atchment	DA3ci: DA			Тур	eII	l 24	4-hr 2	Pri	Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
0.2 0.2	26 24 22 2					C. Indefendence		atchment	DA3ci: DA	2	YR F	Typ Rain	e II fall	e 24 24 3 .:	4-hr 2 - hr 33"	? YR F Prii	Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
0.2 0.2 0.2 0.2	26 24 22 22					c. IdroCAI		atchment	DA3ci: DA	2 Rur	YR F	Typ Rain Area	e II fall =3	e 24 24 3.3	4-hr 2 -hr 33" €sf		Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
0.2 0.2 0.2 0.2 0.2	26 24 22 18 18 19 10 10 10 10 10 10 10 10 10 10 10 10 10					C. rdroCAI		atchment	DA3ci: DA	2 Rur	YR F	Typ Rain Area	e II fall =3	e 24 24 3.3	4-hr 2 -hr 33" €sf		Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
0.2 0.2 0.2 0.2 0.2	26 24 22 2 18 10 20 10 2					C. //droCAl		atchment	DA3ci: DA	2 Rur Inof	YR F noff / f Vol	Typ Rain Area ume	e II fall =3 =0	e /// 24 =3.3 179 019	4-hr 2 -hr 33") sf) af		Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
0.2 0.2 0.2 0.2 0.2	26 by Ho D® 10.00 26 24 22 18 16 14					C. IndroCA		atchment	DA3ci: DA	2 Rur Inof	YR F	Typ Rain Area ume Dej	e II fall =3 =0 oth	e 24 =3.: 179 019 =3.:	4-hr 2 -hr 33") sf) af 10"		Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	26 24 22 2 18 10 20 10 2					C. IdroCAI		atchment	DA3ci: DA	2 Rur Inof	YR F noff / f Vol	Typ Rain Area ume Dej	e II fall =3 =0 oth ;=5	e /// 24 24 3.: 179 019 =3.: .0 n	-hr 33") sf 10" nin		Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
Log (cts) Log (c	26 by Ho D® 10.00 26 24 22 18 16 14					C. droCAI		atchment	DA3ci: DA	2 Rur Inof	YR F noff / f Vol	Typ Rain Area ume Dej	e II fall =3 =0 oth ;=5	e 24 =3.: 179 019 =3.:	-hr 33") sf 10" nin		Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
2.0 2.0 3.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	26 10.00 26 24 22 22 18 16 14 14 12					C. droCA		atchment	DA3ci: DA	2 Rur Inof	YR F noff / f Vol	Typ Rain Area ume Dej	e II fall =3 =0 oth ;=5	e /// 24 24 3.: 179 019 =3.: .0 n	-hr 33") sf 10" nin		Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
repare (droCAI 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	26 by Ho D® 10.00 26 24 22 24 22 18 16 14 12 0.1					C. IdroCAI		atchment	DA3ci: DA	2 Rur Inof	YR F noff / f Vol	Typ Rain Area ume Dej	e II fall =3 =0 oth ;=5	e /// 24 24 3.: 179 019 =3.: .0 n	-hr 33") sf 10" nin		Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
repare (droCAI 0.2 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	26 by Ho D® 10.00 26 24 22 22 18 16 14 14 22 20 12 20 10 20 20 20 20 20 20 20 20 20 20 20 20 20					C. rdroCAI		atchment	DA3ci: DA	2 Rur Inof	YR F noff / f Vol	Typ Rain Area ume Dej	e II fall =3 =0 oth ;=5	e /// 24 24 3.: 179 019 =3.: .0 n	-hr 33") sf 10" nin		Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>
repare ydroCAI 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	ed by Ho D® 10.00 26 24 22 18 16 14 12 0.1					C. droCAI		atchment	DA3ci: DA	2 Rur Inof	YR F noff / f Vol	Typ Rain Area ume Dej	e II fall =3 =0 oth ;=5	e /// 24 24 3.: 179 019 =3.: .0 n	-hr 33") sf 10" nin		Rainfall=3 nted 3/5/ Pag	3.33" 2021 <u>je 24</u>

			Sumr	nary for	r Subcate	chment DA3	d: DA3d p	pervious				
Runoff =	= 0.00	cfs @ 24.0	0 hrs, Volu	me=	0.000	af, Depth= 0.	00"					
Runoff by SC Type III 24-h			SCS, Weigh	ted-CN, T	Time Span	= 0.00-72.00 h	rs, dt= 0.01	hrs				
Area		Description										
	<u>197 39</u> 197		<u>ss cover, Go</u> ervious Are		Α							
Tc Lei		e Velocity		Descript	tion							
<u>(min)</u> (f 5.0	feet) (ft/	ft) (ft/sec)	(cfs)	Direct E	Entry, Dire	ect						
				Subca	itchment	DA3d: DA3	d perviou	S				
			- 4 - 6 - 1 - 4 - 6 -		Hydro:	graph			Runof	3		
		Flow (cb) Flow (cb)				Runoff	'R Rainfa noff Area Volume= noff Dept Tc=	a=197 sf 0.000 af th=0.00" =5.0 min CN=39		_		
Prepared by	y Horsley \	Vitten Grou	p, Inc. 8 HydroCAF) Software	Solutions I	16			Type I		2YR Ra	Group, Inc. infall=3.33" ed 3/5/2021 Page 26
Prepared by	y Horsley \	Vitten Grou 01445 © 201	18 HydroCAE				i: DA3d in	npervious			2YR Ra	infall=3.33"
Prepared by HydroCAD® 1	y Horsley \ 10.00-22 s/n	<u>01445 © 20'</u>	I8 HydroCAE Summa	ary for S	Subcatch	nment DA3d		npervious			2YR Ra	<i>infall</i> =3.33" ed 3/5/2021
Prepared by HydroCAD® 1 Runoff =	y Horsley \ 10.00-22 s/n = 0.36	01445 © 20 cfs @ 12.0	18 HydroCAE Summa 07 hrs, Volu	ary for S me=	Subcatch 0.028	af, Depth= 3.	10"				2YR Ra	<i>infall</i> =3.33" ed 3/5/2021
Prepared by HydroCAD® 1 Runoff = Runoff by SC	y Horsley \ 10.00-22 s/n = 0.36 CS TR-20 m	01445 © 20 cfs @ 12.0 ethod, UH=3 fall=3.33"	<u>Summa</u> Summa 7 hrs, Volu SCS, Weigh	ary for S me=	Subcatch 0.028	nment DA3d	10"				2YR Ra	<i>infall</i> =3.33" ed 3/5/2021
Type III 24-h Area	y Horsley \ 10.00-22 s/n = 0.36 CS TR-20 rr ar 2YR Rair	01445 © 20 cfs @ 12.0 ethod, UH=3 fall=3.33" 	<u>Summa</u> Summa 7 hrs, Volu SCS, Weigh	ary for \$ me= ted-CN, T	Subcatch 0.028	af, Depth= 3.	10"				2YR Ra	<i>infall</i> =3.33" ed 3/5/2021
Prepared by HydroCAD® 1 Runoff = Runoff by SC Type III 24-h Area 4,6	y Horsley \ 10.00-22 s/n = 0.36 CS TR-20 n Ir 2YR Rair (sf) CN	cfs @ 12.0 ethod, UH=3 fall=3.33" Descriptior Paved parl	18 HydroCAE Summa 17 hrs, Volu SCS, Weigh	ary for \$ me= ted-CN, T	Subcatch 0.028	af, Depth= 3.	10"				2YR Ra	<i>infall</i> =3.33" ed 3/5/2021
Prepared by HydroCAD® 1 Runoff = Runoff by SC Type III 24-h <u>Area</u> 4,6 4,6 Tc Lei	y Horsley \ <u>10.00-22 s/n</u> = 0.36 CS TR-20 m or 2YR Rain (sf) CN <u>686 98</u> <u>686</u>	o11445 © 20 cfs @ 12.0 ethod, UH= fall=3.33" <u>Description</u> Paved part 100.00% Ir pe Velocity	Summa Summa 07 hrs, Volu SCS, Weigh h h king, HSG A npervious A	ary for \$ me= ted-CN, T	Subcatch 0.028 Fime Span	af, Depth= 3.	10"				2YR Ra	<i>infall</i> =3.33" ed 3/5/2021
Prepared by HydroCAD® 1 Runoff = Runoff by SC Type III 24-h <u>Area</u> 4,6 4,6 Tc Lei	y Horsley \ <u>10.00-22 s/n</u> = 0.36 CS TR-20 m r 2YR Rair (sf) CN <u>686 98</u> 686 ngth Slop	o11445 © 20 cfs @ 12.0 ethod, UH=: fall=3.33" <u>Description</u> Paved part 100.00% In pe Velocity	18 HydroCAE Summa 17 hrs, Volu SCS, Weigh h king, HSG A npervious A Capacity	ted-CN, T	Subcatch 0.028 Time Span tion	af, Depth= 3.	10"				2YR Ra	<i>infall</i> =3.33" ed 3/5/2021
Prepared by <u>HydroCAD® 1</u> Runoff = Runoff by SC Type III 24-h <u>4,6</u> 4,6 Tc Let <u>(min) (f</u>	y Horsley \ <u>10.00-22 s/n</u> = 0.36 CS TR-20 m r 2YR Rair (sf) CN <u>686 98</u> 686 ngth Slop	o11445 © 20 cfs @ 12.0 ethod, UH=: fall=3.33" <u>Description</u> Paved part 100.00% In pe Velocity	18 HydroCAE Summa 17 hrs, Volu SCS, Weigh 1 king, HSG A npervious A Capacity (cfs)	rea Direct E	Subcatch 0.028 Fime Span tion	nment DA3d af, Depth= 3. = 0.00-72.00 h DA3di: DA3d	10" rs, dt= 0.01	hrs			2YR Ra	<i>infall</i> =3.33" ed 3/5/2021

19038-POST V3 Prepared by Horsley Witten Group, Inc.

repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22_s/n 01445_© 2018 HydroCAD Software Solutions LLC	Printed 3/5/2021 Page 27
Summary for Subcatchment R1E: EAST ROO	F
unoff = 0.87 cfs @ 12.07 hrs, Volume= 0.067 af, Depth= 3.10"	
unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs	
ype III 24-hr 2YR Rainfall=3.33"	
Area (sf) CN Description 11,331 98 Roofs, HSG A	
11,331 100.00% Impervious Area	
Tc Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs)	
5.0 Direct Entry, Direct	
Subcatchment R1E: EAST ROOF Hydrograph	
0.87 cfs 0.87 c	33" - 1 sf - 7 af - min - ≠98 -
9038-POST V3 repared by Horsley Witten Group, Inc.	Horsley Witten Group, Inc. <i>Type III 24-hr 2YR Rainfall=</i> 3.33" Printed 3/5/2021 Page 28
9038-POST V3 repared by Horsley Witten Group, Inc.	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 28
9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROC	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 28
9038-POST V3 repared by Horsley Witten Group, Inc. /droCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROC unoff = 0.77 cfs @ 12.07 hrs, Volume= 0.059 af, Depth= 3.10" unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 28
9038-POST V3 repared by Horsley Witten Group, Inc. /droCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROC unoff = 0.77 cfs @ 12.07 hrs, Volume= 0.059 af, Depth= 3.10" unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 28
9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROC unoff = 0.77 cfs @ 12.07 hrs, Volume= 0.059 af, Depth= 3.10" unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs ype III 24-hr 2YR Rainfall=3.33" Area (sf) CN Description 10,000 98 Roofs, HSG A	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 28
9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROC unoff = 0.77 cfs @ 12.07 hrs, Volume= 0.059 af, Depth= 3.10" unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs ype III 24-hr 2YR Rainfall=3.33" Area (sf) CN Description 10,000 98 Roofs, HSG A 10,000 100.00% Impervious Area	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 28
9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROC unoff = 0.77 cfs @ 12.07 hrs, Volume= 0.059 af, Depth= 3.10" unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs ype III 24-hr 2YR Rainfall=3.33" Area (sf) CN Description 10,000 98 Roofs, HSG A 10,000 100.00% Impervious Area	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 28
9038-POST V3 Prepared by Horsley Witten Group, Inc. lydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROC Runoff = 0.77 cfs @ 12.07 hrs, Volume= 0.059 af, Depth= 3.10" Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs ype III 24-hr 2YR Rainfall=3.33" Area (sf) CN Description 10,000 98 Roofs, HSG A 10,000 100.00% Impervious Area Tc Length Slope Velocity Construction (ft/ft) (min) (ft/ft)	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 28

		Summary	/ for Pond 100: CB 100		
nflow Area = nflow =	0.673 ac, 10.84% lm 0.24 cfs @ 12.07 hrs		n = 0.34" for 2YR event 019 af		
Dutflow = Primary =	0.24 cfs @ 12.07 hrs 0.24 cfs @ 12.07 hrs	s, Volume= 0.0	019 af, Atten= 0%, Lag= 0.0 min 019 af		
outing by Stor-Ir	d method, Time Span= (
eak Elev= 50.32	@ 12.07 hrs				
evice Routing #1 Primary		Round Culvert L= 4.0	0' CPP, projecting, no headwall, k	<e= 0.900<="" td=""><td></td></e=>	
			49.98' S= 0.0050 '/' Cc= 0.900 nooth interior, Flow Area= 0.79 sf		
	Max=0.24 cfs @ 12.07		e Discharge)		
-1=Culvert (Ba	rrel Controls 0.24 cfs @	1./1 tps)			
				Horsley Witten Group, Type III 24-hr 2YR Rainfall=3	3.33"
repared by Hor	3 sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	S. SroCAD Software Solution	ns LLC	Type III 24-hr 2YR Rainfall= Printed 3/5/	3.33"
repared by Hor	sley Witten Group, Inc	droCAD Software Solution	ns LLC ond 100: CB 100	Type III 24-hr 2YR Rainfall= Printed 3/5/	3.33″ 2021
repared by Hor	sley Witten Group, Inc	droCAD Software Solution	ond 100: CB 100	Type III 24-hr 2YR Rainfall= Printed 3/5/	3.33″ 2021
repared by Hor	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100	Type III 24-hr 2YR Rainfall=3 Printed 3/5/ Pac	3.33" 2021 <u>ge 30</u>
repared by Hor	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100 graph	Type III 24-hr 2YR Rainfall=3 Printed 3/5/ Pac	3.33" 2021 <u>ge 30</u>
repared by Hor ydroCAD® 10.00-	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100 graph Inflow Area	Type III 24-hr 2YR Rainfall=: Printed 3/5/ Pac	3.33" 2021 <u>ge 30</u>
repared by Hor ydroCAD® 10.00-	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100 graph Inflow Area	Type III 24-hr 2YR Rainfall=3 Printed 3/5/ Pac	3.33" 2021 <u>ge 30</u>
0.26 0.24	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100 graph Inflow Area	Type III 24-hr 2YR Rainfall= Printed 3/5/ Pac	3.33" 2021 <u>ge 30</u>
0.26 0.24 0.22	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100 graph Inflow Area Peak E	Type III 24-hr 2YR Rainfall=: Printed 3/5/ Pac I=0.673 ac Iev=50.32' 12.0"	3.33" 2021 <u>ge 30</u>
0.26 0.24 0.22 0.2 0.18	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100 graph Inflow Area Peak E	Type III 24-hr 2YR Rainfall= Printed 3/5/ Pac I=0.673 ac Iev=50.32' 12.0'' nd Culvert	3.33" 2021 <u>ge 30</u>
0.26 0.24 0.22 0.2 0.18	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100 graph Inflow Area Peak E	Type III 24-hr 2YR Rainfall=: Printed 3/5/ Pac I=0.673 ac Iev=50.32' 12.0"	3.33" 2021 <u>ge 30</u>
0.26 0.24 0.22 0.22 0.18 0.16 0.14 0.12	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100 graph Inflow Area Peak E	Type III 24-hr 2YR Rainfall= Printed 3/5/ Pac I=0.673 ac Iev=50.32' 12.0'' nd Culvert	3.33" 2021 <u>ge 30</u>
0.26 0.24 0.22 0.2 0.18 0.16 0.14 0.12 0.12 0.1	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100 graph Inflow Area Peak E Rour	Type III 24-hr 2YR Rainfall= Printed 3/5/ Pac Pac Pac Pac Pac Pac Pac Pac Pac Pac	3.33" 2021 <u>ge 30</u>
ydroCAD® 10.00- 0.26 0.24 0.22 0.2 0.16 0.16 0.16 0.16 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100 graph Inflow Area Peak E Rour	Type III 24-hr 2YR Rainfall= Printed 3/5/ Pac Pac I=0.673 ac Iev=50.32' 12.0" nd Culvert n=0.013	3.33" 2021 <u>ge 30</u>
0.26 0.24 0.22 0.22 0.18 0.16 0.14 0.12 0.14 0.12 0.14 0.12 0.12 0.12 0.12 0.12 0.12 0.08 0.06	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100 graph Inflow Area Peak E Rour	Type III 24-hr 2YR Rainfall= Printed 3/5/ Pac Pac Pac Pac Pac Pac Pac Pac Pac Pac	3.33" 2021 <u>ge 30</u>
0.26 0.22 0.22 0.22 0.22 0.18 0.18 0.16 0.14 0.12 0.14 0.12 0.14 0.12 0.14	sley Witten Group, Inc 22 s/n 01445 © 2018 Hyc	droCAD Software Solution	ond 100: CB 100 graph Inflow Area Peak E Rour	Type III 24-hr 2YR Rainfall= Printed 3/5/ Pac Pac Pac Pac Pac Pac Pac Pac Pac Pac	3.33" 2021 <u>ge 30</u>

vdroCAD® 10.00-22							Page 31
		:	Summary for F	Pond 200: CB 2	00		
flow = 0 utflow = 0 rimary = 0).36 cfs @ 12).36 cfs @ 12).36 cfs @ 12	97% Impervious, In 2.07 hrs, Volume= 2.07 hrs, Volume= 2.07 hrs, Volume= 0.00 hrs, Volume=	0.028 af 0.028 af, 0.028 af	97" for 2YR eve Atten= 0%, Lag=			
outing by Stor-Ind r eak Elev= 52.08' @		Span= 0.00-72.00	hrs, dt= 0.01 hrs				
evice Routing #1 Secondary		Outlet Devices 12.0" Round Cu	lvert = 4.0' CM	/P square edge be	adwall Ke=	0 500	
,		Inlet / Outlet Inver n= 0.013 Corruga	rt= 52.70' / 52.68' ated PE, smooth i	S= 0.0050 '/ Co nterior, Flow Area	= 0.900 = 0.79 sf		
#2 Primary	51.66'	n= 0.013 Corruga	rt= 51.66' / 51.41' ated PE, smooth i	S= 0.0050 '/' Co nterior, Flow Area	= 0.900 = 0.35 sf	0.900	
#3 Secondary	55.79'	Head (feet) 0.20 5.50 Coef. (English) 2	0.40 0.60 0.80		.60 1.80 2.0		3.50 4.00 4.50 5.00 .66 2.68 2.70 2.74 2.79
rimary OutFlow M	lax=0 36 cfs @	2.88	2 08' (Free Disc	harde)			
-2=Culvert (Barre			2.00 (Fiee Disci	narge)			
condary OutFlow -1=Culvert (Cont		s @ 0.00 hrs HW=	=51.66' (Free Dis	scharge)			
		Weir (Controls 0.	.00 cfs)				
epared by Horsle						Type III	Horsley Witten Group, Inc. 24-hr 2YR Rainfall=3.33 Printed 3/5/2021
epared by Horsle						Type III	24-hr 2YR Rainfall=3.33
epared by Horsle			Pond 20	00: CB 200		Type III	24-hr 2YR Rainfall=3.33 Printed 3/5/2021
epared by Horsle	<u>s/n 01445 © 2</u>	018 HydroCAD Soft				Type III	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
epared by Horsle	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: CB 200			24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
epared by Horsle droCAD® 10.00-22	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow	Area=	0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
epared by Horsle droCAD® 10.00-22	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow	Area=	0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
0.4 0.38 0.36 0.34	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
0.4 0.38 0.34 0.32	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
0.4 0.38 0.36 0.34	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
0.4 0.38 0.36 0.34 0.32 0.33 0.28 0.26	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
0.4 0.38 0.36 0.32 0.3 0.26 0.26	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
0.4 0.38 0.36 0.32 0.3 0.26 0.26	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
epared by Horsle droCAD® 10.00-22	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
0.4 0.38 0.36 0.34 0.32 0.33 0.28 0.26 0.24 0.24 0.24 0.22 0.2 0.24 0.24 0.24	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
0.4 0.38 0.36 0.34 0.32 0.28 0.26 0.24 0.24 0.22 0.22 0.22 0.22 0.21 0.18 0.18 0.14	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
0.38 0.36 0.34 0.32 0.32 0.28 0.26 0.24 0.26 0.24 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.16 0.14 0.12 0.14 0.12 0.12 0.16 0.14 0.12 0.16 0.14 0.12 0.16 0.14 0.12 0.22 0.18 0.16 0.14 0.12 0.14 0.12 0.12 0.12 0.14 0.12 0.12 0.14 0.12 0.14 0.12 0.12 0.14 0.12 0.12 0.14 0.12 0.12 0.14 0.12	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
0.4 0.4 0.38 0.36 0.34 0.32 0.3 0.28 0.24 0.14 0.1	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
0.4 0.4 0.38 0.36 0.34 0.32 0.32 0.34 0.24 0.18 0.16 0.14 0.08 0.08 0.08 0.14 0.12 0.14 0.04 0.14 0.04 0.04 0.14 0.04 0.04 0.14 0.04 0.04 0.14 0.04 0.04 0.14 0.04 0.04 0.14 0.04 0.04 0.04 0.04 0.14 0.04 0.	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32
0.4 0.4 0.38 0.38 0.36 0.34 0.32 0.28 0.26 0.24 0.24 0.22 0.22 0.24 0.24 0.22 0.24 0.24	s/n 01445 © 2	018 HydroCAD Soft	Pond 20	00: СВ 200 Inflow		0.112	24-hr 2YR Rainfall=3.33 Printed 3/5/2021 Page 32

Summary	for	Pond	BIO1:	BIO	1
---------	-----	------	-------	-----	---

linker var linker som i 222 as 36.735 imperiodes, Inford Depth = 1.14" for 2/R event inford Duffor = 1.30 ds = 12.11 hrs. Volume 0.118 af Rading VStor-informethod. Time Spane 0.09-72 col hrs. dt = 0.01 hrs. PackExers 54.04 (2011) Hrs. Volume 0.118 af Rading VStor-informethod. Time Spane 0.09-72 col hrs. dt = 0.01 hrs. PackExers 54.04 (2011) Hrs. Volume 0.118 af (100% of inford) Contrast-on-Mass det time 67.4 min calculate for 0.116 af (100% of inford) Contrast-on-Mass det time 67.4 min calculate for 0.116 af (100% of inford) Contrast-on-Mass det time 67.4 min calculate for 0.116 af (100% of inford) Contrast-on-Mass det time 67.4 min calculate for 0.116 af (100% of inford) Contrast-on-Mass det time 67.4 min calculate for 0.116 af (100% of inford) Contrast-on-Mass det time 67.4 min calculate for 0.116 af (100% of inford) Contrast-on-Mass det time 67.4 min calculate for 0.116 af (100% of inford) Contrast-on-Mass det time 67.4 min calculate for 0.116 af (100% of inford) Contrast-on-Mass det time 67.4 min calculate for 0.116 af (100% of 0.000 min calculate for 0.000 min contrast-on-Mass det time 67.4 min calculate for 0.000 min contrast-on-Mass det time 67.4 min calculate for 0.000 min contrast-on-Mass det time 67.4 min calculate for 0.000 min contrast-on-Mass det time 67.4 min calculate for 0.000 min contrast-on-Mass det time 67.4 min calculate for 0.000 min contrast-on-Mass det time 67.4 min calculate for 0.000 min contrast-on-Mass det time 67.4 min calculate for 0.000 min contrast-on-Mass det time for 0.000 min contrast-on-Mass det time for 0.000 min contrast-on-Mass det time for 0.000 min contrast-on-Mass det time for 0.000 min contrast-on-Mass det time for 0.000 min contrast-on-Mass det time for 0.000 min contrast-on-Mass det time for 0.000 min contrast-on-Mass det time for 0.000 min contrast-on-Mass det time for 0.0000 min contrast-on-Mass det time for 0.0000 min contrast-on-Mass det time for 0.0000 min contrast-on-Mass det time for 0.00000 min contrast-on-Mass det time for 0.0000 min contrast-					Summary for	Pond BIO1:	BIO 1		
Pleak Eliev ² 59.40° (@ 12.111 hrs. Suirf Area 1.009 af Storage = 1.145 cf Plug-Biow detention times 67.4 min calculated for 0.116 af (100% of Inflow) Center-ol-Mass as Linnes 67.4 min calculated for 0.116 af (100% of Inflow) Center-ol-Mass as Linnes 67.4 min (22.20.746.d) Volume Invert Avail Storage Dstorage Dstar (Prismatic)Listed below (Recalc) Elevation Surf Area Inc. Store Cum Store (1981) Elevation Surf Area Inc. Store Cum Store (1981) Outling Invert Outliet Devices #1 Primary 55:00 1.965 2.210 Powice Routing Invert Outliet Invert 5.807 (CPP, projecting, no headwall, Ke= 0.900 Intel / Outliet Invert - 55.837 (Sec 0.00497 C = 0.900) Intel / Outliet Invert - 55.837 (Sec 0.00497 C = 0.900) Intel / Outliet Invert - 55.837 (Sec 0.00497 C = 0.900) Intel / Outliet Invert - 55.837 (Sec 0.00497 C = 0.900) Intel / Outliet Invert - 55.857 (Sec 0.00497 C = 0.900) Intel / Outliet Invert - 55.857 (Sec 0.00497 C = 0.900) Intel / Outliet Invert - 55.857 (Sec 0.00497 C = 0.900) Intel / Outliet Invert - 55.857 (Sec 0.00497 C = 0.900) Intel / Outliet Invert - 55.857 (Sec 0.00497 C = 0.900) Intel / Outliet Invert - 55.857 (Sec 0.00497 C = 0.900) Intel / Outliet Invert - 55.857 (Sec 0.00497 C = 0.900) Intel / Outliet Invert - 55.857 (Sec 0.00497 C = 0.900 J = 0.900 Intel / Outliet Invert - 55.857 (Sec 0.00497 C = 0.900 J = 0.	Inflow Outflow	= 1 = 1	.51 cfs @ 1 .30 cfs @ 1	I2.07 hrs, Volum I2.11 hrs, Volum	ne= 0.116 a ne= 0.116 a	f f, Atten= 14%,			
Pug-Flow detention time= 67.4 min calculated for 0.116 af (100% of inflow) Center-Mass det. time= 67.4 min (a22.0 - 754.6) Volume Invert Avail Storage Description #1 58.50 2.210 d Custom Stope Data (Prismatic)Listed below (Recalc) Elevation Surf Area Inc. Store Cumbic-feet 58.50 1.800 545 54.5 58.50 1.800 545 54.5 60.00 1.956 2.210 Device #1 Primary 50.00 1.010 Store Score #2 Device 1.52.240 Hot. Score Score Score #2 Device 1 50.23 4.0° Round Culvert 1= 45.0° (CPP, projecting, no headwall, Ke= 0.900 me 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf Hot is 0.010 Flow How heads #3 Device 1 52.85 2.40° Hot. Corridoc/Gota 10:00 C = 0.900 me 0.010 Flow heads Hot is 0.010 Flow heads Hot is 0.010 Flow heads #4 Device 3 58.55 2.470 Inhr Extilization over Surface area 1.001 Flow heads Hot is 0.021 Flow heads #4 Device 3 58.55 2.470 Inhr Extilization over Surface area 1.001 Flow Area= 1.02 sf									
#1 58.50" 2,210 of Custom Stage Data (Prismatic/Listed below (Recale) Elevation Surf.Area Inc.Store Cum Store 58.50 800 0 0 58.50 800 0 0 58.50 1.860 54.5 54.5 60.00 1.960 1.465 2.210 Device Routing Invert Outlet Devices #1 Primary Store 7.24" Round Culvert L = 45.0" CP: projecting, no headwall, Ke= 0.900 #2 Device 1 55.25" A0" Round Culvert L = 30.0" CP: 0.900 /" Cc:= 0.900 #3 Device 1 55.35" 4.0" Round Culvert L = 30.0" CP: projecting, no headwall, Ke= 0.900 met / Outel threst 55.38" 4.0" Round Culvert L = 30.0" CP: 0.900 /" Cc:= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf #4 Device 3 58.50" 2.470 in/hr Exfiltration over Surface area 19038-POST V3 Primear Outel Witten Group, Inc. Type III 24-hr 2 YR Rainfall=3.33" Priepard by Horsley Witten Group, Inc. Type III 24-hr 2 YR Rainfall=3.33" Priepard by Horsley Witten Group, Inc. Type III 24-hr 2 YR Rainfall=3.32" Priepard by Horsley Witten Group,	Plug-Flov	v detention	time= 67.4 m	nin calculated for	0.116 af (100% of i				
Elevation SurfArea Inc.Store Cum.Store (refet) 58.50 800 0 0 0 58.50 1.380 545 545 0 0 0 80.00 1.380 545 5.210 0<						atic) isted bei	w (Recalc)		
58.50 800 0 0 0 59.00 1,380 545 545 2000 1,950 1.665 2.210 2001 1,950 1.665 2.210 2001 1,950 1.665 2.210 2001 1,950 1.675 2.276 #1 Primary 55.09 1.20* Round Culvert L = 45.0° CP. projecting, no headwall, K= 0.900 #2 Device 1 55.37 24.0° Horiz. Orffice/Grate C= 0.600 Limited to weil flow at tow heads #3 Device 3 59.50 2.470 in/hr Exfiltration over Surface area 19038-POST V3 Type III 24-hr 2YR Rainfall=3.37 Prepared by Horsley Witten Group, Inc. Type III 24-hr 2YR Rainfall=3.37 Propared by Horsley Witten Group, Inc. Primer 3.00 cfs 0.583 dfs potential flow) 140 Device 3 58.50 2.470 in/hr Exfiltration over Surface area Primary OutFlow Max=1.30 cfs 0.583 dfs potential flow) Page 34 Primary OutFlow Max=1.30 cfs 0.583 dfs potential flow) Page 34 Peak Elev=Edev=5.94.0° Storage=1.227 ac Peak Elev=5.94.0° Storage=1.145 cf	Elevatior	n Si	urf.Area	Inc.Store	Cum.Store				
60.00 1,950 1,655 2.210 Device Routing Invert Outlet Devices #1 Primary 55.09 12.0" Round Cutvert L = 45.0" CPP, projecting, no headwall, Ke = 0.900 Inited to weil flow at low heads #2 Device 1 59.25 24.0" Horiz Orfice/Grate C = 0.600 United to weil flow at low heads #3 Device 1 55.33 4.0" Round Cutvert L = 35.00 / 55.19 Se - 0.000 / Te - 0.900 Inited to weil flow at low heads #4 Device 3 58.50 2.470 Inhr Extitration over Surface area Device 1 Se - 0.000 / Te - 0.900 Inited to weil flow at low heads #4 Device 3 58.50 2.470 Inhr Extitration over Surface area Horsley Witten Group, Inc. ************************************	58.50	0	800	0	0				
#1 Primary 55.09 12.0° Round Culvert L = 45.0° CPP. projecting, no headwall, Ke= 0.900 m= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf #2 Device 1 59.25 24.0° Hortz. Orfice/Grate C = 0.600 m= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf #3 Device 1 55.38 4.0° Round Culvert L = 38.0° CPP, projecting, no headwall, Ke= 0.900 m= 0.010 FVC, smooth interior, Flow Area= 0.09 sf #4 Device 3 58.50° 2.470 in/hr Exfiltration over Surface area 19038-POST V3 Primary Primary OutFlow Max=1.30 cfs @ 12.11 hrs HW=59.40° Prepared by Horsley Witten Group, Inc. HydroCADB 10.00.22 sn 01445 2018 HydroCAD Software Solutions LLC Primary OutFlow Max=1.30 cfs @ 12.11 hrs HW=59.40° Primary OutFlow Max=1.30 cfs @ 12.11 hrs HW=59.40° (Free Discharge)	60.00	D	1,950	1,665	2,210				
Primary OutFlow Max=1.30 cfs 021 Software Solutions LLC Primary OutFlow Max=1.30 cfs 021 Software Solutions LLC Primary OutFlow Max=1.32.77 ac Product (Passes 0.30 cfs of 5.83 cfs optential flow) 1500 Figure 1.22.77 ac Product (Passes 0.20 cfs of 02.67 optential flow) 1500 Figure 1.22.77 ac Preak Ellev=59.40' Storage=1,1,45 cf				12.0" Round	Culvert L= 45.0'			Ke= 0.900	
#4 Device 3 58.50° 2.470 in/hr Exfiltration over Surface area Horsley Witten Group, Inc. Type III 24-hr 2YR Rainfall=3.33° Prepared by Horsley Witten Group, Inc. Type III 24-hr 2YR Rainfall=3.33° Printed 3/5/2021 Printed 3				n= 0.013 Corr 24.0" Horiz. C 4.0" Round C Inlet / Outlet Ir	rugated PE, smooth Drifice/Grate C= 0. Culvert L= 38.0' C nvert= 55.38' / 55.19	600 Limited to PP, projecting, S= 0.0050 '/	Area= 0.79 sf o weir flow at low no headwall, k ' Cc= 0.900		
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 34 Primary OutFlow Max=1.30 cfs @ 12.11 hrs HW=59.40' (Free Discharge) =Culvert (Passes 1.30 cfs @ 12.21 hrs HW=59.40' (Free Discharge) =Culvert (Passes 1.30 cfs @ 1.221 cfs @ 1.27 fps) 3=Culvert (Passes 0.09 cfs of 0.62 cfs potential flow) -4=Exfiltration (Exfiltration Controls 0.09 cfs) Pond BIO1: BIO 1 Hydrograph Inflow Area=1.227 ac Peak Elev=59.40' Storage=1,145 cf	#4	Device 3	58.50') sf		
Hydrograph 1.51 cfs 1.30	Prepared HydroCAE Primary (1=Cul 2=0 3=0	d by Horsle 0 10.00-22 OutFlow M vert (Passe Orifice/Graf Culvert (Pa	s/n 01445 © ax=1.30 cfs es 1.30 cfs of te (Weir Con isses 0.09 cfs	2018 HydroCAD \$ @ 12.11 hrs HW f 5.83 cfs potentii trols 1.21 cfs @ s of 0.62 cfs pote	V=59.40' (Free Dis al flow) 1.27 fps) ential flow)			, ypo m 2	Printed 3/5/2021
1.51 cfs Inflow Area=1.227 ac 1.30 cfs Peak Elev=59.40' Storage=1,145 cf									
		Flow (cfs)				Inflov P	eak Ele	v=59.40'	Primary
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72		0-0-2	4 6 8 10 1	2 14 16 18 20 22 2/	4 26 28 30 32 34 36 39	3 40 42 44 46 48 5	50 52 54 56 58 60	62 64 66 68 70 72	

		Summary for Pond BIO2: BIO 2	
nflow Area = nflow =		43.62% Impervious, Inflow Depth = 1.35" for 2YR event 12.07 hrs, Volume= 0.049 af	
rimary =	0.62 cfs @	12.09 hrs, Volume= 0.049 af, Atten= 2%, Lag= 1.0 min 12.09 hrs, Volume= 0.049 af	
		me Span= 0.00-72.00 hrs, dt= 0.01 hrs s Surf.Area= 569 sf Storage= 51 cf	
		min calculated for 0.049 af (100% of inflow) min (757.1 - 755.3)	
olume		Storage Storage Description	
		1,414 cf Custom Stage Data (Prismatic)Listed below (Recalc)	
levation (feet)	Surf.Area (sq-ft)	Inc.Store Cum.Store (cubic-feet) (cubic-feet)	
62.50 63.00	522 775	0 0 324 324	
64.00	1,405	1,090 1,414	
evice Rou #1 Prim		ert Outlet Devices 10' 12.0" Round Culvert L= 25.0' CPP, end-section conforming to fill, Ke= 0.500	
<i>π</i> ι ι	iary 55.00	Inlet / Outlet Invert= 59.00' / 58.88' S= 0.0048 '/' Cc= 0.900	
#2 Devi		n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads 24.0" Horiz. Orifice/Crate C= 0.600 Limited to weir flow at low heads	
#3 Devi	ice 1 59.30	Inlet / Outlet Invert= 59.30' / 59.18' S= 0.0048 '/' Cc= 0.900	
#4 Devi	ice 3 62.50	n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf 50' 2.470 in/hr Exfiltration over Surface area	
epared by droCAD® 10	Horsley Witten G 0.00-22 s/n 01445 (© 2018 HydroCAD Software Solutions LLC Page	33″ 121
epared by droCAD® 10 imary OutF -1=Culvert -2=Orific -3=Culv	Horsley Witten G 0.00-22 s/n 01445 (How Max=0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03	Type III 24-hr 2YR Rainfall=3. Group, Inc. Printed 3/5/20 © 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs)	33″ 121
epared by droCAD® 10 imary OutF -1=Culvert -2=Orific -3=Culv	Horsley Witten G 0.00-22 s/n 01445 (How Max=0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03	Type III 24-hr 2YR Rainfall=3. Printed 3/5/20 © 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2	33″ 121
epared by droCAD® 10 imary OutF -1=Culvert -2=Orific -3=Culv	Horsley Witten G 0.00-22 s/n 01445 (Flow Max=0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03 c diltration (Exfiltra	Type III 24-hr 2YR Rainfall=3. Group, Inc. Printed 3/5/20 © 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph	33″ 121
epared by droCAD® 10 1=Culvert 2=Orific 3=Culver 4=E	Horsley Witten G 0.00-22 s/n 01445 (Flow Max=0.62 cfs (Passes 0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03 c cfiltration (Exfiltra 0.7	Type III 24-hr 2YR Rainfall=3. Group, Inc. Printed 3/5/20 © 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 0.64 cfs	33″ 121
epared by droCAD® 10 imary OutF 1=Culvert 2=Orific 3=Culv 4=E)	Horsley Witten G 0.00-22 s/n 01445 (Flow Max=0.62 cfs (Passes 0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03 c cfiltration (Exfiltra 0.7 0.7 0.65	Type III 24-hr 2YR Rainfall=3. Printed 3/5/20 @ 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 0.64 cfs 62 cfs Inflow Area=0.436 ac	33″ 121
epared by droCAD® 1(1=Culvert 2=Orific 3=Culv 4=E)	Horsley Witten G 0.00-22 s/n 01445 (Flow Max=0.62 cfs (Passes 0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03 c cfiltration (Exfiltra 0.7	Type III 24-hr 2YR Rainfall=3. Printed 3/5/2(@ 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 0.64 cfs 62 cfs Inflow Area=0.436 ac Peak Elev=62.59'	33″ 121
epared by droCAD® 10 1=Culvert 2=Culvert 3=Culv 4=E)	Horsley Witten G 0.00-22 s/n 01445 (Flow Max=0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03 c cfiltration (Exfiltra 0.7 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6	Type III 24-hr 2YR Rainfall=3. Printed 3/5/20 @ 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 0.64 cfs 62 cfs Inflow Area=0.436 ac	33″ 121
epared by droCAD® 10 1=Culvert 2=Orific 3=Culv 4=E) 0 0	Horsley Witten G .00-22 s/n 01445 (Flow Max=0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03 cf diltration (Exfiltration 0.7 .65 0.6 .55 0.5 .45	Type III 24-hr 2YR Rainfall=3. Printed 3/5/2(@ 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 0.64 cfs 62 cfs Inflow Area=0.436 ac Peak Elev=62.59'	33″ 121
epared by droCAD® 10 1=Culvert 2=Orific 3=Culv 4=E) 0 0	Horsley Witten G .00-22 s/n 01445 (Flow Max=0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03 cf cfiltration (Exfiltra 0.7 .65 0.6 .55 0.4 0.4	Type III 24-hr 2YR Rainfall=3. Printed 3/5/2(@ 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 0.64 cfs 62 cfs Inflow Area=0.436 ac Peak Elev=62.59'	33″ 121
epared by droCAD® 10 1=Culvert 2=Orific 3=Culvert 4=E 0 0 0 0 0 0 0 0	Horsley Witten G .00-22 s/n 01445 (Flow Max=0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03 cf cfiltration (Exfiltra 0.7 0.6 0.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	Type III 24-hr 2YR Rainfall=3. Printed 3/5/2(@ 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 0.64 cfs 62 cfs Inflow Area=0.436 ac Peak Elev=62.59'	33″ 121
epared by droCAD® 10 imary OutF 1=Culvert 2=Orific 3=Culv 4=E) 0 0 0 0 0 0 0 0 0 0 0 0 0	Horsley Witten G .00-22 s/n 01445 (Flow Max=0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03 cf cfiltration (Exfiltra 0.7 .65 0.6 .55 0.4 0.4	Type III 24-hr 2YR Rainfall=3. Printed 3/5/2(@ 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 0.64 cfs 62 cfs Inflow Area=0.436 ac Peak Elev=62.59'	33″ 121
imary OutF -1=Culvert -2=Orific -3=Culv -4=E	Horsley Witten G 0.00-22 s/n 01445 of Flow Max=0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03 c cfiltration (Exfiltration 0.7 0.65 0.6 0.6 0.5 0.4 0.4 0.3 0.3 0.3 0.3 0.4 0.3 0.3 0.3 0.4 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	Type III 24-hr 2YR Rainfall=3. Printed 3/5/2(@ 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 0.64 cfs 62 cfs Inflow Area=0.436 ac Peak Elev=62.59'	33″ 121
imary OutF 1=Culvert 1=Culvert 2=Culv 1=4=E 0 0 0 0 0 0 0 0 0 0 0 0 0	Horsley Witten G .00-22 s/n 01445 of Flow Max=0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co ert (Passes 0.03 cf .0.6 .0.6 .55 	Type III 24-hr 2YR Rainfall=3. Printed 3/5/2(@ 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 0.64 cfs 62 cfs Inflow Area=0.436 ac Peak Elev=62.59'	33″ 121
rdroCAD® 1(imary OutF -1=Culvert -2=Orific -3=Culvert -4=E 0 0 0 0 0 0 0 0 0 0 0 0 0	Horsley Witten G 0.00-22 s/n 01445 of Flow Max=0.62 cfs (Passes 0.62 cfs ce/Grate (Weir Co cert (Passes 0.03 cf cfiltration (Exfiltra 0.6 0.6 0.6 0.6 0.5 0.5 0.5 0.3 0.3 0.2 0.2	Type III 24-hr 2YR Rainfall=3. Printed 3/5/2(@ 2018 HydroCAD Software Solutions LLC Page fs @ 12.09 hrs HW=62.59' (Free Discharge) of 6.65 cfs potential flow) ontrols 0.59 cfs @ 1.00 fps) cfs of 1.30 cfs potential flow) ation Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 0.64 cfs 62 cfs Inflow Area=0.436 ac Peak Elev=62.59'	33″ 121

	D® 10.00-2	2 s/n 014		up, Inc. 018 Hydi	OCAD S	oftware So	olutions Ll	.C							F	Printed 3/5/2021 Page 37
						Summa	ary for I	Pond I	OMH:	DMH 2	200					
Inflow A Inflow Outflow Primary Seconda	= = =	0.78 cfs 0.78 cfs 0.67 cfs	@ 12@ 12@ 12	2.07 hrs,	Volume Volume Volume)=)=	0.060 a	af af, Atte af				in				
	by Stor-In ev= 54.50'			Span= 0	.00-72.0	0 hrs, dt	= 0.01 hr	S								
	Routing			Outlet I												
#1 #2	Seconda Primary		4.30' 3.78'	Inlet / 0 n= 0.01 12.0" I Inlet / 0	Outlet Inv 3 Corru Round (Outlet Inv	Culvert I vert= 54.3 igated Pl Culvert I vert= 53.3 igated Pl	30' / 54.2 E, smootl _= 98.0' 78' / 53.7	6' S= (n interio CMP, p 8' S= ().0044 r, Flow projectii).0000	// Cc= / Area= ng, no ł // Cc=	0.90 0.79 neadw 0.90	0 sf /all, Ke 0				
Primary	OutFlow Ilvert (Bar	Max=0.6 rel Contr	7 cfs @) 12.07 7 cfs @ '	nrs HW	=54.50'	(Free Dis	scharge)							
Prepare	POST V:	sley Witt											Тур		hr 2YR	tten Group, Inc. ? <i>Rainfall</i> =3.33″ Printed 3/5/2021
Prepare		sley Witt											Тур		hr 2YR	Rainfall=3.33"
Prepare	ed by Hors	sley Witt				I	Pond D	MH: D	MH 20	00			Тур		hr 2YR	<i>R Rainfall</i> =3.33" Printed 3/5/2021
Prepare HydroCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed by Hors	Sley Witt: 2 s/n 014 	45 © 2	018 Hydi		I	Pond D	MH: D		ow				e III 24- 1 ac	hr 2YR F	<i>R Rainfall</i> =3.33" Printed 3/5/2021
Prepare HydroCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ad by Hors <u>D</u> ® 10.00-2 855 0.7 655 0.6 555 0.6 555 0.6 555 0.6 555 0.6 555 0.6 555 0.6 555 0.6 555 0.6 555 0.6 555 0.6 555 0.6 555 0.6 555 0.7 0.7 555 0.7 555 0.7 555 0.7 555 0.7 0.7 555 0.7 555 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7	Sley Witt: 2 s/n 014 	45 © 2	018 Hydi		I	Pond D	MH: D		ow			0.33	e III 24- 1 ac	hr 2YR F	R Rainfall=3.33" Printed 3/5/2021 Page 38

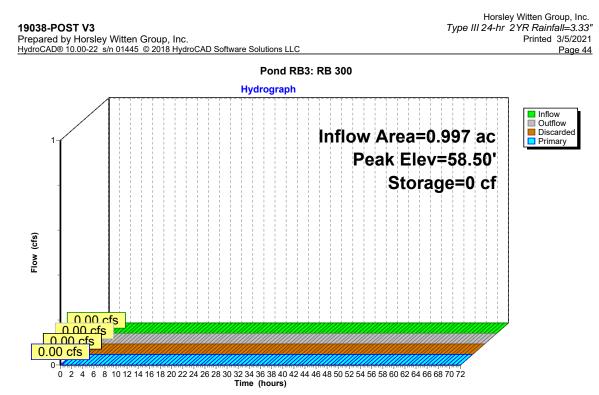
19038-POST V3		Horsley Witten Group, Inc. Type III 24-hr 2YR Rainfall=3.33"
	y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC	Printed 3/5/2021 Page 39
	Summary for Pond RB1: RB	
nflow Area =).673 ac, 10.84% Impervious, Inflow Depth = 0.34" for 2YR	event
nflow = (.24 cfs @ 12.07 hrs, Volume= 0.019 af .06 cfs @ 11.75 hrs, Volume= 0.019 af, Atten= 75%,	
Discarded = 0	.06 cfs @ 11.75 hrs, Volume= 0.019 af	Lag- 0.0 min
	.00 cfs @ 0.00 hrs, Volume= 0.000 af	
	nethod, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 12.43 hrs Surf.Area= 157 sf Storage= 155 cf	
	time= 12.2 min calculated for 0.019 af (100% of inflow)	
	time= 12.2 min (766.8 - 754.6)	
Volume Invert #1 41.00'	339 cf 6.00'D x 6.00'H Recharger x 2 Inside #2	
#2 39.00'	355 cf 10.00'D x 9.00'H Stone x 2 1,414 cf Overall - 339 cf Embedded = 1,074	l cf x 33.0% Voids
	694 cf Total Available Storage	
Device Routing #1 Discarded	Invert Outlet Devices 39.00' 8.270 in/hr Exfiltration X 2.00 over Surface are	a Phase In= 0.01
#1 Discarded #2 Primary	46.50' 5.0' long x 5.0' breadth Broad-Crested Rectan	gular Weir X 2.00
	5.50	40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00
	Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.88	2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79
	Max=0.06 cfs @ 11.75 hrs HW=39.09' (Free Discharge) xfiltration Controls 0.06 cfs)	
—2=Broad-Crester	ax=0.00 cfs @ 0.00 hrs HW=39.00' (Free Discharge) I Rectangular Weir (Controls 0.00 cfs)	
19038-POST V3		Horsley Witten Group, Inc. Type III 24-hr 2YR Rainfall=3.32
19038-POST V3 Prepared by Horsle	I Rectangular Weir (Controls 0.00 cfs) y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC	
19038-POST V3 Prepared by Horsle	y Witten Group, Inc.	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 40
19038-POST V3 Prepared by Horsle	y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 40
19038-POST V3 Prepared by Horsle	y Witten Group, Inc. s/n 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.24 cfs	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Page 40
19038-POST V3 Prepared by Horsk HydroCAD® 10.00-22	y Witten Group, Inc. s/n 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.24 cfs	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 40 2 w Area=0.673 ac
19038-POST V3 Prepared by Horsle HydroCAD® 10.00-22	y Witten Group, Inc. s/n 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.24 cfs	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Page 40
19038-POST V3 Prepared by Horsle HydroCAD® 10.00-22	y Witten Group, Inc. s/n 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.24 cfs	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Page 40
19038-POST V3 Prepared by Horsle HydroCAD® 10.00-22	y Witten Group, Inc. s/n 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.24 cfs	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Page 40
19038-POST V3 Prepared by Horske HydroCAD® 10.00-22 0.26 0.24 0.22 0.2 0.18 0.16 0.14 0.12	y Witten Group, Inc. s/n 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Page 40
19038-POST V3 Prepared by Horsle HydroCAD® 10.00-22	y Witten Group, Inc. s/n 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.24 cfs	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Page 40
19038-POST V3 Prepared by Horsle HydroCAD® 10.00-22 0.26 0.24 0.22 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.	y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Page 40
19038-POST V3 Prepared by Horsle HydroCAD® 10.00-22	y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Page 40
19038-POST V3 Prepared by Horsle HydroCAD® 10.00-22	y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph	Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Printed 3/5/2021 Page 40 Page 40 Page 40 Page 40 Page 40



19038-POST V3 Prepared by Horsley Witten (Group, Inc.	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021
HydroCAD® 10.00-22 s/n 01445	© 2018 HydroCAD Software Solutions LLC	Page 41
	Summary for Pond RB2: RB 202,202,203	
nflow = 0.33 cfs @ Outflow = 0.09 cfs @ Discarded = 0.09 cfs @	95.97% Impervious, Inflow Depth = 0.73" for 2YR event 12.08 hrs, Volume= 0.007 af 12.03 hrs, Volume= 0.007 af, Atten= 73%, Lag= 0.0 min 12.03 hrs, Volume= 0.007 af 0.00 hrs, Volume= 0.000 af	
	ime Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 s Surf.Area= 236 sf Storage= 130 cf	
C	6 min calculated for 0.007 af (100% of inflow)	
Center-of-Mass det. time= 15.6		
	Storage Description	
#2 44.50'	509 cf 6.00'D x 6.00'H Recharger x 3 Inside #2 532 cf 10.00'D x 9.00'H Stone x 3 2,121 cf Overall - 509 cf Embedded = 1,612 cf x 33.0% Voids	
	1,041 cf Total Available Storage	
Device Routing Inve #1 Discarded 44.5 #2 Primary 55.6	61' 5.0' long x 5.0' breadth Broad-Crested Rectangular Weir X 2.00 Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 5.50	
	Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.88	2.67 2.66 2.68 2.70 2.74 2.79
—2=Broad-Crested Rectang	ular Weir (Controls 0.00 cfs)	
-2=Broad-Crested Rectang	ular Weir (Controls 0.00 cfs)	Horsley Witten Group, Inc.
2=Broad-Crested Rectangu 19038-POST V3 Prepared by Horsley Witten (T, Group, Inc.	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021
2=Broad-Crested Rectangu 19038-POST V3 Prepared by Horsley Witten (T Group, Inc. © 2018 HydroCAD Software Solutions LLC	ype III 24-hr 2YR Rainfall=3.33"
2=Broad-Crested Rectangu 19038-POST V3 Prepared by Horsley Witten (T, Group, Inc.	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021
19038-POST V3 Prepared by Horsley Witten (HydroCAD® 10.00-22 s/n 01445	T Group, Inc. © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 42
19038-POST V3 Prepared by Horsley Witten O HydroCAD® 10.00-22 s/n 01445	T Group, Inc. © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 42
0.36	T Group, Inc. © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.33 cfs	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 42 12.ac
19038-POST V3 Prepared by Horsley Witten (HydroCAD® 10.00-22 s/n 01445	Group, Inc. © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.33 cfs Inflow Area=0.1 Peak Elev=4	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 42 I 2 ac I 6.18
Prepared by Horsley Witten C lydroCAD® 10.00-22 s/n 01445	Group, Inc. @ 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.33 cfs Inflow Area=0.1	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 42 I 2 ac I 6.18
2=Broad-Crested Rectange 19038-POST V3 Prepared by Horsley Witten Of HydroCAD® 10.00-22 s/n 01445 0.36 0.34 0.32 0.33 0.34 0.32 0.34 0.32 0.34 0.32 0.34 0.32 0.34 0.34 0.32 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.35 0.36 0.37 0.38 0.28 0.24	Group, Inc. © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.33 cfs Inflow Area=0.1 Peak Elev=4	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 42 I 2 ac I 6.18
19038-POST V3 Prepared by Horsley Witten (tydroCAD® 10.00-22 s/n 01445	Group, Inc. © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.33 cfs Inflow Area=0.1 Peak Elev=4	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 42 I 2 ac I 6.18
2=Broad-Crested Rectange 19038-POST V3 Prepared by Horsley Witten Of HydroCAD® 10.00-22 s/n 01445 0.36 0.34 0.32 0.34 0.32 0.34 0.32 0.32 0.32 0.32 0.34 0.32 0.32 0.34 0.32 0.34 0.32 0.34 0.32 0.34 0.35 0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.29 0.18	Group, Inc. © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.33 cfs Inflow Area=0.1 Peak Elev=4 Storage=1	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 42 I 2 ac I 6.18
19038-POST V3 Prepared by Horsley Witten O HydroCAD® 10.00-22 s/n 01445 0.36 0.34 0.32 0.34 0.32 0.34 0.32 0.34 0.32 0.34 0.34 0.32 0.34 0.32 0.34 0.32 0.34 0.22 0.34 0.22 0.18 0.14 0.00	Group, Inc. @ 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.33 cfs Inflow Area=0.1 Peak Elev=4 Storage=1 O9_cfs	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 42 I 2 ac I 6.18
2=Broad-Crested Rectange 19038-POST V3 Prepared by Horsley Witten O HydroCAD® 10.00-22 s/n 01445 0.36 0.36 0.36 0.36 0.36 0.36 0.36 0.36 0.36 0.32 0.32 0.33 0.24 0.26 0.24 0.26 0.24 0.26 0.26 0.26 0.26 0.26 0.27 0.18 0.16	Group, Inc. © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.33 cfs Inflow Area=0.1 Peak Elev=4 Storage=1	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 42 I 2 ac I 6.18
19038-POST V3 Prepared by Horsley Witten Of HydroCAD® 10.00-22 s/n 01445 0.36 0.36 0.36 0.36 0.36 0.36 0.36 0.36 0.36 0.36 0.36 0.37 0.38 0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.29 0.18 0.14 0.12 0.14 0.12 0.13 0.14 0.12 0.11 0.08	Group, Inc. @ 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.33 cfs Inflow Area=0.1 Peak Elev=4 Storage=1 O9_cfs	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 42 I 2 ac I 6.18
2=Broad-Crested Rectangu	Group, Inc. @ 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.33 cfs Inflow Area=0.1 Peak Elev=4 Storage=1 O9_cfs	ype III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 42 I 2 ac I 6.18

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC	Printed 3/5/202 Page 43
Summary for Pond RB3: RB 300	
Inflow Area = 0.997 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2YR event Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af	
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 Peak Elev= 58.50' @ 0.00 hrs Surf.Area= 57 sf Storage= 0 cf	
Plug-Flow detention time= (not calculated: initial storage exceeds outflow) Center-of-Mass det. time= (not calculated: no inflow)	
Volume Invert Avail.Storage Storage Description	
#1 59.50' 50 cf 4.00'D x 4.00'H Recharger Inside #2	
#2 58.50' 95 cf 6.00'D x 6.00'H Stone x 2 339 cf Overall - 50 cf Embedded = 289 cf x 33.0% Voids	
146 cf Total Available Storage	
Ğ	
Device Routing Invert Outlet Devices #1 Discarded 58.50' 8.270 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01	
#2 Primary 65.50' 5.0' long x 5.0' 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	0 2.50 3.00 3.50 4.00 4.50 5.00
5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.88	2.65 2.67 2.66 2.68 2.70 2.74 2.79
Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=58.50' (Free Discharge)	
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=58.50' (Free Discharge)	
12=Broad-Crested Rectangular Weir (Controls 0.00 cfs)	

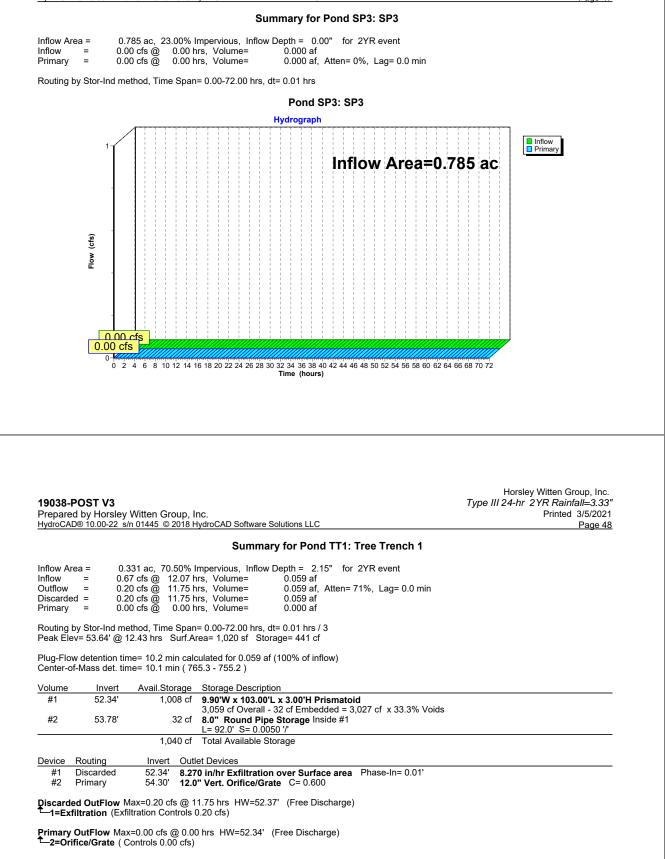


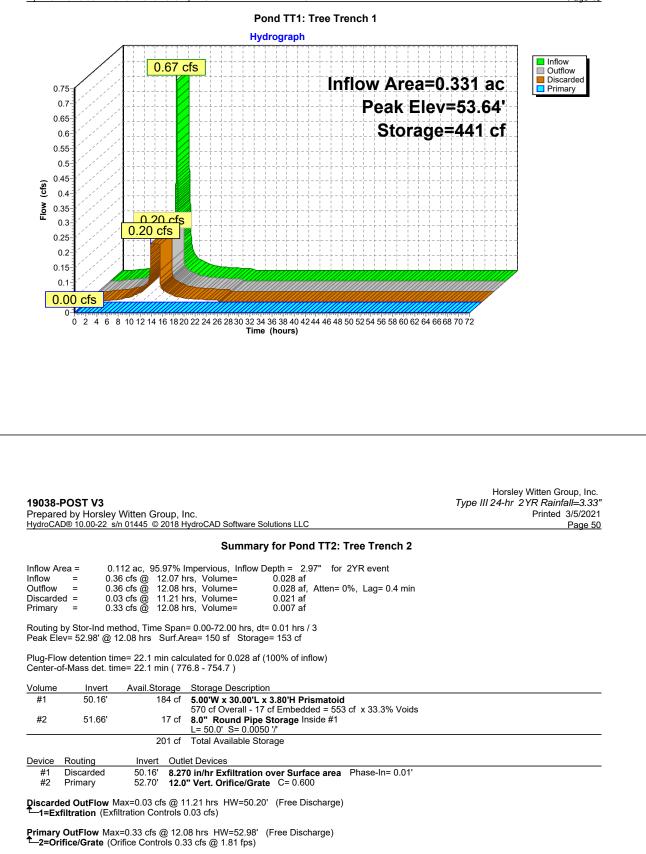
Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

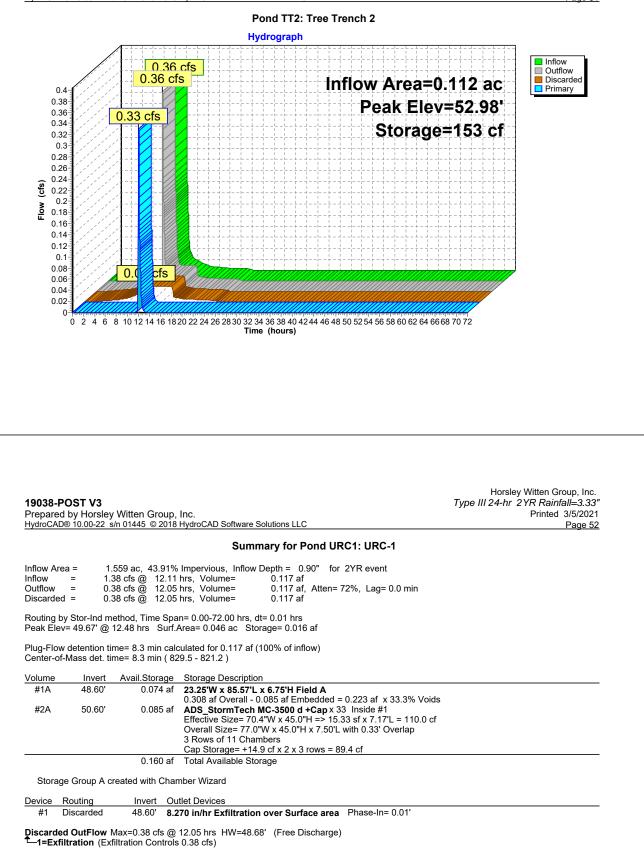
Summary for Pond SP1: SP1 3.642 ac, 9.44% Impervious, Inflow Depth = 0.00" for 2YR event Inflow Area = 0.00 cfs @ 24.04 hrs, Volume= 0.000 af Inflow = Primary = 0.00 cfs @ 24.04 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Pond SP1: SP1 Hydrograph Inflow Primary 0.00 cfs 0.00 Inflow Area=3.642 ac 0.001 0.001 0.001 0.001 0.001 0.001 0.000 (cfs) 0.000 Flov 0.000 0.000 0.000 0.000 0.000 0.000 0 0 0 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours) Horsley Witten Group, Inc. 19038-POST V3 Type III 24-hr 2YR Rainfall=3.33" Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Printed 3/5/2021 Page 46 Summary for Pond SP2: SP2 0.00% Impervious, Inflow Depth = 0.00" for 2YR event Inflow Area = 0.997 ac, 0.00 hrs, Volume= 0.00 hrs, Volume= 0.000 af Inflow = 0.00 cfs @ 0.000 af, Atten= 0%, Lag= 0.0 min Primary = 0.00 cfs @ Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Pond SP2: SP2 Hydrograph Inflow Inflow Area=0.997 ac (cfs) <u>8</u>

0.00 cfs 0.00 cfs 0.2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)

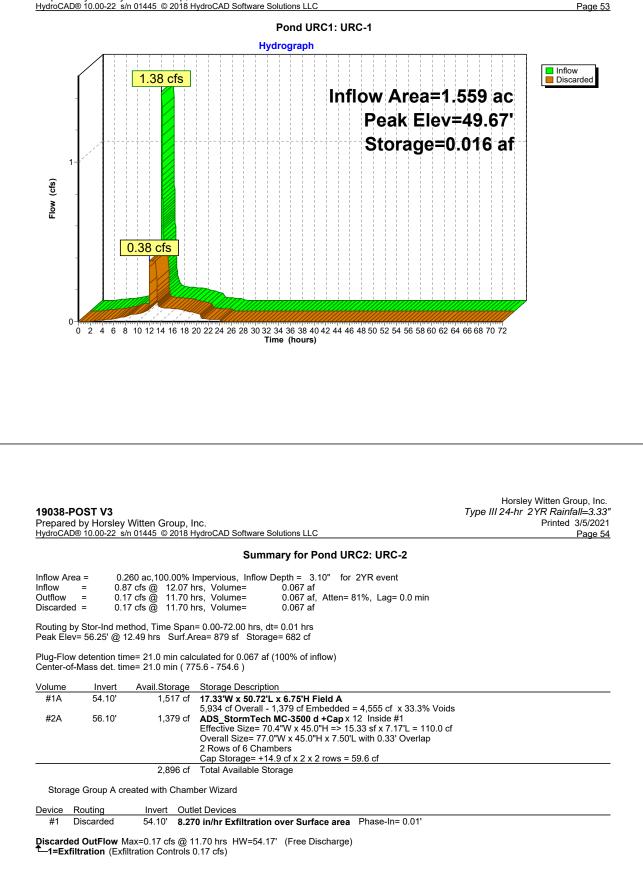
Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Horsley Witten Group, Inc. Type III 24-hr 2YR Rainfall=3.33" Printed 3/5/2021 Page 47



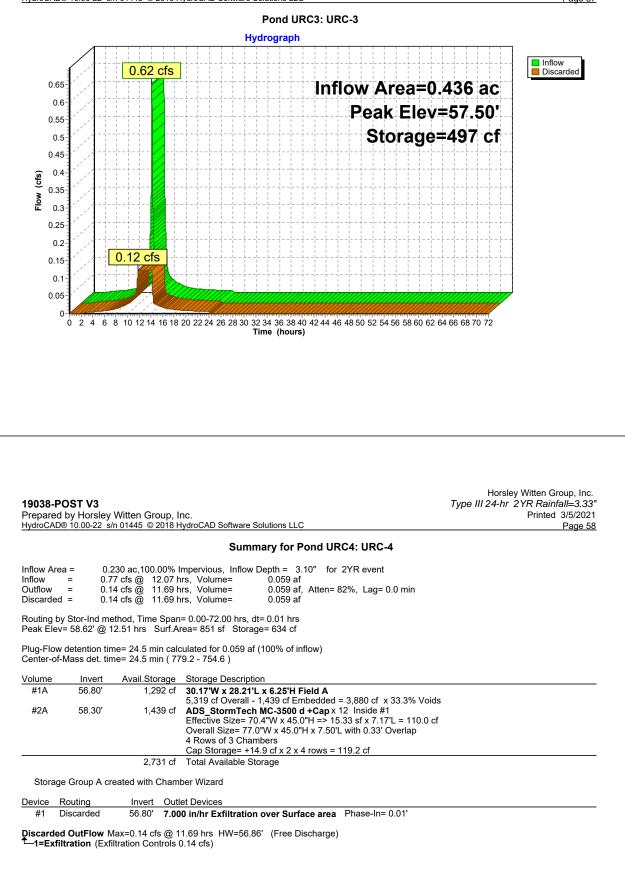




19038-POST V3 Prepared by Horsley Witten Group, Inc.



				Pond URC2: UR rograph			
			nyu]
		0.87 cfs	-				Inflow
0.9 0.	1 / 1 1		╤┹┊╴┊╴┊╴┊╴┊╴┊╴	Infl	ow Area=() 260 ac	Discalded
0.8	= / / .		+	· · · · · · · · · · · · · · · · · · ·			-
0.					Peak Elev	/=56.25	_
0.7 0.					Storage	e=682 cf	-
0.6						+++++	_
0. <u>(</u> 0.5				·		$- \frac{1}{1} - $	-
 2.0 (cls) 0.1 0.4 0.4 							-
6 0.4	F 22 21 1						-
0.3	1 / /						_
0.	- 						_
0.2 0.	- I / / T - T	0.17 cfs					-
0.1	5						_
0. 0.0							Ļ
	0	- <u>frantfrantfrantfrant</u>					
	0246	8 10 12 14 16 1	8 20 22 24 26 28 30 32 3 Tin	34 36 38 40 42 44 46 ne (hours)	48 50 52 54 56 58 60 6	2 64 66 68 70 72	
				ie (nouis)			
19038-P							ey Witten Group, Inc.
Prepared		Witten Group,					2YR Rainfall=3.33" Printed 3/5/2021
Prepared	by Horsley		Inc. HydroCAD Software Sol	utions LLC			2YR Rainfall=3.33"
Prepared	by Horsley		HydroCAD Software Sol	utions LLC Iry for Pond UR	C3: URC-3		2YR Rainfall=3.33" Printed 3/5/2021
Preparec HydroCAD	d by Horsley 10.00-22 s 2a = 0.	<u>′n 01445 © 2018</u> 436 ac, 43.62%	HydroCAD Software Sol Summa	ry for Pond UR			2YR Rainfall=3.33" Printed 3/5/2021
Preparec HydroCAD Inflow Are	by Horsley <u>№ 10.00-22 s</u> ea = 0. = 0.6	<u>n 01445 © 2018</u> 436 ac, 43.62% 2 cfs @ 12.09	HydroCAD Software Sol Summa Impervious, Inflow De hrs, Volume=	epth = 1.35" for 0.049 af	2YR event		2YR Rainfall=3.33" Printed 3/5/2021
Preparec HydroCAD Inflow Are Inflow Outflow	d by Horsley	<u>′n 01445 © 2018</u> 436 ac, 43.62%	HydroCAD Software Sol Summa o Impervious, Inflow De hrs, Volume= hrs, Volume=	rry for Pond UR	2YR event		2YR Rainfall=3.33" Printed 3/5/2021
Prepared HydroCAD Inflow Are Inflow Outflow Discarded	d by Horsley (8 10.00-22 s (8 = 0. = 0.6 = 0.7 d = 0.7	<u>h 01445 © 2018</u> 136 ac, 43.62% 2 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74	HydroCAD Software Sol Summa o Impervious, Inflow De hrs, Volume= hrs, Volume=	ary for Pond UR epth = 1.35" for 0.049 af 0.049 af, Atten= 8 0.049 af	2YR event		2YR Rainfall=3.33" Printed 3/5/2021
Prepared HydroCAD Inflow Are Inflow Outflow Discarded Routing b	d by Horsley (8 10.00-22 s (8 a = 0.4 = 0.4 = 0.4 d = 0.4 y Stor-Ind m	<u>'n 01445 © 2018</u> 436 ac, 43.62% 2 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 ethod, Time Spa	HydroCAD Software Sol Summa Impervious, Inflow De hrs, Volume= hrs, Volume= hrs, Volume=	Pry for Pond UR Ppth = 1.35" for 0.049 af 0.049 af, Atten= 8 0.049 af 0.01 hrs	2YR event		2YR Rainfall=3.33" Printed 3/5/2021
Prepared HydroCAD Inflow Outflow Discarded Routing b Peak Elev Plug-Flow	a by Horsley (a) 10.00-22 s (b) 10.00-22 s (c) 2 s (c) 2 s (c) 4 s (<u>h 01445 © 2018</u> 436 ac, 43.62% 2 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 2 cfs @ 11.74 athod, Time Spa 2.52 hrs Surf⊿ ne= 21.1 min ca	HydroCAD Software Sol Summa o Impervious, Inflow De hrs, Volume= hrs, Volume= hrs, Volume= an= 0.00-72.00 hrs, dt= Area= 765 sf Storage: alculated for 0.049 af (1	Pry for Pond UR 20049 af 0.049 af 0.049 af, Atten= 8 0.049 af 0.01 hrs = 497 cf	2YR event		2YR Rainfall=3.33" Printed 3/5/2021
Prepared HydroCAD Inflow Outflow Discarded Routing b Peak Elev Plug-Flow	a by Horsley (a) 10.00-22 s (b) 10.00-22 s (c) 2 s (c) 2 s (c) 4 s (<u>h 01445 © 2018</u> 136 ac, 43.62% 12 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 ethod, Time Spa 2.52 hrs Surf.∕	HydroCAD Software Sol Summa o Impervious, Inflow De hrs, Volume= hrs, Volume= hrs, Volume= an= 0.00-72.00 hrs, dt= Area= 765 sf Storage: alculated for 0.049 af (1	Pry for Pond UR 20049 af 0.049 af 0.049 af, Atten= 8 0.049 af 0.01 hrs = 497 cf	2YR event		2YR Rainfall=3.33" Printed 3/5/2021
Preparec HydroCAD Inflow Are Inflow Outflow Discardec Routing b Peak Elev Plug-Flow Center-of Volume	a by Horsley ■ 10.00-22 s = 0.6 = 0.7 d = 0.7 y Stor-Ind m v Stor-Ind m v etention tii -Mass det. tii Invert	<u>h 01445 © 2018</u> 136 ac, 43.62% 12 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 2 cfs @ 11.74 2.52 hrs Surf. ne= 21.1 min ca ne= 21.1 min (7 	HydroCAD Software Sol Summa o Impervious, Inflow De hrs, Volume= hrs, Volume= hrs, Volume= an= 0.00-72.00 hrs, dt= Area= 765 sf Storage: alculated for 0.049 af (1 778.1 - 757.1) e Storage Description	Pry for Pond UR epth = 1.35" for 0.049 af 0.049 af, Atten= 8 0.049 af 0.01 hrs = 497 cf 00% of inflow)	2YR event		2YR Rainfall=3.33" Printed 3/5/2021
Preparec HydroCAD Inflow Are Inflow Outflow Discardec Routing b Peak Elev Plug-Flow Center-of	a by Horsley ■ 10.00-22 s = 0.6 = 0.7 d = 0.7 y Stor-Ind m - 57.50' @ 2 v detention tii -Mass det. tii	<u>h 01445 © 2018</u> 136 ac, 43.62% 12 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 2 cfs @ 11.74 2.52 hrs Surf. ne= 21.1 min ca ne= 21.1 min (7 	HydroCAD Software Sol Summa o Impervious, Inflow De hrs, Volume= hrs, Volume= hrs, Volume= an= 0.00-72.00 hrs, dt= Area= 765 sf Storage alculated for 0.049 af (1 778.1 - 757.1) Storage Description f 22.25'W x 34.38'L >	Pry for Pond UR appth = 1.35" for 0.049 af 0.049 af, Atten= 8 0.049 af 0.01 hrs = 497 cf 00% of inflow) (6.75'H Field A	2YR event	Type III 24-hr	2YR Rainfall=3.33" Printed 3/5/2021
Preparec HydroCAD Inflow Are Inflow Outflow Discardec Routing b Peak Elev Plug-Flow Center-of Volume	a by Horsley ■ 10.00-22 s = 0.6 = 0.7 d = 0.7 y Stor-Ind m v Stor-Ind m v etention tii -Mass det. tii Invert	<u>h 01445</u> © 2018 436 ac, 43.62% 2 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 2 cfs @ 11.74 ethod, Time Spa 2.52 hrs Surf./ ne= 21.1 min ca ne= 21.1 min (7 <u>Avail.Storage</u> 1,250 ct	HydroCAD Software Sol Summa o Impervious, Inflow De hrs, Volume= hrs, Volume= hrs, Volume= an= 0.00-72.00 hrs, dt= Area= 765 sf Storage: alculated for 0.049 af (1 778.1 - 757.1) <u>e Storage Description</u> f 22.25'W x 34.38'L x 5, fl33 cf Overall - 1, f ADS StormTech M	arry for Pond UR apth = 1.35" for 0.049 af 0.049 af 0.049 af, Atten= 8 0.049 af 0.01 hrs = = 497 cf 00% of inflow)	2YR event 0%, Lag= 0.0 min = 3,755 cf x 33.3% Voi 2 Inside #1	Type III 24-hr	2YR Rainfall=3.33" Printed 3/5/2021
Preparec HydroCAD Inflow Are Inflow Outflow Discardec Routing b Peak Elev Plug-Flow Center-of Volume #1A	i by Horsley № 10.00-22 s 0.1 = 0.6 = 0.1 d = 0.1 y Stor-Ind m /= 57.50' @ / detention til -Mass det. til Invert 55.55'	<u>h 01445</u> © 2018 436 ac, 43.62% 2 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 2 cfs @ 11.74 ethod, Time Spa 2.52 hrs Surf./ ne= 21.1 min ca ne= 21.1 min (7 <u>Avail.Storage</u> 1,250 ct	HydroCAD Software Sol Summa o Impervious, Inflow De hrs, Volume= hrs, Volume= hrs, Volume= an= 0.00-72.00 hrs, dt= Area= 765 sf Storage: alculated for 0.049 af (1 778.1 - 757.1) Storage Description f 22.25'W x 34.38'L x 5,163 cf Overall - 1, f ADS_StormTech M Effective Size= 70.4 Overall Size= 77.0"	ery for Pond UR apth = 1.35" for 0.049 af 0.049 af, Atten= 8 0.049 af 0.01 hrs = 497 cf 00% of inflow) c 6.75'H Field A 409 cf Embedded = IC-3500 d +Cap x 1 "W x 45.0"H => 15. W x 45.0"H x 7.50U	2YR event 0%, Lag= 0.0 min = 3,755 cf x 33.3% Voi 2 Inside #1 33 sf x 7.17'L = 110.0	Type III 24-hr	2YR Rainfall=3.33" Printed 3/5/2021
Preparec HydroCAD Inflow Are Inflow Outflow Discardec Routing b Peak Elev Plug-Flow Center-of Volume #1A	i by Horsley № 10.00-22 s 0.1 = 0.6 = 0.1 d = 0.1 y Stor-Ind m /= 57.50' @ / detention til -Mass det. til Invert 55.55'	<u>h 01445</u> © 2018 436 ac, 43.62% 2 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 2 cfs @ 11.74 ethod, Time Spa 2.52 hrs Surf./ ne= 21.1 min ca ne= 21.1 min (7 <u>Avail.Storage</u> 1,250 ct	HydroCAD Software Sol Summa o Impervious, Inflow De hrs, Volume= hrs, Volume= hrs, Volume= hrs, Volume= an= 0.00-72.00 hrs, dt= Area= 765 sf Storage alculated for 0.049 af (1 778.1 - 757.1) <u>e Storage Description</u> f 22.25'W x 34.38'L x 5,163 cf Overall - 1, f ADS_StormTech M Effective Size= 70.4' Overall Size= 77.0'' 3 Rows of 4 Chamb	Pry for Pond UR Poth = 1.35" for 0.049 af 0.049 af, Atten= 8 0.049 af 0.01 hrs = 497 cf 00% of inflow) 6.75'H Field A 409 cf Embedded = IC-3500 d +Cap x 1 "W x 45.0"H => 15. W x 45.0"H x 7.50'L ers	2YR event 0%, Lag= 0.0 min = 3,755 cf x 33.3% Voi 2 Inside #1 33 sf x 7.17'L = 110.0 with 0.33' Overlap	Type III 24-hr	2YR Rainfall=3.33" Printed 3/5/2021
Preparec HydroCAD Inflow Are Inflow Outflow Discardec Routing b Peak Elev Plug-Flow Center-of Volume #1A	i by Horsley № 10.00-22 s 0.1 = 0.6 = 0.1 d = 0.1 y Stor-Ind m /= 57.50' @ / detention til -Mass det. til Invert 55.55'	<u>h 01445 © 2018</u> 136 ac, 43.62% 12 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 ethod, Time Spa 2.52 hrs Surf./ ne= 21.1 min (7 <u>Avail.Storage</u> 1,250 cf 1,409 cf	HydroCAD Software Sol Summa o Impervious, Inflow De hrs, Volume= hrs, Volume= hrs, Volume= an= 0.00-72.00 hrs, dt= Area= 765 sf Storage: alculated for 0.049 af (1 778.1 - 757.1) Storage Description f 22.25'W x 34.38'L x 5,163 cf Overall - 1, f ADS_StormTech M Effective Size= 70.4 Overall Size= 77.0"	Arry for Pond UR apth = 1.35" for 0.049 af 0.049 af, Atten = 8 0.049 af 0.049 af 0.049 af 0.01 hrs = 497 cf 00% of inflow) Combody	2YR event 0%, Lag= 0.0 min = 3,755 cf x 33.3% Voi 2 Inside #1 33 sf x 7.17'L = 110.0 with 0.33' Overlap	Type III 24-hr	2YR Rainfall=3.33" Printed 3/5/2021
Preparec HydroCAD Inflow Are Inflow Outflow Discarded Routing b Peak Elev Plug-Flow Center-of Volume #1A #2A	a by Horsley 10.00-22 s 10.00-22 s a = 0.6 = 0.1 a = 0.7 y Stor-Ind m y Stor-Ind m y Stor-Ind m y Stor-Ind m invertion tin -Mass det. tin <u>Invert</u> 55.55'	<u>h 01445 © 2018</u> 436 ac, 43.62% 2 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 2 thod, Time Spa 2.52 hrs Surf. ne= 21.1 min (7 <u>Avail.Storage</u> 1,250 cf 1,409 cf 2,659 cf	And the second s	Arry for Pond UR apth = 1.35" for 0.049 af 0.049 af, Atten = 8 0.049 af 0.049 af 0.049 af 0.01 hrs = 497 cf 00% of inflow) Combody	2YR event 0%, Lag= 0.0 min = 3,755 cf x 33.3% Voi 2 Inside #1 33 sf x 7.17'L = 110.0 with 0.33' Overlap	Type III 24-hr	2YR Rainfall=3.33" Printed 3/5/2021
Preparece HydroCAD Inflow Area Outflow Discardeo Routing b Peak Elev Plug-Flow Center-of Volume #1A #2A Storag	d by Horsley ® 10.00-22 s = 0.6 = 0.7 y Stor-Ind m / d = 0.7 y Stor-Ind m / detention tir -Mass det. tir <u>Invert</u> 55.55' 57.55' pe Group A co	<u>h 01445 © 2018</u> 136 ac, 43.62% 12 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 2 cfs @ 11.74 2.52 hrs Surf. ne= 21.1 min (7 <u>Avail.Storage</u> 1,250 cf 1,409 cf 2,659 cf eated with Char	HydroCAD Software Sol Summa o Impervious, Inflow De hrs, Volume= hrs, Volume= hrs, Volume= hrs, Volume= an= 0.00-72.00 hrs, dt= Area= 765 sf Storage alculated for 0.049 af (1 778.1 - 757.1) <u>e Storage Description</u> f 22.25'W x 34.38'L x 5, 163 cf Overall - 1, 5, 163 cf Overall - 1, 5, 163 cf Overall - 2, 5, 163 cf Overa	Arry for Pond UR apth = 1.35" for 0.049 af 0.049 af, Atten = 8 0.049 af 0.049 af 0.049 af 0.01 hrs = 497 cf 00% of inflow) Combody	2YR event 0%, Lag= 0.0 min = 3,755 cf x 33.3% Voi 2 Inside #1 33 sf x 7.17'L = 110.0 with 0.33' Overlap	Type III 24-hr	2YR Rainfall=3.33" Printed 3/5/2021
Preparece HydroCAD Inflow Area Inflow Outflow Discardece Routing b Peak Elev Plug-Flow Center-of Volume #1A #2A Storag Device	d by Horsley ® 10.00-22 s = 0.6 = 0.7 y Stor-Ind m / d = 0.7 y Stor-Ind m / detention tir -Mass det. tir <u>Invert</u> 55.55' 57.55' pe Group A co	<u>h 01445 © 2018</u> 436 ac, 43.62% 2 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 2 cfs @ 11.74 athod, Time Spa 2.52 hrs Surf./ ne= 21.1 min (7 <u>Avail.Storage</u> 1,250 ct 1,409 ct 2,659 ct eated with Char Invert Ou	And the second s	Provide the second sec	2YR event 0%, Lag= 0.0 min = 3,755 cf x 33.3% Voi 2 Inside #1 33 sf x 7.17'L = 110.0 with 0.33' Overlap 9.4 cf	Type III 24-hr	2YR Rainfall=3.33" Printed 3/5/2021
Preparece HydroCAD Inflow Area Inflow Outflow Discardece Routing b Peak Elev Plug-Flow Center-of Volume #1A #2A Storag Device #1	a = 0. = 0.6 = 0.6 = 0.7 y Stor-Ind m / d = 0.7 y Stor-Ind m / d = 0.7 y Stor-Ind m / d = 0.7 y Stor-Ind m / d = 0.7 y Stor-Ind m / a = 0.6 - 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 y Stor-Ind m / a = 0.7 / a =	<u>h 01445 © 2018</u> 436 ac, 43.62% 2 cfs @ 12.09 2 cfs @ 11.74 2 cfs @ 11.74 2 cfs @ 11.74 2 thod, Time Spa 2.52 hrs Surf./ ne= 21.1 min ca ne= 21.1 min (7 <u>Avail.Storage</u> 1,250 cf 1,409 cf 2,659 cf eated with Char <u>Invert</u> <u>Ou</u> 55.55' 7.0	HydroCAD Software Sol Summa b Impervious, Inflow De hrs, Volume= hrs, Volume= hrs, Volume= hrs, Volume= an=0.00-72.00 hrs, dt= Area= 765 sf Storage: alculated for 0.049 af (1 778.1 - 757.1) b Storage Description f 22.25'W x 34.38'L x 5,163 cf Overall - 1,1 e Storage Description f 22.25'W x 34.38'L x 5,163 cf Overall - 1,1 f ADS_StormTech N Effective Size= 77.0'' 3 Rows of 4 Chamb Cap Storage = +14.5 f Total Available Store mber Wizard ttet Devices	appth = 1.35" for 0.049 af 0.049 af, Atten= 8 0.049 af, Atten= 8 0.049 af, Atten= 8 0.01 hrs = 497 cf 00% of inflow) c.6.75'H Field A 409 cf Embedded = IC-3500 d +Cap x 1 "W x 45.0"H => 15. N x 45.0"H x 7.50'L ers 0 cf x 2 x 3 rows = 8 age	2YR event 0%, Lag= 0.0 min = 3,755 cf x 33.3% Voi 2 Inside #1 33 sf x 7.17'L = 110.0 with 0.33' Overlap 9.4 cf	Type III 24-hr	2YR Rainfall=3.33" Printed 3/5/2021



19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

Pond URC4: URC-4 Hydrograph Inflow 0.77 cfs 0.85 Discarded 0.8 Inflow Area=0.230 ac 0.75 Peak Elev=58.62' 0.7 0.65 Storage=634 cf 0.6 0.55 0.5 (cfs) 0.45 Flow 0.4 0.35 0.3 0.25 0.2 0.14 cfs 0.15 0.1 0.05 0 Ò 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours) Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" 19038-POST V3 Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 60 Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method Runoff Area=158.640 sf 9.44% Impervious Runoff Depth=0.15" Subcatchment DA1: DA1 Flow Length=417' Tc=15.9 min CN=38 Runoff=0.07 cfs 0.045 af Subcatchment DA2a: DA2a Runoff Area=43,429 sf 0.00% Impervious Runoff Depth=0.05" Flow Length=525' Tc=43.3 min CN=34 Runoff=0.01 cfs 0.004 af Runoff Area=10,709 sf 0.00% Impervious Runoff Depth=0.18" Subcatchment DA2b: DA2b pervious Tc=5.0 min CN=39 Runoff=0.01 cfs 0.004 af Subcatchment DA2bi: DA2b impervious Runoff Area=8,285 sf 100.00% Impervious Runoff Depth=4.66" Tc=5.0 min CN=98 Runoff=0.94 cfs 0.074 af Runoff Area=33.821 sf 0.00% Impervious Runoff Depth=0.05" Subcatchment DA3a: DA3a pervious Tc=5.0 min CN=34 Runoff=0.00 cfs 0.003 af Runoff Area=19,638 sf 100.00% Impervious Runoff Depth=4.66" Subcatchment DA3ai: DA3a impervious Tc=5.0 min CN=98 Runoff=2.24 cfs 0.175 af Runoff Area=4.260 sf 0.00% Impervious Runoff Depth=0.07' Subcatchment DA3b: DA3b pervious Tc=5.0 min CN=35 Runoff=0.00 cfs 0.001 af Runoff Area=10,179 sf 100.00% Impervious Runoff Depth=4.66" Subcatchment DA3bi: DA3b impervious Tc=5.0 min CN=98 Runoff=1.16 cfs 0.091 af Runoff Area=26,141 sf 0.00% Impervious Runoff Depth=0.02" Subcatchment DA3c: DA3c pervious Tc=5.0 min CN=32 Runoff=0.00 cfs 0.001 af Runoff Area=3,179 sf 100.00% Impervious Runoff Depth=4.66" Subcatchment DA3ci: DA3c impervious Tc=5.0 min CN=98 Runoff=0.36 cfs 0.028 af Runoff Area=197 sf 0.00% Impervious Runoff Depth=0.18' Subcatchment DA3d: DA3d pervious Tc=5.0 min CN=39 Runoff=0.00 cfs 0.000 af

19038-POST V3 Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u> Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 61

Subcatchment DA3di: DA3d impervious	Runoff Area=4,686 sf 100.00% Impervious Runoff Depth=4.66" Tc=5.0 min CN=98 Runoff=0.53 cfs 0.042 af
Subcatchment R1E: EAST ROOF	Runoff Area=11,331 sf 100.00% Impervious Runoff Depth=4.66" Tc=5.0 min CN=98 Runoff=1.29 cfs 0.101 af
Subcatchment R1W: WEST ROOF	Runoff Area=10,000 sf 100.00% Impervious Runoff Depth=4.66" Tc=5.0 min CN=98 Runoff=1.14 cfs 0.089 af
Pond 100: CB 100	Peak Elev=50.39' Inflow=0.36 cfs 0.029 af 12.0" Round Culvert n=0.013 L=4.0' S=0.0050 '/' Outflow=0.36 cfs 0.029 af
Pond 200: CB 200	Peak Elev=52.20' Inflow=0.53 cfs 0.042 af Primary=0.53 cfs 0.042 af Secondary=0.00 cfs 0.000 af Outflow=0.53 cfs 0.042 af
Pond BIO1: BIO 1	Peak Elev=59.46' Storage=1,242 cf Inflow=2.24 cfs 0.178 af Outflow=2.08 cfs 0.178 af
Pond BIO2: BIO 2	Peak Elev=62.62' Storage=68 cf Inflow=0.94 cfs 0.078 af Outflow=0.93 cfs 0.078 af
Pond DMH: DMH 200	Peak Elev=54.61' Inflow=1.16 cfs 0.091 af Primary=0.89 cfs 0.088 af Secondary=0.27 cfs 0.003 af Outflow=1.16 cfs 0.091 af
Pond RB1: RB 101,102	Peak Elev=43.31' Storage=311 cf Inflow=0.36 cfs 0.029 af Discarded=0.06 cfs 0.029 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.029 af
Pond RB2: RB 202,202,203	Peak Elev=47.93' Storage=348 cf Inflow=0.50 cfs 0.015 af Discarded=0.09 cfs 0.015 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.015 af
Pond RB3: RB 300	Peak Elev=58.52' Storage=0 cf Inflow=0.01 cfs 0.004 af Discarded=0.01 cfs 0.004 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.004 af
Pond SP1: SP1	Inflow=0.07 cfs 0.045 af Primary=0.07 cfs 0.045 af

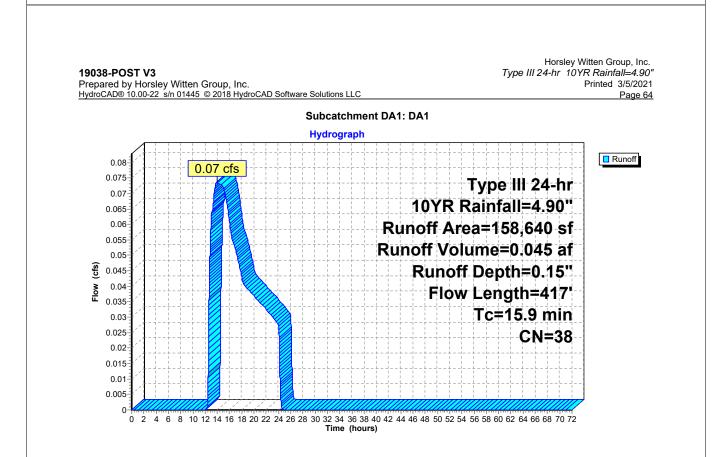
19038-POST V3 Prepared by Horsley Witten Group, Inc.	Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021
HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Sof	ftware Solutions LLC Page 62
Pond SP2: SP2	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af
Pond SP3: SP3	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af
Pond TT1: Tree Trench 1	Peak Elev=54.49' Storage=746 cf Inflow=0.89 cfs 0.088 af Discarded=0.20 cfs 0.085 af Primary=0.16 cfs 0.003 af Outflow=0.35 cfs 0.088 af
Pond TT2: Tree Trench 2	Peak Elev=53.05' Storage=156 cf Inflow=0.53 cfs 0.042 af Discarded=0.03 cfs 0.027 af Primary=0.50 cfs 0.015 af Outflow=0.53 cfs 0.042 af
Pond URC1: URC-1	Peak Elev=51.06' Storage=0.047 af Inflow=2.32 cfs 0.185 af Outflow=0.38 cfs 0.185 af
Pond URC2: URC-2	Peak Elev=57.18' Storage=1,266 cf Inflow=1.29 cfs 0.101 af Outflow=0.17 cfs 0.101 af
Pond URC3: URC-3	Peak Elev=58.24' Storage=929 cf Inflow=0.93 cfs 0.078 af Outflow=0.12 cfs 0.078 af
Pond URC4: URC-4	Peak Elev=59.45' Storage=1,156 cf Inflow=1.14 cfs 0.089 af Outflow=0.14 cfs 0.089 af

Summary for Subcatchment DA1: DA1

Runoff = 0.07 cfs @ 13.94 hrs, Volume= 0.045 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10YR Rainfall=4.90"

	A	rea (sf)	CN	Description		
_	1	18,297	30	Woods, Go	od, HSG A	
		25,363	39	>75% Gras	s cover, Go	od, HSG A
		9,642	98	Roofs, HSC	A SA	
_		5,338	98	Paved park	ing, HSG A	
	1	58,640	38	Weighted A	verage	
	1	43,660		90.56% Pe	vious Area	
		14,980		9.44% Impe	ervious Area	3
	Tc	Length	Slope		Capacity	Description
_	(min)	(feet)	(ft/ft) (ft/sec)	(cfs)	
	12.2	78	0.1730	0.11		Sheet Flow, A TO B
						Woods: Dense underbrush n= 0.800 P2= 3.60"
	0.7	99	0.1110	2.33		Shallow Concentrated Flow, B TO C
						Short Grass Pasture Kv= 7.0 fps
	3.0	240	0.0690) 1.31		Shallow Concentrated Flow, C TO SP1
_						Woodland Kv= 5.0 fps
	15.9	417	Total			



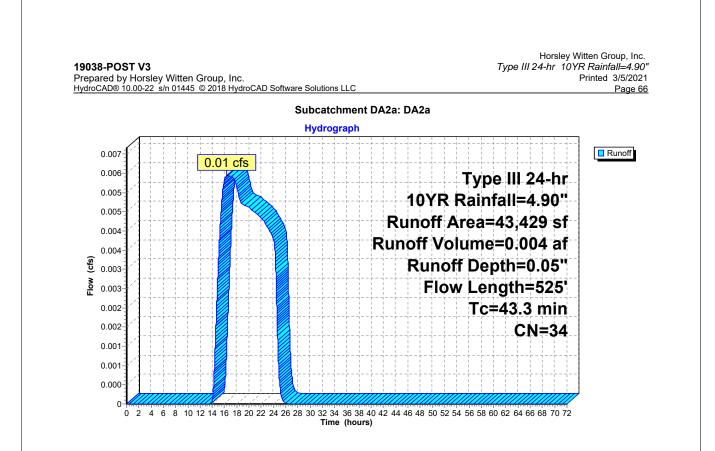
Summary for Subcatchment DA2a: DA2a

CN for permeable pavers taken from RI Stormwater Design

Runoff = 0.01 cfs @ 16.31 hrs, Volume= 0.004 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10YR Rainfall=4.90"

,	(af)	CN	Description					
F	Area (sf)	CN	Description					
	25,414	30	Woods, Go	pods, Good, HSG A				
	17,231	39	>75% Gras	s cover, Go	od, HSG A			
*	784	40	Pervious Pa	avious Pavers				
	43.429	34	Weighted A	verade				
	43.429	04	100.00% Pe					
	43,429		100.00 % F	ei vious Aie	a			
То	Longth	Slop	Volocity	Consoity	Description			
Tc	5	Slope		Capacity	Description			
(min)	(feet)	(ft/ft		(cfs)				
36.4	147	0.040	0.07		Sheet Flow, A TO B			
					Woods: Dense underbrush n= 0.800 P2= 3.60"			
0.8	67	0.076) 1.38		Shallow Concentrated Flow, B to C			
					Woodland Kv= 5.0 fps			
1.1	73	0.048) 1.10		Shallow Concentrated Flow, C to D			
	10	0.010	, 1.10		Woodland Kv= 5.0 fps			
5.0	238	0.025	0.79		Shallow Concentrated Flow, D to SP2			
5.0	230	0.023	0.79					
					Woodland Kv= 5.0 fps			
43.3	525	Total						



Are lef <u>of Deccription</u> <u>10,000</u> Provided Areage 10,000 Provided Areage 10,000 Provided Areage 10,000 Provided Areage To Length Stope Velocity Capacity Description <u>5,0</u> Direct Entry, Direct	Runoff by SCS	0.01 cfs @ 124	48 hrs, Volume= 0.	.004 af, Depth= 0.18"
Area (a) ON Description 1479 (a) Velocids, Coole, HSG A 1470 (a) Velocids, Coole, HSG A 1470 (a) Velocids, Coole, HSG A 100,005 Periods and the second of the seco		•		
10.203 19 - 75% Grass cover, Good, HSG A 10.709 39 Webs, Good, HSG A 10.709 39 Webs, Good, HSG A 10.709 100.00% Periods Area To Length Stope Veboily Capacity Description 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct Bised Entry, Dised Entry, Dised Entry, Direct Bised En	/··-			
038-POST V3 Models Average 10/700 Street Entry, Direct 638-POST V3 Direct Entry, Direct 5.0 Direct Entry, Direct				
10.703 10.00% Pervicus Area Tr Length Stope Velocity Capacity Description 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct Entry, Direct 5.0 Direct Entry,	47	1 30 Woods, Go	ood, HSG A	
<u>To Length Boys Velocity Capacity Description</u> <u>5.0</u> Direct Entry, Direct <u>5.0</u> Direct Entry, Dire			Average Pervious Area	
(min) (feb) (ft/ft) (ft/sec) (cf) 5.0 Direct Entry, Direct		gth Slope Velocity	Capacity Description	
Mosley Witten Group, Inc. Type III 24-br 19/97 Rainfall Page 80 Subtachment DA2b: DA2b pervious Fydrograph 00000 00000 00000) (cfs)	Direct
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00	0.0		Billoot Entry,	
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
1038-POST V3 page dby Horsley Witten Group, Inc. printed 3/5/2021 Page db Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
Printed 3/5/202 Page 68 Printed 3/5/202 Page 68 Subcatchment DA2b: DA2b pervious Hydrograph 0.007 0.00				
Subcatchment DA2b: DA2b pervious Hydrograph 0.007	0000 DOC	T \/2		
Hydrograph	epared by	Horslev Witten Grou	ip, Inc.	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021
0.007 0.006 0.005 0.005 0.005 0.005 0.005 0.005 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.003 0.	epared by	Horslev Witten Grou	18 HydroCAD Software Solution	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 ons LLC Page 68
0.007 0.007 0.006 0.006 0.006 0.006 0.006 0.005 0.005 0.005 0.004 0.002 0.002 0.001 0.001	epared by	Horslev Witten Grou	18 HydroCAD Software Solution Subcatchm	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 Nent DA2b: DA2b pervious
0.007 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.004 0.005 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.005 0.004 0.004 0.004 0.004 0.005 0.004 0.004 0.004 0.004 0.005 0.004 0.004 0.004 0.004 0.005 0.004 0.004 0.004 0.004 0.005 0.004 0.004 0.004 0.004 0.005 0.004 0.004 0.004 0.005 0.004 0.005 0.004 0.004 0.004 0.005 0.004 0.005 0.004 0.005 0.005 0.004 0.005 0.	epared by	Horslev Witten Grou	18 HydroCAD Software Solution Subcatchm	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 Nent DA2b: DA2b pervious
0.006 0.006 0.005 0.005 0.005 0.004 0.004 0.004 0.004 0.004 0.003 0.004 0.003 0.003 0.003 0.002 0.002 0.001	repared by rdroCAD® 10	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 Nent DA2b: DA2b pervious
0.005 0.005 0.005 0.004 0.004 0.004 0.004 0.004 0.003 0.003 0.003 0.002 0.002 0.001 0.001 0.001	epared by rdroCAD® 10 0.007	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 nent DA2b: DA2b pervious ograph
0.005 0.004 0.004 0.004 0.003 0.002 0.002 0.002 0.002 0.001 0.001 0.001	epared by /droCAD® 10 0.007	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 Nent DA2b: DA2b pervious ograph
g 0.004 0.003 0.003 0.003 0.003 0.002 0.002 0.002 0.002 0.002 0.002 0.001	epared by /droCAD® 10 0.007 0.007	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 nent DA2b: DA2b pervious ograph Type III 24-hr 10YR Rainfall=4.90"
g 0.004 0.003 0.003 0.003 0.003 0.002 0.002 0.002 0.002 0.002 0.002 0.001	epared by /droCAD® 10 0.007 0.006 0.006	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 nent DA2b: DA2b pervious ograph Type III 24-hr 10YR Rainfall=4.90"
0.003 0.002 0.002 0.001 0.001	epared by /droCAD® 10 0.007 0.006 0.006 0.006	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 Prent DA2b: DA2b pervious ograph Type III 24-hr 10YR Rainfall=4.90" Runoff Area=10,709 sf
0.003 0.002 0.002 0.001 0.001	epared by /droCAD® 10 0.007 0.006 0.006 0.005 0.005	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 hent DA2b: DA2b pervious ograph Type III 24-hr 10YR Rainfall=4.90" Runoff Area=10,709 sf Runoff Volume=0.004 af
0.002 0.002 0.001 0.001	epared by /droCAD® 10 0.007 0.006 0.006 0.005 0.005	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 nent DA2b: DA2b pervious ograph Type III 24-hr 10YR Rainfall=4.90" Runoff Area=10,709 sf Runoff Volume=0.004 af Runoff Depth=0.18"
0.002 0.002 0.001 0.001	epared by /droCAD® 10 0.007 0.006 0.006 0.005 0.005	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 nent DA2b: DA2b pervious ograph Type III 24-hr 10YR Rainfall=4.90" Runoff Area=10,709 sf Runoff Volume=0.004 af Runoff Depth=0.18"
0.001	epared by <u>droCAD® 10</u> 0.007 0.006 0.006 0.005 0.005 0.004 0.004 0.004	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 Page
0.001	epared by <u>droCAD® 10</u> 0.007 0.006 0.006 0.005 0.005 0.004 0.004 0.004 0.004 0.003 0.003	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 Page
	epared by <u>droCAD® 10</u> 0.007 0.006 0.006 0.005 0.005 0.004 0.003 0.003 0.003 0.003	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 Page
	epared by <u>droCAD® 10</u> 0.007 0.006 0.006 0.006 0.006 0.005 0.005 0.004 0.003 0.003 0.003 0.002 0.002	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 Page
0.00	epared by <u>droCAD® 10</u> 0.007 0.006 0.005 0.005 0.004 0.004 0.004 0.003 0.004 0.003 0.004 0.003 0.003 0.002 0.002 0.002	Horsley Witten Grou	18 HydroCAD Software Solutic Subcatchm Hydr	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 68 Page

													- · · -				
		0.04	-t- 0	40.07			•	Subcatch				ipervio	ous				
Runoff			cfs @						af, Depth			bro					
ype III 2	4-hr 10	(R Raii	nfall=4	90"	US, W	eignt	ea-CN, I	ime Span=	= 0.00-72	2.00 nrs, d	at= 0.01	nrs					
Ar	rea (sf)	CN	Descr														
	7,010 1,275	98 98	Paveo Sidew	alks, I	IŜG A	۱.											
	8,285 8,285	98	Weigh 100.0				ea										
	Length						Descript	tion									
(min) 5.0	(feet)	(ft/f	<u>) (ft</u>	sec)	(cfs)	Direct E	Entry, Dire	ct								
repared	POST V d by Hor ≫ 10.00-	sley W	litten ()1445	Group	, Inc. 3 Hydro			Solutions L)42h irr			Тур			R Rair	Group, Inc. nfall=4.90" d 3/5/2021 Page 70
repared	d by Hor	sley W	litten ()1445	Group © 2018	, Inc. 3 Hydro		ubcato	hment D	A2bi: C	DA2b im	npervio	us	Тур			R Rair	nfall=4.90" 3 3/5/2021
repared	d by Hor	sley W	7itten (01445	Group © 2018	, Inc. 3 Hydro		ubcato		A2bi: C	DA2b im	npervio	us	Тур			/R Rair Printec	nfall=4.90" 3 3/5/2021 Page 70
repare	d by Hor <u>©® 10.00-</u>	sley W	iitten ()1445	© 2018	, Inc. 3 Hydro		ubcato	hment D	A2bi: C	DA2b im	1pervio			e III 24-	hr 10Y	/R Rair Printec	nfall=4.90" 3 3/5/2021
repare ydroCAI	d by Hor <u>©® 10.00-</u>	sley W	01445	© 2018	, Inc.		ubcato	hment D	A2bi: C			Ту	pe I	e III 24-	hr 109	/R Rair Printec	nfall=4.90" 3 3/5/2021 Page 70
repared ydroCAL	d by Hor <u>©® 10.00-</u>	sley W	01445	© 2018	, Inc. 3 Hydro		ubcato	hment D	A2bi: C		npervio 0YR	Ту	pe I	e III 24-	hr 109	/R Rair Printec	nfall=4.90" 3 3/5/2021 Page 70
repared ydroCAL	d by Hor <u>©® 10.00-</u>	sley W	01445	© 2018	, Inc. B Hydro		ubcato	hment D	A2bi: C	1	0YR	Ty Rai	pe I nfall	e 24- 24- =4.9	hr 109 -hr 90''	/R Rair Printec	nfall=4.90" 3 3/5/2021 Page 70
repared ydroCAL	d by Hor <u>©® 10.00-</u>	sley W	01445	© 2018	, Inc.		ubcato	hment D)A2bi: C aph	1 Ru	0YR Inoff	Ty Rai Are	pe I nfall ea=8	e 24- 24 =4.9 ,285	-hr -hr 90"	/R Rair Printec	nfall=4.90" 3 3/5/2021 Page 70
repared ydroCAL	d by Hor <u>©® 10.00-</u>	sley W	01445	© 2018	, Inc.		ubcato	hment D)A2bi: C aph	1 Ru Runo	0YR Inoff	Ty Rai Are	pe I nfall a=8 ne=0	e Ⅲ24- 24 =4.9 ,285 .074	-hr -hr 90'' sf af	/R Rair Printec	nfall=4.90" 3 3/5/2021 Page 70
repared ydroCAL	d by Hor <u>©® 10.00-</u>	sley W	01445	© 2018	, Inc.		ubcato	hment D)A2bi: C aph	1 Ru Runo	0YR Inoff	Ty Rai Are lum	rpe II nfall ea=8 ne=0 epth	e 24- 24 =4.9 ,285 .074 =4.6	-hr -hr 5 sf . af 56"	/R Rair Printec	nfall=4.90" 3 3/5/2021 Page 70
repare ydroCAL	d by Hor <u>©® 10.00-</u>	sley W	01445	© 2018	, Inc.		ubcato	hment D)A2bi: C aph	1 Ru Runo	0YR Inoff	Ty Rai Are lum	pe II nfall a=8 ne=0 epth Tc=5	e III 24 24 =4.9 ,285 ,074 =4.6	-hr -hr 5 sf 6 af 56" nin	/R Rair Printec	nfall=4.90" 3 3/5/2021 Page 70
repared ydroCAL	d by Hor <u>©® 10.00-</u>	sley W	01445	© 2018	, Inc.		ubcato	hment D)A2bi: C aph	1 Ru Runo	0YR Inoff	Ty Rai Are lum	pe II nfall a=8 ne=0 epth Tc=5	e 24- 24 =4.9 ,285 .074 =4.6	-hr -hr 5 sf 6 af 56" nin	/R Rair Printec	nfall=4.90" 3 3/5/2021 Page 70
repared ydroCAL 1	d by Hor <u>©® 10.00-</u>	sley W	01445	© 2018	, Inc.		ubcato	hment D)A2bi: C aph	1 Ru Runo	0YR Inoff	Ty Rai Are lum	pe II nfall a=8 ne=0 epth Tc=5	e III 24 24 =4.9 ,285 ,074 =4.6	-hr -hr 5 sf 6 af 56" nin	/R Rair Printec	nfall=4.90" 3 3/5/2021 Page 70
Prepared lydroCAE	d by Hor <u>©® 10.00-</u>	sley W	01445	© 2018	, Inc.		ubcato	hment D)A2bi: C aph	1 Ru Runo	0YR Inoff	Ty Rai Are lum	pe II nfall a=8 ne=0 epth Tc=5	e III 24 24 =4.9 ,285 ,074 =4.6	-hr -hr 5 sf 6 af 56" nin	/R Rair Printec	nfall=4.90" 3 3/5/2021 Page 70
repared ydroCAL 1	d by Hor <u>©® 10.00-</u>	sley W	01445	© 2018	, Inc.		ubcato	hment D)A2bi: C aph	1 Ru Runo	0YR Inoff	Ty Rai Are lum	pe II nfall a=8 ne=0 epth Tc=5	e III 24 24 =4.9 ,285 ,074 =4.6	-hr -hr 5 sf 6 af 56" nin	/R Rair Printec	nfall=4.90" 3 3/5/2021 Page 70

unoff	=	0.00	cfc @ 1⊑		-	for Subcate	af, Depth=							
			cfs @ 15 ethod UH:			0.003 N, Time Span:) 01 bre					
			nfall=4.90"		signieu-ol	, mile opani	- 0.00-12.0	o mo, ut= 0						
	rea (sf)	CN 20	Descriptio		Good	86.4								
	14,079 19,742	39 30	Woods, C	Good, HS		56 A								
	33,821 33,821	34	Weighted 100.00%	Pervious	Area									
	Length (feet)	Slop (ft/t	e Velocit t) (ft/sec		city Desc cfs)	cription								
<u>(min)</u> 5.0	(ieet)	(11/1	ij (ilvset	<u>, (</u> (,	ct Entry, Dire	ct							
														Group, Inc.
repare	POST V d by Ho	rslev V	√itten Gro	up, Inc.						7	Гуре III 2		YR Rai	nfall=4.90" d 3/5/2021
enare	d by Ho	rslev V	/itten Gro 01445 ⊚ 2	up, Inc. 018 Hydro		are Solutions L				7	Гуре III 2		YR Rai	nfall=4.90"
repare	d by Ho	rslev V	/itten Gro 01445 ⊚ 2/	up, Inc. 018 Hydro		ocatchment	DA3a: D	A3a pervi	ious	7	Гуре III 2		YR Rai	nfall=4.90" d 3/5/2021
repare	d by Ho	rslev V	/itten Gro 01445 © 2	up, Inc. 018 Hydro			DA3a: D	A3a pervi	ious	7	Fype III 2		YR Rai	nfall=4.90" d 3/5/2021
repare /droCAI	d by Ho <u>D® 10.00</u>	rslev V	01445 © 2	018 Hydro		ocatchment	DA3a: D	A3a pervi	ious	7	Гуре III 2		Printe	nfall=4.90" d 3/5/2021
reparer /droCAI	d by Ho D® 10.00	rslev V	01445 © 2	up, Inc. 018 Hydro 00 cfs		ocatchment	DA3a: D	A3a pervi				4-hr 10	Printe	nfali=4.90" d 3/5/2021 Page 72
reparer /droCAI	d by Ho <u>D® 10.00</u>	rslev V	01445 © 2	018 Hydro		ocatchment	DA3a: D		++	уре		4-hr 10 4-hr	Printe	nfali=4.90" d 3/5/2021 Page 72
repared /droCA[0.0	d by Ho D® 10.00	rslev V	01445 © 2	018 Hydro		ocatchment	DA3a: D	10Y	T (R Ra	- ype ainfa	- 111 2 all=4	4-hr 10 4-hr 90''	Printe	nfali=4.90" d 3/5/2021 Page 72
0.0 0.0	d by Ho D® 10.00	rslev V	01445 © 2	018 Hydro		ocatchment	DA3a: D aph	10Y Runol	T ′R Ra	īype ainfa	111 2 a11=4 33,82	4-hr 10 4-hr 90'' 1 sf	Printe	nfali=4.90" d 3/5/2021 Page 72
0.0 0.0 0.0	d by Ho D® 10.00 005 004 004	rslev V	01445 © 2	018 Hydro		ocatchment	DA3a: D aph	10Y Runol Jnoff	T 'R Ra ff Are Volu	īype ainfa ea=3 me=	111 2 all=4 33,82 =0.00	4-hr 10 4-hr 90'' 1 sf 3 af	Printe	nfali=4.90" d 3/5/2021 Page 72
0.0 0.0 0.0	d by Ho D® 10.00	rslev V	01445 © 2	018 Hydro		ocatchment	DA3a: D aph	10Y Runol Jnoff	T ′R Ra	īype ainfa ea=3 me=	111 2 all=4 33,82 =0.00	4-hr 10 4-hr 90'' 1 sf 3 af	Printe	nfali=4.90" d 3/5/2021 Page 72
0.0 0.0 0.0	d by Ho D® 10.00 005 004 004	rslev V	01445 © 2	018 Hydro		ocatchment	DA3a: D aph	10Y Runol Jnoff	T 'R Ra ff Are Volu	īype ainfa ea=3 me= Dep	111 2 all=4 33,82 =0.00	4-hr 10 4-hr 90'' 1 sf 3 af 05''	Printe	nfali=4.90" d 3/5/2021 Page 72
reparer <u>/droCAI</u> 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	d by Ho D® 10.00	rslev V	01445 © 2	018 Hydro		ocatchment	DA3a: D aph	10Y Runol Jnoff	T 'R Ra ff Are Volu	īype ainfa ea=3 me= Dep	111 2 all=4 33,82 =0.00 th=0 =5.0	4-hr 10 4-hr 90'' 1 sf 3 af 05'' min	Printe	nfali=4.90" d 3/5/2021 Page 72
repare: (droCAI 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	d by Ho D® 10.00 005 005 004 004 004 003 004	rslev V	01445 © 2	018 Hydro		ocatchment	DA3a: D aph	10Y Runol Jnoff	T 'R Ra ff Are Volu	īype ainfa ea=3 me= Dep	111 2 all=4 33,82 =0.00 th=0 =5.0	4-hr 10 4-hr 90'' 1 sf 3 af 05''	Printe	nfali=4.90" d 3/5/2021 Page 72
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	d by Ho D® 10.00 005 004 004 003 002	rslev V	01445 © 2	018 Hydro		ocatchment	DA3a: D aph	10Y Runol Jnoff	T 'R Ra ff Are Volu	īype ainfa ea=3 me= Dep	111 2 all=4 33,82 =0.00 th=0 =5.0	4-hr 10 4-hr 90'' 1 sf 3 af 05'' min	Printe	nfali=4.90" d 3/5/2021 Page 72
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	d by Ho D® 10.00 005 005 004 004 004 003 004	rslev V	01445 © 2	018 Hydro		ocatchment	DA3a: D aph	10Y Runol Jnoff	T 'R Ra ff Are Volu	īype ainfa ea=3 me= Dep	111 2 all=4 33,82 =0.00 th=0 =5.0	4-hr 10 4-hr 90'' 1 sf 3 af 05'' min	Printe	nfali=4.90" d 3/5/2021 Page 72
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	d by Ho D® 10.00 005 004 004 003 002	rslev V	01445 © 2	018 Hydro		ocatchment	DA3a: D aph	10Y Runol Jnoff	T 'R Ra ff Are Volu	īype ainfa ea=3 me= Dep	111 2 all=4 33,82 =0.00 th=0 =5.0	4-hr 10 4-hr 90'' 1 sf 3 af 05'' min	Printe	nfali=4.90" d 3/5/2021 Page 72

noff = 2.24 cfs @ 1207 nr, Volume 10.175 af, Depth= 4.61° noff by SS1TR.20 method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Presspective Normality SS1TR.20 method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Presspective Normality SS1TR.20 method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Presspective Normality SS1TR.20 method, UH-SCS, Weighted CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Presspective Normality SS1TR.20 method, UH-SCS, Weighted CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Presspective Normality SS1TR.20 method, UH-SCS, Weighted CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Presspective Normality SS1TR.20 method, UH-SCS, Weighted CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs State Common State St	lunoff				;	Summ	ary for	Subcatc	hment	DA3ai: I	DA3a in	nperviou	us					
Peril 24-tr 10YR Rainfall-3.90" Area (a) ON Description 13.277 93 Prevel parking HSG A 198.38 98 Weighted Average To Long My Ubox 00% Impervious Area Source Entry, Direct Direct Entry, Direct				-														
1381 98 Pereid parking, HSG A 1381 98 Sidewalk, HSG A 19.638 98 Weighted Average To Length (total) (total) Description 5.0 Direct Entry, Direct						, Weigl	nted-CN,	, Time Spar	n= 0.00-7	2.00 hrs,	dt= 0.01	hrs						
136.38 99 Weighed Verlage 100.00% Impervious Area 15.638 99 Weighed Velocity Capacity Description (de) Europhic Velocity Capacity Description 5:0 5:0 Direct Entry, Direct	A																	
19.53 100.00% Impervious Area To Length Stope Velocity Capacity Description 5.0 Direct Entry, Direct Direct Entry, Direct Buse-POST V3 Page 74 Page 74		1,361	98	Sidewalk	k, HSG	βA	4											
(feet) (full) (full see) (feet) 5.0 Direct Entry, Direct Direct Entry, Direct Entry, Direct Direct Entry, Direct Type III 24-hr Type III 24-hr Direct Entry, Direct Type III 24-hr Type III 24-hr Direct Entry, Direct Type III 24-hr Type III 24-hr Direct Entry, Direct Type III 24-hr Type III 24-hr			98				Area											
5.0 Direct Entry, Direct Direct Entry, Direct Entry, Direct Direct Entry, Direct Entry							Descri	iption										
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se		(ieet)	(101	(1/30	0)	(013)	Direct	t Entry, Dire	ect									
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
Substantial Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 74 Page 74 Subcatchment DA3ai: DA3a impervious Impervious Understanting Output to the second se																		
repared by Horsley Witten Group, Inc. Printed 3/5/2021 Page 74 Page 74																		
Subcatchment DA3ai: DA3a impervious Hydrograph Type III 24-hr 10YR Rainfall=4.90" Runoff Area=19,638 sf Runoff Volume=0.175 af Runoff Depth=4.66" Tc=5.0 min	9038-	POST V	3										Τνρ					
2 2 2 2 2 2 2 2 2 2 2 2 2 2	epare	ed by Ho	slev W	/itten Gro	oup, lr 2018 H	nc.) Softwa	re Solutions	LLC				Тур	pe III 2		OYR F	Rainfall=4. nted 3/5/2	90" 021
2 2 2 2 2 2 2 2 2 2 2 2 2 2	epare	ed by Ho	slev W	/itten Gro 01445 © 2	oup, Ir 2018 H	nc. ydroCA				DA3a in	npervio	us	Тур	pe III 2		OYR F	Rainfall=4. nted 3/5/2	90" 021
2 2 2 2 2 2 2 2 2 2 2 2 2 2	repare	ed by Ho	slev W	/itten Gro 01445 © 2	oup, lr 2018 H	nc. ydroCA		tchment	DA3ai:	DA3a in	npervio	us	Тур	oe III 2		OYR F	Rainfall=4. nted 3/5/2	90" 021
2 10YR Rainfall=4.90" Runoff Area=19,638 sf Runoff Volume=0.175 af Runoff Depth=4.66" Tc=5.0 min	repare	ed by Ho	slev W	/itten Gro 01445 © 2	oup, Ir 2018 H	nc. ydroCA		tchment	DA3ai:	DA3a in	npervio	us	Тур	pe III 2		OYR F	Rainfall=4. nted 3/5/2 Page	90" 021 <u>- 74</u>
ଞ୍ଚ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ	repare	ed by Ho	sley W 22 s/n	01445 © 2	2018 H	nc. ydroCA		tchment	DA3ai:	DA3a in	npervio				4-hr 10	OYR F	Rainfall=4. nted 3/5/2 Page	90" 021 <u>- 74</u>
ଞ ଞ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ ଜୁ	repare <u>/droCA</u>	ed by Hoi	sley W 22 s/n	01445 © 2	2018 H	nc. ydroCA		tchment	DA3ai:			Тур	be I	11 24	4-hr 10 4-hr	OYR F Prir	Rainfall=4. nted 3/5/2 Page	90" 021 <u>- 74</u>
ଞ୍ଚ ଛୁ Tc=5.0 min	repare <u>ydroCA</u>	ed by Hoi	sley W 22 s/n	01445 © 2	2018 H	nc. ydroCA		tchment	DA3ai:	1	0YR	Tyr Rair	pe l nfal	li 24	4-hr 10 4-h r 90''	OYR F Prir	Rainfall=4. nted 3/5/2 Page	90" 021 <u>- 74</u>
	repare <u>/droCA</u>	ed by Hoi	sley W 22 s/n	01445 © 2	2018 H	ıc. ydroCA		tchment	DA3ai: raph	1 Rur	0YR	Tyr Rair Area:	pe I nfal =19	II 24 I=4	4-hr 10 4-hr 90'' 8 sf	OYR F Prir	Rainfall=4. nted 3/5/2 Page	90" 021 <u>- 74</u>
	repare /droCA	ed by Hoi	sley W 22 s/n	01445 © 2	2018 H	IC. ydroCA		tchment	DA3ai: raph	1 Rur Runo	0YR noff /	Tyr Rair Area blumo	pe nfal =19 e=0	II 24 I=4 9,63	4-hr 10 90'' 8 sf 5 af	OYR F Prir	Rainfall=4. nted 3/5/2 Page	90" 021 <u>- 74</u>
1-1 	repare ydroCA	ed by Hoi	sley W 22 s/n	01445 © 2	2018 H	IC. ydroCA		tchment	DA3ai: raph	1 Rur Runo	0YR noff /	Tyr Rair Area blumo	pe nfal =19 e=0	II 24 I=4 9,63	4-hr 10 90'' 8 sf 5 af	OYR F Prir	Rainfall=4. nted 3/5/2 Page	90" 021 <u>- 74</u>
	repare ydroCA	ed by Hoi	sley W 22 s/n	01445 © 2	2018 H	IC. ydroCA		tchment	DA3ai: raph	1 Rur Runo	0YR noff /	Tyr Rair Area olumo	pe I nfal =19 e=0	24 =4),63).17 h=4	4-hr 10 90'' 8 sf 5 af 66''	OYR F Prir	Rainfall=4. nted 3/5/2 Page	90" 021 <u>- 74</u>
	repare ydroCA	ed by Hoi	sley W 22 s/n	01445 © 2	2018 H	IC. ydroCA		tchment	DA3ai: raph	1 Rur Runo	0YR noff /	Tyr Rair Area olumo	pe I nfal =19 e=0	ll 24 l=4),63).17 n=4 5.0	4-hr 10 4-hr 90'' 8 sf 5 af 66'' min	9YR F Prin	Rainfall=4. nted 3/5/2 Page	90" 021 <u>- 74</u>
	repare ydroCA	ed by Hoi	sley W 22 s/n	01445 © 2	2018 H	IC. ydroCA		tchment	DA3ai: raph	1 Rur Runo	0YR noff /	Tyr Rair Area olumo	pe I nfal =19 e=0	ll 24 l=4),63).17 n=4 5.0	4-hr 10 4-hr 90'' 8 sf 5 af 66'' min	9YR F Prin	Rainfall=4. nted 3/5/2 Page	90" 021 <u>- 74</u>
	repare	ed by Hoi	sley W 22 s/n	01445 © 2	2018 H	IC. ydroCA		tchment	DA3ai: raph	1 Rur Runo	0YR noff /	Tyr Rair Area olumo	pe I nfal =19 e=0	ll 24 l=4),63).17 n=4 5.0	4-hr 10 4-hr 90'' 8 sf 5 af 66'' min	9YR F Prin	Rainfall=4. nted 3/5/2 Page	90" 021 <u>- 74</u>
	repare ydroCA	ed by Hoi	sley W 22 s/n	01445 © 2	2018 H	IC. ydroCA		tchment	DA3ai: raph	1 Rur Runo	0YR noff /	Tyr Rair Area olumo	pe I nfal =19 e=0	ll 24 l=4),63).17 n=4 5.0	4-hr 10 4-hr 90'' 8 sf 5 af 66'' min	9YR F Prin	Rainfall=4. nted 3/5/2 Page	90" 021 <u>- 74</u>

		o a -				-		catchme			p	5. 110						
unoff	=		:fs @ 1					.001 af, D	•									
unoff by ype III 2	y SCS TF 24-hr 10	≺-20 me YR Rain	tnod, Ul fall=4.9	⊣=SCS)"	, Weigh	ited-CN,	Lime S	Span= 0.00	J-72.00	nrs, dt=	0.01 h	nrs						
Ai	vrea (sf)		Descrip															
	2,324 1,936		>75% G Woods,			ood, HSC	3 A											
	4,260 4,260	35	Weighte	d Avera	age													
To	Length					Descri	otion											
(min) 5.0	(feet)	(ft/ft			(cfs)			Direct										
0.0						211001	y,											
																		Group, Inc.
	POST V		itten Cr		10								 <i>T</i> y	/pe II		r 10Y	'R Rain	nfall=4.90"
	POST V ed by Hor D® 10.00-		tten Gr 1445 ©	oup, In 2018 Hy	IC. ydroCAE) Softwar	e Solutio	ons LLC					Ту	γpe II		r 10Y	'R Rain	
			itten Gr 1445 ©	оир, In 2018 Ну	IC. ydroCAE			ons LLC nent DA3	Bb: DA	3b per	vious		 	γpe II.		r 10Y	'R Rain	nfall=4.90" 3/5/2021
			itten Gr 1445 ©	oup, In 2018 Hy	IC. ydroCAE		atchm		3b: DA	3b per	vious	 		γpe ΙΙ.		r 10Y	'R Rain	nfall=4.90" 3/5/2021
			itten Gr 1445 ©	оир, In 2018 Ну	ic. ydroCAE		atchm	nent DA3	3b: DA:	3b per	vious			γpe ΙΙ.		r 10Y	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
epare <u>/droCAI</u> 0.0	ed by Hor D® 10.00-			oup, In 2018 Hy 00 cf			atchm	nent DA3	3 b: DA ;	3b per	vious				124-hi	r 10Y	R Rain Printed	nfall=4.90" 3/5/2021
epare <u>/droCAL</u> 0.0	ed by Hor D® 10.00-						atchm	nent DA3	3b: DA:	3b per	vious		Ty		124-hi	r 10Y	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
repared /droCAI 0.0 0.0	ed by Hor D® 10.00-						atchm	nent DA3	3b: DA:			Ту	pe	111-2	124-hi 24-l	r 10Y	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
0.0 0.0 0.0 0.0 0.0	ed by Hor D® 10.00-						atchm	nent DA3		- 10`	YR	Ty Rai	′pe nfa		124-hi 24-l 4.9(r 10Y	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
0.0 0.0 0.0 0.0 0.0 0.0 0.0	ed by Hor D® 10.00-						atchm	nent DA3		10` Run	YR	Ty Rai Are	vpe nfa ea=	111 11= 4,2	124-hi 24-i 4.9(r 10Y hr 0''	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ed by Hor D® 10.00-						atchm	nent DA3		- 10`	YR	Ty Rai Are	vpe nfa ea=	111 11= 4,2	124-hi 24-i 4.9(r 10Y hr 0''	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ed by Hor D® 10.00-						atchm	nent DA3		10` Run noff	YR Ioff Vo	Ty Rai Are	vpe nfa ∋a≕ ne≕	111 11= 4,2 0.0	24- 4.9(60	r 10Y hr 0" sf af	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ed by Hor D® 10.00-						atchm	nent DA3		10` Run noff	YR	Ty Rai Arc Iun ff D	vpe nfa ea= ne= ept	 = 4,2 0.0 h=	24-hi 24-l 4.90 01 0.0	r 109/ hr 0'' sf 7''	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
1.00 1.00	ed by Hor D® 10.00-						atchm	nent DA3		10` Run noff	YR Ioff Vo	Ty Rai Arc Iun ff D	∕pe nfa ∋a= ne=	 = 4,2 0.0 h= 5.(24-1 4.9(60 01 0.01	r 109/ hr 0"	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
	ed by Hor D® 10.00-						atchm	nent DA3		10` Run noff	YR Ioff Vo	Ty Rai Arc Iun ff D	vpe nfa ea= ne= ept	 = 4,2 0.0 h= 5.(24-hi 24-l 4.90 01 0.0	r 109/ hr 0"	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
2000 100 100 100 100 100 100 100 100 100	ad by Hor D® 10.00-						atchm	nent DA3		10` Run noff	YR Ioff Vo	Ty Rai Arc Iun ff D	vpe nfa ea= ne= ept	 = 4,2 0.0 h= 5.(24-1 4.9(60 01 0.01	r 109/ hr 0"	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ad by Hor D® 10.00- 001- 001- 001- 001- 001- 001- 001						atchm	nent DA3		10` Run noff	YR Ioff Vo	Ty Rai Arc Iun ff D	vpe nfa ea= ne= ept	 = 4,2 0.0 h= 5.(24-1 4.9(60 01 0.01	r 109/ hr 0"	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ad by Hor D® 10.00-						atchm	nent DA3		10` Run noff	YR Ioff Vo	Ty Rai Arc Iun ff D	vpe nfa ea= ne= ept	 = 4,2 0.0 h= 5.(24-1 4.9(60 01 0.01	r 109/ hr 0"	R Rain Printed	ofall=4.90" 3/5/2021 Page 76
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ad by Hor D® 10.00- 001 001 001 001 001 001 001						atchm	nent DA3		10` Run noff	YR Ioff Vo	Ty Rai Are lun ff D	vpe nfa ea= ne= ept	 = 4,2 0.0 h= 5.(24-1 4.9(60 01 0.01	r 109/ hr 0"	R Rain Printed	ofall=4.90" 3/5/2021 Page 76

				Su	mmar	y for Sub				b imper	vious				
unoff	=	1.16	cfs @ 12	.07 hrs,	Volum	ie=	0.091 af,	Depth= 4	.66"						
			ethod, UH= nfall=4.90"		Veighte	d-CN, Time	e Span= 0	.00-72.00 ł	rs, dt= 0).01 hrs					
A	Area (sf)	CN	Descriptio												
	9,486 693	98 98	Paved pa Sidewalks	s, HŠG A	۹										
	10,179 10,179	98	Weighted 100.00%			a									
Tc (min)	Length (feet)	Slop (ft/			acity I (cfs)	Description									
5.0	(ieet)	(10	<u>, (17380</u>	·, (<u> </u>	Direct Entr	y, Direct								
	POST V										T	/pe III 2·	Horsley 4-hr 10	YR Rair	Group, Inc.
repare	ed by Ho	sley V	Vitten Gro 01445 © 20	up, Inc. D18 Hydro	oCAD S	Software Sol	utions LLC				Ţ	/pe III 2-	Horsley 4-hr 10	YR Rair	Sroup, Inc. Srfall=4.90" 1 3/5/2021 Page 78
repare	ed by Ho	sley V	Vitten Gro 01445 © 20	up, Inc. D18 Hydri	oCAD S	Software Sol) imper	rvious	Ty	/pe III 2-	Horsley 4-hr 10	YR Rair	nfall=4.90" 3/5/2021
repare	ed by Ho	sley V	Vitten Gro 01445 © 20	up, Inc. D18 Hydri	oCAD S	ubcatchn		3bi: DA3	o imper	rvious		ype III 2-	Horsley 4-hr 10	YR Rair	nfall=4.90" 3/5/2021
repare	ed by Ho	sley V 22_s/n	01445 © 20	018 Hydro	oCAD S	ubcatchn	nent DA	3bi: DA3	o imper	rvious		/pe III 2-	Horsley 4-hr 10	YR Rain	nfall=4.90" 3/5/2021
repare	ed by Ho	sley V 22_s/n	Vitten Gro 01445 © 20 1.16 cfs	018 Hydro	oCAD S	ubcatchn	nent DA	3bi: DA3	o imper			/pe III 2·	4-hr 10	YR Rain	nfall=4.90" 3 3/5/2021 Page 78
repare ydroCA	ed by Hoi	sley V 22_s/n	01445 © 20	018 Hydro	oCAD S	ubcatchn	nent DA	3bi: DA3		Т	уре	/pe III 24	4-hr 10 4-hr	YR Rain	nfall=4.90" 3 3/5/2021 Page 78
repare ydroCA	ed by Ho	sley V 22_s/n	01445 © 20	018 Hydro	oCAD S	ubcatchn	nent DA	3bi: DA3	10Y	T (R Ra	ype	/pe 2 24 =4.	4-hr 10 4-hr 90"-	YR Rain	nfall=4.90" 3 3/5/2021 Page 78
repare ydroCA	ed by Hoi	sley V 22_s/n	01445 © 20	018 Hydro	oCAD S	ubcatchn	nent DA	3bi: DA3	10Y uno1	T (R Ra ff Are	ype ainfa ea=1	/pe 24 24 =4 0,17	4-hr 10 4-hr 90"⁻ 9 sf	YR Rain	nfall=4.90" 3 3/5/2021 Page 78
repare ydroCA	ed by Hoi	sley V 22_s/n	01445 © 20	018 Hydro	oCAD S	ubcatchn	nent DA	3bi: DA3	10Y unof	T (R Ra ff Are Volu	ype ainfa ea=1 me=	/pe 24 24 =4. 0,17 0.09	4-hr 10 4-hr 90'' 9 sf 1 af	YR Rain	nfall=4.90" 3 3/5/2021 Page 78
repare <u>ydroCA</u>	ed by Hoi	sley V 22_s/n	01445 © 20	018 Hydro	oCAD S	ubcatchn	nent DA	3bi: DA3	10Y unof	T (R Ra ff Are	ype ainfa ea=1 me= Dept	/pe 24 =4 0,17 0.09 h=4.	4-hr 10 4-hr 90"- 9 sf 1 af 66"	YR Rain	nfall=4.90" 3 3/5/2021 Page 78
repare _{ydroCA}	ed by Hoi	sley V 22_s/n	01445 © 20	018 Hydro	oCAD S	ubcatchn	nent DA	3bi: DA3	10Y unof	T (R Ra ff Are Volu	ype ainfa ea=1 me= Dept	/pe 24 =4 0,17 0.09 h=4 =5.0	4-hr 10 4-hr 90"- 9 sf 1 af 66" min	YR Rain	nfall=4.90" 3 3/5/2021 Page 78
repare <u>ydroCA</u>	ed by Hoi	sley V 22_s/n	01445 © 20	018 Hydro	oCAD S	ubcatchn	nent DA	3bi: DA3	10Y unof	T (R Ra ff Are Volu	ype ainfa ea=1 me= Dept	/pe 24 =4 0,17 0.09 h=4 =5.0	4-hr 10 4-hr 90"- 9 sf 1 af 66"	YR Rain	nfall=4.90" 3 3/5/2021 Page 78
repare ydroCA	ed by Hoi	sley V 22_s/n	01445 © 20	018 Hydro	oCAD S	ubcatchn	nent DA	3bi: DA3	10Y unof	T (R Ra ff Are Volu	ype ainfa ea=1 me= Dept	/pe 24 =4 0,17 0.09 h=4 =5.0	4-hr 10 4-hr 90"- 9 sf 1 af 66" min	YR Rain	nfall=4.90" 3 3/5/2021 Page 78
repare ydroCA	ed by Hoi	sley V 22_s/n	01445 © 20	018 Hydro	oCAD S	ubcatchn	nent DA	3bi: DA3	10Y unof	T (R Ra ff Are Volu	ype ainfa ea=1 me= Dept	/pe 24 =4 0,17 0.09 h=4 =5.0	4-hr 10 4-hr 90"- 9 sf 1 af 66" min	YR Rain	nfall=4.90" 3 3/5/2021 Page 78
repare ydroCA	ed by Hoi	sley V 22_s/n	01445 © 20	018 Hydro	oCAD S	ubcatchn	nent DA	3bi: DA3	10Y unof	T (R Ra ff Are Volu	ype ainfa ea=1 me= Dept	/pe 24 =4 0,17 0.09 h=4 =5.0	4-hr 10 4-hr 90"- 9 sf 1 af 66" min	YR Rain	nfall=4.90" 3 3/5/2021 Page 78

					•	r Subcatchment		, heu	VIOUS					
unoff	=		cfs @ 21			0.001 af, Depth								
unoff b /pe III :	oy SCS TF 24-hr 10	R-20 m /R Rai	ethod, UH= nfall=4.90"	SCS, Wei	ghted-CN,	Time Span= 0.00-72.	00 hrs, dt= 0.0)1 hrs						
A	Area (sf) 4,662	<u>CN</u> 39	Descriptio		Good, HSG	: Δ								
	21,479	30	Woods, G	ood, HSG										
	26,141 26,141	32	Weighted 100.00%	Average Pervious A	rea									
	Length				y Descrip	tion								
<u>(min)</u> 5.0	(feet)	(ft/f	t) (ft/sec) (cfs		Entry, Direct								
038-	POSTV	3								Туре			litten Gro	
	POST V		/itten Grou	ip, Inc.	40.0-1	0.1.5				Туре		r 10YF	R <i>Rainfai</i> Printed 3	ll=4.90" 8/5/2021
			/itten Grou	ıp, Inc. 18 HydroC		e Solutions LLC				Туре		r 10YF	R <i>Rainfai</i> Printed 3	ll=4.90"
			/itten Groo 01445 ⊚ 20	ıp, Inc. 18 HydroC		atchment DA3c: I	0A3c pervio	ous		Туре		r 10YF	R <i>Rainfai</i> Printed 3	ll=4.90" 8/5/2021
epare droCA	ed by Hor <u>D® 10.00-</u>		/itten Groi 01445 © 20	ıp, Inc. 118 HydroC)A3c pervio	ous		Туре		r 10YF	R <i>Rainfai</i> Printed 3	ll=4.90" 8/5/2021
epare <u>droCA</u> 0.	ed by Hor D® 10.00-		/itten Grou 01445 ⊚ 20		Subc	atchment DA3c: I)A3c pervio	pus		Туре		r 10YF	R <i>Rainfai</i> Printed 3	II=4.90" 3/5/2021 Page 80
epare <u>droCA</u> 0. 0.	ed by Hor <u>D® 10.00-</u>		/itten Grou			atchment DA3c: I)A3c pervio		Typ		III 24-h	r 10YF	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
epare droCA 0. 0. 0.	ed by Hor D® 10.00-		/itten Groi 01445 © 20		Subc	atchment DA3c: I				e III	111 24-h	r 10YF	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
epare droCA 0. 0. 0. 0.	ed by Hor D® 10.00-		/itten Grou		Subc	atchment DA3c: I	10YF	R R	Rain	e III fall=	111 24-h 24- =4.9	r 10YF	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
epare droCA 0. 0. 0. 0. 0. 0.	ed by Hor D® 10.00- .002 .002 .002 .002 .001		/itten Grou 01445 © 20		Subc	atchment DA3c: I		R R	Rain	e III fall=	111 24-h 24- =4.9	r 10YF	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
epare droCA 0. 0. 0. 0. 0. 0. 0.	.002 .002 .002 .002 .002 .002 .001 .001		/itten Grou		Subc	atchment DA3c: I	10YF Runoff	R R Ar	Rain rea=	e III fall= :26,	24-n 24- =4.9	r 1044 hr 0"	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
epare droCA 0. 0. 0. 0. 0. 0. 0. 0. 0.	.002 .002 .002 .002 .002 .002 .001 .001		/itten Grou		Subc	atchment DA3c: I	10YF Runoff unoff V	R R Ar /olu	Rain rea= ume	e III fall= :26, :=0.	24- 24- =4.9 141 001	hr o" af	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
epare droCA 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed by Hor D® 10.00- .002 .002 .002 .002 .001 .001 .001		/itten Grou		Subc	atchment DA3c: I	10YF Runoff	R R Ar /olu	Rain rea= ume	e III fall= :26, :=0.	24- 24- =4.9 141 001	hr o" af	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
epare droCA 0. 0. 0. 0. 0. 0. 0. 0. 0.	.002 .002 .002 .002 .002 .002 .001 .001		/itten Grou		Subc	atchment DA3c: I	10YF Runoff unoff V	R R Ar /olu	Rain rea= ume De _l	e fall= =26, ==0. pth=	24- 24- =4.9 141 001 =0.0	hr	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
Line (c) (c) (c) (c) (c) (c) (c) (c) (c) (c)	002 002 002 002 002 002 001 001 001 001		/itten Grou		Subc	atchment DA3c: I	10YF Runoff unoff V	R R Ar /olu	Rain rea= ume De _l	e fall= =26, =0. pth= c=5.	24- 24- =4.9 141 001 =0.0	hr br sf af 2"	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
epare droCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	.002 .002 .002 .002 .002 .001 .001 .001		/itten Grou		Subc	atchment DA3c: I	10YF Runoff unoff V	R R Ar /olu	Rain rea= ume De _l	e fall= =26, =0. pth= c=5.	24- 24- =4.9 141 001 =0.0	hr br sf af 2"	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	.002 .002 .002 .002 .002 .001 .001 .001		/itten Grou		Subc	atchment DA3c: I	10YF Runoff unoff V	R R Ar /olu	Rain rea= ume De _l	e fall= =26, =0. pth= c=5.	24- 24- =4.9 141 001 =0.0	hr br sf af 2"	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
epared droCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	.002 .002 .002 .002 .002 .001 .001 .001		/itten Grou		Subc	atchment DA3c: I	10YF Runoff unoff V	R R Ar /olu	Rain rea= ume De _l	e fall= =26, =0. pth= c=5.	24- 24- =4.9 141 001 =0.0	hr br sf af 2"	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
epare droCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed by Hor D® 10.00- .002- .002- .002- .002- .002- .001- .001- .001- .001- .001- .001- .001- .001- .001- .001- .001- .001- .001- .001- .001- .002- .001		/itten Grou		Subc	atchment DA3c: I	10YF Runoff unoff V	R R Ar /olu	Rain rea= ume De _l	e fall= =26, =0. pth= c=5.	24- 24- =4.9 141 001 =0.0	hr br sf af 2"	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80
epared drocA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	002 002 002 002 002 002 001 001 001 001		/itten Grou		Subc	atchment DA3c: I	10YF Runoff unoff V	R R Ar /olu	Rain rea= ume De _l	e fall= =26, =0. pth= c=5.	24- 24- =4.9 141 001 =0.0	hr br sf af 2"	R Rainfai Printed 3 F	II=4.90" 3/5/2021 Page 80

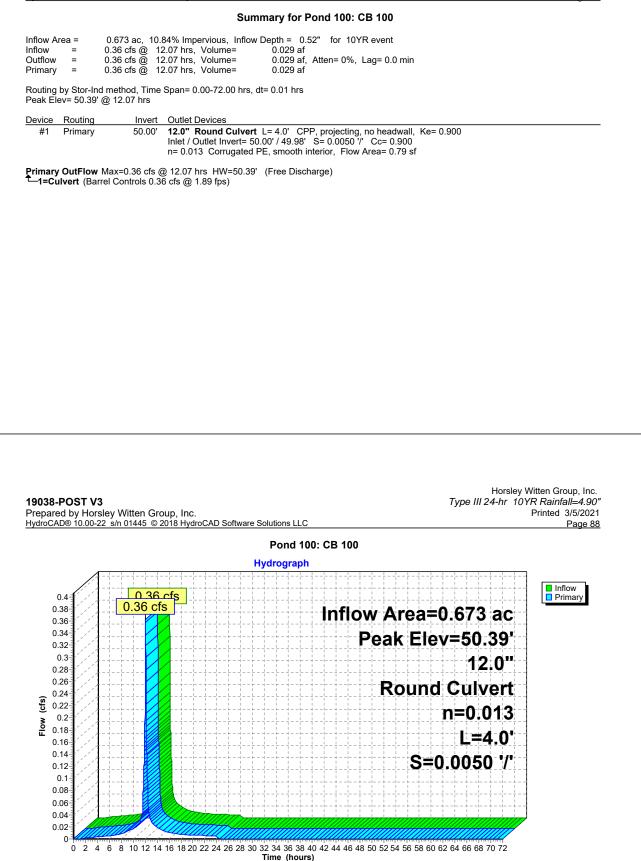
Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

Runoff						-				A3c imp		45				
			_		irs, Volu			3 af, Dept								
ype III	by SCS TI I 24-hr 10	R-20 m YR Rai	etnod, U nfall=4.9	H=SCS 0"	s, weign	tea-CN,	Time Spar	n= 0.00-72	2.00 nrs, c	1t= 0.01 nr	S					
	Area (sf)	CN	Descrip													
	2,649 530	98 98	Paved Sidewa	parking Iks, HS	, HSG A G A											
	3,179 3,179	98	Weight 100.00		rage ervious A	rea										
Тс	c Length	Slop	e Velo	city C	apacity	Descrip	otion									
(min) 5.0	··	(ft/	t) (ft/s	ec)	(cfs)	Direct	Entry, Dir	ect								
9038	POST	/3										Typ				Group, Inc.
repar	-POST V	rsley V	/itten G	roup, li	nc.	Software	Colutions					Тур			YR Raiı	nfall=4.90" d 3/5/2021
repar		rsley V	√itten G 01445 ©	roup, li 2018 H	lydroCAD							Тур			YR Raiı	nfall=4.90"
repar	ed by Ho	rsley V	/itten G 01445 ⊚	roup, li 2018 H	lydroCAD		chment	DA3ci: [DA3c im	perviou	s	Тур			YR Raiı	nfall=4.90" d 3/5/2021
repar ydroC/	red by Ho AD® 10.00	rsley V	√itten G 01445 ©	roup, li 2018 H	lydroCAD			DA3ci: [DA3c im	pervious	S	Тур			YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
repar ydroC/	ed by Ho AD® 10.00	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: [DA3c im	pervious	S	Тур			YR Rain Printed	nfall=4.90" d 3/5/2021
repar <u>ydroC</u> A	red by Ho AD® 10.00	rsley V	/itten G 01445 © 0.36 (<u>2018 H</u>	lydroCAD		chment	DA3ci: [DA3c im	pervious	I		e III 24	-hr 10\	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
repar ydroC/ 0 0 0	0.4 0.4 0.38 0.36 0.34	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: [Ту	pel	e III 24	-hr 10\	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
repard ydroCA 0 0 0 0 0 0 0	0.4 0.4 0.38 0.36	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: [1	0YR I	Ty Raiı	pe I nfal	e III 24	-hr 10\ hr 9 0 "	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
repari ydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Ho AD® 10.00 0.4 0.38 0.36 0.34 0.34 0.32 0.34 0.33 0.33 0.33	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: I	1 Ru	0YR I noff	Ty Raiı Are	pe I nfal a=3	e 24 24 =4.1 ,179	-hr 10) -hr 90") sf	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
repare ydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.4 0.4 0.38 0.36 0.34 0.32 0.34 0.32 0.34 0.32 0.34 0.32 0.33 0.34 0.32 0.33 0.34 0.32 0.33 0.33 0.33 0.33 0.33 0.33 0.33	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: I	1 Ru Runo	0YR I noff ff Vol	Ty Raiı Are um	pe I nfal a=3 e=0	e 24 24 =4.1 ,179 .028	-hr 10) hr 90'' 9 sf 3 af	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
repare ydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Ho AD® 10.00 0.4 0.38 0.36 0.36 0.34 0.32 0.34 0.32 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: I	1 Ru Runo	0YR I noff ff Vol	Ty Raiı Are um	pe I nfal a=3 e=0	e 24 24 =4.1 ,179 .028	-hr 10) hr 90'' 9 sf 3 af	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
reparv ydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.4 0.4 0.38 0.38 0.36 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: I	1 Ru Runo	0YR I noff	Ty Raii Are um f De	pe I nfal a=3 e=0 epth	e 24 24 =4. ,179 .028	-hr 10\ -hr 90" 9 sf 3 af 66"	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
Flow (cfs) 0	ed by Ho AD® 10.00 0.4 0.38 0.36 0.36 0.34 0.32 0.34 0.32 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: I	1 Ru Runo	0YR I noff ff Vol	Ty Raii Are um f De	pe I nfal a=3 e=0 epth c={	e III 24 24 =4.1 ,179 .028 =4.1 5.0 m	-hr 10) -hr 90" 9 sf 3 af 66" nin	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
Elow (cts) Low (cts) Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Colo	ed by Ho AD® 10.00 0.4 0.38 0.36 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: I	1 Ru Runo	0YR I noff ff Vol	Ty Raii Are um f De	pe I nfal a=3 e=0 epth c={	e 24 24 =4. ,179 .028	-hr 10) -hr 90" 9 sf 3 af 66" nin	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
0 10 10 10 10 10 10 10 10 10 10 10 10 10	ed by Ho AD® 10.00 0.4 0.38 0.36 0.34 0.32 0.32 0.32 0.22 0.22 0.24 0.24 0.24 0.24 0.24 0.2	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: I	1 Ru Runo	0YR I noff ff Vol	Ty Raii Are um f De	pe I nfal a=3 e=0 epth c={	e III 24 24 =4.1 ,179 .028 =4.1 5.0 m	-hr 10) -hr 90" 9 sf 3 af 66" nin	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
rrepart y <u>droC</u> / 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Ho AD® 10.00 0.4 0.38 0.36 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: I	1 Ru Runo	0YR I noff ff Vol	Ty Raii Are um f De	pe I nfal a=3 e=0 epth c={	e III 24 24 =4.1 ,179 .028 =4.1 5.0 m	-hr 10) -hr 90" 9 sf 3 af 66" nin	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
Prepar Prepar 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Ho AD® 10.00 0.4 0.38 0.38 0.38 0.32 0.33 0.33 0.22 0.22 0.22 0.22 0.24 0.22 0.24 0.22 0.24 0.24	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: I	1 Ru Runo	0YR I noff ff Vol	Ty Raii Are um f De	pe I nfal a=3 e=0 epth c={	e III 24 24 =4.1 ,179 .028 =4.1 5.0 m	-hr 10) -hr 90" 9 sf 3 af 66" nin	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82
Prepare 0	ed by Ho AD® 10.00 0.4 0.38 0.38 0.38 0.34 0.32 0.34 0.32 0.22 0.24 0.24 0.24 0.24 0.24 0.24 0.2	rsley V	<u>01445</u> ©	<u>2018 H</u>	lydroCAD		chment	DA3ci: I	1 Ru Runo	0YR I noff ff Vol	Ty Raii Are um f De	pe I nfal a=3 e=0 epth c={	e III 24 24 =4.1 ,179 .028 =4.1 5.0 m	-hr 10) -hr 90" 9 sf 3 af 66" nin	YR Rain Printed	nfall=4.90" d 3/5/2021 Page 82

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22_s/n 01445_© 2018 HydroCAD Software Solutions LLC	Printed 3/5/2021 Page 83
Summary for Subcatchment DA3c	d: DA3d pervious
Runoff = 0.00 cfs @ 12.48 hrs, Volume= 0.000 af, Depth= 0.1	8"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs Type III 24-hr 10YR Rainfall=4.90"	s, dt= 0.01 hrs
Area (sf) CN Description 197 39 >75% Grass cover, Good, HSG A	
197 100.00% Pervious Area	
Tc Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs)	
5.0 Direct Entry, Direct	
Subcatchment DA3d: DA3d Hydrograph	l pervious
outron Runoff	Rundf Type III 24-hr (R Rainfall=4.90" noff Area=197 sf Volume=0.000 af noff Depth=0.18" Tc=5.0 min CN=39 0 52 54 56 58 60 62 64 66 68 70 72
Tíme (hours)	
19038-POST V3 Prepared by Horsley Witten Group, Inc.	Horsley Witten Group, Inc. <i>Type III 24-hr 10YR Rainfall=4.90"</i> Printed 3/5/2021 Page 84
19038-POST V3 Prepared by Horsley Witten Group, Inc.	Type III 24-hr 10YR Rainfall≕4.90" Printed 3/5/2021 Page 84
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 84 : DA3d impervious
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di: Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 4.6 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 84 : DA3d impervious
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3dia Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 4.6 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs Type III 24-hr 10YR Rainfall=4.90"	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 84 : DA3d impervious
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di: Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 4.6 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs Type III 24-hr 10YR Rainfall=4.90" Area (sf) CN Description 4,686 98 Paved parking, HSG A	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 84 : DA3d impervious
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 4.6 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs Type III 24-hr 10YR Rainfall=4.90" Area (sf) CN Description 4,686 98 Paved parking, HSG A 4,686 100.00% Impervious Area	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 84 : DA3d impervious
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di: Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 4.6 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs Type III 24-hr 10YR Rainfall=4.90" Area (sf) CN Description 4,686 100.00% Impervious Area Tc Length Slope Velocity (min) (feet)	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 84 : DA3d impervious
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3dia Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 4.6 Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 4.6 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs Type III 24-hr 10YR Rainfall=4.90" Area (sf) CN Description 4,686 100.00% Impervious Area Tc Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs) Direct Entry,	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 84 : DA3d impervious 56" s, dt= 0.01 hrs
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di: Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 4.6 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs Type III 24-hr 10YR Rainfall=4.90" Area (sf) CN Description 4,686 100.00% Impervious Area Tc Length Slope Velocity (min) (feet)	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 84 : DA3d impervious 56" s, dt= 0.01 hrs

	Page 85
Summary for Subcatchment R1E: EAST ROOF	
Runoff = 1.29 cfs @ 12.07 hrs, Volume= 0.101 af, Depth= 4.66"	
tunoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs ype III 24-hr 10YR Rainfall=4.90"	
Area (sf) CN Description 11,331 98 Roofs, HSG A	
11,331 100.00% Impervious Area	
Tc Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs)	
5.0 Direct Entry, Direct	
Subcatchment R1E: EAST ROOF	
(I) I 29 cfs 129 cfs 10YR Rainfall=4.5 Runoff Area=11,331 Runoff Volume=0.101 Runoff Depth=4.6 Tc=5.0 m CN=	00" sf af 66" nin
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 334 04 22 44 46 48 50 52 54 56 58 60 62 64 66 68 Time (hours)	70 72
I 9038-POST V3 Prepared by Horsley Witten Group, Inc. łydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC	Horsley Witten Group, Inc. <i>Type III 24-hr 10YR Rainfall=4.90"</i> Printed 3/5/2021 Page 86
Summary for Subcatchment R1W: WEST ROOI	-
Runoff = 1.14 cfs @ 12.07 hrs, Volume= 0.089 af, Depth= 4.66"	
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs	
ype III 24-hr 10YR Rainfall=4.90"	
Area (sf) CN Description 10,000 98 Roofs, HSG A	
10,000 100.00% Impervious Area	
To Longth Slong Velocity Conscity Description	
Tc Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs)	
(min) (feet) (ft/sec) (cfs) 5.0 Direct Entry, Direct	
(min) (feet) (ft/ft) (ft/sec) (cfs)	
(min) (feet) (ft/sec) (cfs) 5.0 Direct Entry, Direct Subcatchment R1W: WEST ROOF	0" sf af 56" nin
(min) (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct Subcatchment R1W: WEST ROOF Hydrograph (fg) gg gg gg gg gg gg gg gg gg gg	-hr 90" af af 98
(min) (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct Subcatchment R1W: WEST ROOF Hydrograph Type III 24 10YR Rainfall=4.5 Runoff Area=10,000 Runoff Volume=0.089 Runoff Depth=4.6 Tc=5.0 m	-hr 90" af 66" nin 98

Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 87



lydroCA																	Pa	
						Sun	nmary fo	or Pon	d 200:	CB 20	00							
nflow A nflow Outflow Primary Second	= = =	0.53 c 0.53 c 0.53 c	fs@ 1 fs@ 1 fs@ 1	97% Imp 2.07 hrs, 2.07 hrs, 2.07 hrs, 0.00 hrs,	Volum Volum Volum	ie= ie= ie=	/ Depth = 0.042 0.042 0.042 0.042 0.000	2 af 2 af, Atte 2 af				n						
	by Stor-Ind ev= 52.20' (Span= (0.00-72.	00 hrs,	dt= 0.01 h	nrs										
	Routing			Outlet I									. =					
#1	Secondar	/	52.70'	Inlet / C	Dutlet In	vert= 52	: L= 4.0' 2.70' / 52. PE, smoo	68' S=	Ó.0050	'/ Cc=	= 0.900)	0.500					
#2	Primary		51.66'	8.0" R Inlet / 0	ound C Dutlet In	ulvert= 5	L= 50.0' 1.66' / 51.	CPP, p .41' S=	rojecting 0.0050	g, no he '/' Cc=	eadwal = 0.900	l, Ke=)	0.900					
#3	Secondar	/	55.79'	5.0' lor	ng x 5.0	0' breac	PE, smoo ith Broad 0 0.60 0.	l-Creste	d Recta	angulai	r Weir		0 2.50	3.00	3.50	4.00	4.50 5.00)
					English) 2.34 :	2.50 2.70	2.68 2	2.68 2.6	66 2.65	5 2.65	2.65	2.65 2	.67 2	.66 2	2.68 2	.70 2.74 2	2.79
rimarv	/ OutFlow	Max=0	.53 cfs (a 12.07	hrs HW	/=52.20	' (Free D	Discharg	e)									
repare	-POST V3 ed by Hors AD® 10.00-2:					Goftware	Solutions	шс					Тур	pe III 2		10YF	itten Group R <i>Rainfall</i> Printed 3/5 Pratice 3/5	=4.90"
repare	ed by Hors						Pond	d 200: (CB 200)			Тур	pe III 2		10YF	R <i>Rainfall</i> = Printed 3/5	= 4.90" 5/2021
repare	ed by Hors							d 200: (CB 200)			Тур	pe III 2		10YF	R <i>Rainfall</i> = Printed 3/5	= 4.90" 5/2021
repare	ed by Hors		1445 ©	2018 Hyd	roCAD S		Pond	d 200: (24-hr	10YF F	R Rainfall Printed 3/5 Printed	= 4.90" 5/2021
repare	ed by Hors	2 s/n 0	1445 ©	53 cfs	roCAD S		Pond	d 200: (low			0.1	12 a	24-hr	10YF F	R Rainfall- Printed 3/5 Pa	=4.90" 5/2021 age 90
Prepare lydroCA	ed by Hors	2 s/n 0	1445 ©	53 cfs	roCAD S		Pond	d 200: (low	Arc		0.1	12 a	24-hr	10YF F	R Rainfall Printed 3/5 Printed 3/5 Printed 3/5 Printed 3/5 Primary	=4.90" 5/2021 age 90
Prepare lydroCA	ed by Hors	2 s/n 0	1445 ©	53 cfs	roCAD S		Pond	d 200: (low			0.1	12 a	24-hr	10YF F	R Rainfall Printed 3/5 Printed 3/5 Printed 3/5 Printed 3/5 Primary	=4.90" 5/2021 age 90
Prepare ydroCA	ed by Hors	2 s/n 0	1445 ©	53 cfs	roCAD S		Pond	d 200: (low			0.1	12 a	24-hr	10YF F	R Rainfall Printed 3/5 Printed 3/5 Printed 3/5 Printed 3/5 Primary	=4.90" 5/2021 age 90
repare <u>ydroC</u> A 0 0	ed by Hors 10.00-21 .55 0.5-	2 s/n 0	1445 ©	53 cfs	roCAD S		Pond	d 200: (low			0.1	12 a	24-hr	10YF F	R Rainfall Printed 3/5 Printed 3/5 Printed 3/5 Printed 3/5 Primary	=4.90" 5/2021 age 90
Prepare lydroCA 0	ed by Hors 10.00-21 .55 0.55 .45	2 s/n 0	1445 ©	53 cfs	roCAD S		Pond	d 200: (low			0.1	12 a	24-hr	10YF F	R Rainfall Printed 3/5 Printed 3/5 Printed 3/5 Printed 3/5 Primary	=4.90" 5/2021 age 90
Prepare lydroCA 0	ed by Hors <u>AD® 10.00-2</u> .55 0.5 0.5 0.4 0.4	2 s/n 0	1445 ©	53 cfs	roCAD S		Pond	d 200: (low			0.1	12 a	24-hr	10YF F	R Rainfall Printed 3/5 Printed 3/5 Printed 3/5 Printed 3/5 Primary	=4.90" 5/2021 age 90
0 0 0 0 0 0 0 0 0 0 0 0	ed by Hors 10.00-21 555 0.5 0.5 0.4 0.4 .35	2 s/n 0	1445 ©	53 cfs	roCAD S		Pond	d 200: (low			0.1	12 a	24-hr	10YF F	R Rainfall Printed 3/5 Printed 3/5 Printed 3/5 Printed 3/5 Primary	=4.90" 5/2021 age 90
Prepare (ydroC <i>A</i> 0 0 0 0 0 0 0 0	ed by Hors 10.00-21 10.0	2 s/n 0	1445 ©	53 cfs	roCAD S		Pond	d 200: (low			0.1	12 a	24-hr	10YF F	R Rainfall Printed 3/5 Printed 3/5 Printed 3/5 Printed 3/5 Primary	=4.90" 5/2021 age 90
Prepare (vydroC, f 0 0 0 0 0 0 0	.55 0.5 0.4 35 0.3 .25	2 s/n 0	1445 ©	53 cfs	roCAD S		Pond	d 200: (low			0.1	12 a	24-hr	10YF F	R Rainfall Printed 3/5 Printed 3/5 Printed 3/5 Printed 3/5 Primary	=4.90" 5/2021 age 90
Prepare <u>ydroC</u> 0 0 0 0 0 0 0 0 0 0 0 0 0	-55 -55 -45 -0.4 -35 -0.2	2 s/n 0	1445 ©	53 cfs	roCAD S		Pond	d 200: (low			0.1	12 a	24-hr	10YF F	R Rainfall Printed 3/5 Printed 3/5 Printed 3/5 Printed 3/5 Primary	=4.90" 5/2021 age 90
Prepare (ydroC, f 0 0 0 0 0 0 0 0 0 0 0 0 0	.55 0.5 0.3 25 0.2 15	2 s/n 0	1445 ©	53 cfs	roCAD S		Pond	d 200: (low			0.1	12 a	24-hr	10YF F	R Rainfall Printed 3/5 Printed 3/5 Printed 3/5 Printed 3/5 Primary	=4.90" 5/2021 age 90

Summary	for	Pond	BIO1:	BIO 1
---------	-----	------	-------	-------

							S	umm	ary f	or P	ond E	101	: BI	01									
Inflow Ar Inflow Outflow Primary	rea = = = =	2.24 c 2.08 c	ac, 36 fs @ _1 fs @ _1 fs @ _1	2.07	hrs, hrs,	Volur Volur	ne= ne=	ow De	0.178	3 af 3 af,	5" fo Atten=				min								
	by Stor-In ev= 59.46'										f												
	w detentio of-Mass de							3 af (1	00% d	of infl	ow)												
Volume #1	 58.5		Avail.Sto							emat	ic)Liste	d ho		Rec									
Elevatio		Surf.Ar			ic.Sto		-	um.St		Sinat		u be	1000	11000	10)								
(fee 58.5	et)	(sq			oic-fe			ubic-fe															
59.0 60.0	00	1,3 1,9	80		5 1,6	45			545 210														
Device	Routing		Invert	Ou		evice	S	,	-														
#1	Primary		55.09'	Inle	et / O	utlet I	nvert=	55.09	9' / 54	.87'	PP, pro S= 0.0	049	'/ C	c= 0	900	Ke=	0.900)					
#2	Device 1		59.25'	24.	0" H	oriz. (Drifice	/Grat	e C=	0.60	iterior,)0 Lim	ited	to we	eir flo	w at l	ow he	ads						
#3	Device 1		55.38'	Inle	et / O	utlet I	nvert=	55.3	8' / 55	.19'	P, proje S= 0.0	050	'/' C	c= 0	wall, .900	Ke=	0.900						
#4	Device 3		58.50'								w Area ce area		J9 SI										
Prepare HydroCAl Primary 1=Cu 2= 3=	POST V: d by Hor D® 10.00-: OutFlow Ivert (Pa: Orifice/G Collvert (4=Exfilt	sley Wi 22 s/n 0 Max=2 sses 2.0 rate (W Passes	.08 cfs .08 cfs o 8 cfs o eir Con 0.09 cfs	2018 @ 12 f 5.87 trols s of 0	.10 h cfs p 1.99 .62 c	rs HV ootent cfs @ fs pote	V=59. al flov 1.50 f ential	46' (v) īps)			arge)						Тур	e III :		0YF	R Ra	infall= ed 3/	o, Inc. =4.90" 5/2021 age 92
Prepare HydroCAl Primary 1=Cu 2= 3=	OutFlow OutFlow Ivert (Pas Orifice/G	sley Wi 22 s/n 0 Max=2 sses 2.0 rate (W Passes	.08 cfs .08 cfs o 8 cfs o eir Con 0.09 cfs	2018 @ 12 f 5.87 trols s of 0	.10 h cfs p 1.99 .62 c	rs HV ootent cfs @ fs pote	V=59. al flov 1.50 f ential	46' (v) īps)	Free [Disch	arge) O1: B	01					Тур	e III 1		0YF	R Ra	infall= ed 3/	= 4.90" 5/2021
Prepare HydroCAl Primary 1=Cu 2= 3=	OutFlow OutFlow Ivert (Pas Orifice/G	sley Wi 22 s/n 0 Max=2 sses 2.0 rate (W Passes	.08 cfs .08 cfs o 8 cfs o eir Con 0.09 cfs	2018 @ 12 f 5.87 trols s of 0	.10 h cfs p 1.99 .62 c	rs HV ootent cfs @ fs pote	V=59. al flov 1.50 f ential	46' (v) fps) flow)	Free [Disch d Bl	• •	01					Τγρ	e III :		0YF	R Ra	infall= ed 3/	= 4.90" 5/2021
Prepare HydroCAl Primary 1=Cu 2= 3=	OutFlow OutFlow Ivert (Pas Orifice/G	sley Wi 22 s/n 0 Max=2 sses 2.0 rate (W Passes	.08 cfs o 8 cfs o eir Con 0.09 cf: Exfiltrati	2018 @ 12 f 5.87 trols s of 0 on Co	.10 h cfs p 1.99 .62 c	rs HV ootent cfs @ fs pote	V=59. al flov 1.50 f ential	46' (v) fps) flow)	Free [Pone	Disch d Bl	01: B	io I	w Pe	ak	El	ev	22	7 a).4(24-hr 6		R Ra	infalled 3/5	= 4.90" 5/2021
Prepare HydroCAl Primary 1=Cu 2= 3=	d by Hor D® 10.00-7 OutFlow Ivert (Pa: Orifice/G Culvert (-4=Exfiltr	sley Wi 22 s/n 0 Max=2 sses 2.0 rate (W Passes	08 cfs 8 cfs of eir Con 0.09 cf: Exfiltrati	2018 @ 12 f 5.87 trols s of 0 on Co	.10 h cfs p 1.99 .62 c	rs HV ootent cfs @ fs pote	V=59. al flov 1.50 f ential	46' (v) fps) flow)	Free [Pone	Disch d Bl	01: B	io I	w Pe	ak	El	ev	22	7 a).4(24-hr 6		R Ra Printe	infalled 3/5	= 4.90" 5/2021

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)

				Summary f	or Pond BIO2:	BIO 2		
nflow Ar	rea =) 436 ac / 2	62% Imperview	s Inflow Depth -	2.14" for 10Y	R event		
nflow	= (.94 cfs @ 1	2.07 hrs, Volun	ne= 0.078	8 af			
Dutflow Primary			2.08 hrs, Volun 2.08 hrs, Volun		8 af, Atten= 2%, 8 af	Lag= 0.9 min		
		0	,					
				2.00 hrs, dt= 0.01 sf Storage= 68 c				
Plug-Flo	w detention	time= 1.8 mi	n calculated for i	0.078 af (100% of	f inflow)			
			n (762.0 - 760.2		(initiow)			
Volume	Invert	Avail.Sto	orage Storage	Description				
#1	62.50'	1,4	14 cf Custom	Stage Data (Pris	smatic)Listed belo	w (Recalc)		
Elevatio		urf.Area	Inc.Store	Cum.Store				
(fee) 62.5		<u>(sq-ft)</u> 522	(cubic-feet) 0	(cubic-feet) 0				
63.0	00	775	324	324				
64.0	00	1,405	1,090	1,414				
Device #1	Routing Primary	Invert 59.00'	Outlet Device		CPP, end-section	on conforming to	fill Ke= 0.500	
πI	, maiy	55.00	Inlet / Outlet I	nvert= 59.00' / 58	.88' S= 0.0048 '/	Cc= 0.900	, iii, ixe- 0.000	
#2	Device 1	62.50'	24.0" Horiz. (Drifice/Grate C=	oth interior, Flow = 0.600 Limited to	weir flow at low		
#3	Device 1	59.30'	6.0" Round (Culvert L= 25.0'	CPP, projecting, .18' S= 0.0048 '/	no headwall, K	e= 0.900	
• لل	Device 2	00 50	n= 0.010 PV0	C, smooth interior	, Flow Area= 0.20			
#4	Device 3	62.50	2.470 in/nr E	xfiltration over S	urface area			
9038-	POST V3							orsley Witten Group, Inc. hr 10YR Rainfall=4 90"
rimary	D® 10.00-22 OutFlow M Ilvert (Pass Orifice/Gra	ax=0.92 cfs es 0.92 cfs of e (Weir Con	2018 HydroCAD	1.15 fps)				orsley Witten Group, Inc. hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 94
rimary	of by Horsle D® 10.00-22 OutFlow M Ilvert (Pass Orifice/Gra	s/n 01445 © ax=0.92 cfs es 0.92 cfs of e (Weir Con ses 0.03 cf	2018 HydroCAD @ 12.08 hrs HV f 6.68 cfs potenti trols 0.89 cfs @ s of 1.31 cfs potenti	N=62.62' (Free [ial flow) 1.15 fps) ential flow) 3 cfs)				hr 10YR Rainfall=4.90" Printed 3/5/2021
Prepare lydroCA Primary 1=Cu	of by Horsle D® 10.00-22 OutFlow M Ilvert (Pass Orifice/Gra	s/n 01445 © ax=0.92 cfs es 0.92 cfs of e (Weir Con ses 0.03 cf	2018 HydroCAD @ 12.08 hrs HV f 6.68 cfs potenti trols 0.89 cfs @ s of 1.31 cfs potenti	N=62.62' (Free [ial flow) 1.15 fps) ential flow) 3 cfs)	Discharge) d BIO2: BIO 2			hr 10YR Rainfall=4.90" Printed 3/5/2021
Prepare HydroCA Primary	of by Horsle D® 10.00-22 OutFlow M Ilvert (Pass Orifice/Gra	s/n 01445 © ax=0.92 cfs ss 0.92 cfs of re (Weir Con seses 0.03 cf on (Exfiltrati	2018 HydroCAD @ 12.08 hrs HW f 6.68 cfs potenti trols 0.89 cfs on Controls 0.03	N=62.62' (Free I ial flow) 1.15 fps) ential flow) 3 cfs) Pone	Discharge) d BIO2: BIO 2 raph	eak Ele		hr 10YR Rainfall=4.90" Printed 3/5/2021
Prepare HydroCA Primary 1=Cu 2= 3=	ed by Horsle D® 10.00-22 OutFlow M Ivert (Pass Orifice/Gra Colivert (Pa- 4=Exfiltration	s/n 01445 © ax=0.92 cfs so 0.92 cfs of e (Weir Con on (Exfiltration on (Exfiltration)	2018 HydroCAD @ 12.08 hrs HW f 6.68 cfs potenti trols 0.89 cfs on Controls 0.03	N=62.62' (Free I ial flow) 1.15 fps) ential flow) 3 cfs) Pone	Discharge) d BIO2: BIO 2 raph	eak Ele	7ype III 24- 0.436 ac v=62.62'	hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 94

			30	Immary for Po		11 200		
nflow A nflow Dutflow Primary Seconda	= 1 = 1 = 0	16 cfs @ 16 cfs @ 89 cfs @	.50% Impervious, In 2.07 hrs, Volume= 2.07 hrs, Volume= 2.07 hrs, Volume= 2.07 hrs, Volume=	0.091 af	31" for 10YR Atten= 0%, La			
	by Stor-Ind r ev= 54.61' @		e Span= 0.00-72.00 h	nrs, dt= 0.01 hrs				
	Routing		Outlet Devices					
#1 #2	Secondary Primary	54.30' 53.78'	12.0" Round Cult Inlet / Outlet Invert n= 0.013 Corruga 12.0" Round Cult Inlet / Outlet Invert n= 0.013 Corruga	= 54.30' / 54.26' ted PE, smooth i vert L= 98.0' C = 53.78' / 53.78'	S= 0.0044 '/' nterior, Flow Ar MP, projecting, S= 0.0000 '/'	Cc= 0.900 ea= 0.79 sf no headwall, Ke Cc= 0.900		
Primary	/ OutFlow M J Ivert (Barre	ax=0.89 cfs Controls 0.8	@ 12.07 hrs HW=54 39 cfs @ 1.73 fps)					
Second	lary OutFlow	Max=0.27	ofs @ 12.07 hrs HW= 27 cfs @ 1.90 fps)	=54.61' (Free D	ischarge)			
-1-01	IVEIL (Daile	Controis 0.	27 cis @ 1.90 ips)					
								Horsley Witten Group, Inc.
	POST V3	/ Witten Gi	oup. Inc.					Horsley Witten Group, Inc. I-hr 10YR Rainfall=4.90" Printed 3/5/2021
repare	ed by Horsle		oup, Inc. 2018 HydroCAD Softw	vare Solutions LLC				I-hr 10YR Rainfall=4.90"
Prepare	ed by Horsle				H: DMH 200			<i>I-hr 10YR Rainfall=4.90"</i> Printed 3/5/2021
Prepare	ed by Horsle							<i>I-hr 10YR Rainfall=4.90"</i> Printed 3/5/2021
Prepare HydroCA	ed by Horsle	s/n 01445 ©	2018 HydroCAD Softw	Pond DM	h: dmh 200 Inflow	/ Area=0 eak Elev	Type III 24	I-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 96
Prepare HydroCA	ed by Horsle	s/n 01445 ©	2018 HydroCAD Softw	Pond DM	h: dmh 200 Inflow		Type III 24	I-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 96
Prepare HydroCA	ed by Horsle	5/n 01445 ©	2018 HydroCAD Softw	Pond DM	h: dmh 200 Inflow		Type III 24	I-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 96

Prepared by Horsley V HydroCAD® 10.00-22_s/n	/itten Group, Inc. 01445 © 2018 HydroCAD Software Solutions LLC	Printed 3/5/2021 Page 97
	Summary for Pond RB1: RB	101,102
Inflow = 0.36 Outflow = 0.06 Discarded = 0.06	3 ac, 10.84% Impervious, Inflow Depth = 0.52" for 10YF cfs @ 12.07 hrs, Volume= 0.029 af cfs @ 11.66 hrs, Volume= 0.029 af, Atten= 83%, cfs @ 11.66 hrs, Volume= 0.029 af cfs @ 0.00 hrs, Volume= 0.000 af	
Routing by Stor-Ind meth	od, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3	
0	52 hrs Surf.Area= 157 sf Storage= 311 cf	
	= 26.4 min calculated for 0.029 af (100% of inflow) = 26.4 min (789.2 - 762.8)	
Volume Invert	Avail.Storage Storage Description	
#1 41.00' #2 39.00'	339 cf 6.00'D x 6.00'H Recharger x 2 Inside #2 355 cf 10.00'D x 9.00'H Stone x 2 1,414 cf Overall - 339 cf Embedded = 1,074	cf x 33.0% Voids
	694 cf Total Available Storage	
Device Routing #1 Discarded #2 Primary	5.50	
1=Exfiltration (Exfilt	x=0.06 cfs @ 11.66 hrs HW=39.09' (Free Discharge) ation Controls 0.06 cfs)	
2=Broad-Crested Re	ctangular Weir (Controls 0.00 cfs)	
19038-POST V3 Prepared by Horsley V	lítten Group, Inc.	Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021
19038-POST V3 Prepared by Horsley V	Vitten Group, Inc. 21445 © 2018 HydroCAD Software Solutions LLC	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98
19038-POST V3 Prepared by Horsley V	litten Group, Inc. 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98
19038-POST V3 Prepared by Horsley V	/itten Group, Inc. 01445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2
19038-POST V3 Prepared by Horsley V	/itten Group, Inc. <u>01445 © 2018 HydroCAD Software Solutions LLC</u> Pond RB1: RB 101,10 Hydrograph	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2 Inflow Outflow Outflow
19038-POST V3 Prepared by Horsley V HydroCAD® 10.00-22 s/n	/itten Group, Inc. 11445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.36 cfs	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2 2 W Area=0.673 ac
19038-POST V3 Prepared by Horsley V HydroCAD® 10.00-22 s/n	/itten Group, Inc. 11445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.36 cfs	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2 w Area=0.673 ac Peak Elev=43.31'
19038-POST V3 Prepared by Horsley V HydroCAD® 10.00-22 s/n	/itten Group, Inc. 11445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.36 cfs	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2 2 W Area=0.673 ac
19038-POST V3 Prepared by Horsley V HydroCAD® 10.00-22 s/n	/itten Group, Inc. 11445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.36 cfs	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2 w Area=0.673 ac Peak Elev=43.31'
19038-POST V3 Prepared by Horsley V HydroCAD® 10.00-22 s/n 0.38 0.36 0.34 0.32 0.33 0.32 0.33 0.28 0.26	/itten Group, Inc. 11445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.36 cfs	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2 w Area=0.673 ac Peak Elev=43.31'
19038-POST V3 Prepared by Horsley V HydroCAD® 10.00-22 s/n 0.34 0.34 0.32 0.33 0.28 0.24 0.24 0.22	/itten Group, Inc. 11445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.36 cfs	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2 w Area=0.673 ac Peak Elev=43.31'
19038-POST V3 Prepared by Horsley V HydroCAD® 10.00-22 s/n 0.38 0.36 0.34 0.32 0.33 0.32 0.33 0.28 0.26 0.24	/itten Group, Inc. 11445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.36 cfs	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2 w Area=0.673 ac Peak Elev=43.31'
19038-POST V3 Prepared by Horsley V HydroCAD® 10.00-22 s/n 0.4 0.38 0.36 0.34 0.32 0.33 0.28 0.24 0.24 0.24 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.08 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.22 0.18	/itten Group, Inc. 11445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.36 cfs	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2 w Area=0.673 ac Peak Elev=43.31'
19038-POST V3 Prepared by Horsley V HydroCAD® 10.00-22 s/n 0.34 0.36 0.34 0.32 0.33 0.26 0.24 0.22 0.3 0.22 0.22 0.22 0.22 0.22 0.22	/itten Group, Inc. 11445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.36 cfs 0.6 cfs	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2 w Area=0.673 ac Peak Elev=43.31'
19038-POST V3 Prepared by Horsley V HydroCAD® 10.00-22 s/n 0.4 0.38 0.36 0.34 0.32 0.33 0.28 0.34 0.32 0.33 0.28 0.24 0.24 0.22 0.22 0.24 0.22 0.22 0.24 0.22 0.24 0.24	/itten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2 w Area=0.673 ac Peak Elev=43.31'
19038-POST V3 Prepared by Horsley V HydroCAD® 10.00-22 s/n 0.4 0.38 0.36 0.34 0.32 0.3 0.28 0.26 0.24 0.22 0.3 0.22 0.24 0.24 0.24 0.24 0.24 0.24 0.24	/itten Group, Inc. 11445 © 2018 HydroCAD Software Solutions LLC Pond RB1: RB 101,10 Hydrograph 0.36 cfs 0.6 cfs	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 98 2 w Area=0.673 ac Peak Elev=43.31'

	Summary for Pond RB2: RB 202,202,203	
nflow Area = (112 ac. 95.97% Impervious. Inflow Depth = 1.55" for 10YR event	
nflow = 0	.50 cfs @ 12.08 hrs, Volume= 0.015 af	
	.09 cfs @ 11.88 hrs, Volume= 0.015 af, Atten= 82%, Lag= 0.0 min .09 cfs @ 11.88 hrs, Volume= 0.015 af	
rimary = 0	.00 cfs @ 0.00 hrs, Volume= 0.000 af	
	nethod, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 12.47 hrs Surf.Area= 236 sf Storage= 348 cf	
Plug-Flow detention	ime= 36.9 min calculated for 0.015 af (100% of inflow)	
Center-of-Mass det.	ime= 36.9 min (769.8 - 732.9)	
<u>'olume Invert</u> #1 46.50'	Avail.Storage Storage Description	
#1 46.50' #2 44.50'	509 cf 6.00'D x 6.00'H Recharger x 3 Inside #2 532 cf 10.00'D x 9.00'H Stone x 3	
	2,121 cf Overall - 509 cf Embedded = 1,612 cf x 33.0% Voids 1,041 cf Total Available Storage	
evice Routing	Invert Outlet Devices	
#1 Discarded	44.50' 8.270 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01'	
#2 Primary	55.61' 5.0' long x 5.0' breadth Broad-Crested Rectangular Weir X 2.00 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 4.00 4.50 5.00
	5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.	65 2.67 2.66 2.68 2.70 2.74 2.79
	2.88	
iscarded OutFlow -1=Exfiltration (E	Max=0.09 cfs @ 11.88 hrs HW=44.64' (Free Discharge) ‹filtration Controls 0.09 cfs)	
	ax=0.00 cfs @ 0.00 hrs HW=44.50' (Free Discharge)	
-2=Broad-Crested	Rectangular Weir (Controls 0.00 cfs)	
9038_POST V3		Horsley Witten Group, Inc. Type III 24-br. 10VR Rainfall-4 90"
repared by Horsle	y Witten Group, Inc.	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021
repared by Horsle	y Witten Group, Inc. s/n 01445 ⊚ 2018 HydroCAD Software Solutions LLC	Type III 24-hr 10YR Rainfall=4.90"
repared by Horsle		Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021
repared by Horsle	s/n 01445 © 2018 HydroCAD Software Solutions LLC	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021
repared by Horsle	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100
repared by Horsle	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs	Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 100
repared by Horsle	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs Inflow Area=0	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 .112 ac
repared by Horsle ydroCAD® 10.00-22	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 .112 ac
repared by Horsle ydroCAD® 10.00-22	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs Inflow Area=0 Peak Elev	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 III2 ac =47.93'
0.55 0.45	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs Inflow Area=0	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 Inflow Outflow Discarded Primary
0.55 0.55 0.45 0.4	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs Inflow Area=0 Peak Elev	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 Inflow Outflow Discarded Primary
repared by Horsle ydroCAD® 10.00-22	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs Inflow Area=0 Peak Elev	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 Inflow Outflow Discarded Primary
repared by Horsle ydroCAD® 10.00-22	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs Inflow Area=0 Peak Elev	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 Inflow Outflow Discarded Primary
0.55 0.45 0.35	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs Inflow Area=0 Peak Elev	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 Inflow Outflow Discarded Primary
0.55 0.45 0.45	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs Inflow Area=0 Peak Elev Storage:	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 Inflow Outflow Discarded Primary
0.55 0.55 0.45 0.45 0.45 0.45 0.4 0.35 0.3 0.35 0.2	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs Inflow Area=0 Peak Elev Storage: 0.09 cfs	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 Inflow Outflow Discarded Primary
0.55 0.55 0.55 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.15	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs Inflow Area=0 Peak Elev Storage:	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 Inflow Outflow Discarded Primary
ydroCAD® 10.00-22	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs Inflow Area=0 Peak Elev Storage: 0.09 cfs	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 Inflow Outflow Discarded Primary
0.55 0.55 0.55 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.15	s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 202,202,203 Hydrograph 0.50 cfs Inflow Area=0 Peak Elev Storage: 0.09 cfs	Type III 24-hr 10YR Rainfali=4.90" Printed 3/5/2021 Page 100 Inflow Outflow Discarded Primary

Information of the second set of the second set of the set of th	d 3/5/202 Page 10
Summary for Pond RB3: RE 300 Inflow Area = 0.997 ac. 0.00% Impervious, Inflow Depth = 0.05" for 10YR event Inflow = 0.01 cfs @ 16.32 hrs, Volume= 0.004 af Outfow = 0.00 cfs @ 16.32 hrs, Volume= 0.004 af Primary = 0.00 cfs @ 16.32 hrs, Volume= 0.004 af Primary = 0.00 cfs @ 10.00 hrs, Volume= 0.000 af Discarded = 0.011 cfs @ 16.32 hrs, Volume= 0.004 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.004 af Primary = 0.00 cfs @ 10.00 hrs, Volume= 0.000 af Pouling by Stor-Ind method, Time Span= 0.00-72.00 hrs, 4t= 0.01 hrs /3 Peak Elev= 58.52 @ 16.32 hrs SuffArea= 57 sf Storage Description #102-Flow detention time = 1.0 min calculated for 0.004 af (100% of inflow) Center-of-Mass det.time= 1.0 min (1.168.5 - 1.167.5) Volume Invert Volume = 0.007 x 6.00H Storage Description #1 59.50' 50' of 1007 x 6.00H Storage Z #2 58.50' 8.270 in/hr Exfitration X 2.00 over Surface area Phase-In= 0.01' #2 #1 Discarded 0.02 cfs @ 16.32 hrs HW=58.52' (Free Discharge) Device for (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.65 2.65 2.65	Page 10
Inflow Area = 0.997 ac, 0.00% Impervious, Inflow Depti = 0.05" for 10YR event Inflow = 0.004 af, Atten= 0%, Lag= 0.7 min Discarded = Outfow = 0.004 af, Atten= 0%, Lag= 0.7 min Discarded = 0.004 af, Atten= 0%, Lag= 0.7 min Discarded = Noting by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 Peak Elev= 58.52' @ 16.32 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.7 min Discarded = Noting by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 Peak Elev= 58.52' @ 16.32 hrs Suf Area= 57 sf Storage = 0 df Plug-Flow detention time= 1.0 min calculated for 0.004 af (100% of inflow) Center-of-Mass det times 1.0 min (1.168.5 - 1.167.5) Suf Area= 57 sf Storage Description #1 59.50' 50 cf 4.007 x 4.007 k 8.004 Store x2 339 cf Overali - 50 cf Embedded = 289 cf x 33.0% Voids 14d cf Total Available Storage Total Available Storage Device Routing Invert Utile Devices #1 Discarded 55.0' Gorg & 5.0' Gorg At Dead Created 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 4.00 4.50 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.65 2.65 2.65	
Inflow = 0.01 cfs @ 16.31 hrs, Volume= 0.004 af Outflow = 0.01 cfs @ 16.32 hrs, Volume= 0.004 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.004 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af Rouling by Stor-Ind method, Time Spane 0.00-72.00 hrs, df = 0.01 hrs / 3 Peak Elev= 58.52' @ 16.32 hrs Surf Area= 57 sf Storage= 0 cf Plug-Flow detention time= 1.0 min calculated for 0.004 af (100% of inflow) Center-of-Mass det. time= 1.0 min (1.168.5 - 1.167.5) Volume Invert Avail.Storage Storage Description #1 59.50' 50 cf 4.00°D x 4.00°H Recharger Inside #2 #2 58.50' 95 cf 6.00°D x 6.00°H Store x 2 339 cf Overall - 50 cf Embedded = 289 cf x 33.0% Voids 146 cf Total Available Storage Device Routing Invert Outlet Devices #1 Discarded 58 50' 8.270 inhr Exflirtation X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65 50' 50' Iong x 5.0' breadth Broad-Crested Rectangular Weir Head (feel) 0.20 0.40 0.60 0.80 1.01 .20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.66 2.65 2.65 2.65 2.65 2.65 2.66 2.68 2.70 2. 2.88 Discarded OutFlow Max=0.00 cfs @ 16.32 hrs HW=58.52' (Free Discharge) 1-Exflirtation (Exflirtation Controls 0.00 cfs) Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=58.52' (Free Discharge) 1-2EBroad-Crested Rectangular Weir (Controls 0.00 cfs) Horsley Witten Crup, Inc. HydroCAD® 10.00-22 sh 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300	
Outflow = 0.01 cfs @ 16.32 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.7 min Discarded = 0.01 cfs @ 0.00 hrs, Volume= 0.000 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 Peak Elev= 58.52' @ 16.32 hrs Surf.Area= 57 af Storage = 0 cf Plug-Flow detemtion time= 1.0 min calculated for 0.004 af (100% of inflow) Center-of-Mass det. time= 1.0 min calculated for 0.004 af (100% of inflow) Center-of-Mass det. time= 1.0 min calculated for 0.004 af (100% of inflow) Center-of-Mass det. time= 1.0 min (1,168.5 - 1,167.5) Volume Invert Avail.Storage Storage Description #1 59.50' 50 cf 4.007D × 4.007H Stone × 2 339 cf Overall - 50 of Embedded = 289 cf x 33.0% Voids 146 cf Total Available Storage Device Routing Invert Outlet Devices #1 Discarded 58.50' 8.270 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50' 5.0' long x 5.0' breadth Broad-Crested Rectangular Woir 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 4.00 4.50 5.50' Coef (English) 2.34 2.50 2.70 2.68 2.66 2.65 2.65 2.65 2.65 2.65 2.65 2.65	
Discarded = 0.01 cfs @ 16.32 hrs, Volume= 0.004 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af Rouling by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 Peak Elev= 58.52' @ 16.32 hrs Surf Area= 57 sf Storage= 0 cf Plug-Flow detention time= 1.0 min calculated for 0.004 af (100% of inflow) Center-of-Mass det. time= 1.0 min (1.168.5 - 1.167.5) Volume Invent AvailStorage Storage Description #1 59.50' 50 cf 4.00°D x 4.00°H Recharger Inside #2 #2 58.50' 95 cf 6.00°D x 6.00°H Store x 2 339 cf Overall - 50 cf Embedded = 289 cf x 33.0% Voids 146 cf Total Available Storage Device Routing Invert Outlet Devices #1 Discarded 58.50' 8.270 in/hr Exfittration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50' 5.0' In/hr Exfittration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50' 5.0' In/hr Exfittration X 2.00 over Surface area Phase-In= 0.01' #2 Discarded OutFlow Max=0.02 cfs @ 16.32 hrs HW=58.52' (Free Discharge) -1=Exfittration (Exfittration Controls 0.02 cfs) Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=58.52' (Free Discharge) -2=Broad-Crested Rectangular Weir (Controls 0.00 ofs) Horsley Witten Controls 0.00 cfs) Horsley Witten Controls 0.00 cfs) Horsley Witten Controls 0.00 cfs) Horsley Witten Controls 0.00 cfs) Horsley Witten Crype III 24-hr 10'NR Rait Horsley Rait Controls 0.00 cfs) Horsley Britten Crype III 24-hr 10'NR Rait Horsley Rait Controls 0.00 cfs) Horsley Britten Crype III 24-hr 10'NR Rait Horsley Rait Controls 0.00 cfs) Horsley Rait B 300	
Routing by Stor-Ind method. Time Spane 0.00-72.00 hrs, dt= 0.01 hrs / 3 Peak Elev= 58.52° @ 16.32 hrs Surf.Area= 57 sf Storage= 0 cf Plug-Flow detention time= 1.0 min (1.168.5 - 1.167.5) Volume Invert Avail.Storage Storage Description #1 59.50° 50° 50° 400° I A00° D × 4.00° H Recharger Inside #2 #2 58.50° 50° 50° 50° 60° H Stone × 2 30° O Overal - 50° C Embedded = 289 cf × 33.0% Voids 146° cf Total Available Storage Device Routing Invert Outlet Devices #1 Discarded 58.60° 8.270° Unite Extitization X 2.00° over Surface area Phase-In= 0.01° 65.50° 5.0° Iong × 5.0° 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 4.00 4.50 5.50° Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.65 2.65 2.66 2.68 2.70 2. 2.88 Discarded OutFlow Max=0.02 cfs @ 16.32 hrs HW=58.52° (Free Discharge) T=Exfiltration (Exflitration Controls 0.02 cfs) Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=58.50° (Free Discharge) T=2Broad-Crested Rectangular Weir (Controls 0.00 cfs) Horsley Witten Controls 0.00 cfs) Horsley Witten Controls 0.00 cfs)	
Peak Elevis 58.52° @ 16.32 hrs Suif.Area= 57 sf Storage= 0 cf Plug-Flow detention time= 1.0 min (1,168.5 - 1,167.5) Volume Invert Avail.Storage Storage Description #1 59.50° 50 cf 4.00°D × 4.00°H Recharger Inside #2 #2 58.50° 95 cf 6.00°D × 6.00°H Stone × 2 30 9 cf Overal - 50 cf Embedded = 289 cf × 33.0% Voids 146 cf Total Available Storage Device Routing Invert Outlet Devices #1 Discarded 58.0° 8.27° Uniter Exfittration X 2.00 over Surface area Phase-In= 0.01° #2 Primary 65.50° 5.0° breadth Broad-Crested Rectangular Weir Head (leet) 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 4.00 4.50 5.50° Coref. (English) 2.34 2.50 2.70 2.68 2.68 2.65 2.65 2.65 2.65 2.65 2.65 2.65 2.68 2.70 2. 2.88 Piscarded OutFlow Max=0.02 cfs @ 16.32 hrs HW=58.52° (Free Discharge) T=Exfiltration (Exfiltration Controls 0.02 cfs) Primary OutFlow Max=0.02 cfs @ 0.00 hrs HW=58.50° (Free Discharge) T=2=Broad-Crested Rectangular Weir (Controls 0.00 cfs) Primary OutFlow Max=0.02 cfs @ 0.00 hrs HW=58.50° (Free Discharge) T=2=Broad-Crested Rectangular Weir (Controls 0.00 cfs) Horsley Witten Controls 0.00 cfs) Horsley Witten Controls 0.00 cfs) Horsley Witten Controls 0.00 cfs) Prepared by Horsley Witten Group, Inc. Primary DutFlow Max=0.02 s 2.018 HydroCAD Software Solutions LLC Pond RB3: RB 300	
Plug-Flow detention time= 1.0 min calculated for 0.004 of (100% of inflow) Center-of-Mass det. time= 1.0 min (1,168.5 - 1,167.5) Volume Invert Avail.Storage Storage Description #1 59.50' 50 of 4.00°D x 4.00°H Recharger Inside #2 #2 58.50' 50 of 4.00°D x 4.00°H Stone x2 339 of Overall - 50 of Embedded = 289 of x 33.0% Voids 146 of Total Available Storage Device Routing Invert Outlet Devices #1 Discarded 58.50' 8.270 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50' 5.0' long x.0' breatth Broad-Crested Rectangular Weir Head (feel) 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 4.00 4.50 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2. 2.88 Discarded OutFlow Max=0.02 ofs @ 16.32 hrs HW=58.52' (Free Discharge) T=Exfiltration Controls 0.02 cfs) Primary OutFlow Max=0.00 ofs @ 0.00 hrs HW=58.50' (Free Discharge) T=2=Broad-Crested Rectangular Weir (Controls 0.00 cfs) Horsley Witten Group, Inc. Horsley Witten Group, Inc. HydroCADB 10.00-22 sh 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300	
Center-of-Mass det. time= 1.0 min (1,168.5 - 1,167.5) Volume Invert Avail.Storage Storage Description #1 59.50' 50 of 4.00°D x 4.00°H Stone x 2 339 of Overall - 50 of Embedded = 289 of x 33.0% Voids 146 of Total Available Storage 146 of Total Available Storage Device Routing Invert Outlet Devices #1 Discarded 55.0° 5.0° In/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50° 5.0° In/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50° 5.0° In/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50° 5.0° In/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Storage Device Routing 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 4.00 4.50 5.50 Coeft (English) 2.34 2.50 2.70 2.88 2.68 2.65 2.65 2.65 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.288 2.88 Discarded OutFlow Max=0.02 cfs @ 16.32 hrs HW=58.50° (Free Discharge) The Storage Post of the Storage Post of the Storage Post Post of the Storage Post of the Storage Post of the Storage Post	
#1 59.50' 50 cf 4.00'D x 4.00'H Recharger Inside #2 339 cf Overall - 50 cf Embedded = 289 cf x 33.0% Voids 146 cf Total Available Storage Device Routing Invert Outlet Devices #1 Discarded 58.50' 8.270 in/ln Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50' 8.270 in/ln Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50' 8.270 in/ln Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50' 5.0' Iong x 5.0' 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 4.00 4.50 5.50 Coef (English) 2.34 2.50 2.70 2.68 2.65	
#2 58.50' 95 of 6.00°D x 6.00°H Stone x ² 339 of Overall - 50 of Embedded = 289 of x 33.0% Voids 146 of Total Available Storage Device Routing Invert Outlet Devices #1 Discarded 58.50' 8.270 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50' 8.270 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50' 8.270 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50' 8.270 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50' 6.265 2.65 2.65 2.65 2.65 2.65 2.65 2.65	
339 of Overall - 50 of Embedded = 289 of x 33.0% Voids 146 of Total Available Storage Device Routing Invert Outlet Devices #1 Discarded 58.50° 5.0° long x 5.0° breadth Broad-Crested Rectangular Weir 146 of Total Available Storage #2 Primary 65.50° 5.0° long x 5.0° breadth Broad-Crested Rectangular Weir 146 of 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.50 Coef (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.65 2.65 2.65	
146 cf Total Available Storage Device Routling Invert Outlet Devices #1 Discarded 58.50° 8.270 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50° 5.0° long x 5.0° 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 4.00 4.50 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2. 2.88 Discarded OutFlow Max=0.02 cfs @ 16.32 hrs HW=58.52' (Free Discharge) T=Exfiltration (Exfiltration Controls 0.02 cfs) Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=58.50' (Free Discharge) Horsley Witer (Controls 0.00 cfs) P2=Broad-Crested Rectangular Weir (Controls 0.00 cfs) Horsley Witer OutFlow Max=0.00 cfs 19038-POST V3 Horsley Witten Group, Inc. Prepared by Horsley Witten Group, Inc. Printee HydroCAD® 10.00-22 sin 01445 © 2018 HydroCAD Software Solutions LLC	
#1 Discarded 58.50' 8.270 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' #2 Primary 65.50' 5.0' long x 5.0' 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 4.00 4.50 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.66 2.65<	
#2 Primary 65.50' 5.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 2.00 2.50 3.00 3.50 4.00 4.50 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.66 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.83 Discarded OutFlow Max=0.02 cfs @ 16.32 hrs HW=58.52' (Free Discharge)	
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 4.00 4.50 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2. 2.88 Discarded OutFlow Max=0.02 cfs @ 16.32 hrs HW=58.52' (Free Discharge) L=Exfiltration (Exfiltration Controls 0.02 cfs) Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=58.50' (Free Discharge) L=2=Broad-Crested Rectangular Weir (Controls 0.00 cfs) Horsley Witten Controls 0.00 cfs Pages POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300	
5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2. 2.88 Discarded OutFlow Max=0.02 ofs @ 16.32 hrs HW=58.52' (Free Discharge) Image: Comparison of the two the tw	5.00
2.88 Discarded OutFlow Max=0.02 cfs @ 16.32 hrs HW=58.52' (Free Discharge) 1=Exfiltration Controls 0.02 cfs) Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=58.50' (Free Discharge) 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs) Horsley Witer (Controls 0.00 cfs) Horsley Witer O Type III 24-hr 10YR Rair Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 sin 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300	
Discarded OutFlow Max=0.02 cfs @ 16.32 hrs HW=58.52' (Free Discharge) Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=58.50' (Free Discharge) -2=Broad-Crested Rectangular Weir (Controls 0.00 cfs) Horsley Witten Controls 0.00 cfs) Horsley Witten Controls 0.00 cfs Horsley Witten Controls 0.00 cfs Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300	.74 2.79
19038-POST V3 Type III 24-hr 10YR Rair Prepared by Horsley Witten Group, Inc. Printed Printed HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300	
Pond RB3: RB 300	
Hudro granh	nfall=4.90
Hydrograph	nfall=4.90 d 3/5/202
0.007 0.006 0.005 0.005 0.007 0.006 0.007 0.006 0.007 0.006 0.007 0.006 0.007 0.006 0.007 0.006 0.007 00000000	nfall=4.90 d 3/5/202
	Infall=4.9 d 3/5/202 Page 10 flow utflow scarded
0.004	Infall=4.9 d 3/5/202 Page 10 flow utflow scarded

0.004 (\$2) 0.003 0.003

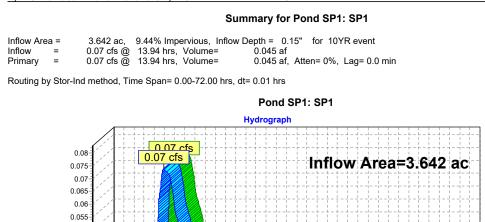
0.002 0.002 0.001 0.001 0.00 cfs



0.05 3 0.045 0.03 0.03 0.025 0.02 0.02 0.015 0.01 0.01 0.05 0.05

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

Inflow
Primary



19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" Printed 3/5/2021 Page 104

Summary for Pond SP2: SP2

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)

 Inflow Area =
 0.997 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10YR event

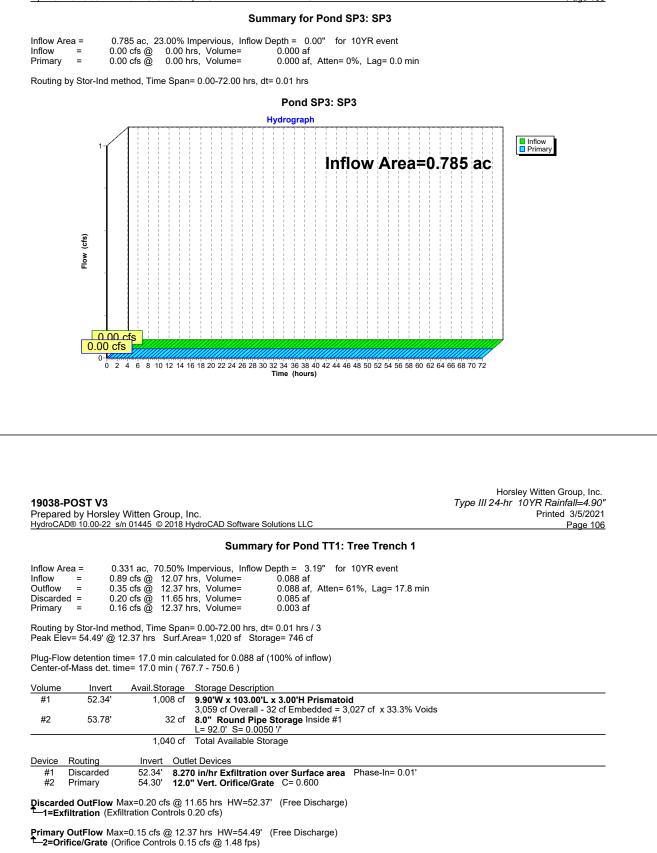
 Inflow =
 0.00 cfs @
 0.00 hrs, Volume=
 0.000 af

 Primary =
 0.00 cfs @
 0.00 hrs, Volume=
 0.000 af, Atten= 0%, Lag= 0.0 min

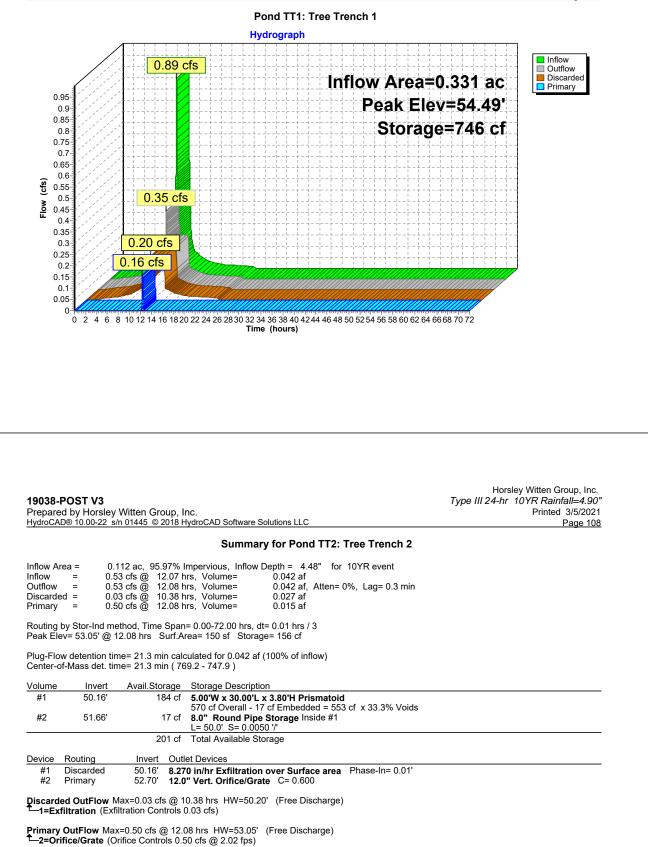
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pend SP2: SP2 Hydrograph

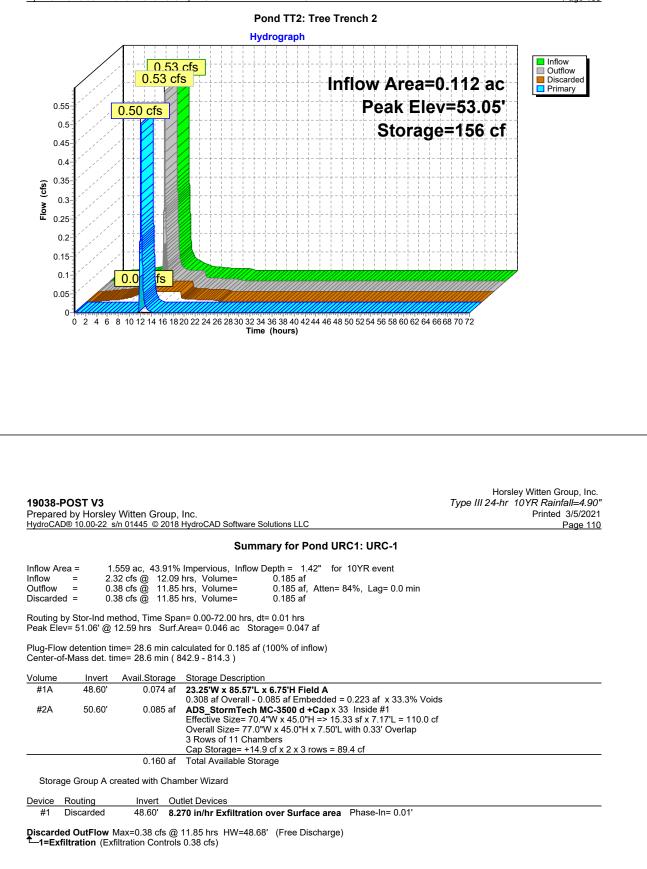
Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC







19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC



19038-POST V3 Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u>

Pond URC1: URC-1 Hydrograph Inflow 2.32 cfs Discarded Inflow Area=1.559 ac Peak Elev=51.06' 2 Storage=0.047 af (cfs) Flow 1 0.38 cfs 0 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours) Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" 19038-POST V3 Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 112 Summary for Pond URC2: URC-2 Inflow Area = 0.260 ac,100.00% Impervious, Inflow Depth = 4.66" for 10YR event 1.29 cfs @ 12.07 hrs, Volume= 0.17 cfs @ 11.61 hrs, Volume= Inflow = 0.101 af Outflow = 0.101 af, Atten= 87%, Lag= 0.0 min Discarded = 0.17 cfs @ 11.61 hrs, Volume= 0.101 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 57.18' @ 12.57 hrs Surf.Area= 879 sf Storage= 1,266 cf Plug-Flow detention time= 44.2 min calculated for 0.101 af (100% of inflow) Center-of-Mass det. time= 44.2 min (791.6 - 747.4) Avail.Storage Storage Description Volume Invert 1,517 cf **17.33'W x 50.72'L x 6.75'H Field A** 5,934 cf Overall - 1,379 cf Embedded = 4,555 cf x 33.3% Voids 54.10 #1A ADS_StormTech MC-3500 d +Cap x 12 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf #2A 56.10 1,379 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 2 Rows of 6 Chambers Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf 2,896 cf Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices 54.10' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded #1 Discarded OutFlow Max=0.17 cfs @ 11.61 hrs HW=54.17' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.17 cfs)

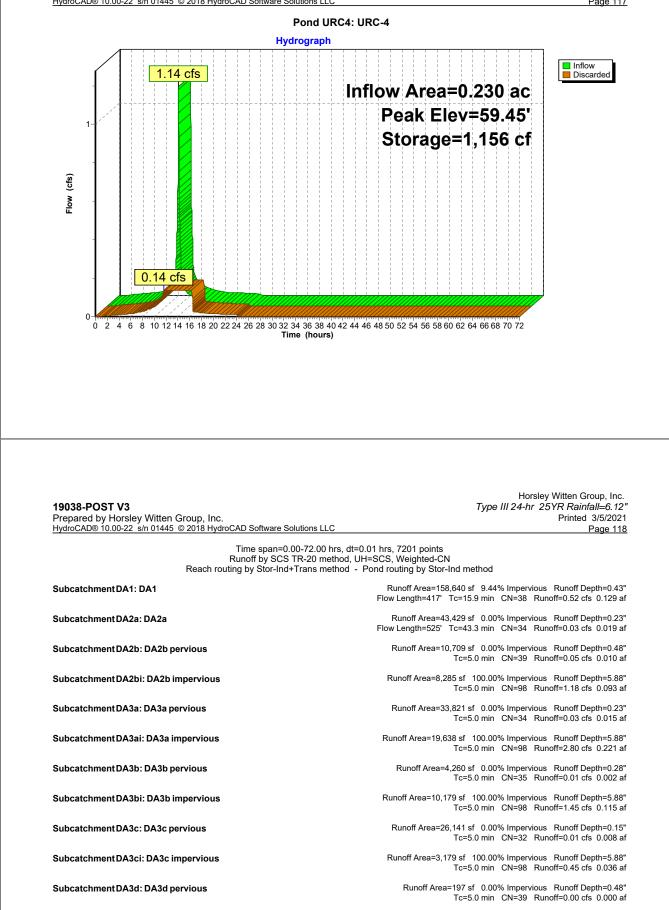
19038-POST V3 Prepared by Horsley Witten Group, Inc.

HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 113 Pond URC2: URC-2 Hydrograph Inflow 1.29 cfs Discarded Inflow Area=0.260 ac Peak Elev=57.18' Storage=1,266 cf (cfs) Flow 0.17 cfs 0 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours) Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" 19038-POST V3 Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 114 Summary for Pond URC3: URC-3 Inflow Area = 0.436 ac, 43.62% Impervious, Inflow Depth = 2.14" for 10YR event 0.93 cfs @ 12.08 hrs, Volume= 0.12 cfs @ 11.64 hrs, Volume= 0.12 cfs @ 11.64 hrs, Volume= Inflow = 0.078 af 0.078 af, Atten= 87%, Lag= 0.0 min Outflow = Discarded = 0.078 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 58.24' @ 12.63 hrs Surf.Area= 765 sf Storage= 929 cf Plug-Flow detention time= 44.8 min calculated for 0.078 af (100% of inflow) Center-of-Mass det. time= 44.8 min (806.8 - 762.0) Avail.Storage Storage Description Volume Invert 1,250 cf 22.25W x 34.38'L x 6.75'H Field A 5,163 cf Overall - 1,409 cf Embedded = 3,755 cf x 33.3% Voids 55.55 #1A ADS_StormTech MC-3500 d +Cap x 12 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf #2A 57.55 1,409 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 3 Rows of 4 Chambers Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf 2,659 cf Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices 55.55' 7.000 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded #1 Discarded OutFlow Max=0.12 cfs @ 11.64 hrs HW=55.62' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.12 cfs)

19038-POST V3 Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u>

Pond URC3: URC-3 Hydrograph Inflow 0.93 cfs Discarded Inflow Area=0.436 ac Peak Elev=58.24' Storage=929 cf (cfs) Flow 0.12 cfs 0 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours) Horsley Witten Group, Inc. Type III 24-hr 10YR Rainfall=4.90" 19038-POST V3 Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 116 Summary for Pond URC4: URC-4 Inflow Area = 0.230 ac,100.00% Impervious, Inflow Depth = 4.66" for 10YR event 1.14 cfs @ 12.07 hrs, Volume= 0.14 cfs @ 11.59 hrs, Volume= 0.14 cfs @ 11.59 hrs, Volume= Inflow = 0.089 af Outflow = 0.089 af, Atten= 88%, Lag= 0.0 min Discarded = 0.089 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 59.45' @ 12.60 hrs Surf.Area= 851 sf Storage= 1,156 cf Plug-Flow detention time= 50.8 min calculated for 0.089 af (100% of inflow) Center-of-Mass det. time= 50.8 min (798.2 - 747.4) Avail.Storage Storage Description Volume Invert 1,292 cf 30.17'W x 28.21'L x 6.25'H Field A 5,319 cf Overall - 1,439 cf Embedded = 3,880 cf x 33.3% Voids 56.80 #1A ADS_StormTech MC-3500 d +Cap x 12 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf #2A 58.30 1,439 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 4 Rows of 3 Chambers Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf 2,731 cf Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices 56.80' 7.000 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded #1 Discarded OutFlow Max=0.14 cfs @ 11.59 hrs HW=56.86' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.14 cfs)

19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC



19038-POST V3 Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u> Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 119

Subcatchment DA3di: DA3d impervious	Runoff Area=4,686 sf 100.00% Impervious Runoff Depth=5.88" Tc=5.0 min CN=98 Runoff=0.67 cfs 0.053 af
Subcatchment R1E: EAST ROOF	Runoff Area=11,331 sf 100.00% Impervious Runoff Depth=5.88" Tc=5.0 min CN=98 Runoff=1.62 cfs 0.127 af
Subcatchment R1W: WEST ROOF	Runoff Area=10,000 sf 100.00% Impervious Runoff Depth=5.88" Tc=5.0 min CN=98 Runoff=1.43 cfs 0.113 af
Pond 100: CB 100	Peak Elev=50.44' Inflow=0.45 cfs 0.043 af 12.0" Round Culvert n=0.013 L=4.0' S=0.0050 '/' Outflow=0.45 cfs 0.043 af
Pond 200: CB 200	Peak Elev=52.29' Inflow=0.67 cfs 0.053 af Primary=0.67 cfs 0.053 af Secondary=0.00 cfs 0.000 af Outflow=0.67 cfs 0.053 af
Pond BIO1: BIO 1	Peak Elev=59.50' Storage=1,302 cf Inflow=2.80 cfs 0.236 af Outflow=2.63 cfs 0.236 af
Pond BIO2: BIO 2	Peak Elev=62.65' Storage=81 cf Inflow=1.19 cfs 0.103 af Outflow=1.17 cfs 0.103 af
Pond DMH: DMH 200	Peak Elev=54.69' Inflow=1.45 cfs 0.117 af Primary=1.05 cfs 0.111 af Secondary=0.41 cfs 0.006 af Outflow=1.45 cfs 0.117 af
Pond RB1: RB 101,102	Peak Elev=44.74' Storage=439 cf Inflow=0.45 cfs 0.043 af Discarded=0.06 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.043 af
Pond RB2: RB 202,202,203	Peak Elev=49.38' Storage=543 cf Inflow=0.64 cfs 0.021 af Discarded=0.09 cfs 0.021 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.021 af
Pond RB3: RB 300	Peak Elev=62.66' Storage=104 cf Inflow=0.03 cfs 0.019 af Discarded=0.02 cfs 0.019 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.019 af
Pond SP1: SP1	Inflow=0.52 cfs 0.129 af Primary=0.52 cfs 0.129 af

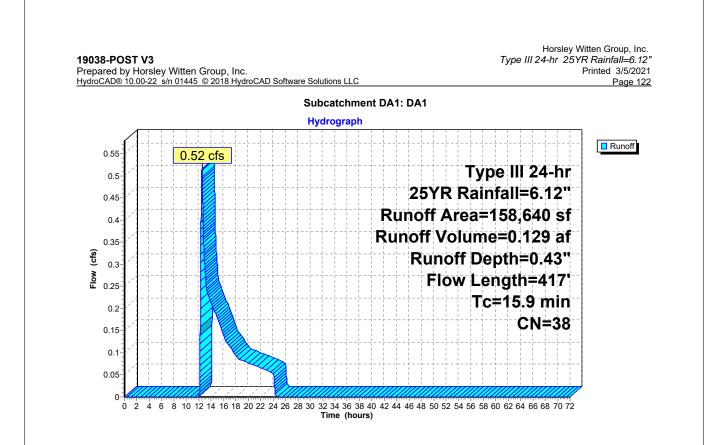
19038-POST V3	Horsley Witten Group, Inc. "Type III 24-hr 25YR Rainfall=6.12
Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Softwa	re Solutions LLC Page 120
Pond SP2: SP2	Inflow=0.00 cfs 0.000 af
	Primary=0.00 cfs 0.000 af
Pond SP3: SP3	Inflow=0.00 cfs 0.000 af
	Primary=0.00 cfs 0.000 af
Pond TT1: Tree Trench 1	Peak Elev=54.61' Storage=790 cf Inflow=1.05 cfs 0.111 af
	Discarded=0.20 cfs 0.101 af Primary=0.40 cfs 0.010 af Outflow=0.59 cfs 0.111 af
Pond TT2: Tree Trench 2	Peak Elev=53.10' Storage=159 cf Inflow=0.67 cfs 0.053 af
	Discarded=0.03 cfs 0.031 af Primary=0.64 cfs 0.021 af Outflow=0.67 cfs 0.053 af
Pond URC1: URC-1	Peak Elev=51.92' Storage=0.078 af Inflow=3.00 cfs 0.252 af Outflow=0.38 cfs 0.252 af
Pond URC2: URC-2	Peak Elev=57.99' Storage=1,748 cf Inflow=1.62 cfs 0.127 af
	Outflow=0.17 cfs 0.127 af
Pond URC3: URC-3	Peak Elev=59.00' Storage=1,369 cf Inflow=1.17 cfs 0.103 af
	Outflow=0.12 cfs 0.103 af

Summary for Subcatchment DA1: DA1

Runoff = 0.52 cfs @ 12.51 hrs, Volume= 0.129 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 25YR Rainfall=6.12"

	А	rea (sf)	CN	Description		
	1	18,297	30	Woods, Go	od, HSG A	
		25,363	39	>75% Gras	s cover, Go	od, HSG A
		9,642	98	Roofs, HSG	A SA	
		5,338	98	Paved park	ing, HSG A	
_	1	58,640	38	Weighted A	verage	
	1	43,660		90.56% Per	vious Area	
		14,980		9.44% Impe	ervious Area	a
				-		
	Tc	Length	Slope	e Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft) (ft/sec)	(cfs)	
	12.2	78	0.1730	0.11		Sheet Flow, A TO B
						Woods: Dense underbrush n= 0.800 P2= 3.60"
	0.7	99	0.1110) 2.33		Shallow Concentrated Flow, B TO C
						Short Grass Pasture Kv= 7.0 fps
	3.0	240	0.0690) 1.31		Shallow Concentrated Flow, C TO SP1
						Woodland Kv= 5.0 fps
-	15.9	417	Total			



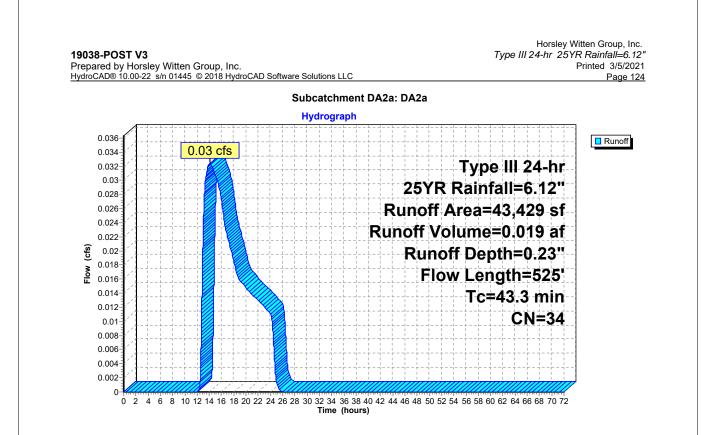
Summary for Subcatchment DA2a: DA2a

CN for permeable pavers taken from RI Stormwater Design

Runoff = 0.03 cfs @ 14.10 hrs, Volume= 0.019 af, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 25YR Rainfall=6.12"

	Area (sf)	CN	Description		
	25,414	30	Woods, Go	od, HSG A	
	17,231	39	>75% Gras	s cover, Go	od, HSG A
*	784	40	Pervious Pa	avers	
	43.429	34	Weighted A	verage	
	43,429		100.00% P		a
	,				
Т	c Length	Slop	e Velocity	Capacity	Description
(mir				(cfs)	
36.	4 147	0.040	0.07		Sheet Flow, A TO B
					Woods: Dense underbrush n= 0.800 P2= 3.60"
0.	8 67	0.076	0 1.38		Shallow Concentrated Flow, B to C
					Woodland Kv= 5.0 fps
1.	1 73	0.048) 1.10		Shallow Concentrated Flow, C to D
					Woodland Kv= 5.0 fps
5.	0 238	0.025	0.79		Shallow Concentrated Flow, D to SP2
					Woodland Kv= 5.0 fps
43.	3 525	Total			



noff	=	0.05	cfs@ 12.2		•	0.010 af, Dept					
			cfs @ 12.3			ime Span= 0.00-72)1 hre			
			nfall=6.12"	Job, weigi	neu-011, 11	inie Opanie 0.00-77	≥.00 ms, ut= 0.t	,, 1113			
A	Area (sf) 10,238	<u>CN</u> 39	Description >75% Gras		ood HSC .	Δ					
	471 10,709	39 30 39	Woods, Go Weighted A	od, HSG A		n					
	10,709	29	100.00% P		ea						
Tc (min)	Length (feet)	Slop (ft/f	e Velocity t) (ft/sec)	Capacity (cfs)	Descripti	ion					
5.0				`	Direct E	ntry, Direct					
											itten Group, Inc.
	-POST V		littee Crow							1-hr 25YF	itten Group, Inc. Rainfall=6.12"
epare	ed by Hor	slev W	/itten Grouµ 01445 © 201	o, Inc. 8 HydroCA	D Software S	Solutions LLC				1-hr 25YF	
epare	ed by Hor	slev W	/itten Grouµ 01445 ⊚ 201	o, Inc. 8 HydroCA		Solutions LLC	DA2b pervic	Dus		1-hr 25YF	R <i>Rainfall</i> =6.12" Printed 3/5/2021
epare	ed by Hor	slev W	/itten Group 01445 © 201	o, Inc. 8 HydroCA	Subcat		DA2b pervic	ous		1-hr 25YF	R <i>Rainfall</i> =6.12" Printed 3/5/2021
epare droCA	ed by Hor	slev W	01445 © 201	8 HydroCA	Subcat	chment DA2b:	DA2b pervic	bus		1-hr 25YF	R <i>Rainfall</i> =6.12" Printed 3/5/2021
epare droCA	ed by Hor <u>AD® 10.00-</u>	slev W	/itten Group 01445 © 201 0.05 cfs	8 HydroCA	Subcat	chment DA2b:	DA2b pervic		Type III 24	1-hr 25YF	R Rainfall=6.12" Printed 3/5/2021 Page 126
epare droCA	ed by Hor AD® 10.00-	slev W	01445 © 201	8 HydroCA	Subcat	chment DA2b:		Ту	Type III 24	1-hr 25YF	R Rainfall=6.12" Printed 3/5/2021 Page 126
epare droCA 0	ed by Hor AD® 10.00-	slev W	01445 © 201	8 HydroCA	Subcat	chment DA2b:	25YI	Tyı R Rair	Type III 24 De III 24 Salitation	1-hr 25YF	R Rainfall=6.12" Printed 3/5/2021 Page 126
epare droCA 0	ed by Hor <u>AD® 10.00-</u> 0.055 0.055 0.045 0.045	slev W	01445 © 201	8 HydroCA	Subcat	chment DA2b: Hydrograph	25YI Runofi	Tyr R Rair Area	Type III 24 De III 24 Stall=6. =10,70	4-hr 2594 1-hr 12" 9 sf	R Rainfall=6.12" Printed 3/5/2021 Page 126
epare droCA 0 0	ed by Hor <u>AD® 10.00-</u> 0.055 0.055 0.045 0.045 0.045	slev W	01445 © 201	8 HydroCA	Subcat	chment DA2b: Hydrograph	25YI Runoff Runoff V	Tyr R Rair Area /olum	Type III 24 De III 24 Dfall=6. =10,70 e=0.01	1-hr 2594 1-hr 12" 9 sf 0 af	R Rainfall=6.12" Printed 3/5/2021 Page 126
epare droCA 0 0	ed by Hor <u>AD® 10.00-</u> 0.055- 0.055- 0.045- 0.045- 0.045- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.04- 0.04- 0.04- 0.04- 0.04- 0.05-	slev W	01445 © 201	8 HydroCA	Subcat	chment DA2b: Hydrograph	25YI Runoff Runoff V	Typ R Rair Area /olum off De	Type III 24 pe III 24 nfall=6. =10,709 e=0.010 epth=0.	1-hr 12" 9 sf 0 af 48"	R Rainfall=6.12" Printed 3/5/2021 Page 126
epare A <u>AOrb</u> 0 0 0	ed by Hor <u>AD® 10.00-</u> 0.055 0.055 0.045 0.045 0.045	slev W	01445 © 201	8 HydroCA	Subcat	chment DA2b: Hydrograph	25YI Runoff Runoff V	Typ R Rair Area /olum off De	Type III 24 oe III 24 fall=6. =10,709 e=0.010 epth=0.	4-hr 2594 4-hr 12" 9 sf 0 af 48" min	R Rainfall=6.12" Printed 3/5/2021 Page 126
<pre>Line (cts)</pre>	ed by Hor <u>AD® 10.00-</u> 0.055- 0.055- 0.045- 0.045- 0.045- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.035- 0.04- 0.04- 0.04- 0.04- 0.04- 0.05-	slev W	01445 © 201	8 HydroCA	Subcat	chment DA2b: Hydrograph	25YI Runoff Runoff V	Typ R Rair Area /olum off De	Type III 24 oe III 24 fall=6. =10,709 e=0.010 epth=0.	1-hr 12" 9 sf 0 af 48"	R Rainfall=6.12" Printed 3/5/2021 Page 126
How (cts)	ed by Hor <u>\D® 10.00-</u> 0.055 0.055 0.045 0.045 0.035 0.035 0.035	slev W	01445 © 201	8 HydroCA	Subcat	chment DA2b: Hydrograph	25YI Runoff Runoff V	Typ R Rair Area /olum off De	Type III 24 oe III 24 fall=6. =10,709 e=0.010 epth=0.	4-hr 2594 4-hr 12" 9 sf 0 af 48" min	R Rainfall=6.12" Printed 3/5/2021 Page 126
Parage A A Corb 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Hor <u>AD® 10.00-</u> 0.055 0.04 0.04 0.035 0.025 0.025 0.022	slev W	01445 © 201	8 HydroCA	Subcat	chment DA2b: Hydrograph	25YI Runoff Runoff V	Typ R Rair Area /olum off De	Type III 24 oe III 24 fall=6. =10,709 e=0.010 epth=0.	4-hr 2594 4-hr 12" 9 sf 0 af 48" min	R Rainfall=6.12" Printed 3/5/2021 Page 126
0 (cts)	ed by Hor <u>AD® 10.00-</u> 0.055 0.055 0.045 0.045 0.035 0.035 0.035 0.035 0.025 0.025	slev W	01445 © 201	8 HydroCA	Subcat	chment DA2b: Hydrograph	25YI Runoff Runoff V	Typ R Rair Area /olum off De	Type III 24 oe III 24 fall=6. =10,709 e=0.010 epth=0.	4-hr 2594 4-hr 12" 9 sf 0 af 48" min	R Rainfall=6.12" Printed 3/5/2021 Page 126

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 127

	=		cfs @ 12.0			0.093 af, Dep				
Runoff b Fype III :	y SCS TF 24-hr 25	R-20 m YR Rai	ethod, UH=S infall=6.12"	SCS, Weigh	nted-CN, Time	Span= 0.00-7	72.00 hrs, dt= 0.0)1 hrs		
A	<u>rea (sf)</u> 7,010	<u>CN</u> 98	Description Paved park		<u> </u>					
	1,275	98	Sidewalks,	HSG A	N					
	8,285 8,285	98	Weighted A 100.00% In		Area					
	Length				Description					
(min) 5.0	(feet)	(ft/1	ft) (ft/sec)	(cfs)	Direct Entr	y, Direct				
Prepare	POST V ed by Hor	rsley V	Vitten Group	o, Inc.) Software Sel	tions II C				ey Witten Group, Inc. 25YR Rainfall=6.12" Printed 3/5/2021
Prepare	ed by Hor	rsley V	Vitten Group 01445 © 201	8 HydroCAI	D Software Sol Subcatchn		DA2b imperv			25YR Rainfall=6.12"
Prepare	ed by Hor	rsley V	Vitten Group 01445 © 201	8 HydroCAI	Subcatchn		DA2b imperv			25YR Rainfall=6.12" Printed 3/5/2021
Prepare	ed by Hor	rsley V 22 s/n	Vitten Group 01445 © 201	8 HydroCAI	Subcatchn	ent DA2bi:	DA2b imperv	rious	Type III 24-hr	25YR Rainfali=6.12" Printed 3/5/2021 Page 128
Prepare	ed by Hor	rsley V 22 s/n	01445 © 201	8 HydroCAI	Subcatchn	ent DA2bi:		rious Type	Type III 24-hr	25YR Rainfall=6.12" Printed 3/5/2021 Page 128
Prepare HydroCA	ed by Hor	rsley V 22 s/n	01445 © 201	8 HydroCAI	Subcatchn	ent DA2bi:	25YI	^{rious} Type R Rainf	Type III 24-hr all=6.12	25YR Rainfali=6.12" Printed 3/5/2021 Page 128
Prepare HydroCA	ed by Hor D® 10.00-	rsley V 22 s/n	01445 © 201	8 HydroCAI	Subcatchn	ent DA2bi: drograph	25Y Runo	^{rious} Type R Rainf ff Area	Type III 24-hr all=6.12 =8,285 s	25YR Rainfall=6.12" Printed 3/5/2021 Page 128
Prepare HydroCA	ed by Hor D® 10.00-	rsley V 22 s/n	01445 © 201	8 HydroCAI	Subcatchn	ent DA2bi: drograph	25YI	^{rious} Type R Rainf ff Area	Type III 24-hr all=6.12 =8,285 s	25YR Rainfall=6.12" Printed 3/5/2021 Page 128
Prepare HydroCA	ed by Hor D® 10.00-	rsley V 22 s/n	01445 © 201	8 HydroCAI	Subcatchn	ent DA2bi: drograph	25YI Runo Runoff V	^{rious} Type R Rainf ff Area /olume	e III 24-h all=6.12 =8,285 s =0.093 a	25YR Rainfall=6.12" Printed 3/5/2021 Page 128
Prepare HydroCA	ed by Hor D® 10.00-	rsley V 22 s/n	01445 © 201	8 HydroCAI	Subcatchn	ent DA2bi: drograph	25YI Runo Runoff V	^{/ious} Type R Rainf ff Area /olume off Dep	 Type III 24-hr all=6.12 all=6.12 a,285 s 0.093 a th=5.88 	25YR Rainfali=6.12" Printed 3/5/2021 Page 128
Prepare HydroCA	ed by Hor D® 10.00-	rsley V 22 s/n	01445 © 201	8 HydroCAI	Subcatchn	ent DA2bi: drograph	25YI Runo Runoff V	^{/ious} Type R Rainf ff Area /olume off Dep	all=6.12 =8,285 s =0.093 a oth=5.88 =5.0 min	25YR Rainfall=6.12" Printed 3/5/2021 Page 128 Runoff
Prepare HydroCA	ed by Hor D® 10.00-	rsley V 22 s/n	01445 © 201	8 HydroCAI	Subcatchn	ent DA2bi: drograph	25YI Runo Runoff V	^{/ious} Type R Rainf ff Area /olume off Dep	 Type III 24-hr all=6.12 all=6.12 a,285 s 0.093 a th=5.88 	25YR Rainfall=6.12" Printed 3/5/2021 Page 128 Runoff
Prepare HydroCA	ed by Hor D® 10.00-	rsley V 22 s/n	01445 © 201	8 HydroCAI	Subcatchn	ent DA2bi: drograph	25YI Runo Runoff V	^{/ious} Type R Rainf ff Area /olume off Dep	all=6.12 =8,285 s =0.093 a oth=5.88 =5.0 min	25YR Rainfall=6.12" Printed 3/5/2021 Page 128 Runoff
Prepare HydroCA	ed by Hor D® 10.00-	rsley V 22 s/n	<u>01445</u> © 201	8 HydroCAI	Subcatchn	ent DA2bi: drograph	25YI Runo Runoff V	^{/ious} Type R Rainf ff Area /olume off Dep	all=6.12 =8,285 s =0.093 a oth=5.88 =5.0 min	25YR Rainfall=6.12" Printed 3/5/2021 Page 128 Runoff
Prepare HydroCA	ed by Hor D® 10.00-	rsley V 22 s/n	<u>01445</u> © 201	8 HydroCAI	Subcatchn	ent DA2bi: drograph	25YI Runo Runoff V	^{/ious} Type R Rainf ff Area /olume off Dep	all=6.12 =8,285 s =0.093 a oth=5.88 =5.0 min	25YR Rainfall=6.12" Printed 3/5/2021 Page 128 Runoff

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

		_					-			ent DA3		ua pe		3					
unoff	=				hrs, V					Depth= 0									
unoff b /pe III 2	y SCS TF 24-hr 25	κ-20 me ∕R Rain	thod, l fall=6.	JH=S0 12"	CS, We	ghted	-CN, T	ime Sp	an= 0.0	0-72.00 h	rs, dt= 0).01 h	rs						
	rea (sf)		Descri																
	14,079 19,742	30	Woods	s, Goo	cover, d, HSG		HSG	A											
	33,821 33,821				erage rvious A	Area													
Тс	Length				Capaci		escript	tion											
(min) 5.0	(feet)	(ft/ft)		sec)	(cf	fs)		Entry, D	irect										
								•											
038-1	POST	3													ne III				Group, Inc.
	POST V		itten G	Group,	Inc.			0-1-1						Ту	pe III		25Y	'R Raii	nfall=6.12" d 3/5/2021
	POST V d by Hol D® 10.00-		itten G	Group,	Inc. HydroC									Ту	pe III		25Y	'R Raii	nfall=6.12"
			itten G	Group,	Inc. HydroC		ubca	tchme	ent DA	3a: DA3	a pervi	ious		Ту	pe III		25Y	'R Raii	nfall=6.12" d 3/5/2021
			itten G	Group, 2018	Inc. HydroC		ubca		ent DA	3a: DA3	a pervi	ious		Ty	pe III		25Y	'R Raii	nfall=6.12" d 3/5/2021
epare <u>droCAl</u>	ed by Hor D® 10.00-						ubca	tchme	ent DA	3a: DA3	a pervi	ious		<i>Ty</i>	pe III		25Y	R Raii	nfall=6.12" d 3/5/2021
epare <u>/droCAI</u>				Group, 2018 3 cfs			ubca	tchme	ent DA	3a: DA3	apervi	ious				24-hr	r 25Y	R Raii	nfall=6.12" d 3/5/2021 _Page 130
epare r <u>droCAI</u> 0.1	ed by Hoi D® 10.00						ubca	tchme	ent DA	3a: DA3			Ту	pe		24-hr 24-l	- 25Y	R Raii	nfall=6.12" d 3/5/2021 _Page 130
0. 0. 0.	ed by Hoi D® 10.00-						ubca	tchme	ent DA		25Y	′R	Ty Rai	pe	_2 =(24-hi 24-l 5.12	- 25Y	R Raii	nfall=6.12" d 3/5/2021 _Page 130
0. 0. 0. 0. 0.	ed by Hoi D® 10.00- 032- 0.03 028- 026- 024-						ubca	tchme	ent DA	R	25Y unot	(R ff A	Ty Raii trea	pe nfa =3:	2 =(3,8	24-h 24-l 5.12 21	25Y	R Raii	nfall=6.12" d 3/5/2021 _Page 130
0.1 0.1 0.1 0.1 0.1 0.1	ed by Hoi D® 10.00-						ubca	tchme	ent DA	R	25Y	(R ff A	Ty Raii trea	pe nfa =3:	2 =(3,8	24-h 24-l 5.12 21	25Y	R Raii	nfall=6.12" d 3/5/2021 _Page 130
0. 0. 0. 0. 0. 0. 0. 0.	ad by Hoi D® 10.00- 0.032 0.033 0.028 0.026 0.024 0.022						ubca	tchme	ent DA	R	25Y unol	(R ff A Vo	Ty Raii Area Ium	pe nfa =3: e=1	2 =(3,8).0	^{24-hr} 24-l 5.12 21	257 hr 2" sf af	R Raii	nfall=6.12" d 3/5/2021 _Page 130
0. 0. 0. 0. 0. 0. 0. 0.	ed by Hoi D® 10.00-						ubca	tchme	ent DA	R	25Y unol	(R ff A Vo	Ty Raii Area Ium f De	pe nfa =3: e=1	III 2 II=(3,8).0 h=(24-h 24-l 5.12 21 15 ().23	25Y	R Raii	nfall=6.12" d 3/5/2021 _Page 130
cepare <u>vdroCAI</u> 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	ad by Hoi D® 10.00- 032 0.03 028 0.024 0.024 0.024 0.024 0.022 0.024						ubca	tchme	ent DA	R	25Y unol	(R ff A Vo	Ty Raii Area Ium f De	pe nfa =3: e=1	III 2 II=(3,8).0 h=(5.0	24-h 24-l 5.12 21 15 ().23 m	259 hr 2" sf 3" in	R Raii	nfall=6.12" d 3/5/2021 _Page 130
Content of the second s	ad by Hoi D® 10.00- 032 0.03 028 0.024 0.024 0.022 0.02 0.02 0.02 0.02 0						ubca	tchme	ent DA	R	25Y unol	(R ff A Vo	Ty Raii Area Ium f De	pe nfa =3: e=1	III 2 II=(3,8).0 h=(5.0	24-h 24-l 5.12 21 15 ().23	259 hr 2" sf 3" in	R Raii	nfall=6.12" d 3/5/2021 _Page 130
repare (droCAI 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ad by Hor D® 10.00- 032 0.03 028 0.02 0.02 0.02 0.02 0.02 0.02 0.02						ubca	tchme	ent DA	R	25Y unol	(R ff A Vo	Ty Raii Area Ium f De	pe nfa =3: e=1	III 2 II=(3,8).0 h=(5.0	24-h 24-l 5.12 21 15 ().23 m	259 hr 2" sf 3" in	R Raii	nfall=6.12" d 3/5/2021 _Page 130
repare (droCAI 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ad by Hoi D® 10.00- 032- 0.03 0.03 0.03 0.02 0.02 0.02 0.02 0.01 0.01 0.01 0.01						ubca	tchme	ent DA	R	25Y unol	(R ff A Vo	Ty Raii Area Ium f De	pe nfa =3: e=1	III 2 II=(3,8).0 h=(5.0	24-h 24-l 5.12 21 15 ().23 m	259 hr 2" sf 3" in	R Raii	nfall=6.12" d 3/5/2021 _Page 130
repare (droCAI 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ad by Hoi D® 10.00- 032 0.03 028 026 024 022 0.02 0.02 0.02 0.02 0.02 0.01 0.01						ubca	tchme	ent DA	R	25Y unol	(R ff A Vo	Ty Raii Area Ium f De	pe nfa =3: e=1	III 2 II=(3,8).0 h=(5.0	24-h 24-l 5.12 21 15 ().23 m	259 hr 2" sf 3" in	R Raii	nfall=6.12" d 3/5/2021 _Page 130
repare (droCAI 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	ad by Hoi D® 10.00- 032- 0.03 0.03 0.03 0.02 0.02 0.02 0.02 0.01 0.01 0.01 0.01						ubca	tchme	ent DA	R	25Y unol	(R ff A Vo	Ty Raii Area Ium f De	pe nfa =3: e=1	III 2 II=(3,8).0 h=(5.0	24-h 24-l 5.12 21 15 ().23 m	259 hr 2" sf 3" in	R Raii	nfall=6.12" d 3/5/2021 _Page 130

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 131

| an= 0.00-72.00 hrs, dt= 0.01 hrs | | Average by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Marce (sf) CN Description 18,277 19,363 S0 Might by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs 18,277 S0 Pare (sf) CN Description (m) 19,363 S0 Weighted-Kverage 19,363 S0 Weighted-Kverage 19,363 S1 Boye Veicolity Capacity Description (m) (fett) (fith) (fits) 5.0 Direct Entry, Direct | Average by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Marce (sf) CN Description 18,277 19,363 S0 Might by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs 18,277 S0 Pare (sf) CN Description (m) 19,363 S0 Weighted-Kverage 19,363 S0 Weighted-Kverage 19,363 S1 Boye Veicolity Capacity Description (m) (fett) (fith) (fits) 5.0 Direct Entry, Direct | Average by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Marce (sf) CN Description 18,277 19,363 S0 Might by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs 18,277 S0 Pare (sf) CN Description (m) 19,363 S0 Weighted-Kverage 19,363 S0 Weighted-Kverage 19,363 S1 Boye Veicolity Capacity Description (m) (fett) (fith) (fits) 5.0 Direct Entry, Direct | Support by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Yee (af) Ch. Description 18.277 19.63 19.63 98. Veieotity Capacity Description (min) (leat) (101) (ttissec) (101) (ttissec) <th>Burget by SCS TR-20 method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Method, CN Method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Method, With Solo, Packing, HSGA 193.33 10.00.0% impervious Area To Length Average To Length Average 100.00% impervious Area To Length Average To Length Average 100.00% impervious Area To Length Average To Length Average Method Stopp Colspan="2">Hoto Stopp Colspan="2">H</th> <th>Superflag Superflag UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Superflag Superflag Superflag Superflag Marce (sf) CN Description Superflag 19.333 Si Usevalk, HSG A Superflag Superflag 19.333 Si Usevalk, HSG A Superflag Superflag 19.333 Si Usevalk, HSG A Superflag Superflag (min) (feet) (ft/ft) Uesc) Cefs) 5.0 Direct Entry, Direct Superflag Superflag (min) (feet) (ft/ft) Velocity Cefs) 5.0 Direct Entry, Direct Superflag Superflag (min) (feet) (ft/ft) Velocity Superflag (gg38-POST V3 Superflag Superflag Superflag Superflag (gias-POST V3 Superflag Superflag Superflag Superflag Superflag (gias-POST V3 Superflag Superflag</th> <th>Wordf by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Ypell 24-hr ZSVR Rainfall=6.12* Area (s) CN Description 10.33 98 Page darking, HSG A 13.33 98 Weighted-Verage 13.33 100.00% impervious Area Te Length Stope Velocity Capacity Description (min) (feit) (fit) (fit) 9038-POST V3 Promotely Mitten Group, Inc. Type III 24-hr ZSVR Rainfall-6.12* Page 132 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 1 2.80 cfs</th> <th>Build by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Ypell I 24-hr 25YR Rainfall=6.12" Marked Stress of the State Address of th</th> <th>Under Use Schweighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mark (of Ch. Description 18.27 30 Bescription 19.33 90 Weighted Average 19.33 90 Weighted Average 19.33 100.00% Impervious Area Campbel (mth) (titse) (cs) 5.0 Direct Entry, Direct</th> <th>unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mar a (sf) Attack (st) Mar a (sf) Attack (st) Attack (st)<th>Under UNDER SC, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mara (sf) Note: Science:</th><th>Unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mea (sf) CN Description 18.277 36 Paved parking, HSG A 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Weighted Average 19.639 98 Weighted Average 5.0 Direct Entry, Direct</th><th>Unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mea (sf) CN Description 18.277 36 Paved parking, HSG A 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Weighted Average 19.639 98 Weighted Average 5.0 Direct Entry, Direct</th><th>Unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mea (sf) CN Description 18,277 30 Perced parking, HSG A 19,33 90 Weighted Average 19,33 100,00% impervious Area Total State Average 5.0 Direct Entry, Direct Total State Average 9038-POST V3 State Average Total State Average 9038-POST V3 Total State Average Total State Average 9038-POST V3 Total State Average Page 132 9038-POST V3 Subcatchment DA3a: IDA3a impervious Page 132</th><th>Inofi by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Prove description 18.277 98 Paved parking, HSG A 19.638 90.000% Impervious Area </th><th>Med (JH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Prove description 18,277 30 Page Tay 19,638 90 Weighted Average 19,638 100.00% Impervious Area Total Length 5.0 Direct Entry, Direct Statewalk, HSG 5.0 Direct Entry, Direct Horsley Witten Group, Inc. 70,000 Type III 24-Hr 25YR Raintal-36/2021 Page 132 Page 132 Subcatchment DA3a: DA3a impervious Hydrograph</th><th>Anoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
pe II 24-hr 25YR Rainfall=6.12" Area (of) 0. Description 18,277 98 Paved parking, HSG A 19,638 98 Weighted Average 19,638 98 Weighted Average 19,638 98 Weighted Average 19,638 900,00% Impervious Area Tc Tc Length Slope Velocity Capacity 5.0 Direct Entry, Direct Direct Entry, Direct Horsley Witten Group, Inc. 9038-POST V3 Type III 24-hr 25 VFR Rainfall=6.1221 Page 132 Brospared by Morsley Witten Group, Inc. Type III 24-hr 25 VFR Rainfall=6.1221 Page 132</th><th>Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 25YR Rainfall=6.12* Area (sf) Ch Description 19.638 98 Paved parking, HSG A </th></th> | Burget by SCS TR-20 method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Method, CN Method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Method, UH-SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Method, With Solo, Packing, HSGA 193.33 10.00.0% impervious Area To Length Average To Length Average 100.00% impervious Area To Length Average To Length Average 100.00% impervious Area To Length Average To Length Average Method Stopp Colspan="2">Hoto Stopp Colspan="2">H | Superflag Superflag UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Superflag Superflag Superflag Superflag Marce (sf) CN Description Superflag 19.333 Si Usevalk, HSG A Superflag Superflag 19.333 Si Usevalk, HSG A Superflag Superflag 19.333 Si Usevalk, HSG A Superflag Superflag (min) (feet) (ft/ft) Uesc) Cefs) 5.0 Direct Entry, Direct Superflag Superflag (min) (feet) (ft/ft) Velocity Cefs) 5.0 Direct Entry, Direct Superflag Superflag (min) (feet) (ft/ft) Velocity Superflag (gg38-POST V3 Superflag Superflag Superflag Superflag (gias-POST V3 Superflag Superflag Superflag Superflag Superflag (gias-POST V3 Superflag | Wordf by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Ypell 24-hr ZSVR Rainfall=6.12* Area (s) CN Description 10.33 98 Page darking, HSG A 13.33 98 Weighted-Verage 13.33 100.00% impervious Area Te Length Stope Velocity Capacity Description (min) (feit) (fit) (fit) 9038-POST V3 Promotely Mitten Group, Inc. Type III 24-hr ZSVR Rainfall-6.12* Page 132 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 1 2.80 cfs | Build by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Ypell I 24-hr 25YR Rainfall=6.12" Marked Stress of the State Address of th | Under Use Schweighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mark (of Ch. Description 18.27 30 Bescription 19.33 90 Weighted Average 19.33 90 Weighted Average 19.33 100.00% Impervious Area Campbel (mth) (titse) (cs) 5.0 Direct Entry, Direct | unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mar a (sf) Attack (st) Mar a (sf) Attack (st) Attack (st) <th>Under UNDER SC, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mara (sf) Note: Science:</th> <th>Unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mea (sf) CN Description 18.277 36 Paved parking, HSG A 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Weighted Average 19.639 98 Weighted Average 5.0 Direct Entry, Direct</th> <th>Unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mea (sf) CN Description 18.277 36 Paved parking, HSG A 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Weighted Average 19.639 98 Weighted Average 5.0 Direct Entry, Direct</th> <th>Unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mea (sf) CN Description 18,277 30 Perced parking, HSG A 19,33 90 Weighted Average 19,33 100,00% impervious Area Total State Average 5.0 Direct Entry, Direct Total State Average 9038-POST V3 State Average Total State Average 9038-POST V3 Total State Average Total State Average 9038-POST V3 Total State Average Page 132 9038-POST V3 Subcatchment DA3a: IDA3a impervious Page 132</th> <th>Inofi by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Prove description 18.277 98 Paved parking, HSG A 19.638 90.000% Impervious Area </th> <th>Med (JH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Prove description 18,277 30 Page Tay 19,638 90 Weighted Average 19,638 100.00% Impervious Area Total Length 5.0 Direct Entry, Direct Statewalk, HSG 5.0 Direct Entry, Direct Horsley Witten Group, Inc. 70,000 Type III 24-Hr 25YR Raintal-36/2021 Page 132 Page 132 Subcatchment DA3a: DA3a impervious Hydrograph</th> <th>Anoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
pe II 24-hr 25YR Rainfall=6.12" Area (of) 0. Description 18,277 98 Paved parking, HSG A 19,638 98 Weighted Average 19,638 98 Weighted Average 19,638 98 Weighted Average 19,638 900,00% Impervious Area Tc Tc Length Slope Velocity Capacity 5.0 Direct Entry, Direct Direct Entry, Direct Horsley Witten Group, Inc. 9038-POST V3 Type III 24-hr 25 VFR Rainfall=6.1221 Page 132 Brospared by Morsley Witten Group, Inc. Type III 24-hr 25 VFR Rainfall=6.1221 Page 132</th> <th>Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 25YR Rainfall=6.12* Area (sf) Ch Description 19.638 98 Paved parking, HSG A </th> | Under UNDER SC, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mara (sf) Note: Science: | Unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mea (sf) CN Description 18.277 36 Paved parking, HSG A 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Weighted Average 19.639 98 Weighted Average 5.0 Direct Entry, Direct | Unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mea (sf) CN Description 18.277 36 Paved parking, HSG A 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Weighted Average 19.639 98 Weighted Average 5.0 Direct Entry, Direct | Unoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Mea (sf) CN Description 18,277 30 Perced parking, HSG A 19,33 90 Weighted Average 19,33 100,00% impervious Area Total State Average 5.0 Direct Entry, Direct Total State Average 9038-POST V3 State Average Total State Average 9038-POST V3 Total State Average Total State Average 9038-POST V3 Total State Average Page 132 9038-POST V3 Subcatchment DA3a: IDA3a impervious Page 132 | Inofi by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Prove description 18.277 98 Paved parking, HSG A 19.638 90.000% Impervious Area | Med (JH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Prove description 18,277 30 Page Tay 19,638 90 Weighted Average 19,638 100.00% Impervious Area Total Length 5.0 Direct Entry, Direct Statewalk, HSG 5.0 Direct Entry, Direct Horsley Witten Group, Inc. 70,000 Type III 24-Hr 25YR Raintal-36/2021 Page 132 Page 132 Subcatchment DA3a: DA3a impervious Hydrograph | Anoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
pe II 24-hr 25YR Rainfall=6.12" Area (of) 0. Description 18,277 98 Paved parking, HSG A 19,638 98 Weighted Average 19,638 98 Weighted Average 19,638 98 Weighted Average 19,638 900,00% Impervious Area Tc Tc Length Slope Velocity Capacity 5.0 Direct Entry, Direct Direct Entry, Direct Horsley Witten Group, Inc. 9038-POST V3 Type III 24-hr 25 VFR Rainfall=6.1221 Page 132 Brospared by Morsley Witten Group, Inc. Type III 24-hr 25 VFR Rainfall=6.1221 Page 132 | Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 25YR Rainfall=6.12* Area (sf) Ch Description 19.638 98 Paved parking, HSG A |
|--|--|--|--|--
--

---|--
--|--|--
---|--
---|--|--|--|--|---
---|
| irect Horsley Witten Group, Inc. Type III 24-hr 25'VR Rainfall=6.12" | Type III 24-hr 25YR Rainfall=6.12* Area (s) Ch Description 1,361 98 Sidewalk, HSG A 1,9638 90 Weighted Average 19,638 10,00% Impervious Area To Length Slope 5.0 Direct Entry, Direct | System Bit 224 hr 25YR Rainfalle6.12" Area (sf) N Description 18.277 98 Peved parking, HSG A 19.638 98 Weighted Average 19.638 100.00% Impervious Area Example 5.0 Direct Entry, Direct | System Bit 224 hr 25YR Rainfalle6.12" Area (sf) N Description 18.277 98 Peved parking, HSG A 19.638 98 Weighted Average 19.638 100.00% Impervious Area Example 5.0 Direct Entry, Direct | System Bit 224 hr 25YR Rainfalle6.12" Area (sf) N Description 18.277 98 Peved parking, HSG A 19.638 98 Weighted Average 19.638 100.00% Impervious Area Example 5.0 Direct Entry, Direct | Spell 24-hr 25YR Rainfall=6.12" Area (s1) CN 18,277 98 19,333 98 19,333 100.00% Impervious Area Canadian 10.00% Impervious Area Canadia 10.00% Impervious Area Canadia 10.00% Impervious Area Solution (thit) Canadia (thit) Solution

 | Spell 24-hr 25YR Rainfall=6.12" Area (s1) CN 18,277 98 19,333 98 19,333 100.00% Impervious Area Canadian 10.00% Impervious Area Train (feet) (http://discover.org/particle/comparison/compervisi | System (J) CN Description 18.277 98 Peed parking, HSG A 19.638 98 Weighted Average 19.638 100.00% Impervious Area Tmin) (feet) (th) 5.0 Direct Entry, Direct
 | Ype III 24-hr 25YR Rainfall=6.12" Area (s1) CN 18.277 80 19.633 91 19.633 92 Vitti (Uti) (Uti) (Itilde Average) 19.633 93 19.633 94 (Uti) (Uti) (Itilde Average) 19.637 000% Impervious Area 5.0 Direct Entry, Direct | System 12 24-hr 25YP Rainfall=6.12" Area (sf) N Description 18.277 98 Peeved parking, HSG A 19.638 98 Weighted Average 19.638 100.00% Impervious Area | ype III 24-hr. 25YR Rainfall=6.12" Mea (sf) CN Description 18,271 88 Paved parking, HSG A 19,333 98 Weighted Average 5.0 Direct Entry, Direct Subsects and the second average of the sec | Med 24/hr 25YR Rainfall=6.12* Area (of CN Description 18.27/1 98< Paved parking, HSG A 19.33 98 Weighted Average 19.33 98 Weighted Average 19.33 100.00% Impervious Area To Length Stope Velocity Capacity Description (min) (text) (thit) 5.0 Direct Entry, Direct
 | Med (2f) CN Description 18.271 36 Paved parking, HSG A 19.33 98 Weighted Average 19.33 98 Weighted Average 19.33 100.00% Impervious Area To Length Stope Velocity Capacity Description (min) (text) (thit) (titsec) 5.0 Direct Entry, Direct Stope Velocity Capacity Description Stope Velocity Capacity Direct Entry, Direct Stope Velocity Capacity Description 6.0 Direct Entry, Direct Stope Velocity Capacity Description 9038-POST V3 Forsley Witten Group, Inc. Type III 24-In 25 YR Rainfall-6.27 Page 132 Subcatchment DA3a: IDA3a impervious Page 132 | Provide UP 24-br. 25YR Rainfall=6.12" Area (sf) CN 18.277 96 19.638 98 Veilder Average 19.633 19.638 100.00% Impervious Area To Length Slope Velocity Capacity Description (min) (feet) (fth) 5.0 Direct Entry, Direct Horsley Witten Group, Inc. (get) 4.005/ey Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12" Printed 3/5/2021 Printed 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3a: DA3a impervious | Mrea (cf) CN Description 18.277 98 Paved parking, HSG A 19.638 98 Weighted Average 19.638 100.00% Impervious Area Tc Length Slope Velocity Capacity Description (min) (feet) (fth) (fth) 5.0 Direct Entry, Direct
 | Processor Processor Meas (b) CN 18.277 80 19.638 90 Uelocity Capacity Description 19.638 100.00% Impervious Area Tc Length 5.0 Direct Entry, Direct | Press Area (cf) CN Description 18,277 96 Paved parking, HSG A 19,633 100,00% Impervious Area Tc Length Slope Velocity Capacity Description | Peril 24-br 25YR Rainfall=6.12* Area (cf) CN 18,277 96 19,638 98 19,638 98 19,638 100,00% Impervious Area Tc Length 5.0 Direct Entry, Direct | Procession Procession Area (of) CN Description 18,277 98 Peved parking, HSG A 19,638 98 Weighted Average 19,638 100.00% Impervious Area Ec. Tc Length Slope Velocity Capacity 5.0 Direct Entry, Direct | Type III 24-hr 25YR Rainfall=6.12" Area (s) CN Description 18,237 98 Psied parking, HSG A 19,638 98 Weighted Average 19,638 90 Weighted Average 19,638 90 Weighted Average 19,638 90 Weighted Average 19,638 190,00% Impervious Area To Length Stope Velocity Capacity Description (min) (teet) (t/ft) (teet) (t/ft) (t/sec) (sold) Direct Entry, Direct |
| Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfall=6.12" | 18,277 98 Paved parking, HSG A 13,613 98 Weighted Average 19,033 100.00% Impervious Area To Length Slope Velocity Capacity Description (min) (fet) (ft/ft) 5.0 Direct Entry, Direct | 18.277 98 Paved parking, HSG A 19.638 98 Weighted Average 19.638 98 100.00% Impervious Area To Length (thin) (min) (test) Cashing 5.0 Direct Entry, Direct | 18.277 98 Paved parking, HSG A 19.638 98 Weighted Average 19.638 98 100.00% Impervious Area To Length (thin) (min) (test) Cashing 5.0 Direct Entry, Direct | 18.277 98 Paved parking, HSG A 19.638 98 Weighted Average 19.638 98 100.00% Impervious Area To Length (thin) (min) (test) Cashing 5.0 Direct Entry, Direct | 13277 98 Paved parking, HSG A 1361 99 Sidewick, HSG A 19633 98 Weighted Average 19633 100.00% impervious Area

 | 13277 98 Paved parking, HSG A 1361 99 Sidewick, HSG A 19638 98 Sidewick, HSG A 19638 98 Sidewick, HSG A 19638 100.00% impervious Area | 18.277 98 Paved parking, HSG A 19.638 98 Weighted Average 19.638 98 Weighted Average 19.638 98 Used Weighted Average To Length (thin) (theth) (thisec) Cds) 5.0 Direct Entry, Direct
 | 1.321 98 Stedwards, HSG A 1.361 98 Sidewick, HSG A 19.633 98 Uou00% Impervious Area To Length (tr/ft) Uesciption fmin (tell) (tr/ft) Uesciption 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-In 25YR Bainfall-6.12 Pogas-POST V3 Printed 35/2021 Prepared by Horsley Witten Group, Inc. Printed 35/2021 Prepared by Horsley Witten Group, Inc. Printed 35/2021 Page 132 Subcatchment DA3a: DA3a impervious August Hydrograph 1 2.80 cfs | 18,277 98 Paved parking, HSG A 13,638 98 Weighted Average 19,638 90,00% Impervious Area Tc Length Sige velocity 5.0 Direct Entry, Direct | 18,277 98 Paved parking, HSG A 13,61 98 Sidewilk, HSG A 19,633 98 Weighted Average 19,633 90 Weighted Average 19,633 100.00% Impervious Area To Length (thtf) (thsec) 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct | 18,277 98 Paved parking, HSG A 18,633 98 Sidewick, HSG A 19,633 98 Sidewick, HSG A 19,633 98 Sidewick, HSG A 19,633 100.00% Impervious Area 7 Length (ft/ft) 100.00% Impervious Area Impervious Area 5.0 Direct Entry, Direct 9038-POST 3 Biorder Witten Group, Inc. 100.00% Utten Group, Inc. Type III 24-thr 25YR Rainfall=6.127 100.00% Utten Group, Inc. Printed 3/5/201 100.00% Utten Group, Inc.
 | 18,277 98 Paved parking, HSG A 18,033 98 Sidewick, HSG A 19,633 98 Sidewick, HSG A 19,633 90 Sope Velocity Capacity Description ching (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct 9038-POST 3 Biology Witten Group, Inc. Type III 24-thr 25/YR Rainfall=6.127 19038-POST 3 Subcatchment DA3ai: DA3a impervious Page 132 Subcatchment DA3ai: DA3a impervious | 18,277 98 Paved parking, HSG A 13,618 98 Sidewik, HSG A 19,638 98 Sidewik, HSG A 19,638 100.00% Impervious Area Impervious Area To Length (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct Sidewik, HSG A Impervious Area 5.0 Direct Entry, Direct Sidewik, HSG A Impervious Area 5.0 Direct Entry, Direct Impervious Area Impervious Area 5.0 Direct Entry, Direct Impervious Area Impervious Area 5.0 Direct Entry, Direct Impervious Area Impervious Area 9033-POST V3 Traped Risk Area Traped Risk Area Impervious Area 9033-POST V3 Subcatchment DA3a: DA3a impervious Page 132 9032-POST V3 Subcatchment DA3a: DA3a impervious Page 132 | 18,277 98 Paved parking, HSG A 13,618 98 Sidewik, HSG A 19,638 98 Sidewik, HSG A 19,638 100.00% Impervious Area Impervious Area To Length (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct Sidewik, HSG A Impervious Area 5.0 Direct Entry, Direct Sidewik, HSG A Impervious Area 5.0 Direct Entry, Direct Impervious Area Impervious Area 5.0 Direct Entry, Direct Impervious Area Impervious Area 5.0 Direct Entry, Direct Impervious Area Impervious Area 9033-POST V3 Impervious Area Impervious Area Impervious Area 9033-POST V3 Impervious Area Impervious Area Impervious Area 9032-POST V3 Impervious Area Impervious Area Impervious Area 9033-POST V3 Impervious Area Impervious Area Impervious Area 9033-POST V3 Impervious Area Impervious Area Impervious Area 9033-POST V3 Impervious Area Impervious Area Impervious Area 9
 | 18.277 96 Paved parking, HSG A 1.361 96 Sidewark, HSG A 19.633 90.00% Impervious Area Tc Length (fuff) (fuff) (fuff) (fusc) 5.0 Direct Entry, Direct | 18,277 98 Paved parking, HSG A 18,961 98 Sidewick, HSG A 19,638 98 Weighted Average 19,638 98 Sidewick, HSG A 19,638 98 Sidewick, HSG A 19,638 98 Weighted Average 19,638 100.00% Impervious Area | 18,277 98 Paved parking, HSC A 18,61 98 Sidewalk, HSC A 19,638 98 Weighted Average 19,638 98 Weighted Average 19,638 98 Sidewalk, HSC A 19,638 98 Weighted Average 19,638 900,00% Impervious Area Tc Length (ht/ft) (ft/sec) 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct | 1,8277 98 Paved parking, HSG A 1,833 98 Weighted Average 19,333 100.00% Impervious Area To Length Slope (fet) (fut) (futsec) 5.0 Direct Entry, Direct | 18,277 98 Paved parking, HSG A 19,638 98 Weighted Average 19,638 100.00% Impervious Area (cfs) To Length Slope Velocity Capacity Description (min) (fetet) (ft/ft) (ft/sec) (cfs) Direct Entry, Direct 5.0 Direct Entry, Direct Morale Horaley Witten Group, Inc. 19038-POST V3 Type III 24-hr 25 VR Rainfall=6.12* |
| Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfall=6.12" | 1.361 98 Sidewalk, HSG A 19.638 98 Weighted Average 19.638 100.00% Impervious Area To Length Slope (min) (feet) (ft/fsec) (cfs) 0 5.0 Direct Entry, Direct | 1,361 96 Sidewalk, HSGA 19,638 98 Weighted Average 19,638 100.00% Impervious Area To: Length Slope Velocity Capacity Description 5.0 Direct Entry, Direct | 1,361 96 Sidewalk, HSGA 19,638 98 Weighted Average 19,638 100.00% Impervious Area To: Length Slope Velocity Capacity Description 5.0 Direct Entry, Direct | 1,361 96 Sidewalk, HSGA 19,638 98 Weighted Average 19,638 100.00% Impervious Area To: Length Slope Velocity Capacity Description 5.0 Direct Entry, Direct | 9038-POST V3
9038-POST V3 9038-
 | 9038-POST V3 9040 9040 9040 9040 9040 9040 9040 904 | 1361 96 Sidewalk HSGA
19638 96 Weighted Average
100.00% Impervious Area
To Length Slope Velocity Capacity Description
5.0 Direct Entry, Direct
5.0 Direct Entry, Direct
19038-POST V3
19038-POST V | 1361 98 Sidewalk, HSGA
19.638 98 Weighted Average
19.638 98 Weighted Average
19.638 98 Weighted Average
19.638 98 Weighted Average
5.0 Direct Entry, Direct
5.0 Direct Entry, Direct
19038-POST V3
19038-POST V3 | 1.361 98 Sidewalk, HSG A 19,638 98 Weighted Average 19,638 100.00% Impervious Area To: Length Slope Velocity Capacity Description 5.0 Direct Entry, Direct
 | 9038-POST V3 9038-POST V3 9038-POST V3 19 content DA3al: DA3a impervious 9038-POST V3 19 content DA3al: DA3a impervious 9038-POST V3 10 content DA3al: DA3a impervious 9038-POST V3 10 content DA3al: DA3a impervious 9038-POST V3 10 content DA3al: DA3a impervious 9038-POST V3 10 content DA3al: DA3a impervious 9038-POST V3 10 content DA3al: DA3a impervious 9038-POST V3 10 content DA3al: DA3a impervious 9038-POST V3 10 content DA3al: DA3a impervious 9038-POST V3 10 content DA3al: DA3a impervious 9038-POST V3 10 content POS POST V3 10 content POST POST POST POST POST POST POST POST | 1.361 98 Sidewalk, HSG A 19,633 98 Weighted Average 19,633 98 Weighted Average Tc Length Slope Velocity Capacity 5.0 Direct Entry, Direct Horsley Witten Group, Inc. 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Trepared by Horsley Witten Group, Inc. repared by Horsley Witten Group, Inc. Type III 24-thr 25/YR Rainfall-6. 12' Prinze Subcatchment DA3ai: DA3a impervious Hydrograph | 1.361 95 Sidewalk, HSG A 19,633 98 Weijheld Average 19,633 100.00% Impervious Area Tc Length Slope 10,633 Utff! (ft/ft) 10,633 Utff! Direct Entry, Direct 9038-POST V3 Prostey Witten Group, Inc. Prostey Witten Group, Inc. Prostey Witten Group, Inc. Printed 3/5/2021 Prostey Witten Group, Inc. Printed 3/5/2021 Proge 10 00-022 ain 01445 @ 2018 HydroCAD Software Solutions LLC Printed 3/5/2021
 | 1361 96 Sidewalk, HSG A 19,638 98 Weighted Average 19,638 100.00% Impervious Area Tc Length Slope (fete) (ft/ft) (ft/sec) (cfs) Direct Entry, Direct | 1361 96 Sidewaik, HSG A 19,638 98 Weighted Average 19,638 100.00% Impervious Area Tc Length Slope (fete) (ft/ft) (ft/sec) (cfs) Direct Entry, Direct | 1361 96 Sidewalk, HSG A 19,638 98 Weighted Average 19,638 100.00% Impervious Area Tc Length Slope (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct | 1.361 98 Sidewalk, HSG A 19,638 98 Weighted Average 19,638 100.00% Impervious Area Tc Length Stope (fuff) (fuff) (fuff) (feet) (fuff) (fuff) 5.0 Direct Entry, Direct | 1.361 98 Sidewalk, HSG A 19,638 98 Weighted Average 19,638 100.00% Impervious Area Tc Length Slope (fuft) (fuft) Capacity Description (fest) (fuft) (fest) (fuft) (fuft) 5.0 Direct Entry, Direct
 | 1.361 98 Velocity Capacity Description 19.638 100.00% Impervious Area Tc Length Stope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) 5.0 Direct Entry, Direct | 1.361 98 Sidewalk, HSG A
19.638 98 Weighted Average
19.638 100.00% Impervious Area
To Length Slope Velocity Capacity Description
(min) (feet) (ft/ft) (ft/sec) (cfs)
5.0 Direct Entry, Direct
5.0 Horsey Witten Group, Inc.
Horsley Witten Group, Inc.
19038-POST V3 |
| Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfall=6.12" | 19,638 100.00% Impervious Area
To Length Slope Velocity Capacity Description
(min) (feet) (th/t) (th/sec) (cfs)
5.0 Direct Entry, Direct
Horsey Witten Group, Inc.
Horsey Witten Group, Inc.
Type III 24-hr 25 YR Rainfall=6.12" | 19.633 100.00% Impervious Area Tim Length Slope Velocity Casacity Description 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct | 19.633 100.00% Impervious Area Tim Length Slope Velocity Casacity Description 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct | 19.633 100.00% Impervious Area Tim Length Slope Velocity Casacity Description 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct | 19.38 100.00% Impervious Area Trin Length Slope Velocity Casacity 5.0 Direct Entry, Direct 9038-POST V3 Pipared by Horsley Witten Group, Inc. Typered by Horsley Witten Group, Inc. Pipared by Horsley Witten Group, Inc. Pipared by Horsley Witten Group, Inc. Subcatchment DA3at: DA3a Impervious Pipared 10.00-22. sin 01445. © 2018 HydroCA0 Software Solutions LLC

 | 19.38 100.00% Impervious Area Trin Length Slope Velocity Cescription 5.0 Direct Entry, Direct 9038-POST V3 Pipared by Horsley Witten Group, Inc. Typer III 24-hr 23/YR Rainfall-6.12* Pipared by Horsley Witten Group, Inc. Pipared by Horsley Wit | 19.53 100.00% Impervious Area Tmin Length Slope Velocity Casacity Description 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct
 | 19.53 100.00% Impervious Area Tm Length Slope Velocity Casacity Description 5.0 Direct Entry, Direct 9038-POST V3 Direct Entry, Direct Horsley Witten Group, Inc. 19.038-POST V3 Type III 24-th r 28/7 Rainfall-6.12* Page 132 Subcatchment DA3al: DA3a Impervious Automation Junct Type III 24-thr | 19.533 100.00% Impervious Area Tro Length Slope Velocity Capacity Description 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct | 19,38 100.00% Impervious Area Trip Length Slope Velocity Capacity Description 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct | 19,33 100.00% Impervious Area Tric Length Slope Velocity Capacity Description 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct
 | 19,33 100.00% Impervious Area Triple Length Slope Velocity Capacity Description 5.0 Direct Entry, Direct 9038-POST 33 Prosley Witten Group, Inc. Propried by Horsley Witten Group, Inc. Printed 3/5/2021 Propried By Horsley Witten Group, Inc. Printed 3/5/2021 | 19,638 100.00% Impervious Area Train Length Slope Velocity Capacity Description (rine) (ft/ht) (ft/sec) (cfs) 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct So38-POST V3 Page 132 | 19,638 100.00% Impervious Area
Tr Length Slope Velocity Capacity Description
(rine (feet) (fuft) (fufsec) (cfs)
5.0 Direct Entry, Direct
5.0 Direct Entry, Direct
9038-POST V3
Posses Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Witten Group, Inc.
Proteily Wi | 19,638 100.00% Impervious Area Tre Length Slope Velocity Capacity Description (rfset) (ft/ft)
(ft/sec) (cfs) Direct Entry, Direct 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12* Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Horsley Kiten Group, Inc. Horsley Kiten Group, Inc. Printed 3/5/2021 Page 132 | 19,638 100.00% Impervious Area To: Length Stope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct | 19,638 100.00% Impervious Area Te Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct | 19,638 100.00% Impervious Area Train Length Slope Velocity Capacity Oescription | 19,638 100.00% Impervious Area
To Length Slope Velocity Capacity Description
(min) (teet) (th/t) (th/sec) (cfs)
5.0 Direct Entry, Direct
Horsley Witten Group, Inc.
Horsley Witten Group, Inc.
19038-POST V3 |
| Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfall=6.12" | Inter the second | (min) (ft/ft) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct 10038-POST V3 Horsley Witten Group, Inc. Prepared by Horsley Witten Group, Inc. Type III 24-hr 25 VR Rainfall=6.12* Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 Prepared by Group 10:00-22 sin 01:445 @ 2018 HydroCAD Software Solutions LLC Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph Immediate 1 Immediate | (min) (ft/ft) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct 10038-POST V3 Horsley Witten Group, Inc. Prepared by Horsley Witten Group, Inc. Type III 24-hr 25 VR Rainfall=6.12* Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 Prepared by Group 10:00-22 sin 01:445 @ 2018 HydroCAD Software Solutions LLC Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph Immediate 1 Immediate | (min) (ft/ft) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct 10038-POST V3 Horsley Witten Group, Inc. Prepared by Horsley Witten Group, Inc. Type III 24-hr 25 VR Rainfall=6.12* Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 Prepared by Group 10:00-22 sin 01:445 @ 2018 HydroCAD Software Solutions LLC Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph Immediate 1 Immediate | (min) (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct 9038-POST V3 Horsley Witten Group, Inc. Prograd by Horsley Witten Group, Inc. Provide Horsley Witten Group, Inc. Prograd by Horsley Witten Group, Inc. Printed 3/5/2021 Printed 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph Import 3 Import

 | (min) (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct 9038-POST V3 Horsley Witten Group, Inc. Prograd by Horsley Witten Group, Inc. Type III 24-hr 25 VR Rainfall=6.12" Prograd by Horsley Witten Group, Inc. Printed 3/5/2021 Program Group Horsley Group Ho | (min) (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct 10038-POST V3 Horsley Witten Group, Inc. Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 Prepared by Group 10:00-22 sin 01:445 @ 2018 HydroCAD Software Solutions LLC Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph Immet 1 Immet | (min) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct 9038-POST V3 Horsley Witten Group, Inc. Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 Prepared by Group 1 Runot
 | Immodel (refer) (rt/ft) (ft/sec) (rds) 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12* Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12* Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12* Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12* Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12* Prepared by Horsley Witten Group, Inc. Page 132 Subcatchment DA3a: DA3a impervious Hydrograph | (min) (ft/ft) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12* Printed 3/5/2021 Printed 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | (min) (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct 9038-POST V3 Horsley Witten Group, Inc. repared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12" Printed 3/5/2021 Printed 3/5/2021 YebcADB 10.00-22 sin 01445 @ 2018 HydrocAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a Impervious 4 2.80 cfs
 | (min) (feet) (ft/ft) (ft/sec) (cs) 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-hr: 25 YR Rainfall=6.12* Printed 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | (min) (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct 9038-POST V3 Horsley Witten Group, Inc. Program Dy Horsley Witten Group, Inc. Type III 24-In: 25 YR Reinfall=6, 12' Program Dy Horsley Witten Group, Inc. Printed 35/2021 YdroCAD® 10.00-22 sin 01445 @ 2018 HydroCAD Software Solutions LLC Printed 35/2021 Subcatchment DA3ai: DA3a impervious Hydrograph | (min) (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct 9038-POST V3 Horsley Witten Group, Inc. Propared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Reinfall=6, 12" Program by Horsley Witten Group, Inc. Printed 35/2021 YdroCAD® 10.00-22 sin 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | (min) (feld) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct 9038-POST V3 Forsley Witten Group, Inc. 7026240 Morsley Witten Group, Inc. 7026240 Pointed 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph
 | (min) (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-hr: 25 YR Rainfall=6, 12" Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | (min) (feet) (ft/ft) (ft/sec) (cfs) 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12* Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | (min) (ft/ft) (ft/fsec) (cfs) 5.0 Direct Entry, Direct 5.0 Direct Entry, Direct 9038-POST V3 Horsley Witten Group, Inc. Pagerad by Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious | Interview Witten Group, Inc.
Horsley Witten Group, Inc.
Type III 24-thr 25YR Rainfall=6.12' |
| Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfall=6.12" | 5.0 Direct Entry, Direct
Horsley Witten Group, Inc.
19038-POST V3 Type III 24-hr 25YR Rainfall-6.12" | 5.0 Direct Entry, Direct | 5.0 Direct Entry, Direct | 5.0 Direct Entry, Direct | 5.0 Direct Entry, Direct 9038-POST V3 Pepared by Horsley Witten Group, Inc. 1000-22 sin 01445 @ 2018 HydroCAD Software Solutions LLC 9038-POST V3 Pepared by Horsley Witten Group, Inc. Page 132 Page 132 Current DA3a: DA3a impervious Hydrograph Current
Current Cur
 | 5.0 Direct Entry, Direct 9038-POST V3 Pepared by Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12* Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 1 2.80 cfs 1 Camofi Camo | 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12* Printed 3/5/2021
Printed 3/5/2021 Pr | 5.0 Direct Entry, Direct Solution Solution Solution Direct Entry, Direct Horsley Witten Group, Inc. Solution | 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: 25 YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Type III 24-In: | 5.0 Direct Entry, Direct Solution Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfal=6.12* Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a Impervious Hydrograph Runof Run Run Run Run Run Run Run R | 5.0 Direct Entry, Direct Bogas-POST V3
Bogas-POST V3 Boga | 5.0 Direct Entry, Direct Bogas-POST V3 Fepared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12* Frepared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12* Frepared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12* Frepared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12* Frepared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12* Frepared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12* Frepared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12* Frepared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12* Frepared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12* Frepared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12* Frepared by Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12* Frepared by Horsley Witten Group, Inc. Frepared by | 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-hr 25/YR Rainfall=6.12* Pepared by Horsley Witten Group, Inc. Type III 24-hr 25/YR Rainfall=6.12* Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 5.0 Direct Entry, Direct BUSB-POST V3 repared by Horsley Witten Group, Inc. Type III 24-hr 25/VR Rainfall=6.12* Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph
 | 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-hr 25 VR Rainfall=6.12* Printed 3/5/2021 Printed 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-hr 25 VR Rainfall=6.12" Pinted 3/5/2021 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/5/202 Pinted 3/ | 5.0 Direct Entry, Direct Horsley Witten Group, Inc. Type III 24-hr 25 YR Rainfall=6.12" Printed 3/5/2021 Printed 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 5.0 Direct Entry, Direct
Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfall=6.12"
Pinted 3/5/2021
Pinted 3/5/2021
Page 132
Subcatchment DA3ai: DA3a impervious | 5.0 Direct Entry, Direct
Horsley Witten Group, Inc.
19038-POST V3 Type III 24-hr 25YR Rainfall=6.12 |
| Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfall=6.12" | Horsley Witten Group, Inc.
19038-POST V3 | Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfall=6.12*
Pepared by Horsley Witten Group, Inc.
Perated by Horsley Witten Group, Inc.
Protocol 10.00-22 sin 01445 e2018
Bubcatchment DA3a: DA3a Impervious
Eucocol 10.00-22 sin 0145 for the solution state
Bubcatchment DA3a: DA3a Impervious
Bubcatchment DA3a Impervious
Bubcatchment DA3a Impervi | Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfall=6.12*
Pepared by Horsley Witten Group, Inc.
Perated by Horsley Witten Group, Inc.
Protocol 10.00-22 sin 01445 e2018
Bubcatchment DA3a: DA3a Impervious
Eucocol 10.00-22 sin 0145 for the solution state
Bubcatchment DA3a: DA3a Impervious
Bubcatchment DA3a Impervious
Bubcatchment DA3a Impervi | Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfall=6.12*
Pepared by Horsley Witten Group, Inc.
Perated by Horsley Witten Group, Inc.
Protocol 10.00-22 sin 01445 e2018
Bubcatchment DA3a: DA3a Impervious
Eucocol 10.00-22 sin 0145 for the solution state
Bubcatchment DA3a: DA3a Impervious
Bubcatchment DA3a Impervious
Bubcatchment DA3a Impervi | Morsley Witten Group, Inc.
19038-POST V3
Pepared by Horsley Witten Group, Inc.
1907 Protocol 10.00:22 sh 01445 92018 Hydrocol 20 Software Solutions LLC
Subcatchment DA3a: DA3a Impervious
Hydrograph
1
1
1
1
1
1
1
1
1
1
1
1
1 | Morsley Witten Group, Inc.
19038-POST V3
Pepared by Horsley Witten Group, Inc.
1907 France Data State Solutions LLC
Subcatchment DA3a: DA3a impervious
1917 France Solutions LLC
1919 France Solutions LLC
1919 France Solutions LLC
1919 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC
1910 France Solutions LLC | Horsley Witten Group, Inc.
Type III 24-hr 25 YR Rainfall=6.12*
Person by Horsley Witten Group, Inc.
Person | Horsley Witten Group, Inc.
Type III 24-hr 25 YR Rainfall=6.12*
Person by Horsley Witten Group, Inc.
Person | Horsley Witten Group, Inc.
Type III 24-thr 25 VR Rainfall=6.12*
Prepared by Horsley Witten Group, Inc.
Type 2002 2* in 01445 0= 2018 Horsley Witten Group, Inc.
Type 2012 Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Type 2012 Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Type 2012 Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared by Horsley Witten Group, Inc.
Prepared | Bossepost va
Bossepost va
Bo | Poss-POST V3
Poss-POST V3
Poss-POST V3
Poss-POST V3
Poss-POST V45 © 2018 HydrogCAD Software Solutions LLC
Poss-POST V3
Poss-POST V3
Pos | Poss-POST V3
Poss-POST V3
Poss-POST V3
Poss-POST V3
Poss-POST V45 © 2018 HydrocAD Software Solutions LLC
Poss-POST V3
Poss-POST V3
Poss | Horsley Witten Group, Inc.
19038-POST V3
repared by Horsley Witten Group, Inc.
1906AD® 10.00-22 sh 01445 @ 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | Morsley Witten Group, Inc.
19038-POST V3
repared by Vorsley Witten Group, Inc.
19062AD® 10.00-22 sin 01445 @ 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | Boss-POST V3
repared by Horsley Witten Group, Inc.
repared by Horsley Witten Group, Inc.
repared by Horsley Witten Group, Inc.
printed 3/5/2021
Prage 132
Subcatchment DA3ai: DA3a impervious
Hydrograph | Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfall=6.12"
Printed 3/5/2021
Page 132
Subcatchment DA3ai: DA3a impervious
Hydrograph | Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfail=6.12"
repared by Horsley Witten Group, Inc.
repared by Horsley Witten Group, Inc.
repared by Horsley Witten Group, Inc.
Bubcatchment DA3ai: DA3a impervious
Hydrograph | Horsley Witten Group, Inc.
19038-POST V3
repared by Horsley Witten Group, Inc.
Printed 3/5/2021
Printed 3/5/2021 | Horsley Witten Group, Inc.
19038-POST V3 |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Intel 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Intel 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Intel 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Intel 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Intel 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Intel 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Intel 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Intel 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Type III 24-hr 25YR Rainfall=6.12" | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | Ig038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr

 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 1ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr
 | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 tydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph 3 2.80 cfs Type III 24-hr | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Printed 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 Subcatchment DA3ai: DA3a impervious Imprinted 3/5/2021 Page 132 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs
 | 9038-POST V3
repared by Horsley Witten Group, Inc.
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph
3 2.80 cfs | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph Runoff | 9038-POST V3 repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Subcatchment DA3ai: DA3a impervious Hydrograph
 | 9038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious Hydrograph | 2038-POST V3
repared by Horsley Witten Group, Inc.
rdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC
Subcatchment DA3ai: DA3a impervious
Hydrograph | 3038-POST V3 Type III 24-hr 25YR Rainfall=6.12" repared by Horsley Witten Group, Inc. Printed 3/5/2021 vdroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 Subcatchment DA3ai: DA3a impervious | 19038-POST V3 Type III 24-hr 25YR Rainfall=6.12" |
| Printed 3/5/2021 | Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 | Subcatchment DA3ai: DA3a impervious
Hydrograph
3-
2.80 cfs
Type III 24-hr | Subcatchment DA3ai: DA3a impervious
Hydrograph
3-
2.80 cfs
Type III 24-hr | Subcatchment DA3ai: DA3a impervious
Hydrograph
3-
2.80 cfs
Type III 24-hr | Subcatchment DA3ai: DA3a impervious
Hydrograph

 | Subcatchment DA3ai: DA3a impervious
Hydrograph
3
2.80 cfs
Type III 24-hr | Subcatchment DA3ai: DA3a impervious
Hydrograph
3-
2.80 cfs
Type III 24-hr
 | Subcatchment DA3ai: DA3a impervious
Hydrograph
3
2.80 cfs
Type III 24-hr | Subcatchment DA3ai: DA3a impervious
Hydrograph | Subcatchment DA3ai: DA3a impervious
Hydrograph | Subcatchment DA3ai: DA3a impervious
Hydrograph
 | Subcatchment DA3ai: DA3a impervious
Hydrograph | Subcatchment DA3ai: DA3a impervious
Hydrograph | Subcatchment DA3ai: DA3a impervious
Hydrograph
 | Subcatchment DA3ai: DA3a impervious Hydrograph | Subcatchment DA3ai: DA3a impervious Hydrograph | Subcatchment DA3ai: DA3a impervious Hydrograph | Subcatchment DA3ai: DA3a impervious | Prenared by Horsley Witten Group Inc Printed 3/5/2021 |
| s LLC Page 132 | | 3-
2.80 cfs
Type III 24-hr
 | 3-
2.80 cfs
Type III 24-hr
 | 3-
2.80 cfs
Type III 24-hr | 3-
2.80 cfs
Type III 24-hr | Hydrograph
3-
2.80 cfs | Hydrograph
3 2.80 cfs
 | Hydrograph
3-
2.80 cfs | Hydrograph
3-
2.80 cfs
 | Hydrograph | Hydrograph | Hydrograph | Hydrograph | Hydrograph |
 | HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 132 |
| t DA3ai: DA3a impervious | Subcatchment DA3ai: DA3a impervious | 3-
2.80 cfs
Type III 24-hr
 | 3-
2.80 cfs
Type III 24-hr
 | 3-
2.80 cfs
Type III 24-hr | 3-
2.80 cfs
Type III 24-hr | Hydrograph
3-
2.80 cfs | Hydrograph
3 2.80 cfs
 | Hydrograph
3-
2.80 cfs | Hydrograph
3-
2.80 cfs
 | Hydrograph | Hydrograph | Hydrograph | Hydrograph | Hydrograph |
 | Subcatchment DA3ai: DA3a impervious |
| | | 3-
2.80 cfs
Type III 24-hr | 3-
2.80 cfs
Type III 24-hr | 3-
2.80 cfs
Type III 24-hr | ³
2.80 cfs
Type III 24-hr

 | ³ 2.80 cfs Type III 24-hr | 3-
2.80 cfs
Type III 24-hr
 | ³ 2.80 cfs Type III 24-hr | 3-
2.80 cfs | 3 2.80 cfs | 3- 2.80 cfs
 | 3- 2.80 cfs | |
 | | | | | |
| | Hydrograph | ³ Type III 24-hr
 | ³ Type III 24-hr
 | | ³ Type III 24-hr | ³⁻¹ 2.80 cfs | $^{3-1}$ 2.80 cfs
 | ³ 2.80 cfs | $^{3-1}$ 2.80 cfs
 | 3-1 2 80 cfs | 3 1 / 1 + + + + + + + + + + + + + + + + + | | | |
 | |
| graph | | Type III 24-hr | Type III 24-hr | Type III 24-hr | Type III 24-hr

 | Type III 24-hr | Type III 24-hr
 | Type III 24-hr | | |
 | | | ² 2.80 cts
 | 3-1 2 80 cfs | | | | |
| graph | | | | |

 | |
 | | | | | |
 | 1 Type III 24-hr | |
 | | | ³ 2.80 cfs | 3-1 2.80 cfs | Runoff |
| graph | 3- 2.80 cfs | | | |

 | |
 | 25VR Rainfall=6 12" | | | | |
 | | Type III 24-hr |
 | | | 31 2.80 cfs | ³⁻ 2.80 cfs | 3-2.80 cfs |
| graph
Type III 24-hr | 3-
2.80 cfs
Type III 24-hr | | | |

 | |
 | | 1 1 25YR Rainfall=6.12" | 25YR Rainfall=6.12" |
 | | | Type III 24-hr
 | Type III 24-hr | Type III 24-hr | | Type III 24-hr | 3-
2.80 cfs
Type III 24-hr |
| Type III 24-hr
25YR Rainfall=6.12" | 3
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12" | | | |

 | |
 | 1 / | | | 25YR Rainfall=6.12"
 | 25YR Rainfall=6.12" | 25YR Rainfall=6.12" | Type III 24-hr
25YR Rainfall=6.12"
 | Type III 24-hr
25YR Rainfall=6.12" | Type III 24-hr
25YR Rainfall=6.12" | Type III 24-hr
25YR Rainfall=6.12" | Type III 24-hr
25YR Rainfall=6.12" | 3-
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12" |
| Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf | ³ 2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf | | | |

 | |
 | Runoff Area=19,638 sf | Runoff Area=19,638 sf | Runoff Area=19,638 sf | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf | 25YR Rainfall=6.12"
Runoff Area=19,638 sf | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
 | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf | ³ 2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf |
| Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | ³
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | ² Runoff Volume=0.221 af | ² Runoff Volume=0.221 af | ² Runoff Volume=0.221 af | ² Runoff Volume=0.221 af

 | ² Runoff Volume=0.221 af | ² Runoff Volume=0.221 af
 | Runoff Area=19,638 sf
Runoff Volume=0.221 af | ² Runoff Area=19,638 sf
Runoff Volume=0.221 af | Runoff Area=19,638 sf
Runoff Volume=0.221 af | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
 | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | ³
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | 3
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af |
| Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf | ³
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | ² Runoff Volume=0.221 af | ² Runoff Volume=0.221 af | ² Runoff Volume=0.221 af | ² Runoff Volume=0.221 af

 | ² Runoff Volume=0.221 af | ² Runoff Volume=0.221 af
 | Runoff Area=19,638 sf
Runoff Volume=0.221 af | ² Runoff Area=19,638 sf
Runoff Volume=0.221 af | Runoff Area=19,638 sf
Runoff Volume=0.221 af | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
 | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | ³
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af | 3
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af |
| Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88" | 3 2.80 cfs Type III 24-hr 2 25YR Rainfall=6.12" 2 Runoff Area=19,638 sf 3 Runoff Volume=0.221 af 9 Runoff Depth=5.88" | ²-
ि
ि Runoff Volume=0.221 af
Runoff Depth=5.88" | ²-
ि
ि Runoff Volume=0.221 af
Runoff Depth=5.88" | ²-
ि
ि Runoff Volume=0.221 af
Runoff Depth=5.88" | ²-
ि
ि Runoff Volume=0.221 af
Runoff Depth=5.88"

 | ²-
ि
ि Runoff Volume=0.221 af
Runoff Depth=5.88" | ²-
ि
ि Runoff Volume=0.221 af
Runoff Depth=5.88"
 | Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88" | 2
2
हैं
हैं
2
2
2
3
3
3
3
3
3
3
3
3
3
3
3
3
3
3
3 | Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88" | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88" | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88" | 2
2
2
2
2
2
2
2
2
2
2
2
2
2
 | 2
2
2
2
2
2
2
2
2
2
2
2
2
2 | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88" | ³
2
2
2
2
2
3
2
2
2
2
2
2
2
2
2
2
2
2
2 | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88" | 3
2.80 cfs
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88" |
| Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min | 3
2.80 cfs
2
2
2
2
3
2
2
2
3
2
2
2
3
2
2
2
3
2
2
3
2
2
2
3
3
2
2
3
3
2
2
3
3
3
3
3
3
3
3
3
3
3
3
3 | ି
ଞ୍ଜି
ଜୁ
ଜୁ
ଅନ୍ମ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ | ି
ଞ୍ଜି
ଜୁ
ଜୁ
ଅନ୍ମ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ | ି
ଞ୍ଜି
ଜୁ
ଜୁ
ଅନ୍ମ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ | ି
ଞ୍ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜ

 | ି
ଞ୍ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜ | ି
ଞ୍ଜି
ଜୁ
ଜୁ
ଅନ୍ମ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
ଅନୁ
 | Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min | 2 Runoff Area=19,638 sf 2 Runoff Volume=0.221 af अ Runoff Depth=5.88" अ Tc=5.0 min | Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min | 2 Type III 24-hr 25YR Rainfall=6.12" Runoff Area=19,638 sf Runoff Volume=0.221 af Runoff Depth=5.88" Tc=5.0 min
 | 2 Type III 24-hr 25YR Rainfall=6.12" Runoff Area=19,638 sf Runoff Volume=0.221 af Runoff Depth=5.88" Tc=5.0 min | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min | 3 2.80 cfs Type III 24-hr 25YR Rainfall=6.12" Runoff Area=19,638 sf 2 Runoff Volume=0.221 af 9 Runoff Depth=5.88" 8 Tc=5.0 min | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min | 3
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min |
| Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88" | 3
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min | Provide a structure Provide a structure Provide a structure Provide a stru | Provide a structure Provide a structure Provide a structure Provide a stru | Provide a structure Provide a structure Provide a structure Provide a stru | Provide a structure Provide a
structure Provide a structure Provide a structure Provide a structure Provide a structure Provide a structure Provide a structure<
 | Provide a structure Provide a structure Provide a structure Provide a structure <td>Provide State Provide State Provide Sta</td> <td>ୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ</td> <td>Provide the second state of the second state o</td> <td>Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4</td> <td>2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4</td> <td>Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>³
²
²
²
²
³
²
²
²
³
²
²
²
³
²
³
²
²
³
²
³
³
²
³
³
³
³
³
³
⁴
²
³
³
³
³
⁴
²
³
³
³
³
⁴
³
³
⁴
³
³
⁴
³
⁴
⁴
⁵
³
⁴
⁴
⁴
⁵
⁵
⁵
⁴
⁴
⁵
⁵
⁵
⁵
⁶
¹
¹
¹
¹
¹
¹
¹
¹</td> <td>Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>3
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> | Provide State Provide State Provide Sta | ୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
 | Provide the second state of the second state o | Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98
 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4 | 2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4
 | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | ³
²
²
²
²
³
²
²
²
³
²
²
²
³
²
³
²
²
³
²
³
³
²
³
³
³
³
³
³
⁴
²
³
³
³
³
⁴
²
³
³
³
³
⁴
³
³
⁴
³
³
⁴
³
⁴
⁴
⁵
³
⁴
⁴
⁴
⁵
⁵
⁵
⁴
⁴
⁵
⁵
⁵
⁵
⁶
¹
¹
¹
¹
¹
¹
¹
¹ | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 3
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 |
| Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min | S Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | Provide State Provide State Provide Sta | Provide State Provide State Provide Sta | Provide State Provide State Provide Sta | Provide a structure Provide a
structure Provide a structure Provide a structure Provide a structure Provide a structure Provide a structure Provide a structure<
 | Provide a structure Provide a structure Provide a structure Provide a structure <td>Provide State Provide State Provide Sta</td> <td>ୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ</td> <td>Provide the second state of the second state o</td> <td>Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4</td> <td>2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4</td> <td>Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>³
²
²
²
²
³
²
²
²
³
²
²
²
³
²
³
²
²
³
²
³
³
²
³
³
³
³
³
³
⁴
²
³
³
³
³
⁴
²
³
³
³
³
⁴
³
³
⁴
³
³
⁴
³
⁴
⁴
⁵
³
⁴
⁴
⁴
⁵
⁵
⁵
⁴
⁴
⁵
⁵
⁵
⁵
⁶
¹
¹
¹
¹
¹
¹
¹
¹</td> <td>Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>3
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> | Provide State Provide State Provide Sta | ୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
 | Provide the second state of the second state o | Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98
 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4 | 2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4
 | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | ³
²
²
²
²
³
²
²
²
³
²
²
²
³
²
³
²
²
³
²
³
³
²
³
³
³
³
³
³
⁴
²
³
³
³
³
⁴
²
³
³
³
³
⁴
³
³
⁴
³
³
⁴
³
⁴
⁴
⁵
³
⁴
⁴
⁴
⁵
⁵
⁵
⁴
⁴
⁵
⁵
⁵
⁵
⁶
¹
¹
¹
¹
¹
¹
¹
¹ | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 3
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 |
| Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min | S Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | Provide State Provide State Provide Sta | Provide State Provide State Provide Sta | Provide State Provide State Provide Sta | Provide a structure Provide a
structure Provide a structure Provide a structure Provide a structure Provide a structure Provide a structure Provide a structure<
 | Provide a structure Provide a structure Provide a structure Provide a structure <td>Provide State Provide State Provide Sta</td> <td>ୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ</td> <td>Provide the second state of the second state o</td> <td>Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4</td> <td>2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4</td> <td>Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>³
²
²
²
²
³
²
²
²
³
²
²
²
³
²
³
²
²
³
²
³
³
²
³
³
³
³
³
³
⁴
²
³
³
³
³
⁴
²
³
³
³
³
⁴
³
³
⁴
³
³
⁴
³
⁴
⁴
⁵
³
⁴
⁴
⁴
⁵
⁵
⁵
⁴
⁴
⁵
⁵
⁵
⁵
⁶
¹
¹
¹
¹
¹
¹
¹
¹</td> <td>Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>3
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> | Provide State Provide State Provide Sta | ୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
 | Provide the second state of the second state o | Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98
 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4 | 2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4
 | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | ³
²
²
²
²
³
²
²
²
³
²
²
²
³
²
³
²
²
³
²
³
³
²
³
³
³
³
³
³
⁴
²
³
³
³
³
⁴
²
³
³
³
³
⁴
³
³
⁴
³
³
⁴
³
⁴
⁴
⁵
³
⁴
⁴
⁴
⁵
⁵
⁵
⁴
⁴
⁵
⁵
⁵
⁵
⁶
¹
¹
¹
¹
¹
¹
¹
¹ | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 3
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 |
| Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min | 3
2.80 cfs
Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | Provide State Provide State Provide Sta | Provide State Provide State Provide Sta | Provide State Provide State Provide Sta | Provide a structure Provide a
structure Provide a structure Provide a structure Provide a structure Provide a structure Provide a structure Provide a structure<
 | Provide a structure Provide a structure Provide a structure Provide a structure <td>Provide State Provide State Provide Sta</td> <td>ୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ</td> <td>Provide the second state of the second state o</td> <td>Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4</td> <td>2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4</td> <td>Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>³
²
²
²
²
³
²
²
²
³
²
²
²
³
²
³
²
²
³
²
³
³
²
³
³
³
³
³
³
⁴
²
³
³
³
³
⁴
²
³
³
³
³
⁴
³
³
⁴
³
³
⁴
³
⁴
⁴
⁵
³
⁴
⁴
⁴
⁵
⁵
⁵
⁴
⁴
⁵
⁵
⁵
⁵
⁶
¹
¹
¹
¹
¹
¹
¹
¹</td> <td>Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> <td>S Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98</td> | Provide State Provide State Provide Sta | ୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
ଜୁ
 | Provide the second state of the second state o | Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98
 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | 2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4 | 2
2
2
3
3
3
3
4
4
4
4
4
4
4
4
4
4
4
4
4
 | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | ³
²
²
²
²
³
²
²
²
³
²
²
²
³
²
³
²
²
³
²
³
³
²
³
³
³
³
³
³
⁴
²
³
³
³
³
⁴
²
³
³
³
³
⁴
³
³
⁴
³
³
⁴
³
⁴
⁴
⁵
³
⁴
⁴
⁴
⁵
⁵
⁵
⁴
⁴
⁵
⁵
⁵
⁵
⁶
¹
¹
¹
¹
¹
¹
¹
¹ | Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 | S Type III 24-hr
25YR Rainfall=6.12"
Runoff Area=19,638 sf
Runoff Volume=0.221 af
Runoff Depth=5.88"
Tc=5.0 min
CN=98 |
| | Subcatchment DA3ai: DA3a impervious | | | |

 | |
 | 25VR Rainfall=6 12" | | |
 | | | ² 2.80 cts
 | 3-1 1 2 80 cfc | 3+1 Runot | | | Subcatchment DA3ai: DA3a impervious |
| | | 3-
2.80 cfs
Type III 24-hr | 3-
2.80 cfs
Type III 24-hr | 3-
2.80 cfs
Type III 24-hr | ³ 2.80 cfs Type III 24-hr

 | ³ 2.80 cfs Type III 24-hr | 3-
2.80 cfs
Type III 24-hr
 | ³ 2.80 cfs Type III 24-hr | 3-
2.80 cfs | 3 2.80 cfs | 3- 2.80 cfs
 | 3- 2.80 cfs | |
 | | | | the second second second second second second second second second second second second second second second se | |
| | Hydrograph | | | | ³ Type III 24-hr

 | ³ Type III 24-hr |
 | ³ Type III 24-hr | ³⁻¹ 2.80 cfs | $^{3-1}$ 2.80 cfs | ³ 2.80 cfs
 | $^{3-1}$ 2.80 cfs | | | | |
 | | | | | |
| graph | | | | |

 | |
 | | Type III 24-hr | 1 Type III 24-hr |
 | | | ² 2.80 cts
 | 3-1 2 80 cfs | $3 \neq 1$ | | | |
| graph | | | | |

 | |
 | | • • • • • • • • • • • • • • • • • • • | | | |
 | 1 Type III 24-hr | |
 | | | ³] 2.80 cfs | 3-1 2.80 cfs | Runoff |
| graph | 3-
2.80 cfs | | | 25YR Raintaii=6.12" | 25YR Rainfail=6.12"

 | 25YR Raintail=6.12" |
 | | | | | |
 | | |
 | | | 31 2.80 cfs | ³⁻ 2.80 cfs | 3-2.80 cfs |
| graph | 3-
2.80 cfs | | | |

 | |
 | 25VR Rainfall=6 12" | | | · · · · · · · · · · · · · · · · · · ·
 | | Type III 24-hr |
 | | | 31 2.80 cfs | ³⁻ 2.80 cfs | 3-2.80 cfs |
| graph
Type III 24-hr | 3-
2.80 cfs
Type III 24-hr | | | | 1

 | |
 | I I I I I I I I I I I I I I I I I I I | | |
 | | | Type III 24-hr
 | Type III 24-hr | Type III 24-hr | | Type III 24-hr | 3-
2.80 cfs
Type III 24-hr |
| graph
Type III 24-hr | 3-
2.80 cfs
Type III 24-hr | 1 / | 1 / | 1 / |

 | |
 | | | 25YR Rainfall=6 12" |
 | | | Type III 24-hr
 | Type III 24-hr | Type III 24-hr | | Type III 24-hr | ³ 2.80 cfs Type III 24-hr |
| graph
Runoff
Type III 24-hr | 3-
2.80 cfs
Type III 24-hr | 1 / | 1 / | 1 / |

 | |
 | | 25YR Rainfall=6.12" | 25YR Rainfall=6.12" |
 | | | Type III 24-hr
 | Type III 24-hr | Type III 24-hr | | Type III 24-hr | ³ 2.80 cfs Type III 24-hr |

unoff	=	0.01	A 12 /2	hrs, Volum	-		ent DA3b: DA3	•			
unoff b			-				0-72.00 hrs, dt= 0	0.01 brs			
ype III :	24-hr 25	YR Rainfa	ll=6.12"	So, weighte		5 Opan- 0.0	, , , , , , , , , , , , , , , , , , ,				
A	Area (sf) 2,324		escription 75% Grass	cover, Goo							
	1,936 4,260	30 W	oods, Good eighted Av	d, HSG A	a, 1100 A						
	4,260 4,260	35 W	0.00% Per	rvious Area							
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity [(cfs)	Description	I					
5.0	(ieet)	(1010)	(1/360)		Direct Enti	ry, Direct					
										Horsley	Witten Group Inc
	POST V								Type II		Witten Group, Inc. iYR Rainfall=6.12" Printed 2/5/2021
epare	ed by Ho	rslev Witt	en Group, 145 © 2018	Inc. HydroCAD S	Software So	lutions LLC			Type I		
epare	ed by Ho	rslev Witt	en Group, ! <u>45 © 2018</u>	HydroCAD S			3b: DA3b perv	rious	Type II		5YR Rainfall=6.12" Printed 3/5/2021
epare	ed by Ho	rslev Witt	en Group, 145 © 2018	HydroCAD S	Subcatch		3b: DA3b perv	/ious	Type II		5YR Rainfall=6.12" Printed 3/5/2021
epare droCA	ed by Ho	rslev Witt	en Group, 145 © 2018	HydroCAD S	Subcatch	nment DA	3b: DA3b perv	rious	Type II		5YR Rainfall=6.12" Printed 3/5/2021
epare <u>droCA</u> 0.	ed by Ho D® 10.00	rsley Witt -22 s/n 014	en Group, 145 © 2018	HydroCAD S	Subcatch	nment DA	3b: DA3b perv			124-hr 25	FYR Rainfall=6.12" Printed 3/5/2021 Page 134
epare droCA 0. 0.	ed by Ho D® 10.00	rsley Witt -22 s/n 014	145 © 2018	HydroCAD S	Subcatch	nment DA		Ту	pe III	124-hr 25 24-hr	FYR Rainfall=6.12" Printed 3/5/2021 Page 134
epare <u>droCA</u> 0. 0.	ed by Ho D® 10.00	rsley Witt -22 s/n 014	145 © 2018	HydroCAD S	Subcatch	nment DA	251	Ty (R Rai	pe III nfall=	124-hr 25 24-hr 6.12"	EYR Rainfall=6.12" Printed 3/5/2021 Page 134
0. 0. 0.	ed by Ho D® 10.00	rsley Witt -22 s/n 014	145 © 2018	HydroCAD S	Subcatch	nment DA	251	Ту	pe III nfall=	124-hr 25 24-hr 6.12"	EYR Rainfall=6.12" Printed 3/5/2021 Page 134
epare droCA 0. 0. 0. 0. 0.	.007- .007- .007- .006- .005-	rsley Witt -22 s/n 014	145 © 2018	HydroCAD S	Subcatch	nment DA	251	Ty (R Rai off Are	pe nfall= a=4,2	124-hr 25 24-hr 6.12''	First Rainfall=6.12" Printed 3/5/2021 Page 134
epare droCA 0. 0. 0. 0. 0. 0.	ed by Ho D® 10.00 .007 .006 .005	rsley Witt -22 s/n 014	145 © 2018	HydroCAD S	Subcatch	nment DA	25) Runo Runoff	Ty (R Rai off Are Volum	pe III nfall= a=4,2 ie=0.0	24-hr 25 24-hr 6.12" 60 sf 02 af	First Rainfall=6.12" Printed 3/5/2021 Page 134
0. 0. 0. 0. 0. 0. 0. 0.	ed by Ho D® 10.00 .007 .006 .005 .005	rsley Witt -22 s/n 014	145 © 2018	HydroCAD S	Subcatch	nment DA	25) Runo Runoff	Ty (R Rai off Are Volum noff D	pe III nfall= a=4,2 ie=0.0 epth=	24-hr 24-hr 6.12'' 60 sf 02 af 0.28''	First Rainfall=6.12" Printed 3/5/2021 Page 134
on (cts) (ct	ed by Ho D® 10.00 .007 .006 .005 .005 .004	rsley Witt -22 s/n 014	145 © 2018	HydroCAD S	Subcatch	nment DA	25) Runo Runoff	Ty (R Rai off Are Volum noff D	pe nfall= a=4,2 ie=0.0 epth= Tc=5.1	24-hr 25 24-hr 6.12" 60 sf 02 af 0.28") min	First Rainfall=6.12" Printed 3/5/2021 Page 134
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	ed by Ho D® 10.00 .007 .006 .005 .005 .004 .004	rsley Witt -22 s/n 014	145 © 2018	HydroCAD S	Subcatch	nment DA	25) Runo Runoff	Ty (R Rai off Are Volum noff D	pe nfall= a=4,2 ie=0.0 epth= Tc=5.1	24-hr 24-hr 6.12'' 60 sf 02 af 0.28''	First Rainfall=6.12" Printed 3/5/2021 Page 134
repare dr <u>droCA</u> 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed by Ho D® 10.00 .007 .007 .005 .005 .005 .004 .004 .003	rsley Witt -22 s/n 014	145 © 2018	HydroCAD S	Subcatch	nment DA	25) Runo Runoff	Ty (R Rai off Are Volum noff D	pe nfall= a=4,2 ie=0.0 epth= Tc=5.1	24-hr 25 24-hr 6.12" 60 sf 02 af 0.28") min	First Rainfall=6.12" Printed 3/5/2021 Page 134
epared droCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed by Ho D® 10.00 .007 .007 .006 .005 .005 .004 .004 .003 .003 .002 .002 .001	rsley Witt -22 s/n 014	145 © 2018	HydroCAD S	Subcatch	nment DA	25) Runo Runoff	Ty (R Rai off Are Volum noff D	pe nfall= a=4,2 ie=0.0 epth= Tc=5.1	24-hr 25 24-hr 6.12" 60 sf 02 af 0.28") min	First Rainfall=6.12" Printed 3/5/2021 Page 134
repare (droCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed by Ho D® 10.00 .007 .007 .006 .005 .004 .004 .004 .004 .003 .002	rsley Witt -22 s/n 014	145 © 2018	HydroCAD S	Subcatch	nment DA	25) Runo Runoff	Ty (R Rai off Are Volum noff D	pe nfall= a=4,2 ie=0.0 epth= Tc=5.1	24-hr 25 24-hr 6.12" 60 sf 02 af 0.28") min	First Rainfall=6.12" Printed 3/5/2021 Page 134

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 135

Runoff	=	1.45	cfs @ 12.0	7 hrs, Volu	ume= 0.115 af	f, Depth= 5.88"	
Runoff b	by SCS T	R-20 m	ethod, UH=S			0.00-72.00 hrs, dt= 0.01 hrs	
			infall=6.12"	-			
A	<u>Area (sf)</u> 9,486	<u>CN</u> 98	Description Paved park	ing, HSG A			
	693 10,179	98 98	Sidewalks, Weighted A	HŜG A			
	10,179	00	100.00% In	npervious A	rea		
Tc (min)	Length (feet)	Slop (ft/		Capacity (cfs)	Description		
5.0	((()	Direct Entry, Direct	t	
repare	- POST \ ed by Ho AD® 10.00	rsley V	Vitten Group 01445 © 201	8 HydroCAI) Software Solutions LLC Subcatchment DA	Horsley Witten Grou <i>Type III 24-hr 25YR Rainfal</i> Printed 3 <u>C Pa</u> A 3bi: DA3b impervious	II=6.12"
repare	ed by Ho	rsley V	Vitten Group 01445 © 201	8 HydroCAI		Type III 24-hr 25YR Rainfal Printed 3 C Printed 3 A3bi: DA3b impervious	II=6.12" 8/5/2021
repare	ed by Ho	rsley V	Vitten Group 01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 C Printed 3 A3bi: DA3b impervious	II=6.12" 3/5/2021 age 136
repare	ed by Ho	orsley V I-22 s/n	Vitten Group 01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 C Pa A3bi: DA3b impervious	II=6.12" 3/5/2021 age 136
repare	ed by Ho	orsley V I-22 s/n	01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 C Pa A3bi: DA3b impervious oh Type III 24-hr	II=6.12" 3/5/2021 age 136
repare	ed by Ho	orsley V I-22 s/n	01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 C Pa A3bi: DA3b impervious	II=6.12" 3/5/2021 age 136
repare	ed by Ho	orsley V I-22 s/n	01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 C Pa A3bi: DA3b impervious oh Type III 24-hr	II=6.12" 3/5/2021 age 136
repare	ed by Ho <u>D® 10.00</u>	orsley V I-22 s/n	01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 C Pa A3bi: DA3b impervious oh Type III 24-hr 25YR Rainfall=6.12" Runoff Area=10,179 sf	II=6.12" 3/5/2021 age 136
Prepare lydroCA	ed by Ho	orsley V I-22 s/n	01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 A3bi: DA3b impervious oh Type III 24-hr 25YR Rainfall=6.12" Runoff Area=10,179 sf Runoff Volume=0.115 af	II=6.12" 3/5/2021 age 136
Prepare lydroCA	ed by Ho <u>AD® 10.00</u>	orsley V I-22 s/n	01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 Pa A3bi: DA3b impervious oh Type III 24-hr 25YR Rainfall=6.12" Runoff Area=10,179 sf Runoff Volume=0.115 af Runoff Depth=5.88"	II=6.12" 3/5/2021 age 136
repare	ed by Ho <u>AD® 10.00</u>	orsley V I-22 s/n	01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 Pa A3bi: DA3b impervious Type III 24-hr 25YR Rainfall=6.12" Runoff Area=10,179 sf Runoff Volume=0.115 af Runoff Depth=5.88" Tc=5.0 min	II=6.12" 3/5/2021 age 136
Prepare lydroCA	ed by Ho <u>AD® 10.00</u>	orsley V I-22 s/n	01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfall Printed 3 Pa A3bi: DA3b impervious oh Type III 24-hr 25YR Rainfall=6.12" Runoff Area=10,179 sf Runoff Volume=0.115 af Runoff Depth=5.88"	II=6.12" 3/5/2021 age 136
Prepare lydroCA	ed by Ho <u>AD® 10.00</u>	orsley V I-22 s/n	01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 Pa A3bi: DA3b impervious Dh Type III 24-hr 25YR Rainfall=6.12" Runoff Area=10,179 sf Runoff Volume=0.115 af Runoff Depth=5.88" Tc=5.0 min	II=6.12" 3/5/2021 age 136
Prepare lydroCA	ed by Ho <u>AD® 10.00</u>	orsley V I-22 s/n	01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 Pa A3bi: DA3b impervious Dh Type III 24-hr 25YR Rainfall=6.12" Runoff Area=10,179 sf Runoff Volume=0.115 af Runoff Depth=5.88" Tc=5.0 min	II=6.12" 3/5/2021 age 136
Prepare lydroCA	ed by Ho <u>AD® 10.00</u>	orsley V I-22 s/n	01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 Pa A3bi: DA3b impervious Dh Type III 24-hr 25YR Rainfall=6.12" Runoff Area=10,179 sf Runoff Volume=0.115 af Runoff Depth=5.88" Tc=5.0 min	II=6.12" 3/5/2021 age 136
Prepare lydroCA	ed by Ho <u>AD® 10.00</u>	orsley V I-22 s/n	01445 © 201	8 HydroCAI	Subcatchment DA	Type III 24-hr 25YR Rainfal Printed 3 Pa A3bi: DA3b impervious Dh Type III 24-hr 25YR Rainfall=6.12" Runoff Area=10,179 sf Runoff Volume=0.115 af Runoff Depth=5.88" Tc=5.0 min	II=6.12" 3/5/2021 age 136

	_	0.04	ofc @ 1			•		Depth= 0.15"		-		
noff			cfs @ 14					Depth= 0.15"	01 bro			
	24-hr 25				vveigr	neu-CN, I	nne opan= 0.	00-72.00 hrs, dt= 0	UT NIS			
A	Area (sf)	CN	Descripti									
	4,662 21,479	30	Woods, (Good, ⊢	ISG A	ood, HSG	A					
	26,141 26,141	32	Weighter 100.00%			a						
	Length					Descrip	tion					
(<u>min)</u> 5.0	(feet)	(ft/f	:) (ft/se	C)	(cfs)	Direct E	Entry, Direct					
											Horsley	/ Witten Group Inc
	POST V		litter O							Туре		y Witten Group, Inc. 5YR Rainfall=6.12"
epare	ed by Hor	sley W	/itten Grc	up, Inc 018 Hyc	C. droCAI) Software	Solutions LLC			Туре		
epare	ed by Hor	sley W	′itten Grc 01445 ⊚2	up, Inc 018 Hyd	c. droCAI			A3c: DA3c pervi	ious	Туре		5YR Rainfall=6.12" Printed 3/5/2021
epare	ed by Hor	sley W	/itten Grc)1445 ⊚ 2	up, Inc 018 Hyc	C. droCAI				ious	Туре		5YR Rainfall=6.12" Printed 3/5/2021
epare	ed by Hor	sley W	/itten Gro 01445 © 2	up, Inc 018 Hyc	C. droCAI		atchment D		ious	Туре		5YR Rainfall=6.12" Printed 3/5/2021 Page 138
epare <u>droCA</u>	ed by Hor D® 10.00-	sley W)1445 © 2	up, Inc 018 Hyc	droCAL		atchment D				111 24-hr 2	5YR Rainfall=6.12" Printed 3/5/2021 Page 138
epare droCA	ed by Hor D® 10.00-	sley W)1445 © 2	018 Hyd	droCAL		atchment D		T \	/pe III	11 24-hr 2 24-hr	5YR Rainfall=6.12" Printed 3/5/2021 Page 138
epare droCA	ed by Hor D® 10.00-	sley W)1445 © 2	018 Hyd	droCAL		atchment D		T \		11 24-hr 2 24-hr	5YR Rainfall=6.12" Printed 3/5/2021 Page 138
epare droCA 0. 0. 0.	ed by Hor D® 10.00-	sley W)1445 © 2	018 Hyd	droCAL		atchment D	25Υ	Ty ′R Ra	/pe III infall=	24-hr 24-hr 6.12"	5YR Rainfall=6.12" Printed 3/5/2021 Page 138
epare droCA 0. 0. 0.	ed by Hor D® 10.00-	sley W)1445 © 2	018 Hyd	droCAL		atchment D	25Y Runol	Ty ′R Ra ff Are	/pe III infall= a=26,	24-hr 2 24-hr 6.12" 141 sf	5YR Rainfall=6.12" Printed 3/5/2021 Page 138
0. 0. 0. 0. 0.	ed by Hor D® 10.00-	sley W)1445 © 2	018 Hyd	droCAL		atchment D	25Y Runol Runoff	Ty ′R Ra ff Are Volur	/pe III infall= a=26, ne=0.	24-hr 24-hr 6.12" 141 sf 008 af	5YR Rainfall=6.12" Printed 3/5/2021 Page 138
0. 0. 0. 0. 0.	013 012 011 001	sley W)1445 © 2	018 Hyd	droCAL		atchment D	25Y Runol Runoff	Ty ′R Ra ff Are Volur noff D	/pe III infall= a=26, ne=0.0 9epth=	24-hr 24-hr 6.12" 141 sf 008 af 0.15"	5YR Rainfall=6.12" Printed 3/5/2021 Page 138
eparee droCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 8. €	ed by Hor D® 10.00-	sley W)1445 © 2	018 Hyd	droCAL		atchment D	25Y Runol Runoff	Ty ′R Ra ff Are Volur noff D	/pe III infall= a=26, ne=0.	24-hr 24-hr 6.12" 141 sf 008 af 0.15"	5YR Rainfall=6.12" Printed 3/5/2021 Page 138
epare <u>droCA</u> 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed by Hor D® 10.00-	sley W)1445 © 2	018 Hyd	droCAL		atchment D	25Y Runol Runoff	Ty ′R Ra ff Are Volur noff D	/pe III infall= a=26, ne=0.0 Pepth= Tc=5.	24-hr 24-hr 6.12" 141 sf 008 af 0.15"	5YR Rainfall=6.12" Printed 3/5/2021 Page 138
epare droCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed by Hor D® 10.00- 013 012 011 0.012 0.011 0.009 0.009 0.008	sley W)1445 © 2	018 Hyd	droCAL		atchment D	25Y Runol Runoff	Ty ′R Ra ff Are Volur noff D	/pe III infall= a=26, ne=0.0 Pepth= Tc=5.	24-hr 24-hr 6.12" 141 sf 08 af 0.15" 0 min	5YR Rainfall=6.12" Printed 3/5/2021 Page 138
epare droCA 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed by Hor D® 10.00-	sley W)1445 © 2	018 Hyd	droCAL		atchment D	25Y Runol Runoff	Ty ′R Ra ff Are Volur noff D	/pe III infall= a=26, ne=0.0 Pepth= Tc=5.	24-hr 24-hr 6.12" 141 sf 08 af 0.15" 0 min	5YR Rainfall=6.12" Printed 3/5/2021 Page 138
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	ed by Hor D® 10.00- 013 012 011 0.012 0.011 0.011 0.001 0.008 0.007 0.006	sley W)1445 © 2	018 Hyd	droCAL		atchment D	25Y Runol Runoff	Ty ′R Ra ff Are Volur noff D	/pe III infall= a=26, ne=0.0 Pepth= Tc=5.	24-hr 24-hr 6.12" 141 sf 08 af 0.15" 0 min	5YR Rainfall=6.12" Printed 3/5/2021 Page 138
.0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	ed by Hor D® 10.00- 013 012 011 0.012 0.011 0.011 0.009 0.008 0.007 0.006 0.005	sley W)1445 © 2	018 Hyd	droCAL		atchment D	25Y Runol Runoff	Ty ′R Ra ff Are Volur noff D	/pe III infall= a=26, ne=0.0 Pepth= Tc=5.	24-hr 24-hr 6.12" 141 sf 08 af 0.15" 0 min	5YR Rainfall=6.12" Printed 3/5/2021 Page 138

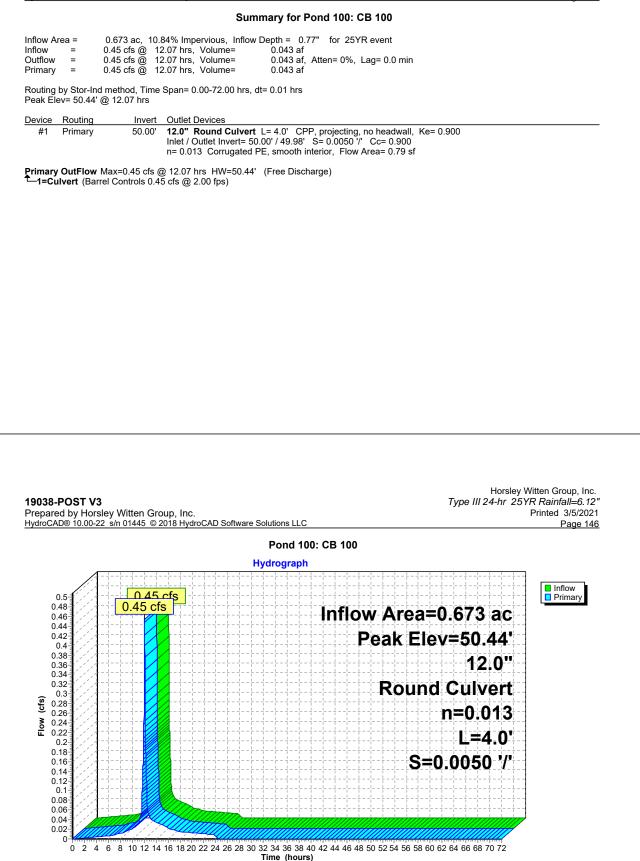
Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

											DA3ci:		mβ		uð						
Runoff	=) 12.0							th= 5.88										
	y SCS TF 24-hr 25				SCS,	Weigl	hted-C	N, Tim	e Span=	0.00-7	2.00 hrs,	dt= 0.0	01 hr	S							
	rea (sf)	CN		criptior	ı																
	2,649 530	98 98	Pave	ed parl walks,	king,		A														_
	3,179	98	Weig	ghted /	Avera	ige															-
	3,179			00% Ir																	
Tc (min)	Length (feet)	Slop (ft/1		elocity ft/sec)		pacity (cfs)		cription													
5.0			<i>,</i> , ,				Dire	ect Ent	ry, Direc	t											_
																	Но	rsley V	Vitten	Group, Inc	
	POST V		Vitton	Crow	n Ind										Ty	pe II		r 25Y	'R Rai	infall=6.12	"
repare	POST V d by Hor D® 10.00-	sley V	Vitten	Grou © 202	p, Inc	C. droCA	D Softv	ware So	lutions LL	.C					Ty	pe II		r 25Y	'R Rai		1
repare	d by Ho	sley V	Vitten 01445	Grou © 20 ⁻	p, Ind 18 Hy	droCA					DA3c ir	nperv	viou		Ty	pe II		r 25Y	'R Rai	infall=6.12 d 3/5/202	1
repare	d by Ho	sley V	Vitten 01445	Grou © 20	p, Ind 18 Hy	droCA		catchr	nent D	A3ci:	DA3c ir	nperv	viou	s	Ty	pe II		r 25Y	'R Rai	infall=6.12 d 3/5/202	1
repare	d by Ho	sley V	Vitten 01445	Grou © 20	p, Ind 18 Hy	droCA		catchr		A3ci:	DA3c ir	nperv	riou:	S	<i>Ty</i>	pe II		r 25Y	'R Rai	infall=6.12 d 3/5/202	1
Prepare lydroCAI	ed by Hor D® 10.00-	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci:	DA3c ir	nperv	riou:	S		pe II		r 25Y	<i>R Rai</i> Printe	infall=6.12 d 3/5/202	1
Prepare lydroCAI 0.4 0.4	ed by Hoi D® 10.00	sley V	01445	Grou © 20'	18 Hy	droCA		catchr	nent D	A3ci:	DA3c ir	nperv	/iou				124-h	r 25Y	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare lydroCAI 0.4 0.4 0.4 0.4	2.5	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci:				Ty	De		124-h	r 25Y	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare lydroCAI 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	2.5 10.00	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci:					De		124-h	r 25Y	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare lydroCAI 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	2.5 0.5 48 46 44 42	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci:	2	2 5 YI		Ty _l Rair	oe nfa		124-h 24- 6.1	r 25Y hr 2"	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare lydroCAI 0.4 0.4 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	2.5	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci: ph	2 Ri	?5YI Ino	R I ff	Tyj Rair Are	pe nfa a=:	 = 3,1	24-h 24- 6.1 79	r 25Y hr 2''	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare lydroCAI 0.4 0.4 0.4 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	0.5 48 46 44 42 38 36 34 	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci: ph	2 Ri Runc	25YI JINO off V	R I ff	Tyj Rair Are um	De ∩fa a=: e=(= 3,1	24-h 24- 6.1 79 36	r 25Y hr 2" af	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare lydroCAI 0.4 0.4 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	0.5 48 46 44 42 38 36 34 	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci: ph	2 Ri Runc	25YI JINO off V	R I ff	Tyj Rair Are	De ∩fa a=: e=(= 3,1	24-h 24- 6.1 79 36	r 25Y hr 2" af	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare lydroCAI 0.4 0.4 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	0.5	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci: ph	2 Ri Runc	25YI JINO off V	R I ff	Tyj Rair Are um f De	oe nfa a=: e=(= 3,1 D.0 h=	124-h 6.1 79 36 5.8	r 25Y hr 2" af 8"	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare lydroCAI 0.4 0.4 0.4 0.4 0.5 0.0 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	2.5	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci: ph	2 Ri Runc	25YI JINO off V	R I ff	Tyj Rair Are um f De	oe nfa a=: e=(III II= 3,1).0 h= 5.(124-h 24- 6.1 79 36 5.8	r 259 hr 2" sf af 8"	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare lydroCAI (ydroCAI () () () () () () () () () () () () ()	2.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci: ph	2 Ri Runc	25YI JINO off V	R I ff	Tyj Rair Are um f De	oe nfa a=: e=(III II= 3,1).0 h= 5.(124-h 6.1 79 36 5.8	r 259 hr 2" sf af 8"	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare lydroCAI 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.5 48 46 44 44 42 38 36 34 	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci: ph	2 Ri Runc	25YI JINO off V	R I ff	Tyj Rair Are um f De	oe nfa a=: e=(III II= 3,1).0 h= 5.(124-h 24- 6.1 79 36 5.8	r 259 hr 2" sf af 8"	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare <u>tydroCAI</u> <u>tydroCAI</u> 0.4 0.4 0.4 0.4 0.4 0.4 0.5 0.3 0.3 0.3 0.3 0.3 0.3 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	2.5	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci: ph	2 Ri Runc	25YI JINO off V	R I ff	Tyj Rair Are um f De	pe nfa a=: e=(III II= 3,1).0 h= 5.(124-h 24- 6.1 79 36 5.8	r 259 hr 2" sf af 8"	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare <u>lydroCAI</u> <u>lydroCAI</u> 0.4 0.4 0.4 0.4 0.4 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	0.5- 0.5- 48- 46- 38- 39- 20- 18- 18- 18- 18- 18- 10- 08-	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci: ph	2 Ri Runc	25YI JINO off V	R I ff	Tyj Rair Are um f De	pe nfa a=: e=(III II= 3,1).0 h= 5.(124-h 24- 6.1 79 36 5.8	r 259 hr 2" sf af 8"	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1
Prepare HydroCAI HydroCAI 1 4 4 4 4 4 4 4 4 4 4 4 4 4	20.5 20.5 48 46 44 44 44 44 	sley V	01445	© 20	18 Hy	droCA		catchr	nent D	A3ci: ph	2 Ri Runc	25YI JINO off V	R I ff	Tyj Rair Are um f De	pe nfa a=: e=(III II= 3,1).0 h= 5.(124-h 24- 6.1 79 36 5.8	r 259 hr 2" sf af 8"	<i>R Rai</i> Printe	infall=6.12 d 3/5/202 Page 14	1

HydroCAD® 10.00-																	<u>1</u>
			Summ	ary fo	r Sub	ocatchme	nt DA3	d: DA3	d per	rvious	5						
Runoff =		@ 12.32 ł).000 af, De											
Runoff by SCS TF Type III 24-hr 25			 Weighte 	ed-CN,	Time S	Span= 0.00-	•72.00 h	rs, dt= 0.	.01 hrs	3							
Area (sf)		escription															
<u> </u>		<u>5% Grass c</u> 0.00% Perv			β A												_
Tc Length		Velocity C	apacity	Descrip	otion												
(min) (feet) 5.0	(ft/ft)	(ft/sec)	(cfs)	Direct I	Entry,	, Direct							 				_
						nent DA3	d: DA3	d pervi	ous								
		Æ		- + -!- +		Hydrograph					्न						
		H = 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1	0.000 cf			- + - - + - - + - - + - + - - + - - + - - + - + - - + - - + - - + - + - - + - - + - - +	Runoff	Ty YR Rai unoff A Volum unoff D	vpe III Infall Area= ne=0. epth= Tc=5	197 s 000 a	r						
			6 8 10 12 14	1 16 18 20 22	2 24 26 28	3 30 32 34 36 38 40 Time (hours)	42 44 46 48	50 52 54 56 5	58 60 62 6	4 66 68 70	72		 orsley	/ Witte	en Gro	oup, Inc	
Prepared by Hor	rsley Witte	en Group, I	nc.			Time (hours)	42 44 46 48	50 52 54 56 5	58 60 62 6	4 66 68 70		ype I		5YR I	R <i>ainfa</i> inted	oup, Ind all=6.12 3/5/202 Page 14	2″ 21
Prepared by Hor	rsley Witte	en Group, I 45 © 2018 H	nc. łydroCAD S	Software	e Soluti	Time (hours)					T	ype l		5YR I	R <i>ainfa</i> inted	all=6.12 3/5/202	2″ 21
Prepared by Hor HydroCAD® 10.00-	orsley Witte 1-22 s/n 014	en Group, I 45 © 2018 H	nc. IydroCAD S	Software	<u>e Soluti</u> Subc	Time (hours)	t DA3d	i: DA3c			T	ype I		5YR I	R <i>ainfa</i> inted	all=6.12 3/5/202	2″ 21
Prepared by Hor HydroCAD® 10.00- Runoff = Runoff by SCS TF	orsley Witte <u>-22 s/n 014</u> 0.67 cfs R-20 metho	en Group, I 45 © 2018 F @ 12.07 F od, UH=SC	nc. łydroCAD S Summar ırs, Volum	Software ry for S	<u>e Soluti</u> Subc	time (hours) ions LLC catchment	t DA3d	i: DA3c	d imp	ervio	T	ype I		5YR I	R <i>ainfa</i> inted	all=6.12 3/5/202	2″ 21
Prepared by Hoi HydroCAD® 10.00- Runoff = Runoff by SCS TF Fype III 24-hr 25' Area (sf)	nsley Witte -22 s/n 014 0.67 cfs R-20 metho YR Rainfal CN De	en Group, I 45 © 2018 F @ 12.07 F od, UH=SC: I=6.12" escription	nc. IydroCAD S Summar nrs, Volum S, Weighte	Software ry for S	<u>e Soluti</u> Subc	time (hours) ions LLC catchment	t DA3d	i: DA3c	d imp	ervio	T	ype I		5YR I	R <i>ainfa</i> inted	all=6.12 3/5/202	2″ 21
Prepared by Hoi HydroCAD® 10.00- Runoff = Runoff by SCS TF Fype III 24-hr 25'	nsley Witte -22 s/n 014 0.67 cfs R-20 metho YR Rainfal CN De 98 Pa	en Group, I 45 © 2018 F @ 12.07 F od, UH=SC3 I=6.12"	nc. IydroCAD S Summar nrs, Volurr S, Weighte 1, HSG A	Software ry for S ne= ed-CN, ⁻	<u>e Soluti</u> Subc	time (hours) ions LLC catchment	t DA3d	i: DA3c	d imp	ervio	T	ype I		5YR I	R <i>ainfa</i> inted	all=6.12 3/5/202	2″ 21
Prepared by Hor <u>HydroCAD® 10.00-</u> Runoff = Runoff by SCS TF Fype III 24-hr 25' <u>Area (sf)</u> <u>4,686</u> 4,686 Tc Length	0.67 cfs 0.67 cfs R-20 metho YR Rainfal <u>CN De</u> 98 Pa 10 Slope	en Group, I 45 © 2018 F @ 12.07 H od, UH=SC3 I=6.12" escription wed parking 0.00% Impe Velocity C	nc. HydroCAD S Summar nrs, Volum S, Weighte 1, HSG A ervious Are Capacity	Software ry for \$ ne= ed-CN, ⁻	e Soluti Subc 0 Time S	time (hours) ions LLC catchment	t DA3d	i: DA3c	d imp	ervio	T	ÿpe I		5YR I	R <i>ainfa</i> inted	all=6.12 3/5/202	2″ 21
Prepared by Hor <u>HydroCAD® 10.00-</u> Runoff = Runoff by SCS TF ype III 24-hr 25' <u>Area (sf)</u> <u>4,686</u> 4,686	rsley Witte -22 s/n 014 0.67 cfs R-20 metho YR Rainfal <u>CN De</u> 98 Pa 10	en Group, I 45 © 2018 F @ 12.07 F od, UH=SC3 I=6.12" escription ved parking 0.00% Impe	nc. HydroCAD S Summar nrs, Volum S, Weighte g, HSG A ervious Are capacity (cfs)	Software ry for \$ ne= ed-CN, ⁻	e Soluti Subc 0 Time S	time (hours) ions LLC catchment 0.053 af, De Span= 0.00-	t DA3d	i: DA3c	d imp	ervio	T	ype I		5YR I	R <i>ainfa</i> inted	all=6.12 3/5/202	2″ 21
Runoff by SCS TF Fype III 24-hr 25' Area (sf) 4,686 4,686 Tc Length (min) (feet)	0.67 cfs 0.67 cfs R-20 metho YR Rainfal <u>CN De</u> 98 Pa 10 Slope	en Group, I 45 © 2018 F @ 12.07 H od, UH=SC3 I=6.12" escription wed parking 0.00% Impe Velocity C	nc. <u>IydroCAD S</u> Summar nrs, Volum S, Weighte J, HSG A ervious Are Capacity (cfs)	Software ry for S ne= ed-CN, ⁻ ea Descrip Direct I	e Soluti Subc 0 Time S Dition Entry, cchme	time (hours) ions LLC catchment 0.053 af, De Span= 0.00-	t DA3d opth= 5. .72.00 h	i: DA3c 88" rs, dt= 0.	d imp	ervio	T	ype I		5YR I	R <i>ainfa</i> inted	all=6.12 3/5/202	2″ 21

repared by Horsley W ydroCAD® 10.00-22_s/n 0	1445 © 2018 HydroCAD Software Solutions LLC	Page 143
	Summary for Subcatchment R1E: EAST ROOF	
unoff = 1.62 c	fs @ 12.07 hrs, Volume= 0.127 af, Depth= 5.88"	
unoff by SCS TR-20 me /pe III 24-hr 25YR Rain	thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs fall=6.12"	
	Description Roofs, HSG A	
	100.00% Impervious Area	
Tc Length Slope (min) (feet) (ft/ft)	e Velocity Capacity Description) (ft/sec) (cfs)	
5.0	Direct Entry, Direct	
	Subcatchment R1E: EAST ROOF	
	Hydrograph Type III 24-h 25YR Rainfall=6.12 Runoff Area=11,331 s Runoff Volume=0.127 a Runoff Depth=5.88 Tc=5.0 min CN=9:	f f 1
	Time (hours)	
2038-DOST V3	Time (hours)	Horsley Witten Group, Inc.
epared by Horsley W		Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
epared by Horsley W	itten Group, Inc.	Type III 24-hr 25YR Rainfall=6.12"
repared by Horsley W /droCAD® 10.00-22 s/n 0	itten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
epared by Horsley W droCAD® 10.00-22 s/n 0 unoff = 1.43 c unoff by SCS TR-20 me	itten Group, Inc. <u>1445 © 2018 HydroCAD Software Solutions LLC</u> Summary for Subcatchment R1W: WEST ROOF ofs @ 12.07 hrs, Volume= 0.113 af, Depth= 5.88" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
epared by Horsley W droCAD® 10.00-22 s/n 0 unoff = 1.43 c unoff by SCS TR-20 me rpe III 24-hr 25YR Rain	itten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF fs @ 12.07 hrs, Volume= 0.113 af, Depth= 5.88" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs fall=6.12"	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
epared by Horsley W droCAD® 10.00-22 s/n 0 unoff = 1.43 c unoff by SCS TR-20 me pe III 24-hr 25YR Rain <u>Area (sf) CN</u> 10,000 98	itten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF ofs @ 12.07 hrs, Volume= 0.113 af, Depth= 5.88" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs fall=6.12" Description Roofs, HSG A	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
repared by Horsley W rdroCAD® 10.00-22 s/n 0 unoff = 1.43 c unoff by SCS TR-20 me rpe III 24-hr 25YR Rain Area (sf) CN 10,000 98 10,000	itten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF ofs @ 12.07 hrs, Volume= 0.113 af, Depth= 5.88" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs fall=6.12" Description Roofs, HSG A 100.00% Impervious Area	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
epared by Horsley W vdroCAD® 10.00-22 s/n 0 unoff = 1.43 c unoff by SCS TR-20 me rpe III 24-hr 25YR Rain Area (sf) CN 10,000 98 10,000 98 10,000 Tc Length Slope (min) (feet)	itten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF ofs @ 12.07 hrs, Volume= 0.113 af, Depth= 5.88" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs fall=6.12" Description Roofs, HSG A 100.00% Impervious Area velocity Capacity Description (ft/sec) (cfs)	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
epared by Horsley W vdroCAD® 10.00-22 s/n 0 unoff = 1.43 c unoff by SCS TR-20 me pe III 24-hr 25YR Rain Area (sf) CN 10,000 98 10,000 7c Length Slope	itten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF fs @ 12.07 hrs, Volume= 0.113 af, Depth= 5.88" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs fall=6.12" Description Roofs, HSG A 100.00% Impervious Area a Velocity Capacity Description) (ft/sec) (cfs) Direct Entry, Direct	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
unoff = 1.43 c unoff by SCS TR-20 me /pe III 24-hr 25YR Rain <u>Area (sf) CN</u> 10,000 98 10,000 Tc Length Slope (min) (feet) (ft/ft	itten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF ofs @ 12.07 hrs, Volume= 0.113 af, Depth= 5.88" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs fall=6.12" Description Roofs, HSG A 100.00% Impervious Area velocity Capacity Description (ft/sec) (cfs)	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021

Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 145



ydroCA							-						
					Su	immary for	Pond 200:	CB 200					
flow A flow utflow rimary econd	= = =	0.67 (0.67 (0.67 (rfs@ 1 rfs@ 1 rfs@ 1	97% Impe 2.07 hrs, 2.07 hrs, 2.07 hrs, 0.00 hrs,	Volume= Volume= Volume=	ow Depth = 5 0.053 af 0.053 af 0.053 af 0.000 af	, Atten= 0%						
	l by Stor-li lev= 52.29			Span= 0.0)0-72.00 hrs	s, dt= 0.01 hrs							
	Routing			Outlet De									
#1	Second	ary	52.70'	Inlet / Ou	tlet Invert=	ert L= 4.0' Cl 52.70' / 52.68'	S= 0.0050	'/ Cc= 0	.900	0.500			
#2	Primary		51.66'	8.0" Ro	und Culver	d PE, smooth t L= 50.0' Cl 51.66' / 51.41'	P, projectin	g, no head	dwall, Ke=	0.900			
#3	Second	201	55.79'	n= 0.013	Corrugated	d PE, smooth adth Broad-C	interior, Flov	<i>w</i> Area= 0	.35 sf				
#5	Gecond	ii y	55.75			40 0.60 0.80				0 2.50 3.	00 3.50	4.00 4.50	5.00
					nglish) 2.34	2.50 2.70 2	.68 2.68 2.	66 2.65 2	2.65 2.65	2.65 2.67	2.66 2	2.68 2.70 2.	.74 2.79
						29' (Free Disc	harge)						
				7 cfs @ 2.									
-1=Cı	ulvert (C	ontrols (0.00 cfs)	-		.66' (Free Di	scharge)						
-3=Br	road-Cres	ted Re	tangula:	r Weir (Co	ontrols 0.00	cfs)							
											Hors	slev Witten (Group. Inc.
	-POST V									Type I		sley Witten (25YR Rain Printo	nfall=6.12"
epare	ed by Ho	rsley W			CAD Softwar	re Solutions LLC				Type I		25YR Raiı	
epare	ed by Ho	rsley W			CAD Softwar		с 00: СВ 20(0		Туре І		25YR Raiı	nfall=6.12" d 3/5/2021
epare	ed by Ho	rsley W						0		Type I		25YR Raiı	nfall=6.12" d 3/5/2021
epare	ed by Ho	rsley W)1445 © :	2018 Hydro		Pond 2		D		Type I		25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148
epare	ed by Ho	rsley W	01445 ©)	67 cfs Z cfs		Pond 2	00: CB 20				II 24-hr	25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148
epare droCA	ed by Ho	rsley W	01445 © :	67 cfs Z cfs		Pond 2	00: CB 20	low 4	Area=	0.112	ll 24-hr	25YR Rain Printed	nfali=6.12" d 3/5/2021 <u>Page 148</u> ow tflow
epare droCA	ed by Ho AD® 10.00	rsley W	01445 ©)	67 cfs Z cfs		Pond 2	00: CB 20	low 4	\rea= k Ele	0.112	ll 24-hr	25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148
epare droCA	ed by Ho AD® 10.00	rsley W	01445 ©)	67 cfs Z cfs		Pond 2	00: CB 20	low 4	+ + -	0.112	ll 24-hr	25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148
epare droCA	ed by Ho AD® 10.00	rsley W	01445 ©)	67 cfs Z cfs		Pond 2	00: CB 20	low 4	+ + -	0.112	ll 24-hr	25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148
epare droCA	ed by Ho AD® 10.00 0.77 0.65 0.65 0.55	rsley W	01445 ©)	67 cfs Z cfs		Pond 2	00: CB 20	low 4	+ + -	0.112	ll 24-hr	25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148
epare droCA 0 0	ed by Ho AD® 10.00 0.7 0.65 0.65 0.55 0.55	rsley W	01445 ©)	67 cfs Z cfs		Pond 2	00: CB 20	low 4	+ + -	0.112	ll 24-hr	25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148
epare droCA 0 0	ed by Ho AD® 10.00 0.7 0.65 0.6 0.55 0.5 0.45 0.45	rsley W	01445 ©)	67 cfs Z cfs		Pond 2	00: CB 20	low 4	+ + -	0.112	ll 24-hr	25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148
Flow (cfs)	ed by Ho AD® 10.00 0.7 0.65 0.65 0.55 0.445 0.445	rsley W	01445 ©)	67 cfs Z cfs		Pond 2	00: CB 20	low 4	+ + -	0.112	ll 24-hr	25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148
Flow (cfs) 0 0 0 0 0	ed by Ho AD® 10.00 0.7 0.65 0.65 0.55 0.45 0.45 0.35 0.35	rsley W	01445 ©)	67 cfs Z cfs		Pond 2	00: CB 20	low 4	+ + -	0.112	ll 24-hr ? ac	25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148
Elow (cts) 0 0 0 0 0 0 0	ed by Ho AD® 10.00 0.7 0.65 0.65 0.55 0.445 0.445	rsley W	01445 ©)	67 cfs Z cfs		Pond 2	00: CB 20	low 4	+ + -	0.112	ll 24-hr ? ac	25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148
Elow (cts) 0 0 0 0 0 0 0	ed by Ho AD® 10.00 0.7 .65 0.6 0.55 0.5 0.4 5 0.4 5 0.4 5 0.4 5 0.4 5 0.3 0.3	rsley W	01445 ©)	67 cfs Z cfs		Pond 2	00: CB 20	low 4	+ + -	0.112	ll 24-hr ? ac	25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148
Elow (cts) 6 10 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by Ho AD® 10.00 0.7 .65 0.65 0.55 0.45 0.45 0.45 0.45 0.45 0.3 5 0.3 5 0.25 0.25	rsley W	01445 ©)	67 cfs Z cfs		Pond 2	00: CB 20	low 4	+ + -	0.112	ll 24-hr ? ac	25YR Rain Printed	nfali=6.12" d 3/5/2021 Page 148

0-

Inflow Outflow	rea = = =	2.80 cfs @	12.07 hrs, Volu 12.10 hrs, Volu							
Primary			12.10 hrs, Volu 12.10 hrs, Volu			.ay- 1.7 mi	1			
Routing Peak Ele	by Stor-Ir ev= 59.50	id method, Tim ' @ 12.10 hrs	e Span= 0.00-7 Surf.Area= 1.6	′2.00 hrs, dt= 0.01 h 64 sf Storage= 1,3	nrs 302 cf					
		0		or 0.236 af (100% o						
			nin (822.5 - 76							
/olume #1	Inv 58		orage Storage	e Description m Stage Data (Pris	matic) isted belo	w (Recalc)				
Elevatio		Surf.Area	Inc.Store	Cum.Store		w (rteoale)				
(fee 58.5	et)	(sq-ft) 800	(cubic-feet) 0	(cubic-feet) 0						
59.0 60.0	00	1,380 1,950	545 1,665	545 2,210						
Device	Routing	Inver		,						
#1	Primary	55.09	12.0" Roun	d Culvert L= 45.0' Invert= 55.09' / 54.3				900		
#2	Device ²	59.25	n= 0.013 Co	orrugated PE, smoo	oth interior, Flow A	rea= 0.79 s	sf	•		
#2 #3	Device		4.0" Round	Culvert L= 38.0'	CPP, projecting, I	no headwal	, Ke= 0.9			
#4	Device 3	58.50	n= 0.010 P\	VC, smooth interior, Exfiltration over Su	Flow Area= 0.09					
	201000	00.00								
	POST V									Vitten Group, Inc. <i>R Rainfall=6.12"</i> Printed 3/5/2021
Prepare	ed by Ho	sley Witten G	roup, Inc. 2018 HydroCAE) Software Solutions I	LLC					
Prepare HydroCA Primary 1=Cu 1=2= 3=	od by Hor D® 10.00- OutFlow Ilvert (Pa Orifice/G Culvert	sley Witten G 22 s/n 01445 @ Max=2.62 cfs sses 2.62 cfs c rate (Weir Cor Passes 0.10 cf	2018 HydroCAE	HW=59.50' (Free D ntial flow) ⊉ 1.63 fps) tential flow) 10 cfs)	Discharge)					R Rainfall=6.12" Printed 3/5/2021
Prepare HydroCA Primary 1=Cu 2= 3=	od by Hor D® 10.00- OutFlow Ilvert (Pa Orifice/G Culvert	sley Witten G 22 s/n 01445 @ Max=2.62 cfs sses 2.62 cfs c rate (Weir Cor Passes 0.10 cf	@ 12.10 hrs H f 5.90 cfs poter trols 2.53 cfs @ s of 0.63 cfs po	HW=59.50' (Free D ntial flow) D 1.63 fps) otential flow) 10 cfs) Pond	bischarge) d BIO1: BIO 1					R Rainfall=6.12" Printed 3/5/2021
Prepare HydroCA Primary 1=Cu 1=2= 3=	od by Hor D® 10.00- OutFlow Ilvert (Pa Orifice/G Culvert	sley Witten G 22 s/n 01445 © 7 Max=2.62 cfs sses 2.62 cfs c rate (Weir Cor Passes 0.10 cf ation (Exfiltrat	2018 HydroCAE @ 12.10 hrs H f 5.90 cfs poter itrols 2.53 cfs @ s of 0.63 cfs po ion Controls 0.1	HW=59.50' (Free D ntial flow) ⊉ 1.63 fps) tential flow) 10 cfs)	bischarge) d BIO1: BIO 1				-hr 25Y	/R Rainfali=6.12" Printed 3/5/2021 <u>Page 150</u>
Prepare HydroCA Primary 1=Cu 1=2= 3=	od by Hor D® 10.00- OutFlow Ilvert (Pa Orifice/G Culvert	sley Witten G 22 s/n 01445 © Max=2.62 cfs sses 2.62 cfs c rate (Weir Cor Passes 0.10 cf ation (Exfiltrat	2018 HydroCAE @ 12.10 hrs H f 5.90 cfs poter trols 2.53 cfs @ s of 0.63 cfs po ion Controls 0.1	HW=59.50' (Free D ntial flow) D 1.63 fps) otential flow) 10 cfs) Pond	bischarge) d BIO1: BIO 1 raph			Fype III 24	-hr 25Y	R Rainfall=6.12" Printed 3/5/2021
Prepare HydroCA Primary 1=Cu 2= 3=	ed by Hoi D® 10.00- OutFlow Ivert (P Orifice/C Culvert -4=Exfilt	sley Witten G 22 s/n 01445 © 7 Max=2.62 cfs sses 2.62 cfs c rate (Weir Cor Passes 0.10 cf ation (Exfiltrat	2018 HydroCAE @ 12.10 hrs H f 5.90 cfs poter trols 2.53 cfs @ s of 0.63 cfs po ion Controls 0.1	HW=59.50' (Free D ntial flow) D 1.63 fps) otential flow) 10 cfs) Pond	Discharge) BIO1: BIO 1 aph Inflov		a=1.2	⁷ ype III 24 27 ac	-hr 25Y	R Rainfalf=6.12" Printed 3/5/2021 Page 150
Prepare HydroCA Primary 1=Cu 2= 3=	ed by Hoi D® 10.00- OutFlow Ivert (P Orifice/C Culvert -4=Exfilt	sley Witten G 22 s/n 01445 © Max=2.62 cfs sses 2.62 cfs c rate (Weir Cor Passes 0.10 cf ation (Exfiltrat	2018 HydroCAE @ 12.10 hrs H f 5.90 cfs poter trols 2.53 cfs @ s of 0.63 cfs po ion Controls 0.1	HW=59.50' (Free D ntial flow) D 1.63 fps) otential flow) 10 cfs) Pond	bischarge) d BIO1: BIO 1 aph Inflov	eak E	1=1.2 lev={	⁷ ype III 24 27 ac 59.50'	-hr 25Y	R Rainfalf=6.12" Printed 3/5/2021 Page 150
Prepare HydroCA Primary 1=Cu 2= 3=	ed by Hor D® 10.00- P OutFlow Ivert (Pa Orifice/C Couvert -4=Exfilt	sley Witten G 22 s/n 01445 © Max=2.62 cfs sses 2.62 cfs c rate (Weir Cor Passes 0.10 cf ation (Exfiltrat	2018 HydroCAE @ 12.10 hrs H f 5.90 cfs poter trols 2.53 cfs @ s of 0.63 cfs po ion Controls 0.1	HW=59.50' (Free D ntial flow) D 1.63 fps) otential flow) 10 cfs) Pond	bischarge) d BIO1: BIO 1 aph Inflov		1=1.2 lev={	⁷ ype III 24 27 ac 59.50'	-hr 25Y	R Rainfalf=6.12" Printed 3/5/2021 Page 150
Prepare HydroCA Primary 1=Cu 1=2= 3=	ed by Hor D® 10.00- P OutFlow Ivert (Pa Orifice/G Coulvert -4=Exfilt	sley Witten G 22 s/n 01445 © Max=2.62 cfs sses 2.62 cfs c rate (Weir Cor Passes 0.10 cf ation (Exfiltrat	2018 HydroCAE @ 12.10 hrs H f 5.90 cfs poter trols 2.53 cfs @ s of 0.63 cfs po ion Controls 0.1	HW=59.50' (Free D ntial flow) D 1.63 fps) otential flow) 10 cfs) Pond	bischarge) d BIO1: BIO 1 aph Inflov	eak E	1=1.2 lev={	⁷ ype III 24 27 ac 59.50'	-hr 25Y	R Rainfalf=6.12" Printed 3/5/2021 Page 150
Prepare HydroCA Primary 1=Cu 1=2= 3=	ed by Hor D® 10.00- P OutFlow Ivert (Pa Orifice/C Couvert -4=Exfilt	sley Witten G 22 s/n 01445 © Max=2.62 cfs sses 2.62 cfs c rate (Weir Cor Passes 0.10 cf ation (Exfiltrat	2018 HydroCAE @ 12.10 hrs H f 5.90 cfs poter trols 2.53 cfs @ s of 0.63 cfs po ion Controls 0.1 80 cfs	HW=59.50' (Free D ntial flow) D 1.63 fps) otential flow) 10 cfs) Pond	bischarge) d BIO1: BIO 1 aph Inflov	eak E	1=1.2 lev={	⁷ ype III 24 27 ac 59.50'	-hr 25Y	R Rainfalf=6.12" Printed 3/5/2021 Page 150

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)

19038-POST V3Type III 24-hr 25YR Rainfall=6.1Prepared by Horsley Witten Group, Inc.Printed 3/5/20	= 1.19 cfs = 1.17 cfs = 1.17 cfs vy Stor-Ind method, v= 62.65' @ 12.09 l v detention time= 1.	c, 43.62% Impervious, Inflow Depth = 2.84" for 25YR event @ 12.07 hrs, Volume= 0.103 af
Inflow = 1.19 cfs @ 12.05 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.7 refs @ 12.07 hrs, Volume= 0.103 af Primary = 1.7 refs @ 12.07 hrs, Volume 0.103 af (100% of inflow) Setup = 1.7 refs @ 1.7 refs @ 12.07 hrs, Volume 0.103 af (PrimartoListed below (Recalc) Elevation Suting by Stor-Inductive from Store Cum.Store Cum.Store (Recalc) (Recalc) Elevation Suting by Stor-Inductive from Store Cum.Store Sutin for towe hrs, for woland kee 0.500	= 1.19 cfs = 1.17 cfs = 1.17 cfs vy Stor-Ind method, v= 62.65' @ 12.09 l v detention time= 1.	@ 12.07 hrs, Volume= 0.103 af
Inflow = 1.19 cfs @ 12.05 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.17 cfs @ 12.06 hrs, Volume= 0.103 af Primary = 1.7 refs @ 12.07 hrs, Volume= 0.103 af Primary = 1.7 refs @ 12.07 hrs, Volume 0.103 af (100% of inflow) Setup = 1.7 refs @ 1.7 refs @ 12.07 hrs, Volume 0.103 af (PrimartoListed below (Recalc) Elevation Suting by Stor-Inductive from Store Cum.Store Cum.Store (Recalc) (Recalc) Elevation Suting by Stor-Inductive from Store Cum.Store Sutin for towe hrs, for woland kee 0.500	= 1.19 cfs = 1.17 cfs = 1.17 cfs vy Stor-Ind method, v= 62.65' @ 12.09 l v detention time= 1.	@ 12.07 hrs, Volume= 0.103 af
Primary = 1.17 cfs @ 12.09 hrs, Volume= 0.103 af Souting by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs ************************************	= 1.17 cfs by Stor-Ind method, v= 62.65' @ 12.09 l v detention time= 1.	
Peak Elevie 62.65 @ 12.09 hrs Surf.Area= 595 sf Storage= 81 cf Plug-Flow detention time 1.7 min calculated for 0.103 af (100% of inflow) Inflow) Jenter-of-Mass det. time= 1.7 min calculated for 0.103 af (100% of inflow) Inflow) Jenter-of-Mass det. time= 1.7 min calculated for 0.103 af (100% of inflow) Inflow) Jenter-of-Mass det. time= 1.7 min calculated for 0.103 af (100% of inflow) Inflow Jenter-of-Mass det. time= 1.7 min calculated for 0.103 af (100% of inflow) Inflow Jenter-of-Mass det. time= 1.7 min calculated for 0.103 af (100% of inflow) Inflow Gaussian Storage Elevicin Calculated For 0.103 af (100% of inflow) Gaussian Storage Elevicin Calculated For 0.103 af (100% of inflow) Gaussian Storage Elevicin Calculated For 0.103 af (100% of inflow) Provide Routing Invert Outlet Devices #1 Primary Storage Elevice 1 Storage Elevice 2.000 for 0.004 by Cc 0.000 me 0.013 by 0.004 by Cc 0.000 me 0.013 by 0.014 b	v= 62.65' @ 12.091 v detention time= 1.	
Pug_Flow detention time= 1.7 min calculated for 0.103 af (100% of inflow) Center-of-Mass det. time= 1.7 min (765.7 - 764.0.) Jobume Invert Avail.Storage Storage Description #1 62.50' 1.414 cf Custom Stage Data (Prismatic)Listed below (Recalc) Elevation Surf.Area Inc. Store Cum (etc) (sq.ft) (cubic-feet) (cubic-feet) 62.50 522 0 1.414 df Outling Privacy Found Culvert 1= 25.0' CPP, end-section conforming to fill, Ke= 0.500 #1 Primary 59.00' 12.0'' Round Culvert 1= 25.0' CPP, end-section conforming to fill, Ke= 0.500 #2 Device 1 62.50' 2.40'' Hord Int // outlet Invert 50.0' (58.88'' S= 0.0048 '' Cc= 0.900 net // outlet Invert 50.0' (59.16'' S= 0.0048 '' Cc= 0.900 #3 Device 1 59.30' 60.'' Round Culvert L= 25.0' CPP, projecting, no headwall, Ke= 0.900 net // outlet Invert 50.0' (59.16'') Horsely Witten Group, Inter #4 Device 3 62.50' 2.470 in/hr Exfiltration over Surface area Horsely Witten Group, Inter *********************************	v detention time= 1.	, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Define Invert Avail Storage Storage Description #1 62.50' 1,414 cf Custom Stage Data (Prismatic)Listed below (Recalc) Elevation Surf Area Inc. Store Cum.Store (feet) (sq.ft) (cubic-feet) (cubic-feet) 62.50 522 0 0 63.00 775 324 324 64.00 1,405 1,090 1,414 Device Routing Invert Outlet Devices #1 Primary 59.00' 12.0" Round Culvert L = 25.0' CPP, end-section conforming to fill, Ke= 0.500 Intel / Outlet Invert S9.00' 58.8' S= 0.0048 /' Cc= 0.900 Intel / Outlet Invert 25.0' CPP, projecting, no headwall, Ke= 0.500 Intel / Outlet Invert 25.0' CPP, projecting, no headwall, Ke= 0.900 Intel / Outlet Invert 25.0' CPP, projecting, no headwall, Ke= 0.900 Intel / Outlet Invert 25.0' CPP, projecting, no headwall, Ke= 0.900 Intel / Outlet Invert S9.0' 59.18' S= 0.048 /''' 9038-POST V3		hrs Surf.Area= 595 sf Storage= 81 cf
Jolume Invert Avail.Storage Storage Description #1 62.50' 1,414 cf Custom Stage Data (Prismatic)Listed below (Recalc) Elevation Surf.Area Inc.Store Cumber-feet) (cubic-feet) 62.50 52.2 0 0 0 0 63.00 775 32.4 32.4 0.0 0 64.00 1,405 1,090 1,414 0.008.7' Cc= 0.900 #1 Primary 59.00' 12.0" Round Culvert L = 25.0' CPP, end-section conforming to fill, Ke= 0.500 #2 Device 1 62.50' 24.0" Horiz Orifice/Grate C= 0.600 Linited to we heads #3 Device 1 59.30' 5.0" Round Culvert L = 25.0' CPP, projecting, no headwall, Ke= 0.900 #4 Device 3 62.50' 2.470 In/hr Exfiltration over Surface area Morsley Witten Group, In 19038-POST V3 Trype III 24-hr 25YR Rainfall=6.1 Printed 3/5/20 Printed 3/5/20 Prepared by Horsley Witten Group, Inc. Printed 3/5/20 Printed 3/5/20 Printed 3/5/20 Printed 3/5/20		
#1 62.50' 1,414 cf Custom Stage Data (Prismatic)Listed below (Recalc) Elevation Surf.Area Inc.Store Cubic-feet) (feet) (sq.ft) (cubic-feet) (cubic-feet) 62.50 52.2 0 0 63.00 1775 32.4 324 64.00 1,405 1,990 1,414 Device Routing Invert Outlet Devices #1 Primary 59.00' 12.0" Round Culvert L= 25.0' CPP, end-section conforming to fill, Ke= 0.500 Inet / Outlet Invert= 59.00' / 58.8' S= 0.0048 /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf #2 Device 1 62.50' 2.4.0" Moriz. Orifice(Grate C = 0.600 Limited to weir flow at low heads #3 Device 1 59.30' 6.0" Round Culvert L= 25.0' CPP, projecting no headwall, Ke= 0.900 met / Outlet Invert= 59.30' / 59.18'' S= 0.0048 /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf #4 Device 3 62.50' 2.470 in/hr Exflitration over Surface area 19038-POST V3 Traped by Horsley Witten Group, Inc. Primery OutFlow Max=1.17 cfs @ 12.09 nrs HW=62.64' (Free Discharge) 1=Culvetr (Passes 1.17 cfs of 6.71 cfs potential flo		
Elevation Surf Area Inc.Store Cum.Store (feet) (sq.ft) (cubic-feet) (cubic-feet) 62.50 522 0 0 63.00 775 324 324 64.00 1,405 1,990 1,414 Device Routing Invert Outlet Devices #1 Primary 59.007 16.88 S = 0.0048 'f' Ccc = 0.900 n= 0.013 Corrugated PE smooth interior, Flow Area= 0.79 sf 24.0° Horiz. Orfice/Grate C = 0.600 Limited to weir flow at low heads #2 Device 1 62.50' 24.0° Horiz. Orfice/Grate C = 0.600 Limited to weir flow at low heads #3 Device 1 62.50' 24.0° Horiz. Orfice/Grate S = 0.0048 'f' Ccc = 0.900 n = 0.010 PVC, smooth interior, Flow Area= 0.20 sf #4 Device 3 62.50' 2.470 in/hr Exfiltration over Surface area Horsley Witten Group, In Prepared by Horsley Witten Group, Inc. Trype III 24-hr 25YR Rainfal=6.1 Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) Page 1 Paculer (Passes 1.17 cfs		
(feet) (sq.ft) (cubic-feet) (cubic-feet) 62.50 522 0 0 0 63.00 775 324 324 64.00 1,405 1,090 1,414 Device Routing Invert Outlet Devices #1 Primary 59.00 12.07 Round Culvert L= 25.0° CPP, end-section conforming to fill, Kee 0.500 n=0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf n= 0.013 Corrugated PE, smooth interior, Row Area= 0.79 sf #2 Device 1 62.50° 24.0° Horiz, Orifice/Grate C= 0.600 Imited to weir flow at low heads #3 Device 1 59.30° 60°. Round Culvert L= 25.0° 20.0048 /° Cc= 0.900 Iniet / Outlet Invert= 59.30′ / 59.18° S= 0.0048 /° Cc= 0.300 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf #4 Device 3 62.50° 2.470 in/hr Exfiitration over Surface area Horsley Witten Group, In Pripared by Horsley Witten Group, Inc. Pripared by Horsley Witten Group, Inc. Printed 3/5/20 right CADe 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Printed 3/5/20 <t< td=""><td></td><td></td></t<>		
63.00 775 324 324 64.00 1,405 1,090 1,414 Device Routing Invert Outlet Devices #1 Primary 59.00 12.0" Round Culvert L= 25.0" CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 59.00 / 58.8" S= 0.0048 /" Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf #2 Device 1 62.50' 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads #3 Device 1 59.30' 6.0" Round Culvert L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 59.30' 59.18'' S= 0.0048 /" Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf #4 Device 3 62.50' 2.470 in/hr Exfiltration over Surface area Horsley Witten Group, Inc. Prepared by Horsley Witten Group, Inc. Printed 3/5/20 Primed 3/5/20 Printed 3/5/20 Printed 3/5/20 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 1 Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) 1=Culvert (Passes 1.17 cfs of 6.71 cfs potential flow) 12-90 rifice/Grate (Weir Controls 1.13 cfs gotential flow) 2=Confide/Grate (Weir Controls 1.13 cfs gotential flow) 2=Culvert (Passes 0.03 cfs of 1.31 cfs potentia) (sq-ft)) (cubic-feet) (cubic-feet)
Device Routing Invert Outlet Devices #1 Primary 59.00' 12.0" Round Culvert L = 25.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 59.00' / 58.88' S= 0.0048 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf #2 Device 1 62.50' 24.0" Horiz Orifice/Grate C= 0.600 Limited to weir flow at low heads #3 Device 1 59.30' (5.0" Round Culvert L = 25.0' CPP, projecting, no headwalk, Ke= 0.900 Inlet / Outlet Invert= 59.30' / 59.18' S= 0.0048 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf #4 Device 3 62.50' 2.470 in/hr Exfiltration over Surface area 19038-POST V3 Type III 24-hr 25YR Rainfall=6.1 Prepared by Horsley Witten Group, Inc. Primet 3/5/20 Page 1 HydroCAD® 10.00-22 sin 01445 © 2018 HydroCAD Software Solutions LLC Page 1 Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) Culvert (Passes 1.17 cfs of 6.71 cfs potential flow) =2=Orifice/Grate (Weir Controls 1.13 cfs go tential flow) =2=Orifice/Grate (Weir Controls 1.13 cfs go tential flow)		5 324 324
#1 Primary 59.00' 12.0" Round Culvert L= 25.0' CPP, end-section conforming to fill, Ke= 0.500 Intel / Outlet Invert= 59.00' / 58.88' S= 0.0048'' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf #2 Device 1 62.50' 24.0" Horiz. Orifice/Grate C= 0.600 Intel / Outlet Invert= 59.30' / 59.18' S= 0.0048 '' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf #4 Device 3 62.50' 2.470 in/hr Exfiltration over Surface area Horsley Witten Group, Inc. #9038-POST V3 Type III 24-hr 25YR Rainfall=6: Pripared by Horsley Witten Group, Inc. Prepared by Horsley Witten Group, Inc. Printed 3/5/20 Printed 3/5/20 Printed 3/5/20 Printed 3/5/20 Printed 3/5/20 Printed 3/1.0' fs @ 12.09 hrs HW=62.64' (Free Discharge) Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) Prage 1 PCulvert (Passes 1.17 cfs of 6.71 cfs potential flow) Page 1 =2-Orifice/Grate (Weir Controls 1.13 cfs @ 1.24 fps) 3/2-Orifice/Grate (Weir Controls 1.13 cfs @ 1.24 fps)) 1,405	5 1,090 1,414
Initel / Outliet Invert= 59.00' / 58.88' S = 0.0048' / C c = 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf #2 Device 1 62.50' 24.0" Horiz. Orifice/Grate C = 0.600 Limited to weir flow at low heads #3 Device 1 59.30' 6.0" Round Culvert L = 25.0' C PP, projecting, no headwall, Ke = 0.900 Initel / Outlet Invert = 59.30' / 59.18' S = 0.0048 /' C c = 0.900 n = 0.010 PVC, smooth interior, Flow Area= 0.20 sf #4 Device 3 62.50' 2.470 in/hr Exfiitration over Surface area Horsley Witten Group, In: 19038-POST V3 Prepared by Horsley Witten Group, Inc. Printed 3/5/20 Printed 3/5/20 Printed 3/5/20 Printed 3/5/20 Printed 3/5/20 Printed 3/5/20 Printed 3/5/20 Printed 3/5/20 Printed 3/5/20 Page 1 Printed 3/5/20 Page 1		
#2 Device 1 62.50' 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads #3 Device 1 59.30' 60" Round Culvert L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 59.30' / 59.18' S= 0.0048 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf #4 Device 3 62.50' 2.470 in/hr Exfiltration over Surface area 19038-POST V3 Horsley Witten Group, Inc. Horsley Witten Group, Inc. Prepared by Horsley Witten Group, Inc. Printed 3/5/20 Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) Prage 1 Performary OutFlow Max=1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) Prage 1 "=Culvert (Passes 1.17 cfs of 6.71 cfs potential flow)	Primary 5	Inlet / Outlet Invert= 59.00' / 58.88' S= 0.0048 '/' Cc= 0.900
#3 Device 1 59.30' 6.0" Round Culvert L = 25.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 59.30' / 59.18' S = 0.0900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf #4 Device 3 62.50' 2.470 in/hr Exfiltration over Surface area Horsley Witten Group, Inc. #9038-POST V3 Type III 24-hr 25YR Rainfall=6.1 Prepared by Horsley Witten Group, Inc. Printed 3/5/20 Printed 3/5/20 HydroCAD® 10.00-22 sin 01445 © 2018 HydroCAD Software Solutions LLC Prage 1 Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) Free Discharge) 1=Culvert (Passes 1.17 cfs of 6.71 cfs potential flow) 2=Orifice/Grate (Weir Controls 1.13 cfs @ 1.24 fps)		62.50' 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf #4 Device 3 62.50' 2.470 in/hr Exfiltration over Surface area Horsley Witten Group, In 19038-POST V3 Prepared by Horsley Witten Group, Inc. 19078-2018 HydroCAD Software Solutions LLC Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) 1=Culvert (Passes 1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) 1=Culvert (Passes 0.03 cfs of 1.31 cfs go 1.24 fps) 2=Confice/Grate (Weir Controls 1.13 cfs go 1.24 fps) 2=Confice/Grate (Weir Controls 1.13 cfs potential flow)	Device 1 59	j9.30' 6.0" Round Culvert L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 59.30' / 59.18' S= 0.0048 '/' Cc= 0.900
Horsley Witten Group, In 19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) =Culvert (Passes 1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) =Culvert (Passes 0.03 cfs of 1.31 cfs potential flow) =2=Orifice/Grate (Weir Controls 1.13 cfs @ 1.24 fps) =Culvert (Passes 0.03 cfs of 1.31 cfs potential flow)	Device 3	n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
19038-POST V3 Type III 24-hr 25YR Rainfall=6.1 Prepared by Horsley Witten Group, Inc. Printed 3/5/20 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 1 Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=62.64' (Free Discharge) Page 1 =Culvert (Passes 1.17 cfs of 6.71 cfs potential flow) 2=Orifice/Grate (Weir Controls 1.13 cfs @ 1.24 fps) 3=Culvert (Passes 0.03 cfs of 1.31 cfs potential flow) 1.31 cfs potential flow)	201100 0	
-2=Orifice/Grate (Weir Controls 1.13 cfs @ 1.24 fps) -3=Culvert (Passes 0.03 cfs of 1.31 cfs potential flow)	d by Horsley Witte	
	OutFlow Max=1.17	
	OutFlow Max=1.17 vert (Passes 1.17 Orifice/Grate (Weir	cfs of 6.71 cfs potential flow) ir Controls 1.13 cfs @ 1.24 fps)
	OutFlow Max=1.17 vert (Passes 1.17 Drifice/Grate (Weir Culvert (Passes 0.0	cfs of 6.71 cfs potential flow) ir Controls 1.13 cfs @ 1.24 fps) .03 cfs of 1.31 cfs potential flow)
	OutFlow Max=1.17 vert (Passes 1.17 Drifice/Grate (Weir Culvert (Passes 0.0	cfs of 6.71 cfs potential flow) ir Controls 1.13 cfs @ 1.24 fps) .03 cfs of 1.31 cfs potential flow) filtration Controls 0.03 cfs)
1.19 cfs Inflow Area=0.436 ac	OutFlow Max=1.17 vert (Passes 1.17 Drifice/Grate (Weir Culvert (Passes 0.0	cfs of 6.71 cfs potential flow) ir Controls 1.13 cfs @ 1.24 fps) .03 cfs of 1.31 cfs potential flow) filtration Controls 0.03 cfs) Pond BIO2: BIO 2
	OutFlow Max=1.17 vert (Passes 1.17 Drifice/Grate (Weir Culvert (Passes 0.0 4=Exfiltration (Exf	cfs of 6.71 cfs potential flow) ir Controls 1.13 cfs @ 1.24 fps) .03 cfs of 1.31 cfs potential flow) filtration Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 1.19 cfs 1.17 cfs Inflow Area=0.436 ac
	OutFlow Max=1.17 vert (Passes 1.17 Orifice/Grate (Weir Culvert (Passes 0.0 4=Exfiltration (Exf	cfs of 6.71 cfs potential flow) ir Controls 1.13 cfs @ 1.24 fps) .03 cfs of 1.31 cfs potential flow) filtration Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 1.19 cfs 1.19 cfs 1.17 cfs Inflow Area=0.436 ac Peak Elev=62.65'
	OutFlow Max=1.17 vert (Passes 1.17 Orifice/Grate (Weir Culvert (Passes 0.0 4=Exfiltration (Exf	cfs of 6.71 cfs potential flow) ir Controls 1.13 cfs @ 1.24 fps) .03 cfs of 1.31 cfs potential flow) filtration Controls 0.03 cfs) Pond BIO2: BIO 2 Hydrograph 1.19 cfs 1.19 cfs 1.17 cfs Inflow Area=0.436 ac Peak Elev=62.65'

Summary for Pond DMH: DMH 200 Inflow Area = 0.331 ac, 70.50% Impervious, Inflow Depth = 4.23" for 25YR event	Printed 3/5/2021 Page 153
Inflow Area = 0.331 ac. 70.50% Impervious Inflow Denth = 4.23" for 25YR event	
Inflow 1.45 cfs @ 12.07 hrs, Volume= 0.117 af Outflow 1.45 cfs @ 12.07 hrs, Volume= 0.117 af Outflow 1.45 cfs @ 12.07 hrs, Volume= 0.117 af Primary 1.05 cfs @ 12.07 hrs, Volume= 0.117 af Secondary = 0.41 cfs @ 12.07 hrs, Volume= 0.117 af	
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 54.69' @ 12.07 hrs	
Device Routing Invert Outlet Devices	
 #1 Secondary #2 Primary 53.78' 12.0" Round Culvert L= 9.0' CMP, square edge headwall, Kender Linlet / Outlet Invert= 54.30' / 54.26' S= 0.0044 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf #2 Primary #3.78' #4.10' Round Culvert L= 98.0' CMP, projecting, no headwall, Kender Linlet / Outlet Invert= 53.78' / 53.78' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf 	
Primary OutFlow Max=1.05 cfs @ 12.07 hrs HW=54.69' (Free Discharge) ←2=Culvert (Barrel Controls 1.05 cfs @ 1.83 fps)	
Leculvert (Barrel Controls 0.41 cfs @ 2.12 fps)	Horsley Witten Group, Inc.
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
Pond DMH: DMH 200 Hydrograph	Page 154
1.45 cfs 1.45 cfs Inflow Area= Peak Ele	
(tj) Moju U.41 cfs	

9038-POST V3 repared by Horsley Witten Group, Inc.	Horsley Witten Group, Inc. <i>Type III 24-hr 25YR Rainfall=</i> 6.12" Printed 3/5/2021
ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software	
Summ	mary for Pond RB1: RB 101,102
nflow Area = 0.673 ac, 10.84% Impervious, Inflov nflow = 0.45 cfs @ 12.07 hrs. Volume=	w Depth = 0.77" for 25YR event 0.043 af
utflow = 0.06 cfs @ 11.61 hrs, Volume=	0.043 af, Atten= 87%, Lag= 0.0 min
iscarded = 0.06 cfs @ 11.61 hrs, Volume= rimary = 0.00 cfs @ 0.00 hrs, Volume=	0.043 af 0.000 af
outing by Stor-Ind method, Time Span= 0.00-72.00 hrs,	
eak Elev= 44.74' @ 12.58 hrs Surf.Area= 157 sf Stor	
lug-Flow detention time= 43.0 min calculated for 0.043 enter-of-Mass det. time= 43.0 min(840.7 - 797.8)	af (100% of inflow)
olume Invert Avail.Storage Storage Descrip	
#1 41.00' 339 cf 6.00'D x 6.00'H #2 39.00' 355 cf 10.00'D x 9.00'H	I Recharger x 2 Inside #2 H Stone x 2
1,414 cf Overall 694 cf Total Available	II - 339 cf Embedded = 1,074 cf x 33.0% Voids Storage
evice Routing Invert Outlet Devices	5
#1 Discarded 39.00' 8.270 in/hr Exfiltration	ion X 2.00 over Surface area Phase-In= 0.01' adth Broad-Crested Rectangular Weir X 2.00
	40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00
	2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79
iscarded OutFlow Max=0.06 cfs @ 11.61 hrs HW=39	
-1=Exfiltration (Exfiltration Controls 0.06 cfs)	
rimary OutFlow Max=0.00 cfs @ 0.00 hrs HW=39.00'	' (Free Discharge)
rimary OutFlow Max=0.00 cfs @ 0.00 hrs HW=39.00' -2=Broad-Crested Rectangular Weir (Controls 0.00 o	cfs)
-	
	Horsley Witten Group. Inc.
	Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12"
repared by Horsley Witten Group, Inc.	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
repared by Horsley Witten Group, Inc.	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 e Solutions LLC Page 156
repared by Horsley Witten Group, Inc. /droCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
repared by Horsley Witten Group, Inc. /droCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph
repared by Horsley Witten Group, Inc. /droCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph
repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph Inflow Area=0.673 ac
repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software 0.45 cfs	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph Inflow Area=0.673 ac Peak Elev=44.74'
repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software 0.5	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph Inflow Area=0.673 ac
repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software 0.45 cfs 0.45 0.4	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph Inflow Area=0.673 ac Peak Elev=44.74'
repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph Inflow Area=0.673 ac Peak Elev=44.74'
repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph Inflow Area=0.673 ac Peak Elev=44.74'
repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph Inflow Area=0.673 ac Peak Elev=44.74'
repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph Inflow Area=0.673 ac Peak Elev=44.74'
repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph Inflow Area=0.673 ac Peak Elev=44.74'
0.5 0.45 0.45 0.4 0.35 0.2 0.25 0.2 0.15 0.06 cfs	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph Inflow Area=0.673 ac Peak Elev=44.74'
repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software 0.4 0.45 0.45 0.4 0.45 0.4 0.45 0.4 0.45 0.4 0.45 0.4 0.45 0.4 0.45 0.4 0.45 0.4 0.45 0.4 0.45 0.4 0.45 0.	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph Inflow Area=0.673 ac Peak Elev=44.74'
repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software 0.4 0.45 cfs 0.4 0.45 0.4 0.45 0.4 0.45 0.4 0.45 cfs 0.4 0.45 cfs 0.4 0.45 cfs 0.4 0.45 cfs 0.45 0.4 0.45 cfs 0.45	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 156 Pond RB1: RB 101,102 Hydrograph Inflow Area=0.673 ac Peak Elev=44.74'

19038-POST V3 Prepared by Horsley Witten Group, Inc.	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC	Page 157
Summary for Pond RB	2: RB 202,202,203
Inflow Area = 0.112 ac, 95.97% Impervious, Inflow Depth = 2.30" Inflow = 0.64 cfs @ 12.07 hrs, Volume= 0.021 af Outflow = 0.09 cfs @ 11.74 hrs, Volume= 0.021 af, Atte Discarded = 0.09 cfs @ 11.74 hrs, Volume= 0.021 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.021 af	for 25YR event n= 86%, Lag= 0.0 min
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 Peak Elev= 49.38' @ 12.52 hrs Surf.Area= 236 sf Storage= 543 cf	
Plug-Flow detention time= 55.6 min calculated for 0.021 af (100% of inflow)	
Center-of-Mass det. time= 55.6 min (789.5 - 733.9)	
Volume Invert Avail.Storage Storage Description	
#1 46.50' 509 cf 6.00'D x 6.00'H Recharger x 3 Ins #2 44.50' 532 cf 10.00'D x 9.00'H Stone x 3 2,121 cf Overall - 509 cf Embedded	
1,041 cf Total Available Storage	
Device Routing Invert Outlet Devices #1 Discarded 44.50' 8.270 in/hr Exfiltration X 2.00 over Sur	face area Phase-In= 0.01'
5.50	I Rectangular Weir X 2.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 68 2.66 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79
2.88	
T—2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)	
	Horsley Witten Group, Inc. Type /// 25YB Rainfall-6 12"
19038-POST V3 Prepared by Horsley Witten Group, Inc.	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 @ 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203 nflow Area=0.112 ac Peak Elev=49.38
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203 nflow Area=0.112 ac Peak Elev=49.38
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203 nflow Area=0.112 ac Peak Elev=49.38
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203 nflow Area=0.112 ac Peak Elev=49.38
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203 nflow Area=0.112 ac Peak Elev=49.38
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203 nflow Area=0.112 ac Peak Elev=49.38
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203 nflow Area=0.112 ac Peak Elev=49.38
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203 nflow Area=0.112 ac Peak Elev=49.38
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB2: RB 2 Hydrograph	Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 158 02,202,203 nflow Area=0.112 ac Peak Elev=49.38

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)

19038-POST V3		ey Witten Group, Inc. 25YR Rainfall=6.12"
	y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC	Printed 3/5/2021 Page 159
	Summary for Pond RB3: RB 300	-
nflow Area = 0.	.997 ac, 0.00% Impervious, Inflow Depth = 0.23" for 25YR event	
flow = 0.0	03 cfs @ 14.10 hrs, Volume= 0.019 af	
	.02 cfs @ 12.99 hrs, Volume= 0.019 af, Atten= 33%, Lag= 0.0 min .02 cfs @ 12.99 hrs, Volume= 0.019 af	
rimary = 0.0	.00 cfs @ 0.00 hrs, Volume= 0.000 af	
	nethod, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 17.10 hrs Surf.Area= 57 sf Storage= 104 cf	
0	ime= 41.7 min calculated for 0.019 af (100% of inflow)	
	ime= 41.7 min $(1,091.5 - 1,049.9)$	
olume Invert	Avail.Storage Storage Description	
#1 59.50' #2 58.50'	50 cf 4.00'D x 4.00'H Recharger Inside #2 95 cf 6.00'D x 6.00'H Stone x 2	
	339 cf Overall - 50 cf Embedded = 289 cf x 33.0% Voids 146 cf Total Available Storage	
evice Routing	Invert Outlet Devices	
#1 Discarded	58.50' 8.270 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01'	
#2 Primary	65.50' 5.0' long x 5.0' 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	4.00 4.50 5.00
	5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.	68 2.70 2.74 2.79
	2.88	
	Max=0.02 cfs @ 12.99 hrs HW=58.57' (Free Discharge) filtration Controls 0.02 cfs)	
	Type III 24-hr	ey Witten Group, Inc. 25YR Rainfall=6.12" Printed 3/5/2021
repared by Horsley		
repared by Horsley	y Witten Group, Inc.	25YR Rainfall=6.12" Printed 3/5/2021
repared by Horsley	y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC	25YR Rainfall=6.12" Printed 3/5/2021
Prepared by Horsley	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
Prepared by Horsley	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
Prepared by Horsley lydroCAD® 10.00-22 s	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
Prepared by Horsley lydroCAD® 10.00-22 s 0.036 0.034	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
Prepared by Horsley lydroCAD® 10.00-22 s	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac Peak Elev=62.66'	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
0.036 0.036 0.034 0.034 0.032 0.033 0.032	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac Peak Elev=62.66' Storage=104 cf	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
0.036 0.036 0.034 0.034 0.032 0.034 0.034 0.034 0.032	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac Peak Elev=62.66'	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
0.036 0.036 0.034 0.034 0.034 0.034 0.034 0.034 0.034 0.035 0.034 0.034 0.034 0.034 0.034 0.034	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac Peak Elev=62.66' Storage=104 cf	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
0.036 0.034 0.032 0.033 0.034 0.032 0.034 0.024 0.024 0.024 0.024	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac Peak Elev=62.66' Storage=104 cf	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
HydroCAD® 10.00-22 s	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac Peak Elev=62.66' Storage=104 cf	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
0.036 0.034 0.032 0.034 0.032 0.034 0.032 0.028 0.026 0.024 0.025 0.026 0.027 0.018 0.016	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac Peak Elev=62.66' Storage=104 cf	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
0.036 0.034 0.032 0.033 0.034 0.032 0.038 0.026 0.024 0.022 0.022 0.022 0.022 0.022 0.022 0.016 0.014	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac Peak Elev=62.66' Storage=104 cf	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
0.036 0.036 0.034 0.032 0.03 0.028 0.026 0.024 0.022 (st) 0.022 (st) 0.022 0.022 0.022 0.022 0.022 0.024 0.022 0.022 0.022 0.024 0.022	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac Peak Elev=62.66' Storage=104 cf	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
0.036 0.036 0.034 0.032 0.03 0.022 0.02 0.024 0.022 0.024 0.022 0.024 0.022 0.014 0.014 0.012 0.014	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac Peak Elev=62.66' Storage=104 cf	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
0.036 0.036 0.034 0.034 0.032 0.032 0.022 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.014 0.014 0.014 0.014 0.012 0.012 0.012 0.012 0.012 0.012 0.012 0.012 0.012 0.012	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac Peak Elev=62.66' Storage=104 cf	25YR Rainfall=6.12" Printed 3/5/2021 Page 160
Prepared by Horsley tydroCAD® 10.00-22 s 0.036 0.034 0.032 0.03 0.028 0.014	Type III 24-hr y Witten Group, Inc. s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond RB3: RB 300 Hydrograph 0.03 cfs Inflow Area=0.997 ac Peak Elev=62.66' Storage=104 cf	25YR Rainfall=6.12" Printed 3/5/2021 Page 160

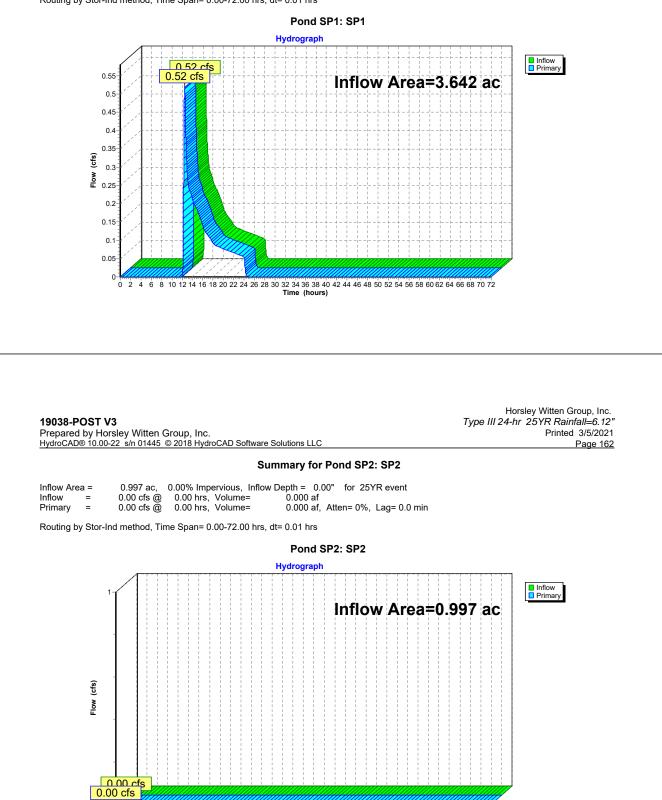
0 1 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12" Printed 3/5/2021 Page 161



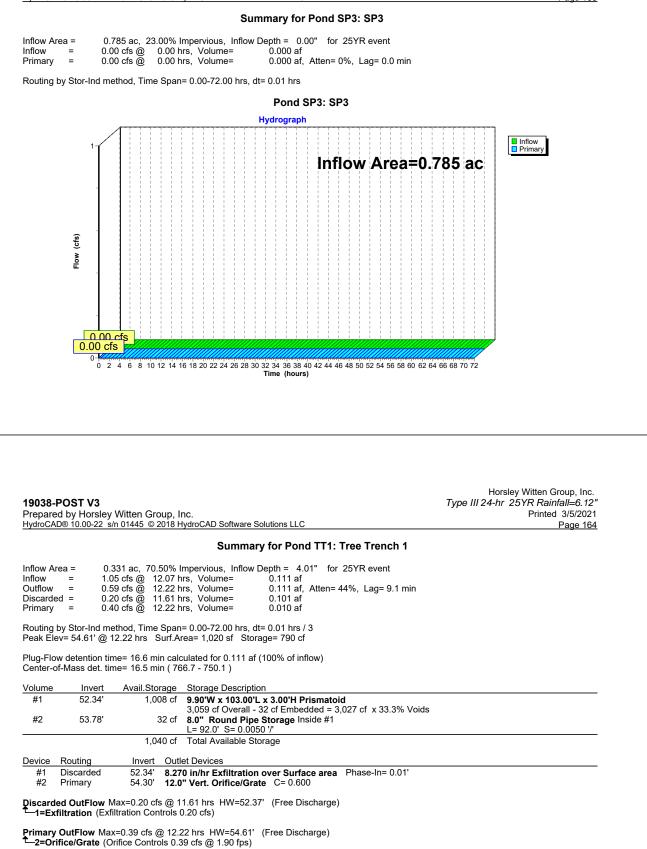
Inflow Area =	3.642 ac,	9.44% Impervious, Ir	nflow Depth = 0.43" for 25YR event
Inflow =	0.52 cfs @	12.51 hrs, Volume=	0.129 af
Primary =	0.52 cfs @	12.51 hrs, Volume=	0.129 af, Atten= 0%, Lag= 0.0 min

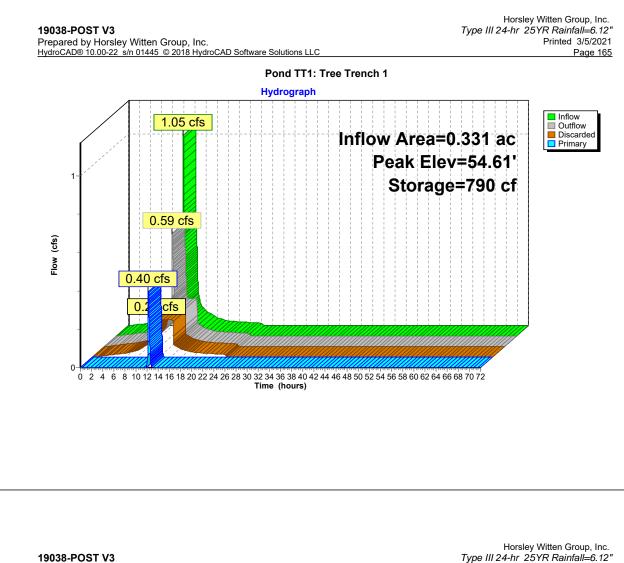
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC





Horsley Witten Group, Inc.
Type III 24-hr 25YR Rainfall=6.12"
Printed 3/5/2021
Page 166

Summary for Pond TT2: Tree Trench 2

Inflow Area =	0.112 ac, 95.97% Impervious, Inflow De	epth = 5.66" for 25YR event
Inflow =	0.67 cfs @ 12.07 hrs, Volume=	0.053 af
Outflow =	0.67 cfs @ 12.07 hrs, Volume=	0.053 af, Atten= 0%, Lag= 0.3 min
Discarded =	0.03 cfs @ 9.71 hrs, Volume=	0.031 af
Primary =	0.64 cfs @ 12.07 hrs, Volume=	0.021 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 Peak Elev= 53.10' @ 12.07 hrs Surf.Area= 150 sf Storage= 159 cf

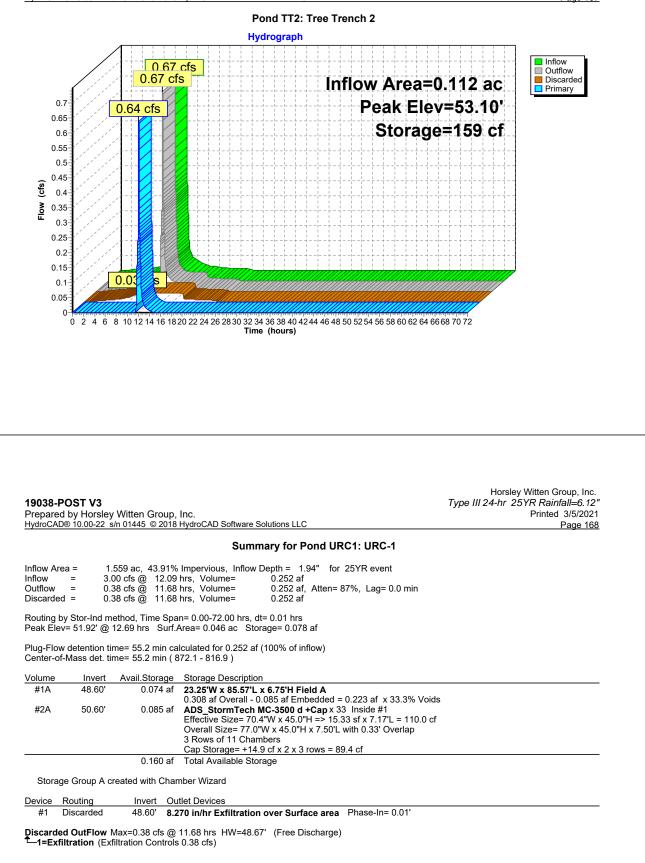
Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

Plug-Flow detention time= 21.0 min calculated for 0.053 af (100% of inflow) Center-of-Mass det. time= 21.0 min (765.7 - 744.6)

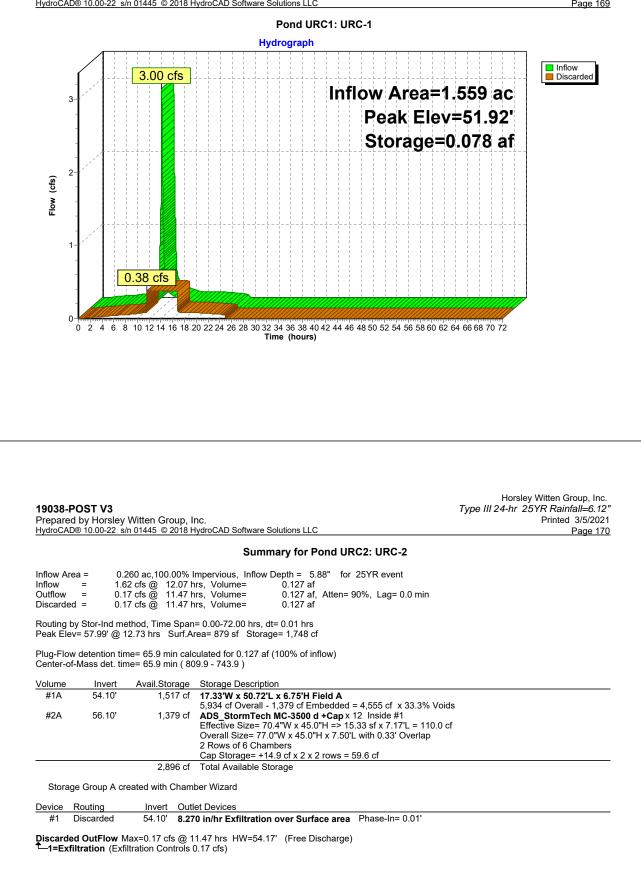
Volume	Invert	Avail.Storage	Storage Description				
#1	50.16'	184 cf	.00'W x 30.00'L x 3.80'H Prismatoid				
#2	51.66'	17 cf	570 cf Overall - 17 cf Embedded = 553 cf x 33.3% Voids 3.0" Round Pipe Storage Inside #1 = 50.0' S= 0.0050 '/'				
		201 cf	Total Available Storage				
Device	Routing	Invert Out	et Devices				
#1	Discarded	50.16' 8.27	0 in/hr Exfiltration over Surface area Phase-In= 0.01'				
#2	Primary	52.70' 12.0	" Vert. Orifice/Grate C= 0.600				
Discarded OutFlow Max=0.03 cfs @ 9.71 hrs HW=50.20' (Free Discharge) -1=Exfiltration (Exfiltration Controls 0.03 cfs)							
Primary	Primary OutFlow Max=0.64 cfs @ 12.07 hrs HW=53.10' (Free Discharge)						

-2=Orifice/Grate (Orifice Controls 0.64 cfs @ 2.16 fps)

19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC



19038-POST V3 Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u>



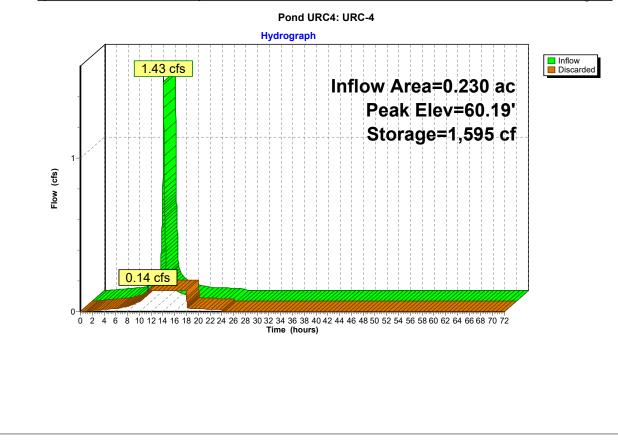
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions I

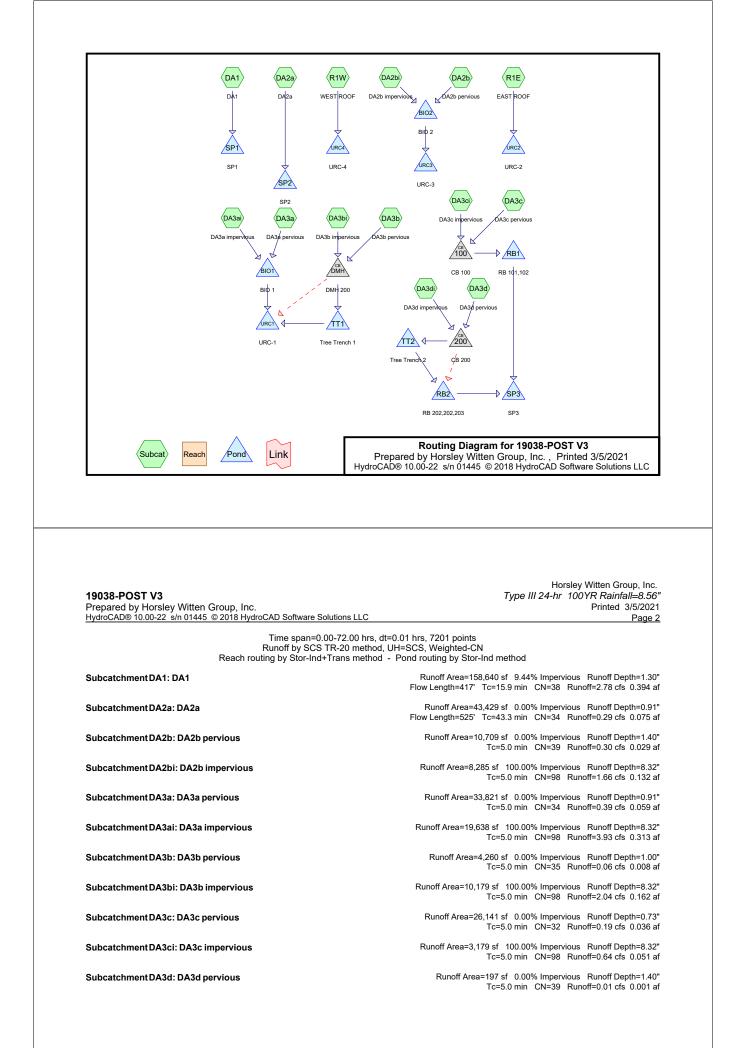
HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond URC2: URC-2 Hydrograph Inflow 1.62 cfs Discarded Inflow Area=0.260 ac Peak Elev=57.99' Storage=1,748 cf (cfs) Flow 0.17 cfs 0 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours) Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12" 19038-POST V3 Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 172 Summary for Pond URC3: URC-3 Inflow Area = 0.436 ac, 43.62% Impervious, Inflow Depth = 2.84" for 25YR event 1.17 cfs @ 12.09 hrs, Volume= 0.12 cfs @ 11.52 hrs, Volume= Inflow = 0.103 af Outflow = 0.103 af, Atten= 89%, Lag= 0.0 min Discarded = 0.12 cfs @ 11.52 hrs, Volume= 0.103 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 59.00' @ 12.95 hrs Surf.Area= 765 sf Storage= 1,369 cf Plug-Flow detention time= 75.1 min calculated for 0.103 af (100% of inflow) Center-of-Mass det. time= 75.1 min (840.8 - 765.7) Avail.Storage Storage Description Volume Invert 1,250 cf 22.25W x 34.38'L x 6.75'H Field A 5,163 cf Overall - 1,409 cf Embedded = 3,755 cf x 33.3% Voids 55.55 #1A ADS_StormTech MC-3500 d +Cap x 12 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf #2A 57.55 1,409 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 3 Rows of 4 Chambers Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf 2,659 cf Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices 55.55' 7.000 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded #1 Discarded OutFlow Max=0.12 cfs @ 11.52 hrs HW=55.62' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.12 cfs)

19038-POST V3 Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u>

Pond URC3: URC-3 Hydrograph Inflow 1.17 cfs Discarded Inflow Area=0.436 ac Peak Elev=59.00' Storage=1,369 cf (cfs) Flow 0.12 cfs 0 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours) Horsley Witten Group, Inc. Type III 24-hr 25YR Rainfall=6.12" 19038-POST V3 Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 174 Summary for Pond URC4: URC-4 Inflow Area = 0.230 ac,100.00% Impervious, Inflow Depth = 5.88" for 25YR event 1.43 cfs @ 12.07 hrs, Volume= 0.14 cfs @ 11.40 hrs, Volume= 0.14 cfs @ 11.40 hrs, Volume= Inflow = 0.113 af Outflow = 0.113 af, Atten= 90%, Lag= 0.0 min Discarded = 0.113 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 60.19' @ 12.81 hrs Surf.Area= 851 sf Storage= 1,595 cf Plug-Flow detention time= 75.6 min calculated for 0.113 af (100% of inflow) Center-of-Mass det. time= 75.6 min (819.5 - 743.9) Avail.Storage Storage Description Volume Invert 1,292 cf 30.17'W x 28.21'L x 6.25'H Field A 5,319 cf Overall - 1,439 cf Embedded = 3,880 cf x 33.3% Voids 56.80 #1A ADS_StormTech MC-3500 d +Cap x 12 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf #2A 58.30 1,439 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 4 Rows of 3 Chambers Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf 2,731 cf Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices 56.80' 7.000 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded #1 Discarded OutFlow Max=0.14 cfs @ 11.40 hrs HW=56.86' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.14 cfs)

19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC





19038-POST V3 Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u> Horsley Witten Group, Inc. Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page 3

Subcatchment DA3di: DA3d impervious	Runoff Area=4,686 sf 100.00% Impervious Runoff Depth=8.32" Tc=5.0 min CN=98 Runoff=0.94 cfs 0.075 af
Subcatchment R1E: EAST ROOF	Runoff Area=11,331 sf 100.00% Impervious Runoff Depth=8.32" Tc=5.0 min CN=98 Runoff=2.27 cfs 0.180 af
Subcatchment R1W: WEST ROOF	Runoff Area=10,000 sf 100.00% Impervious Runoff Depth=8.32" Tc=5.0 min CN=98 Runoff=2.00 cfs 0.159 af
Pond 100: CB 100	Peak Elev=50.56' Inflow=0.71 cfs 0.087 af 12.0" Round Culvert n=0.013 L=4.0' S=0.0050 '/' Outflow=0.71 cfs 0.087 af
Pond 200: CB 200	Peak Elev=52.60' Inflow=0.94 cfs 0.075 af Primary=0.94 cfs 0.075 af Secondary=0.00 cfs 0.000 af Outflow=0.94 cfs 0.075 af
Pond BIO1: BIO 1	Peak Elev=59.58' Storage=1,440 cf Inflow=4.20 cfs 0.371 af Outflow=3.98 cfs 0.371 af
Pond BIO2: BIO 2	Peak Elev=62.70' Storage=116 cf Inflow=1.94 cfs 0.161 af Outflow=1.91 cfs 0.161 af
Pond DMH: DMH 200	Peak Elev=54.84' Inflow=2.08 cfs 0.170 af Primary=1.34 cfs 0.157 af Secondary=0.74 cfs 0.013 af Outflow=2.08 cfs 0.170 af
Pond RB1: RB 101,102	Peak Elev=46.57' Storage=603 cf Inflow=0.71 cfs 0.087 af Discarded=0.06 cfs 0.069 af Primary=0.42 cfs 0.017 af Outflow=0.48 cfs 0.087 af
Pond RB2: RB 202,202,203 Pond SP1: SP1	Peak Elev=52.27' Storage=932 cf Inflow=0.91 cfs 0.037 af Discarded=0.09 cfs 0.037 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.037 af Inflow=2.78 cfs 0.394 af
Pond SP2: SP2	Primary=2.78 cfs 0.394 af
	Primary=0.29 cfs 0.075 af

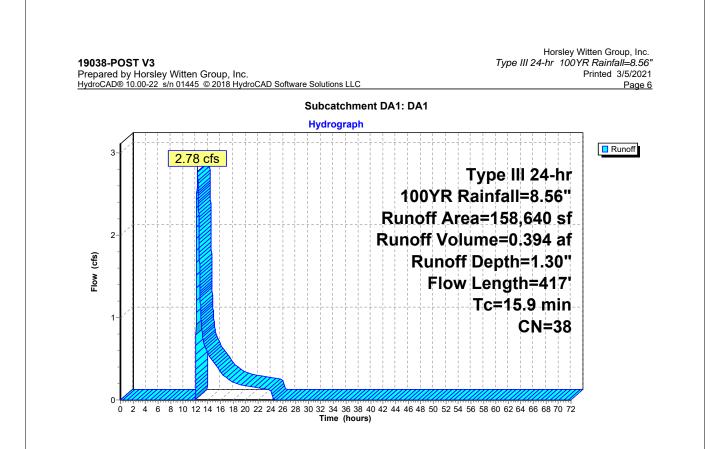
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Softwa	Horsley Witten Group, Inc. <i>Type III 24-hr 100YR Rainfall=8.56</i> " Printed 3/5/2021 are Solutions LLC Page 4
Pond SP3: SP3	Inflow=0.42 cfs 0.017 af Primary=0.42 cfs 0.017 af
Pond TT1: Tree Trench 1	Peak Elev=54.81' Storage=859 cf Inflow=1.34 cfs 0.157 af Discarded=0.20 cfs 0.131 af Primary=0.97 cfs 0.025 af Outflow=1.17 cfs 0.157 af
Pond TT2: Tree Trench 2	Peak Elev=53.19' Storage=163 cf Inflow=0.94 cfs 0.075 af Discarded=0.03 cfs 0.038 af Primary=0.91 cfs 0.037 af Outflow=0.94 cfs 0.075 af
Pond URC1: URC-1	Peak Elev=55.19' Storage=0.157 af Inflow=5.55 cfs 0.410 af Outflow=0.38 cfs 0.410 af
Pond URC2: URC-2	Peak Elev=60.65' Storage=2,838 cf Inflow=2.27 cfs 0.180 af Outflow=0.17 cfs 0.180 af
Pond URC3: URC-3	Peak Elev=62.28' Storage=2,654 cf Inflow=1.91 cfs 0.161 af Outflow=0.12 cfs 0.161 af
Pond URC4: URC-4	Peak Elev=62.53' Storage=2,584 cf Inflow=2.00 cfs 0.159 af Outflow=0.14 cfs 0.159 af

Summary for Subcatchment DA1: DA1

Runoff = 2.78 cfs @ 12.30 hrs, Volume= 0.394 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 100YR Rainfall=8.56"

	A	rea (sf)	CN	Description					
_	1	18,297	30	Woods, Go	/oods. Good. HSG A				
		25,363	39	>75% Gras	s cover, Go	od, HSG A			
		9,642	98	Roofs, HSC	A SA				
_		5,338	98	Paved park	ing, HSG A				
	1	58,640	38	Weighted A	verage				
	1	43,660		90.56% Pe	vious Area				
14,980 9.44% Impervious Area				3					
	Tc	Length	Slope		Capacity	Description			
_	(min)	(feet)	(ft/ft) (ft/sec)	(cfs)				
	12.2	78	0.1730	0.11		Sheet Flow, A TO B			
						Woods: Dense underbrush n= 0.800 P2= 3.60"			
	0.7	99	0.1110	2.33		Shallow Concentrated Flow, B TO C			
						Short Grass Pasture Kv= 7.0 fps			
	3.0	240	0.0690) 1.31		Shallow Concentrated Flow, C TO SP1			
_						Woodland Kv= 5.0 fps			
	15.9	417	Total						



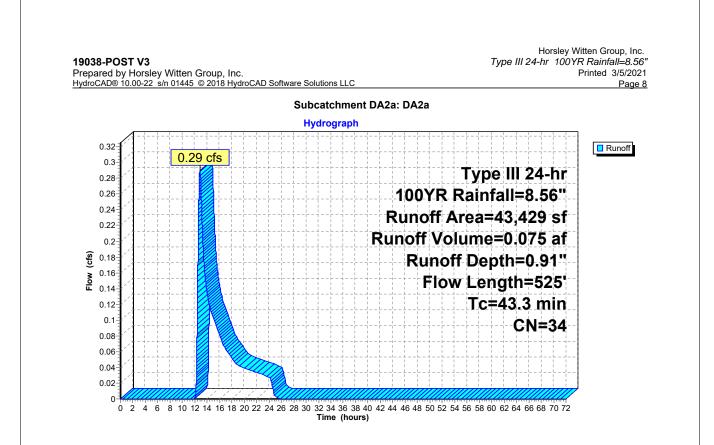
Summary for Subcatchment DA2a: DA2a

CN for permeable pavers taken from RI Stormwater Design

Runoff = 0.29 cfs @ 12.84 hrs, Volume= 0.075 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 100YR Rainfall=8.56"

	Area (sf)	CN	Description						
	25,414	30	Woods, Go	od, HSG A					
	17,231	39	>75% Gras	s cover, Go	od, HSG A				
*	784	40	Pervious Pa	avers					
	43.429	34	Weighted A	verage					
	43,429	• •	100.00% P		a				
	,				-				
Т	c Length	Slope	e Velocity	Capacity	Description				
(min		(ft/ft		(cfs)					
36.4	4 147	0.040	0.07		Sheet Flow, A TO B				
					Woods: Dense underbrush n= 0.800 P2= 3.60"				
0.8	8 67	0.076) 1.38		Shallow Concentrated Flow, B to C				
					Woodland Kv= 5.0 fps				
1.1	1 73	0.048) 1.10		Shallow Concentrated Flow, C to D				
					Woodland Kv= 5.0 fps				
5.0	0 238	0.025	0.79		Shallow Concentrated Flow, D to SP2				
					Woodland Kv= 5.0 fps				
43.3	3 525	Total			· · · · ·				



unoff	=	0.2) cfs @	10 1						Depth= 1		•							
												01 6	-						
unoff by /pe III 2					JUD, 1	veign	neu-CN	, ime	opan= 0.0	00-72.00 H	ns, at= 0	.oinr	5						
	ea (sf)	CN		ription															
1	10,238 471	39 30		o Gras Is, Go			ood, HS	SG A											
	10,709 10,709	39		hted A			а												
	Length	n Slo	pe Ve					ription											
(min) 5.0	(feet			/sec)		(cfs)		-	, Direct										
5.0							Direc	t Entry	, Direct										
																Horsl	ey Wit	tten Group	, Inc.
9038-P			Witten	Grour										Тур	e 24		00YR	tten Group	8.56"
repared	by H	orsley	Witten	Group © 201	o, Inc 8 Hyd	IroCAE) Softwa	are Solut	tions LLC					Тур	e III 24		00YR	Rainfall=	8.56"
repared	by H	orsley	Witten	Group © 201	o, Inc 8 Hyd	IroCAE				.2b: DA2	b perv	ious		Тур	e III 24		00YR	Rainfall=	8.56" /2021
repared	by H	orsley	Witten	Group © 201	o, Inc 8 Hyd	IroCAE		catchr			b perv	rious		Тур	e III 24		00YR	Rainfall=	8.56" /2021
repared	by H	orsley	Witten	Group © 201	o, Inc 8 Hyd	IroCAE		catchr	nent DA		b perv	ious		Тур	e III 24		00YR	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
repared	by H ₀ <u>® 10.0</u>	orsley	<u>1 01445</u>	Group © 201	o, Inc 8 Hyd	- IroCAE		catchr	nent DA		b perv	/ious		Тур	e III 24		00YR	Rainfall=	:8.56" /2021 Ige 10
repared <u>ydroCAD</u> 0.3 0.3	d by H ₀ <u>8</u> 10.0 2 ² 3 ¹ 3 ¹ 4	orsley	<u>1 01445</u>	© 201	o, Inc 8 Hyd	roCAE		catchr	nent DA		b perv	'ious	- Ty				00YR	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
reparec <u>/droCAE</u> 0.3 0. 0.2	d by H <u>® 10.0</u> 21 31 8	orsley	<u>1 01445</u>	© 201	o, Inc 8 Hyd	roCAE		catchr	nent DA					pe	2	4-hr 1	00YR	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
0.3 0.2 0.2	d by H <u>® 10.0</u> 2 3 8 6	orsley	<u>1 01445</u>	© 201	o, Inc 8 Hyd	roCAE		catchr	nent DA		100Y	ſR I	Rai	pe nfa	2 =8	4-hr 1	00YR Pi	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
0.3 0.2 0.2 0.2 0.2	d by H 10.0 2 3 8 6 4	orsley	<u>1 01445</u>	© 201	o, Inc 8 Hyd	roCAE		catchr	nent DA		100Y uno1	′R I ff A	Rai Area	pe nfa 1=1	2 =8 0,70	4-h 19 s	007R P	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	d by H 10.0 2 3 8 6 4 2 2	orsley	<u>1 01445</u>	© 201	o, Inc 8 Hyd	roCAE		catchr	nent DA		100Y	′R I ff A	Rai Tea	pe nfa 1=1	2 =8 0,70	4-h 19 s	007R P	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	d by H 10.0 2 3 8 6 4 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	orsley	<u>1 01445</u>	© 201	o, Inc 8 Hyd	roCAE		catchr	nent DA		100Y unof	′R I ff A Vo	Rai Irea	pe nfa 1=1	2 =8 0,70 0.02	4-h .56 9 s	00YR	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	2 3 8 6 4 2 2 8	orsley	<u>1 01445</u>	© 201	5, Inc 8 Hyd	roCAE		catchr	nent DA		100Y unof	′R I ff A Vo	Rai Irea Ium f D	pe nfa i=1 ie=	III 2 II=8 0,70 0.02 h=1	4-h .56 9 s .40	00YR P	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
0.3 0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	2 3 8 6 4 2 2 1 8 6 6	orsley	<u>1 01445</u>	© 201	o, Inc 8 Hyd	roCAE		catchr	nent DA		100Y unof	′R I ff A Vo	Rai Irea Ium f D	pe nfa i=1 ie=	III 2 II=8 0,70 0.02 h=1 5.0	4-h .56 9 s 9 a .40 miu	0078 PI	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
0.3 0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	1 by H 1 ∞ 10.0 2 3 8 6 4 2 2 8 8 6 4 2 2 8 8 6 4 2 2 3 8 6 4 2 2 3 8 6 4 2 2 3 8 6 6 4 4 2 2 3 8 8 6 6 6 6 6 6 6 6 6 6 6 6 6	orsley	<u>1 01445</u>	© 201	o, Inc 8 Hyd			catchr	nent DA		100Y unof	′R I ff A Vo	Rai Irea Ium f D	pe nfa i=1 ie=	III 2 II=8 0,70 0.02 h=1 5.0	4-h .56 9 s .40	0078 PI	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
0.3 0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	1 by H 1 ∞ 10.0 2 3 8 6 4 2 2 3 8 6 4 4 2 2 1 1	orsley	<u>1 01445</u>	© 201	5, Inc 8 Hyd			catchr	nent DA		100Y unof	′R I ff A Vo	Rai Irea Ium f D	pe nfa i=1 ie=	III 2 II=8 0,70 0.02 h=1 5.0	4-h .56 9 s 9 a .40 miu	0078 PI	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
0.3 0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	1 by H 1 ∞ 10.0 2 3 3 8 6 4 2 2 8 8 6 4 2 2 1 1 8 8	orsley	<u>1 01445</u>	© 201	5, Inc 8 Hyd			catchr	nent DA		100Y unof	′R I ff A Vo	Rai Irea Ium f D	pe nfa i=1 ie=	III 2 II=8 0,70 0.02 h=1 5.0	4-h .56 9 s 9 a .40 miu	0078 PI	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
reparec ydroCAE 0.3 0. 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	J by H 1 № 10.0 2 3 3 8 6 4 2 2 8 6 4 2 2 8 6 4 2 1 8 6 4 2 1 8 6 4 2 1 1 1 1 1 1 1 1 1 1 1 1 1	orsley	<u>1 01445</u>	© 201	o, Inc 8 Hyd			catchr	nent DA		100Y unof	′R I ff A Vo	Rai Irea Ium f D	pe nfa i=1 ie=	III 2 II=8 0,70 0.02 h=1 5.0	4-h .56 9 s 9 a .40 miu	0078 PI	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10
0.3 0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	J by H 100 2 3 8 6 4 2 2 3 8 6 4 2 2 3 8 6 4 2 2 3 8 6 4 2 2 3 8 6 4 2 2 3 8 6 4 4 2 2 3 8 6 4 4 4 4 4 4 4 4 4 4 4 4 4	orsley	<u>1 01445</u>	© 201	р, Inc 8 Нуd			catchr	nent DA		100Y unof	′R I ff A Vo	Rai Irea Ium f D	pe nfa i=1 ie=	III 2 II=8 0,70 0.02 h=1 5.0	4-h .56 9 s 9 a .40 miu	0078 PI	Rainfall= rinted 3/5 Pa	:8.56" /2021 Ige 10

Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

				ounn	nary for S	aboutom				1005			
Inoff	=	1.66 c	fs @ 12.0	07 hrs, Vo	lume=	0.132 a	af, Depth=	= 8.32"					
noff by	y SCS TF 24-hr 100	R-20 me IYR Rai	thod, UH=9 nfall=8.56"	SCS, Weig	hted-CN, T	ïme Span=	0.00-72.0	00 hrs, dt= 0).01 hrs				
A	<u>rea (sf)</u> 7,010		Description Paved park		^								
	1,275	98	Sidewalks,	HŜG A	A								
	8,285 8,285	98	Weighted A 100.00% Ir	Average npervious	Area								
	Length				Descript	ion							
<u>(min)</u> 5.0	(feet)	(ft/ft	(ft/sec)	(cfs	/	intry, Direc	t						
epare	POST V d by Hor D® 10.00-:	slev W	itten Grouµ 1445 © 201	o, Inc. 8 HydroCA		Solutions LL		A 2h impos	nicus	Туре		00YR I	en Group, Inc. Rainfall=8.56" nted 3/5/2021 Page 12
epare	d by Hor	slev W	itten Grouµ 1445 ⊚ 201	o, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA	A2b imper	rvious	Туре		00YR I	R <i>ainfall</i> =8.56" nted 3/5/2021
epare	d by Hor	slev W	itten Group 1445 © 201	o, Inc. 8 HydroCA	Subcato		A2bi: DA	A2b imper	rvious	Type		00YR I	Rainfall=8.56" nted 3/5/2021 Page 12
epare	d by Hor	sley W 22_s/n 0	itten Grouµ 1445 © 201 .66 cfs	o, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA	A2b imper			III 24-hr 1	Pri	R <i>ainfall</i> =8.56" nted 3/5/2021
epare	d by Hor	sley W 22_s/n 0	<u>1445 © 201</u>	o, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA		T	ype II	III 24-hr 1	Pri	Rainfall=8.56" nted 3/5/2021 Page 12
epare	d by Hor	sley W 22_s/n 0	<u>1445 © 201</u>	o, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA		T	ype II	III 24-hr 1	Pri	Rainfall=8.56" nted 3/5/2021 Page 12
epare	d by Hor	sley W 22_s/n 0	<u>1445 © 201</u>	o, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA	100Y	Tı 'R Ra	ype II infall	ll 24-hr 1		Rainfall=8.56" nted 3/5/2021 Page 12
epare	d by Hor	sley W 22_s/n 0	<u>1445 © 201</u>	o, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA ph	100Y Runo	T ′R Ra off Ar	ype II infall ea=8	l 24-h =8.56 285 s	Pri Pri	Rainfall=8.56" nted 3/5/2021 Page 12
epare droCAI	d by Hor	sley W 22_s/n 0	<u>1445 © 201</u>	p, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA ph	100Y Runo unoff	Tr ′R Ra off Ar Volur	ype II infall ea=8 ne=0	l 24-h =8.56 ,285 s 132 a	Pri Pri	Rainfall=8.56" nted 3/5/2021 Page 12
epare droCAI	d by Hor	sley W 22_s/n 0	<u>1445 © 201</u>	o, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA ph	100Y Runo unoff	Tr ′R Ra off Ar Volur	ype II infall ea=8 ne=0 Depth	l 24-hr 1 =8.56 ,285 s ,132 a =8.32	Pri Pri	Rainfall=8.56" nted 3/5/2021 Page 12
epare	d by Hor	sley W 22_s/n 0	<u>1445 © 201</u>	o, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA ph	100Y Runo unoff	Tr ′R Ra off Ar Volur	ype II infall ea=8 ne=0 Depth Tc=5	l 24-h =8.56 285 s 132 a =8.32 .0 mii	Pri Pri	Rainfall=8.56" nted 3/5/2021 Page 12
epare droCAI	d by Hor	sley W 22_s/n 0	<u>1445 © 201</u>	o, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA ph	100Y Runo unoff	Tr ′R Ra off Ar Volur	ype II infall ea=8 ne=0 Depth Tc=5	l 24-hr 1 =8.56 ,285 s ,132 a =8.32	Pri Pri	Rainfall=8.56" nted 3/5/2021 Page 12
epare droCAI	d by Hor	sley W 22_s/n 0	<u>1445 © 201</u>	o, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA ph	100Y Runo unoff	Tr ′R Ra off Ar Volur	ype II infall ea=8 ne=0 Depth Tc=5	l 24-h =8.56 285 s 132 a =8.32 .0 mii	Pri Pri	Rainfall=8.56" nted 3/5/2021 Page 12
epare droCAI	d by Hor	sley W 22_s/n 0	<u>1445 © 201</u>	p, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA ph	100Y Runo unoff	Tr ′R Ra off Ar Volur	ype II infall ea=8 ne=0 Depth Tc=5	l 24-h =8.56 285 s 132 a =8.32 .0 mii	Pri Pri	Rainfall=8.56" nted 3/5/2021 Page 12
epare droCAI	d by Hor	sley W 22_s/n 0	<u>1445 © 201</u>	o, Inc. 8 HydroCA	Subcato	hment D	A2bi: DA ph	100Y Runo unoff	Tr ′R Ra off Ar Volur	ype II infall ea=8 ne=0 Depth Tc=5	l 24-h =8.56 285 s 132 a =8.32 .0 mii	Pri Pri	Rainfall=8.56" nted 3/5/2021 Page 12

Runoff				40.40			•					a: DA:			- 40	-						
	=) cfs @							af, De												
			nethod, U ainfall=8		S, We	eighte	ed-CN,	Time	Span	= 0.00-7	72.00 h	rs, dt= C).01 h	rs								
	Area (sf)	CN	Descrip	otion																		
	14,079 19,742	39 30	>75% (Woods				d, HSC	ΞA														
	33,821 33,821	34	Weight 100.00	ted Ave	erage																	
τ.		01-																				
(min)			pe Velo ′ft) (ft/s	sec)		:fs)	Descrip															
5.0							Direct	Entry	/, Dire	ct												
																		He	rslev	Witte	n Group	Inc
	-POST															Тур	e ///			YR R	n Group Rainfall=	8.56"
repar	ed by H	orsley	Witten G ₀ 01445 ©	roup, l	Inc.	CAD	Software	e Solu	tions L	LC						Тур	e III :			YR R	R <i>ainfall</i> = nted 3/5	8.56"
repar	ed by H	orsley	Vitten G 01445 ©	roup, l) <u>2018 F</u>	Inc. Hydro0						: DA3	a perv	ious			Тур	e III .			YR R	R <i>ainfall</i> = nted 3/5	8.56" /2021
repar	ed by H	orsley	Vitten G 01445 ©	roup, l) 2018 F	Inc. Hydro(atch	ment	DA3a	:: DA3	a perv	ious			Тур	e ///			YR R	R <i>ainfall</i> = nted 3/5	8.56" /2021
repar	ed by H	orsley	Vitten G 01445 ©	roup, l	Inc. Hydro(atch		DA3a	:: DA3	a perv	ious			Тур	e III			YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
repar ydroCA	ed by He AD® 10.0	orsley	<u>101445</u> ©	2018 H	Inc. Hydro(atch	ment	DA3a	: DA3	a perv	ious			Тур	e ///			YR R	R <i>ainfall</i> = nted 3/5	8.56" /2021 ge 14
repar ydroCA	ed by He AD® 10.0	orsley	Witten G 01445 © 0.39 (2018 H	Inc. Hydro(atch	ment	DA3a	: DA3		ious					24-hr	100	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
reparo ydroCA 0 0 0	ed by He AD® 10.0 0.42 0.42 0.38	orsley	<u>101445</u> ©	2018 H	Inc. Hydro(atch	ment	DA3a);e		24-hr	100	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
repari ydroCA 0 0 0 0 0	ed by He AD® 10.0	orsley	<u>101445</u> ©	2018 H	Inc. Hydro(atch	ment	DA3a		00`Y	′R	T Ra	air)e Ifa		24-hr 24- 8.5	100 hr	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
repari ydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by He AD® 10.0 0.42 0.42 0.38	orsley	<u>101445</u> ©	2018 H	Inc. Hydro(atch	ment	aph	R	00Y 100	′R ff A	T Ra	air ea	De Ifa =3:	 = 3,8	24-hr 24- 8.5 21	100 hr 6"	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
reparv ydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by He AD® 10.0	orsley	<u>101445</u> ©	2018 H	Inc. Hydro(atch	ment	aph	R	00`Y	′R ff A	T Ra	air ea	De Ifa =3:	 = 3,8	24-hr 24- 8.5 21	100 hr 6"	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
reparv ydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by He AD® 10.0 0.42 0.44 0.44 0.38 0.34 0.34 0.34 0.32 0.32 0.32 0.32	orsley	<u>101445</u> ©	2018 H	Inc. Hydro(atch	ment	aph	R	00Y uno off	′R ff A Vo	T Ra Iu	air ea m)e 1fa =3:	 = 3,8).0	24-hr 24- 8.5 21 59	¹⁰⁰ hr Sf af	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
reparv ydroCA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by He AD® 10.0 0.42 0.4 0.4 0.4 0.38 0.38 0.38 0.34 0.32 0.33 0.33 0.33 0.34 0.32 0.33 0.34 0.32 0.33 0.34 0.32 0.3 0.3 0.3 0.34 0.32 0.34 0.32 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34	orsley	<u>101445</u> ©	2018 H	Inc. Hydro(atch	ment	aph	R	00Y 100	′R ff A Vo	T Ra Iu	air ea m De	be ifa =3: e=(= 3,8).0 h=	^{24-hr} 24- 8.5 21 0.9	100 hr 6" sf 1"	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
repar: ydroC/ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by He AD® 10.0 0.42 0.42 0.42 0.38 0.38 0.38 0.34 0.32 0.26 0.26 0.24 0.24	orsley	<u>101445</u> ©	2018 H	Inc. Hydrod			atch	ment	aph	R	00Y uno off	′R ff A Vo	T Ra Iu	air ea m De	be ifa =3: e=(= 3,8).0 h= 5.(24-hr 24- 24- 8.5 21 59 0.9	100 hr 6" af 1"	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
Elow (cg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by He AD® 10.0 0.42 0.4 0.4 0.4 0.38 0.38 0.38 0.34 0.32 0.33 0.33 0.33 0.34 0.32 0.33 0.34 0.32 0.33 0.34 0.32 0.3 0.3 0.3 0.34 0.32 0.34 0.32 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34	orsley	<u>101445</u> ©	2018 H	Inc. Hydro(atch	ment	aph	R	00Y uno off	′R ff A Vo	T Ra Iu	air ea m De	be ifa =3: e=(= 3,8).0 h= 5.(^{24-hr} 24- 8.5 21 0.9	100 hr 6" af 1"	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
Elow (cts) Elow (cts) Elow 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by He AD® 10.0 0.42 0.4 0.4 0.4 0.4 0.4 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	orsley	<u>101445</u> ©	2018 H	Inc. Hydro(atch	ment	aph	R	00Y uno off	′R ff A Vo	T Ra Iu	air ea m De	be ifa =3: e=(= 3,8).0 h= 5.(24-hr 24- 24- 8.5 21 59 0.9	100 hr 6" af 1"	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
Cterran Cteran Cter	ed by He AD® 10.0 0.42 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	orsley	<u>101445</u> ©	2018 H	Inc. Hydro(atch	ment	aph	R	00Y uno off	′R ff A Vo	T Ra Iu	air ea m De	be ifa =3: e=(= 3,8).0 h= 5.(24-hr 24- 24- 8.5 21 59 0.9	100 hr 6" af 1"	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
Prepar Prepar 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by He AD® 10.0 0.42 0.42 0.42 0.42 0.42 0.38 0.34 0.38 0.34 0.32 0.34 0.22 0.24 0.24 0.24 0.24 0.24 0.24 0.2	orsley	<u>101445</u> ©	2018 H	Inc. Hydro(atch	ment	aph	R	00Y uno off	′R ff A Vo	T Ra Iu	air ea m De	be ifa =3: e=(= 3,8).0 h= 5.(24-hr 24- 24- 8.5 21 59 0.9	100 hr 6" af 1"	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14
Preparary Prepart 0 0 0 0 0 0 0 0 0 0 0 0 0	ed by He AD® 10.0 0.42 0.44 0.44 0.38 0.34 0.34 0.32 0.32 0.32 0.24 0.24 0.24 0.24 0.24 0.24 0.24 0.2	orsley	<u>101445</u> ©	2018 H	Inc. Hydrod			atch	ment	aph	R	00Y uno off	′R ff A Vo	T Ra Iu	air ea m De	be ifa =3: e=(= 3,8).0 h= 5.(24-hr 24- 24- 8.5 21 59 0.9	100 hr 6" af 1"	YR R	Rainfall= hted 3/5 Pa	8.56" /2021 ge 14

							•	Subcat				a mpe		15				
Runoff	=		cfs @							epth= 8.								
Runoff I ype III	by SCS TI 24-hr 10	R-20 m 0YR Ra	ethod, l iinfall=8	JH=S 8.56"	CS, V	Veigh	ted-CN,	Time Spa	an= 0.00	-72.00 h	rs, dt= (0.01 hrs	i					
A	Area (sf)	CN	Descri															
	18,277 1,361	98 98	Paved Sidew															
	19,638 19,638	98	Weigh 100.00				rea											
Тс	Length	Slop	e Velo					ption										
(min) 5.0		(ft/f	t) (ft/	sec)		(cfs)	Direct	Entry, Di	irect									
9038-	-POST V	/3												Туре				Group, Inc.
repare	-POST V ed by Ho	rsley V	/itten G	Group	, Inc.	roCAE) Softwar	re Solution	sLLC					Туре			rR Rai	infall=8.56" d 3/5/2021
repare		rsley V	/itten G	Group	, Inc. 8 Hyd	roCAE				i: DA2a	impo	rvious		Туре			rR Rai	infall=8.56"
repare	ed by Ho	rsley V	/itten G	Group	, Inc. 8 Hyd	roCAE		tchmen	t DA3a	i: DA3a	imper	rvious		Туре			rR Rai	infall=8.56" d 3/5/2021
repare	ed by Ho	rsley V	/itten G	Sroup 2018	, Inc. B Hyd	roCAE			t DA3a	i: DA3a	impe	rvious		Type			/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>
repare	ed by Ho	rsley V 22 s/n	01445	2018	, Inc. <u>B Hyd</u>	roCAE		tchmen	t DA3a	i: DA3a	impe	rvious		Type			/R Rai Printe	infall=8.56" d 3/5/2021
repare	ed by Ho	rsley V 22 s/n	/itten G 01445 (3.93 (2018	, Inc. B Hyd	roCAE		tchmen	t DA3a	i: DA3a	impe					r 1001	/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>
repare	ed by Ho	rsley V 22 s/n	01445	2018	, Inc. <u>8 Hyd</u>	roCAE		tchmen	t DA3a				Тур	be II	1 24-hi	- 100Y	/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>
repare	ed by Ho	rsley V 22 s/n	01445	2018	, Inc. <u>B Hyd</u>	roCAE		tchmen	t DA3a		00	(R F	Typ Rain	pe II fall	24-hi 24-	- 100 -hr	/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>
repare	ed by Ho	rsley V 22 s/n	01445	2018	, Inc. <u>B Hyd</u>	roCAE		tchmen	t DA3a	1 	00Y 100	(R F	Typ Rain rea=	pe II fall =19	24-hi 24- 8.5 638	-hr 56"	/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>
Prepare lydroCA	ed by Hoi AD® 10.00	rsley V 22 s/n	01445	2018	, Inc. <u>B Hyd</u>	roCAE		tchmen	t DA3a		00Y uno ioff	(R F ff Ai Voli	Typ Rain rea= ume	oe II Ifall =19, ≥=0.	l 24-hi =8.5 638 313	-hr 56" sf af	/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>
Prepare lydroCA	ed by Hoi AD® 10.00	rsley V 22 s/n	01445	2018	, Inc. B Hyd	roCAE		tchmen	t DA3a	1 	00Y uno ioff	(R F	Typ Rain rea= ume	pe II fall =19 =0. pth	24-hi =8.5 638 313 =8.3	-hr 56" af 2"	/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>
repare	ed by Hoi AD® 10.00	rsley V 22 s/n	01445	2018	, Inc. 8 Hyd	roCAE		tchmen	t DA3a	1 	00Y uno ioff	(R F ff Ai Voli	Typ Rain rea= ume	pe II fall =19 =0. pth	l 24-hi =8.5 638 313	-hr 56" af 2"	/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>
Prepare lydroCA	ed by Ho AD® 10.00	rsley V 22 s/n	01445	2018	, Inc. <u>B Hyd</u>	roCAE		tchmen	t DA3a	1 	00Y uno ioff	(R F ff Ai Voli	Typ Rain rea= ume	pe II fall =19 =0. pth c=5	24-hi =8.5 638 313 =8.3	-hr -hr 56" af 52"	/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>
Prepare lydroCA	ed by Ho AD® 10.00	rsley V 22 s/n	01445	2018	, Inc.	roCAE		tchmen	t DA3a	1 	00Y uno ioff	(R F ff Ai Voli	Typ Rain rea= ume	pe II fall =19 =0. pth c=5	l 24-hi =8.5 638 313 =8.3	-hr -hr 56" af 52"	/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>
Prepare lydroCA	ed by Ho AD® 10.00	rsley V 22 s/n	01445	2018	, Inc. B Hyd	roCAE		tchmen	t DA3a	1 	00Y uno ioff	(R F ff Ai Voli	Typ Rain rea= ume	pe II fall =19 =0. pth c=5	l 24-hi =8.5 638 313 =8.3	-hr -hr 56" af 52"	/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>
Prepare lydroCA	ed by Ho AD® 10.00	rsley V 22 s/n	01445	2018	, Inc. <u>B Hyd</u>	roCAE		tchmen	t DA3a	1 	00Y uno ioff	(R F ff Ai Voli	Typ Rain rea= ume	pe II fall =19 =0. pth c=5	l 24-hi =8.5 638 313 =8.3	-hr -hr 56" af 52"	/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>
Prepare lydroCA	ed by Ho AD® 10.00	rsley V 22 s/n	01445	2018	, Inc.	roCAE		tchmen	t DA3a	1 	00Y uno ioff	(R F ff Ai Voli	Typ Rain rea= ume	pe II fall =19 =0. pth c=5	l 24-hi =8.5 638 313 =8.3	-hr -hr 56" af 52"	/R Rai Printe	infall=8.56" d 3/5/2021 <u>Page 16</u>

		0.00	t. 0. 10	Sum	-		
unoff	=		ofs @ 12.1				Depth= 1.00"
unoff by /pe III 2	24-hr 100	k-20 me YR Ra	thod, UH= infall=8.56"	SUS, Weig	jnted-CN,	, rime Span= 0	.00-72.00 hrs, dt= 0.01 hrs
A	rea (sf)		Description			-	
	2,324 1,936		>75% Gras Woods, Go			G A	
	4,260 4,260		Weighted / 100.00% F		rea		
Тс	Length		e Velocity			iption	
<u>(min)</u> 5.0	(feet)	(ft/ft)	Entry, Direct	
0.0					Direct	Lindy, Diroot	
							Horsley Witten Group, Inc.
	POST V		itten Grou	p. Inc.			Type III 24-hr 100YR Rainfall=8.56
epare	ed by Hor	sley W	itten Grou 11445 © 20	p, Inc. 18 HydroCA	AD Softwar	re Solutions LLC	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202
epare	ed by Hor	sley W	itten Grou 11445 © 20	p, Inc. 18 HydroC/			Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202
epare	ed by Hor	sley W	itten Grou 11445 © 201	p, Inc. 18 HydroCA			Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 18 A3b: DA3b pervious
epare	ed by Hor	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious
epare droCAI	ed by Hor	sley W	itten Grou ⊭1445 © 20 0.06 cf	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious
epare droCAI	ed by Hor <u>D® 10.00-</u>	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious h Type III 24-hr
epare droCAI 0.1	ed by Hor D® 10.00-	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious
epare <u>droCAI</u> 0.1 0.1	ed by Hor D® 10.00-	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious n Type III 24-hr 100YR Rainfall=8.56"
epare droCAI 0.1 0.1 0.1	ed by Hor D® 10.00-	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious Type III 24-hr 100YR Rainfall=8.56" Runoff Area=4,260 sf
epare droCAI 0.(0.(0.1	ed by Hor D® 10.00-	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious Type III 24-hr 100YR Rainfall=8.56" Runoff Area=4,260 sf Runoff Volume=0.008 af
0.4 0.4 0.4 0.4	ad by Hor D® 10.00-	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious Type III 24-hr 100YR Rainfall=8.56" Runoff Area=4,260 sf Runoff Volume=0.008 af Runoff Depth=1.00"
ow (cts) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	ad by Hor D® 10.00-	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious Type III 24-hr 100YR Rainfall=8.56" Runoff Area=4,260 sf Runoff Volume=0.008 af
epareque IAO <u>orb</u> 1.0 1.0 1.0 1.0 1.0 1.0 1.0	ad by Hor D® 10.00-	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious Type III 24-hr 100YR Rainfall=8.56" Runoff Area=4,260 sf Runoff Volume=0.008 af Runoff Depth=1.00" Tc=5.0 min
epare droCAI 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ad by Hor D® 10.00- 0.065 0.065 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious Type III 24-hr 100YR Rainfall=8.56" Runoff Area=4,260 sf Runoff Volume=0.008 af Runoff Depth=1.00"
epare 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ad by Hor D® 10.00- 065 0.065 0.055 0.045 0.045 0.045 0.045 0.045 0.035 0.025	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious Type III 24-hr 100YR Rainfall=8.56" Runoff Area=4,260 sf Runoff Volume=0.008 af Runoff Depth=1.00" Tc=5.0 min
epare discrete for the second	ad by Hor D® 10.00- 0.065 0.065 0.055 0.045 0.045 0.045 0.045 0.045 0.045 0.035 0.035 0.035 0.035	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious Type III 24-hr 100YR Rainfall=8.56" Runoff Area=4,260 sf Runoff Volume=0.008 af Runoff Depth=1.00" Tc=5.0 min
epare 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ad by Hor D® 10.00- 065 0.065 0.055 0.045 0.045 0.045 0.045 0.045 0.035 0.025	sley W	01445 © 20	18 HydroCA		atchment D	Type III 24-hr 100YR Rainfall=8.56 Printed 3/5/202 Page 11 A3b: DA3b pervious Type III 24-hr 100YR Rainfall=8.56" Runoff Area=4,260 sf Runoff Volume=0.008 af Runoff Depth=1.00" Tc=5.0 min

Runoff	=	2.04	cfs @	12.0	7 hrs,	Volu	ime=	0.	.162 af,	Depth=	8.32"									
	by SCS T 24-hr 10				ics, v	Veigh	ted-CN	, Time S	Span= 0.	00-72.0	0 hrs, di	= 0.01	hrs							
	Area (sf)	CN	Desci																	
	9,486	98	Pave	d park	ing, H															_
	693 10,179	98 98	Sidew Weigl	nted A	verag	е														_
	10,179		100.0		-															
Tc (min)	Length (feet)			ocity /sec)		acity (cfs)	Descr	iption												
5.0							Direct	t Entry,	Direct											_
																	lorslov	Wittor	Group In	
	-POST													7	Гуре			YR Ra	n Group, In ainfall=8.5	6″
Prepare	- POST \ ed by Hc AD® 10.00	orslev V	Vitten (Group	o, Inc. 8 Hydr	•oCAE) Softwa	re Solutio	ons LLC					7	Гуре			YR Ra		6″ 21
Prepare	ed by Ho	orslev V	/itten (01445	Group © 201	o, Inc. 8 Hydr	oCAE				bi: DA	\3b im	pervio	ous	7	Гуре			YR Ra	ainfall=8.5 ted 3/5/202	6″ 21
Prepare	ed by Ho	orslev V	√itten (01445	Group © 201	o, Inc. 8 Hydr	oCAE		itchme	ons LLC		\3b im	pervio	ous	7	Гуре			YR Ra	ainfall=8.5 ted 3/5/202	6″ 21
Prepare	ed by Ho	orslev V	Vitten (01445	Group © 201	o, Inc. 8 Hydr	oCAE		itchme	nt DA3		\3b im	pervio	ous	7	Гуре			PYR Ra	ainfall=8.5 ted 3/5/20 Page 2	6″ 21
Prepare	ed by Ho	orsley V 0-22 s/n	Vitten (01445	© 201), Inc. 8 Hydr	oCAE		itchme	nt DA3		\3b im	pervio				/// 24-I	nr 100	Print	ainfall=8.5 ted 3/5/202	6″ 21
Prepare	ed by Ho	orsley V 0-22 s/n	01445	© 201	o, Inc. 8 Hydr	oCAE		itchme	nt DA3		\3b im	pervio				/// 24-I		Print	ainfall=8.5 ted 3/5/20 Page 2	6″ 21
Prepare	ed by Ho AD® 10.00	orsley V 0-22 s/n	01445	© 201	o, Inc. 8 Hydr	oCAE		itchme	nt DA3				T	Туре	e II	II 24-1	nr 100	Print	ainfall=8.5 ted 3/5/20 Page 2	6″ 21
Prepare	ed by Ho AD® 10.00	orsley V 0-22 s/n	01445	© 201	o, Inc. 8 Hydr	oCAE		itchme	nt DA3		100)YR	T Ra	- yp	e II fall	I 24-1	nr 100 hr 5 6''	Print	ainfall=8.5 ted 3/5/20 Page 2	6″ 21
Prepare	ed by Ho AD® 10.00	orsley V 0-22 s/n	01445	© 201	o, Inc. 8 Hydr	oCAE		itchme	nt DA3		100 Run)YR off	T Ra Are	-ype ainf ea=	e II fall 10	24- 24 24 179	hr 56") sf	Print	ainfall=8.5 ted 3/5/20 Page 2	6″ 21
Prepare lydroCA	ed by Ho AD® 10.00	orsley V 0-22 s/n	01445	© 201	, Inc. 8 Hydr	oCAE		itchme	nt DA3		100 Run unof)YR off /	T Ra Are	ype ainf ea= me	e II fall 10 =0	24- 24 24 24 24 24 24 24 2	hr 56'') sf 2 af	Print	ainfall=8.5 ted 3/5/20 Page 2	6″ 21
Prepare lydroCA	ed by Ho AD® 10.00	orsley V 0-22 s/n	01445	© 201	o, Inc. 8 Hydr	oCAE		itchme	nt DA3		100 Run unof)YR off	T Ra Are	⁻ype ainf ea= me Dep	e II fall 10 =0.	24- 24 8. 79 162 8.	-hr 56") sf 2 af 32"	Print	ainfall=8.5 ted 3/5/20 Page 2	6″ 21
Prepare	ed by Ho AD® 10.00	orsley V 0-22 s/n	01445	© 201	9, Inc. 8 Hydr	oCAE		itchme	nt DA3		100 Run unof)YR off /	T Ra Are	⁻ype ainf ea= me Dep	e II fall 10 =0.	24- 24 24 24 24 24 24 24 2	-hr 56") sf 2 af 32"	Print	ainfall=8.5 ted 3/5/20 Page 2	6″ 21
Prepare lydroCA	ed by Ho AD® 10.00	orsley V 0-22 s/n	01445	© 201	9, Inc. 8 Hydr	oCAE		itchme	nt DA3		100 Run unof)YR off /	T Ra Are	⁻ype ainf ea= me Dep	e II fall 10 =0. oth ;=5	l 24- =8. 179 =8.	hr 56") sf 2 af 32" nin	Print	ainfall=8.5 ted 3/5/20 Page 2	6″ 21
Prepare lydroCA	ed by Ho AD® 10.00	orsley V 0-22 s/n	01445	© 201	o, Inc. 8 Hydr	oCAE		itchme	nt DA3		100 Run unof)YR off /	T Ra Are	⁻ype ainf ea= me Dep	e II fall 10 =0. oth ;=5	24- 24 8. 79 162 8.	hr 56") sf 2 af 32" nin	Print	ainfall=8.5 ted 3/5/20 Page 2	6″ 21
Prepare lydroCA	ed by Ho AD® 10.00	orsley V 0-22 s/n	01445	© 201	9, Inc. 8 Hydr	oCAE		itchme	nt DA3		100 Run unof)YR off /	T Ra Are	⁻ype ainf ea= me Dep	e II fall 10 =0. oth ;=5	l 24- =8. 179 =8.	hr 56") sf 2 af 32" nin	Print	ainfall=8.5 ted 3/5/20 Page 2	6″ 21
Prepare lydroCA	ed by Ho AD® 10.00	orsley V 0-22 s/n	01445	© 201	9, Inc. 8 Hydr	oCAE		itchme	nt DA3		100 Run unof)YR off /	T Ra Are	⁻ype ainf ea= me Dep	e II fall 10 =0. oth ;=5	l 24- =8. 179 =8.	hr 56") sf 2 af 32" nin	Print	ainfall=8.5 ted 3/5/20 Page 2	6″ 21
Prepare lydroCA	ed by Ho AD® 10.00	orsley V 0-22 s/n	01445	© 201	9, Inc. 8 Hydr	oCAE		itchme	nt DA3		100 Run unof)YR off /	T Ra Are	⁻ype ainf ea= me Dep	e II fall 10 =0. oth ;=5	l 24- =8. 179 =8.	hr 56") sf 2 af 32" nin	Print	ainfall=8.5 ted 3/5/20 Page 2	6″ 21

noff	=	0 10	cfs @	12 20			-			ent DA3c		-						
			-									1 bro						
		00YR R			US, VV	eigni	∋u-∪N,	nine opa	ui- 0.00	-72.00 hrs	, ui– 0.0	11115						
A	rea (sf)			ription														
	4,662 21,479	39 30	Wood	ls, Goo	od, HS	ĠΑ	od, HSG	βA										
	26,141 26,141	32			verage ervious													
	Lengt						Descrip	otion										
(<u>min)</u> 5.0	(feet) (ft/	ft) (fl	/sec)	((cfs)	Direct	Entry, Di	rect									
															Hoi	rsley Wi	itten Gro	oup, Inc.
	POST		Vitten	Group									T	ype III		100YF	R Rainfa	oup, Inc. all=8.56" 3/5/2021
epare	d by H	orsley V				DCAD	Software	e Solutions	s LLC				Т	ype III		100YF	R <i>Rainfa</i> Printed	
epare	d by H	orsley V								c: DA3c	pervio	us	T	ype III		100YF	R <i>Rainfa</i> Printed	all=8.56" 3/5/2021
epare	d by H	orsley V							nt DA3	c: DA3c	pervio	us	7	ype III		100YF	R <i>Rainfa</i> Printed	all=8.56" 3/5/2021
epare droCAI	d by H	orsley V	01445	© 2018				atchme	nt DA3	c: DA3c	pervio	us	7			100YF	R Rainfa	all=8.56" 3/5/2021
epare droCAI 0.2	d by H D® 10.0	orsley V		© 2018				atchme	nt DA3	c: DA3c	pervio				24-hr	100YF F	R Rainfa	all=8.56" 3/5/2021 Page 22
epare droCAI	d by H D® 10.0	orsley V	01445	© 2018				atchme	nt DA3				уре		24-hr	100YF F hr	R Rainfa	all=8.56" 3/5/2021 Page 22
epare droCAI 0.2 0.7 0.7	d by H D® 10.0 21 19 19 18 17	orsley V	01445	© 2018				atchme	nt DA3	1	DOYF	T R Ra	ype	> 111 all=	24-hr 24- 8.5	100YF F hr	R Rainfa	all=8.56" 3/5/2021 Page 22
epare droCAI 0.2 0.7	d by H D® 10.0 21 9.2 19 18 17 16	orsley V	01445	© 2018				atchme	nt DA3	1		T R Ra	ype	> 111 all=	24-hr 24- 8.5	100YF F hr	R Rainfa	all=8.56" 3/5/2021 Page 22
0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	d by H D® 10.0 21 19 18 17 16 15 14	orsley V	01445	© 2018				atchme	nt DA3	1 Ru	D0YF noff	T R Ra Are	ype ainf ea=	e III all= 26,1	24-hr 24- 8.5(41	100YF	R Rainfa	all=8.56" 3/5/2021 Page 22
0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	d by H D® 10.0 21 19 19 18 17 16 15 14 13	orsley V	01445	© 2018				atchme	nt DA3	1 Ru Run)0YF noff off V	T R Ra Are Olu	ype ainf ea= me	ə III all= 26,1 =0.0	24-hr 24- 8.5(41)36	100YF hr 6' af	R Rainfa	all=8.56" 3/5/2021 Page 22
0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	d by H D® 10.0 21 19 18 17 16 15 14 13 12 11	orsley V	01445	© 2018				atchme	nt DA3	1 Ru Run	D0YF noff	T R Ra Are Olu	ype ainf ea= me Dep	= all= 26,1 =0.(24-hr 24- 8.50 41 36 0.7:	100YF hr 5'' af 3''	R Rainfa	all=8.56" 3/5/2021 Page 22
epare droCAl 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	d by H D® 10.0 21 19 19 18 17 16 15 14 11 12 11 11 10 11 09	orsley V	01445	© 2018				atchme	nt DA3	1 Ru Run)0YF noff off V	T R Ra Are Olu	ype ainf ea= me Dep	> all= 26,1 =0.(oth= =5.	24-hr 24- 8.50 41 0.7 0 m	100YF hr 5'	R Rainfa	all=8.56" 3/5/2021 Page 22
epare droCAI 0.0 0.0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	d by H D® 10.0 21 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.1 1.1	orsley V	01445	© 2018				atchme	nt DA3	1 Ru Run)0YF noff off V	T R Ra Are Olu	ype ainf ea= me Dep	> all= 26,1 =0.(oth= =5.	24-hr 24- 8.50 41 36 0.7:	100YF hr 5'	R Rainfa	all=8.56" 3/5/2021 Page 22
epare droCAI 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	d by H D® 10.0 21 1.2 19 19 17 16 15 17 16 15 17 16 15 17 10 10 10 10 10 10 10 10 10 10 10 10 10	orsley V	01445	© 2018				atchme	nt DA3	1 Ru Run)0YF noff off V	T R Ra Are Olu	ype ainf ea= me Dep	> all= 26,1 =0.(oth= =5.	24-hr 24- 8.50 41 0.7 0 m	100YF hr 5'	R Rainfa	all=8.56" 3/5/2021 Page 22
epare droCAI 0 0 0 0 0 0 0 0 0 0 0 0 0	d by H D® 10.0 21 0.2 19 19 18 17 16 15 14 13 12 11 11 10 10 8 00 8 00 7 00 6 00	orsley V	01445	© 2018				atchme	nt DA3	1 Ru Run)0YF noff off V	T R Ra Are Olu	ype ainf ea= me Dep	> all= 26,1 =0.(oth= =5.	24-hr 24- 8.50 41 0.7 0 m	100YF hr 5'	R Rainfa	all=8.56" 3/5/2021 Page 22
epare droCAI 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	d by H D® 10.0 21 19 19 18 17 16 15 14 11 11 11 11 11 11 11 10 9 8 07 06 06 06 06 06 06	orsley V	01445	© 2018				atchme	nt DA3	1 Ru Run)0YF noff off V	T R Ra Are Olu	ype ainf ea= me Dep	> all= 26,1 =0.(oth= =5.	24-hr 24- 8.50 41 0.7 0 m	100YF hr 5'	R Rainfa	all=8.56" 3/5/2021 Page 22
1.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	d by H D® 10.0 21 19 10 10 10 10 10 10 10 10 10 10 10 10 10	orsley V	01445	© 2018				atchme	nt DA3	1 Ru Run)0YF noff off V	T R Ra Are Olu	ype ainf ea= me Dep	> all= 26,1 =0.(oth= =5.	24-hr 24- 8.50 41 0.7 0 m	100YF hr 5'	R Rainfa	all=8.56" 3/5/2021 Page 22

Runoff	=	0.64	rfs @ 12	07 hrs, Volu	-	0.051 af, Dept	DA3ci: DA3c im	-		
			-					r0		
			infall=8.56		led-CN, Tim	e Span= 0.00-72	2.00 hrs, dt= 0.01 h	15		
Ar	ea (sf)	CN	Description							
	2,649 530	98 98	Paved par Sidewalks	king, HSG A , HSG A						
	3,179 3,179	98	Weighted .		rea					
Тс	Length	Slon		Capacity						
(min) 5.0	(feet)	(ft/f								
5.0					Direct Ent	y, Direct				
									Horsley	Witten Group, Inc.
	POST V							Туре		Witten Group, Inc. YR Rainfall=8.56"
repared	d by Hor	slev V	fitten Grou 01445 © 20	p, Inc. 18 HydroCAD	Software Sc	lutions LLC		Туре		
Prepared	d by Hor	slev V	/itten Grou 01445 © 20	18 HydroCAD			DA3c imperviou			YR Rainfall=8.56" Printed 3/5/2021
Prepared	d by Hor	slev V	fitten Grou 01445 ⊚ 20	18 HydroCAD	Subcatch	nent DA3ci: I	DA3c imperviou			YR Rainfall=8.56" Printed 3/5/2021
Preparec lydroCAD	d by Hor <u>8 10.00-</u>	slev V	/itten Grou 01445 ⊚ 20	18 HydroCAD	Subcatch		DA3c imperviou			YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparec lydroCAD	d by Hor	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	DA3c imperviou			YR Rainfall=8.56" Printed 3/5/2021
Preparec lydroCAE 0.	d by Hor	sley V	/itten Grou 01445 © 20 0.64 cfs	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	DA3c imperviou	IS	11 24-hr 100	YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparec lydroCAD 0.6 0.6	d by Hor	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I		ıs Type II	100 1124-hr 100	YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparec HydroCAE 0. 0.6 0.5	7 1	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	100YR	^{is} Type II Rainfall	100 124-hr 124-hr =8.56	YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparec <u>lydroCAE</u> 0. 0.6 0.5 0.5	d by Hor 10.00-	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	100YR Runoff	^{ıs} Type II RainfaII Area=3,	ll 24-hr 100 l 24-hr =8.56" 179 sf	YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparecc <u>HydroCAE</u> 0.6 0.5 0.5 0.4	d by Hor 10.00- 7 - 1	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	100YR Runoff Runoff Vo	Type II Rainfall Area=3, lume=0.	ll 24-hr 100 l 24-hr =8.56" 179 sf 051 af	YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparecc <u>HydroCAE</u> 0.6 0.5 0.5 0.4	7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	100YR Runoff Runoff Vo	^{ıs} Type II RainfaII Area=3,	ll 24-hr 100 l 24-hr =8.56" 179 sf 051 af	YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparec <u>lydroCAE</u> 0. 0.6 0.5 0. 0.4 (st) 0.3 0.3 0.4 0.3 0.4 0.3 0.4 0.3 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	d by Hor	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	100YR Runoff Runoff Vo	Type II Rainfall Area=3, lume=0.	ll 24-hr 100 l 24-hr =8.56'' 179 sf 051 af =8.32''	YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparecc <u>HydroCAE</u> 0. 0.5 0. 0.4 (sg) 0.	d by Hor	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	100YR Runoff Runoff Vo	Type II Rainfall Area=3, lume=0. ff Depth Tc=5	ll 24-hr 100 l 24-hr =8.56" 179 sf 051 af =8.32" .0 min	YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparec <u>lydroCAE</u> 0. 0.6 0.5 0. 0.4 (st) 0.3 0.3 0.4 0.3 0.4 0.3 0.4 0.3 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	100YR Runoff Runoff Vo	Type II Rainfall Area=3, lume=0. ff Depth Tc=5	ll 24-hr 100 l 24-hr =8.56'' 179 sf 051 af =8.32''	YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparecc <u>HydroCAE</u> 0. 0.6 0.5 0. 0.5 0. 0.5 0. 0.5 0. 0.5 0. 0.5 0. 0.5 0. 0.4 0.3 0.3 0.3 0.3 0.4 0.3 0.4 0.5 0.4 0.5 0.5 0.4 0.5 0.5 0.4 0.5 0.5 0.4 0.5 0.5 0.4 0.5 0.5 0.4 0.5 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.4 0.5 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	100YR Runoff Runoff Vo	Type II Rainfall Area=3, lume=0. ff Depth Tc=5	ll 24-hr 100 l 24-hr =8.56" 179 sf 051 af =8.32" .0 min	YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparecc <u>HydroCAE</u> 0. 0.6 0.5 0. 0.5 0. 0.5 0. 0.5 0. 0.5 0. 0.5 0. 0.5 0. 0.4 0.3 0.3 0.3 0.3 0.4 0.3 0.4 0.5 0.4 0.5 0.5 0.4 0.5 0.5 0.4 0.5 0.5 0.4 0.5 0.5 0.4 0.5 0.5 0.4 0.5 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.4 0.5 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	d by Hor ∞ 10.00- 7.1 15.1 16.1 15.1	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	100YR Runoff Runoff Vo	Type II Rainfall Area=3, lume=0. ff Depth Tc=5	ll 24-hr 100 l 24-hr =8.56" 179 sf 051 af =8.32" .0 min	YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparec <u>HydroCAE</u> 0. 0.6 0.5 0.4 (st) 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	d by Hor 10.00- 7.1 10.00-	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	100YR Runoff Runoff Vo	Type II Rainfall Area=3, lume=0. ff Depth Tc=5	ll 24-hr 100 l 24-hr =8.56" 179 sf 051 af =8.32" .0 min	YR Rainfall=8.56" Printed 3/5/2021 Page 24
Preparec <u>lydroCAE</u> 0. 0.6 0. 0.5 0. 0.4 (sc) 0.3 0.3 0.2 0. 0.2 0. 0.2 0. 0.2 0. 0.2 0. 0.2 0.3 0.2 0.3 0.2 0.3 0.2 0.3 0.3 0.2 0.3 0.3 0.2 0.3 0.3 0.3 0.2 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	d by Hor 10.00- 7 - 55 - 6 - 55 - 15 - 15 - 15 - 15 - 15 - 15 - 15 - 15 - 15 - 15 - 15 - 15 - 16	sley V	01445 © 20	<u>18 HydroCAD</u>	Subcatch	nent DA3ci: I	100YR Runoff Runoff Vo	Type II Rainfall Area=3, lume=0. ff Depth Tc=5	ll 24-hr 100 l 24-hr =8.56" 179 sf 051 af =8.32" .0 min	YR Rainfall=8.56" Printed 3/5/2021 Page 24

HydroCAD® 10.00-22 s/n 0	01445 © 2018 HydroCAD Software Solutions LLC	Page 25
	Summary for Subcatchment DA3d: DA3d pervious	6
Runoff = 0.01 c	cfs @ 12.10 hrs, Volume= 0.001 af, Depth= 1.40"	
	ethod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs	
Type III 24-hr 100YR Rai		
197 39	Description >75% Grass cover, Good, HSG A	
	100.00% Pervious Area	
Tc Length Slope (min) (feet) (ft/ft)	e Velocity Capacity Description t) (ft/sec) (cfs)	
5.0	Direct Entry, Direct	
	Subcatchment DA3d: DA3d pervious Hydrograph	
	0.00 0.001 cfs 100YR Rainfall=8.56 0.004 0.004 0.005 0.004 0.004 0.005 0.004 0.005 0.004 0.005	Υ = - if = - if = - R 9
Prepared by Horsley Wi	/itten Group, Inc. 01445 © 2018 HydroCAD Software Solutions LLC	Horsley Witten Group, Inc. Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page 26
Prepared by Horsley Wi		Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page 26
Prepared by Horsley Wi HydroCAD® 10.00-22 s/n 0	01445 © 2018 HydroCAD Software Solutions LLC	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page 26
Prepared by Horsley Wi HydroCAD® 10.00-22 s/n 0 Runoff = 0.94 c Runoff by SCS TR-20 me	D1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di: DA3d imperviou cfs @ 12.07 hrs, Volume= 0.075 af, Depth= 8.32" ethod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page 26
Prepared by Horsley Wi HydroCAD® 10.00-22 s/n 0 Runoff = 0.94 c Runoff by SCS TR-20 me Type III 24-hr 100YR Rai Area (sf) CN	D1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di: DA3d imperviou cfs @ 12.07 hrs, Volume= 0.075 af, Depth= 8.32" ethod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs infall=8.56" Description	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page 26
Prepared by Horsley Wi HydroCAD® 10.00-22 s/n 0 Runoff = 0.94 c Runoff by SCS TR-20 me Type III 24-hr 100YR Rai <u>Area (sf) CN</u> 4,686 98	D1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di: DA3d imperviou cfs @ 12.07 hrs, Volume= 0.075 af, Depth= 8.32" ethod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs infall=8.56"	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page 26
Prepared by Horsley Wi HydroCAD® 10.00-22 s/n 0 Runoff = 0.94 c Runoff by SCS TR-20 me Type III 24-hr 100YR Rai <u>Area (sf) CN</u> 4,686 98 4,686 Tc Length Slope	D1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di: DA3d imperviou cfs @ 12.07 hrs, Volume= 0.075 af, Depth= 8.32" athod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs infall=8.56" Description Paved parking, HSG A 100.00% Impervious Area e Velocity Capacity Description	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page 26
Prepared by Horsley Wi HydroCAD® 10.00-22 s/n 0 Runoff = 0.94 c Runoff by SCS TR-20 me Type III 24-hr 100YR Rai <u>Area (sf) CN</u> 4,686 98 4,686	D1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di: DA3d imperviou cfs @ 12.07 hrs, Volume= 0.075 af, Depth= 8.32" athod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs infall=8.56" Description Paved parking, HSG A 100.00% Impervious Area e Velocity Capacity Description	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page 26
Runoff = 0.94 c Runoff by SCS TR-20 me Type III 24-hr 100YR Rai <u>Area (sf) CN</u> 4,686 98 4,686 Tc Length Slope (min) (feet) (ft/ft)	D1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment DA3di: DA3d imperviou cfs @ 12.07 hrs, Volume= 0.075 af, Depth= 8.32" ethod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs infall=8.56" Description Paved parking, HSG A 100.00% Impervious Area e Velocity Capacity Description (cfs)	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page 26

lydroCAD® 10.00-22 s/n 01	1445 © 2018 HydroCAD Software Solutions LLC	Page 27
	Summary for Subcatchment R1E: EAST ROOF	
unoff = 2.27 cf	fs @ 12.07 hrs, Volume= 0.180 af, Depth= 8.32"	
unoff by SCS TR-20 met ype III 24-hr 100YR Rain	thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs nfall=8.56"	
	Description	
	Roofs, HSG A 100.00% Impervious Area	
	Velocity Capacity Description	
(min) (feet) (ft/ft) 5.0	(ft/sec) (cfs) Direct Entry, Direct	
	Subcatchment R1E: EAST ROOF	
	(g) (g) (g) (g) (g) (g) (g) (g)	
	0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 7 Time (hours)	Horsley Witten Group, Inc.
19038-POST V3 Prepared by Horsley Wit	itten Group, Inc.	Horsley Witten Group, Inc. Type III 24-hr 100YR Rainfall=8.56″ Printed 3/5/2021
Prepared by Horsley Wit	10 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 7 Time (hours) Itten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC	Type III 24-hr 100YR Rainfall=8.56"
Prepared by Horsley Wit lydroCAD® 10.00-22 s/n 01	itten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021
Prepared by Horsley Wit lydroCAD® 10.00-22 s/n 01 Runoff = 2.00 cf	tten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021
Prepared by Horsley Wit lydroCAD® 10.00-22 s/n 01 Runoff = 2.00 cf	itten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF fs @ 12.07 hrs, Volume= 0.159 af, Depth= 8.32" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021
Prepared by Horsley Wit lydroCAD® 10.00-22 s/n 01 Runoff = 2.00 cf Runoff by SCS TR-20 meti ype III 24-hr 100YR Rair Area (sf) CN [itten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF fs @ 12.07 hrs, Volume= 0.159 af, Depth= 8.32" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021
Prepared by Horsley Wit lydroCAD® 10.00-22 s/n 01 Runoff = 2.00 cf Runoff by SCS TR-20 met ype III 24-hr 100YR Rair <u>Area (sf) CN [</u> 10,000 98 F	tten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF fs @ 12.07 hrs, Volume= 0.159 af, Depth= 8.32" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs nfall=8.56"	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021
Prepared by Horsley Wit <u>lydroCAD® 10.00-22 s/n 01</u> Runoff = 2.00 cf Runoff by SCS TR-20 meti ype III 24-hr 100YR Rain <u>Area (sf) CN E</u> <u>10,000 98 F</u> 10,000 1	tten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF fs @ 12.07 hrs, Volume= 0.159 af, Depth= 8.32" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs nfall=8.56" Description Roofs, HSG A 100.00% Impervious Area : Velocity Capacity Description	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021
Prepared by Horsley Wit lydroCAD® 10.00-22 s/n 01 Runoff = 2.00 cf Runoff by SCS TR-20 meti ype III 24-hr 100YR Rain Area (sf) CN 10,000 98 10,000 1 Tc<	tten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF fs @ 12.07 hrs, Volume= 0.159 af, Depth= 8.32" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs nfall=8.56" Description Roofs, HSG A 100.00% Impervious Area : Velocity Capacity Description	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021
Prepared by Horsley Wit <u>lydroCAD® 10.00-22 s/n 01</u> Runoff = 2.00 cf Runoff by SCS TR-20 mett <u>ype III 24-hr 100YR Rain</u> <u>Area (sf) CN E</u> <u>10,000 98 F</u> 10,000 1 <u>Tc Length Slope</u> <u>(min) (feet) (ft/ft)</u>	titten Group, Inc. 1445 © 2018 HydroCAD Software Solutions LLC Summary for Subcatchment R1W: WEST ROOF fs @ 12.07 hrs, Volume= 0.159 af, Depth= 8.32" thod, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs nfal=8.56" Description Roofs, HSG A 100.00% Impervious Area : Velocity Capacity Description i (ft/sec) (cfs)	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021

		C				
		Sui	mmary for Pone	d 100: CB 100		
nflow Area =		4% Impervious, Inflov		for 100YR event		
nflow = Outflow =	0.71 cfs @ 12.0	09 hrs, Volume= 09 hrs, Volume=		en= 0%, Lag= 0.0 min		
Primary =	0	09 hrs, Volume=	0.087 af			
	-Ind method, Time S 56' @ 12.09 hrs	Span= 0.00-72.00 hrs,	, dt= 0.01 hrs			
evice Routir	ig Invert (Outlet Devices				
#1 Prima				rojecting, no headwall, 0.0050 '/' Cc= 0.900	Ke= 0.900	
				or, Flow Area= 0.79 st	F	
rimary OutFle	ow Max=0.71 cfs @ Barrel Controls 0.71	12.09 hrs HW=50.56	6' (Free Discharge	e)		
						rsley Witten Group, Inc. 100YR Rainfall=8.56"
repared by H	lorsley Witten Grou	ıp, Inc. 18 HydroCAD Software	e Solutions LLC			100YR Rainfall=8.56" Printed 3/5/2021
repared by H	lorsley Witten Grou	ip, Inc. 18 HydroCAD Software		CB 100		100YR Rainfall=8.56"
repared by H	lorsley Witten Grou	18 HydroCAD Software	Pond 100: 0	CB 100		100YR Rainfall=8.56" Printed 3/5/2021
repared by H	lorsley Witten Grou	18 HydroCAD Software		CB 100		100YR Rainfall=8.56" Printed 3/5/2021 Page 30
repared by H	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: 0	CB 100		100YR Rainfall=8.56" Printed 3/5/2021 Page 30
nepared by H ydroCAD® 10.0	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: C Hydrograph		Type III 24-hr	100YR Rainfall=8.56" Printed 3/5/2021 Page 30
repared by H ydroCAD® 10.0 0.75 0.75	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: C Hydrograph	nflow Are	Type III 24-hr a=0.673 a	100YR Rainfall=8.56" Printed 3/5/2021 Page 30 ■ Inflow ■ Primary
repared by H ydroCAD® 10.0 0.75 0.75 0.65	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: C Hydrograph	nflow Are	Type III 24-hr a=0.673 a Elev=50.50	100YR Rainfall=8.56" Printed 3/5/2021 Page 30
repared by H ydroCAD® 10.0 0.75 0.75	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: C Hydrograph	nflow Are	Type III 24-hr a=0.673 a	100YR Rainfall=8.56" Printed 3/5/2021 Page 30
repared by H ydroCAD® 10.0 0.75 0.65 0.6	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: C Hydrograph	nflow Are Peak I	Type III 24-hr a=0.673 a Elev=50.50	100YR Rainfall=8.56" Printed 3/5/2021 Page 30 Inflow Primary
repared by H ydroCAD® 10.0 0.75 0.7 0.65 0.6 0.55	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: C Hydrograph	nflow Are Peak I	Type III 24-hr a=0.673 a Elev=50.50 12.0 Ind Culve	100YR Rainfall=8.56" Printed 3/5/2021 Page 30 ■ Inflow ■ Primary C
0.75 0.65 0.55 0.55	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: (Hydrograph	nflow Are Peak I	Type III 24-hr a=0.673 a Elev=50.50 12.0 nd Culve n=0.01	100YR Rainfall=8.56" Printed 3/5/2021 Page 30 Page 30 Primary C
0.75 0.75 0.65 0.65 0.55 0.55 0.45 0.45 0.45	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: (Hydrograph	nflow Are Peak I	Type III 24-hr a=0.673 a Elev=50.50 12.0 Ind Culve	100YR Rainfall=8.56" Printed 3/5/2021 Page 30 Page 30 Primary C
0.75 0.75 0.65 0.55 0.55 0.55 0.45 0.45 0.35 0.35 0.35	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: (Hydrograph	nflow Are Peak I Rou	Type III 24-hr a=0.673 a ilev=50.50 12.0 nd Culve n=0.01 L=4.0	100YR Rainfall=8.56" Printed 3/5/2021 Page 30 Page 30 Primary C C C C C C C C C
0.75 0.75 0.65 0.65 0.55 0.55 0.55 0.55 0.55 0.5	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: (Hydrograph	nflow Are Peak I Rou	Type III 24-hr a=0.673 a Elev=50.50 12.0 nd Culve n=0.01	100YR Rainfall=8.56" Printed 3/5/2021 Page 30 Page 30 Primary C C C C C C C C C
0.75 0.75 0.65 0.65 0.55 0.55 0.55 0.45 0.45 0.35 0.35 0.35	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: (Hydrograph	nflow Are Peak I Rou	Type III 24-hr a=0.673 a ilev=50.50 12.0 nd Culve n=0.01 L=4.0	100YR Rainfall=8.56" Printed 3/5/2021 Page 30 Page 30 Primary C C C C C C C C C
0.75 0.75 0.65 0.65 0.55 0.55 0.55 0.45 0.45 0.35 0.35 0.35 0.35 0.35 0.35 0.35	lorsley Witten Grou 10-22 s/n 01445 © 20	18 HydroCAD Software	Pond 100: (Hydrograph	nflow Are Peak I Rou	Type III 24-hr a=0.673 a ilev=50.50 12.0 nd Culve n=0.01 L=4.0	100YR Rainfall=8.56" Printed 3/5/2021 Page 30 Page 30 Primary C C C C C C C C C

Inflow Ai Inflow Outflow	rea = 0.11	0 05 1		
	= 0.94		5.97% Impervious, Inflow Depth = 8.04" for 100YR event 12.07 hrs, Volume= 0.075 af	
	= 0.94	cfs @ 12	12.07 hrs, Volume= 0.075 af, Atten= 0%, Lag= 0.0 min	
Primary Seconda			12.07 hrs, Volume= 0.075 af 0.00 hrs, Volume= 0.000 af	
outing	by Stor-Ind meth	od Time	e Span= 0.00-72.00 hrs, dt= 0.01 hrs	
	ev= 52.60' @ 12		o opun= 0.00-72.00 ms, u= 0.01 ms	
evice	Routing	Invert	t Outlet Devices	
#1	Secondary	52.70'	12.0" Round Culvert L= 4.0' CMP, square edge headwall, Ke= 0.500	
			Inlet / Outlet Invert= 52.70' / 52.68' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	
#2	Primary	51.66'	' 8.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 51.66' / 51.41' S= 0.0050 '/' Cc= 0.900	
#3	Secondary	55.79'	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf	
#3	Secondary	55.79	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 4.00 4.50 5.00	
			5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79	,
			2.88	
			@ 12.07 hrs HW=52.60' (Free Discharge)	
	,		94 cfs @ 2.70 fps)	
	ary OutFlow Ma Ivert (Controls		cfs @ 0.00 hrs HW=51.66' (Free Discharge))	
			ar Weir (Controls 0.00 cfs)	
0028			Horsley Witten Group, In Tune /// 24 br. 100/17 Deinfo// 24	
	POST V3 d by Horsley V	/itten Gro	Type III 24-hr 100YR Rainfall=8.5	56″
repare	d by Horsley V		Type III 24-hr 100YR Rainfall=8.5	56″ 21
repare	d by Horsley V		roup, Inc. Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20	56″ 21
repare	d by Horsley V		roup, Inc. Type III 24-hr 100YR Rainfall=8.5 2018 HydroCAD Software Solutions LLC Page	56″ 21
repare	d by Horsley V		Type III 24-hr 100YR Rainfall=8.5 roup, Inc. Printed 3/5/20 2018 HydroCAD Software Solutions LLC Page Pond 200: CB 200 Hydrograph	56″ 21
repare	d by Horsley V	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 roup, Inc. Printed 3/5/20 2018 HydroCAD Software Solutions LLC Page Pond 200: CB 200 Hydrograph	56″ 21
repare	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph	56″ 21
repare ydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21
repare ydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph	56″ 21
repare ydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21
repare ydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21
repare ydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21
vepare ydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21
vepare ydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21
repare ydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21
repare ydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21
Prepare lydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21
Prepare lydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21
Prepare lydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21
vepare ydroCA	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21
Flow (cfs)	d by Horsley V D® 10.00-22 s/n	01445 © 2	Type III 24-hr 100YR Rainfall=8.5 Printed 3/5/20 Page Pond 200: CB 200 Hydrograph 94 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 4 cfs 5 condarry 5 secondary	56″ 21

Summary	for Pond	BIO1: BIO 1
---------	----------	-------------

Inflow Area =	1.227 ac, 36.73% Impervious, Inflow Depth = 3.63" for 100YR event
Inflow =	4.20 cfs @ 12.08 hrs, Volume= 0.371 af
Outflow =	3.98 cfs @ 12.10 hrs, Volume= 0.371 af, Atten= 5%, Lag= 1.6 min
Primary =	3.98 cfs @ 12.10 hrs, Volume= 0.371 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 59.58' @ 12.10 hrs Surf.Area= 1,710 sf Storage= 1,440 cf

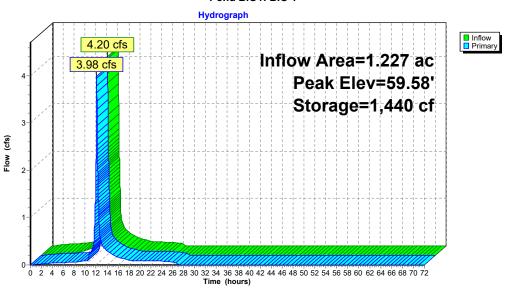
Plug-Flow detention time= 54.7 min calculated for 0.371 af (100% of inflow) Center-of-Mass det. time= 54.8 min (824.7 - 770.0)

Volume	Inve	rt Avail.Sto	orage Storage	Description	
#1	58.50)' 2,2	10 cf Custom	i Stage Data (Pri	smatic)Listed below (Recalc)
Elevatio (fee 58.5 59.0 60.0	50 00	Surf.Area (sq-ft) 800 1,380 1,950	Inc.Store (cubic-feet) 0 545 1,665	Cum.Store (cubic-feet) 0 545 2,210	
Device	Routing	Invert	Outlet Device	s	
#1	Primary	55.09')' CPP, projecting, no headwall, Ke= 0.900
					87' S= 0.0049 '/' Cc= 0.900 oth interior, Flow Area= 0.79 sf
#2	Device 1	59.25'			= 0.600 Limited to weir flow at low heads
#3	Device 1	55.38'			CPP, projecting, no headwall, Ke= 0.900
					5.19' S= 0.0050 '/' Cc= 0.900 r, Flow Area= 0.09 sf
#4	Device 3	58.50'		xfiltration over S	



Horsley Witten Group, Inc. Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page 34

Primary OutFlow Max=3.98 cfs @ 12.10 hrs HW=59.58' (Free Discharge) -1=Culvert (Passes 3.98 cfs of 5.96 cfs potential flow) -**3=Curifice/Grate** (Weir Controls 3.88 cfs **0**.1.88 fps) -**3=Culvert** (Passes 0.10 cfs of 0.63 cfs potential flow) -**4=Exfiltration** (Exfiltration Controls 0.10 cfs)



Pond BIO1: BIO 1

Inflow Area = 0.436 ac, 43.62% Impervious, Inflow Depth = 4.42" for 100YR event Inflow = 1.94 cfs @ 12.07 hrs, Volume= 0.161 af Outflow = 1.91 cfs @ 12.09 hrs, Volume= 0.161 af, Atten= 1%, Lag= 0.8 min Primary = 1.91 cfs @ 12.09 hrs, Volume= 0.161 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 62.70' @ 12.09 hrs Surf.Area= 625 sf Storage= 116 cf Plug-Flow detention time= 1.6 min calculated for 0.161 af (100% of inflow) Center-of-Mass det. time= 1.6 min (770.3 - 768.7) Volume Invert Avail.Storage Storage Description #1 62.50' 1,414 cf Custom Stage Data (Prismatic)Listed below (Recalc) Elevation Surf.Area Inc.Store Cum.Store (feet) (sq-ft) (cubic-feet) 62.50 522 0 0 0 63.00 775 324 324 64.00 1,405 1,090 1,414 Device Routing Invert Outlet Devices #1 Primary 59.00' 12.0" Round Culvert L= 25.0' CPP, end-section conforming to fill, Kest Inlet / Outlet Invert= 59.00' / 58.88' S = 0.0048'/' Cc= 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	
Inflow = 1.94 cfs @ 12.07 hrs, Volume= 0.161 af Outflow = 1.91 cfs @ 12.09 hrs, Volume= 0.161 af, Atten= 1%, Lag= 0.8 min Primary = 1.91 cfs @ 12.09 hrs, Volume= 0.161 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs 0.161 af Peak Elev= 62.70' @ 12.09 hrs Surf.Area= 625 sf Storage= 116 cf Plug-Flow detention time= 1.6 min calculated for 0.161 af (100% of inflow) Center-of-Mass det. time= 1.6 min calculated for 0.161 af (100% of inflow) Center-of-Mass det. time= 1.6 min (770.3 - 768.7) Volume Invert Avail.Storage Storage Description #1 62.50' 1,414 cf Custom Stage Data (Prismatic)Listed below (Recalc) Elevation Surf.Area Inc.Store Cum.Store (feet) (sq.ft) (cubic-feet) (cubic-feet) 62.50 522 0 0 63.00 775 324 324 64.00 1,405 1,090 1,414 Device Routing Invert Outlet Devices #1 Pri	
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 62.70'@ 12.09 hrs Surf.Area= 625 sf Storage= 116 cf Plug-Flow detention time= 1.6 min calculated for 0.161 af (100% of inflow) Detect for time inflow Detect for time inflow Center-of-Mass det. time= 1.6 min (770.3 - 768.7) ////////////////////////////////////	
Plug-Flow detention time= 1.6 min calculated for 0.161 af (100% of inflow) Center-of-Mass det. time= 1.6 min (770.3 - 768.7) /olume Invert Avail.Storage Storage Description #1 62.50' 1,414 cf Custom Stage Data (Prismatic)Listed below (Recalc) Elevation Surf.Area Inc.Store Cum.Store (feet) (sq-ft) (cubic-feet) (cubic-feet) 62.50 522 0 0 63.00 775 324 324 64.00 1,405 1,090 1,414 Device Routing Invert Outlet Devices #1 Primary 59.00' 12.0" Round Culvert L= 25.0' CPP, end-section conforming to fill, Keel Inlet / Outlet Invert= 59.00' / 58.88' S= 0.0048 i/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	
Center-of-Mass det. time= 1.6 min (770.3 - 768.7) /olume Invert Avail.Storage Storage Description #1 62.50' 1,414 cf Custom Stage Data (Prismatic)Listed below (Recalc) Elevation Surf.Area Inc.Store Cum.Store (feet) (sq-ft) (cubic-feet) (cubic-feet) 62.50 522 0 0 63.00 775 324 324 64.00 1,405 1,090 1,414 Device Routing Invert Outlet Devices #1 Primary 59.00' 12.0" Round Culvert L= 25.0' CPP, end-section conforming to fill, Kerlinker Inlet / Outlet Invert= 59.00' / 58.88' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	
#1 62.50' 1,414 cf Custom Stage Data (Prismatic)Listed below (Recalc) Elevation Surf.Area Inc.Store Cum.Store (feet) (sq-ft) (cubic-feet) (cubic-feet) 62.50 522 0 0 63.00 775 324 324 64.00 1,405 1,090 1,414 Device Routing Invert Outlet Devices #1 Primary 59.00' 12.0" Round Culvert L= 25.0' CPP, end-section conforming to fill, Kerlinlet / Outlet Invert= 59.00' / 58.88' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	
Elevation Surf.Area Inc.Store Cum.Store (feet) (sq-ft) (cubic-feet) (cubic-feet) 62.50 522 0 0 63.00 775 324 324 64.00 1,405 1,090 1,414 Device Routing Invert Outlet Devices #1 Primary 59.00' 12.0" Round Culvert L= 25.0' CPP, end-section conforming to fill, Keel Inlet / Outlet Invert= 59.00' / 58.88' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	
62.50 522 0 0 63.00 775 324 324 64.00 1,405 1,090 1,414 levice Routing Invert Outlet Devices #1 Primary 59.00' 12.0" Round Culvert L= 25.0' CPP, end-section conforming to fill, Kerning to fill, Voltet Invert= 59.00' / 58.88' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	
64.00 1,405 1,090 1,414 Device Routing Invert Outlet Devices #1 Primary 59.00' 12.0" Round Culvert L= 25.0' CPP, end-section conforming to fill, Kee Inlet / Outlet Invert= 59.00' / 58.88' S=0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	
#1 Primary 59.00' 12.0" Round Culvert L= 25.0' CPP, end-section conforming to fill, Kee Inlet / Outlet Invert= 59.00' / 58.88' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	
Inlet / Outlet Invert= 59.00' / 58.88' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	0 500
	- 0.000
#2 Device 1 62.50' 24.0" Horiz. Orifice/Grate C = 0.600 Limited to weir flow at low heads #3 Device 1 59.30' 6.0" Round Culvert L = 25.0' CPP, projecting, no headwall, Ke = 0.900)
Inlet / Outlet Invert= 59.30' / S9.18' S= 0.0048 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf	
#4Device 362.50'2.470 in/hr Exfiltration over Surface area	
9038-POST V3 Typ. repared by Horsley Witten Group, Inc. ydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC rimary OutFlow Max=1.91 cfs @ 12.09 hrs HW=62.70' (Free Discharge) -1=Culvert (Passes 1.91 cfs of 6.77 cfs potential flow) (Free Discharge)	e III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page <u>36</u>
2=Orifice/Grate (Weir Controls 1.87 cfs @ 1.47 fps)	
2=Orifice/Grate (Weir Controls 1.87 cfs @ 1.47 fps) 3=Culvert (Passes 0.04 cfs of 1.33 cfs potential flow) 4=Exfiltration (Exfiltration Controls 0.04 cfs) Pond BIO2: BIO 2	
2=Orifice/Grate (Weir Controls 1.87 cfs @ 1.47 fps) 3=Culvert (Passes 0.04 cfs of 1.33 cfs potential flow) 4=Exfiltration (Exfiltration Controls 0.04 cfs)	· · · · · · · · · · · · · · · · · · ·
2=Orifice/Grate (Weir Controls 1.87 cfs @ 1.47 fps) 3=Culvert (Passes 0.04 cfs of 1.33 cfs potential flow) 4=Exfiltration (Exfiltration Controls 0.04 cfs) Pond BIO2: BIO 2 Hydrograph 1.94 cfs	Inflow Primary
2=Orifice/Grate (Weir Controls 1.87 cfs @ 1.47 fps) 3=Culvert (Passes 0.04 cfs of 1.33 cfs potential flow) 4=Exfiltration (Exfiltration Controls 0.04 cfs) Pond BIO2: BIO 2 Hydrograph 2- 1.94 cfs 1.91 cfs Inflow Area=0.43	6 aC
Pond BIO2: BIO 2 Hydrograph 1.94 cfs 2 2 2 4=Exfiltration (Exfiltration Controls 0.04 cfs) Pond BIO2: BIO 2 Hydrograph 2 4=Exfiltration Controls 0.04 cfs 1.94 cfs 1.91 cfs 1.91 cfs 2 4=Exfiltration Controls 0.04 cfs Pond BIO2: BIO 2 Hydrograph 2 4=Exfiltration Controls 0.04 cfs 1.94 cfs 1.91 cf	6 ac 2.70'
2=Orifice/Grate (Weir Controls 1.87 cfs @ 1.47 fps) 3=Culvert (Passes 0.04 cfs of 1.33 cfs potential flow) 4=Exfiltration (Exfiltration Controls 0.04 cfs) Pond BIO2: BIO 2 Hydrograph 2- 1.94 cfs 1.91 cfs Inflow Area=0.43	6 ac 2.70'
Pond BIO2: BIO 2 1.94 cfs 2 1.91 cfs 2 1.91 cfs 2 1.91 cfs 2 1.91 cfs 2 1.91 cfs 2 1.91 cfs 2 1.91 cfs 2 1.91 cfs 2 1.91 cfs 3 1.91 cfs 3 1.91 cfs 4 Elev=62 5 1.91 cfs 5 1.91 cfs 1.91 ac 2.70'	
Pond BIO2: BIO 2 1.94 cfs 2 - 1.94 cfs 2 - 1.91 cfs 3 - 1.91 cfs 4	6 ac 2.70'
Pond BIO2: BIO 2 1.94 cfs 2 1.94 cfs 2 1.91 cfs 2 1.91 cfs 2 1.91 cfs 2 1.91 cfs 2 1.91 cfs 2 1.91 cfs 2 1.91 cfs 3 2 1.91 cfs 3 2 1.91 cfs 3 2 1.91 cfs 4 2 2 1.91 cfs 3 2 1.91 cfs 4 2 2 1.91 cfs 3 2 2 1.91 cfs 4 3 2 1.91 cfs 4 3 2 1.91 cfs 4 4 5 1.91 cfs 4 5 5 5 1.91 cfs 4 5 5 5 1.91 cfs 4 5 5 5 5 1.91 cfs 4 5 5 5 5 5 1.91 cfs 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	6 ac 2.70'

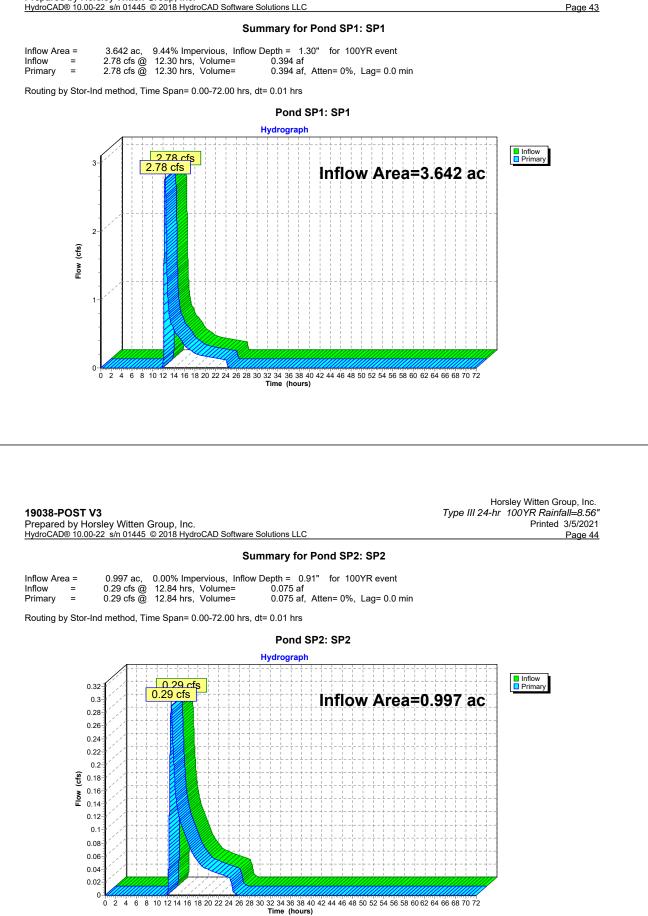
HydroCAD® 10.00-22 s/n 01445 © 2018 Hydro	DCAD Software Solutions LLC Page
	Summary for Pond DMH: DMH 200
Inflow Area = 0.331 ac, 70.50% Impel Inflow = 2.08 cfs @ 12.07 hrs, \ Outflow = 2.08 cfs @ 12.07 hrs, \ Primary = 1.34 cfs @ 12.07 hrs, \ Secondary = 0.74 cfs @ 12.07 hrs, \	Volume= 0.170 af, Atten= 0%, Lag= 0.0 min Volume= 0.157 af
Routing by Stor-Ind method, Time Span= 0.0 Peak Elev= 54.84' @ 12.07 hrs	.00-72.00 hrs, dt= 0.01 hrs
Device Routing Invert Outlet De	
Inlet / Ou n= 0.013 #2 Primary 53.78' 12.0'' R ά Inlet / Ou Inlet / Ou	Round Culvert L= 9.0' CMP, square edge headwall, Ke= 0.500 utlet Invert= 54.30' / 54.26' S= 0.0044 '/' Cc= 0.900 3 Corrugated PE, smooth interior, Flow Area= 0.79 sf Round Culvert L= 98.0' CMP, projecting, no headwall, Ke= 0.900 utlet Invert= 53.78' S= 0.0000 '/' Cc= 0.900 3 Corrugated PE, smooth interior, Flow Area= 0.79 sf
Primary OutFlow Max=1.34 cfs @ 12.07 hr ←2=Culvert (Barrel Controls 1.34 cfs @ 2.1	
	Horsley Witten Group, I Type III 24-hr 100YR Rainfall=8.
Prepared by Horsley Witten Group, Inc.	Type III 24-hr 100YR Rainfall=8. Printed 3/5/20
19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 Hydro	Type III 24-hr 100YR Rainfall=8. Printed 3/5/20 DCAD Software Solutions LLC Page Pond DMH: DMH 200
Prepared by Horsley Witten Group, Inc.	Type III 24-hr 100YR Rainfall=8. Printed 3/5/2 pCAD Software Solutions LLC Page

#1 41.00// #2 330.of 6.000 x 600 r x 600 r x 600 r sole #2 1.414 cf Overall - 330 of Embedded = 1.074 cf x 33.0% Voids Betce Routing #1 Discating the over Surface area #2 Phase-In= 0.01' #3 Primary 45.00 \$50' long x 50' breadth Broad-Created Rectingular Weir X 200 head (feet) 20: 04.0.06.00.80 Phase-In= 0.01' #3 Pirmary 45.00 \$50' long x 50' breadth Broad-Created Rectingular Weir X 200 head (feet) 20: 04.00.60.08 Phase-In= 0.01' #4 Pirmary 46.50' B.20' long x 50' breadth Broad-Created Rectingular Weir X 200 head (feet) 20: 04.00.60.08 Phase-In= 0.01' Broad-Created CourFlow Max=0.00 (feet) Pirmary 46.50' B.21' long x 50' breadth Broad-Created Rectingular Weir X 200 head (feet) 20: 04.00.60.08 Phase-In= 0.01' 2.88 Pirmary 46.50' B.11.30 hrs HW=30.09' (Free Discharge) 					Page 39
nhow = 0.71 ds 60 12.09 ms, Volume 0.087 af, Atan= 33%, Lag= 7.1 min Phonary = 0.42 ds 60 12.09 ms, Volume 0.087 af, Atan= 33%, Lag= 7.1 min Phonary = 0.42 ds 60 12.09 ths, Volume 0.087 af, Atan= 33%, Lag= 7.1 min Phonary = 0.42 ds 60 12.09 ths, Volume 0.087 af, Atan= 33%, Lag= 7.1 min Phonary = 0.42 ds 60 12.09 ths, Volume 0.087 af, 100% of 100% Detection of the set of an intege of 12.00 ms (do 0.097 af 100% of new) Detection of the set of an intege of 12.00 ms (do 0.097 af 100% of new) Detection of the set of an intege of 12.00 ms (do 0.097 af 100% of new) Detection of the set of an intege of 12.00 ms (do 0.07 af 100% of new) Detection of the set of an intege of 12.00 ms (do 0.087 af 100% of new) Detection of the set of an intege of the set of an intege of the set of th				Summary for Pond RB1: RB 101,102	
Peak Elevi-46.57 (9) 12.21 hrs. Suff.Areae 15.71 & Storage 60.31 Peak Elevi-46.Missa del Lime 70.8 mm (897.7-826.8) <u>Voluma invent vanal Storage Storage Description</u> <u>#2 30.00 3355 (6007 to 6007 to 8007 to 2007 2.016 82.8 3.0% Volds</u> <u>#2 0 incerded 3355 (6007 to 6007 to 8007 to 2007 2.016 82.8 3.0% Volds</u> <u>#2 0 incerded 3355 (6007 to 6007 to 8007 to 2007 2.016 82.8 3.0% Volds</u> <u>#2 0 incerded 3355 (6007 to 6007 to 8007 to 2007 2.08 2.08 2.06 2.05 2.05 2.05 2.05 2.00 2.00 4.50 5.00 5.00 (English) 2.24 2.50 2.70 2.08 2.08 2.08 2.06 2.05 2.05 2.05 2.05 2.00 2.00 2.00 2.07 2.74 2.75 Decode (English) 2.24 2.50 2.70 2.08 2.08 2.08 2.06 2.05 2.05 2.05 2.00 2.00 2.00 2.07 2.74 2.75 Decode (English) 2.24 2.50 2.70 2.08 2.08 2.08 2.06 2.05 2.05 2.05 2.07 2.06 2.08 2.70 2.74 2.75 Decode (English) 2.24 2.50 2.70 2.08 2.08 2.08 2.06 2.05 2.05 2.05 2.05 2.00 2.08 2.08 2.00 2.74 2.75 Decode (English) 2.24 2.50 2.70 2.08 2.08 2.08 2.06 2.05 2.05 2.05 2.05 2.05 2.05 2.05 2.05</u>	Inflow Outflow Discarde	= 0.7 = 0.4 ed = 0.0	71 cfs @ 12.09 h 18 cfs @ 12.21 h 06 cfs @ 11.36 h	nrs, Volume= 0.087 af nrs, Volume= 0.087 af, Atten= 33%, Lag= 7.1 min nrs, Volume= 0.069 af	
Carbier-Chass det time 7.0 8 min (87.7-82.8) Volume <u>invert Avail.Storage Storage Description</u> <u>if 41 dr Overali - 330 df Encloded = 1.074 cf x 33.0% Voids</u> <u>if 41 dr Overali - 330 df Encloded = 1.074 cf x 33.0% Voids</u> <u>if 41 dr Overali - 330 df Encloded = 1.074 cf x 33.0% Voids</u> <u>if 41 dr Overali - 330 df Encloded = 1.074 cf x 33.0% Voids</u> <u>if 2 Pinnary</u> <u>olded Devices</u> <u>if 300, 0.00 0.40 0.80 0.80 1.00 1.20 1.40 1.50 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 <u>if 50 0.00 2.0 4.00 0.80 0.80 1.00 1.20 1.40 1.50 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 <u>if 50 0.00 2.08 2.68 2.68 2.68 2.65 2.65 2.65 2.65 2.65 2.65 2.65 2.65</u></u></u>					
#1 41.00' 350 d' 6.00' x 6.00' r 6					
#2 30.00 ⁺⁺ 355 d ⁺ 10.00 ⁺⁺ X 30.09 ⁺⁺ Yolds 1414 cl Ovarial - 339 d ⁺⁺ 694 d ⁺ Total Available Storage Device Routing 300 ⁺⁺ 3270 limits Exilication X 200 over Surface area. Phase-In-:::::::::::::::::::::::::::::::::::	Volume				
Device Realing Invert Outlied Devices 11 Discarded 3500 \$270 infthr Extilization X.200 over Surface area Phase-in=0.01" 12 Primary 4500 ifford x.50 preacht Broad-Created Rectangular Weir X.200 Discarded OutFlow Max-0.00 dts @ 11.30 hrs HW-33.00" (Free Discharge) Percenter Collination 600 ifford x.50 preacht Broad-Created Rectangular Weir X.200 Primary OutFlow Max-0.40 dts @ 11.30 hrs HW-33.00" (Free Discharge) Percenter Collination 500 ifford x.50 preacht Broad-Created Rectangular Weir Weir Controls 0.40 dts @ 0.60 fps)				10.00'D x 9.00'H Stone x 2	
^{#1} Discarded 33.00% 8.270 in/hr Exfiltration 22.00 over Surface area Phase-ine Off #2 Primary 30.00% 8.270 in/hr Exfiltration 22.00 over Surface area Phase-ine Off Head (lee) 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 4.00 4.50 5.00 Code (English) 2.34 2.50 2.70 2.88 2.88 2.66 2.65 2.65 2.65 2.65 2.65 2.60 2.60 2.70 2.74 2.79 280 Piscarded OutFlow Maxe-0.0 66 de (21.13 hrs HW-30.09° (Free Discharge) Head (lee) 0.22 1.70 1.80 1.80 2.00 2.05 2.05 2.05 2.05 2.05 2.05 2.0			694 cf	Total Available Storage	
<figure>Prepared by Horsley Witten Group, Inc. Typester States and State</figure>	#1	Discarded	39.00' 8.27 46.50' 5.0' Hea 5.50 Coe	70 in/hr Exfiltration X 2.00 over Surface area Phase-In= 0.01' long x 5.0' breadth Broad-Crested Rectangular Weir X 2.00 Add (feet) 0.20 0.40 0.60 0.80 1.00 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 0 ad (feet) 0.20 0.40 0.60 0.80 1.00 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 0 af. (English) 2.34 2.50 2.70 2.68 2.66 2.65 2.65 2.65 2.65 2.66 2.68 2.68 2.68 2.65 <t< td=""><td></td></t<>	
<figure>Prepared by Horsley Witten Group, Inc. Typester States and State</figure>	Discard	ed OutFlow N			
Pepared by Horsley Witten Group, Inc. 1938-POST V3 Prepared by Horsley Witten Group, Inc. 1908-POST V3 Prepared by Horsley Witten Group, Inc. 1909 Prepared	Ê—1=Ex	filtration (Ext	iltration Controls	0.06 cfs)	
<figure><figure><figure><figure><figure><figure><figure><figure><figure></figure></figure></figure></figure></figure></figure></figure></figure></figure>	Primary	OutFlow Ma	x=0.40 cfs @ 12.3	21 hrs HW=46.57' (Free Discharge)	
	└─2=Br	oad-Crested	Rectangular Wei	r (Weir Controls 0.40 cfs @ 0.60 fps)	
19038-POST V3 Prepared by Horsley Witten Group, Inc. Protect 2018 Hydrocan Solutions LLLC Protect 2018 Hydrocan Solutions LLLC Protect 2018 Hydrocan Solutions LLCC Protect 2018 Hydrocan Solutions LLCCC Protect 2018 Hydrocan Solutions LLCCC Protect 2018 Hydrocan Solutions LLCCC Protect 2018 Hydrocan Solutions LLCCCC Protect 2018 Hydrocan Solutions LLCCCCCC Protect 2018 Hydrocan Solutions LLCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC					
19038-POST V3 Peperad by Horsey Witten Group, Inc. 190702 100-22 sin 01445 02018 HydroAD Software Solutions LLC Page 40 Page					
19038-POST V3 Peperad by Horsey Witten Group, Inc. 190702 100-22 sin 01445 02018 HydroAD Software Solutions LLC Page 40 Page					
19038-POST V3 Prepared by Horsley Witten Group, Inc. Hydroczbe 10:00-22 sin 01:445 @ 2018 Hydroczb ostware Solutions LLC Prince J3 Character J3 Prince J3 Princ					
19038-POST V3 Prepared by Horsley Witten Group, Inc. Product 20 to 104 K 02018 Hydroc AD Software Solutions LLC Product 20 to 104 K 02018 Hydroc AD Software So					
19038-POST V3 Prepared by Horsey Witten Group, Inc. Product 2 with the Group Horsey Witten Group, Inc. Product 2 with the Group Horsey Witten Group, Inc. Product 2 with the Group Horsey Witten Group Hor					
Page 20 Page			Witten Croup	Type III 24-hr 100YF	R Rainfall=8.56"
Hydrograph 0.7					
0.75 0.7 0.65 0.45 0.42 cfs 0.48 cfs 0.48 cfs 0.48 cfs 0.49 0.4				Pond RB1: RB 101,102	
0.71 cfs 0.75 0.75 0.75 0.65 0.65 0.65 0.65 0.45 0.42 cfs 0.42 cfs 0.42 cfs 0.45 0.55 0.45 0.				Hydrograph	
0.71 cfs 0.75 0.75 0.65 0.65 0.65 0.55 0.55 0.44 0.42 cfs 0.42 cfs 0.42 cfs 0.42 cfs 0.45			1		
Inflow Area=0.673 ac Peak Elev=46.57 Storage=603 cf			0.71		
Primary Peak Elev=46.57 Peak Elev=46.57 O.45 O.42 cfs O.42 cfs O.42 cfs O.42 cfs O.45 O					
0.75 0.7 0.65 0.6 0.48 cfs 0.42 cfs 0.42 cfs 0.45 0.		- (/ /		Inflow Area=0.673 ac	
0.7 0.65 0.6 0.6 0.55 0.5 0.5 0.5 0.42 cfs 0.42 cfs 0.45 0.35 0.3 0.25 0.3 0.25 0.3 0.45 0.45 0.45 0.45 0.42 cfs 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5		75			Thinday
0.65 0.66 0.55 0.5 0.45 0.45 0.45 0.45 0.45 0.45	0	- 		Peak Elev=46.57'	
0.6 0.55 0.5 0.45 0.42 cfs 0.45 0.3 0.35 0.3 0.25 0.2 0.15 0.1 0.0 0.42 cfs			_ + - + - -	<mark>/</mark> b-+-d-d-db-+-db-+-db-+-db-+-db-+-+-db-+-+-db-+-+-db-+b-+b-+b-+b-+bb-+bb-	
0.6 0.55 0.5 0.45 0.42 cfs 0.45 0.3 0.35 0.3 0.25 0.2 0.15 0.1 0.0 0.42 cfs		"I//.			
0.55 0.45 0.42 cfs 0.35 0.3 0.25 0.2 0.15 0.1 0.15 0.1 0.15 0.4 0.42 cfs 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	(Storage=603 cf	
(g) 0.42 cfs 0.45 0.45 0.42 cfs 0.35 0.35 0.25 0.2 0.15 0.1 0.0 0.5 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	0.	.65		Storage=603 cf	
(g) 0.42 cfs (g) 0.4 (a) 0.3 0.35 0.3 0.25 0.2 0.15 0.1 0.15 0.1 0.15 0.1 0.15 0.1 0.15 0.1 0.15 0.1	(0. (.65	0.48 cfs	Storage=603 cf	
0.42 cfs 0.4 0.35 0.36 0.37 0.25 0.2 0.15 0.15 0.15 0.15 0.16 0.17 0.18 0.19	(0. (.65	0.48 cfs	Storage=603 cf	
y 0.4 e 0.35 0.3 0.25 0.2 0.15 0.1 0.15 0.1 0.0 0.5 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0	(0. (0.	.65 0.6 .55		Storage=603 cf	
0.3 0.25 0.2 0.15 0.1 0.0 0.0 5 fs	(0. (0.	65 0.6 55		Storage=603 cf	
0.3 0.25 0.2 0.15 0.1 0.0 cfs	(0. (0.	655 0.6 555 0.5 45		Storage=603 cf	
0.3 0.25 0.2 0.15 0.1 0.0 cfs	(0. (0.	655 0.6 555 0.5 45		Storage=603 cf	
0.25 0.2 0.15 0.1 0.0 0 0	(0. (0.	655 0.6 0.55 0.5 45 0.4		Storage=603 cf	
0.2 0.15 0.1 0.05 0) .0 .0 .0 .0 .0	655 555 0.5 455 0.4 335		Storage=603 cf	
) .0 .0 .0 .0 .0	655 555 0.5 455 0.4 335		Storage=603 cf	
) .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	65 0.6 55 0.5 45 0.4 35 0.4		Storage=603 cf	
) 	665 555 0.5 45 0.4 35 0.4 35 0.3 225		Storage=603 cf	
) .0 .0 .0 .0 .0 .0 .0 .0 .0	665 555 55 0.4 35 0.4 35 0.3 225 0.2	0.42 cfs	Storage=603 cf	
) .0 .0 .0 .0 .0 .0 .0 .0 .0	665 555 55 0.4 35 0.4 35 0.3 225 0.2	0.42 cfs	Storage=603 cf	
) .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	665 555 55 0.5 45 0.4 35 0.3 225 0.2 15	0.42 cfs	Storage=603 cf	
) .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	665 0.6 555 0.5 45 0.4 335 0.3 225 0.2 15 0.1	0.42 cfs	Storage=603 cf	
)))))) () ())) ()))))))	665 0.6 555 0.5 45 0.4 35 0.3 25 0.2 15 0.1 0.1 0.5	0.42 cfs	Storage=603 cf	
) .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	665 555 0.5 445 0.4 335 0.4 335 0.4 335 0.4 10 10 10 0 0	0.42 cfs	Storage=603 cf	

19038-PC Prepared b HydroCAD®		n 01445 © 2018 I	TydroCAD Sollware						Page 41
				ry for Pond		202,202,203	3		
Outflow Discarded	= 0.9 = 0.0 = 0.0	1 cfs @ 12.07 9 cfs @ 11.61 9 cfs @ 11.61	nrs, Volume=	0.037 af		YR event , Lag= 0.0 mi	n		
			= 0.00-72.00 hrs, rea= 236 sf Stora		3				
		ne= 90.9 min cal ne= 90.9 min (8	culated for 0.037 a 26.6 - 735.7)	af (100% of inf	iow)				
Volume	Invert	Avail.Storage	Storage Descrip	tion					
#1 #2	46.50' 44.50'	532 cf	6.00'D x 6.00'H 10.00'D x 9.00'H 2,121 cf Overall	I Stone x 3 - 509 cf Embe		2 cf x 33.0%	Voids		
		1,041 cf	Total Available S	Storage					
	outing iscarded rimary	55.61' 5.0 ' Hea 5.50	70 in/hr Exfiltratio long x 5.0' bread ad (feet) 0.20 0.40	dth Broad-Cr 0 0.60 0.80	ested Rectar 1.00 1.20 1.	ngular Weir X 40 1.60 1.80	(2.00 0 2.00 2.50 3.		4.00 4.50 5.00
			0 hrs HW=44.50' r (Controls 0.00 c		arge)				
19038-PC							Type III		sley Witten Group, Inc. 100YR Rainfall=8.56"
Prepared b	DST V3 by Horsley	Witten Group, n 01445 © 2018					Type III		
Prepared b	DST V3 by Horsley		nc. łydroCAD Software		RB 202,202	,203	Type III		100YR Rainfall=8.56" Printed 3/5/2021
Prepared b	DST V3 by Horsley		nc. łydroCAD Software	Solutions LLC	RB 202,202	,203	Type III		100YR Rainfall=8.56" Printed 3/5/2021
Prepared b	DST V3 by Horsley		nc. IydroCAD Software H	Solutions LLC ond RB2: F	Inflo	ow Are Peak E	<i>Type III</i> a=0.112 Elev=52 age=93	24-hr 2 ac .27'	100YR Rainfall=8.56" Printed 3/5/2021
Prepared t HydroCAD®	DST V3 by Horsley 10.00-22 sr	0.91 c	nc. IydroCAD Software H	Solutions LLC ond RB2: F	Inflo	ow Are Peak E	a=0.112 Elev=52	24-hr 2 ac .27'	100YR Rainfall=8.56" Printed 3/5/2021 Page 42

Time (hours)

Prepared by Horsley Witten Group, Inc.



Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC

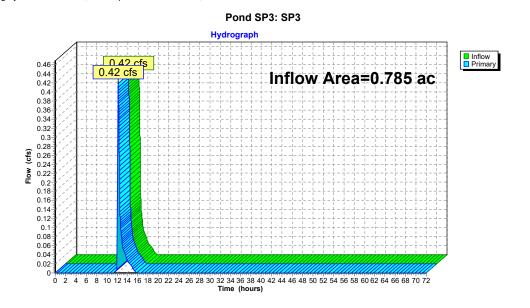
Summary for Pond SP3: SP3

 Inflow Area =
 0.785 ac, 23.00% Impervious, Inflow Depth =
 0.27" for 100YR event

 Inflow =
 0.42 cfs @
 12.21 hrs, Volume=
 0.017 af

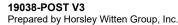
 Primary =
 0.42 cfs @
 12.21 hrs, Volume=
 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



Prepar	POST V3 ed by Horsley D® 10.00-22 s	7 Witten Grou /n 01445 © 20	up, Inc. 018 HydroCAD Softwar	re Solutions LLC	Horsley Witten Group, Inc. Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Page 46
			Sumn	nary for Pond TT1: Tree Trench 1	
Inflow Outflow Discard Primary	= 1.1 ed = 0.2	17 cfs @ 12. 20 cfs @ 11.	2.07 hrs, Volume= 2.12 hrs, Volume= .36 hrs, Volume= 2.12 hrs, Volume=	0.157 af 0.157 af, Atten= 13%, Lag= 3.2 m 0.131 af 0.025 af	in
Peak Ĕ Plug-Fl	ev= 54.81' @ ´ ow detention tir	ethod, Time S 12.12 hrs Su me= 16.5 min	Span= 0.00-72.00 hrs urf.Area= 1,020 sf S n calculated for 0.157 n (766.8 - 750.4)	s, dt= 0.01 hrs / 3 storage= 859 cf	
Peak Ĕ Plug-Fl	ev= 54.81' @ ´ ow detention tir	ethod, Time S 12.12 hrs Su me= 16.5 min me= 16.5 min	Span= 0.00-72.00 hrs urf.Area= 1,020 sf S n calculated for 0.157 n (766.8 - 750.4)	s, dt= 0.01 hrs / 3 storage= 859 cf af (100% of inflow)	
Peak Ĕ Plug-Fl Center-	ev= 54.81' @ ´ ow detention tir of-Mass det. tir	ethod, Time S 12.12 hrs Su me= 16.5 min me= 16.5 min Avail.Store	Span= 0.00-72.00 hrs urf.Area= 1,020 sf S n calculated for 0.157 n (766.8 - 750.4) age Storage Descri 8 cf 9.90'W x 103.0	s, dt= 0.01 hrs / 3 storage= 859 cf af (100% of inflow) <u>iption</u> D0'L x 3.00'H Prismatoid	
Peak Ĕ Plug-Fl Center- <u>Volume</u>	ev= 54.81' @ ´ ow detention tir of-Mass det. tir Invert	ethod, Time S 12.12 hrs Su me= 16.5 min me= 16.5 min <u>Avail.Stora</u> 1,008	Span= 0.00-72.00 hrs urf.Area= 1,020 sf S n calculated for 0.157 n (766.8 - 750.4) age Storage Descri 8 cf 9.90'W x 103.0 3,059 cf Overa	s, dt= 0.01 hrs / 3 storage= 859 cf af (100% of inflow) iption D0'L x 3.00'H Prismatoid III - 32 cf Embedded = 3,027 cf x 33.3% \ ipe Storage Inside #1	Voids
Peak Ĕ Plug-Flı Center- <u>Volume</u> #1	ev= 54.81' @ ^ ow detention tir of-Mass det. tir <u>Invert</u> 52.34'	ethod, Time S 12.12 hrs Su me= 16.5 min me= 16.5 min <u>Avail.Stora</u> 1,008	Span= 0.00-72.00 hrs urf.Area= 1,020 sf S n calculated for 0.157 n (766.8 - 750.4) age Storage Descri 8 cf 9.90'W x 103.0 3,059 cf Overa 12 cf 8.0" Round P	s, dt= 0.01 hrs / 3 storage= 859 cf af (100% of inflow) iption D0'L x 3.00'H Prismatoid II - 32 cf Embedded = 3,027 cf x 33.3% \ ipe Storage Inside #1 0050 '/'	Voids
Peak E Plug-Fli Center- <u>Volume</u> #1 #2	ev= 54.81' @ ^ ow detention tir of-Mass det. tir <u>Invert</u> 52.34'	ethod, Time S 12.12 hrs Su me= 16.5 min me= 16.5 min <u>Avail.Stora</u> 1,000 32	Span= 0.00-72.00 hrs urf.Area= 1,020 sf S n calculated for 0.157 n (766.8 - 750.4) age Storage Descri 8 cf 9.90'W x 103.0 3,059 cf Overa 2 cf 8.0" Round P L= 92.0' S= 0.	s, dt= 0.01 hrs / 3 storage= 859 cf af (100% of inflow) iption D0'L x 3.00'H Prismatoid II - 32 cf Embedded = 3,027 cf x 33.3% \ ipe Storage Inside #1 0050 '/'	Voids

Primary OutFlow Max=0.97 cfs @ 12.12 hrs HW=54.81' (Free Discharge) -2=Orifice/Grate (Orifice Controls 0.97 cfs @ 2.42 fps)



HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Pond TT1: Tree Trench 1 Hydrograph Inflow 1.34 cfs Outflow Discarded Inflow Area=0.331 ac Primary 1.17 cfs Peak Elev=54.81' Storage=859 cf 0.97 cfs 1 (cfs) Flow 0.2 cfs 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours) Horsley Witten Group, Inc. Type III 24-hr 100YR Rainfall=8.56" 19038-POST V3 Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 48 Summary for Pond TT2: Tree Trench 2 Inflow Area = 0.112 ac, 95.97% Impervious, Inflow Depth = 8.04" for 100YR event 0.94 cfs @ 12.07 hrs, Volume= 0.94 cfs @ 12.07 hrs, Volume= 0.03 cfs @ 8.60 hrs, Volume= 0.91 cfs @ 12.07 hrs, Volume= Inflow = 0.075 af 0.075 af, Atten= 0%, Lag= 0.3 min 0.038 af Outflow = Discarded = 0.037 af Primary Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3 Peak Elev= 53.19' @ 12.07 hrs Surf.Area= 150 sf Storage= 163 cf Plug-Flow detention time= 20.4 min calculated for 0.075 af (100% of inflow) Center-of-Mass det. time= 20.4 min (761.0 - 740.6) Invert Avail.Storage Storage Description Volume #1 50.16 184 cf 5.00'W x 30.00'L x 3.80'H Prismatoid 570 cf Overall - 17 cf Embedded = 553 cf x 33.3% Voids #2 51.66' 17 cf 8.0" Round Pipe Storage Inside #1 L= 50.0' S= 0.0050 '/ 201 cf Total Available Storage Device Routing Invert Outlet Devices Discarded 50.16' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' #1 #2 Primary 52.70' 12.0" Vert. Orifice/Grate C= 0.600 Discarded OutFlow Max=0.03 cfs @ 8.60 hrs HW=50.20' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.03 cfs) Primary OutFlow Max=0.91 cfs @ 12.07 hrs HW=53.19' (Free Discharge) -2=Orifice/Grate (Orifice Controls 0.91 cfs @ 2.38 fps)



Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 hydroCAD® 10.00-22 sin 01445 © 2018 HydroCAD Software Solutions LLC Page 50 Summary for Pond URC1: URC-1 Inflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event nflow = 5.55 cfs @ 12.10 hrs, Volume= 0.410 af Dutflow = 0.38 cfs @ 11.45 hrs, Volume= 0.410 af Dutflow = 0.38 cfs @ 11.45 hrs, Volume= 0.410 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Preak Elev= 55.19' @ 13.24 hrs Surf.Area= 0.046 ac Storage= 0.157 af Plug-Flow detention time= 139.1 min calculated for 0.410 af (100% of inflow) Center-of-Mass det. time= 139.1 min (955.2 - 816.1) /olume Invert Avail.Storage Description #1A 48.60' 0.074 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overal - 0.083 af Embedded = 0.223 af x 33.3% Voids #2A 50.60' 0.085 af ADS StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size= 70.4''W x 45.0''H × 7.50'L with 0.33 Overlap 3 Rows of 11 Chambers Cap Storage = +14.9 cf x 2 x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Group A created with Chamber Wizard		Pond TT2: Tree Trench 2	
$ \frac{1}{2} \int_{a} \int$		Hydrograph	
$\begin{aligned} & \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad $	1- 0.91 cfs	Inflow Area=0.112 ac Peak Elev=53.19'	
$\begin{aligned} & \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad $			
 Iso38-POST V3			
Horsley Witten Group, Inc. Type III 24-hr 100YR Rainfall=5.6° Printed 3/6/2021 Printed eld A <th co<="" td=""><td>• []]]]]]]]]</td><td>18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72</td></th>	<td>• []]]]]]]]]</td> <td>18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72</td>	• []]]]]]]]]	18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
19038-POST V3 Type III 24-hr 100YR Rainfall=8.66" Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. Page 50 Summary for Pond URC1: URC-1 Page 50 Inflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event Page 50 Dutflow = 0.38 cfs @ 11.45 hrs, Volume = 0.410 af Page 50 Dutflow = 0.38 cfs @ 11.45 hrs, Volume = 0.410 af Page 50 Souting by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Page 50 Page 50 Page Flow detention time = 13.9.1 min calculated for 0.410 af Page 50 Pug-Flow detention time = 13.9.1 min calculated for 0.410 af Page 50 Pug-Flow detention time = 13.9.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 13.9.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 13.9.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 13.9.1 min calculated for 0.410 af (23.25 mm c6 Mc.330 df + Cap x 33.3% Voids ADS StormTech Mc.3300 df + Cap x 33.3% Voids #1A 48.60' 0.074 af 23.25 mm c6 Mc.330 df + Cap x 33.0% Voids <		Time (hours)	
19038-POST V3 Type III 24-hr 100YR Rainfall=8.66" Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. Page 50 Summary for Pond URC1: URC-1 Page 50 Inflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event Page 50 Inflow = 5.55 cfs @ 12.10 hrs, Volume = 0.410 af Dutflow = 0.38 cfs @ 11.45 hrs, Volume = 0.410 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Page 50 Pug-Flow detention time = 139.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 139.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 139.1 min (955.2 - 816.1) Storage Description #1A 48.60' 0.074 af 23.25W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids ADS StormTech Mc-3500 d +Cap x 33 Inside #1 Effective Size= 77.0"W x 45.0"H => 15.33 sf x 7.17L = 110.0 cf Overall 2.0.85 of x 2.0" H y of x 2.x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Fit.9 of x 2.x 3 rows = 89.4 cf 0.160 af Total Available Storage Phase-In= 0.01' Device Routing M & Storage Int Phite Phit.0 (Free Discharge			
Type III 24-hr 100YR Rainfall=8.66" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 Printed 3/5/2021 Printed 3/5/2021 Page 50Summary for Pond URC1: URC-1Summary for Pond URC1: URC-1fifow Area =1.559 ac, 43.91% Impervious, Inflow Depth =3.16" for 100YR event nflow =5.55 cfs @ 12.10 hrs, Volume =0.410 afnflow =5.55 cfs @ 11.45 hrs, Volume =0.410 af0.410 af0.410 afNutflow =0.38 cfs @ 11.45 hrs, Volume =0.410 af0.410 afNouting by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 55.19' @ 13.24 hrsSurf.Area = 0.046 acStorage = 0.157 afNue-Flow detention time =139.1 min calculated for 0.410 af (100% of inflow) Penter-of-Mass det. time =139.1 min calculated for 0.410 af (100% of inflow) enter-of-Mass det. time =0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids ADS StormTech Mc-3500 d +Cap x 33 Inside #1 Effective Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 10.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 10.0 cf Overall Size af 0.48 def 8.270 in/hr Exti			
Type III 24-hr 100YR Rainfall=8.66" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 Printed 3/5/2021 Printed 3/5/2021 Page 50Summary for Pond URC1: URC-1Summary for Pond URC1: URC-1fifow Area =1.559 ac, 43.91% Impervious, Inflow Depth =3.16" for 100YR event nflow =5.55 cfs @ 12.10 hrs, Volume =0.410 afnflow =5.55 cfs @ 11.45 hrs, Volume =0.410 af0.410 af0.410 afNutflow =0.38 cfs @ 11.45 hrs, Volume =0.410 af0.410 afNouting by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 55.19' @ 13.24 hrsSurf.Area = 0.046 acStorage = 0.157 afNue-Flow detention time =139.1 min calculated for 0.410 af (100% of inflow) Penter-of-Mass det. time =139.1 min calculated for 0.410 af (100% of inflow) enter-of-Mass det. time =0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids ADS StormTech Mc-3500 d +Cap x 33 Inside #1 Effective Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 10.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 10.0 cf Overall Size af 0.48 def 8.270 in/hr Exti			
Type III 24-hr 100YR Rainfall=8.66" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 Printed 3/5/2021 Printed 3/5/2021 Page 50Summary for Pond URC1: URC-1Summary for Pond URC1: URC-1fifow Area =1.559 ac, 43.91% Impervious, Inflow Depth =3.16" for 100YR event nflow =5.55 cfs @ 12.10 hrs, Volume =0.410 afnflow =5.55 cfs @ 11.45 hrs, Volume =0.410 af0.410 af0.410 afNutflow =0.38 cfs @ 11.45 hrs, Volume =0.410 af0.410 afNouting by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 55.19' @ 13.24 hrsSurf.Area = 0.046 acStorage = 0.157 afNue-Flow detention time =139.1 min calculated for 0.410 af (100% of inflow) Penter-of-Mass det. time =139.1 min calculated for 0.410 af (100% of inflow) enter-of-Mass det. time =0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids ADS StormTech Mc-3500 d +Cap x 33 Inside #1 Effective Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 110.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 10.0 cf Overall Size= 77.0'W x 45.0''H => 15.33 sf x 7.17L = 10.0 cf Overall Size af 0.48 def 8.270 in/hr Exti			
19038-POST V3 Type III 24-hr 100YR Rainfall=8.66" Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. Page 50 Summary for Pond URC1: URC-1 Page 50 Inflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event Page 50 Inflow = 5.55 cfs @ 12.10 hrs, Volume = 0.410 af Dutflow = 0.38 cfs @ 11.45 hrs, Volume = 0.410 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Page 50 Pug-Flow detention time = 139.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 139.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 139.1 min (955.2 - 816.1) Storage Description #1A 48.60' 0.074 af 23.25W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids ADS StormTech Mc-3500 d +Cap x 33 Inside #1 Effective Size= 77.0"W x 45.0"H => 15.33 sf x 7.17L = 110.0 cf Overall 2.0.85 of x 2.0" H y of x 2.x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Fit.9 of x 2.x 3 rows = 89.4 cf 0.160 af Total Available Storage Phase-In= 0.01' Device Routing M & Storage Int Phite Phit.0 (Free Discharge			
19038-POST V3 Type III 24-hr 100YR Rainfall=8.56" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. Page 50 Summary for Pond URC1: URC-1 Note: State 11:559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event nflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event nflow = 0.410 af Duttion: 0.38 cfs @ 11.45 hrs, Volume = 0.410 af Outing the summary of the summary o			
19038-POST V3 Type III 24-hr 100YR Rainfall=8.56" Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. Page 50 Summary for Pond URC1: URC-1 Note: State 11:559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event nflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event nflow = 0.410 af Duttion: 0.38 cfs @ 11.45 hrs, Volume = 0.410 af Outing the summary of the summary o			
19038-POST V3 Type III 24-hr 100YR Rainfall=8.66" Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. Page 50 Summary for Pond URC1: URC-1 Page 50 Inflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event Page 50 Inflow = 5.55 cfs @ 12.10 hrs, Volume = 0.410 af Dutflow = 0.38 cfs @ 11.45 hrs, Volume = 0.410 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Page 50 Pug-Flow detention time = 139.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 139.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 139.1 min (955.2 - 816.1) Storage Description #1A 48.60' 0.074 af 23.25W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids ADS StormTech Mc-3500 d +Cap x 33 Inside #1 Effective Size= 77.0"W x 45.0"H => 15.33 sf x 7.17L = 110.0 cf Overall 2.0.85 of x 2.0" H y of x 2.x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Fit.9 of x 2.x 3 rows = 89.4 cf 0.160 af Total Available Storage Phase-In= 0.01' Device Routing M & Storage Int Phite Phit.0 (Free Discharge			
19038-POST V3 Type III 24-hr 100YR Rainfall=8.66" Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. Page 50 Summary for Pond URC1: URC-1 Page 50 Inflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event Page 50 Inflow = 5.55 cfs @ 12.10 hrs, Volume = 0.410 af Dutflow = 0.38 cfs @ 11.45 hrs, Volume = 0.410 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Page 50 Pug-Flow detention time = 139.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 139.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 139.1 min (955.2 - 816.1) Storage Description #1A 48.60' 0.074 af 23.25W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids ADS StormTech Mc-3500 d +Cap x 33 Inside #1 Effective Size= 77.0"W x 45.0"H => 15.33 sf x 7.17L = 110.0 cf Overall 2.0.85 of x 2.0" H y of x 2.x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Fit.9 of x 2.x 3 rows = 89.4 cf 0.160 af Total Available Storage Phase-In= 0.01' Device Routing M & Storage Int Phite Phit.0 (Free Discharge			
19038-POST V3 Type III 24-hr 100YR Rainfall=8.66" Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. Page 50 Summary for Pond URC1: URC-1 Page 50 Inflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event Page 50 Inflow = 5.55 cfs @ 12.10 hrs, Volume = 0.410 af Dutflow = 0.38 cfs @ 11.45 hrs, Volume = 0.410 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Page 50 Pug-Flow detention time = 139.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 139.1 min calculated for 0.410 af (100% of inflow) Page 50 Pug-Flow detention time = 139.1 min (955.2 - 816.1) Storage Description #1A 48.60' 0.074 af 23.25W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids ADS StormTech Mc-3500 d +Cap x 33 Inside #1 Effective Size= 77.0"W x 45.0"H => 15.33 sf x 7.17L = 110.0 cf Overall 2.0.85 of x 2.0" H y of x 2.x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Fit.9 of x 2.x 3 rows = 89.4 cf 0.160 af Total Available Storage Phase-In= 0.01' Device Routing M & Storage Int Phite Phit.0 (Free Discharge			
19038-POST V3 Type III 24-hr 100YR Rainfall=8.66" Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. Page 50 Summary for Pond URC1: URC-1 nflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event nflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event nflow = 0.410 af Dutflow = 0.38 cfs @ 11.45 hrs, Volume = 0.410 af Outload Outload for 0.410 af Revent of 1.45 hrs, Volume = 0.410 af Outload for 0.410 af Outload for 0.410 af Routing 11.45 hrs, Volume = 0.410 af Outload for 0.410 af Routing 11.45 hrs, Volume = 0.410 af Outload for 0.410 af Routing 11.45 hrs, Volume = 0.410 af Outload for 0.410 af (100% of inflow) Denter-of-Mass det. time = 139.1 min calculated for 0.410 af (100% of inflow) Denter-of-Mass det. time = 139.1 min calculated for 0.410 af (23.35 mt colspan= 10.00; 23.33 inside #1 Effective Size 70.4W x 45.0°H x 7.50°L with 0.33'Overlap A 50.60' <			
Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 hydroCAD® 10.00-22 sin 01445 @ 2018 HydroCAD Software Solutions LLC Page 50 Summary for Pond URC1: URC-1 Inflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event Inflow = 5.55 cfs @ 12.10 hrs, Volume= 0.410 af Dutflow = 0.38 cfs @ 11.45 hrs, Volume= 0.410 af Socarded = 0.38 cfs @ 11.45 hrs, Volume= 0.410 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Page 50 Plug-Flow detention time= 139.1 min calculated for 0.410 af (100% of inflow) Penter-of-Mass det. time= 139.1 min (955.2 - 816.1) /olume Invert Avail.Storage Storage Description #1A 48.60° 0.074 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Coverall - 0.038 af Coverall - 0.18' #2A 50.60' 0.085 af ADS StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size -70.4'W x 45.0''H + 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers			
hydroCAD® 10.00-22 ivin 01445 © 2018 HydroCAD Software Solutions LLC Page 50 Summary for Pond URC1: URC-1 Inflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event Inflow = 5.55 cfs @ 12.10 hrs, Volume= 0.410 af Dutflow = 0.38 cfs @ 11.45 hrs, Volume= 0.410 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs > Peak Elev= 55.19' @ 13.24 hrs Suff. Area= 0.046 ac Storage = 0.157 af Plug-Flow detention time= 139.1 min calculated for 0.410 af (100% of inflow) > > Center-of-Mass det. time= 139.1 min (955.2 - 816.1) > > /olume Invert Avail.Storage Storage Description #1A 48.60' 0.074 af 23.25'W x 85.57'L x 6.75'H Field A > 0.38 af Overall 0.085 af ADS_StormTech MC-3500 d + Cap x 33. Inside 11 Effective S15.3 si x 7.7'L = 110.0 cf #2A 50.60' 0.085 af ADS_StormTech MC-3500 d + Cap x 33 inside 11 Effective S15.3 si x 7.7'L = 110.0 cf 0.160 af Total Available Storage Storage = 14.9 cf x 2 x 3 rows = 89.4 cf <			
nflow Area = 1.559 ac, 43.91% Impervious, Inflow Depth = 3.16" for 100YR event nflow = 5.55 cfs @ 12.10 hrs, Volume= 0.410 af Dutflow = 0.38 cfs @ 11.45 hrs, Volume= 0.410 af Dutflow = 0.38 cfs @ 11.45 hrs, Volume= 0.410 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs 90.01 hrs Peak Elev= 55.19' @ 13.24 hrs Surf.Area= 0.046 ac Storage= Plug-Flow detention time= 139.1 min calculated for 0.410 af (100% of inflow) Peak Elev= 55.71 k 6.75'H Field A Plug-Flow detention time= 139.1 min (955.2 - 816.1) 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids /clume Invert Avail.Storage Storage Description #1A 48.60' 0.074 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Obes fa Embedded = 0.223 af x 33.3% Voids #2A 50.60' 0.085 af ADS_StormTech MC-3500 d +Cap x 33 inside #1 Effective Size= 70.4''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf 0.160 af Total Available Storage Cap Storage= +14.9 of x 2 x 3 rows = 89.4 cf 0.160		Type III 24-hr 100YR Rainfall=8.56"	
Infow Area =1.559 ac, 43.91% Impervious, Infow Depth =3.16"for 100YR eventInfow =5.55 cfs @12.10 hrs, Volume=0.410 afDutflow =0.38 cfs @11.45 hrs, Volume=0.410 afDutflow =0.38 cfs @11.45 hrs, Volume=0.410 afRouting by Stor-Ind method, Time Span=0.00-72.00 hrs, dt=0.01 hrsPeak Elev=55.19' @13.24 hrsSurf.Area=0.046 acStorage Elev=55.19' @13.24 hrsSurf.Area=0.046 acPlug-Flow detention time=139.1 min calculated for 0.410 af (100% of inflow)Penter-of-Mass det. time=139.1 min (955.2 - 816.1)/olumeInvertAvail.StorageStorage Description#1A48.60'0.074 af23.25'W x 85.57'L x 6.75'H Field A0.085 afADS_StormTech MC-3500 d +Cap x 33Mass of 0.085 afADS_StormTech MC-3500 d +Cap x 33#2A50.60'0.085 afADS_StormTech MC-3500 d +Cap x 33Inside #1Effective Size= 70.4''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cfOverall Size= 77.0''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cfOverall Size= 71.0''W x 45.0''H => 15.33 sf x 7.17'L = 10.0 cfOverall Size= 70.4''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cfOverall Size= 70.4''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cfOverall Size= 71.0''W x 45.0''H => 15.33 sf x 7.17'L = 10.0 cfOverall Size= 70.4''W x 45.0''H => 15.33 sf x 7.17'L = 10.0 cfOverall Size= 70.4''W x 45.0''H => 15.33 sf x 7.17'L = 10.0 cfOverall Size= 70.4''W x 4	Prepared by Horsley Witten Gro	pup, Inc. Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021	
nflow = 5.55 cfs @ 12.10 hrs, Volume= 0.410 af Outflow = 0.38 cfs @ 11.45 hrs, Volume= 0.410 af Souting by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 55.19' @ 13.24 hrs Surf.Area= 0.046 ac Storage= 0.157 af Plug-Flow detention time= 139.1 min calculated for 0.410 af (100% of inflow) Center-of-Mass det. time= 139.1 min (955.2 - 816.1) /olume Invert Avail.Storage Storage Description #1A 48.60' 0.074 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids #2A 50.60' 0.085 af ADS_StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size= 70.4''W x 45.0''H x 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices #1 Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge)	Prepared by Horsley Witten Gro	Dup, Inc. Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 2018 HydroCAD Software Solutions LLC Page 50	
Dutflow = 0.38 cfs @ 11.45 hrs, Volume= 0.410 af, Atten= 93%, Lag= 0.0 min Discarded = 0.38 cfs @ 11.45 hrs, Volume= 0.410 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs 0.410 af Peak Elev= 55.19' @ 13.24 hrs Surf.Area= 0.046 ac Storage= 0.157 af Plug-Flow detention time= 139.1 min calculated for 0.410 af (100% of inflow) Center-of-Mass det. time= 139.1 min (955.2 - 816.1) /olume Invert Avail.Storage Storage Description #1A 48.60' 0.074 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids #2A 50.60' 0.085 af ADS_StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size= 70.4''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0''W x 45.0''H => 15.33 sf voidt 0.160 af Total Available Storage Cap Storage = +14.9 cf x 2 x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Storage Group A created with Chamber Wizard 20 Device Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area P	Prepared by Horsley Witten Gro	Dup, Inc. Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 2018 HydroCAD Software Solutions LLC Page 50	
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 55.19' @ 13.24 hrs Surf.Area= 0.046 ac Storage= 0.157 af Plug-Flow detention time= 139.1 min calculated for 0.410 af (100% of inflow) Center-of-Mass det. time= 139.1 min (955.2 - 816.1) /olume Invert Avail.Storage Storage Description #1A 48.60' 0.074 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids #2A 50.60' 0.085 af ADS_StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size= 70.4''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0''W x 45.0''H x 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage = +14.9 cf x 2 x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge)	Prepared by Horsley Witten Gro <u>HydroCAD® 10.00-22 s/n 01445 © 2</u> nflow Area = 1.559 ac, 43.5	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 2018 HydroCAD Software Solutions LLC Page 50 Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" for 100YR event	
Peak Elev= 55.19' @ 13.24 hrs Surf.Area= 0.046 ac Storage= 0.157 af Plug-Flow detention time= 139.1 min calculated for 0.410 af (100% of inflow) Center-of-Mass det. time= 139.1 min (955.2 - 816.1) /olume Invert Avail.Storage Storage Description #1A 48.60' 0.074 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids #2A 50.60' 0.085 af ADS_StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 770.4" W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0.4"W x 45.0"H x 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Storage Group A created with Chamber Wizard Device Pevice Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge) Hit Storage	Prepared by Horsley Witten Gro <u>HydroCAD® 10.00-22 s/n 01445 © 2</u> nflow Area = 1.559 ac, 43.9 nflow = 5.55 cfs @ 12	Type III 24-hr 100YR Rainfall=8.56" pup, Inc. Printed 3/5/2021 2018 HydroCAD Software Solutions LLC Page 50 Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" for 100YR event 2.10 hrs, Volume= 0.410 af	
Peak Elev= 55.19' @ 13.24 hrs Surf.Area= 0.046 ac Storage= 0.157 af Plug-Flow detention time= 139.1 min calculated for 0.410 af (100% of inflow) Center-of-Mass det. time= 139.1 min (955.2 - 816.1) /olume Invert Avail.Storage Storage Description #1A 48.60' 0.074 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids #2A 50.60' 0.085 af ADS_StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 770.4" W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0.4"W x 45.0"H x 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Storage Group A created with Chamber Wizard Device Pevice Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge) Hit Storage	Prepared by Horsley Witten Gro <u>HydroCAD® 10.00-22 s/n 01445 © 2</u> nflow Area = 1.559 ac, 43.6 nflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 2018 HydroCAD Software Solutions LLC Page 50 Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" for 100YR event 2.10 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af, Atten= 93%, Lag= 0.0 min	
Center-of-Mass det. time = 139.1 min (955.2 - 816.1) /olume Invert Avail.Storage Storage Description #1A 48.60' 0.074 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids #2A 50.60' 0.085 af ADS_StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage = +14.9 cf x 2 x 3 rows = 89.4 cf Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge)	Prepared by Horsley Witten Gro lydroCAD® 10.00-22 s/n 01445 © 2 nflow Area = 1.559 ac, 43.9 nflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11	Summary for Pond URC1: URC-1 Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" for 100YR event 0.410 af 1.45 hrs, Volume= 0.410 af 0.410 af 0.410 af	
Center-of-Mass det. time = 139.1 min (955.2 - 816.1) /olume Invert Avail.Storage Storage Description #1A 48.60' 0.074 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids #2A 50.60' 0.085 af ADS_StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage = +14.9 cf x 2 x 3 rows = 89.4 cf Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge)	Prepared by Horsley Witten Gro HydroCAD® 10.00-22 s/n 01445 © 2 Inflow Area = 1.559 ac, 43.9 Inflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time 10	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 2018 HydroCAD Software Solutions LLC Page 50 Summary for Pond URC1: URC-1 Page 50 91% Impervious, Inflow Depth = 3.16" for 100YR event 2.10 hrs, Volume= 2.10 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af, Atten= 93%, Lag= 0.0 min 1.45 hrs, Volume= 0.410 af Span= 0.00-72.00 hrs, dt= 0.01 hrs	
#1A 48.60' 0.074 af 23.25'W x 85.57'L x 6.75'H Field A .0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids #2A 50.60' 0.085 af ADS_StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size= 70.4''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0''W x 45.0''H x 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage +14.9 cf x 2 x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'	Prepared by Horsley Witten Gro lydroCAD® 10.00-22 s/n 01445 © 2 nflow Area = 1.559 ac, 43.9 nflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs S	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 2018 HydroCAD Software Solutions LLC Page 50 Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" 91% Impervious, Inflow Depth = 0.410 af 1.45 hrs, Volume = 0.410 af Span = 0.00-72.00 hrs, dt= 9.01 hrs Surf.Area = 0.046 ac Storage = 0.157 af Surf.Area =	
#1A 48.60' 0.074 af 23.25'W x 85.57'L x 6.75'H Field A .0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids #2A 50.60' 0.085 af ADS_StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size= 70.4''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0''W x 45.0''H x 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage +14.9 cf x 2 x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'	Prepared by Horsley Witten Gro lydroCAD® 10.00-22 s/n 01445 © 2 nflow Area = 1.559 ac, 43.9 nflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs S Plug-Flow detention time= 139.1 m 139.1 m	Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" for 100YR event 2.10 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af Span= 0.00-72.00 hrs, dt= 0.01 hrs Surf.Area= 0.046 ac Storage= 0.157 af	
#2A 50.60' 0.085 af 0.085 af Embedded = 0.223 af x 33.3% Voids ADS_StormTech MC-3500 d+Cap x 33 Inside #1 Effective Size= 70.4"W x 45.0"H x 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage = +14.9 cf x 2 x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'	Prepared by Horsley Witten Gro lydroCAD® 10.00-22 s/n 01445 © 2 nflow Area = 1.559 ac, 43.9 nflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs S Plug-Flow detention time= 139.1 m Center-of-Mass det. time= 139.1 m	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 2018 HydroCAD Software Solutions LLC Page 50 Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" for 100YR event 2.10 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af Span= 0.00-72.00 hrs, dt= 0.01 hrs Surf.Area= 0.046 ac Storage= 0.157 af nin calculated for 0.410 af (100% of inflow) nin (955.2 - 816.1)	
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge)	Prepared by Horsley Witten Gro lydroCAD® 10.00-22 s/n 01445 © 2 nflow Area = 1.559 ac, 43.9 nflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs S Plug-Flow detention time= 139.1 m Center-of-Mass det. time= 139.1 m S Volume Invert Avail.Stora	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Printed 3/5/2021 Page 50 Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" for 100YR event 2.10 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af Span= 0.00-72.00 hrs, dt= 0.01 hrs Surf.Area= 0.046 ac Storage= 0.157 af nin calculated for 0.410 af (100% of inflow) nin (955.2 - 816.1) age age Storage Description Storage Description	
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage = +14.9 cf x 2 x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Group A created with Chamber Wizard Device Routing #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge)	Prepared by Horsley Witten Gro lydroCAD® 10.00-22 s/n 01445 © 2 Inflow Area = 1.559 ac, 43.9 Inflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs S Plug-Flow detention time= 139.1 m Center-of-Mass det. time= 139.1 m S /olume Invert Avail.Stora #1A 48.60' 0.074	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Printed 3/5/2021 Page 50 Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" for 100YR event 2.10 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af 4.10 af 3.16" Span= 0.00-72.00 hrs, dt= 0.01 hrs Surf.Area= 0.046 ac Storage = 0.157 af nin calculated for 0.410 af (100% of inflow) nin (955.2 - 816.1) age Storage Description 4 af 23.25"W x 85.57"L x 6.75"H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids	
Cap Storage = +14.9 cf x 2 x 3 rows = 89.4 cf 0.160 af Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge)	Prepared by Horsley Witten Gro HydroCAD® 10.00-22 s/n 01445 © 2 Inflow Area = 1.559 ac, 43.9 Inflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs S Plug-Flow detention time= 139.1 m Center-of-Mass det. time= 139.1 m S Volume Invert Avail.Stora #1A 48.60' 0.074	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 Printed 3/5/2021 Page 50 Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" for 100YR event 2.10 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af 4.10 af 4.10 af 1.45 hrs, Volume= 0.410 af 4.10 af 5.157 af nin calculated for 0.410 af (100% of inflow) 1.157 af 1.157 af nin calculated for 0.410 af (100% of inflow) 1.157 af 1.157 af age Storage Description 4 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids 5 af ADS_StormTech MC-3500 d + Cap x 33 Inside #1	
0.160 af Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge)	Prepared by Horsley Witten Gro HydroCAD® 10.00-22 s/n 01445 © 2 Inflow Area = 1.559 ac, 43.9 Inflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs S Plug-Flow detention time= 139.1 m Center-of-Mass det. time= 139.1 m S Volume Invert Avail.Stora #1A 48.60' 0.074	Type III 24-hr 100YR Rainfall=8.56" Printed 3/5/2021 2018 HydroCAD Software Solutions LLC Page 50 Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" 91% Impervious, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af Span = 0.00-72.00 hrs, dt= 0.01 hrs Surf.Area = Surf.Area = 0.046 ac Storage Description 100% of inflow) 4 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 915.33 sf x 7.17'L 110.0 cf Overall Size= 70.4"W x 45.0"H x 7.50'L with 0.33' Overlap	
Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge)	Prepared by Horsley Witten Gro HydroCAD® 10.00-22 s/n 01445 © 2 Inflow Area = 1.559 ac, 43.9 Inflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs S Plug-Flow detention time= 139.1 m Center-of-Mass det. time= 139.1 m S Volume Invert Avail.Stora #1A 48.60' 0.074	$Type \ III \ 24-hr \ 100 \ YR \ Rainfall=8.56" Printed \ 3/5/2021 Page 50$ $Summary \ for \ Pond \ URC1: \ URC-1$ 91% Impervious, Inflow Depth = 3.16" for 100 \ YR event 2.10 hrs, Volume = 0.410 af 1.45 hrs, Volume = 0.410 af, Atten= 93%, Lag= 0.0 min 1.45 hrs, Volume = 0.410 af Span= 0.00-72.00 hrs, dt= 0.01 hrs Surf.Area= 0.046 ac \ Storage= 0.157 af nin calculated for 0.410 af (100% of inflow) nin (955.2 - 816.1) age \ Storage Description 4 af \ 23.25'' x 85.57'L x 6.75'H \ Field A 0.308 af \ Overall - 0.085 af \ Embedded = 0.223 \ af \ x 33.3\% \ Voids 5 af \ ADS_{\ StormTech} \ MC-3500 \ d \ + Cap \ x 33 \ Inside \ #1 Effective \ Size= 70.4''W \ x 45.0''H = x 7.5''L \ with 0.33' \ Overlap 3 \ Rows of 11 \ Chambers	
Device Routing Invert Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded Outlet Devices Outlet Devices Outlet Devices #1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'	Prepared by Horsley Witten Gro HydroCAD® 10.00-22 s/n 01445 © 2 nflow Area = 1.559 ac, 43.9 nflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs S Plug-Flow detention time= 139.1 m Center-of-Mass det. time= 139.1 m Center-of-Mass det. time= 139.1 m /olume Invert Avail.Stora #1A #2A 50.60' 0.085	$Type III 24-hr 100YR Rainfall=8.56"Printed 3/5/2021Page 50Summary for Pond URC1: URC-191% Impervious, Inflow Depth = 3.16" for 100YR event2.10 hrs, Volume 0.410 af1.45 hrs, Volume 0.410 af, Atten= 93%, Lag= 0.0 min1.45 hrs, Volume 0.410 af1.45 hrs, Volume 0.410 afSpan= 0.00-72.00 hrs, dt= 0.01 hrsSurf.Area = 0.046 ac Storage = 0.157 afnin calculated for 0.410 af (100% of inflow)nin (955.2 - 816.1)age Storage Description4 af 23.25'W x 85.57'L x 6.75'H Field A0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids5 af ADS_StormTech MC-3500 d +Cap x 33 Inside #1Effective Size= 70.4''W x 45.0''H => 15.33 sf x 7.17'L = 110.0 cfOverall Size= 77.0''W x 45.0''H x 7.50'L with 0.33' Overlap3 Rows of 11 ChambersCap Storage = +14.9 cf x 2 x 3 rows = 89.4 cf$	
#1 Discarded 48.60' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge)	Prepared by Horsley Witten Gro HydroCAD® 10.00-22 s/n 01445 © 2 Inflow Area = 1.559 ac, 43.6 Inflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs S Plug-Flow detention time= 139.1 m Center-of-Mass det. time= 139.1 m Yolume Volume Invert Avail.Stora #1A 48.60' 0.074 #2A 50.60' 0.085 0.160 0.160 0.160	$Type III 24-hr 100YR Rainfall=8.56"$ Printed 3/5/2021 Page 50 $Summary for Pond URC1: URC-1$ 91% Impervious, Inflow Depth = 3.16" for 100YR event 2.10 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af Span= 0.00-72.00 hrs, dt= 0.01 hrs Surf.Area= 0.046 ac Storage= 0.157 af nin calculated for 0.410 af (100% of inflow) nin (955.2 - 816.1) age Storage Description 4 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids 5 af ADS_StormTech MC-3500 d + Cap x 33 Inside #1 Effective Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 71.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 10.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 10.0 cf Overall Size= 70.0"W x 45.0"H => 15.33 sf x 7.17'L = 10.0 cf Overall Size= 70.0"W x 45.0"H => 15.33 sf x 7.17'L = 10.0 cf Overall Size= 70.	
Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge)	Prepared by Horsley Witten Gro HydroCAD® 10.00-22 s/n 01445 © 2 Inflow Area = 1.559 ac, 43.6 Inflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs S Plug-Flow detention time= 139.1 m Center-of-Mass det. time= 139.1 m Yolume Volume Invert Avail.Stora #1A 48.60' 0.074 #2A 50.60' 0.085 0.160 0.160 0.160	$Type III 24-hr 100YR Rainfall=8.56"$ Printed 3/5/2021 Page 50 $Summary for Pond URC1: URC-1$ 91% Impervious, Inflow Depth = 3.16" for 100YR event 2.10 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af Span= 0.00-72.00 hrs, dt= 0.01 hrs Surf.Area= 0.046 ac Storage= 0.157 af nin calculated for 0.410 af (100% of inflow) nin (955.2 - 816.1) age Storage Description 4 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids 5 af ADS_StormTech MC-3500 d + Cap x 33 Inside #1 Effective Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 71.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 10.0 cf Overall Size= 77.0"W x 45.0"H => 15.33 sf x 7.17'L = 10.0 cf Overall Size= 70.0"W x 45.0"H => 15.33 sf x 7.17'L = 10.0 cf Overall Size= 70.0"W x 45.0"H => 15.33 sf x 7.17'L = 10.0 cf Overall Size= 70.	
Discarded OutFlow Max=0.38 cfs @ 11.45 hrs HW=48.67' (Free Discharge)	HydroCAD® 10.00-22 s/n 01445 © 2 Inflow Area = 1.559 ac, 43.6 Inflow = 5.55 cfs @ 12 Dutflow = 0.38 cfs @ 11 Discarded = 0.38 cfs @ 11 Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs Plug-Flow detention time= 139.1 m Colume Invert Avail.Stora #1A 48.60' 0.085 0.160 Storage Group A created with C Device Routing	$Type III 24-hr 100YR Rainfall=8.56"Printed 3/5/2021Page 50 Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" for 100YR event 2.10 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af, Atten= 93%, Lag= 0.0 min 1.45 hrs, Volume= 0.410 af Span= 0.00-72.00 hrs, dt= 0.01 hrs Surf.Area= 0.046 ac Storage= 0.157 af nin calculated for 0.410 af (100% of inflow) nin (955.2 - 816.1) age Storage Description 4 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids 5 af ADS_StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size= 77.0''W x 45.0''H x 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage = 14.9 cf x 2 x 3 rows = 89.4 cf 0 af Total Available Storage Chamber Wizard Outlet Devices$	
	Prepared by Horsley Witten Gro <u>HydroCAD® 10.00-22 s/n 01445 © 2</u> Inflow Area = 1.559 ac, 43.3 nflow = nflow = 5.55 cfs @ 12 Dutflow = Dutflow = 0.38 cfs @ 11 Discarded = Routing by Stor-Ind method, Time Peak Elev= 55.19' @ 13.24 hrs S Plug-Flow detention time= 139.1 rr Center-of-Mass det. time= 139.1 rr /olume Invert Avail.Stora #1A 48.60' 0.074 #2A 50.60' 0.085	$Type III 24-hr 100YR Rainfall=8.56"Printed 3/5/2021Page 50 Summary for Pond URC1: URC-1 91% Impervious, Inflow Depth = 3.16" for 100YR event 2.10 hrs, Volume= 0.410 af 1.45 hrs, Volume= 0.410 af, Atten= 93%, Lag= 0.0 min 1.45 hrs, Volume= 0.410 af Span= 0.00-72.00 hrs, dt= 0.01 hrs Surf.Area= 0.046 ac Storage= 0.157 af nin calculated for 0.410 af (100% of inflow) nin (955.2 - 816.1) age Storage Description 4 af 23.25'W x 85.57'L x 6.75'H Field A 0.308 af Overall - 0.085 af Embedded = 0.223 af x 33.3% Voids 5 af ADS_StormTech MC-3500 d +Cap x 33 Inside #1 Effective Size= 77.0''W x 45.0''H x 7.50'L with 0.33' Overlap 3 Rows of 11 Chambers Cap Storage = 14.9 cf x 2 x 3 rows = 89.4 cf 0 af Total Available Storage Chamber Wizard Outlet Devices$	

19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions I

HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 51 Pond URC1: URC-1 Hydrograph Inflow 5.55 cfs Discarded 6 Inflow Area=1.559 ac Peak Elev=55.19' 5 Storage=0.157 af Δ (cfs) Flow 3 2 0.38 cfs 0 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours) Horsley Witten Group, Inc. Type III 24-hr 100YR Rainfall=8.56" 19038-POST V3 Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 52 Summary for Pond URC2: URC-2 Inflow Area = 0.260 ac,100.00% Impervious, Inflow Depth = 8.32" for 100YR event 2.27 cfs @ 12.07 hrs, Volume= 0.17 cfs @ 11.13 hrs, Volume= Inflow = 0.180 af 0.180 af, Atten= 93%, Lag= 0.0 min Outflow = Discarded = 0.17 cfs @ 11.13 hrs, Volume= 0.180 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 60.65' @ 13.06 hrs Surf.Area= 879 sf Storage= 2,838 cf Plug-Flow detention time= 119.2 min calculated for 0.180 af (100% of inflow) Center-of-Mass det. time= 119.2 min (858.7 - 739.5) Avail.Storage Storage Description Volume Invert 1,517 cf **17.33'W x 50.72'L x 6.75'H Field A** 5,934 cf Overall - 1,379 cf Embedded = 4,555 cf x 33.3% Voids 54.10 #1A ADS_StormTech MC-3500 d +Cap x 12 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf #2A 56.10 1,379 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 2 Rows of 6 Chambers Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf 2,896 cf Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices 54.10' 8.270 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded #1 Discarded OutFlow Max=0.17 cfs @ 11.13 hrs HW=54.17' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.17 cfs)

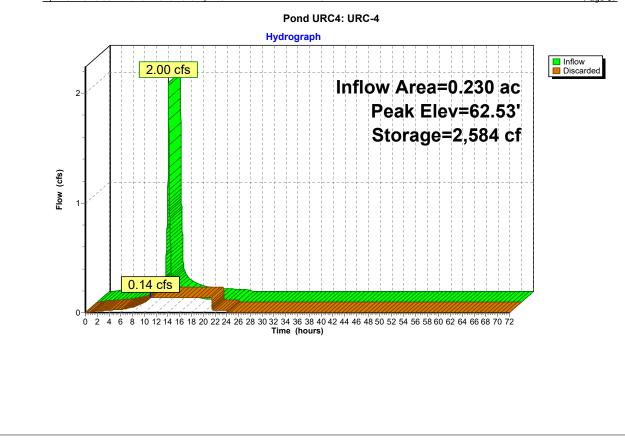
19038-POST V3 Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u>

Pond URC2: URC-2 Hydrograph Inflow 2.27 cfs Discarded Inflow Area=0.260 ac Peak Elev=60.65' 2 Storage=2,838 cf (cfs) Flow 0.17 cfs 0 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours) Horsley Witten Group, Inc. Type III 24-hr 100YR Rainfall=8.56" 19038-POST V3 Prepared by Horsley Witten Group, Inc. Printed 3/5/2021 HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 54 Summary for Pond URC3: URC-3 Inflow Area = 0.436 ac, 43.62% Impervious, Inflow Depth = 4.42" for 100YR event 1.91 cfs @ 12.09 hrs, Volume= 0.12 cfs @ 11.17 hrs, Volume= Inflow = 0.161 af Outflow = 0.161 af, Atten= 94%, Lag= 0.0 min Discarded = 0.12 cfs @ 11.17 hrs, Volume= 0.161 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 62.28' @ 13.98 hrs Surf.Area= 765 sf Storage= 2,654 cf Plug-Flow detention time= 173.6 min calculated for 0.161 af (100% of inflow) Center-of-Mass det. time= 173.6 min (944.0 - 770.3) Avail.Storage Storage Description Volume Invert 1,250 cf 22.25W x 34.38'L x 6.75'H Field A 5,163 cf Overall - 1,409 cf Embedded = 3,755 cf x 33.3% Voids 55.55 #1A ADS_StormTech MC-3500 d +Cap x 12 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf #2A 57.55 1,409 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 3 Rows of 4 Chambers Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf 2,659 cf Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices 55.55' 7.000 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded #1 Discarded OutFlow Max=0.12 cfs @ 11.17 hrs HW=55.62' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.12 cfs)

19038-POST V3 Prepared by Horsley Witten Group, Inc. <u>HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC</u>

Pond URC3: URC-3 Hydrograph Inflow 1.91 cfs Discarded 2 Inflow Area=0.436 ac Peak Elev=62.28' Storage=2,654 cf (cfs) Flow 0.12 cfs 0 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours) Horsley Witten Group, Inc. Type III 24-hr 100YR Rainfall=8.56" 19038-POST V3 Printed 3/5/2021 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC Page 56 Summary for Pond URC4: URC-4 Inflow Area = 0.230 ac,100.00% Impervious, Inflow Depth = 8.32" for 100YR event 2.00 cfs @ 12.07 hrs, Volume= 0.14 cfs @ 11.00 hrs, Volume= Inflow = 0.159 af Outflow = 0.159 af, Atten= 93%, Lag= 0.0 min Discarded = 0.14 cfs @ 11.00 hrs, Volume= 0.159 af Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 62.53' @ 13.22 hrs Surf.Area= 851 sf Storage= 2,584 cf Plug-Flow detention time= 135.9 min calculated for 0.159 af (100% of inflow) Center-of-Mass det. time= 135.9 min (875.3 - 739.5) Avail.Storage Storage Description Volume Invert 1,292 cf 30.17'W x 28.21'L x 6.25'H Field A 5,319 cf Overall - 1,439 cf Embedded = 3,880 cf x 33.3% Voids 56.80 #1A ADS_StormTech MC-3500 d +Cap x 12 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf #2A 58.30 1,439 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 4 Rows of 3 Chambers Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf 2,731 cf Total Available Storage Storage Group A created with Chamber Wizard Device Routing Invert Outlet Devices 56.80' 7.000 in/hr Exfiltration over Surface area Phase-In= 0.01' Discarded #1 Discarded OutFlow Max=0.14 cfs @ 11.00 hrs HW=56.86' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.14 cfs)

19038-POST V3 Prepared by Horsley Witten Group, Inc. HydroCAD® 10.00-22 s/n 01445 © 2018 HydroCAD Software Solutions LLC



Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	Massachusetts
Location	
Longitude	70.538 degrees West
Latitude	41.783 degrees North
Elevation	0 feet
Date/Time	Thu, 21 Jan 2021 13:15:17 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.44	0.55	0.72	0.90	1.14	1yr	0.78	1.12	1.33	1.69	2.17	2.79	3.15	1yr	2.47	3.03	3.49	4.03	4.66	1yr
2yr	0.36	0.56	0.69	0.92	1.15	1.45	2yr	0.99	1.37	1.68	2.11	2.65	3.33	3.71	2yr	2.95	3.57	4.07	4.81	5.46	2yr
5yr	0.44	0.68	0.85	1.14	1.46	1.85	5yr	1.26	1.74	2.15	2.68	3.34	4.15	4.67	5yr	3.67	4.49	5.08	5.96	6.68	5yr
10yr	0.50	0.78	0.99	1.34	1.75	2.23	10yr	1.51	2.09	2.59	3.23	3.99	4.90	5.57	10yr	4.34	5.35	6.01	7.00	7.78	10yr
25yr	0.59	0.94	1.20	1.66	2.21	2.85	25yr	1.91	2.66	3.31	4.11	5.04	6.12	7.02	25yr	5.41	6.75	7.52	8.68	9.52	25yr
50yr	0.68	1.10	1.41	1.97	2.65	3.43	50yr	2.29	3.20	3.98	4.93	6.01	7.24	8.37	50yr	6.40	8.05	8.91	10.22	11.10	50yr
100yr	0.79	1.28	1.65	2.33	3.18	4.12	100yr	2.74	3.85	4.79	5.91	7.16	8.56	9.98	100yr	7.58	9.60	10.56	12.03	12.94	100yr
200yr	0.91	1.49	1.92	2.76	3.81	4.96	200yr	3.29	4.64	5.77	7.10	8.54	10.13	11.91	200yr	8.97	11.45	12.52	14.18	15.09	200yr
500yr	1.12	1.84	2.39	3.47	4.85	6.33	500yr	4.18	5.93	7.36	9.01	10.78	12.67	15.05	500yr	11.22	14.47	15.69	17.62	18.51	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.25	0.38	0.47	0.63	0.77	0.92	1yr	0.67	0.90	1.09	1.52	1.97	2.31	2.89	1yr	2.04	2.78	3.07	3.60	4.39	1yr
2yr	0.35	0.54	0.66	0.90	1.11	1.35	2yr	0.96	1.32	1.57	2.09	2.62	3.20	3.62	2yr	2.84	3.48	3.92	4.64	5.37	2yr
5yr	0.40	0.61	0.76	1.04	1.33	1.62	5yr	1.15	1.58	1.88	2.48	3.09	3.77	4.20	5yr	3.34	4.04	4.67	5.69	6.14	5yr
10yr	0.44	0.68	0.84	1.17	1.51	1.84	10yr	1.30	1.80	2.13	2.81	3.48	4.28	5.04	10yr	3.78	4.84	5.26	5.94	6.86	10yr
25yr	0.50	0.76	0.95	1.36	1.78	2.19	25yr	1.54	2.14	2.45	3.28	4.04	5.06	6.08	25yr	4.48	5.85	6.15	6.82	7.92	25yr
50yr	0.55	0.84	1.05	1.51	2.03	2.48	50yr	1.75	2.42	2.68	3.68	4.49	5.77	7.01	50yr	5.11	6.74	6.95	7.54	8.83	50yr
100yr	0.62	0.93	1.17	1.68	2.31	2.80	100yr	1.99	2.74	2.94	4.14	4.99	6.58	8.09	100yr	5.82	7.78	7.82	8.35	9.82	100yr
200yr	0.68	1.02	1.29	1.87	2.61	3.18	200yr	2.25	3.11	3.22	4.62	5.55	7.51	9.33	200yr	6.65	8.97	8.88	9.25	10.99	200yr
500yr	0.78	1.15	1.48	2.16	3.07	3.73	500yr	2.65	3.65	3.58	5.36	6.38	8.99	11.31	500yr	7.96	10.87	10.53	10.65	12.72	500yr

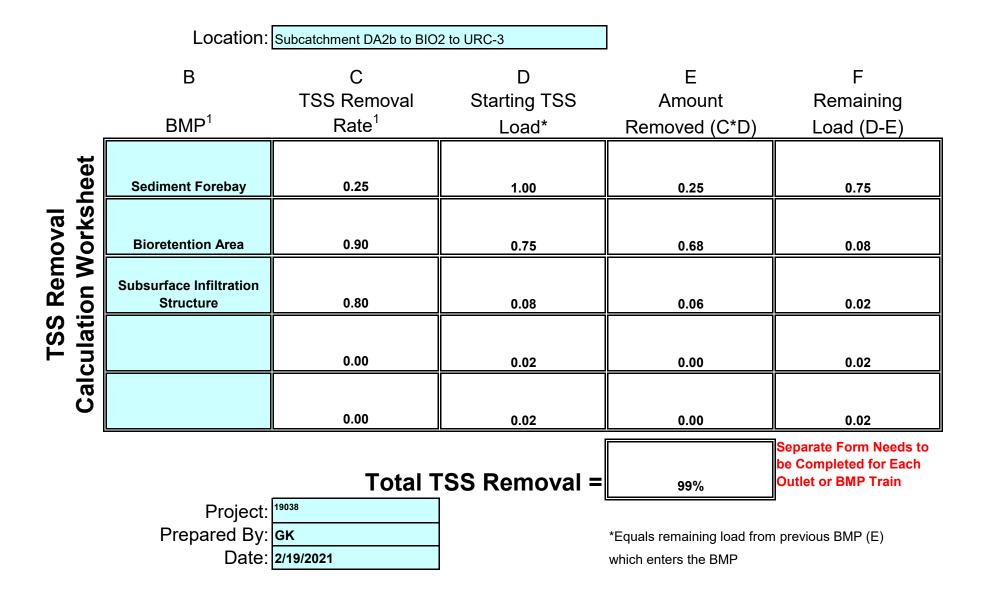
Upper Confidence Limits

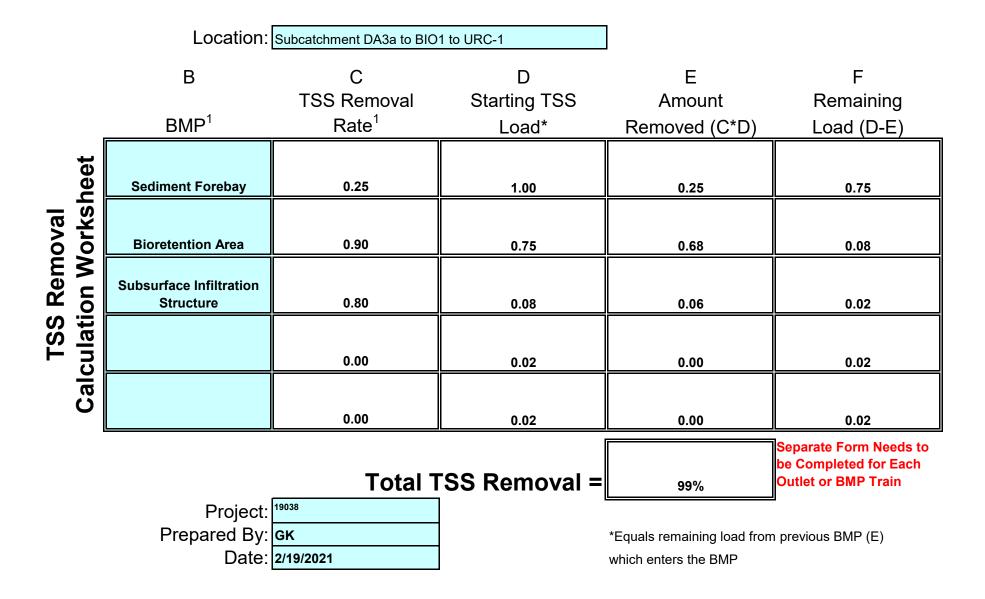
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.32	0.50	0.61	0.82	1.00	1.26	1yr	0.87	1.23	1.50	2.00	2.51	3.13	3.35	1yr	2.77	3.22	3.74	4.30	4.91	1yr
2yr	0.38	0.59	0.72	0.98	1.20	1.47	2yr	1.04	1.44	1.71	2.27	2.84	3.49	3.82	2yr	3.09	3.68	4.35	5.11	5.59	2yr
5yr	0.48	0.74	0.92	1.26	1.61	1.94	5yr	1.39	1.90	2.26	2.90	3.57	4.60	5.09	5yr	4.07	4.89	5.45	6.22	7.29	5yr
10yr	0.58	0.90	1.11	1.55	2.01	2.42	10yr	1.73	2.37	2.80	3.54	4.30	5.65	6.12	10yr	5.00	5.88	6.64	8.11	8.86	10yr
25yr	0.76	1.16	1.45	2.06	2.71	3.25	25yr	2.34	3.18	3.79	4.63	5.53	7.43	8.00	25yr	6.57	7.70	8.58	10.58	11.49	25yr
50yr	0.93	1.42	1.77	2.54	3.42	4.08	50yr	2.95	3.99	4.77	5.67	6.71	9.11	9.82	50yr	8.06	9.44	10.42	12.95	13.99	50yr
100yr	1.15	1.74	2.17	3.14	4.31	5.11	100yr	3.72	5.00	6.01	6.94	8.16	11.20	12.05	100yr	9.91	11.59	12.73	15.91	17.06	100yr
200yr	1.41	2.12	2.69	3.89	5.43	6.41	200yr	4.68	6.27	7.59	8.53	9.92	13.75	14.80	200yr	12.16	14.23	15.50	19.49	20.82	200yr
500yr	1.87	2.78	3.57	5.19	7.38	8.65	500yr	6.37	8.46	10.36	11.22	12.88	17.97	19.42	500yr	15.91	18.67	20.06	25.47	27.11	500yr

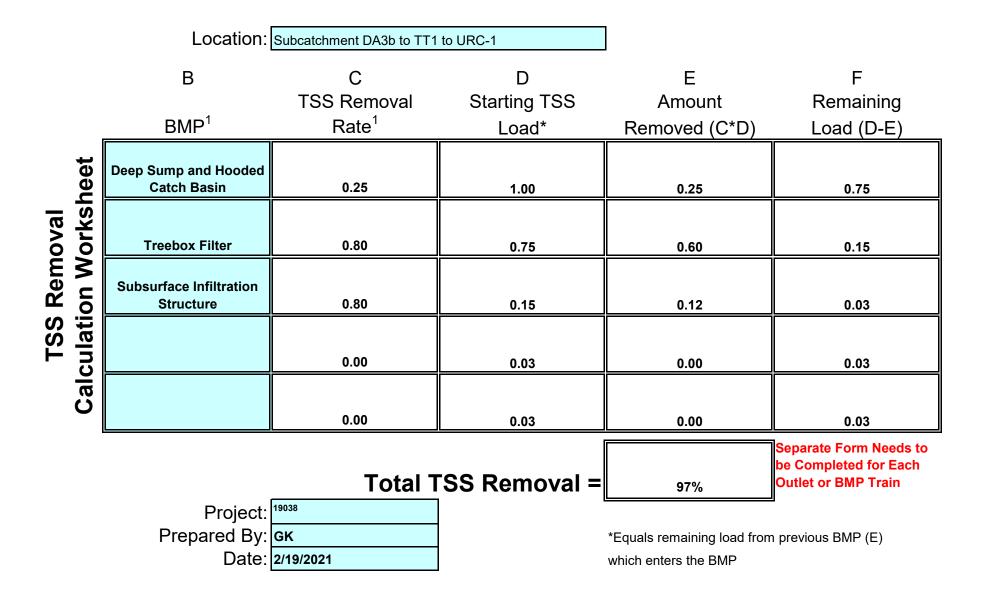


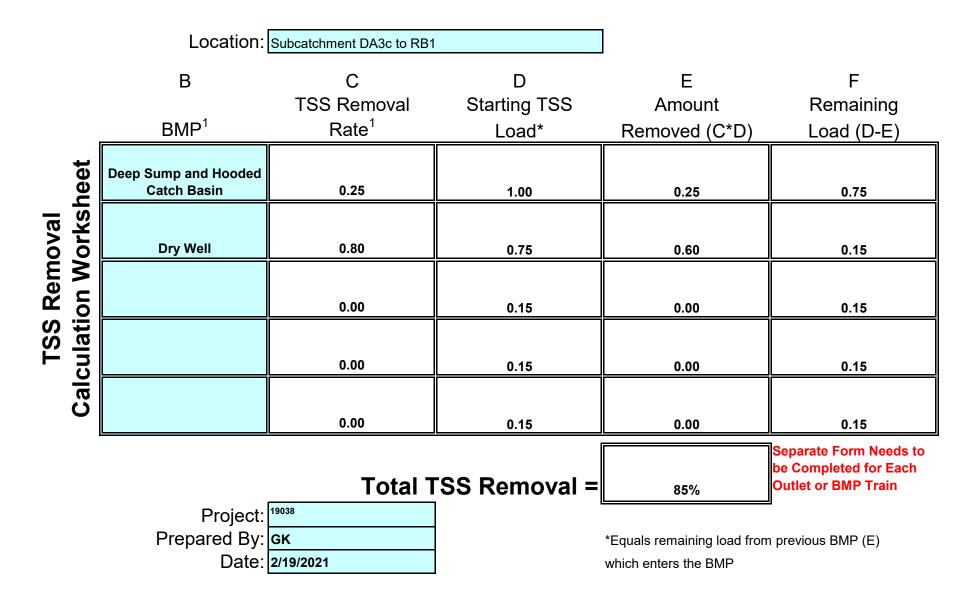
APPENDIX E

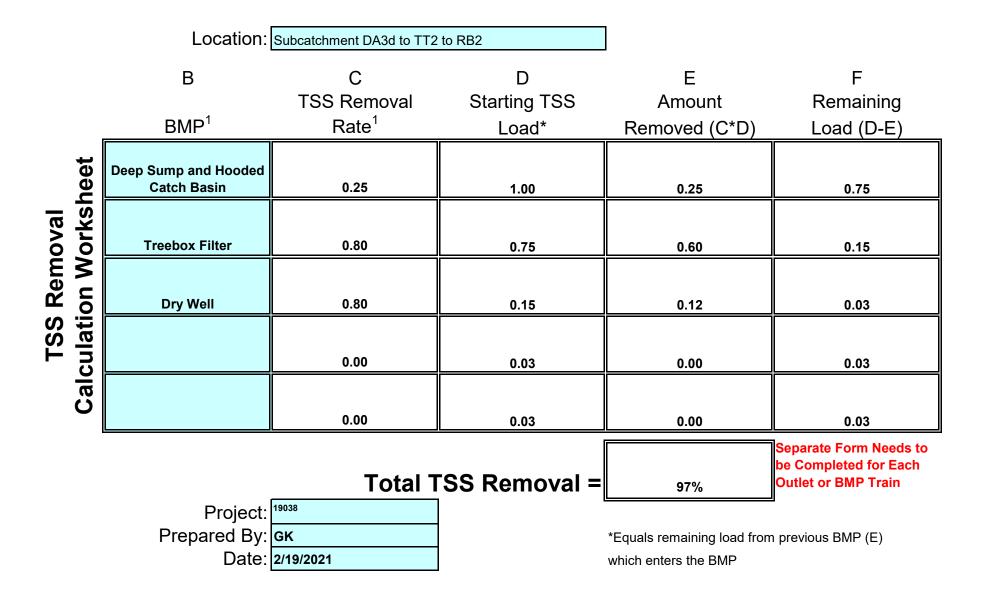
TSS and Recharge Calculations













STANDARD 3-RECHARGE REQUIREMENTS

Project Name: Cape View Way

Project No:	19038
Calculated by:	GK
Checked:	BRK

Date:	2/19/2021
Date:	3/5/2021

TOTAL DRAINAGE AREA	346,654	sf
	7.96	acres
TOTAL IMPERVIOUS AREA	82,278	sf
	1.89	acres
TOTAL IMPERVIOUS DIRECTED TO RECHARGE	67,298	sf
	1.54	acres
% IMPERVIOUS TO BE RECHARGED	81.79343	%

SOIL TYPE	A	
RECHARGE VOLUME REQUIRED (Rv)	3,365	cft
AVE. INFILTRATION RATE	2.41	in/hr

RECHARGE VOLUMES							
RAINFALL	1	in					
TREE TRENCH 1	3,059	cf					
TREE TRENCH 2	570	cf					
BIO-1	1,611	cf					
BIO-2	696	cf					
TOTAL RECHARGE VOLUME PROVIDED	5,936	cf					
TOTAL RECHARGE VOLUME REQUIRED	3,365	cf					

Soil Type	Target Depth (in)	Target Depth (ft)
А	0.6	0.05
В	0.35	0.029
С	0.25	0.021
D	0.1	0.008
Rawls Table		
Texture Class	NRCS Hydrologic	Infiltration Rate
	Soil Group (HSG)	Inches/Hour
Sand	A	8.27
Loamy Sand	A	2.41
Sandy Loam	В	1.02
Loam	В	0.52
Silt Loam	С	0.27
Sandy Clay	С	0.17
Clay Loam	D	0.09
Silty Clay Loam	D	0.06
Sandy Clay	D	0.05
Silty Clay	D	0.04
Clay	D	0.02

Calculate *Required Recharge Volume*.⁷ The *Required Recharge Volume* equals a depth of runoff corresponding to the soil type times the impervious areas covering that soil type at the post-development site.

Rv = F x impervious area

Equation (1)

Rv= Required Recharge Volume, expressed in Ft³, cubic yards, or acre-feetF= Target Depth Factor associated with each Hydrologic Soil GroupImpervious Area= pavement and rooftop area on site

To determine whether an inflitration BIVIP will drain within /2 hours, the following formula must be used²¹:

$$Time_{drawdown} = \frac{Rv}{(K)(Bottom Area)}$$

Where:

Rv = Storage Volume K = Saturated Hydraulic Conductivity For "Static" and "Simple Dynamic" Methods, useRawls Rate (see Table 2.3.3). For "Dynamic Field" Method, use 50% of the in-situ saturatechydraulic conductivity.Bottom Area = Bottom Area of Recharge Structure²²

 $^{^{20}\,}$ The drawdown analysis also assumes that the water table does not fluctuate during the draw down period.

²¹ In some cases, the infiltration structure may be designed to treat the *Required Water Quality Volume* and/or to attenuate peak discharges in addition to infiltrating the *Required Recharge Volume*. In that event, the storage volume of the structure must be used in the formula for determining drawdown time in place of the *Required Recharge Volume*.

Practice	(cf))	(sf)	K	Time to drawdown (hrs)*
TREE TRENCH 1 TREE TRENCH 2	3,059 570	1,020 375	2.41 2.41	15 8
BIO-1	1,611	1,361	2.41	6
BIO-2	696	150	2.41	23

*MUST BE LESS THAN 72 HOURS

APPENDIX F

Stormwater Operation and Maintenance Plan

Stormwater Management Operation and Maintenance Plan

> Cape View Way Bourne, Massachusetts

> > Prepared for:

PRESERVATION OF AFFORDABLE HOUSING 2 Oliver Street, Suite 500 Boston, MA 02109

Prepared by: Horsley Witten Group, Inc

March 2021



TABLE OF CONTENTS

Page

1.0	OWNER AND RESPONSIBILITY FOR MAINTENANCE	1
2.0	INTRODUCTION	2
3.0	FUNCTION & MAINTENANCE	3
3.2	Dry Well (Recharge Basin)	5
3.3	Tree Trench	6
3.4	Underground Chambers	7
3.5	Landscape Maintenance	8
WE	ED GUIDE1	0
4.0	ROUTINE MAINTENANCE	4
5.0	SNOW REMOVAL1	4
6.0	LONG-TERM POLLUTION PREVENTION PLAN1	4
6.1	Lawn/Landscaping Maintenance1	4
6.2	Pet Waste Management1	4
6.3	Solid Waste Management1	4
6.4	Pavement Sweeping Schedules 1	4
6.5	Illicit Discharges 1	4
6.6	Personnel Training 1	4
7.0	ESTIMATED OPERATION AND MAINTENANCE BUDGET 1	5

APPENDICES

- Appendix A: Maintenance Checklists
- Appendix B: Maintenance Plans
- Appendix C: Overall Stormwater BMP Locations
- Appendix D: Underground Chambers Manufacturer's Requirements

1.0 OWNER AND RESPONSIBILITY FOR MAINTENANCE

POAH, LLC is responsible for the financing and continuous operation, maintenance and required emergency repair for the stormwater management system and associated drainage network.

Owner: POAH, LLC 2 Oliver Street Suite 500 Boston, MA 02109

Contact:	TBD	
Name:		
Email:		
Ph:		

Signed:_____

Date:_____

2.0 INTRODUCTION

This Guide provides a general description of the function and maintenance requirements for the Stormwater Management System for the Cape View Way Housing Development. Proper maintenance is vital to their long-term success.

The proposed stormwater management includes a green stormwater infrastructure (GSI) approach to filter, infiltrate and store stormwater runoff prior to discharge. Therefore, the maintenance provider is required to familiarize themselves with this Guide and inspect and maintain the following GSI practices, as indicated on the construction drawings, and as outlined in this maintenance guide throughout the year.

PRETREATS AND FILTERS

- Deep Sump Catch Basins
 - An underground retention system designed to remove trash, debris, and coarse sediment from runoff. Typically, deep sump catch basins have a minimum fourfoot sump.

Bioretention Area

- A shallow depression in the landscape designed to collect, move, hold, and treat stormwater as it infiltrates through a soil matrix to remove phosphorus and reduce stormwater runoff prior to discharge to the storm drain system.
- Tree Trench
 - A tree pit with underground infiltration trenches. It is a type of bioretention facility.

STORES AND INFILTRATES

- Dry Well (Recharge Basin)
 - An excavated pit used to infiltrate runoff. Pretreatment must occur prior to the runoff discharging to a dry well for runoff sourced from parking lots and other impervious cover with higher potential pollutant loads.
- Underground Recharge Chambers
 - The underground recharge chambers are designed to store and infiltrate runoff.
 The underground chambers include an overflow structure to slowly release runoff from larger storm events to the drainage system.

3.0 FUNCTION & MAINTENANCE

How Does Green Infrastructure Work?

GSI is nature-based approach to stormwater treatment and management. These stormwater practices or "treatment areas" are designed to mimic nature and use the natural filtration properties of soil and plants to remove pollutants from stormwater runoff prior to discharging to the drainage system. GSI relies on the following five basic design elements, or steps, to function properly.

- 1. Collect (Inlets)
- 2. Capture Sediment (Pretreatment)
- 3. Move Water (Pipes)
- 4. Treat and Manage (Stores, Filters, and Infiltrates)
- 5. Overflows (Structure)

These five steps will be referenced throughout this Guide. If one of these steps does not function properly, the entire system can be compromised and the GSI practice itself could be contributing to maintenance problems. This can lead to a landscape nuisances, more frequent maintenance, and costly repairs/improvement.

What is required for Maintenance?

As these are nature-based systems that often rely on plant care, the maintenance for GSI typically falls under landscape and general site maintenance services. The regularly scheduled maintenance as outlined in this Guide is critical to ensure proper function, maintain infiltration rates and storage capacity and preserve the pollutant removal capabilities as well as the visual appearance. Regularly scheduled maintenance can prevent deficiencies in the effectiveness of the systems, due to sediment build-up, damage, or deterioration.

General maintenance includes the following:

- 1. Removing sediment from the pretreatment practices used to capture sediment.
- 2. Maintaining the proper drainage function and pollutant removal capacity of the systems.
- 3. Maintaining healthy native, tress, plants, and vegetative cover as well as the removal of unwanted weeds.

It is recommended that all practices be maintained regularly as part of the routine landscape maintenance or at a minimum four times per year and after major rain events.

- Early Spring: during spring cleanup
- Summer: during lawn mowing and other routine park maintenance
- Early Fall: when leaves begin to fall
- Late Fall/Early Winter: after all the leaves have fallen during leaf removal
- After major storm events: 2" of rain or greater.

The following sections describes the general function and landscape maintenance of each practice. Included in the appendices is a specific maintenance checklist for each practice type along with a plan showing the location of the items to be inspected and maintained.



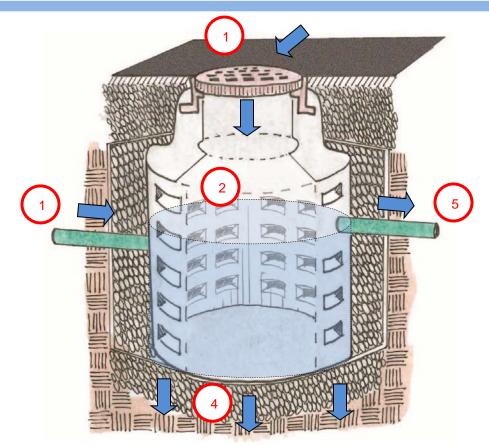
FUNCTION:

- <u>COLLECT</u> Inlet flume Stormwater runoff is collected at the inlet flume and diverted to the sediment forebay.
- <u>CAPTURE</u> Sediment Forebay Sediment, trash, and debris is captured and accumulates overtime in the sediment forebay.
- 3. <u>MOVE -</u> The stormwater discharges directly to the bioretention area via a granite check dam weir.
- <u>TREAT AND MANAGE</u> Bioretention Soil (filters) Stormwater overtops the forebay granite check dam and flows through the planted bioretention area, which infiltrates or filters stormwater through the planted sandy soil matric and subsoils.
- <u>OVERFLOW</u> Perforated Underdrain and Structure During larger rain events, soils become saturated and the underdrain drains water to the overflow structure. For extreme events, the water level will rise and overflow into the outlet structure.

<u>SURROUNDING AREA</u> - Parking lots, roadways, sidewalks, and open lawns Problems such as unstabilized soils, erosion, invasive plants and over sanding of the parking lot can contribute to long-term maintenance problems (See Section 6.0).

See Appendix A for Maintenance Checklist

3.2 Dry Well (Recharge Basin)



FUNCTION:

- <u>COLLECT</u> Catch Basin Grate and Inlet Pipes Stormwater runoff is collected from roof drains by pipe and overland flow through the catch basin grate.
- <u>CAPTURE</u>–Dry Well Stormwater runoff is captured in the dry wells and stored during rain events.
- 3. <u>MOVE</u>– NA
- <u>INFILTRATE</u> Gravel and Subsoil Runoff if is infiltrated into the sub soils through the dry well perforations and surrounding gravel.
- 5. OVERFLOW –

When the capacity of the dry well is exceeded an overflow pipe is provided, which is assumed to discharge to the City drainage network in Thatcher Street.

SURROUNDING AREA – Landscape Area

Problems such as unstabilized soils, erosion, and leaf litter can contribute to long-term maintenance problems (See Section 6.0).

See Appendix A for Maintenance Checklist



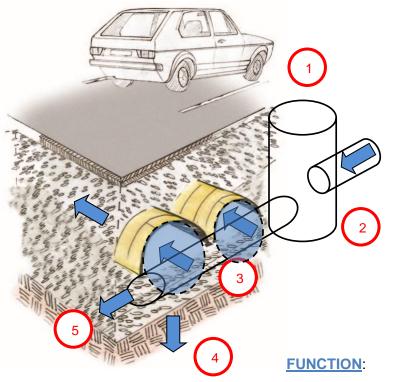
FUNCTION:

- <u>COLLECT</u> Catch Basin Grate and Sidewalk Area Drain Stormwater runoff is collected along the road gutter and sidewalk surface via overland flow through the catch basin and area drain.
- <u>CAPTURE</u> Catch Basin and Area Drain Sump The catch basin and area capture sediment and debris in the 4' sump prior to discharge.
- <u>MOVE</u> Pipe and Laterals Stormwater is diverted to an 8" pipe from the catch basin to an 8" perforated pipe or lateral which discharges to the gravel storage bed.
- <u>TREAT AND MANAGE</u> Tree, Gravel Bed and Subsoil Runoff off is stored in the gravel bed providing water for the trees and infiltrated into the subsoils.
- <u>OVERFLOW</u> Pipe and chimney connection to the city storm drain When the capacity of the gravel bed is exceeded an overflow pipe in the catch basin diverts overflow runoff to the existing drainage system.

SURROUNDING AREA -Roadway and Sidewalks

Problems such as unstabilized soils, erosion, and over sanding during the winter can contribute to long-term maintenance problems (See Section 6.0).

See Appendix A for Maintenance Checklist



- <u>COLLECT</u> Catch basin or Bioretention/Sand Filter (See Section 3.1 and 3.2) Stormwater runoff is directed overland to the inlet(s) where stormwater enters the system.
- <u>CAPTURE</u> Catch basin/Isolator Row/ Bioretention/Sand Filter) Sediment, trash, and debris is captured and accumulates overtime in the deep sumps, the bioretention area or sand filter forebays, or chamber isolator row (see Appendix C)
- <u>MOVE</u> Pipes and Manifold Runoff is directed to the isolator row and underground chambers via a closed pipe/manifold system.
- 4. <u>STORE AND INFILTRATE</u>- Underground Chambers (infiltrates and/or stores) For recharge chambers, runoff from small rain events infiltrate into the subsurface soils beneath the chambers. Larger storm events are stored and slowly released. For underground storage pipes, stormwater is stored and slowly released.
- <u>OVERFLOW</u> Manhole with Weir During larger rain events and underdrain will supplement the infiltration to release stored water from the chambers and discharge via an overflow structure.

SURROUNDING AREA – Parking Lot/Driveway

Problems such as unstabilized soils, erosion, invasive plants and over sanding can contribute to long-term maintenance problems (See Section 6.0).

See Appendix A for Maintenance Checklist

See Appendix D for additional manufacturer's requirements.

3.5 Landscape Maintenance

By design, plants in the GIS practices are meant to help filter the stormwater and flourish throughout the growing season. The plants do not require fertilizers, watering and/or mowing. Remove and replace vegetation as necessary, using the appropriate species as shown on the recommended plant list below.

Plants				
Task	Frequency	Requirement	Time of Year	
Watering	First three months after planting or drought	• During establishment or drought conditions, plants should be watered a minimum of once every seven to ten days.	• June-Sept.	
Plant Cutting & Pruning	Annually	 Leave dry standing stalks during the dormant months and remove in the spring. Cut back grasses, sedges, and rushes in the spring. Prune trees to remove deadwood and low hanging branches. 	• Early Spring	
Plant Thinning	Once every 3 years	 Separation of herbaceous vegetation rootstock should occur when over-crowding is observed 	 Early Spring or Late Fall 	
Plant Replacement	As required	 Replace/replant diseases, unhealthy or dead plans to maintain a healthy plant community 	• Early Spring or Fall	
Mowing, Bioretention	NOT REQUIRED	NONE, DO NOT MOW	• NA	
Fertilizing	NOT REQUIRED	NONE	• NA	
Mulch	NOT REQUIRED	• NONE	• NA	

To reduce the level of effort, regular weeding should occur quarterly from April thru October.

Weeds					
Task	Frequency	Requirement	Time of Year		
Weeding	Quarterly	 Weeding should be limited to invasive and exotic species, which can overwhelm the desired plant community. Non-chemical methods including hand pulling and hoeing are recommended Chemical herbicides should be avoided. 	 Early Spring Late Spring Late Summer Late Fall 		

REPLACEMENT PLANTS

The plants that thrive in bioretention areas and tree trenches are typically quite drought tolerant due to the filter profile having a top layer of planting soil and sandy soil media or aggregate below. In bioretention areas, they need to be able to withstand periods of inundation after storm events, however; when it doesn't rain, there will be less water held naturally in the sand than in other soil types for the plants to use.

If replacements are needed, use the planting plan as a guide (see proposed species list below). However, if all the plants of a certain species have not done well in the bioretention area, do not replace with that same species. Rather, replant with one or more of the other species that has thrived under the bioretention area conditions or have a plant professional choose a different species based on current photos of the site and the following site-specific considerations.

Plants for bioretention areas should be:

- Preferably native species to help support native wildlife like pollinators
- Drought tolerant
- Tolerant of inundation for 24 hours
- Size constraints: Not so tall that they impact sightlines, as applicable
- Sun and salt tolerant
- A mix of different types of plants that will create a resilient plant community: cold & warm season grasses, perennials, groundcovers in all areas.

Trees

Amelanchier x grandiflora	Serviceberry
Betula nigra	River Birch
Acer Rubrum	Red Maple

Ornamental Grasses / Perennials

Asclepia tuberosa	Butterflyweed
Carex pensylvanica	Pennsylvania Sedge
Deschampsia cespitosa	Tufted Hair Grass
Elymus virginicus	Virginia Wild Rye
Eupatorium maculatum	Joe-Pye Weed
Geranium maculatum	Cranesbill
Iris versicolor	Blue Flag
Juncus effusus	Soft Rush
Liatris spicata	Blazing Star
Monarda fistulosa	Wild bergamot
Muhlenbergia capillaris	Pink Muhly Grass
Pycnanthemum muticum	Big Leaf Mountain Mint
Panicum virgatum	Switch grass
Schizachyrium scoparium	Little Bluestem
Sporobolus heterolepis	Prairie Dropseed

WEED GUIDE



Yellow Toadflax (Linaris vulgaris)



Redroot Pigweed- (Amaranthus retroflexus)







Fireweed (Erechtites hieracifolia)

Spotted Spurge (Euphorbia maculata)



Crabgrass (Digitaria ischaemum)





Japanese Knotweed (Polygonum cuspidatum)









Catalpa Tree Seedling (Catalpa speciosa)



Purple Loosetrife (Lythrum salicaria)



Field Bindweed (Convolvulus arvensis)



Black Swallow-wort (Cynanchum Iouisea)

4.0 ROUTINE MAINTENANCE

Other routine maintenance should include the following:

- Remove of trash and litter from paved and perimeter areas.
- Pavement Sweeping:
 - Minimum of once per year after the spring thaw.
- Check for erosions problems and sediment source(s) along the GSI practice sidewalls if excessive, frequent sediment accumulation occurs in practice area.
- Check for erosions problems and sediment source(s) in the contributing drainage area if excessive, frequent sediment accumulation occurs at inlet flume of sediment forebay.
- Contributing drainage pipes:
 - Inspect annually for proper operation.

5.0 SNOW REMOVAL

Snow removal from the practice is not necessary. Plowed or shoveled snow piles should not block the catch basin grates or inlet flumes.

Excessive salting, sanding or other de-icing practices should be avoided. Use of large amounts of sand should also be avoided to avoid obstructing/clogging the conveyance system.

6.0 LONG-TERM POLLUTION PREVENTION PLAN

Long-term pollution prevention measures implemented throughout the development site will further reduce pollutants in stormwater discharges after construction.

6.1 Lawn/Landscaping Maintenance

Lawn and landscaping maintenance should be conducted with minimal use of fertilizers and pesticides to protect the nearby wetland and water resources. In particular, phosphate-based fertilizers are not to be used. Prior to applying fertilizers to the lawn and landscape, a soil analysis should be completed,

6.2 Pet Waste Management

Residents and visitors will be encouraged to pick up after their pets with signage along lawn areas.

6.3 Solid Waste Management

Enclosed dumpsters with lids will be provided on-site for solid waste management at the site.

6.4 Pavement Sweeping Schedules

The road and parking area will be, at a minimum, swept annually after spring snowmelt.

6.5 Illicit Discharges

No sewer pipes, floor drains or other new pipe connections will be connected to the drainage system. All wastewater will be connected to the municipal sewer.

6.6 **Personnel Training**

All staff/ personnel responsible for maintaining the practices will be given a copy of this Guide and will receive training in the applicable practices and implementation described in herein.

7.0 ESTIMATED OPERATION AND MAINTENANCE BUDGET

The estimated average annual operating and maintenance budget for the proposed system is shown below:

Bioretention (2): \$1,000 per practice Source: Center for Watershed Protection (CWP)	\$ 2,000
Tree Trench (2) \$1,000 per practice Source: Estimate	\$ 2,000
Catch Basin and Recharge Basins (6): \$200/structure Source: Massachusetts Highway Department	\$ 1,200
Underground Chamber (4): \$2,000/field Source: Manufacturer	\$ 8,000
Other Routine Maintenance: Removal of trash and litter Annual parking lot cleaning Drainage network inspections Source: Estimate	\$ 2,000
Total:	\$ 15,200

It should be noted that the maintenance costs provided are estimates only.



Bioretention/Bioswale Maintenance Checklist Cape View Way Development

Date:

Time:

Inspector:

Maintenance Item	Description	Maintenance (Y/N)			
1. COLLECT Includes: Catch basin/Inlet Frequency: Inspect four tim rain or greater)	Structure hes per years during regular park maintenance and after major storm e	events (2" of			
When: March, June, Septer	nber, November				
Surface Debris Cleaning	Remove all trash, leaf litter and inlet clogging.				
Inlets	Check for clogging and sediment accumulation that impacts inflow. If sediment/debris accumulation				
Actions to be taken:					
2. CAPTURE Includes: Sediment Foreba Frequency: Inspect four tim storm events (2" of rain or g When: March, June, Septer	nes per year and after major storm events the first year; then annually reater)	and after major			
Debris Cleanout	Remove all trash and debris.				
Side Slopes	Signs of erosion gullies, animal burrowing, overtopping, or slumping are observed. Repair, as necessary.				
Sediment/Organic Debris Removal	Remove sediment accumulation and properly dispose when accumulation is greater than or equal to 3 inches or you cannot see stones.*				
Actions to be taken:					
3 & 4. MOVES & FILTE Includes: Planting bed Frequency: Inspect four tim rain or greater)	RS nes per years during regular park maintenance and after major storm o	events (2" of			
When: March, June, Septer	nber, November				
Debris Cleanout	Remove trash and debris from the surface.				
Sediment/Organic Debris RemovalRemove and properly disposed of when build-up is greater than or equal to 3 inches.*					

Maintenance Item	intenance Item Description			
Erosion	Check for areas of erosion/ gullies, particularly along the bottom.			
EIOSIOIT	Repair/reseed as necessary			
Side Slopes	Signs of erosion gullies, animal burrowing, overtopping, or slumping are observed. Repair, as necessary.			
Vegetation Maintenance	Cut back twice per year minimum (12" grass height).			
Replacement	Over seed bare or thin grass growth areas. See also Landscape Maintenance			
•	If standing water is observed for more than 48 hours after a storm			
	event, check for standing water in cleanouts.			
Water Draining properly	If standing water observed flush underdrains.			
	If still not draining, rototill or aerate the bottom 6 inches to breakup any hard-packed sediment			
Actions to be taken:	·			
5. OVERFLOW				
Includes: Outlet structures				
Frequency: Inspect bi-annu When: March and Septemb	ally and after major storm events (2" of rain or greater) er			
	Water level should below underdrain and outlet pipe inverts.			
Overflow Structure	Check for sediment accumulation that impacts outflow.			
	If sediment accumulation. Schedule cleaning.			
	Check for leaf litter, debris, and inlet clogging.			
Actions to be taken:				
Other Routine Grounds Includes: Surrounding land Frequency: Inspect four tim		vents		
When: March, June, Septer	nber, November			
Debris Removal	Remove trash from perimeter areas.			
Contributing drainage area	Look for sediment sources from erosion in the surrounding area.			
Drainage Network	Ensure proper operation.			
Pavement Sweeping	Sweep parking lot minimum once a year after spring thaw.			
Actions to be taken:				
	sed of offsite in a pre-approved location			

*Sediment shall be disposed of offsite in a pre-approved location.

<u>Tree Trench - Maintenance Checklist</u> Cape View Way Development

Date:

Time:

Inspector:

Maintenance Item	em Description					
1. Collect						
Includes: Catch basin grate	e/sidewalk area drain					
Frequency: Inspect three till (2" of rain or greater)	mes per years during regular landscape maintenance and after major	storm events				
When: Spring, Summer, Lat	te Fall					
Remove all trash, leaf litter and inlet clogging.						
Inlet Grate	Remove sediment regularly or when accumulation impedes proper inflow and/or outflow.					
Actions to be taken:	·					
2. Capture						
Includes: Deep sump						
events (2" of rain or greater)	ually and after major storm events the first year; then annually and afte)	er major storm				
When: Spring and Fall						
Deep Sump	Remove trash, sediment and debris from the structures and debris from the surface.					
Actions to be taken:						
3. Move						
Includes: Inlet pipe						
	ally for sediment, sand, debris accumulation and clogging.					
When: Early Spring, Late Fa						
	Check catch basin for standing water above inlet invert (lowest					
Clogging	pipe). Water level should be below pipe invert.					
	If standing water is observed clean pipe.					
Actions to be taken:						
4. Treat and Manag	e (stores and infiltrates)					
	ace gravel storage bed and trees					
	mes per years during regular landscape maintenance and after major	storm events				

When: Spring, Summer, Late Fall

Maintenance Item	Description			
Laterals	If standing water is observed in the catch basin, open cleanouts and check for standing water.			
	If standing water is observed flush laterals.			
Tree	Check tree health and look for evidence of stress, insects, or disease			
Action to be Taken:				
5. Overflow				
•	y connection to city storm drain			
Frequency: Inspect annuall When: Spring	ly and after major storm events (2" of rain or greater)			
Water Draining properly	If water is observed in the catch basin above the overflow invert (highest pipe), check pipe for clogging and flush, as necessary.			
Actions to be taken:				
Other Routine Maintena	200			
Includes: Surrounding land				
	mes per year during regular park maintenance and after major storm e	events		
When: Spring, Summer, Lat	te Fall			
Debris Removal	Remove trash from perimeter areas.			
Pavement Sweeping	Sweep contributing paved surfaces minimum once a year after spring thaw.			
Surrounding Drainage Network	Ensure proper operation of surrounding catch basins			
Contributing drainage area	Check to ensure the surrounding area is stabilized. Look for erosion and other sediment sources			
Actions to be taken:				

*Sediment shall be disposed of offsite in a pre-approved location.

Dry Well - Maintenance Checklist Cape View Way Development

Date:

Time:

Inspector:

Maintenance Item	Description	Maintenance Req'd (Y/N)					
1. COLLECT							
Includes: Catch basin grate							
Frequency: Inspect four tim rain or greater)	es per years during regular park maintenance and after major storm e	events (2" of					
When: March, June, Septen	nber, November						
Surface Debris Cleaning	Remove all trash, leaf litter and inlet clogging						
Inlet Pipes	Check for clogging and sediment accumulation that impacts inflow. If sediment/debris accumulation. Check roof downspouts for clogging.						
Actions to be taken:							
2. CAPTURE Includes: Dry Well Frequency: Inspect four tim storm events (2" of rain or gi When: March, June, Septen		and after major					
Debris Cleanout	Remove trash and debris						
Sediment/Organic Debris Removal	laccumulation is dreater than or equal to 6 inches or you cannot see						
Actions to be taken:							
3. MOVE							
Includes: NA							
Frequency: NA							
When: NA							
4. INFILTRATE							
Includes: See # 2 above							
Frequency: See # 2 above							
When: See # 2 above							
Water Draining properly	If standing water is observed for more than 48 hours after a storm event, check for clogging. If necessary, vactor basin and use a hose to breakup any hard-						
	packed sediment along the bottom.						
Actions to be taken:							

Maintenance Item	Maintenance Item Description	
5. OVERFLOW		
Includes: Outlet pipe		
Frequency: Inspect bi-annu When: March and Novembe	ally and after major storm events (2" of rain or greater) er	
Overflow Pipe	Check for sediment accumulation that impacts inflow. If sediment accumulation. Schedule cleaning. See # 4 above	
Actions to be taken:		
Other Routine Grounds Includes: Surrounding lanc Frequency: Inspect four tim When: March, June, Septer	lscape beyond the practice. les per year during regular park maintenance and after major storm ev	vents
Debris Removal	Remove trash from perimeter areas.	
Leaf and landscape debris removal Clean grate regularly during landscape maintenance.		
Surrounding Drainage Network	Ensure proper operation.	
Contributing drainage area	Check to ensure the surrounding area is stabilized. Look for erosion and other sediment sources	
Actions to be taken:		
*Oo diwaa u ta hadda a dia u aa ad		

*Sediment shall be disposed of offsite in a pre-approved location.

Underground Chambers - Maintenance Checklist Cape View Way Development

Date:

Time:

Inspector:

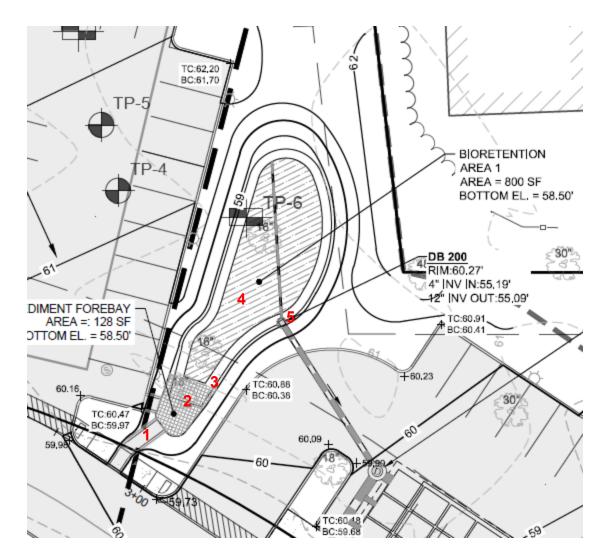
Maintenance Item	Description	Maintenance (Y/N)
	Structure - see also bioretention les per years during regular park maintenance and after major storm e	events (2" of
When: March, June, Septer	nber and November	
Inlet Grate	Remove all trash, leaf litter and inlet clogging. Remove sediment regularly or when accumulation impedes proper inflow and/or outflow.	
Surface Debris Cleaning	Remove all trash, leaf litter and inlet clogging. Check for clogging and sediment accumulation that impacts inflow.	
Actions to be taken:		
Includes: Deep Sump/Sed Frequency: Inspect four tim storm events (2" of rain or g When: Mar March, June, Se	nes per year and after major storm events the first year; then annually reater)	and after major
Debris Cleanout	Remove all trash and debris from the swale.	
Sediment/Organic Debris Removal	laccumulation is greater than or equal to 3 inches or you cannot see	
Actions to be taken:		
3. MOVE		
Drain Manhole and manifold Cleanout	Remove trash and debris from the surface.	
	See Also Manufacturer's Requirements	
Actions to be taken:		

Maintenance Item	Description	Maintenance (Y/N)
4. STORE AND INFILT	RATE	
Includes: Chambers Frequency: Inspect annuall When: Spring	y – see manufacturer's requirements	
Sediment/Organic Debris Removal	Use inspection ports to check chambers for sediment accumulation in isolator row.	
Water Draining properly	If standing water is observed for more than 48 hours after a storm event, jet vac chambers.	
 OVERFLOW Includes: Drain manholes Frequency: Inspect annual When: Spring 	and weir walls y and after major storm events (2" of rain or greater)	
Overflow Structure		
Actions to be taken:		
Other Routine Grounds Includes: Surrounding land Frequency: Inspect four tim		vents
When: March, June, Septer		
Debris Removal	Remove trash from perimeter areas.	
Contributing drainage area	Look for sediment sources from erosion in the surrounding area.	
Drainage Network	Ensure proper operation.	
Pavement Sweeping	Sweep parking lot minimum once a year after spring thaw.	
Actions to be taken:		
	ed of offsite in a pre-approved location.	

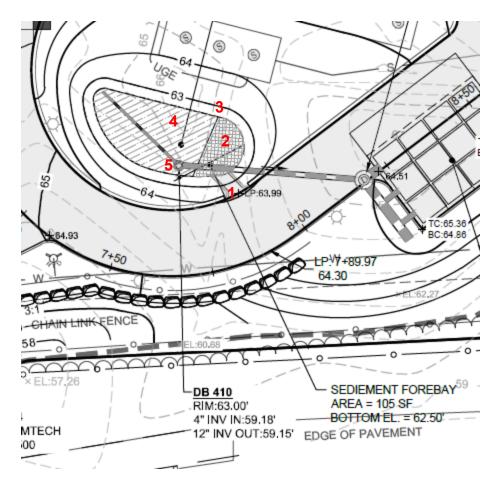
*Sediment shall be disposed of offsite in a pre-approved location.



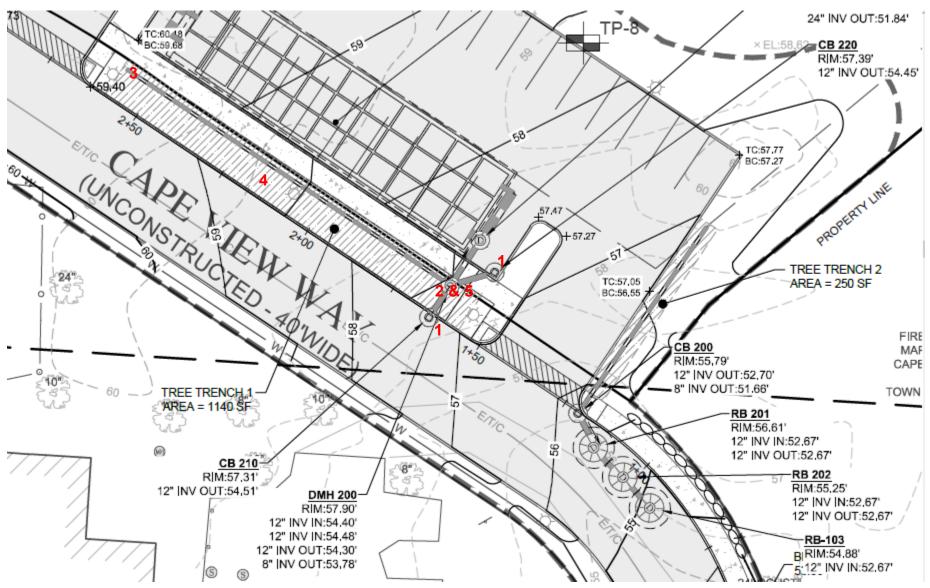
BIORETENTION AREA 1



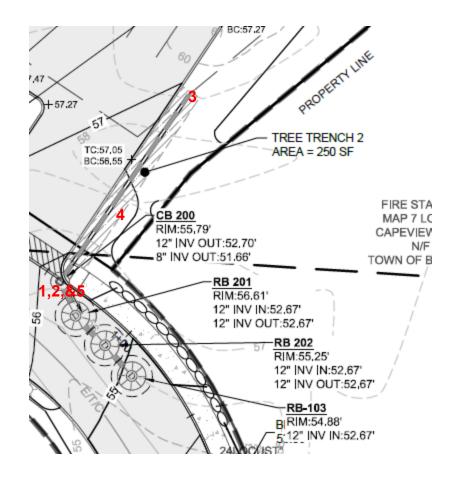
BIORETENTION AREA 2

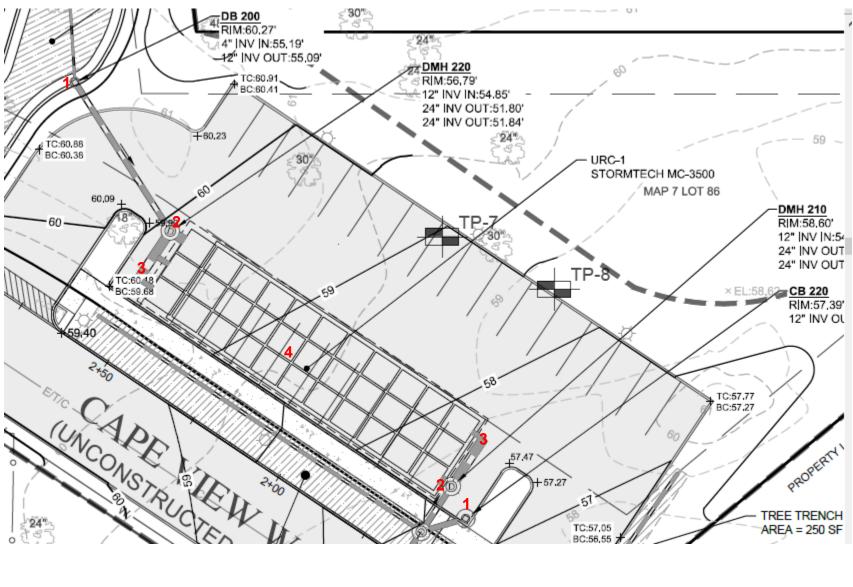


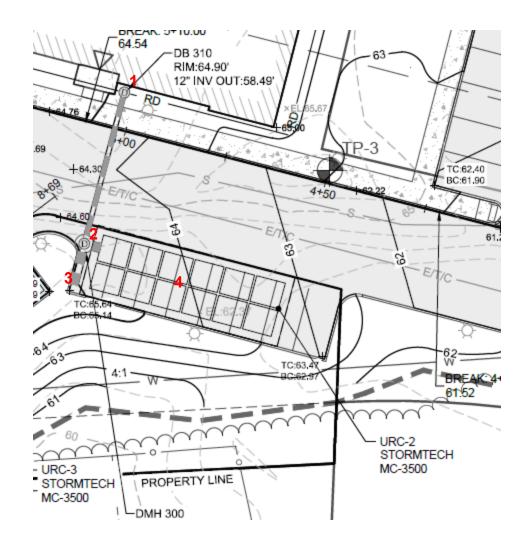
TREE TRENCH 1



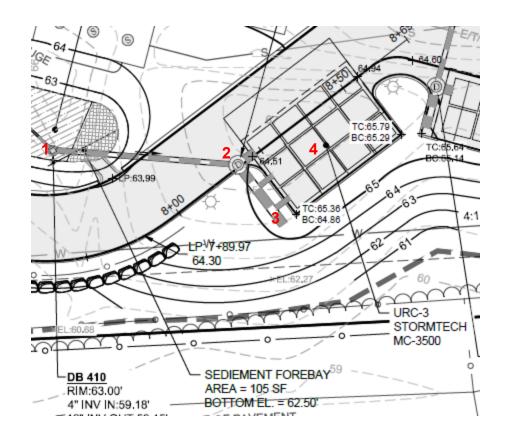
TREE TRENCH 2

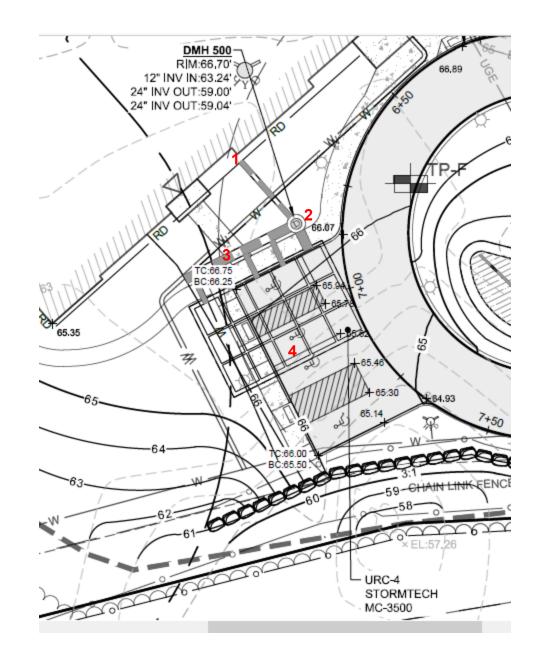






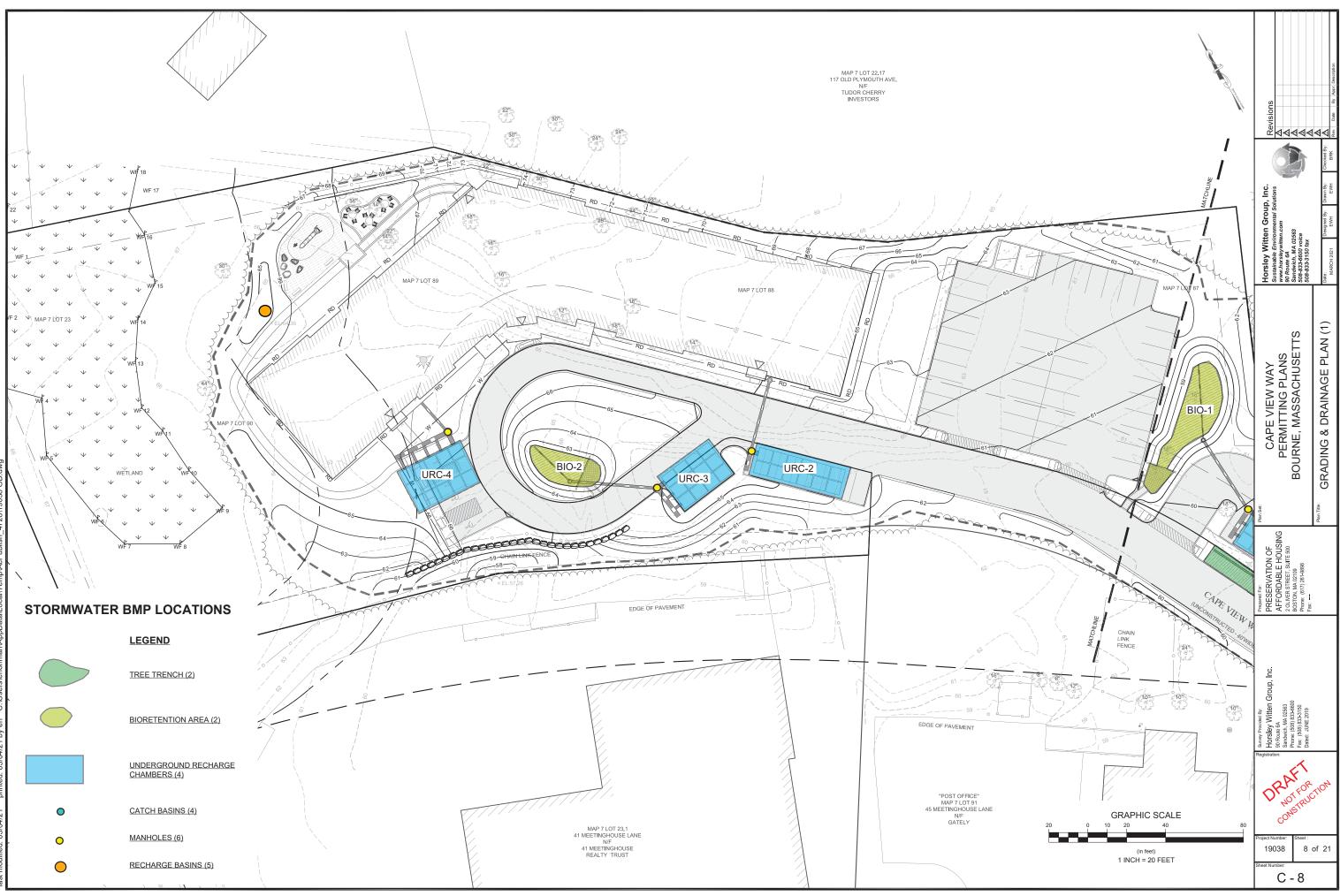
_ \



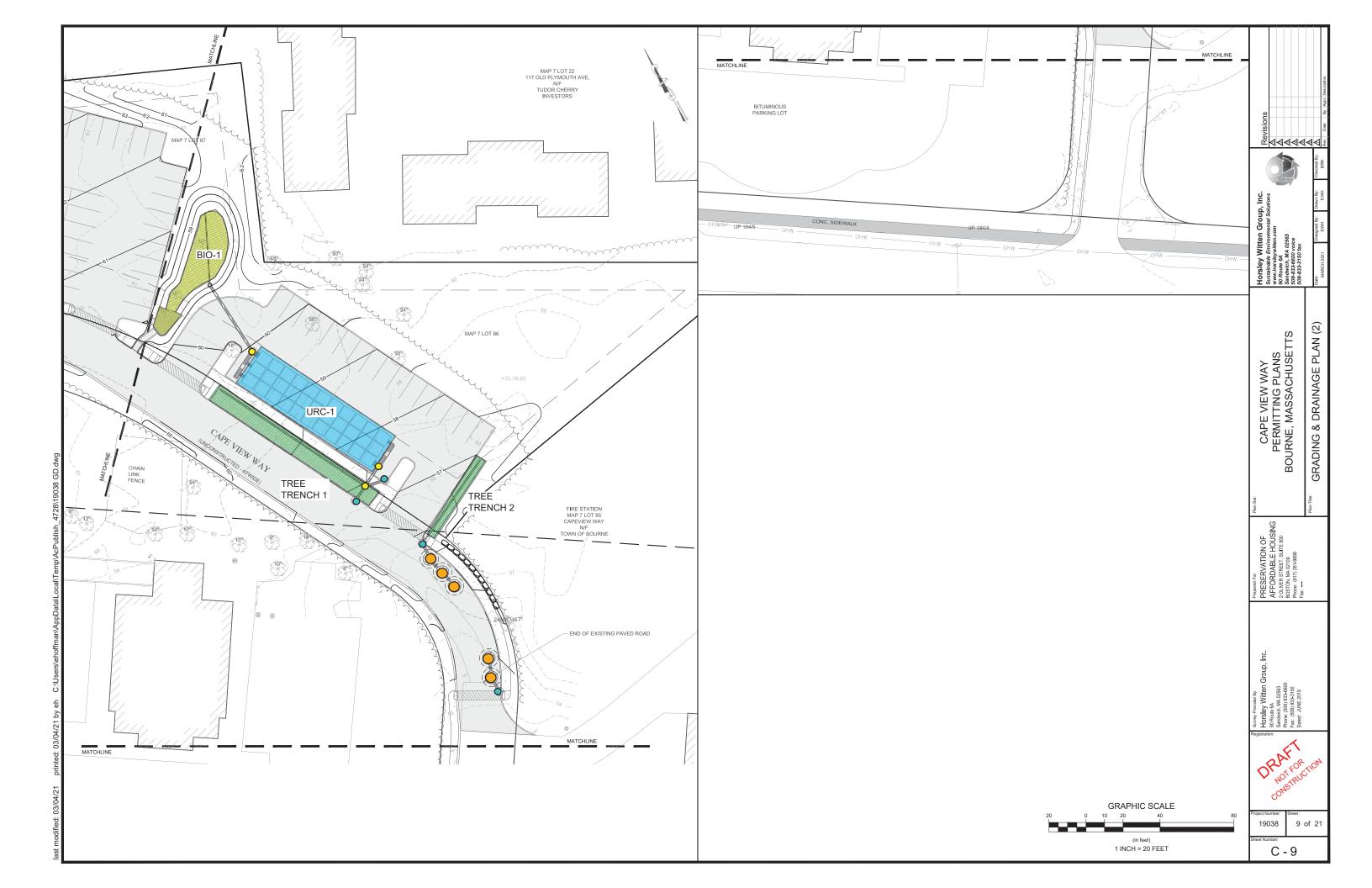




Overall Stormwater BMP Locations



last modified: 03/04/21 printed: 03/04/21 by eh C:\Users\ehoffman\AppData\Loca\Temp\AcPublish_4728\19038 GD.c





Underground Chambers Manufacturer's Requirements

		Si	tormTech Mainte	enance Log	
Project Name:					
Location:					
	_		_	StormTec www.stormtech.co	h
	Stadia Rod				
Date	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)	Sediment Depth (1) - (2)	Observations / Actions	Inspector



STANDARD LIMITED WARRANTY OF STORMTECH LLC ("STORMTECH"): PRODUCTS

- (A) This Limited Warranty applies solely to the StormTech chambers and end plates manufactured by StormTech and sold to the original purchaser (the "Purchaser"). The chambers and end plates are collectively referred to as the "Products."
- (B) The structural integrity of the Products, when installed strictly in accordance with StormTech's written installation instructions at the time of installation, are warranted to the Purchaser against defective materials and workmanship for one (1) year from the date of purchase. Should a defect appear in the Limited Warranty period, the Purchaser shall provide StormTech with written notice of the alleged defect at StormTech's corporate headquarters within ten (10) days of the discovery of the defect. The notice shall describe the alleged defect in reasonable detail. StormTech agrees to supply replacements for those Products determined by StormTech to be defective and covered by this Limited Warranty. The supply of replacement products is the sole remedy of the Purchaser for breaches of this Limited Warranty. StormTech's liability specifically excludes the cost of removal and/or installation of the Products.
- (C) THIS LIMITED WARRANTY IS EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE PRODUCTS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.
- (D) This Limited Warranty only applies to the Products when the Products are installed in a single layer. UNDER NO CIRCUMSTANCES, SHALL THE PRODUCTS BE INSTALLED IN A MULTI-LAYER CONFIGURATION.
- (E) No representative of StormTech has the authority to change this Limited Warranty in any manner or to extend this Limited Warranty. This Limited Warranty does not apply to any person other than to the Purchaser.

- (F) Under no circumstances shall StormTech be liable to the Purchaser or to any third party for product liability claims; claims arising from the design, shipment, or installation of the Products, or the cost of other goods or services related to the purchase and installation of the Products. For this Limited Warranty to apply, the Products must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and StormTech's written installation instructions.
- (G) THE LIMITED WARRANTY DOES NOT EXTEND TO INCIDENTAL, CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES. STORMTECH SHALL NOT BE LIABLE FOR PENALTIES OR LIQUIDATED DAMAGES, INCLUDING LOSS OF PRODUCTION AND PROFITS; LABOR AND MATERIALS; OVERHEAD COSTS; OR OTHER LOSS OR EXPENSE INCURRED BY THE PURCHASER OR ANY THIRD PARTY. SPECIFICALLY EXCLUDED FROM LIMITED WARRANTY COVERAGE ARE DAMAGE TO THE PROD-UCTS ARISING FROM ORDINARY WEAR AND TEAR: ALTERATION, ACCIDENT, MISUSE, ABUSE OR NEGLECT; THE PRODUCTS BEING SUBJECTED TO VEHICLE TRAFFIC OR OTHER CONDITIONS WHICH ARE NOT PERMITTED BY STORMTECH'S WRITTEN SPECIFICA-TIONS OR INSTALLATION INSTRUCTIONS; FAILURE TO MAINTAIN THE MINIMUM GROUND COVERS SET FORTH IN THE INSTALLATION INSTRUCTIONS; THE PLACEMENT OF IMPROPER MATERIALS INTO THE PRODUCTS; FAIL-URE OF THE PRODUCTS DUE TO IMPROPER SITING OR IMPROPER SIZING; OR ANY OTHER EVENT NOT CAUSED BY STORMTECH. THIS LIMITED WARRANTY REPRESENTS STORMTECH'S SOLE LIABILITY TO THE PURCHASER FOR CLAIMS RELATED TO THE PROD-UCTS, WHETHER THE CLAIM IS BASED UPON CON-TRACT, TORT, OR OTHER LEGAL THEORY.



70 Inwood Road Suite 3 Rocky Hill Connecticut 06067 888-892-2694

www.stormtech.com



Isolator[®] Row O&M Manual





THE MOST ADVANCED NAME IN WATER MANAGEMENT SOLUTIONS[™]

THE ISOLATOR® ROW

INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a technique to inexpensively enhance Total Suspended Solids (TSS) and Total Phosphorus (TP) removal with easy access for inspection and maintenance.

THE ISOLATOR ROW

The Isolator Row is a row of StormTech chambers, either SC-160, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-4500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC- 310-3 and SC-740 models) allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting. A nonwoven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the SC-160, DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

The Isolator Row is typically designed to capture the "first flush" and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole provides access to the Isolator Row and typically includes a high flow weir. When flow rates or volumes exceed the Isolator Row weir capacity the water will flow over the weir and discharge through a manifold to the other chambers.

Another acceptable design uses one open grate inlet structure. Using a "high/low" design (low invert elevation on the Isolator Row and a higher invert elevation on the manifold) an open grate structure can provide the advantages of the Isolator Row by creating a differential between the Isolator Row and manifold thus allowing for settlement in the Isolator Row.

The Isolator Row may be part of a treatment train system. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

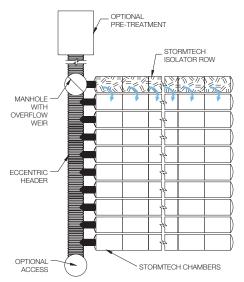
Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.



Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.



StormTech Isolator Row with Overflow Spillway (not to scale)





ISOLATOR ROW INSPECTION/MAINTENANCE

INSPECTION

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

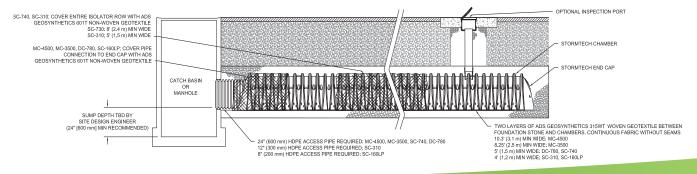
MAINTENANCE

The Isolator Row was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.

StormTech Isolator Row (not to scale)

Note: Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-4500 chamber models and is not required over the entire Isolator Row.





ISOLATOR ROW STEP BY STEP MAINTENANCE PROCEDURES

STEP 1

Inspect Isolator Row for sediment.

A) Inspection ports (if present)

- i. Remove lid from floor box frame
- ii. Remove cap from inspection riser
- iii. Using a flashlight and stadia rod, measure depth of sediment and record results on maintenance log.
- iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.
- **B) All Isolator Rows**
 - i. Remove cover from manhole at upstream end of Isolator Row
 - ii. Using a flashlight, inspect down Isolator Row through outlet pipe
 - 1. Mirrors on poles or cameras may be used to avoid a confined space entry
 - 2. Follow OSHA regulations for confined space entry if entering manhole
 - iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2. If not, proceed to Step 3.

STEP 2

Clean out Isolator Row using the JetVac process.

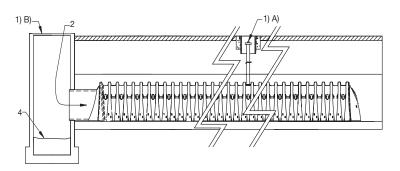
- A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

STEP 3

Replace all caps, lids and covers, record observations and actions.

STEP 4

Inspect & clean catch basins and manholes upstream of the StormTech system.



SAMPLE MAINTENANCE LOG

Date	Stadia Rod Readings		Sodimont Donth		
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)	Sediment Depth (1)–(2)	Observations/Actions	Inspector
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	MCG
9/24/11		6.2	0.1 ft	some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

ADS "Terms and Conditions of Sale" are available on the ADS website, www.ads-pipe.com The ADS logo and the Green Stripe are registered trademarks of Advanced Drainage Systems, Inc. Stormtech^{*} and the Isolator[#] Row are registered trademarks of StormTech, Inc. © 2018 Advanced Drainage Systems, Inc. #11011 08/18 CS





Advanced Drainage Systems, Inc. 4640 Trueman Blvd., Hilliard, OH 43026 1-800-821-6710 www.ads-pipe.com