EMERIO Design

CIVIL ENGINEERS & PLANNERS

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REQUEST: Approval of 12-Lot Subdivision in the R-7 zone.

SITE LOCATION: 22870 Weatherhill Rd.

ZONING: Single-Family Residential Detached and attached (R-7)**,** City of West Linn, Oregon

SITE SIZE: 2.57 Acres

LEGAL DESCRIPTION: Tax Map 2S1E35B, Tax Lot 405

LIST OF EXHIBITS:

1 - Detailed Plan Set

2 – Pre-Application Notes

3 – Neighborhood Meeting Notice

4 – Phase I Environmental Report

5 – Geotechnical Report

6 – Stormwater Management Report

7 – Arborist Report

WEST LINN APPLICABLE COMMUNITY DEVELOPMENT CODE (CDC) SECTIONS

CDC Chapter 12: (R-7 Zone)

CDC Chapter 32: Water Resource Area Protection

CDC Chapter 48: Access, Egress and Circulation

CDC Chapter 85: Land Division

CDC Chapter 92: Required Improvements

I. INTRODUCTION

The applicant is applying to subdivide an approximately 2.57 – acre property in a manner that allows the applicant to provide a variety of lot sizes and housing types. The subject property was recently annexed into the City of West Linn pursuant to File No. ANX-17-01 and Ordinance #1671. A pre-application conference was held with the City to discuss the subdivision of this property on September 6, 2018 by the Applicant.

The subject property is located on the south side of Weatherhill Road approximately 180-feet east Satter Street. The property is located on a hill and the site slopes gently downward to the south/southeast. There is one existing single-family residential home on the property, as well as the presence of a headwater to a small ephemeral stream on the southern edge of the property. The home will be removed with the development of the subdivision. There are trees, planted fields and grass, and a defined garden area on the property.

Adjacent properties to the south, east and west are within the West Linn City limits and are zoned R-7. These properties are developed with residential dwellings. There are two (2) properties located immediately to the north and across Weatherhill Road. One is located within the City and is developed with the Tanner Springs Assisted Living facility, while the other is located in unincorporated Clackamas County and is developed with a single-family residence.

II. CONFORMANCE WITH CITY OF WEST LINN CODE APPROVAL CRITERIA

CHAPTER 12 SINGLE-FAMILY RESIDENTIAL DETACHED AND ATTACHED, R-7

12.030 PERMITTED USES

The following uses are permitted outright in this zone.

1. ***Single-family detached residential unit.***

RESPONSE: The proposed use is single-family detached residential units, a use permitted outright in the R-7 zone. The applicant's proposal satisfies the requirements of this section.

12.070 DIMENSIONAL REQUIREMENTS, USES PERMITTED OUTRIGHT AND USES PERMITTED UNDER PRESCRIBED CONDITIONS

Except as may be otherwise provided by the provisions of this code, the following are the requirements for uses within this zone:

A. The minimum lot size shall be:

1. For a single-family detached unit, 7,000 square feet.

B. The minimum front lot line length or the minimum lot width at the front lot line shall be 35 feet.

C. The average minimum lot width shall be 35 feet.

RESPONSE: The sizes of the twelve (12) lots proposed in the subdivision are between 7,020 square feet, and 9,302 square feet, with an average lot size of 7,395 square feet. As such, all twelve (12) lots meet or exceed the 7,000-square foot minimum lot size. All proposed front lot lines will meet or exceed the 35-foot minimum front lot line length, as well as the minimum average lot width of 35 feet. Therefore, all twelve (12) lots comply with the above criteria.

E. The minimum yard dimensions or minimum building setback areas from the lot line shall be:

1. For the front yard, 20 feet, except for steeply sloped lots where the provisions of CDC 41.010 shall apply.

2. For an interior side yard, seven and one-half feet.

3. For a side yard abutting a street, 15 feet.

4. For a rear yard, 20 feet.

F. The maximum building height shall be 35 feet, except for steeply sloped lots in which case the provisions of CDC 41.010 shall apply.

G. The maximum lot coverage shall be 35 percent.

H. The minimum width of an accessway to a lot which does not abut a street or a flag lot shall be 15 feet.

I. The maximum floor area ratio shall be 0.45. Type I and II lands shall not be counted toward lot area when determining allowable floor area ratio, except that a minimum floor area ratio of 0.30 shall be allowed regardless of the classification of lands within the property. That 30 percent shall be based upon the entire property including Type I and II lands. Existing residences in excess of this standard may be replaced to their prior dimensions when damaged without the requirement that the homeowner obtain a non-conforming structures permit under Chapter 66 CDC.

J. The sidewall provisions of Chapter 43 CDC shall apply.

RESPONSE: No homes are being proposed at this time. All Yard dimensions, building height, lot coverage, floor area ratios and sidewall provisions will be verified at time of building permit submittal.

CHAPTER 48 – ACCESS, EGRESS AND CIRCULATION

48.025 ACCESS CONTROL

A. Purpose. The following access control standards apply to public, industrial, commercial and residential developments including land divisions. Access shall be managed to maintain an adequate level of service and to maintain the functional classification of roadways as required by the West Linn Transportation System Plan.

B. Access control standards.

1. Traffic impact analysis requirements. The City or other agency with access jurisdiction may require a traffic study prepared by a qualified professional to determine access, circulation and other transportation requirements.

RESPONSE: The City has not required a traffic impact analysis due to the small size and low impacts of the proposed development.

2. The City or other agency with access permit jurisdiction may require the closing or consolidation of existing curb cuts or other vehicle access points, recording of reciprocal access easements (i.e., for shared driveways), development of a frontage street, installation of traffic control devices, and/or other mitigation as a condition of granting an access permit, to ensure the safe and efficient operation of the street and highway system. Access to and from off-street parking areas shall not permit backing onto a public street.

RESPONSE: Each lot on the property will include a driveway to provide access to/from either Weahterhill Rd. and/or Satter St., which are both public streets adjacent to the site with a local designation. The City's spacing standards for driveways along residential streets has been maintained for all new driveway access locations. The proposed configuration will create a safe and efficient access configuration for each new driveway.

3. <u>Access options.</u> When vehicle access is required for development (i.e., for off-street parking, delivery, service, drive-through facilities, etc.), access shall be provided by one of the following methods (planned access shall be consistent with adopted public works standards and TSP). These methods are "options" as approved by the City Engineer.

a) <u>Option 1.</u> Access is from an existing or proposed alley or mid-block lane. If a property has access to an alley or lane, direct access to a public street is not permitted.

b) Option 2. Access is from a private street or driveway connected to an adjoining property that has direct access to a public street (i.e., "shared driveway"). A public access easement covering the driveway shall be recorded in this case to assure access to the closest public street for all users of the private street/drive.

c) Option 3. Access is from a public street adjacent to the development lot or parcel. If practicable, the owner/developer may be required to close or consolidate an existing access point as a condition of approving a new access. Street accesses shall comply with the access spacing standards in subsection (B)(6) of this section.

RESPONSE: The Applicant is proposing access to the site via Option 3. The proposed design limits curb cuts for access to the new lots proposed within this development. Each lot will take access to either Weatherhill Rd. or Satter St. via individual driveways. The City's spacing standards for driveways along residential streets has been maintained for all new driveway access locations. The proposed configuration will create a safe and efficient access configuration for each new driveway.

4. Subdivisions fronting onto an arterial street. New residential land divisions fronting onto an arterial street shall be required to provide alleys or secondary (local or collector) streets for access to individual lots. When alleys or secondary streets cannot be constructed due to topographic or other physical constraints, access may be provided by consolidating driveways for clusters of two or more lots (e.g., includes flag lots and mid-block lanes).

RESPONSE: The proposed development does not front onto an arterial street. The requirements of this section do not apply.

5. Double-frontage lots. When a lot or parcel has frontage onto two or more streets, access shall be provided first from the street with the lowest classification. For example, access shall be provided from a local street before a collector or arterial street. When a lot or parcel has frontage opposite that of the adjacent lots or parcels, access shall be provided from the street with the lowest classification.

RESPONSE: No double fronted lots will be created as part of this subdivision.

6. Access spacing.

a. The access spacing standards found in the adopted Transportation System Plan (TSP) shall be applicable to all newly established public street intersections and non-traversable medians. Deviation from the access spacing standards may be granted by the City Engineer if conditions are met as described in the access spacing variances section in the adopted TSP.

b. Private drives and other access ways are subject to the requirements of CDC 48.060.

RESPONSE: The Applicant's proposed driveway locations are shown on the site plan (see Sheet 7). The City's access spacing requirements for new driveways onto a residential local street have been maintained.

7. Number of access points. For single-family (detached and attached), two-family, and duplex housing types, one street access point is permitted per lot or parcel, when alley access cannot otherwise be provided; except that two access points may be permitted corner lots (i.e., no more than one access per street), subject to the access spacing standards in subsection (B)(6) of this section. The number of street access points for multiple family, commercial, industrial, and public/institutional

developments shall be minimized to protect the function, safety and operation of the street(s) and sidewalk(s) for all users. Shared access may be required, in conformance with subsection (B)(8) of this section, in order to maintain the required access spacing, and minimize the number of access points.

RESPONSE: The Applicant is proposing only one access point for each single-family lot. New driveways will be created for all 12 lots.

8. Shared driveways. The number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible. The City shall require shared driveways as a condition of land division or site design review, as applicable, for traffic safety and access management purposes in accordance with the following standards:

a. Shared driveways and frontage streets may be required to consolidate access onto a collector or arterial street. When shared driveways or frontage streets are required, they shall be stubbed to adjacent developable parcels to indicate future extension. "Stub" means that a driveway or street temporarily ends at the property line, but may be extended in the future as the adjacent lot or parcel develops. "Developable" means that a lot or parcel is either vacant or it is likely to receive additional development (i.e., due to infill or redevelopment potential).

b. Access easements (i.e., for the benefit of affected properties) shall be recorded for all shared driveways, including pathways, at the time of final plat approval or as a condition of site development approval.

c. Exception. Shared driveways are not required when existing development patterns or physical constraints (e.g., topography, lot or parcel configuration, and similar conditions) prevent extending the street/driveway in the future.

RESPONSE: The Applicant is proposing a shared driveway for Lots 6 and 7. In addition, the shared driveway will also function as a temporary fire truck turnaround until Satter St. is extended through the neighboring parcel. An access easement and limited fire turnaround will be recorded with the final plat.

C. Street connectivity and formation of blocks required. In order to promote efficient vehicular and pedestrian circulation throughout the City, land divisions and large site developments shall produce complete blocks bounded by a connecting network of public and/or private streets, in accordance with the following standards:

1. Block length and perimeter. The maximum block length shall not exceed 800 feet or 1,800 feet along an arterial.

2. Street standards. Public and private streets shall also conform to Chapter 92 CDC, Required Improvements, and to any other applicable sections of the West Linn Community Development Code and approved TSP.

3. ***Exception. Exceptions to the above standards may be granted when blocks are divided by one or more pathway(s), in conformance with the provisions of CDC***

85.200(C), Pedestrian and Bicycle Trails, or cases where extreme topographic (e.g., slope, creek, wetlands, etc.) conditions or compelling functional limitations preclude implementation, not just inconveniences or design challenges.

RESPONSE: No new roads are being proposed as part of the subdivision. Satter Street is currently stubbed at the western boundary of the site. With this proposal the applicant will be extending Satter Street through the site from west to east and stubbing the street at the eastern boundary of the site for future extension.

The existing block length along Weatherhill Rd. between the center-line of Satter Street and De Vries Way is 584 feet. With the extension of Satter Street through the site, it will allow for the future extension of the street through the neighbor's property where it will be connected with the existing Satter Street stub located in the Weahtherhill Estates subdivision. Once Satter Street is connected between the Weatherhill Subdivision and the Weatherhill Estates Subdivision, a block length will be established that is 926 feet in length. When the property to the east of the subject property redevelops, there will be an opportunity to establish a new block length of 800-feet by creating a new street connection with Weatherhill Road.

Existing development patterns and topographic conditions preclude the extension of any new roadways through the site or within close proximity which could logically provide for future connectivity. Furthermore, Figure 12 of the West Linn Transportation System Plan – Recommended Local Street Connectivity Projects – does not identify a new street connection within or adjacent to this site. All street standards will be met as shown in the submitted plan set.

48.030 MINIMUM VEHICULAR REQUIREMENTS FOR RESIDENTIAL USES

A. Direct individual access from single-family dwellings and duplex lots to an arterial street, as designated in the transportation element of the Comprehensive Plan, is prohibited for lots or parcels created after the effective date of this code where an alternate access is either available or is expected to be available by imminent development application. Evidence of alternate or future access may include temporary cul-de-sacs, dedications or stubouts on adjacent lots or parcels, or tentative street layout plans submitted at one time by adjacent property owner/developer or by the owner/developer, or previous owner/developer, of the property in question.

In the event that alternate access is not available as determined by the Planning Director and City Engineer, access may be permitted after review of the following criteria:

1. Topography.

2. Traffic volume to be generated by development (i.e., trips per day).

3. Traffic volume presently carried by the street to be accessed.

4. Projected traffic volumes.

5. ***Safety considerations such as line of sight, number of accidents at that location, emergency vehicle access, and ability of vehicles to exit the site without backing into traffic.***

6. ***The ability to consolidate access through the use of a joint driveway.***

7. ***Additional review and access permits may be required by State or County agencies.***

RESPONSE: The Applicant is not proposing new access to any arterials; therefore, this subsection does not apply.

B. When any portion of any house is less than 150 feet from the adjacent right-of-way, access to the home is as follows:

1. ***One single-family residence, including residences with an accessory dwelling unit as defined in CDC 02.030, shall provide 10 feet of unobstructed horizontal clearance. Dual-track or other driveway designs that minimize the total area of impervious driveway surface are encouraged.***

2. ***Two to four single-family residential homes equals a 14- to 20-foot-wide paved or all weather surface. Width shall depend upon adequacy of line of sight and number of homes.***

3. ***Maximum driveway grade shall be 15 percent. The 15 percent shall be measured along the centerline of the driveway only. Variations require approval of a Class II variance by the Planning Commission pursuant to Chapter 75 CDC. Regardless, the last 18 feet in front of the garage shall be under 12 percent grade as measured along the centerline of the driveway only. Grades elsewhere along the driveway shall not apply.***

4. ***The driveway shall include a minimum of 20 feet in length between the garage door and the back of sidewalk, or, if no sidewalk is proposed, to the paved portion of the right-of-way.***

C. When any portion of one or more homes is more than 150 feet from the adjacent right-of-way, the provisions of subsection B of this section shall apply in addition to the following provisions.

1. ***A turnaround may be required as prescribed by the Fire Chief.***

2. ***Minimum vertical clearance for the driveway shall be 13 feet, six inches.***

3. ***A minimum centerline turning radius of 45 feet is required unless waived by the Fire Chief.***

4. ***There shall be sufficient horizontal clearance on either side of the driveway so that the total horizontal clearance is 20 feet.***

D. Access to five or more single-family homes shall be by a street built to full construction code standards. All streets shall be public. This full street provision may only be waived by variance.

E. Access and/or service drives for multi-family dwellings shall be fully improved with hard surface pavement:

1. With a minimum of 24-foot width when accommodating two-way traffic; or

2. With a minimum of 15-foot width when accommodating one-way traffic. Horizontal clearance shall be two and one-half feet wide on either side of the driveway.

3. Minimum vertical clearance of 13 feet, six inches.

4. Appropriate turnaround facilities per Fire Chief's standards for emergency vehicles when the drive is over 150 feet long. Fire Department turnaround areas shall not exceed seven percent grade unless waived by the Fire Chief.

5. The grade shall not exceed 10 percent on average, with a maximum of 15 percent.

6. A minimum centerline turning radius of 45 feet for the curve.

F. Where on-site maneuvering and/or access drives are necessary to accommodate required parking, in no case shall said maneuvering and/or access drives be less than that required in Chapters 46 and 48 CDC.

G. The number of driveways or curb cuts shall be minimized on arterials or collectors. Consolidation or joint use of existing driveways shall be required when feasible.

H. In order to facilitate through traffic and improve neighborhood connections, it may be necessary to construct a public street through a multi-family site.

I. Gated accessways to residential development other than a single-family home are prohibited.

RESPONSE: Access to each lot will be provided to/from either Weatherhill Rd. or Satter St., which are both local residential streets, and will meet the minimum vehicular requirements of this subsection.

48.060 WIDTH AND LOCATION OF CURB CUTS AND ACCESS SEPARATION REQUIREMENTS

A. Minimum curb cut width shall be 16 feet.

B. Maximum curb cut width shall be 36 feet, except along Highway 43 in which case the maximum curb cut shall be 40 feet. For emergency service providers, including fire stations, the maximum shall be 50 feet.

C. No curb cuts shall be allowed any closer to an intersecting street right-of-way line than the following:

1. On an arterial when intersected by another arterial, 150 feet.

2. On an arterial when intersected by a collector, 100 feet.

3. ***On an arterial when intersected by a local street, 100 feet.***

4. ***On a collector when intersecting an arterial street, 100 feet.***

5. ***On a collector when intersected by another collector or local street, 35 feet.***

6. ***On a local street when intersecting any other street, 35 feet.***

D. There shall be a minimum distance between any two adjacent curb cuts on the same side of a public street, except for one-way entrances and exits, as follows:

1. ***On an arterial street, 150 feet.***

2. ***On a collector street, 75 feet.***

3. ***Between any two curb cuts on the same lot or parcel on a local street, 30 feet.***

E. A rolled curb may be installed in lieu of curb cuts and access separation requirements.

F. Curb cuts shall be kept to the minimum, particularly on Highway 43. Consolidation of driveways is preferred. The standard on Highway 43 is one curb cut per business if consolidation of driveways is not possible.

G. Adequate line of sight pursuant to engineering standards should be afforded at each driveway or accessway.

RESPONSE: All streets serving the subdivision are local residential streets. All proposed curb cuts will meet the spacing requirements of this section and will be confirmed during the construction plan review prior to commencing construction of the subdivision.

CHAPTER 85 GENERAL PROVISIONS

85.170 SUPPLEMENTAL SUBMITTAL REQUIREMENTS FOR TENTATIVE SUBDIVISION OR PARTITION PLAN

B. <u>Transportation.</u>

1. ***Centerline profiles with extensions shall be provided beyond the limits of the proposed subdivision to the point where grades meet, showing the finished grade of streets and the nature and extent of street construction. Where street connections are not proposed within or beyond the limits of the proposed subdivision on blocks exceeding 330 feet, or for cul-de-sacs, the tentative plat or partition shall indicate the location of easements that provide connectivity for bicycle and pedestrian use to accessible public rights-of-way.***

2. ***<u>Traffic Impact Analysis (TIA).</u>***

a. ***<u>Purpose.</u> The purpose of this section of the code is to implement Section 660-012-0045(2)(e) of the State Transportation Planning Rule that requires the City to adopt a***

process to apply conditions to development proposals in order to minimize adverse impacts to and protect transportation facilities. This section establishes the standards for when a proposal must be reviewed for potential traffic impacts; when a Traffic Impact Analysis must be submitted with a development application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; what must be in a Traffic Impact Study; and who is qualified to prepare the study.

b. Typical average daily trips. The latest edition of the Trip Generation manual, published by the Institute of Transportation Engineers (ITE) shall be used as the standards by which to gauge average daily vehicle trips.

c. Traffic impact analysis requirements.

1) Preparation. A Traffic Impact Analysis shall be prepared by a professional engineer qualified under OAR 734-051-0040. The City shall commission the traffic analysis and it will be paid for by the applicant.

2) Transportation Planning Rule compliance. See CDC 105.050(D), Transportation Planning Rule Compliance.

3) Pre-application conference. The applicant will meet with West Linn Public Works prior to submitting an application that requires a traffic impact application. This meeting will determine the required elements of the TIA and the level of analysis expected.

RESPONSE: The Applicant is not proposing a change in zoning or a plan amendment designation as a part of this land use application, therefore a Traffic Impact Analysis (TIA) is not required per this subsection.

C. Grading.

1. If areas are to be graded, a plan showing the location of cuts, fill, and retaining walls, and information on the character of soils shall be provided. The grading plan shall show proposed and existing contours at intervals per CDC 85.160(E)(2).

2. The grading plan shall demonstrate that the proposed grading to accommodate roadway standards and create appropriate building sites is the minimum amount necessary.

3. The grading plan must identify proposed building sites and include tables and maps identifying acreage, location and type of development constraints due to site characteristics such as slope, drainage and geologic hazards. For Type I, II, and III lands (refer to definitions in Chapter 02 CDC), the applicant must provide a geologic report, with text, figures and attachments as needed to meet the industry standard of practice, prepared by a certified engineering geologist and/or a geotechnical professional engineer, that includes:

a. Site characteristics, geologic descriptions and a summary of the site investigation conducted;

b. Assessment of engineering geological conditions and factors;

c. Review of the City of West Linn's Natural Hazard Mitigation Plan and applicability to the site; and

d. Conclusions and recommendations focused on geologic constraints for the proposed land use or development activity, limitations and potential risks of development, recommendations for mitigation approaches and additional work needed at future development stages including further testing and monitoring.

RESPONSE: As part of the application materials, the applicant has provided a grading and erosion control plan (see Sheet 10) showing the locations of cuts, fills, and retaining walls. The Applicant has also provided a detailed Geotechnical report that provides information on the character of the soils. Together, these documents demonstrate that the proposed grading plan to accommodate roadway standards and create appropriate building sites is the minimum amount necessary given the sites topographic and soil conditions. The Applicant's proposal satisfies the above criteria and will be further reviewed with the civil plans prior to commencing any construction.

D. Water.

1. A plan for domestic potable water supply lines and related water service facilities, such as reservoirs, etc., shall be prepared by a licensed engineer consistent with the adopted Comprehensive Water System Plan and most recently adopted updates and amendments.

2. Location and sizing of the water lines within the development and off-site extensions. Show on-site water line extensions in street stubouts to the edge of the site, or as needed to complete a loop in the system.

3. Adequate looping system of water lines to enhance water quality.

4. For all non-single-family developments, calculate fire flow demand of the site and demonstrate to the Fire Chief. Demonstrate to the City Engineer how the system can meet the demand.

RESPONSE: A utility plan has been submitted by the Applicant as part of the overall application materials. The utility plan shows the location and sizing of the water lines, as well as on-site water line extensions in street stubouts to the edge of the site, or as needed to complete a loop in the system. All proposed water improvements are included on the utility plan (see Sheet 11) of the land use application.

E. Sewer.

1. A plan prepared by a licensed engineer shall show how the proposal is consistent with the Sanitary Sewer Master Plan and subsequent updates and amendments. Agreement with that plan must demonstrate how the sanitary sewer proposal will be

accomplished and how it is efficient. The sewer system must be in the correct zone.

2. ***Sanitary sewer information will include plan view of the sanitary sewer lines, including manhole locations and depths. Show how each lot or parcel would be sewered.***

3. ***Sanitary sewer lines shall be located in the public right-of-way, particularly the street, unless the applicant can demonstrate why the alternative location is necessary and meets accepted engineering standards.***

4. ***Sanitary sewer line should be at a depth that can facilitate connection with downsystem properties in an efficient manner.***

5. ***The sanitary sewer line should be designed to minimize the amount of lineal feet in the system.***

6. ***The sanitary sewer line shall minimize disturbance of natural areas and, in those cases where that is unavoidable, disturbance shall be mitigated pursuant to the appropriate chapters (e.g., Chapter 32 CDC, Water Resource Area Protection).***

7. ***Sanitary sewer shall be extended or stubbed out to the next developable subdivision or a point in the street that allows for reasonable connection with adjacent or nearby properties.***

8. ***The sanitary sewer system shall be built pursuant to Department of Environmental Quality (DEQ), City, and Tri-City Service District sewer standards. This report should be prepared by a licensed engineer, and the applicant must be able to demonstrate the ability to satisfy these submittal requirements or standards at the pre-construction phase.***

RESPONSE: A utility plan has been submitted by the Applicant as part of the overall application materials. The utility plan shows the location and sizing of the sewer lines. Sanitary sewer will be extended or stubbed out to the next developable subdivision or to a point in the street that allows for reasonable connection with adjacent or nearby properties. The proposed sanitary sewer lines will be located to minimize disturbance of natural areas; however, in those cases where that is unavoidable, disturbances will be kept to a minimum and mitigated pursuant to Chapter 32 of the Community Development Code (CDC), Water Resource Area Protection.

All proposed sewer improvements will be built pursuant to DEQ, City, and Tri-City Service District standards, and those improvements are included on the utility plan (see Sheet 11) of the land use application.

F. <u>Storm</u>. A proposal shall be submitted for storm drainage and flood control including profiles of proposed drainageways with reference to the most recently adopted Storm Drainage Master Plan.

RESPONSE: A utility plan has been submitted by the Applicant as part of the overall application materials. The utility plan shows the location and sizing of the stormwater lines. The public stormwater

plan will include a water quality facility (i.e. pond) located at the southeastern portion of the site where Satter St. will be stubbed to the adjacent property. Individual LIDA planters will also be located on each lot for the treatment/detention of the future homes according to City requirements. All proposed storm drainage improvements are included on the utility plan (see Sheet 11) of the land use application.

85.180 REDIVISION PLAN REQUIREMENT

A redivision plan shall be required for a partition or subdivision, where the property could be developed at a higher density, under existing/proposed zoning, if all services were available and adequate to serve the use.

RESPONSE: The property is being developed at the highest density allowed under applicable zoning, therefore a redivision plan is not required.

85.200 APPROVAL CRITERIA

No tentative subdivision or partition plan shall be approved unless adequate public facilities will be available to provide service to the partition or subdivision area prior to final plat approval and the Planning Commission or Planning Director, as applicable, finds that the following standards have been satisfied, or can be satisfied by condition of approval.

A. Streets.

1. <u>General.</u> The location, width and grade of streets shall be considered in their relation to existing and planned streets, to the generalized or reasonable layout of streets on adjacent undeveloped lots or parcels, to topographical conditions, to public convenience and safety, to accommodate various types of transportation (automobile, bus, pedestrian, bicycle), and to the proposed use of land to be served by the streets. The functional class of a street aids in defining the primary function and associated design standards for the facility. The hierarchy of the facilities within the network in regard to the type of traffic served (through or local trips), balance of function (providing access and/or capacity), and the level of use (generally measured in vehicles per day) are generally dictated by the functional class. The street system shall assure an adequate traffic or circulation system with intersection angles, grades, tangents, and curves appropriate for the traffic to be carried. Streets should provide for the continuation, or the appropriate projection, of existing principal streets in surrounding areas and should not impede or adversely affect development of adjoining lands or access thereto.

To accomplish this, the emphasis should be upon a connected continuous pattern of local, collector, and arterial streets rather than discontinuous curvilinear streets and cul-de-sacs. Deviation from this pattern of connected streets should only be permitted in cases of extreme topographical challenges including excessive slopes (35 percent-plus), hazard areas, steep drainageways, wetlands, etc. In such cases, deviations may be allowed but the connected continuous pattern must be reestablished once the topographic challenge is passed. Streets should be oriented with consideration of the sun, as site conditions allow, so that over 50 percent of the front building lines of homes are oriented within 30 degrees of an east-west axis.

Internal streets are the responsibility of the developer. All streets bordering the development site are to be developed by the developer with, typically, half-street improvements or to City standards prescribed by the City Engineer. Additional travel lanes may be required to be consistent with adjacent road widths or to be consistent with the adopted Transportation System Plan (TSP) and any adopted updated plans.

An applicant may submit a written request for a waiver of abutting street improvements if the TSP prohibits the street improvement for which the waiver is requested. Those areas with numerous (particularly contiguous) under-developed or undeveloped tracts will be required to install street improvements. When an applicant requests a waiver of street improvements and the waiver is granted, the applicant shall pay an in-lieu fee equal to the estimated cost, accepted by the City Engineer, of the otherwise required street improvements. As a basis for this determination, the City Engineer shall consider the cost of similar improvements in recent development projects and may require up to three estimates from the applicant. The amount of the fee shall be established prior to the Planning Commission's decision on the associated application. The in-lieu fee shall be used for in kind or related improvements.

Streets shall also be laid out to avoid and protect tree clusters and significant trees, but not to the extent that it would compromise connectivity requirements per this subsection (A)(1), or bring the density below 70 percent of the maximum density for the developable net area. The developable net area is calculated by taking the total site acreage and deducting Type I and II lands; then up to 20 percent of the remaining land may be excluded as necessary for the purpose of protecting significant tree clusters or stands as defined in CDC 55.100(B)(2).

RESPONSE: This site is located along Weatherhill Road between Satter Street to the west and De Vries Way to the east. All streets, whether existing or proposed, are designated as local streets. The development of this site will not affect the connectivity of these two streets. Aside from the extension of Satter Street through the site, Figure 12 of the West Linn Transportation System Plan – Recommended Local Street Connectivity Projects – does not identify a new street connection within or adjacent to this site.

2. Right-of-way widths shall depend upon which classification of street is proposed. The right-of-way widths are established in the adopted TSP.

RESPONSE: The site abuts Weatherhill Road along the northern property boundary. Satter Street is stubbed to the sites western property boundary. Both streets are designated as local streets. As part of the proposed development, the Applicant will be dedicating 13-feet of right-of-way for Weatherhill street to make necessary improvements along Weatherhill Road. Satter Street is a local street with a 52-foot right-of-way. The applicant will be continuing the extension of Satter Street through the site in a 52-foot wide right-of-way. There will be two (2) 14-foot travel lanes, 5.5-foot planter strips, and 6.5-feet sidewalks located within the 52-foot right-of-way. On-street parking will be provided on one side of Satter Street. Right-of-way for both streets meet the width requirements as determined by their functional classifications.

3. <u>Street widths</u>. Street widths shall depend upon which classification of street is proposed. The classifications and required cross sections are established in the

adopted TSP. The following table identifies appropriate street width (curb to curb) in feet for various street classifications. The desirable width shall be required unless the applicant or his or her engineer can demonstrate that site conditions, topography, or site design require the reduced minimum width. For local streets, a 12-foot travel lane may only be used as a shared local street when the available right of-way is too narrow to accommodate bike lanes and sidewalks.

RESPONSE: No new streets or roads are proposed with this land use application. Weatherhill Road and Satter Street are existing streets and they will continue to meet street width requirements for residential local streets.

4. ***The decision-making body shall consider the City Engineer's recommendations on the desired right-of-way width, pavement width and street geometry of the various street types within the subdivision after consideration by the City Engineer of the following criteria:***

    a. ***The type of road as set forth in the Transportation Master Plan.***

    b. ***The anticipated traffic generation.***

    c. ***On-street parking requirements.***

    d. ***Sidewalk and bikeway requirements.***

    e. ***Requirements for placement of utilities.***

    f. ***Street lighting.***

    g. ***Drainage and slope impacts.***

    h. ***Street trees.***

    i. ***Planting and landscape areas.***

    j. ***Existing and future driveway grades***

    k. ***Street geometry.***

    l. ***Street furniture needs, hydrants.***

RESPONSE: Aside from the 13-foot right-of-way dedication along Weatherhill Rd. and the associated improvements (i.e. sidewalk, planter strip and paving), the pre-application conference notes do not identify the need for any further improvements along Weatherhill Road. Satter Street has been designed to comply with all City standards and specification for a local residential street.

5. ***Additionally, when determining appropriate street width, the decision-making body shall consider the following criteria:***

a. ***When a local street is the only street serving a residential area and is expected to carry more than the normal local street traffic load, the designs with two travel and one parking lane are appropriate.***

b. ***Streets intended to serve as signed but unstriped bike routes should have the travel lane widened by two feet.***

c. ***Collectors should have two travel lanes and may accommodate some parking. Bike routes are appropriate.***

d. ***Arterials should have two travel lanes. On-street parking is not allowed unless part of a Street Master Plan. Bike lanes are required as directed by the Parks Master Plan and Transportation Master Plan.***

RESPONSE: The proposed development will result in twelve (12) new homes taking access to the existing surrounding transportation system. No arterial streets are adjacent to this proposal.

6. ***Reserve strips. Reserve strips or street plugs controlling the access to streets are not permitted unless owned by the City.***

RESPONSE: The Applicant does not propose reserve strips or street plugs with this application. All rights-of-way will be dedicated to the edge of the adjoining properties.

7. ***Alignment. All streets other than local streets or cul-de-sacs, as far as practical, shall be in alignment with existing streets by continuations of the centerlines thereof. The staggering of street alignments resulting in "T" intersections shall, wherever practical, leave a minimum distance of 200 feet between the centerlines of streets having approximately the same direction and otherwise shall not be less than 100 feet.***

RESPONSE: Except for extending Satter Street through the site, which will be the continuation of an existing street stub, no new streets or roads are proposed as part of this application.

8. ***Future extension of streets. Where necessary to give access to or permit a satisfactory future subdivision of adjoining land, streets shall be extended to the boundary of the subdivision and the resulting dead-end streets may be approved without turnarounds. (Temporary turnarounds built to Fire Department standards are required when the dead-end street is over 100 feet long.)***

RESPONSE: As noted above, Satter Street will be extended through the site as part of the development and stubbed to the sites eastern property boundary to permit the satisfactory subdivision of adjoining land. The Applicant's proposal satisfies this criterion.

9. ***Intersection angles. Streets shall be laid out to intersect angles as near to right angles as practical, except where topography requires lesser angles, but in no case less than 60 degrees unless a special intersection design is approved. Intersections which are not at right angles shall have minimum corner radii of 15 feet along right-of-way lines which form acute angles. Right-of-way lines at intersections with arterial streets shall have minimum curb radii of not less than 35 feet. Other street intersections shall have curb radii***

of not less than 25 feet. All radii shall maintain a uniform width between the roadway and the right-of-way lines. The intersection of more than two streets at any one point will not be allowed unless no alternative design exists.

RESPONSE: No new intersections are being proposed as part of the Applicant's proposal, therefore, the above criterion does not apply to the Applicant's request.

10. <u>Additional right-of-way for existing streets.</u> Wherever existing street rights-of-way adjacent to or within a tract are of inadequate widths based upon the standards of this chapter, additional right-of-way shall be provided at the time of subdivision or partition.

RESPONSE: The applicant will be dedicating 13-feet of right-of-way for Weatherhill Rd. along the sites frontage.

11. <u>Cul-de-sacs</u>.

a. New cul-de-sacs and other closed-end streets (not including stub streets intended to be connected) on sites containing less than five acres, or sites accommodating uses other than residential or mixed use development, are not allowed unless the applicant demonstrates that there is no feasible alternative due to:

1) Physical constraints (e.g., existing development, the size or shape of the site, steep topography, or a fish bearing stream or wetland protected by Chapter 32 CDC), or

2) Existing easements or leases.

b. New cul-de-sacs and other closed-end streets, consistent with subsection (A)(11)(a) of this section, shall not exceed 200 feet in length or serve more than 25 dwelling units unless the design complies with all adopted Tualatin Valley Fire and Rescue (TVFR) access standards and adequately provides for anticipated traffic, consistent with the Transportation System Plan (TSP).

c. New cul-de-sacs and other closed-end streets (not including stub streets intended to be connected) on sites containing five acres or more that are proposed to accommodate residential or mixed use development are prohibited unless barriers (e.g., existing development, steep topography, or a fish bearing stream or wetland protected by Chapter 32 CDC, or easements, leases or covenants established prior to May 1, 1995) prevent street extensions. In that case, the street shall not exceed 200 feet in length or serve more than 25 dwelling units, and its design shall comply with all adopted TVFR access standards and adequately provide for anticipated traffic, consistent with the TSP.

d. Applicants for a proposed subdivision, partition or a multifamily, commercial or industrial development accessed by an existing cul-de-sac/closed-end street shall demonstrate that the proposal is consistent with all applicable traffic standards and TVFR access standards.

e. All cul-de-sacs and other closed-end streets shall include direct pedestrian and bicycle accessways from the terminus of the street to an adjacent street or pedestrian and bicycle accessways unless the applicant demonstrates that such connections are precluded by physical constraints or that necessary easements cannot be obtained at a reasonable cost.

f. All cul-de-sacs/closed-end streets shall terminate with a turnaround built to one of the following specifications (measurements are for the traveled way and do not include planter strips or sidewalks).

RESPONSE: No cul-de-sacs are proposed as part of this land use application.

12. Street names. No street names shall be used which will duplicate or be confused with the names of existing streets within the City. Street names that involve difficult or unusual spellings are discouraged. Street names shall be subject to the approval of the Planning Commission or Planning Director, as applicable. Continuations of existing streets shall have the name of the existing street. Streets, drives, avenues, ways, boulevards, and lanes shall describe through streets. Place and court shall describe cul-de-sacs. Crescent, terrace, and circle shall describe loop or arcing roads.

RESPONSE: No new streets are proposed as part of this land use application.

13. Grades and curves. Grades and horizontal/vertical curves shall meet the West Linn Public Works Design Standards.

RESPONSE: Any grades and/or horizontal/vertical curves will be designed to meet West Linn Public Works Design Standards.

14. Access to local streets. Intersection of a local residential street with an arterial street may be prohibited by the decision-making authority if suitable alternatives exist for providing interconnection of proposed local residential streets with other local streets. Where a subdivision or partition abuts or contains an existing or proposed major arterial street, the decision-making authority may require marginal access streets, reverse-frontage lots with suitable depth, visual barriers, noise barriers, berms, no-access reservations along side and rear property lines, and/or other measures necessary for adequate protection of residential properties from incompatible land uses, and to ensure separation of through traffic and local traffic.

RESPONSE: The property does not abut nor contain an existing or proposed arterial street.

15. Alleys. Alleys shall be provided in commercial and industrial districts unless other permanent provisions for access to off-street parking and loading facilities are made as approved by the decision-making authority. While alley intersections and sharp changes in alignment should be avoided, the corners of necessary alley intersections shall have radii of not less than 10 feet. Alleys may be provided in residential subdivisions or multi-family projects. The decision to locate alleys shall consider the relationship and impact of the alley to adjacent land uses. In determining whether it is appropriate to require alleys in a subdivision or partition, the following factors and design criteria should be considered:

a. The alley shall be self-contained within the subdivision. The alley shall not abut undeveloped lots or parcels which are not part of the project proposal. The alley will not stub out to abutting undeveloped parcels which are not part of the project proposal.

b. The alley will be designed to allow unobstructed and easy surveillance by residents and police.

c. The alley should be illuminated. Lighting shall meet the West Linn Public Works Design Standards.

d. The alley should be a semi-private space where strangers are tacitly discouraged.

e. Speed bumps may be installed in sufficient number to provide a safer environment for children at play and to discourage through or speeding traffic.

f. Alleys should be a minimum of 14 feet wide, paved with no curbs.

RESPONSE: No alleys are proposed as part of this land use application.

16. Sidewalks. Sidewalks shall be installed per CDC 92.010(H), Sidewalks. The residential sidewalk width is six feet plus planter strip as specified below. Sidewalks in commercial zones shall be constructed per subsection (A)(3) of this section. See also subsection C of this section. Sidewalk width may be reduced with City Engineer approval to the minimum amount (e.g., four feet wide) necessary to respond to site constraints such as grades, mature trees, rock outcroppings, etc., or to match existing sidewalks or right-of-way limitations.

RESPONSE: The applicant proposes to install a sidewalk along the sites Weatherhill Rd. frontage, as well as provide sidewalks along both sides of Satter St. with the extension of the street through the site.

17. Planter strip. The planter strip is between the curb and sidewalk providing space for a grassed or landscaped area and street trees. The planter strip shall be at least 6 feet wide to accommodate a fully matured tree without the boughs interfering with pedestrians on the sidewalk or vehicles along the curbline. Planter strip width may be reduced or eliminated, with City Engineer approval, when it cannot be corrected by site plan, to the minimum amount necessary to respond to site constraints such as grades, mature trees, rock outcroppings, etc., or in response to right-of-way limitations.

RESPONSE: The applicant proposes to install a planter strip along the sites Weatherhill Rd. frontage, as well as provide planter strips along both sides of Satter St. with the extension of the street through the site.

18. Streets and roads shall be dedicated without any reservations or restrictions.

RESPONSE: No reservations or restrictions are being proposed with the street dedications.

19. **All lots in a subdivision shall have access to a public street. Lots created by partition may have access to a public street via an access easement pursuant to the standards and limitations set forth for such accessways in Chapter 48 CDC.**

RESPONSE: All proposed lots created by the subdivision in this land use application will have access to a public street per City requirements.

20. **Gated streets. Gated streets are prohibited in all residential areas on both public and private streets. A driveway to an individual home may be gated.**

RESPONSE: No gated streets are being proposed as part of this land use application.

21. ***Entryway treatments and street isle design. When the applicant desires to construct certain walls, planters, and other architectural entryway treatments within a subdivision, the following standards shall apply:***

    a. ***All entryway treatments except islands shall be located on private property and not in the public right-of-way.***

    b. ***Planter islands may be allowed provided there is no structure (i.e., brick, signs, etc.) above the curbline, except for landscaping. Landscaped islands shall be set back a minimum of 24 feet from the curbline of the street to which they are perpendicular.***

    c. ***All islands shall be in public ownership. The minimum aisle width between the curb and center island curbs shall be 14 feet. Additional width may be required as determined by the City Engineer.***

    d. ***Brick or special material treatments are acceptable at intersections with the understanding that the City will not maintain these sections except with asphalt overlay, and that they must meet the Americans with Disabilities Act (ADA) standards. They shall be laid out to tie into existing sidewalks at intersections.***

    e. ***Maintenance for any common areas and entryway treatments (including islands) shall be guaranteed through homeowners association agreements, CC&Rs, etc.***

    f. ***Under Chapter 52 CDC, subdivision monument signs shall not exceed 32 square feet in area.***

RESPONSE: No entryway treatments are being proposed as part of this land use application; therefore, the above criteria do not apply to the applicant's request.

22. **Based upon the determination of the City Manager or the Manager's designee, the applicant shall construct or cause to be constructed, or contribute a proportionate share of the costs, for all necessary off-site improvements identified by the transportation analysis commissioned to address CDC 85.170(B)(2) that are required to mitigate impacts from the proposed subdivision. The proportionate share of the costs shall be determined by the City Manager or Manager's designee, who shall assume that the proposed subdivision provides improvements in rough proportion to identified impacts of the**

subdivision. Off-site transportation improvements will include bicycle and pedestrian improvements as identified in the adopted City of West Linn TSP.

RESPONSE: The City Manager has not identified the need for any off-site improvements related to the development of this property; therefore, the above criterion does not apply to the applicant's proposal.

B. Blocks and lots.

1. General. The length, width, and shape of blocks shall be designed with due regard for the provision of adequate building sites for the use contemplated; consideration of the need for traffic safety, convenience, access, circulation, and control; and recognition of limitations and opportunities of topography and solar access.

RESPONSE: No new roads are proposed as part of this land use application and the block pattern is already established.

2. Sizes. The recommended block size is 400 feet in length to encourage greater connectivity within the subdivision. Blocks shall not exceed 800 feet in length between street lines, except for blocks adjacent to arterial streets or unless topographical conditions or the layout of adjacent streets justifies a variation. Designs of proposed intersections shall demonstrate adequate sight distances to the City Engineer's specifications. Block sizes and proposed accesses must be consistent with the adopted TSP. Subdivisions of five or more acres that involve construction of a new street shall have block lengths of no more than 530 feet. If block lengths are greater than 530 feet, accessways on public easements or right-of-way for pedestrians and cyclists shall be provided not more than 330 feet apart. Exceptions can be granted when prevented by barriers such as topography, rail lines, freeways, pre-existing development, leases, easements or covenants that existed prior to May 1, 1995, or by requirements of Titles 3 and 13 of the UGMFP. If streets must cross water features protected pursuant to Title 3 UGMFP, provide a crossing every 800 to 1,200 feet unless habitat quality or the length of the crossing prevents a full street connection.

RESPONSE: No new roads are proposed as part of this land use application and the block pattern is already established.

3. Lot size and shape. Lot or parcel size, width, shape, and orientation shall be appropriate for the location of the subdivision or partition, for the type of use contemplated, for potential utilization of solar access, and for the protection of drainageways, trees, and other natural features. No lot or parcel shall be dimensioned to contain part of an existing or proposed street. All lots or parcels shall be buildable. "Buildable" describes lots that are free of constraints such as wetlands, drainageways, etc., that would make home construction impossible. Lot or parcel sizes shall not be less than the size required by the zoning code unless as allowed by planned unit development (PUD).

RESPONSE: The proposed lots created through this subdivision are each a minimum of 7,000 square feet in size to accommodate single family detached dwelling units in the R-7 zone. All proposed lots meet or exceed the minimum requirements for front lot line length, lot width and lot depth.

4. ***Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for the off-street parking and service facilities required by the type of use proposed.***

RESPONSE: The applicant is proposing residential development for this site, so the above criterion is not applicable to the proposal.

5. ***Access. Access to subdivisions, partitions, and lots shall conform to the provisions of Chapter 48 CDC, Access, Egress and Circulation.***

RESPONSE: The subdivision, as proposed, conforms to the provisions of Chapter 48 CDC.

6. ***Double frontage lots and parcels. Double frontage lots and parcels have frontage on a street at the front and rear property lines. Double frontage lots and parcels shall be avoided except where they are essential to provide separation of residential development from arterial streets or adjacent non-residential activities, or to overcome specific disadvantages of topography and orientation. A planting screen or impact mitigation easement at least 10 feet wide, and across which there shall be no right of access, may be required along the line of building sites abutting such a traffic artery or other incompatible use.***

RESPONSE: This land use application does not include double frontage lots.

7. ***Lot and parcel side lines. The lines of lots and parcels, as far as is practicable, should run at right angles to the street upon which they face, except that on curved streets they should be radial to the curve.***

RESPONSE: All proposed lot lines and side parcel lines run at right angles to the street as far as is practicable.

8. ***Flag lots. Flag lots can be created where it can be shown that no other reasonable street access is possible to achieve the requested land division. A single flag lot shall have a minimum street frontage of 15 feet for its accessway. Where two to four flag lots share a common accessway, the minimum street frontage and accessway shall be eight feet in width per lot. Common accessways shall have mutual maintenance agreements and reciprocal access and utility easements. The following dimensional requirements shall apply to flag lots:***

    a. ***Setbacks applicable to the underlying zone shall apply to the flag lot.***

    b. ***Front yard setbacks may be based on the rear property line of the lot or parcel which substantially separates the flag lot from the street from which the flag lot gains access. Alternately, the house and its front yard may be oriented in other directions so long as some measure of privacy is ensured, or it is part of a pattern of development, or it better fits the topography of the site.***

    c. ***The lot size shall be calculated exclusive of the accessway; the access strip may not be counted towards the area requirements.***

d. The lot depth requirement contained elsewhere in this code shall be measured from the rear property line of the lot or parcel which substantially separates the flag lot from the street from which the flag lot gains access.

e. As per CDC 48.030, the accessway shall have a minimum paved width of 12 feet.

f. If the use of a flag lot stem to access a lot is infeasible because of a lack of adequate existing road frontage, or location of existing structures, the proposed lot(s) may be accessed from the public street by an access easement of a minimum 15-foot width across intervening property.

RESPONSE: The land use application proposes two (2) flag lots as part of the subdivision. Lots 6 and 7 will be configured as a flag lots because no other reasonable street access is possible given the irregular shape of the parent parcel. The proposed flag lots will have 19.2-feet and 20.9-feet of street frontage, respectively. As proposed the flag lot complies with all city requirements.

9. Large lots or parcels. In dividing tracts into large lots or parcels which, at some future time, are likely to be redivided, the approval authority may:

a. Require that the blocks be of such size and shape, and be so divided into building sites, and contain such easements and site restrictions as will provide for extension and opening of streets at intervals which will permit a subsequent division of any tract into lots or parcels of smaller size; or

b. Alternately, in order to prevent further subdivision or partition of oversized and constrained lots or parcels, restrictions may be imposed on the subdivision or partition plat.

RESPONSE: The proposed lots are not likely to be re-divided as the density proposed and the lot sizes proposed are consistent with the maximum allowable density per the site's zoning.

C. Pedestrian and bicycle trails.

1. Trails or multi-use pathways shall be installed, consistent and compatible with federal ADA requirements and with the Oregon Transportation Planning Rule, between subdivisions, cul-de-sacs, and streets that would otherwise not be connected by streets due to excessive grades, significant tree(s), and other constraints natural or manmade. Trails shall also accommodate bicycle or pedestrian traffic between neighborhoods and activity areas such as schools, libraries, parks, or commercial districts. Trails shall also be required where designated by the Parks Master Plan.

2. The all-weather surface (asphalt, etc.) trail should be eight feet wide at minimum for bicycle use and six feet wide at minimum for pedestrian use. Trails within 10 feet of a wetland or natural drainageway shall not have an all-weather surface, but shall have a soft surface as approved by the Parks Director. These trails shall be contained within a corridor dedicated to the City that is wide enough to provide trail users with a sense of defensible space. Corridors that are too narrow, confined, or with vegetative cover may be

threatening and discourage use. Consequently, the minimum corridor width shall be 20 feet. Sharp curves, twists, and blind corners on the trail are to be avoided as much as possible to enhance defensible space. Deviations from the corridor and trail width are permitted only where topographic and ownership constraints require it.

3. ***Defensible space shall also be enhanced by the provision of a three- to four-foot-high matte black chain link fence or acceptable alternative along the edge of the corridor. The fence shall help delineate the public and private spaces.***

4. ***The bicycle or pedestrian trails that traverse multi-family and commercial sites should follow the same defensible space standards but do not need to be defined by a fence unless required by the decision-making authority.***

5. ***Except for trails within 10 feet of a wetland or natural drainageway, soft surface or gravel trails may only be used in place of a paved, all-weather surface where it can be shown to the Planning Director that the principal users of the path will be recreational, non-destination-oriented foot traffic, and that alternate paved routes are nearby and accessible.***

6. ***The trail grade shall not exceed 12 percent except in areas of unavoidable topography, where the trail may be up to a 15 percent grade for short sections no longer than 50 feet. In any location where topography requires steeper trail grades than permitted by this section, the trail shall incorporate a short stair section to traverse the area of steep grades.***

RESPONSE: Sidewalks are provided along the frontages of the property. No pedestrian or bicycle trails are required.

D. Transit facilities.

1. **The applicant shall consult with Tri-Met and the City Engineer to determine the appropriate location of transit stops, bus pullouts, future bus routes, etc., contiguous to or within the development site. If transit service is planned to be provided within the next two years, then facilities such as pullouts shall be constructed per Tri-Met standards at the time of development. More elaborate facilities, like shelters, need only be built when service is existing or imminent. Additional rights-of-way may be required of developers to accommodate buses.**

2. **The applicant shall make all transit-related improvements in the right-of-way or in easements abutting the development site as deemed appropriate by the City Engineer.**

3. **Transit stops shall be served by striped and signed pedestrian crossings of the street within 150 feet of the transit stop where feasible. Illumination of the transit stop and crossing is required to enhance defensible space and safety. ODOT approval may be required.**

4. **Transit stops should include a shelter structure bench plus eight feet of sidewalk to accommodate transit users, non-transit-related pedestrian use, and wheelchair users. Tri-Met must approve the final configuration.**

RESPONSE: No transit facilities have been identified by Tri-Met or the City Development Engineer adjacent to this property. The above criteria do not apply to the Applicant's proposal.

E. Grading. Grading of building sites shall conform to the following standards unless physical conditions demonstrate the propriety of other standards:

1. All cuts and fills shall comply with the excavation and grading provisions of the Uniform Building Code and the following:

a. Cut slopes shall not exceed one and one-half feet horizontally to one foot vertically (i.e., 67 percent grade).

b. Fill slopes shall not exceed two feet horizontally to one foot vertically (i.e., 50 percent grade). Please see the following illustration.

2. The character of soil for fill and the characteristics of lot and parcels made usable by fill shall be suitable for the purpose intended.

3. If areas are to be graded (more than any four-foot cut or fill), compliance with CDC 85.170(C) is required.

4. The proposed grading shall be the minimum grading necessary to meet roadway standards, and to create appropriate building sites, considering maximum allowed driveway grades.

5. Type I lands shall require a report submitted by an engineering geologist, and Type I and Type II lands shall require a geologic hazard report.

6. Repealed by Ord. 1635.

7. On land with slopes in excess of 12 percent, cuts and fills shall be regulated as follows:

a. Toes of cuts and fills shall be set back from the boundaries of separate private ownerships at least three feet, plus one-fifth of the vertical height of the cut or fill. Where an exception is required from that requirement, slope easements shall be provided.

b. Cuts shall not remove the toe of any slope where a severe landslide or erosion hazard exists (as described in subsection (G)(5) of this section).

c. Any structural fill shall be designed by a registered engineer in a manner consistent with the intent of this code and standard engineering practices, and certified by that engineer that the fill was constructed as designed.

d. Retaining walls shall be constructed pursuant to Section 2308(b) of the Oregon State Structural Specialty Code.

e. Roads shall be the minimum width necessary to provide safe vehicle access, minimize cut and fill, and provide positive drainage control.

8. Land over 50 percent slope shall be developed only where density transfer is not feasible. The development will provide that:

a. At least 70 percent of the site will remain free of structures or impervious surfaces.
b. Emergency access can be provided.
c. Design and construction of the project will not cause erosion or land slippage.
d. Grading, stripping of vegetation, and changes in terrain are the minimum necessary to construct the development in accordance with subsection J of this section.

RESPONSE: A geotechnical engineering report is included with this submittal. A grading plan has been included in the submitted plans which complies with all criteria of this subsection.

F. Water.

1. A plan for domestic water supply lines or related water service facilities shall be prepared consistent with the adopted Comprehensive Water System Plan, plan update, March 1987, and subsequent superseding revisions or updates.

2. Adequate location and sizing of the water lines.

3. Adequate looping system of water lines to enhance water quality.

4. For all non-single-family developments, there shall be a demonstration of adequate fire flow to serve the site.

5. A written statement, signed by the City Engineer, that water service can be made available to the site by the construction of on-site and off-site improvements and that such water service has sufficient volume and pressure to serve the proposed development's domestic, commercial, industrial, and fire flows.

RESPONSE: The Applicant proposes new water service connections for all proposed lots off of either Weatherhill Road or Sattter Street, which will be extended through the site as part of this application. This proposal is consistent with the adopted Comprehensive Water System Plan. All proposed water improvements are included on the utility plan of the land use application.

G. Sewer.

1. A plan prepared by a licensed engineer shall show how the proposal is consistent with the Sanitary Sewer Master Plan (July 1989). Agreement with that plan must demonstrate how the sanitary sewer proposal will be accomplished and how it is gravity-efficient. The sewer system must be in the correct basin and should allow for full gravity service.

2. ***Sanitary sewer information will include plan view of the sanitary sewer lines, including manhole locations and depth or invert elevations.***

3. ***Sanitary sewer lines shall be located in the public right-of-way, particularly the street, unless the applicant can demonstrate why the alternative location is necessary and meets accepted engineering standards.***

4. ***Sanitary sewer line should be at a depth that can facilitate connection with downsystem properties in an efficient manner.***

5. ***The sanitary sewer line should be designed to minimize the amount of lineal feet in the system.***

6. ***The sanitary sewer line shall avoid disturbance of wetland and drainageways. In those cases where that is unavoidable, disturbance shall be mitigated pursuant to Chapter 32 CDC, Water Resource Area Protection, all trees replaced, and proper permits obtained. Dual sewer lines may be required so the drainageway is not disturbed.***

7. ***Sanitary sewer shall be extended or stubbed out to the next developable subdivision or a point in the street that allows for reasonable connection with adjacent or nearby properties.***

8. ***The sanitary sewer system shall be built pursuant to DEQ, City, and Tri-City Service District sewer standards. The design of the sewer system should be prepared by a licensed engineer, and the applicant must be able to demonstrate the ability to satisfy these submittal requirements or standards at the pre-construction phase.***

9. ***A written statement, signed by the City Engineer, that sanitary sewers with sufficient capacity to serve the proposed development and that adequate sewage treatment plant capacity is available to the City to serve the proposed development.***

RESPONSE: The Applicant proposes new sewer service connections for all proposed lots off of either Weatherhill Road or Sattter Street, which will be extended through the site as part of this application. All proposed sewer improvements are included on the utility plan of the land use application. The proposed sanitary sewer system is consistent with the Sanitary Sewer Master Plan, is in the correct basin and allows for full gravity service.

H. Storm detention and treatment. All proposed storm detention and treatment facilities comply with the standards for the improvement of public and private drainage systems located in the West Linn Public Works Design Standards, there will be no adverse off-site impacts caused by the development (including impacts from increased intensity of runoff downstream or constrictions causing ponding upstream), and there is sufficient factual data to support the conclusions of the submitted plan.

RESPONSE: The Applicant's proposed stormwater detention and treatment design will include a public storm treatment/detention system consisting of a water quality facility located in the east/southeastern portion of the site. In addition, on lot LIDA storm planters for treatment and detention within the Satter Street right-of-way. The Applicant is also proposing to install individual LIDA planters on each lot for the

future homes according to City requirements. All proposed storm drainage improvements are included on the utility plan Sheet 11 of the land use application.

I. Utility easements. Subdivisions and partitions shall establish utility easements to accommodate the required service providers as determined by the City Engineer. The developer of the subdivision shall make accommodation for cable television wire in all utility trenches and easements so that cable can fully serve the subdivision.

RESPONSE: The applicant will establish utility easements as determined by the City Engineer and shown on the preliminary plat. All required easements will be recorded with the recording of the final plat.

J. Supplemental provisions.

1. Wetland and natural drainageways. Wetlands and natural drainageways shall be protected as required by Chapter 32 CDC, Water Resource Area Protection. Utilities may be routed through the protected corridor as a last resort, but impact mitigation is required.

RESPONSE: The proposed subdivision does not impact any wetlands. The site does contain the presence of a headwater to a small ephemeral stream on the southern edge of the property. As part of the submitted application materials, the applicant has provided a Phase I Environmental review for the property, as well as a wetland delineation report. An electronic copy of the wetland delineation report has been sent to Oregon Department of State Lands.

As part of the proposed development, the Applicant is proposing to route some utilities (i.e. stormwater and sewer) through the protected corridor and will provide impact mitigation as required by the City.

2. Willamette and Tualatin Greenways. The Willamette and Tualatin River Greenways shall be protected as required by Chapter 28 CDC, Willamette and Tualatin River Protection.

RESPONSE: No greenways exist on this site or have been identified for dedication on this property. This property is not adjacent to the Willamette or Tualatin River and, therefore, a River Greenway is not feasible on this site.

3. Street trees. Street trees are required as identified in the appropriate section of the municipal code and Chapter 54 CDC.

RESPONSE: There are no existing street trees along the sites frontage of Weatherhill Road. The applicant will install street trees as a component of the frontage improvements on Weatherhill Road, as well as along both sides of Satter Street with the extension of the street through the site.

4. Lighting. All subdivision street or alley lights shall meet West Linn Public Works Design Standards.

RESPONSE: The applicant proposes to install new light fixtures along both the sites Weatherhill Rd. frontage, as well as along Satter St. with the extension of the street through the site. All required street lights will provide adequate lighting per current City standards. A photometric plan has been provided for review. See Sheet 12 for more detail on the lighting plan.

5. ***Dedications and exactions. The City may require an applicant to dedicate land and/or construct a public improvement that provides a benefit to property or persons outside the property that is the subject of the application when the exaction is roughly proportional. No exaction shall be imposed unless supported by a determination that the exaction is roughly proportional to the impact of development.***

RESPONSE: As mentioned previously, the applicant will be dedicating 13-feet of right-of-way along the sites Weatherhill Rd. frontage. Additionally, right-of-way will be dedicated for the extension of Satter St. through the site in accordance with city standards and specifications.

6. ***Underground utilities. All utilities, such as electrical, telephone, and television cable, that may at times be above ground or overhead shall be buried underground in the case of new development. The exception would be in those cases where the area is substantially built out and adjacent properties have above-ground utilities and where the development site's frontage is under 200 feet and the site is less than one acre. High voltage transmission lines, as classified by Portland General Electric or electric service provider, would also be exempted. Where adjacent future development is expected or imminent, conduits may be required at the direction of the City Engineer. All services shall be underground with the exception of standard above-grade equipment such as some meters, etc.***

RESPONSE: The Applicant's proposal complies with the above criterion because all new utility services are proposed to be located underground as part of the subdivision. With the exception of standard above-grade equipment, all services will be located underground pursuant to city standards and specifications.

7. ***Density requirement. Density shall occur at 70 percent or more of the maximum density allowed by the underlying zoning. These provisions would not apply when density is transferred from Type I and II lands as defined in CDC 02.030. Development of Type I or II lands are exempt from these provisions. Land divisions of three lots or less would also be exempt.***

RESPONSE: The R-7 zone permits a maximum density of 6.4 dwelling units per net acre. Net acre is defined as "the total gross acres less the public right-of-way and other acreage deductions, as applicable. The net acreage of this site after removal of dedicated right-of- way is 92,276 sq. ft. or 2.11 acres. At 6.4 dwelling units per net acre, the maximum number of dwelling units on this site is 13.50. This proposal is for a 12-lot subdivision. The proposed density for the site is within 70 percent of the maximum allowable density. The requirements of this section have been satisfied.

8. ***Mix requirement. The "mix" rule means that developers shall have no more than 15 percent of the R-2.1 and R-3 development as single-family residential. The intent is that the majority of the site shall be developed as medium high density multi-family housing.***

RESPONSE: This property is zoned R-7 and, therefore, the use of the parcel as an entirely residential development is permitted.

9. ***Heritage trees/significant tree and tree cluster protection. All heritage trees, as defined in the municipal code, shall be saved. Diseased heritage trees, as determined by the City Arborist, may be removed at his/her direction. All non-heritage trees and clusters of trees***

(three or more trees with overlapping dripline; however, native oaks need not have an overlapping dripline) that are considered significant by virtue of their size, type, location, health, or numbers shall be saved pursuant to CDC 55.100(B)(2). Trees are defined per the municipal code as having a trunk six inches in diameter or 19 inches in circumference at a point five feet above the mean ground level at the base of the trunk.

RESPONSE: The applicant has inventoried all trees on site and has consulted with the City's arborist to determine which trees on site are significant. The applicant is proposing tree preservation consistent with these requirements, as detailed in the tree protection plan (Sheet 3). The trees identified as significant on this site will be retained with the development of the subdivision.

CHAPTER 92 REQUIRED IMPROVEMENTS FOR ALL DEVELOPMENT

The following improvements shall be installed at the expense of the developer and meet all City codes and standards:

A. <u>Streets within subdivisions</u>.

1. ***All streets within a subdivision, including alleys, shall be graded for the full right-of-way width and improved to the City's permanent improvement standards and specifications which include sidewalks and bicycle lanes, unless the decision-making authority makes the following findings:***

    a. ***The right-of-way cannot be reasonably improved in a manner consistent with City road standards or City standards for the protection of wetlands and natural drainageways.***

    b. ***The right-of-way does not provide a link in a continuous pattern of connected local streets, or, if it does provide such a link, that an alternative street link already exists or the applicant has proposed an alternative street which provides the necessary connectivity, or the applicant has proven that there is no feasible location on the property for an alternative street providing the link.***

2. ***When the decision-making authority makes these findings, the decision-making authority may impose any of the following conditions of approval:***

    a. ***A condition that the applicant initiate vacation proceedings for all or part of the right-of-way.***

    b. ***A condition that the applicant build a trail, bicycle path, or other appropriate way.***

If the applicant initiates vacation proceedings pursuant to subsection (A)(2)(a) of this section, and the right-of-way cannot be vacated because of opposition from adjacent property owners, the City Council shall consider and decide whether to process a City-initiated street vacation pursuant to Chapter 271 ORS.

Construction staging area shall be established and approved by the City Engineer. Clearing, grubbing, and grading for a development shall be confined to areas that have been granted approval in the land use approval process only. Clearing, grubbing, and grading outside of land use approved areas can only be approved through a land use approval modification and/or an approved Building Department

grading permit for survey purposes. Catch basins shall be installed and connected to pipe lines leading to storm sewers or drainageways.

RESPONSE: No vacation proceedings are being requested by the Applicant, nor are they being required by the City for the proposed 12-lot subdivision. All proposed streets within the subdivision, will be graded for the full right-of-way width and improved to the City's permanent improvement standards and specifications which include sidewalks and bicycle lanes, unless the decision-making authority determines otherwise.

B. Extension of streets to subdivisions. The extension of subdivision streets to the intercepting paving line of existing streets with which subdivision streets intersect shall be graded for the full right-of-way width and improved to a minimum street structural section and width of 24 feet.

RESPONSE: With the proposed 12-lot subdivision, the applicant will be extending Satter St. through the site and stubbing it to the sites south/southeastern property boundary for its future extension. The extension of Satter St. will not include intercepting of an existing paving line as there will be no new intersections created as part of the applicant's proposal. As such, the above criterion does not apply to the applicant's proposal.

C. Local and minor collector streets within the rights-of-way abutting a subdivision shall be graded for the full right-of-way width and approved to the City's permanent improvement standards and specifications. The City Engineer shall review the need for street improvements and shall specify whether full street or partial street improvements shall be required. The City Engineer shall also specify the extent of storm drainage improvements required. The City Engineer shall be guided by the purpose of the City's systems development charge program in determining the extent of improvements which are the responsibility of the subdivider.

RESPONSE: There are no collector streets abutting the proposed subdivision, therefore, the above criterion does not apply to the Applicant's request.

D. Monuments. Upon completion of the first pavement lift of all street improvements, monuments shall be installed and/or reestablished at every street intersection and all points of curvature and points of tangency of street centerlines with an iron survey control rod. Elevation benchmarks shall be established at each street intersection monument with a cap (in a monument box) with elevations to a U.S. Geological Survey datum that exceeds a distance of 800 feet from an existing benchmark.

RESPONSE: All required monuments will be installed with the development of the subdivision consistent with the City Standards and Specification pursuant to the above criterion.

E. Storm detention and treatment. For Type I, II and III lands (refer to definitions in Chapter 02 CDC), a registered civil engineer must prepare a storm detention and treatment plan, at a scale sufficient to evaluate all aspects of the proposal, and a statement that demonstrates:

1. ***The location and extent to which grading will take place indicating general contour lines, slope ratios, slope stabilization proposals, and location and height of retaining walls, if proposed.***

2. ***All proposed storm detention and treatment facilities comply with the standards for the improvement of public and private drainage systems located in the West Linn Public Works Design Standards.***

3. ***There will be no adverse off-site impacts, including impacts from increased intensity of runoff downstream or constrictions causing ponding upstream.***

4. ***There is sufficient factual data to support the conclusions of the plan.***

5. ***Per CDC 99.035, the Planning Director may require the information in subsections (E)(1), (2), (3) and (4) of this section for Type IV lands if the information is needed to properly evaluate the proposed site plan.***

RESPONSE: The subject property does not contain any Type I, II, III and/or IV lands per the City's definitions in Chapter 02 of the CDC. As such, the above criteria do not apply to the Applicant's proposal.

F. Sanitary sewers. Sanitary sewers shall be installed to City standards to serve the subdivision and to connect the subdivision to existing mains.

1. ***If the area outside the subdivision to be directly served by the sewer line has reached a state of development to justify sewer installation at the time, the Planning Commission may recommend to the City Council construction as an assessment project with such arrangement with the subdivider as is desirable to assure financing his or her share of the construction.***

2. ***If the installation is not made as an assessment project, the City may reimburse the subdivider an amount estimated to be a proportionate share of the cost for each connection made to the sewer by property owners outside of the subdivision for a period of 10 years from the time of installation of the sewers. The actual amount shall be determined by the City Administrator considering current construction costs.***

RESPONSE: As mentioned previously in this narrative, the sanitary sewer lines will be installed to meet all City Standards and Specifications to serve the subdivision. As part of the submitted application materials, the Applicant has provided a detailed composite utility plan on Sheet 11 of the plan set that shows the line sizing and location for the proposed sewer lines.

G. Water system. Water lines with valves and fire hydrants providing service to each building site in the subdivision and connecting the subdivision to City mains shall be installed. Prior to starting building construction, the design shall take into account provisions for extension beyond the subdivision and to adequately grid the City system. Hydrant spacing is to be based on accessible area served according to the City Engineer's recommendations and City standards. If required water mains will directly serve property outside the subdivision, the City may reimburse the developer an amount estimated to be the proportionate share of the cost

for each connection made to the water mains by property owners outside the subdivision for a period of 10 years from the time of installation of the mains. If oversizing of water mains is required to areas outside the subdivision as a general improvement, but to which no new connections can be identified, the City may reimburse the developer that proportionate share of the cost for oversizing. The actual amount and reimbursement method shall be as determined by the City Administrator considering current or actual construction costs.

RESPONSE: As mentioned previously in this narrative, the water lines will be installed to meet all City Standards and Specifications to serve the subdivision. As part of the submitted application materials, the Applicant has provided a detailed composite utility plan on Sheet 11 of the plan set that shows the line sizing and location for the proposed water lines. Prior to starting building construction, the Applicant will work with the City's Engineering and Fire Departments to assure the design for the water system takes into account provisions for extension beyond the subdivision and to adequately grid the City system. Hydrant spacing will also be addressed at that time to make sure they are located in an accessible area pursuant to City Standards.

H. Sidewalks.

1. ***Sidewalks shall be installed on both sides of a public street and in any special pedestrian way within the subdivision, except that in the case of primary or secondary arterials, or special type industrial districts, or special site conditions, the Planning Commission may approve a subdivision without sidewalks if alternate pedestrian routes are available. In the case of the double-frontage lots, provision of sidewalks along the frontage not used for access shall be the responsibility of the developer. Providing front and side yard sidewalks shall be the responsibility of the land owner at the time a request for a building permit is received. Additionally, deed restrictions and CC&Rs shall reflect that sidewalks are to be installed prior to occupancy and it is the responsibility of the lot or homeowner to provide the sidewalk, except as required above for double-frontage lots.***

2. ***On local streets serving only single-family dwellings, sidewalks may be constructed during home construction, but a letter of credit shall be required from the developer to ensure construction of all missing sidewalk segments within four years of final plat approval pursuant to CDC 91.010(A)(2).***

3. ***The sidewalks shall measure at least six feet in width and be separated from the curb by a six-foot minimum width planter strip. Reductions in widths to preserve trees or other topographic features, inadequate right-of-way, or constraints, may be permitted if approved by the City Engineer in consultation with the Planning Director.***

4. ***Sidewalks should be buffered from the roadway on high volume arterials or collectors by landscape strip or berm of three and one-half-foot minimum width.***

5. ***The City Engineer may allow the installation of sidewalks on one side of any street only if the City Engineer finds that the presence of any of the factors listed below justifies such waiver:***

    a. ***The street has, or is projected to have, very low volume traffic density;***

b. The street is a dead-end street;

c. The housing along the street is very low density; or

d. The street contains exceptional topographic conditions such as steep slopes, unstable soils, or other similar conditions making the location of a sidewalk undesirable.

RESPONSE: The Applicant will be installing a sidewalk along the sites Weahterhill Rd. frontage, as well as along both sides of Satter Street with the extension of the street through the site. All proposed and required sidewalks will be installed pursuant to the City's design standards and specifications. Should the developer choose to install the sidewalks with the construction of the homes, then a letter of credit will be provided to the City to ensure construction of all missing sidewalks within four years of the final plat approval.

I. Bicycle routes. If appropriate to the extension of a system of bicycle routes, existing or planned, the Planning Commission may require the installation of separate bicycle lanes within streets and separate bicycle paths.

RESPONSE: Per the City's Transportation System Plan (TSP) there are no bicycle routes identified, either existing or planned, for the subject property.

J. Street name signs. All street name signs and traffic control devices for the initial signing of the new development shall be installed by the City with sign and installation costs paid by the developer.

RESPONSE: All required street signs, whether street names or traffic control signs, will be installed pursuant to the City's Standards and Specifications as outlined in the above criterion. The Applicant is agreeable to paying the installation costs associated with the installation of the required signage.

K. Dead-end street signs. Signs indicating "future roadway" shall be installed at the end of all discontinued streets. Signs shall be installed by the City per City standards, with sign and installation costs paid by the developer.

RESPONSE: The Applicant is proposing the terminate Weatherhill Rd. in a "stubbed" street design. A barricade will be installed at the end of the street and any required signage will be installed consistent with the City's development codes.

L. Signs indicating future use shall be installed on land dedicated for public facilities (e.g., parks, water reservoir, fire halls, etc.). Sign and installation costs shall be paid by the developer.

RESPONSE: No public facilities are being proposed as part of this development request, therefore, the above criterion does not apply to the Applicant's proposal.

M. Street lights. Street lights shall be installed and shall be served from an underground source of supply. The street lighting shall meet IES lighting standards. The street lights shall be the shoe-box style light (flat lens) with a 30-foot bronze pole in residential (non-intersection) areas. The street light shall be the cobra head style (drop lens) with an approximate 50-foot (sized for intersection width) bronze pole. The developer shall submit to the City Engineer for

approval of any alternate residential, commercial, and industrial lighting, and alternate lighting fixture design. The developer and/or homeowners association is required to pay for all expenses related to street light energy and maintenance costs until annexed into the City.

RESPONSE: All required street lights will be installed and will be served from an underground source of supply. All required street lighting will meet IES lighting standards and the street light will be the "shoe-box" style light (i.e. flat lens).

N. Utilities. The developer shall make necessary arrangements with utility companies or other persons or corporations affected for the installation of underground lines and facilities. Electrical lines and other wires, including but not limited to communication, street lighting, and cable television, shall be placed underground.

RESPONSE: Consistent with the above criterion, the Applicant's developer will make all necessary arrangements with the franchised utility companies or other persons or corporations affected for the installation of underground lines and facilities. Electrical lines and other wires, including but not limited to communication, street lighting, and cable television, will be placed underground as required by the City's Community Development Code (CDC).

O. Curb cuts and driveways. Curb cuts and driveway installations are not required of the subdivider at the time of street construction, but, if installed, shall be according to City standards. Proper curb cuts and hard-surfaced driveways shall be required at the time buildings are constructed.

RESPONSE: All curb cuts and driveway installations will be installed at the time buildings are constructed on the lots. However, should the developer decide to install some curb cuts and driveways at the time of street construction, then, if installed, they will be installed according to City standards.

P. Street trees. Street trees shall be provided by the City Parks and Recreation Department in accordance with standards as adopted by the City in the Municipal Code. The fee charged the subdivider for providing and maintaining these trees shall be set by resolution of the City Council.

RESPONSE: The Applicant agrees to install all required street trees pursuant to the above criterion by working with the City's Parks and Recreation Department to obtain the necessary street trees. Additionally, the Applicant is agreeable to paying the fees set by resolution of the City Council for providing and maintain the requires street trees.

Q. Joint mailbox facilities shall be provided in all residential subdivisions, with each joint mailbox serving at least two, but no more than eight, dwelling units. Joint mailbox structures shall be placed in the street right-of-way adjacent to roadway curbs. Proposed locations of joint mailboxes shall be designated on a copy of the tentative plan of the subdivision, and shall be approved as part of the tentative plan approval. In addition, sketch plans for the joint mailbox structures to be used shall be submitted and approved by the City Engineer prior to final plat approval.

RESPONSE: The Applicant will work with the US Postal Service (USPS) to identify a strategic location for two (2) joint mailbox facilities to serve the proposed 12-lot subdivision. The joint mailbox facilities will

be installed in the street right-of-way adjacent to the roadway curbs. As part of the tentative plan approval, the Applicant requests, as a condition of any final approval, that the required sketch plans for the joint mailbox structures to be used shall be submitted and approved by the City Engineer prior to final plat approval.

92.030 IMPROVEMENT PROCEDURES

In addition to other requirements, improvements installed by the developer, either as a requirement of these regulations or at the developer's own option, shall conform to the requirements of this title and permanent improvement standards and specifications adopted by the City and shall be installed in accordance with the following procedure:

A. Improvement work shall not be commenced until plans have been checked for adequacy and approved by the City. To the extent necessary for evaluation of the proposal, the improvement plans may be required before approval of the tentative plan of a subdivision or partition. Plans shall be prepared in accordance with the requirements of the City.

B. Improvement work shall not be commenced until the City has been notified in advance, and if work has been discontinued for any reason, it shall not be resumed until the City has been notified.

C. Improvements shall be constructed under the Engineer. The City may require changes in typical sections and details in the public interest if unusual conditions arise during construction to warrant the change.

D. All underground utilities, sanitary sewers, and storm drains installed in streets by the subdivider or by any utility company shall be constructed prior to the surfacing of the streets. Stubs for service connections for underground utilities and sanitary sewers shall be placed to a length obviating the necessity for disturbing the street improvements when service connections are made.

E. A digital and mylar map showing all public improvements as built shall be filed with the City Engineer upon completion of the improvements.

RESPONSE: All requirements and improvements installed by the developer, either as a requirement of the City's CDC regulations or at the developer's own option, will conform to the requirements of this title and permanent improvement standards and specifications adopted by the City and will be installed in accordance with the above procedures. The Applicant is agreeable, as a condition of any final approval, that all improvements be installed in accordance with all City standards and specifications adopted by the City.

SUMMARY AND CONCLUSION

Based upon the application materials submitted herein, the Applicant respectfully requests approval from the City's Planning Department of this application for a 12-lot residential subdivision.

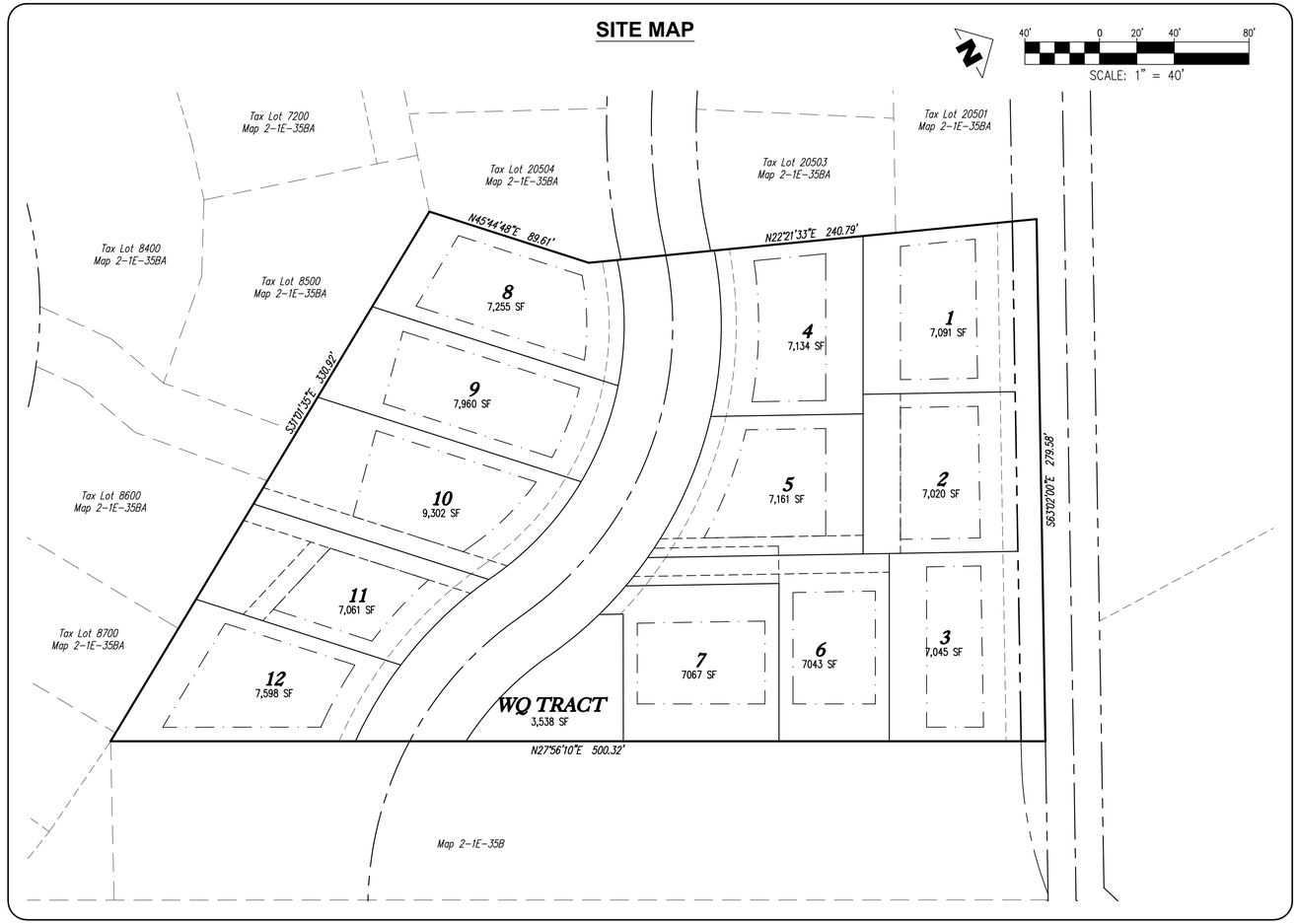
WEATHERHILL ROAD SUBDIVISION

12 LOT SUBDIVISION
NW 1/4 SECTION 13, T. 3S, R. 1W, W.M.
CITY OF WEST LINN, OREGON

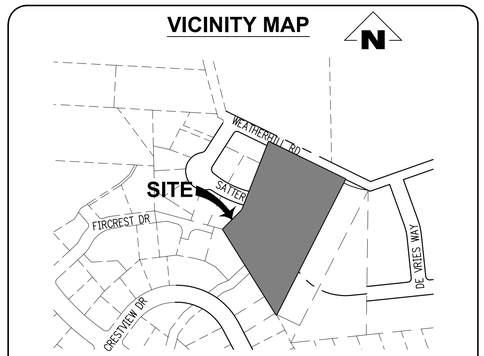
GENERAL LEGEND

- LANDSCAPE HEDGE
- FLOW LINE
- FENCE
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE
- SIGNIFICANT RESOURCE OVERLAY ZONE (SROZ)
- SANITARY SEWER LINE
- STORM DRAIN LINE
- GAS LINE
- WATER LINE
- OVERHEAD UTILITIES LINE
- UNDERGROUND UTILITIES LINE
- COMMUNICATIONS LINE
- ELECTRIC LINE
- FIRE HYDRANT
- AIR RELEASE
- WATER BLOWOFF
- WATER METER/SERVICE
- WATER VAULT
- IRRIGATION SPRINKLER HEAD
- CULVERT / OUTFALL
- STORM DRAIN MANHOLE
- CATCH BASIN / AREA DRAIN
- SANITARY SEWER MANHOLE
- UTILITY MANHOLE
- UTILITY CLEAN OUT
- UTILITY VALVE
- UTILITY POLE
- UTILITY GUY POLE
- UTILITY GUY WIRE
- UTILITY/LIGHT POLE
- LIGHT POLE
- LIGHT POLE WITH ARM
- LIGHT SIGNAL JUNCTION BOX
- JUNCTION BOX
- ELECTRIC METER/SERVICE
- ELECTRIC PEDESTAL
- ELECTRIC VAULT
- TELEPHONE MANHOLE
- COMMUNICATIONS PEDESTAL
- COMMUNICATIONS VAULT
- GAS METER/SERVICE
- GAS PEDESTAL
- DECIDOUS TREE
- EVERGREEN TREE
- SIGN POST
- MAILBOX
- SIDEWALK TO BE INSTALLED AT TIME OF STREET CONSTRUCTION

SITE MAP



VICINITY MAP



DRAWING INDEX

NO.	TITLE
1	COVER SHEET
2	EXISTING CONDITIONS, DEMOLITION, & PH 1 EROSION CONTROL PLAN
3	TREE PRESERVATION PLAN
4	TREE PRESERVATION DETAILS
5	SLOPE ANALYSIS PLAN
6	PRELIMINARY PLAT
7	PRELIMINARY SITE PLAN
8	SATTER STREET PLAN, PROFILE, AND STORM LINE
9	WEATHERHILL ROAD PLAN, PROFILE, AND STORM LINE
10	PHASE 2 GRADING & EROSION CONTROL PLAN
11	COMPOSITE UTILITY PLAN
12	LIGHTING PLAN
13	WATER QUALITY POND & DETAILS

ENGINEER'S NOTE TO CONTRACTOR

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS.

THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

BENCHMARK INFORMATION

THE DATUM FOR THIS SURVEY IS BASED UPON OREGON REAL-TIME GNSS NETWORK (ORGN).

DATUM = NAVD 88

SITE DATA

AREA:	2.57 Ac.
ZONING:	R-7
TAX MAP:	T2SR1E35B
TAX LOT:	405
NO. OF LOTS:	12

NOTICE TO EXCAVATORS:
ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER.
(NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503)-232-1987).

POTENTIAL UNDERGROUND FACILITY OWNERS

Dig Safely.

Call the Oregon One-Call Center
DIAL 811 or 1-800-332-2344

EMERGENCY TELEPHONE NUMBERS

NW NATURAL GAS	
M-F 7am-6pm	503-226-4211 Ext.4313
AFTER HOURS	503-226-4211
PGE	503-464-7777
CENTURY LINK	1-800-491-0118
FRONTIER	1-800-921-8101
CITY OF WEST LINN PUBLIC WORKS	503-635-0238

PROJECT CONTACTS

APPLICANT:
ROD FREISEN
22870 WEATHERHILL, LLC
WEST LINN, OR 97068
(971) 235-3314
ROD.FRIESEN@FRONTIER.COM

OWNER:
22870 WEATHERHILL, LLC
PARTINERSHIP ADMINISTRATOR:
ROD FREISEN
(971) 235-3314

LAND USE, CIVIL ENGINEER AND SURVEYOR:
EMERIO DESIGN, LLC
6445 SW FALLBROOK PL, SUITE 100
BEAVERTON, OR 97008
LAND USE CONTACT: STEVE MILLER
ENGINEER CONTACT: ERIC EVANS
SURVEYOR CONTACT: KING PHELPS
(503) 746-8812 (P)
(503) 639-9592 (F)

** LOTS 4 THROUGH 12 TO BE CONSTRUCTED WITH FIRE SPRINKLERS UNLESS SATTER STREET IS CONNECTED THROUGH FROM THE EAST PRIOR TO HOME OCCUPANCY.

22870 S WEATHERHILL ROAD
TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

COVER SHEET

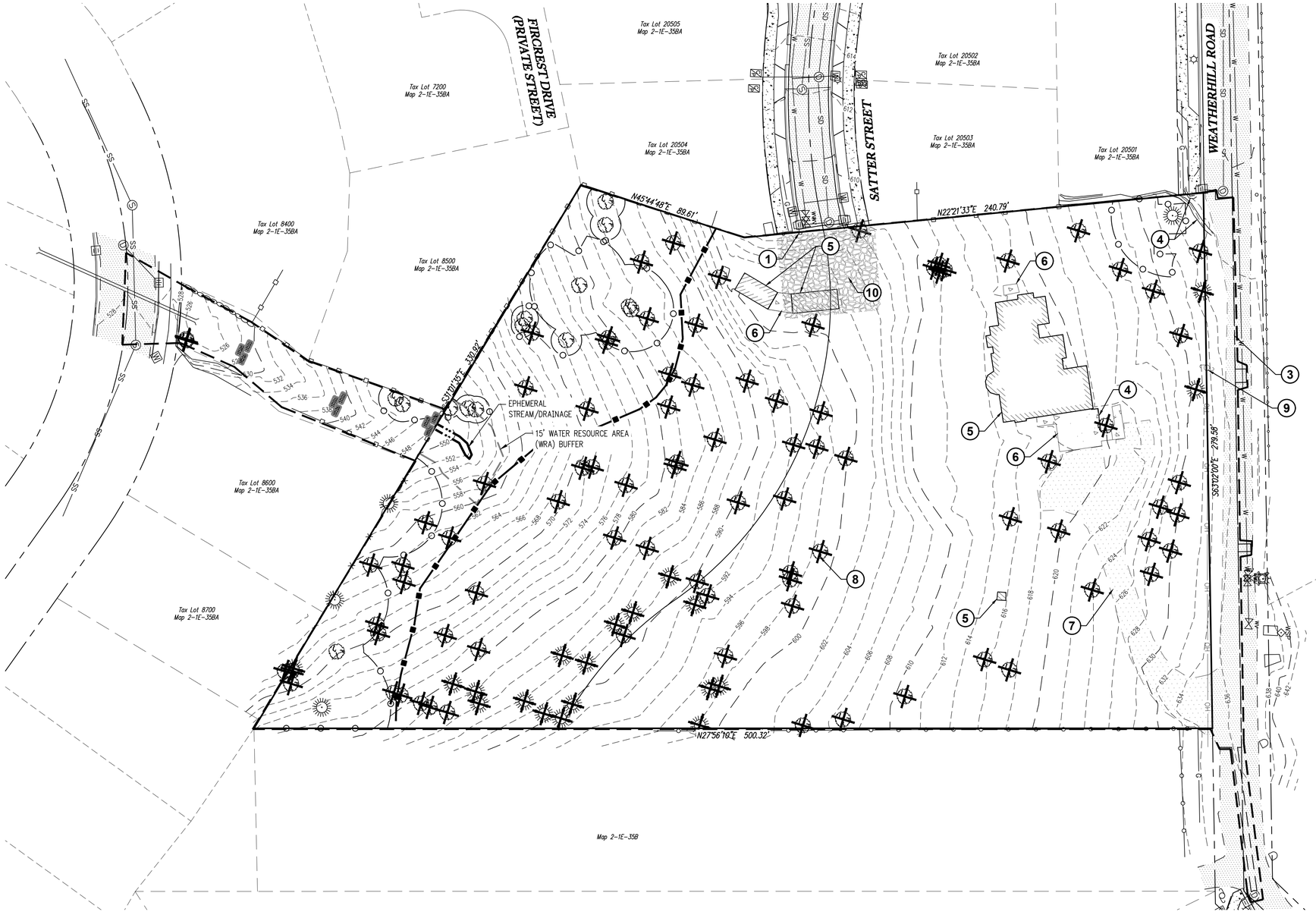
REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
1	4/2019	2ND SUBMITTAL

EMERIO Design
6445 SW FALLBROOK PLACE, SUITE 100
BEAVERTON, OREGON 97008
TEL: (503) 746-8812
FAX: (503) 297-1266
www.emeriodesign.com

SHEET 1 OF 13

FILE:P:\463-003 Weatherhill Road Phase 1\dwg\plan\463-003_01cvr, Layout: 01 COVER SHEET, Plot Date: 5/15/2019 11:22 AM, by: Jacob Snyder



30' 0 15' 30' 60'

SCALE: 1" = 30'

DEMOLITION KEY NOTES

1. REMOVE EXISTING END OF ROAD SIGN.
2. POTHOLE END OF SANITARY LINE AND REMOVE EXISTING PLUG. CONTRACTOR TO NOTIFY ENGINEER IF EXISTING SANITARY INVERT ELEVATION IS DIFFERENT THAN STATED ON THESE PLANS.
3. SAWCUT AND REMOVE EXISTING AC.
4. REMOVED EXISTING WALL
5. REMOVED EXISTING BUILDING/STRUCTURE
6. REMOVE EXISTING CONCRETE AREAS
7. REMOVE EXISTING AC DRIVEWAY
8. REMOVE EXISTING TREE (TYP.). SEE SHEET 3 & 4 FOR DETAILED TREE PLANS
9. REMOVE EXISTING POWER POLE. POWER TO BE UNDERGROUNDED.
10. INSTALL CONSTRUCTION ENTRANCE

GENERAL NOTES:

A. SEE SHEETS 3 AND 4 FOR TREE PRESERVATION PLAN. TREE PROTECTION TO BE INSTALLED BEFORE ANY SITE DEMOLITION, GRUBBING, OR CLEARING.

LEGEND

- BOUNDARY OF SITE
- LIMITS OF CONSTRUCTION
- EXISTING FENCE
- SILT FENCE
- TREE PROTECTION FENCE

SURVEYOR'S NOTE

THE DATUM FOR THIS SURVEY IS BASED UPON OREGON REAL-TIME GNSS NETWORK (ORGN). NAVD88.

A TOPCON PS104B, TRIMBLE R5 INSTRUMENTS WERE USED TO COMPLETE THIS SURVEY.

BOUNDARIES WERE DRAWN PER PLAT AND MONUMENTS FOUND. NO PROPERTY CORNERS WERE SET IN THIS SURVEY.

NO WARRANTIES ARE MADE AS TO MATTERS OF UNWRITTEN TITLE, SUCH AS ADVERSE POSSESSION, ESTOPPEL, ACQUIESCENCE, ETC.

THE UNDERGROUND UTILITIES AS SHOWN ON THIS MAP HAVE BEEN LOCATED FROM FIELD SURVEY OF ABOVE GROUND STRUCTURES AND AS MARKED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPROMISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY SURVEYOR.

NO TITLE REPORT WAS SUPPLIED OR USED IN THE PREPARATION OF THIS MAP. THERE MAY EXIST EASEMENTS, CONDITIONS, OR RESTRICTIONS THAT COULD AFFECT THE TITLE OF THIS PROPERTY. NO ATTEMPT HAS BEEN MADE IN THIS SURVEY TO SHOW SUCH MATTERS THAT MAY AFFECT TITLE.

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JANUARY 19, 1993
EDWARD KING PHELPS
2586
EXPIRES: 12-31-18

22870 S WEATHERHILL ROAD

TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

EXISTING CONDITIONS, DEMOLITION, & PH 1 EROSION CONTROL PLAN

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
1	4/2019	2ND SUBMITTAL

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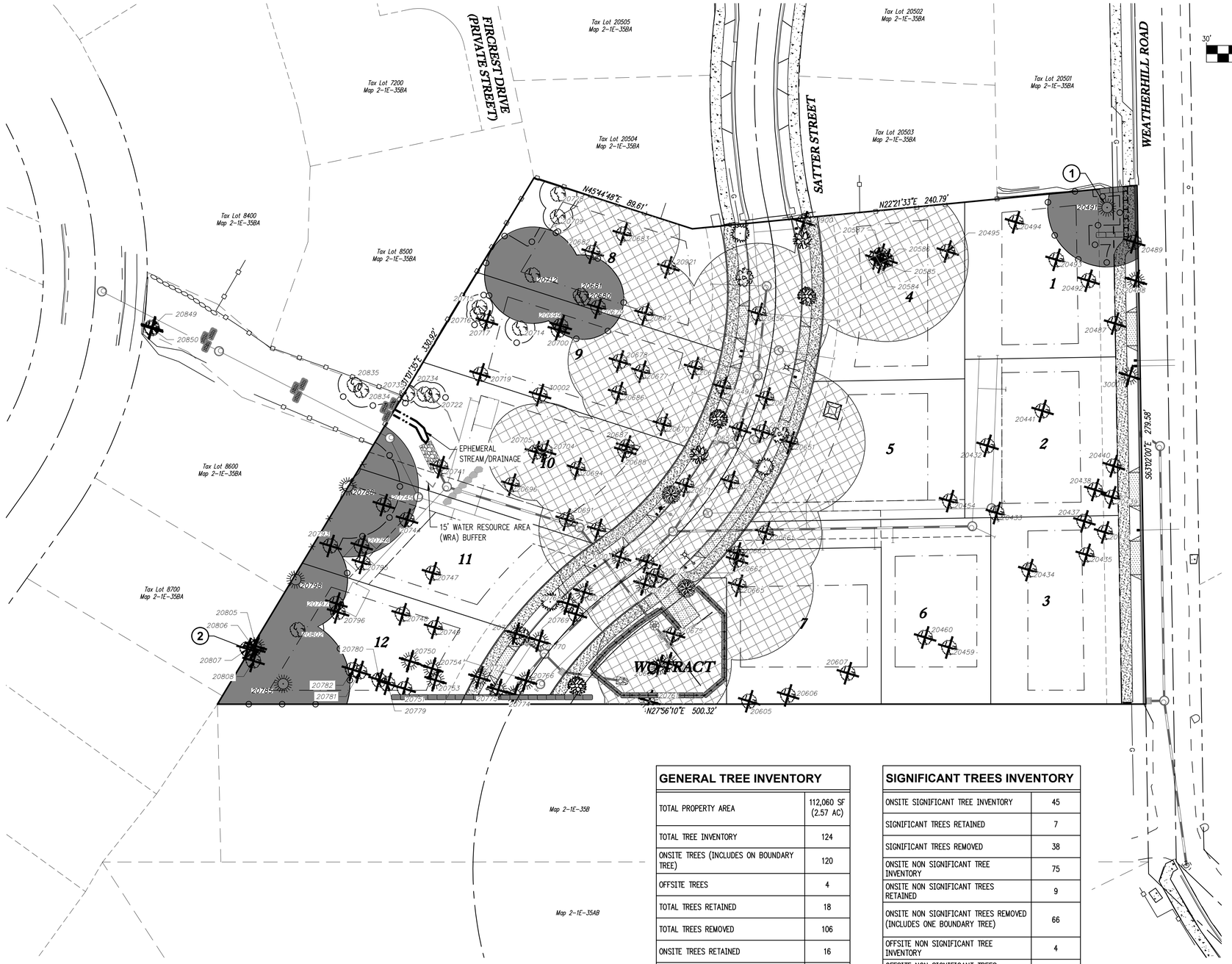
SHEET 2 OF 13

FILE P:\463-003 Weatherhill Road Phase 1\dwg\plan\463-003_02exst. Layout: 2 EXISTING CONDITIONS DEMOLITION & PH 1 EROSION CONTROL PLAN, Plot Date: 5/16/2019 8:40 AM, by: Jacob Snyder



LEGEND

- RETAIN SIGNIFICANT TREE CANOPY
- REMOVE SIGNIFICANT TREE CANOPY
- RETAIN EVERGREEN TREE
- RETAIN DECIDUOUS TREE
- TREE PROTECTION FENCING

GENERAL NOTES

1. REFER TO TREE PROTECTION NOTE 9 FOR SPECIAL PROTECTION NEEDED AT TREE #20491.
2. SEE ARBORIST REPORT FOR TREE #20807 REMOVAL NOTES.

TREE PROTECTION NOTES

1. TREE PROTECTION ZONE. THE STANDARD TREE PROTECTION ZONE (TPZ) FOR EACH TREE TO BE PROTECTED SHALL BE ESTABLISHED ½-FOOT RADIUS PER INCH OF TRUNK DIAMETER FOR NON-SIGNIFICANT TREES AND AT THE DRIPLINE PLUS 10-FEET FOR SIGNIFICANT TREES. WHERE INFRASTRUCTURE (PLANTER BOX, UNDERGROUND UTILITIES AND MANHOLES, BLOCK WALL) MUST BE INSTALLED CLOSER TO THE TREE(S), PROTECTION FENCING MAY BE ESTABLISHED WITHIN THE TPZ IN ACCORDANCE WITH THE TREE PROTECTION PLAN.
2. PROTECTION FENCING. PROTECTION FENCING SHALL BE INSTALLED AS DEPICTED ON THE TREE PRESERVATION PLAN BEFORE DEMOLITION, GRUBBING, GRADING, OR CONSTRUCTION BEGINS. ALL TREES TO BE RETAINED SHALL BE PROTECTED BY SIX-FOOT-HIGH CHAIN LINK FENCES INSTALLED PER PLAN. PROTECTION FENCING SHALL BE SECURED TO TWO-INCH DIAMETER GALVANIZED IRON POSTS, DRIVEN TO A DEPTH OF A LEAST TWO FEET, PLACED NO FURTHER THAN 10-FEET APART. IF FENCING IS LOCATED ON PAVEMENT, POSTS MAY BE SUPPORTED BY AN APPROPRIATE GRADE LEVEL CONCRETE BASE. PROTECTION FENCING SHALL REMAIN IN PLACE UNTIL FINAL INSPECTION OF THE PROJECT PERMIT, OR IN CONSULTATION WITH THE PROJECT ARBORIST.
3. SIGNAGE. AN 8.5X11 INCH SIGN STATING, 'WARNING: TREE PROTECTION ZONE,' SHALL BE DISPLAYED ON EACH PROTECTION FENCE AT ALL TIMES.
4. DESIGNATION OF CUT TREES. TREES TO BE REMOVED SHALL BE CLEARLY MARKED WITH CONSTRUCTION FLAGGING, TREE-MARKING PAINT, OR OTHER METHODS APPROVED IN ADVANCED BY THE PROJECT ARBORIST. TREES SHALL BE CAREFULLY REMOVED SO AS TO AVOID EITHER ABOVE OR BELOW GROUND DAMAGE TO THOSE TREES TO BE PRESERVED. ROOTS OF STUMPS THAT ARE ADJACENT TO RETAINED TREES SHALL BE CAREFULLY SEVERED PRIOR TO STUMP EXTRACTION.
5. PRECONSTRUCTION CONFERENCE. THE PROJECT ARBORIST SHALL BE ON SITE TO DISCUSS METHODS OF TREE REMOVAL AND TREE PROTECTION PRIOR TO ANY CONSTRUCTION.
6. VERIFICATION OF TREE PROTECTION MEASURES. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE PROJECT ARBORIST SHALL VERIFY IN WRITING TO THE CITY ARBORIST THAT TREE PROTECTION FENCING HAS BEEN SATISFACTORILY INSTALLED.
7. TREE PROTECTION ZONE MAINTENANCE. THE PROTECTION FENCING SHALL NOT BE MOVED, REMOVED, OR ENTERED BY EQUIPMENT EXCEPT UNDER DIRECTION OF THE PROJECT ARBORIST, IN COORDINATION WITH THE CITY ARBORIST.
8. STORAGE OF MATERIAL OR EQUIPMENT. THE CONTRACTOR SHALL NOT STORE MATERIALS OR EQUIPMENT WITHIN THE TPZ.
9. ACTIVITY ADJACENT TO TREE #20491. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE PROJECT ARBORIST IN A TIMELY MANNER PRIOR TO WORKING BENEATH THE DRIPLINE OF TREE #20491. DEMOLITION OF THE EXISTING ROCKERY WALL AND EXCAVATION FOR CONSTRUCTION OF THE PROPOSED BLOCK WALL SHALL BE PERFORMED UNDER THE DIRECT ON-SITE SUPERVISION OF THE PROJECT ARBORIST. WORK SHALL BE PERFORMED BY HAND AND WITH HAND TOOLS ONLY. EXCAVATION SHALL NOT EXCEED 1-FOOT DEPTH. THE PROJECT ARBORIST SHALL MONITOR AND DOCUMENT WORK, ASSESS EXPOSED ROOTS IN TERMS OF QUANTITY, SIZE, CONDITION, AND PROXIMITY TO TRUNK, DIRECT PRUNING OF NON-CRITICAL ROOTS, AND PROVIDE RECOMMENDATIONS FOR THE PROTECTION OF CRITICAL ROOTS IF ANY ARE ENCOUNTERED. EACH SITE VISIT DURING CONSTRUCTION SHALL BE DOCUMENTED BY THE PROJECT ARBORIST IN AN INSPECTION REPORT SUBMITTED TO THE CLIENT, CONTRACTOR AND CITY ARBORIST.
10. CROWN PRUNING. CROWN PRUNING MAY BE NEEDED TO PROVIDE OVERHEAD CLEARANCE AND REMOVED DEAD AND DEFECTIVE BRANCHES FOR SAFETY. PRUNING SHOULD BE PERFORMED IN ACCORDANCE WITH THE WEST LINN TREE TECHNICAL MANUAL, BEST MANAGEMENT PRACTICES FOR TREE PRUNING AND ANSI A300 STANDARDS, AND CONDUCTED BY A QUALIFIED TREE SERVICE.
11. QUALITY ASSURANCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE PROJECT ARBORIST AS NEEDED, IN A TIMELY MANNER, PRIOR TO CONSTRUCTION ACTIVITIES THAT COULD ENCROACH ON PROTECTED TREES. THE PROJECT ARBORIST SHOULD MONITOR CONSTRUCTION ACTIVITIES AND PROGRESS ON-CALL AND PROVIDE WRITTEN REPORTS TO THE DEVELOPER AND THE CITY FOLLOWING EACH SITE VISIT.
12. FINAL REPORT. AFTER THE PROJECT HAS BEEN COMPLETED, THE PROJECT ARBORIST SHALL PROVIDE A FINAL REPORT TO THE CLIENT AND CITY ARBORIST. THE FINAL REPORT SHALL INCLUDE CONCERNS ABOUT ANY TREES NEGATIVELY IMPACTED DURING CONSTRUCTION, AND DESCRIBE THE MEASURES NEEDED TO MAINTAIN AND PROTECT THE REMAINING TREES FOR A MINIMUM OF TWO YEARS AFTER PROJECT COMPLETION.

GENERAL TREE INVENTORY

TOTAL PROPERTY AREA	112,060 SF (2.57 AC)
TOTAL TREE INVENTORY	124
ONSITE TREES (INCLUDES ON BOUNDARY TREE)	120
OFFSITE TREES	4
TOTAL TREES RETAINED	18
TOTAL TREES REMOVED	106
ONSITE TREES RETAINED	16
OFFSITE TREES RETAINED	2

SIGNIFICANT TREES INVENTORY

ONSITE SIGNIFICANT TREE INVENTORY	45
SIGNIFICANT TREES RETAINED	7
SIGNIFICANT TREES REMOVED	38
ONSITE NON SIGNIFICANT TREE INVENTORY	75
ONSITE NON SIGNIFICANT TREES RETAINED	9
ONSITE NON SIGNIFICANT TREES REMOVED (INCLUDES ONE BOUNDARY TREE)	66
OFFSITE NON SIGNIFICANT TREE INVENTORY	4
OFFSITE NON SIGNIFICANT TREES RETAINED	2
OFFSITE NON SIGNIFICANT TREES REMOVED	2
EXISTING SIGNIFICANT TREE CANOPY COVERAGE	50,265 SF
TREE PRESERVATION AREA PROVIDED (21.3% OF EXISTING SIGNIFICANT TREE CANOPY COVERAGE)	10,687 SF
TOTAL EXISTING SIGNIFICANT TREES IN TYPE I OR II AREA	0 SF

22870 S WEATHERHILL ROAD
TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

TREE PRESERVATION PLAN

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
1	4/2019	2ND SUBMITTAL

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SHEET 3 OF 13

FILE P: \463-003 Weatherhill Road Phase 1\dwg\plan\463-003_03tree, Layout: 3 TREE PRESERVATION PLAN, Plot Date: 5/15/2019 10:51 AM, by: Jacob Snyder

No.	Type	Common Name	Species Name	DBH*	C-Rad^	Cond°	Comments	Sig?	Treatment
20432	Dec	Coral Bark maple	*Acer palmatum* 'Sango-kaku'	3x5	12	F	Storm damage, codominant stem failure, open wound	No	Remove
20433	Dec	English hawthorn	*Crataegus monogyna*	4x10	18	F	Invasive species, moderate structure, crown decay	No	Remove
20434	Dec	English hawthorn	*Crataegus monogyna*	7x8	25	G	Invasive species	No	Remove
20435	Dec	river birch	*Betula nigra*	23	30	F	Moderate structure, twig dieback	No	Remove
20436	Dec	river birch	*Betula nigra*	17	16	F	Moderate structure, twig dieback	No	Remove
20437	Dec	river birch	*Betula nigra*	16	0	D	Mostly dead	No	Remove
20438	Dec	river birch	*Betula nigra*	15	28	F	Moderate structure, twig dieback	No	Remove
20439	Dec	river birch	*Betula nigra*	14	16	F	Moderate structure, twig dieback	No	Remove
20440	Dec	river birch	*Betula nigra*	18	16	F	Moderate structure, twig dieback	No	Remove
20441	Dec	cherry	*Prunus* spp.	14	18	G	Well-maintained	No	Remove
20454	Dec	English hawthorn	*Crataegus monogyna*	4x8	18	F	Invasive species, moderate structure, crown decay	No	Remove
20459	Dec	English hawthorn	*Crataegus monogyna*	5,6,2x8	18	G	Invasive species	No	Remove
20460	Dec	English hawthorn	*Crataegus monogyna*	5,2x8	14	G	Invasive species	No	Remove
20487	Con	incense cedar	*Calocedrus decurrens*	22	12	G	Some crown asymmetry	No	Remove
20488	Con	Douglas-fir	*Pseudotsuga menziesii*	30	26	F	Topped	No	Remove
20489	Dec	bigleaf maple	*Acer macrophyllum*	13,21	26	F	Moderate structure, previously topped, some trunk decay	No	Remove
20491	Con	Douglas-fir	*Pseudotsuga menziesii*	34	22	G	Spur leader, no major defects	Yes	Retain
20492	Dec	paper birch	*Betula papyrifera*	11	10	G		No	Remove
20493	Dec	paper birch	*Betula papyrifera*	2x10	16	G		No	Remove
20494	Dec	English hawthorn	*Crataegus monogyna*	5x10	20	G	Invasive species	No	Remove
20495	Dec	English hawthorn	*Crataegus monogyna*	3x12	20	G	Invasive species	No	Remove
20584	Dec	Oregon white oak	*Quercus garryana*	12,16	34	G	Dense group	Yes	Remove
20585	Dec	Oregon white oak	*Quercus garryana*	6	22	F	Dense group	Yes	Remove
20586	Dec	Oregon white oak	*Quercus garryana*	19	34	G	Dense group	Yes	Remove
20587	Dec	Oregon white oak	*Quercus garryana*	16	34	G	Dense group	Yes	Remove
20605	Dec	Scouler's willow	*Salix scouleriana*	2x12	16	F	Previous leader failure, dead and broken branches	No	Remove
20606	Dec	English hawthorn	*Crataegus monogyna*	14	13	F	Invasive species	No	Remove
20607	Dec	sweet cherry	*Prunus avium*	22	22	F	Invasive species, moderate structure, dead and broken branches	No	Remove
20647	Dec	Oregon white oak	*Quercus garryana*	2x18	20	G	Oak grove	Yes	Remove
20648	Dec	Oregon white oak	*Quercus garryana*	14	16	F	Oak grove, few dead and broken branches	Yes	Remove
20649	Dec	Oregon white oak	*Quercus garryana*	12	15	G	Oak grove	Yes	Remove
20650	Dec	Oregon white oak	*Quercus garryana*	11,14, 16	20	G	Oak grove	Yes	Remove
20651	Dec	Oregon white oak	*Quercus garryana*	14,16	30	G	Oak grove	Yes	Remove
20656	Dec	Oregon white oak	*Quercus garryana*	8,3x14, 17	28	G	Oak grove, hornets nest, old steel brace compartmentalized in trunk	Yes	Remove
20658	Dec	Oregon white oak	*Quercus garryana*	3x10	14	G	Oak grove	Yes	Remove
20659	Dec	Oregon white oak	*Quercus garryana*	14	20	G	Oak grove, one-sided to south	Yes	Remove
20660	Dec	Oregon white oak	*Quercus garryana*	8	16	G	Oak grove	Yes	Remove
20661	Dec	Oregon white oak	*Quercus garryana*	8,10, 14,15	20	G	Oak grove	Yes	Remove
20662	Dec	Oregon white oak	*Quercus garryana*	5,2x6, 11	12	F	Oak grove, very upright high live crown, small diameter stems are completely dead	Yes	Remove
20663	Dec	Oregon white oak	*Quercus garryana*	5,6, 7,14,18	15	F	Oak grove, moderate one-sided crown structure	Yes	Remove
20665	Dec	Oregon white oak	*Quercus garryana*	10,2x12, 18,20	30	G	Oak grove, few dead and broken branches	Yes	Remove
20666	Con	Douglas-fir	*Pseudotsuga menziesii*	32	24	G	Codominant crown class, ivy up lower trunk	Yes	Remove

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No.	Type	Common Name	Species Name	DBH*	C-Rad^	Cond°	Comments	Sig?	Treatment
20667	Con	Douglas-fir	*Pseudotsuga menziesii*	28	24	G	Codominant crown class, ivy up lower trunk	Yes	Remove
20670	Dec	Oregon white oak	*Quercus garryana*	8,10,12	16	G	Oak grove	Yes	Remove
20671	Dec	Oregon white oak	*Quercus garryana*	4x12	18	G	Oak grove	Yes	Remove
20672	Dec	Oregon white oak	*Quercus garryana*	14	20	F	One-sided to west	Yes	Remove
20673	Dec	Oregon white oak	*Quercus garryana*	14	30	F	One-sided to north, few dead and broken branches	Yes	Remove
20674	Con	Douglas-fir	*Pseudotsuga menziesii*	36	24	G	Codominant crown class, few dead and broken branches	Yes	Remove
20675	Dec	apple	*Malus* spp.	8,10	20	P	Very poor structure, dieback, decay	No	Remove
20677	Dec	Oregon white oak	*Quercus garryana*	14	14	F	Oak grove, one-sided to north, few dead and broken branches	Yes	Remove
20678	Dec	Oregon white oak	*Quercus garryana*	8,9,14	18	G	Oak grove, few dead and broken branches	Yes	Remove
20679	Dec	Oregon white oak	*Quercus garryana*	12	12	F	Oak grove, few dead and broken branches, ivy up lower trunk	Yes	Remove
20680	Dec	Oregon white oak	*Quercus garryana*	12	12	F	Oak grove, few dead and broken branches, ivy up lower trunk	Yes	Retain
20681	Dec	Oregon white oak	*Quercus garryana*	14	12	F	Oak grove, few dead and broken branches, ivy up lower trunk	Yes	Retain
20682	Dec	Oregon white oak	*Quercus garryana*	7,2x10	16	G	Oak grove, some ivy	Yes	Remove
20683	Dec	Oregon white oak	*Quercus garryana*	10,12,14	20	F	Oak grove, few dead and broken branches	Yes	Remove
20686	Dec	Oregon white oak	*Quercus garryana*	6,8	10	F	Oak grove, few dead and broken branches	Yes	Remove
20687	Dec	Oregon white oak	*Quercus garryana*	6	10	F	Oak grove, few dead and broken branches	Yes	Remove
20688	Dec	Oregon white oak	*Quercus garryana*	10	10	F	Oak grove, few dead and broken branches	Yes	Remove
20689	Con	Douglas-fir	*Pseudotsuga menziesii*	26	22	F	Codominant crown class, broken top, new leaders	Yes	Remove
20691	Dec	Oregon ash	*Fraxinus latifolia*	7	14	F	Moderate structure	No	Remove
20694	Dec	Oregon white oak	*Quercus garryana*	16,18	18	G	Oak grove	Yes	Remove
20696	Dec	Oregon white oak	*Quercus garryana*	2x14	12	P	Half dead	No	Remove
20699	Dec	Oregon white oak	*Quercus garryana*	10	5	P	Oak grove, suppressed	No	Remove
20700	Dec	Oregon white oak	*Quercus garryana*	14	12	P	Oak grove, severe ivy infestation, small live crown	No	Remove
20704	Dec	Oregon white oak	*Quercus garryana*	2x14	16	G	Oak grove	Yes	Remove
20705	Dec	Oregon white oak	*Quercus garryana*	16	16	G	Oak grove	Yes	Remove
20709	Dec	madrone	*Arbutus menziesii*	16	14	F	Crown dieback, trunk decay	No	Retain
20712	Dec	Oregon white oak	*Quercus garryana*	18	16	G	Oak grove, ivy up lower trunk	Yes	Retain
20714	Dec	Scouler's willow	*Salix scouleriana*	4x8	12	F	Inaccessible	No	Retain
20715	Dec	Scouler's willow	*Salix scouleriana*	14	12	F	Inaccessible	No	Retain
20716	Dec	Scouler's willow	*Salix scouleriana*	12	12	F	Inaccessible	No	Retain
20717	Dec	Scouler's willow	*Salix scouleriana*	10	12	F	Inaccessible	No	Remove
20719	Dec	Scouler's willow	*Salix scouleriana*	14	12	F	Inaccessible	No	Remove
20722	Dec	Scouler's willow	*Salix scouleriana*	14	12	F	Inaccessible	No	Retain
20728	Dec	bigleaf maple	*Acer macrophyllum*	3x20	24	F	Moderate structure, additional codominant stem failed in past and has advanced decay, remaining stems are mostly one-sided to east	No	Retain
20734	Dec	Scouler's willow	*Salix scouleriana*	14	12	F	Inaccessible	No	Retain
20735	Dec	bigleaf maple	*Acer macrophyllum*	10	12	F	Inaccessible	No	Retain
20741	Dec	Scouler's willow	*Salix scouleriana*	14	10	F	Inaccessible	No	Remove
20744	Dec	bigleaf maple	*Acer macrophyllum*	7	12	F	Poor structure	No	Remove
20745	Dec	Scouler's willow	*Salix scouleriana*	16	8	P	History of branch failure, crown decay, trunk decay with hollow	No	Remove
20747	Dec	bigleaf maple	*Acer macrophyllum*	8	16	F	Poor structure	No	Remove
20748	Dec	English holly	*Ilex aquifolium*	8	8	F	Invasive species	No	Remove
20749	Dec	bigleaf maple	*Acer macrophyllum*	8	8	F	Poor structure	No	Remove
20750	Con	Douglas-fir	*Pseudotsuga menziesii*	18	14	F	Codominant crown class, old broken top	No	Remove

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No.	Type	Common Name	Species Name	DBH*	C-Rad^	Cond°	Comments	Sig?	Treatment
20751	Dec	bigleaf maple	*Acer macrophyllum*	10	16	F	Poor structure	No	Remove
20753	Con	Douglas-fir	*Pseudotsuga menziesii*	16	14	F	Codominant crown class, ivy	No	Remove
20754	Con	Douglas-fir	*Pseudotsuga menziesii*	7	3	P	Suppressed, mostly dead	No	Remove
20761	Con	Douglas-fir	*Pseudotsuga menziesii*	18	14	G	Ivy up trunk, codominant crown class	Yes	Remove
20766	Con	Douglas-fir	*Pseudotsuga menziesii*	12	10	F	Codominant crown class, some ivy	No	Remove
20767	Con	Douglas-fir	*Pseudotsuga menziesii*	18	14	F	Pistolbutt, sweep in upper trunk	No	Remove
20768	Con	Douglas-fir	*Pseudotsuga menziesii*	19	14	F	One-sided to south, sweep in upper trunk	No	Remove
20769	Dec	Oregon white oak	*Quercus garryana*	16,20	12	F	Codominant stems with seam, dead and broken branches, crown decay, upright crown	No	Remove
20770	Con	Douglas-fir	*Pseudotsuga menziesii*	20	15	F	Old broken top, forked leaders, twig dieback	No	Remove
20771	Con	Douglas-fir	*Pseudotsuga menziesii*	16	14	F	Codominant crown class	No	Remove
20774	Con	Douglas-fir	*Pseudotsuga menziesii*	12	10	F	Codominant crown class, ivy up trunk	No	Remove
20775	Con	Douglas-fir	*Pseudotsuga menziesii*	16	8	F	Codominant crown class, ivy up trunk	No	Remove
20776	Con	Douglas-fir	*Pseudotsuga menziesii*	10	6	P	Suppressed, extensive ivy	No	Remove
20779	Dec	bigleaf maple	*Acer macrophyllum*	8	16	F	Very poor structure	No	Remove
20780	Dec	bigleaf maple	*Acer macrophyllum*	2x6	10	F	Very poor structure	No	Remove
20781	Dec	bigleaf maple	*Acer macrophyllum*	10	10	F	Very poor structure	No	Remove
20782	Dec	bigleaf maple	*Acer macrophyllum*	8	10	F	Very poor structure	No	Remove
20785	Con	Douglas-fir	*Pseudotsuga menziesii*	47	26	G	Forked leaders	Yes	Retain
20788	Con	Douglas-fir	*Pseudotsuga menziesii*	36	28	G	Limited assessment	Yes	Retain
20793	Con	Scouler's willow	*Salix scouleriana*	14	8	P	Multiple leader failures, vigorous sprouting	No	Remove
20794	Dec	bigleaf maple	*Acer macrophyllum*	9	16	F	Poor structure	No	Retain
20795	Dec	bigleaf maple	*Acer macrophyllum*	2x6	10	P	Very poor structure	No	Remove
20796	Dec	bigleaf maple	*Acer macrophyllum*	8	12	F	Poor structure	No	Remove
20797	Dec	bigleaf maple	*Acer macrophyllum*	7	14	F	Poor structure	No	Remove
20798	Con	Douglas-fir	*Pseudotsuga menziesii*	23	18	G	Limited assessment	Yes	Retain
20802	Dec	bigleaf maple	*Acer macrophyllum*	16	18	G		No	Remove
20805	Con	Douglas-fir	*Pseudotsuga menziesii*	8	6	P	Suppressed, growing into 20806	No	Remove
20806	Dec	bigleaf maple	*Acer macrophyllum*	15	16	P	Advanced trunk decay with hollow 0-3' north face, poor crown structure	No	Remove
20807	Dec	bigleaf maple	*Acer macrophyllum*	8	14	P	Boundary tree, very poor structure, not suitable for retention with exposure from removal of adjacent hazard tree 20806	No	Remove with adjacent owner's consent
20808	Dec	madrone	*Arbutus menziesii*	15	18	P	Crown difficult to assess but advanced basal decay	No	Remove
20834	Dec	Scouler's willow	*Salix scouleriana*	18	12	F	Off-site in utility easement, inaccessible	No	Retain
20835	Dec	Scouler's willow	*Salix scouleriana*	18	12	F	Off-site in utility easement, inaccessible	No	Retain
20849	Con	western redcedar	*Thuja plicata*	6	6	G	Off-site in utility easement, young tree	No	Remove
20850	Con	western redcedar	*Thuja plicata*	6	6	G	Off-site in utility easement, young tree	No	Remove
20900	Dec	bigleaf maple	*Acer macrophyllum*	8	12	P	Very poor structure	No	Remove
20921	Dec	bigleaf maple	*Acer macrophyllum*	9,12	16	F	Poor structure, trunk decay	No	Remove
30001	Con	spruce	*Picea* spp.	8	8	G		No	Remove
30002	Dec	Oregon white oak	*Quercus garryana*	7,9,11	14	P	Low vigor, dieback	No	Remove
30003	Con	Douglas-fir	*Pseudotsuga menziesii*	32	24	G	Codominant crown class, few dead and broken branches	Yes	Remove

***DBH** is tree diameter measured at breast height, 4.5-feet above the ground level (inches); codominant trunks splitting below DBH are measured individually and DBH is reported as the sum of each stem.

^C-Rad is the average crown radius measured in feet.

°Cond is an arborist assigned rating to generally describe the condition of individual trees as follows: **D**ead; **P**oor; **F**air; **G**ood; or **E**xcellent condition.

Sig? asks whether or not individual trees are considered potentially significant, either Yes (likely significant) or No (not considered significant).

Morgan Holen & Associates, LLC
Consulting Arborists and Urban Forest Management
3 Monroe Parkway, Suite P220, Lake Oswego, OR 97035
morgan.holen@comcast.net | 971.409.9354

22870 S WEATHERHILL ROAD
TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

TREE PRESERVATION DETAILS

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST. SUBMITTAL
1	4/2019	2ND. SUBMITTAL

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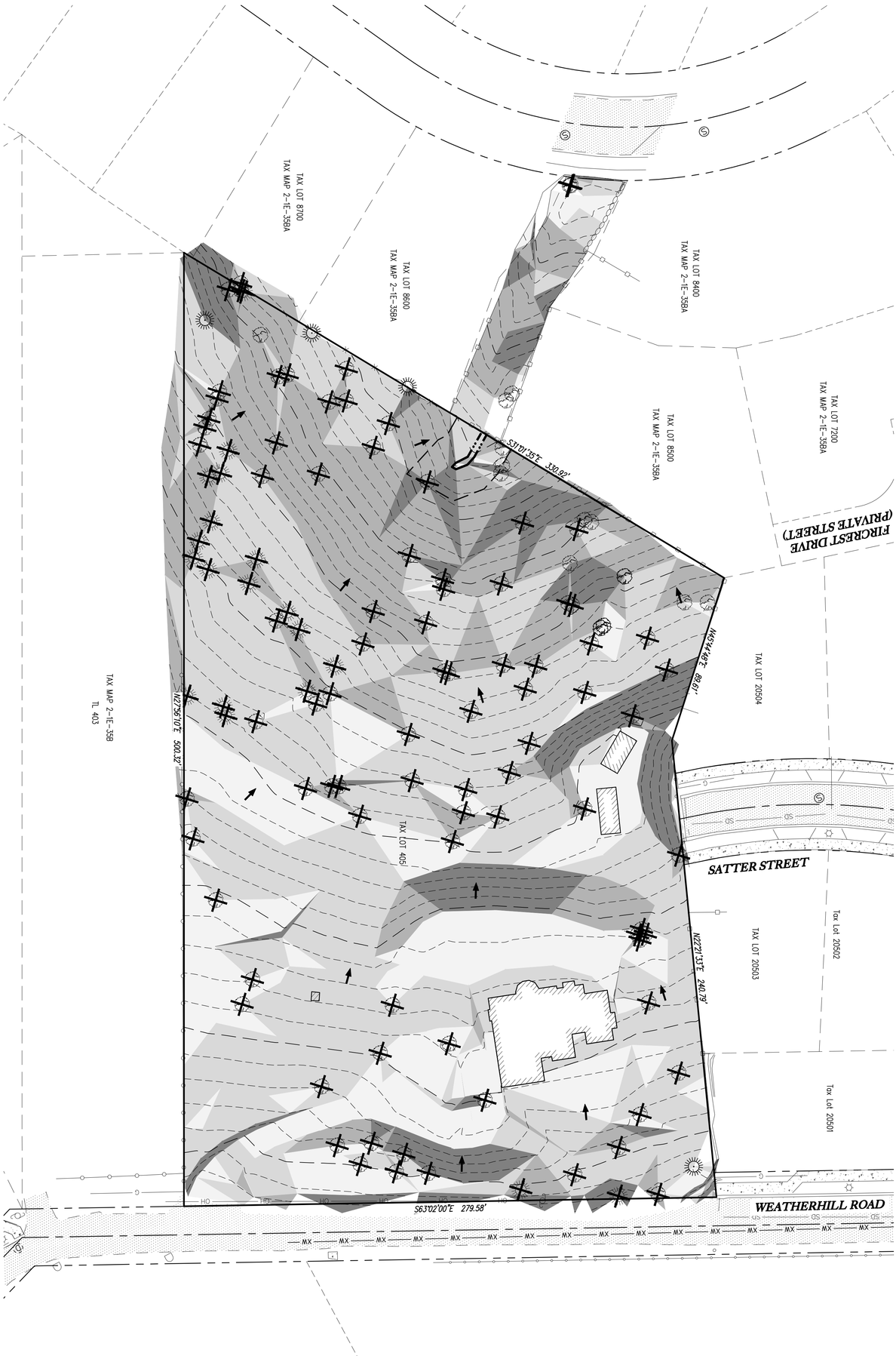
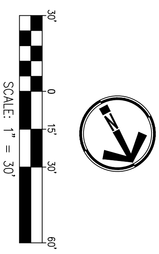
SHEET 4 OF 13

FILE: P:\463-003 Weatherhill Road Phase 1\dwg\plan\463-003_04tree, Layout: 4 TREE PRESERVATION DETAILS, Plot Date: 5/15/2019 10:48 AM, by: Jacob Snyder



Slopes Table				
Number	Minimum Slope	Maximum Slope	Area	Color
1	0%	15%	23,980	
2	15%	25%	53,565	
3	25%	35%	26,089	
4	35%	–	12,308	



SHEET 5 OF 13

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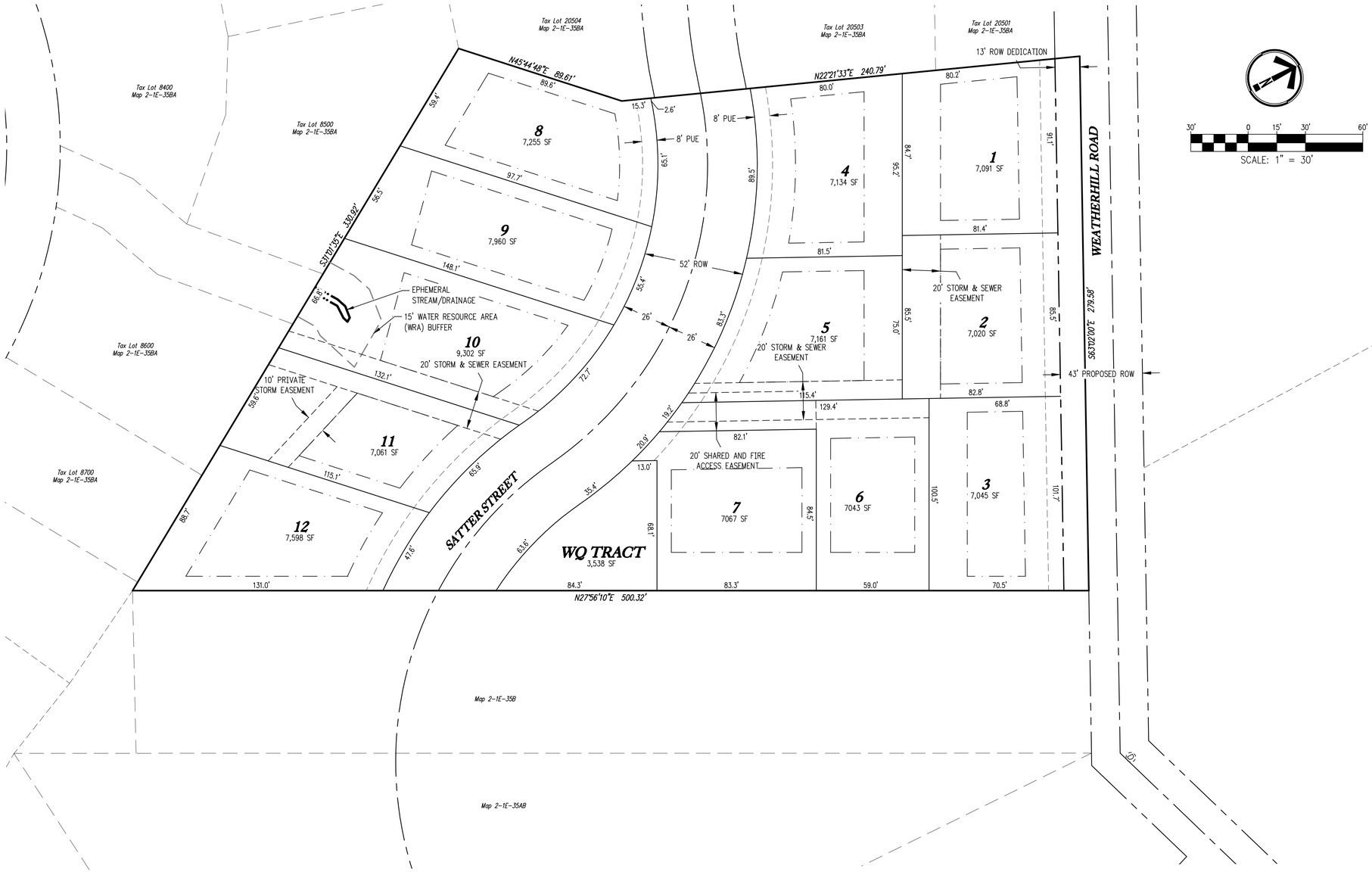
REVISIONS		
NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
1	4/2019	2ND SUBMITTAL

SLOPE ANALYSIS PLAN

22870 S WEATHERHILL ROAD

TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

FILE:P:\463-003 Weatherhill Road Phase 1\dwg\plan\463-003_05slope, Layout: 5 SLOPE ANALYSIS PLAN, Plot Date: 5/15/2019 10:47 AM, by: Jacob Snyder



LEGEND

- 6' P.U.E.
- SETBACK LINES
- BOUNDARY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- PROPOSED FENCE

PARCEL DATA

AREA:	2.57 Ac.
ZONING:	R-7
TAX MAP:	2S1E 35B
TAX LOTS:	0405
NO. OF LOTS:	12
PARCELS:	1

MIMIMUM SETBACKS

FRONT:	20'
SIDE:	7.5'
STREET SIDE:	15'
GARAGE DOOR:	20'
REAR	20'
MAX HEIGHT:	35'
MAX LOT COVERAGE:	35%
AVERAGE MIN LOT WIDTH:	35'

SITE DATA

ZONE: R-7

TOTAL SITE AREA:	2.57 ACRES (112,060 SQ. FT.)
R.O.W. DEDICATION:	0.08 ACRES (3,626 SQ. FT.)
PUBLIC STREET	0.41 ACRES (17,914 SQ. FT.)

12 LOTS/1 PARCEL

MINIMUM LOT SIZE:	7,004 SQ. FT.
MAXIMUM LOT SIZE:	9,378 SQ. FT.
AVG. LOT SIZE:	7,543 SQ. FT.

22870 S WEATHERHILL ROAD
TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

PRELIMINARY PLAT

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST. SUBMITTAL
1	4/2019	2ND. SUBMITTAL

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SHEET 6 OF 13

FILE:P:\1463-003 Weatherhill Road Phase 1\dwg\plan\1463-003_6plot, Layout: 6 PRELIMINARY PLAT, Plot Date: 5/15/2019 10:45 AM, by: Jacob Snyder

30' 0 15' 30' 60'

SCALE: 1" = 30'

LEGEND

- 8' P.U.E.
- SETBACK LINES
- BOUNDARY LINE
- RIGHT-OF-WAY LINE
- LOT LINE

SITE NOTES

1. INSTALL TYPICAL CURB & GUTTER PER CITY OF WEST LINN DETAIL WL-501
2. INSTALL 6' CONCRETE SIDEWALK PER CITY OF WEST LINN DETAIL WL-508
3. INSTALL RESIDENTIAL DRIVEWAY PER CITY OF WEST LINN DETAIL WL-503A (TYP. OF 12)
4. FIRE TURNAROUND FIGURE
5. INSTALL 12' WIDE MAINTENANCE DRIVEWAY PER CITY OF WEST LINN DETAIL WL-503B
6. INSTALL AC SECTION FOR SATTER STREET PER SECTION DETAIL SHEET 8
7. INSTALL AC SECTION FOR WEATHERHILL ROAD PER SECTION DETAIL SHEET 9
8. CONSTRUCT ULTRABLOCK RETAINING WALL SURROUNDING EXISTING TREE
9. CONSTRUCT ULTRABLOCK RETAINING WALL AROUND WATER QUALITY POND

22870 S WEATHERHILL ROAD
TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

PRELIMINARY SITE PLAN

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
1	4/2019	2ND SUBMITTAL

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SHEET 7 OF 13

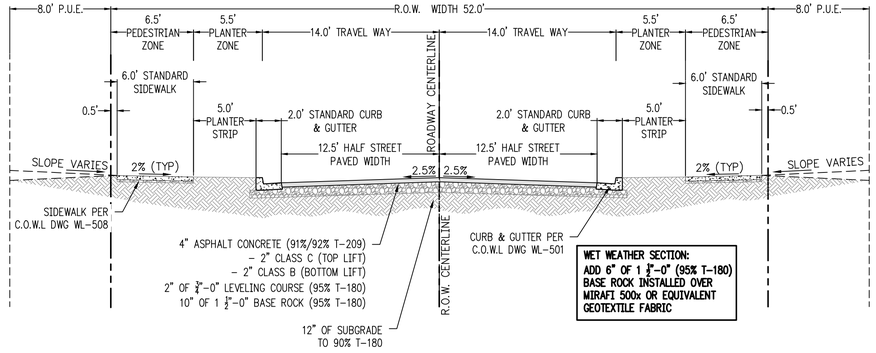
FILE:P:\463-003 Weatherhill Road Phase 1\dwg\plan\463-003_07site Layout: 7 PRELIMINARY SITE PLAN, Plot Date: 5/15/2019 10:46 AM, by: Jacob Snyder

SATTER STREET PLAN

SCALE: 1"=40'

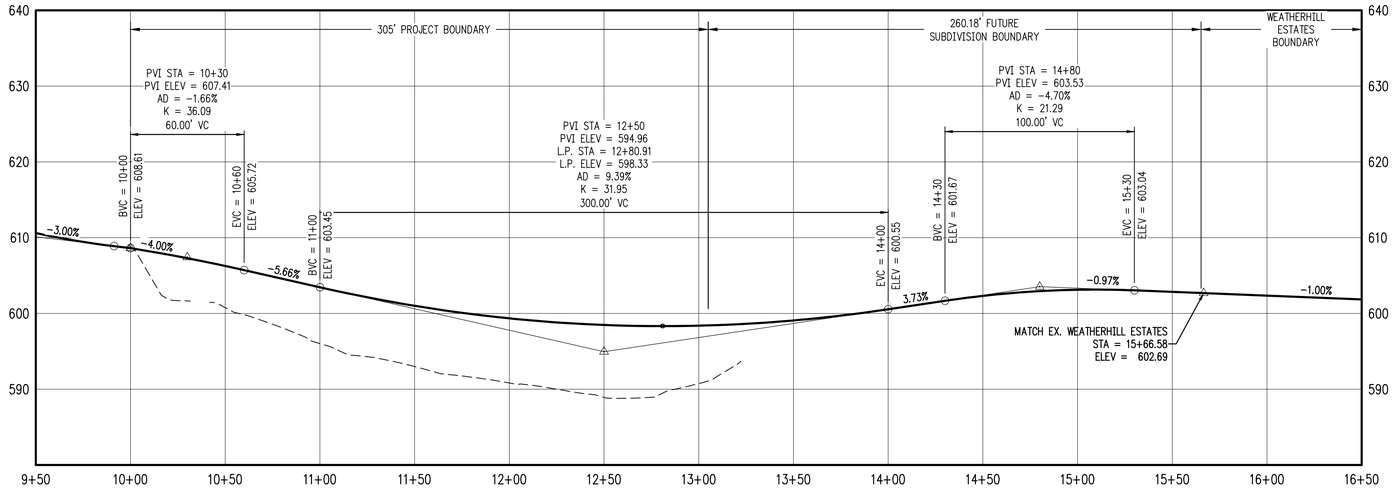
STREET TREE LEGEND

- INSTALL STREET TREE
  AUTUMN PURPLE ASH
  FRAXINUS AMERICANA 'JUNGINGER'
  1 1/2" CALIPER – 3 TOTAL
- INSTALL STREET TREE
  OREGON ASH
  FRAXINUS LATIFOLIA
  1 1/2" CALIPER – 3 TOTAL
- INSTALL STREET TREE
  RAYWOOD ASH
  FRAXINUS OXYCARPA 'RAYWOOD'
  1 1/2" CALIPER – 3 TOTAL
- INSTALL STREET TREE
  COPPER BEECH
  FAGUS SYLVATICA 'ATROPURPUREA'
  1 1/2" CALIPER – 2 TOTAL
- INSTALL STREET TREE IN
  STORM WATER FACILITY
  VILLAGE GREEN JAPANESE ZELKOVA
  ZELCOVA SERRATA 'VILLAGE GREEN'
  1 1/2" CALIPER – 3 TOTAL



SECTION A-A: 28' LOCAL ROAD W/ DETACHED SIDEWALKS (LEFT & RIGHT) - TYPICAL SECTION

SCALE: N.T.S.



SATTER STREET PROFILE

SCALE: 1"=40' HORZ. 1"=10' VERT.

22870 S WEATHERHILL ROAD
TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

SATTER STREET PLAN, PROFILE, AND STORM LINE

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
1	4/2019	2ND SUBMITTAL

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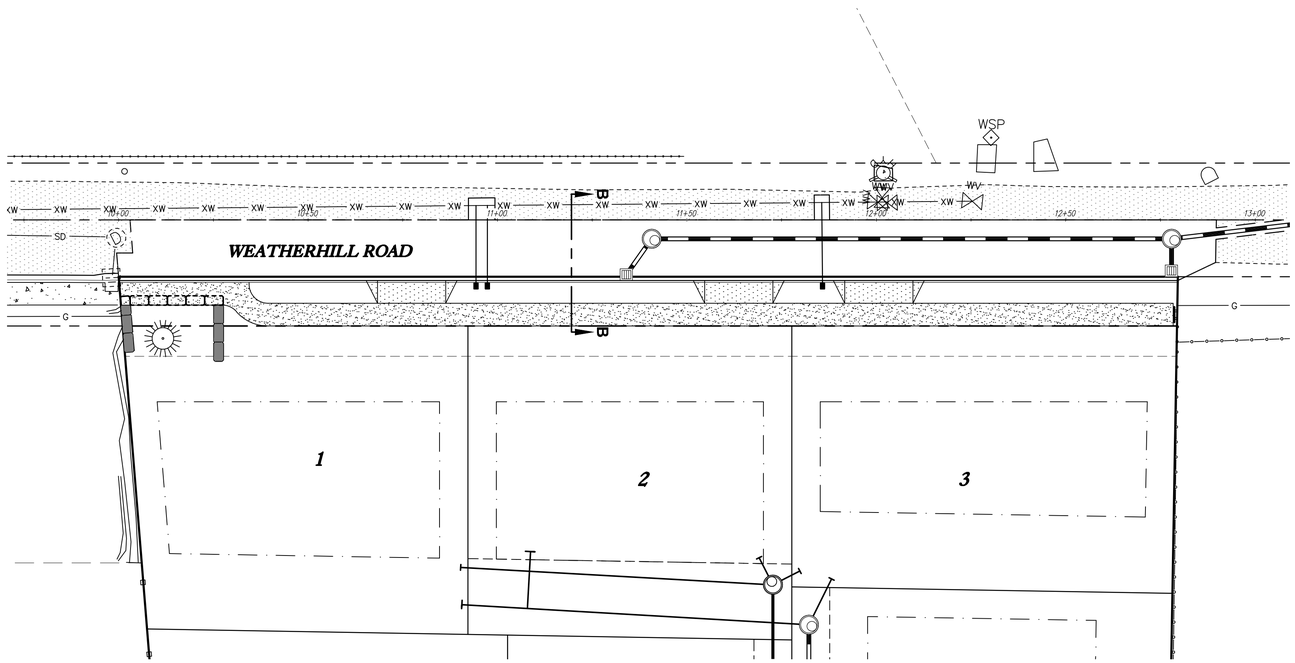
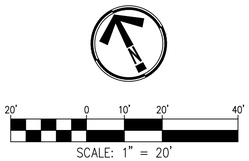
FILE:P:\463-003 Weatherhill Road Phase 1\dwg\plan\463-003_Bstreet, Layout: 8 SATTER STREET PLAN PROFILE AND STORM LINE, Plot Date: 5/15/2019 10:33 AM, by: Jacob Snyder

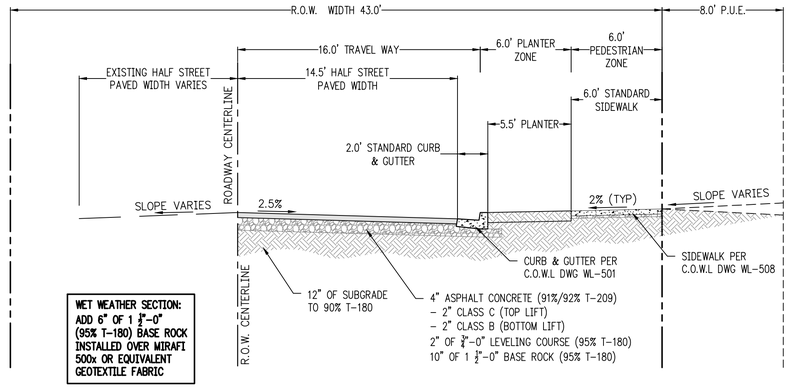


WEATHERHILL ROAD PLAN

SCALE: 1"=20'

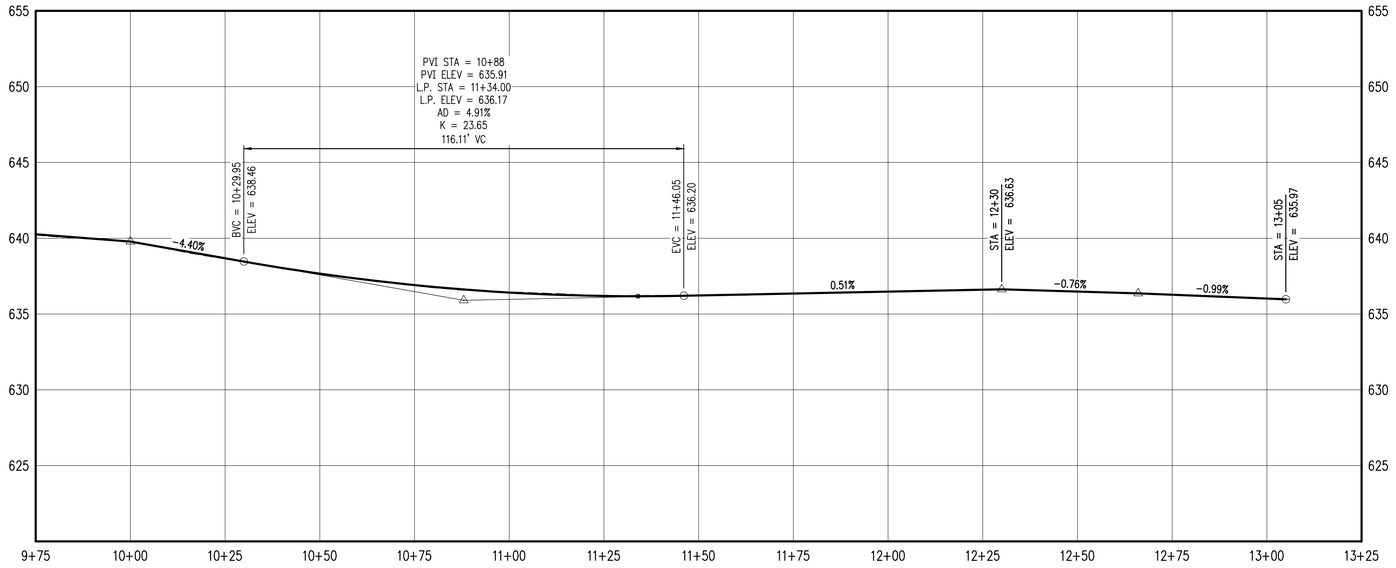


SCALE: 1" = 20'



SECTION B-B: LOCAL ROAD W/ DETACHED SIDEWALK (RIGHT) - TYPICAL SECTION

SCALE: N.T.S.



WEATHERHILL ROAD PROFILE

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

22870 S WEATHERHILL ROAD

TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

WEATHERHILL ROAD PLAN, PROFILE, AND STORM LINE

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
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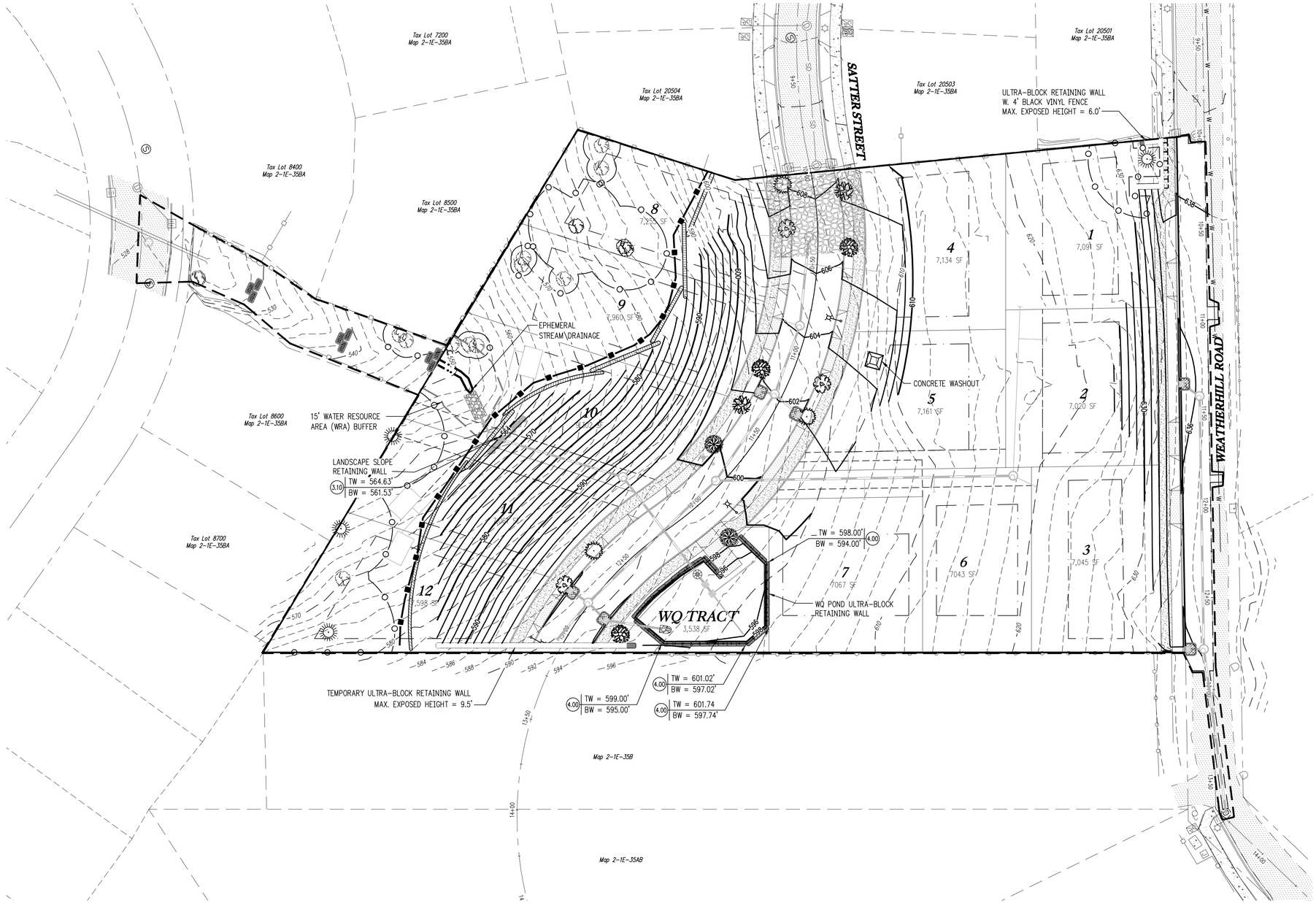
SHEET 9 OF 13

FILE P: \463-003 Weatherhill Road Phase 1\dwg\plan\463-003_Setreet, Layout: 9 WEATHERHILL ROAD PLAN PROFILE AND STORM LINE, Plot Date: 5/15/2019 10:31 AM, By: Jacob Snyder



30' 0 15' 30' 60'

SCALE: 1" = 30'

LEGEND

- 220 — PROPOSED MAJOR CONTOUR LINE
- 219 — PROPOSED MINOR CONTOUR LINE
- 195 — EXISTING MAJOR CONTOUR LINE
- 194 — EXISTING MINOR CONTOUR LINE
- PROPERTY BOUNDARY LINE
- SIGNIFICANT RESOURCE OVERLAY ZONE (SROZ)
- PROPOSED LOT LINE
- PROPOSED RIGHT-OF-WAY LINE
- PROPOSED PUE EASEMENT
- PROPOSED SANITARY SEWER LINE
- PROPOSED STORM DRAIN LINE
- PROPOSED WATER LINE
- CONSTRUCTION TREE PROTECTION FENCE (6' HIGH CHAIN LINK WITH METAL POSTS)
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED CURB INLET CATCH BASIN
- PROPOSED FIRE HYDRANT
- PROPOSED SIDEWALK TO BE INSTALLED AT TIME OF STREET CONSTRUCTION
- PROPOSED LIDA PLANTER

22870 S WEATHERHILL ROAD

TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

PHASE 2 GRADING & EROSION CONTROL PLAN

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
1	4/2019	2ND SUBMITTAL

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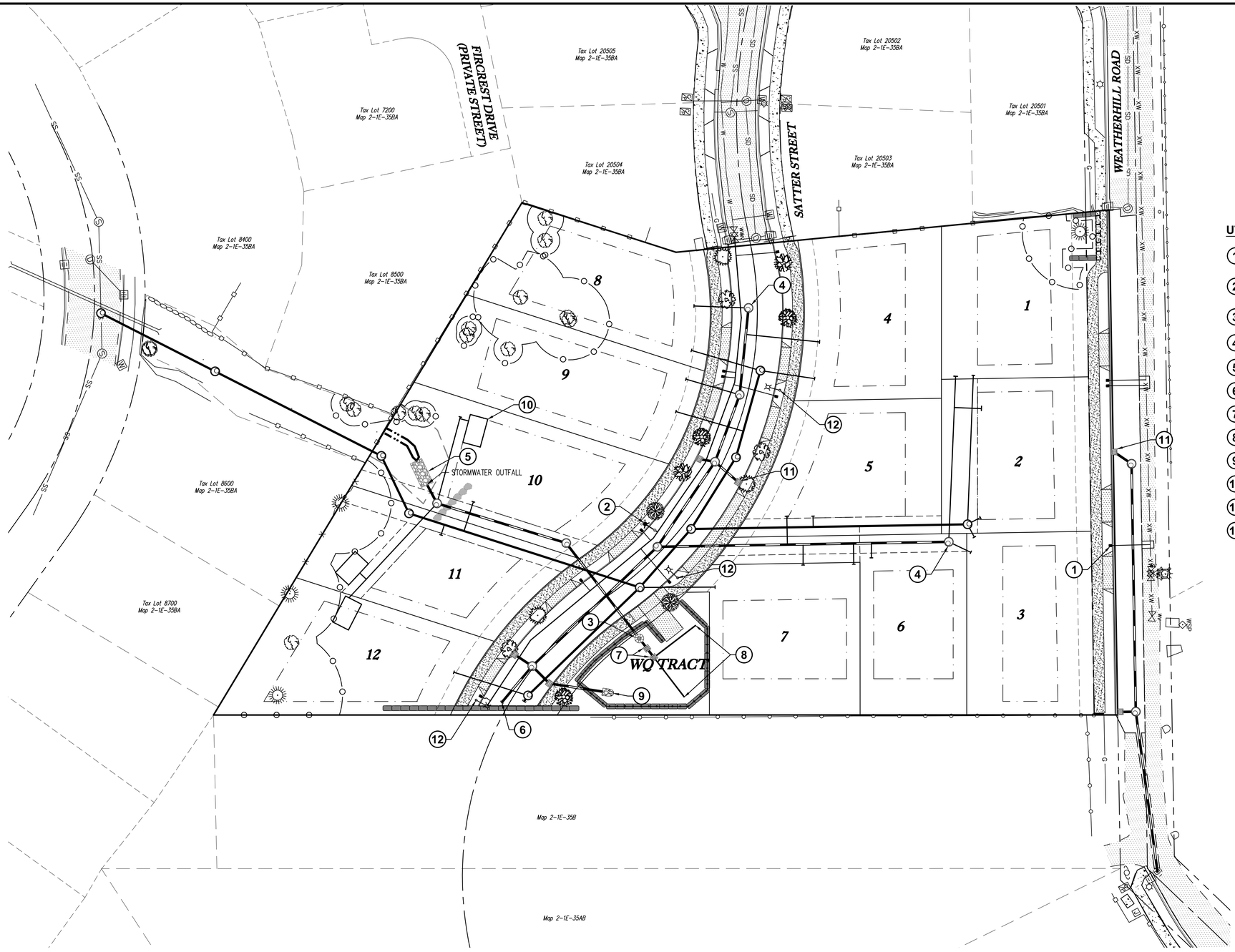
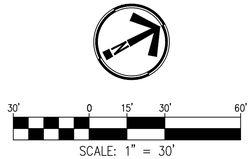
SHEET 10 OF 13

FILE: P:\1463-003 Weatherhill Road Phase 1\dwg\plan\1463-003_10grad, Layout: 10 PHASE 2 GRADING & EROSION CONTROL PLAN, Plot Date: 5/16/2019 8:47 AM, by: Jacob Snyder



COMPOSITE UTILITY PLAN

SCALE: 1"=30'



UTILITY CONSTRUCTION NOTES

1. INSTALL SINGLE WATER METER PER LOT AND EXTEND 1" SERVICE LATERAL 3' PAST PUE (TYP. OF 12)
2. INSTALL FIRE HYDRANT PER CITY OF WEST LINN DETAIL WL-401
3. INSTALL 60" OVERFLOW MANHOLE, SEE SH. 13
4. INSTALL STANDARD 48" MANHOLE (TYP. OF 14)
5. INSTALL 7' X 14.5' RIP RAP PAD AT OVERLAND STORMWATER DISCHARGE LOCATION
6. INSTALL PLUG ON STORM SEWER FOR FUTURE CONNECTION TO THE EAST
7. INSTALL DETENTION POND OUTLETS WITH FLOW CONTROL, SEE SH. 13
8. INSTALL PERFORATED PIPE, SEE SH. 13
9. INSTALL STANDARD RIP RAP OUTFALL PAD
10. INSTALL WATER QUALITY PLANTER (TYP. OF 3)
11. INSTALL CG-2 CATCHBASIN (TYP. OF 6)
12. STREET LIGHT (SEE SH. 12)

LOT DRAINAGE NOTE:

1. LOTS 10, 11, & 12 SHALL HAVE AN ON SITE LIDA PLANTER TO TREAT ON SITE STORM DRAINAGE.

LEGEND:

- PROPOSED SANITARY SEWER LINE
- PROPOSED STORM DRAIN LINE
- PROPOSED WATER LINE
- PROPOSED PUE EASEMENT
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED FIRE HYDRANT
- PROPOSED BLOW-OFF
- PROPOSED WATER METER
- ON LOT LIDA PLANTER

22870 S WEATHERHILL ROAD
TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

COMPOSITE UTILITY PLAN

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
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SHEET 11 OF 13

FILE P:\463-003 Weatherhill Road Phase 1\dwg\plan\463-003_11util, Layout: 11 COMPOSITE UTILITY PLAN, Plot Date: 5/15/2019 11:02 AM, by: Jacob Snyder

(LP / X) = INSTALL NEW LUMINAIRE ON POLE #. (X = POLE #).

(LP / EX) = EXISTING 47W LED LUMINAIRE ON POLE.

PUBLIC STREET LIGHTING OPTION "A" NOTES:

1. LIGHT POLE SHALL BE 30-FOOT DIRECT BURIED, 25-FOOT MOUNTING HEIGHT, TWO-PIECE BRONZE, FIBERGLASS LIGHT POLE.

PGE APPROVED LIGHT POLES ARE:
SHAKESPEARE BHT3099S5BL9901
CMT MDS30-F-100-S2-HS-PC-NP-1B-22

PGE APPROVED STUBS ARE:
SHAKESPEARE BHS3099N3BL9901
CMT 25-STUB-UP

2. JUNCTION BOXES SHALL BE PGE APPROVED SPLICE BOXES.

PGE APPROVED JUNCTION BOXES ARE:
NEWBASIS FCA132418T-00043
QUAZITE A4213418A017
ARMORCAST A6001946TAX18-PGE
HIGHLINE CHA132418HE1

"ELECTRIC" OR "POWER" SHALL BE IN THE LID MARKING AREA.

3. LUMINAIRES SHALL BE PGE APPROVED 47 WATT LED, 240V, MAST-ARM MOUNTED, BRONZE SHOEBOX FIXTURE WITH TWISTLOCK P.E. RECEPTACLE.

PGE APPROVED SHOEBOX LUMINAIRES ARE:
47W CREE STR-LWY-2M-HT-02-E-UL-BZ-700-40K-R-UTL

4. THE PHOTOELECTRIC CONTROL SHALL BE PGE APPROVED EXTENDED LIFE TWISTLOCK, FAIL-ON, ELECTRONIC, 105-300 VAC, 60 HZ, PER ANSI 136.10, BRONZE HOUSING, 1.5 LUMEN TURN-ON, RATED 1000W TUNGSTEN (1800 VA BALLAST) 1.5:1 TURN-OFF/TURN-ON RATIO, SOLID BRASS PLUG BLADES, CONFORMABLY COATED CDS CELL, 160 JOULE MOV, 2-4 SEC. TURN-OFF DELAY.

PGE APPROVED PHOTOELECTRIC CONTROLS ARE:
RIPLEY RD8645
DTL DLL 1271.5 J50

5. THE WIRING FROM THE SPLICE BOX TO THE LUMINAIRE SHALL BE PGE APPROVED #10AWG, 600-VOLT, 3-CONDUCTOR, CLASS B STANDING TYPE TC WITH 45-MIL SUNLIGHT RESISTANT PVC JACKET, SUITABLE FOR DIRECT BURIED APPLICATIONS. RATED 90°C DRY AND 75°C WET.

FOR 240-VOLT APPLICATIONS, THE PGE WIRING CONFIGURATION IS:
BLACK AND RED (HOT)
GREEN (GROUND)

6. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO P.G.E. SCHEDULE "95" OPTION "A" SPECIFICATIONS. ALL MATERIALS AND INSTALLATION SHALL BE APPROVED BY P.G.E. LIGHT POLES AND STREET LIGHTS TO BE INSTALLED BY P.G.E.

7. LIGHTING CONTRACTOR/INSTALLER IS SOLELY RESPONSIBLE FOR INSTALLATION OF CORRECT MATERIAL BASED ON CURRENT PGE APPROVED MATERIAL LIST AND JURISDICTION SPECIFICATIONS AND STANDARDS. LIGHT POLE AND FIXTURE SUBMITTAL TO PROPER JURISDICTION RECOMMENDED.

STREETLIGHTING DESIGN
Scale: 1" = 30'

NUMERIC SUMMARY						
PROJECT: WEATHERHILL						
LABEL	CALC TYPE	UNITS	AVG	MAX	MIN	AVG/MIN
SATTER STREET	ILLUMINANCE	FC	0.47	0.90	0.10	4.70
SW WEATHERHILL ROAD	ILLUMINANCE	FC	0.58	0.90	0.10	5.80

Northstar Electrical Contractors
11055 S.W. Clay Street
Sherwood, Oregon 97140
Phone 503-612-0840
Fax 503-612-0891
Email adam.suminski@NorthStarElect.com

22870 S WEATHERHILL ROAD
TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

WEATHERHILL
WEST LINN, OR

LIGHTING PLAN

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
1	4/2019	2ND SUBMITTAL

NO.	REV DATE	REV DESCRIPTION

Title: STREET LIGHTING
Designed by: Adam Suminski
Checked by: Jesse Culp
Date: February 8, 2019

DWG. NO
EL1

SHEET 12 OF 13

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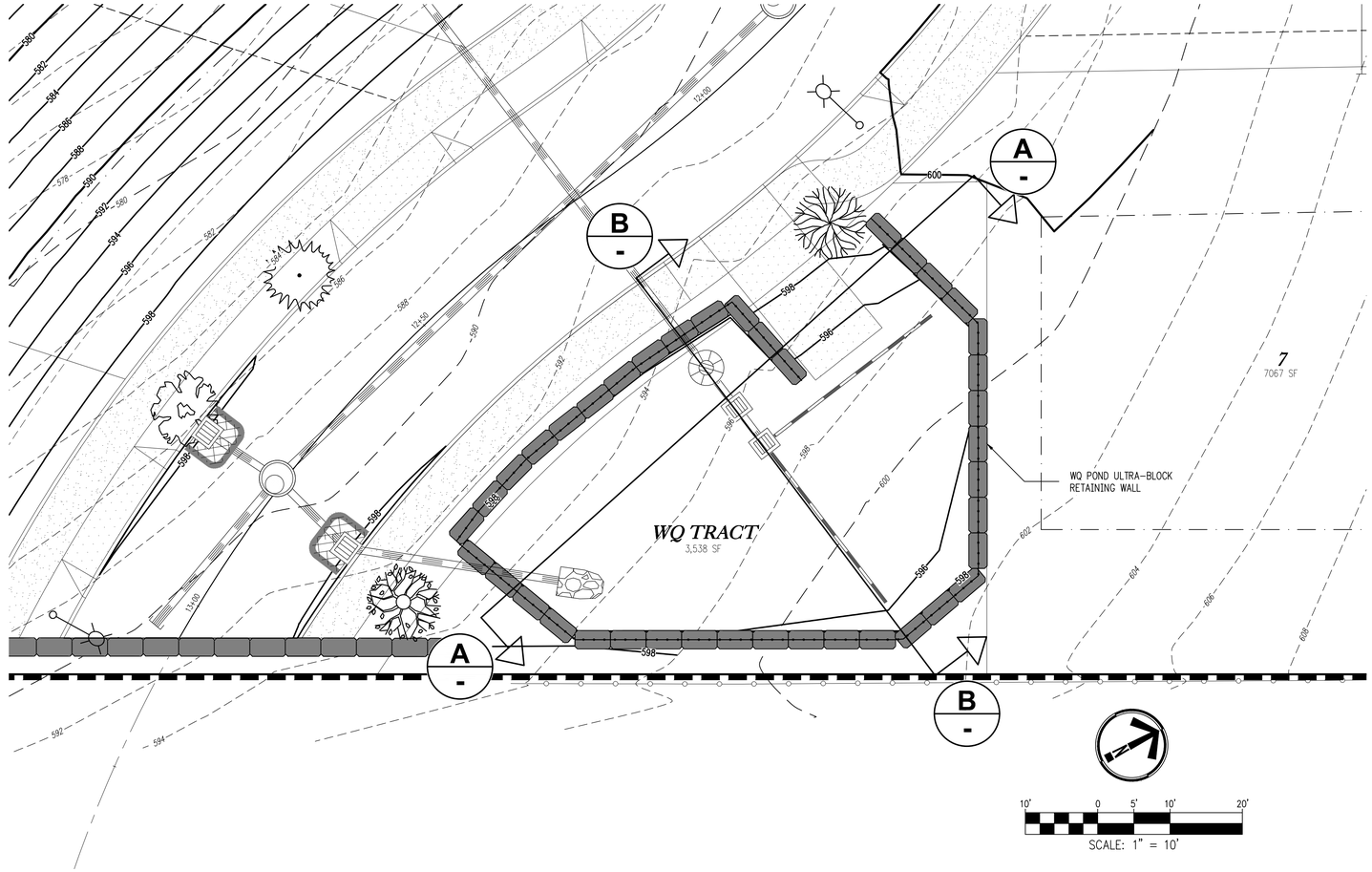
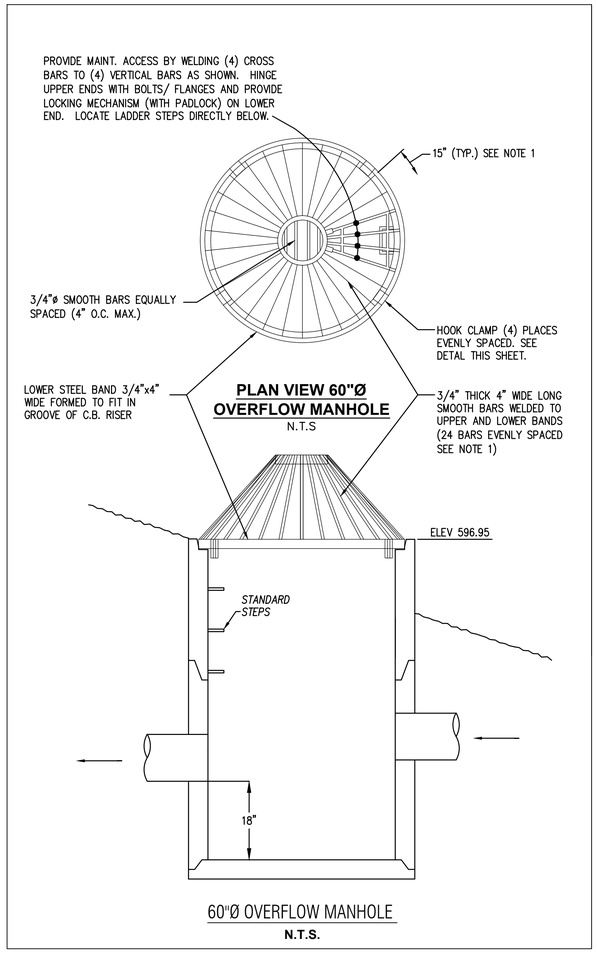
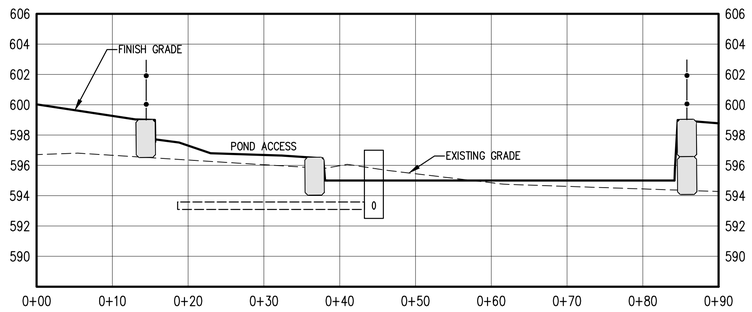
FILE:P:\463-003 Weatherhill Road Phase 1\dwg\plan\463-003_12lite, Layout: 12 LIGHTING PLAN, Plot Date: 5/15/2019 11:04 AM, by: Jacob Snyder





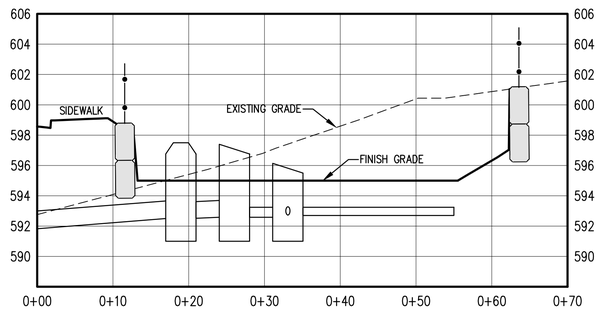
60"Ø OVERFLOW MANHOLE

N.T.S.



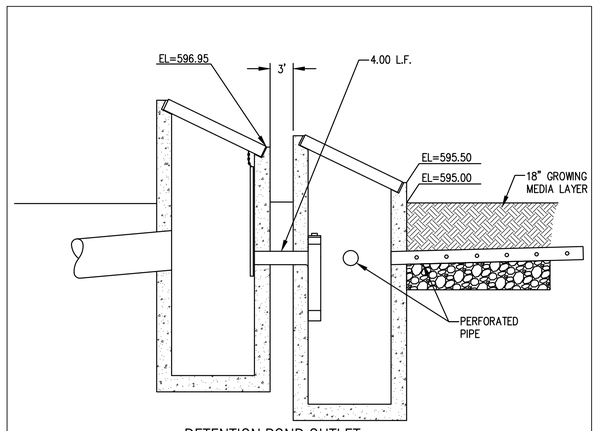
POND SECTION A-A - PROFILE

SCALE: 1"=10' HORZ. 1"=5' VERT.



POND SECTION B-B - PROFILE

SCALE: 1"=10' HORZ. 1"=5' VERT.



DETENTION POND OUTLET

N.T.S.

22870 S WEATHERHILL ROAD

TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

WATER QUALITY POND & DETAILS

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
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SHEET 13 OF 13

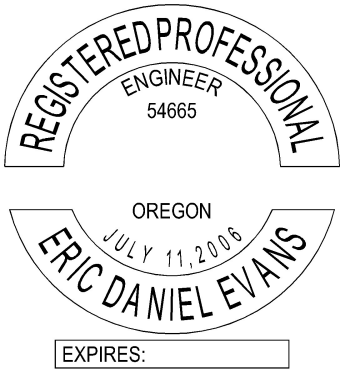
FILE:P:\463-003 Weatherhill Road Phase 1\Dwg\plan\463-003_13wqpn, Layout: 13 WATER QUALITY POND & DETAILS, Plot Date: 5/15/2019 11:07 AM, by: Jacob Snyder

EMERIO
Design

CIVIL ENGINEERS & PLANNERS

Stormwater Management Report
Weatherhill Road Subdivision
12-Lot Subdivision at
22870 Weatherhill Road
West Linn, Oregon

Emerio Project Number:	463-003
City of West Linn Permit Numbers:	SUB-18-04
Date:	12/19/2018 Rev. 1: 02/07/2019 Rev. 2: 05/16/2019



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Project Overview and Description:

Size and location of project site (vicinity map): The current site is located in the south part of West Linn on the south side of Weatherhill Road, approximately 120 feet east of the intersection of Satter Street & Weatherhill Road. One large lot will be divided into 12 lots. The proposed site is 2.57 acres and will encompass roughly 45,105 SF of impervious onsite improvements and 6,560 SF offsite impervious improvement. Reference the vicinity map provided in Appendix A(1).

Property Zoning: The property is zoned R7 (Residential 7,000 SF lots).

Type of Development/Proposed Improvements: The proposed development will consist of a public street, a tract for stormwater, and new homes and driveways will be constructed on each lot.

Existing vs. post-construction conditions: The current (existing) site condition consists of an under-developed forested lot with one house, attached garage, and associated driveway.

Watershed Description: The site drainage area presently sheet flows south toward adjacent lots and into Crestview Drive. There is an existing ephemeral stream/drainage at the south line of the site along the middle of the property line where onsite flows collect and flow south through an existing easement to a culvert routing under Crestview Drive. In the post-developed condition, the site impervious flows will be treated onsite and discharged at the existing ephemeral stream location. Drainage basin areas are shown in Appendix D(2).

Soil Classification:

The NRCS soil survey of Clackamas County, Oregon classifies the onsite soils as Cascade-urban land complex soil. The associated hydrologic group of this soil is C, see Appendix B(1). A curve number of 74 is used for pre-developed pervious surfaces and 98 and 86 are used for impervious and pervious surfaces.

Methodology:

To satisfy stormwater requirements, a combination of on-lot planter boxes and a water quality/quantity pond will be used. Placing a pond at the south portion of the site was not feasible due to slope requirements for a maintenance access road to a pond. A pond will be placed at the east side of the site adjacent to Satter Street, uphill of lots 10 to 12.

Table 1	Basin	Water Quality	Detention	Basin Routing
A	*Satter Street*	*Growing Media Layer of Pond*	*Volume in Pond*	*Pond to Site Discharge*
	Lots 1 through 9			
B	*Lots 10 – 12*	*Growing Media Layer of Flow-Through Planters*	*Storage of Flow-Through Planters*	*Planter to Site Discharge*

Refer to overall methodology description here and the routing description in Table 1: **(A.)** A pond to provide water quality for the proposed right-of-way (ROW) and lots 1 through 9, and **(B.)** On-lot LIDA flow-through planter boxes on lots 10 through 12 for water quality. Detention for the site will be provided by a combination of the detention effects of the LIDA planters, and the storage volume of the proposed onsite pond.

The proposed grading will retain the general existing drainage pattern for pervious areas of the site. Three private on-lot planters and the onsite pond will all be routed to the same site discharge location at the existing southwest ephemeral stream drainage.

Water Quality:

Water quality/quantity pond:
The proposed pond is based on the standard City of Portland detention pond and the Water Environment Services (WES) standard detail SWM FC-6.0 (see Appendix D(3)). Stormwater runoff will enter the pond, slowly filter down through an 18" layer of amended soil before reaching a perf pipe within a 12" section of drain rock to be routed to the orifice control structure for the pond. The peak water surface elevation during the water quality storm for the pond is below the first ditch inlet; therefore, the volume of runoff during the water quality design storm will be fully treated (Appendix C(2)).

City of Portland LIDA flow-through planter boxes:
Stormwater runoff will enter the planter boxes by from roof drain systems. The planter boxes are open bottomed allowing infiltration to native soil; however, for the purposes of analysis, this infiltration amount into low-infiltration rate soils is omitted. A 6" standpipe overflow is set with the rim 12" above the planter surface to allow higher detention storm events to be conveyed directly to the planter underdrain/outlet pipe. As shown in the HydroCAD output, the peak water surface elevation during the water quality storm for the planters is below the overflow/bypass orifice; therefore, the volume of runoff during the water quality design storm will be fully treated.

Quantity Control/Detention:

As required by the City of West Linn, detention will be provided for the 2, 5, 10, and 25-year design storms. A combined detention effect is accomplished by the pond and planter boxes. The full volume of runoff during the water quality storm over the design treatment area will be allowed to infiltrate through a topsoil/growing media layer before collecting in a perforated pipe within the drain rock section. The pond volumes are shown in Table 2:

Table 2: Extended Wet Pond Storage

Elevation (ft)	Area (SF)	Cumulative Detention Storage (CF)
594.00	1,689	0
594.50	1,795	873
595.00	1,901	1,795
595.50	2,007	2,772
596.00	2,113	3,806

Table 3: Total Site Detention Peak Flow Rates

Return Period	Pre-Developed Site Discharge (CFS)	Post-Developed Site Discharge (CFS)
2-Year	0.15	0.15
5-Year	0.27	0.23
10-Year	0.37	0.34
25-Year	0.52	0.52

The outflow rate of the pond is controlled for the 2-year through 25-year design storm events via two orifices in a flow control structure: a 1.6" diameter orifice set at an elevation of 590.32' and a 4.0" orifice set at an elevation of 596.30'. Both orifices are set in an orifice plate between two ditch inlets per City of West Linn standard drawing number WL-610 and 611. The first ditch inlet is set at the peak water surface elevation of the water quality design storm. The second ditch inlet is set at 596.95' in the event of flows greater than the

25-year design storm. The pond will have a minimum of 1 foot of freeboard above the 25-year peak water surface elevation. In the event of flows during the 100-year storm event and/or failure of the flow control and secondary ditch inlet structures, an emergency overflow manhole with a metal cage trash rack set at the 25-year peak water surface elevation will allow for conveyance of the pond. See conveyance section this page.

Planter boxes for the three lots downstream of the pond will be sized using SBUH storm modeling with the HydroCAD V.10 program allowing for some detention effects by storing up to 12 inches of water as described under the Water Quality section of this report.

As shown in the Table 3, the cumulative effects of the on-lot flow-through planters and the water quality/quantity pond limit the post developed peak flow rates to the pre-developed peak flow rates for corresponding storm events.

Weatherhill Road Frontage:

Note that impervious area added to the frontage of Weatherhill road will not be treated or detained onsite by this project due to grading constraints. The project at 23190 Bland Circle will factor in the Weatherhill frontage basin in stormwater analysis of the regional stormwater facility at the corner of Bland Circle & Salamo Road.

Stormwater Conveyance:

Onsite conveyance will be by means of 12" storm water pipe in Satter Street routing all the way to the discharge point in the existing utility easement south of this site. For conservatism, the total post-developed flow rate with no detention within proposed stormwater pipe was used to analyze the lowest potential pipe design slope at 0.5% during the conveyance design storm. See Appendix C(4) for HydroCAD flow rates developed during the 100-year 24-hr conveyance design storm event.

Analysis:

The following design assumptions were utilized in this design.

Design Storm: Water quality storm = **0.83" in 24 hours**
2-year 24-hour storm **= 2.5" in 24 hours**
5-year 24-hour storm **= 3.0" in 24 hours**
10-year 24-hour storm **= 3.4" in 24 hours**
25-year 24-hour storm **= 3.9" in 24 hours**
100-year 24-hour storm **= 4.5" in 24 hours**

Computation methods and software utilized in the design were from HydroCAD V-10.

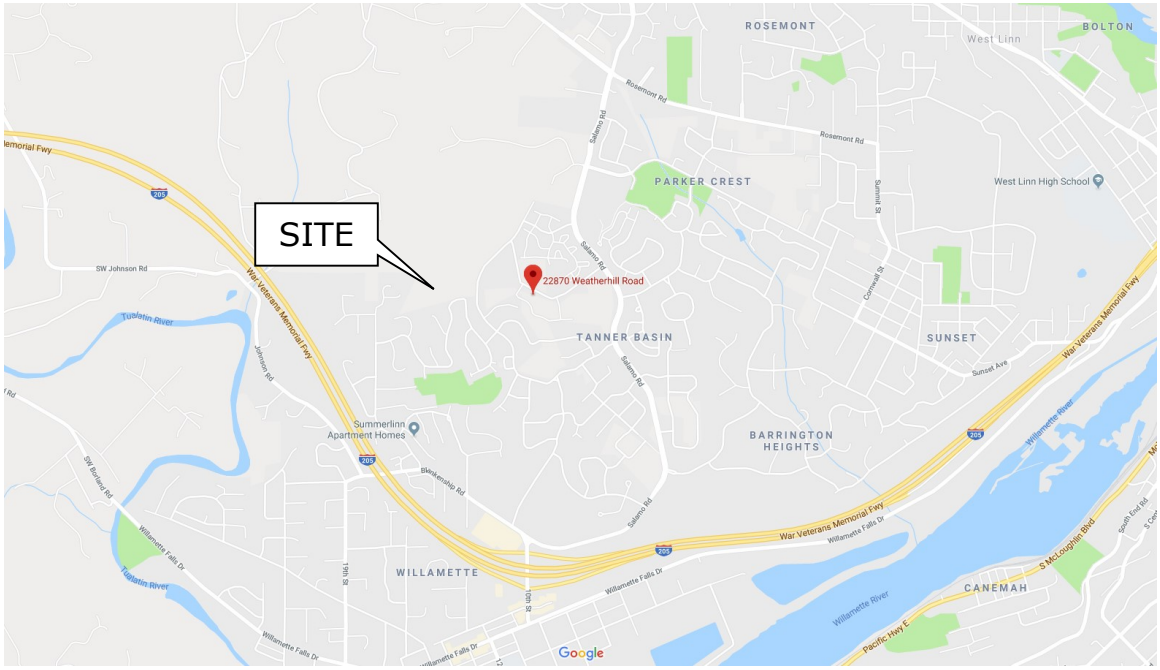
Curve numbers utilized in the design were 98 for impervious areas, 86 for pervious areas, and 74 for predeveloped pervious areas.

Engineering Conclusions:

The design of the proposed stormwater management facilities satisfies the pollution reduction, conveyance and detention standards required by the 2010 City of West Linn Public Works Design Standards.

Appendix A:

Appendix A(1)
Vicinity Map



Appendix B:

Appendix B(1)
Soil Classification

Tables — Hydrologic Soil Group — Summary By Map Unit

Summary by Map Unit — Clackamas County Area, Oregon (OR610)

Summary by Map Unit — Clackamas County Area, Oregon (OR610)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
64C	Nekia silty clay loam, 8 to 15 percent slopes	C	0.2	5.0%
78C	Saum silt loam, 8 to 15 percent slopes	C	3.4	95.0%
Totals for Area of Interest			**3.6**	**100.0%**

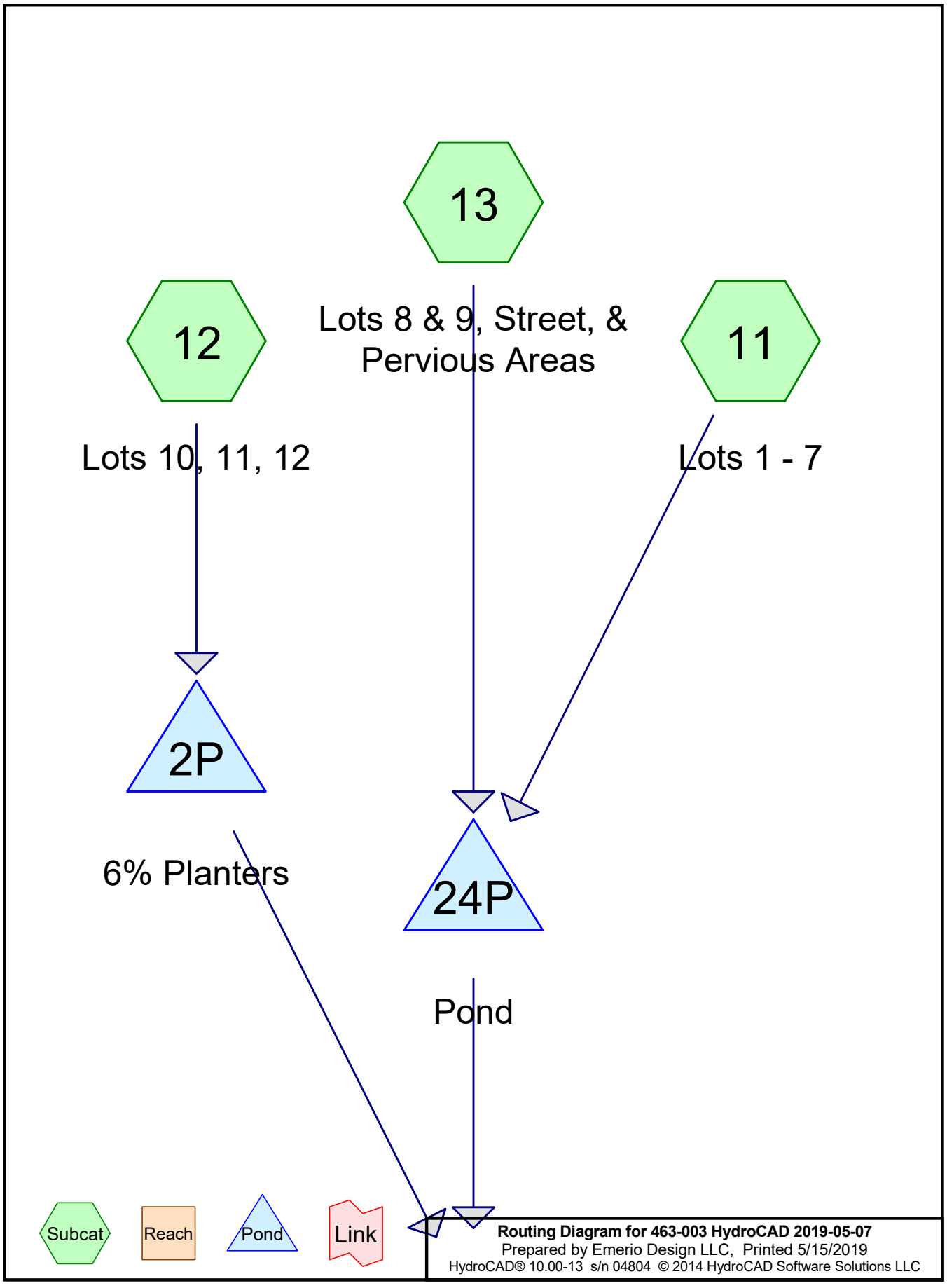
SITE

Appendix C:

Basin Area Tabulated Data
Weatherhill Road Subdivision

Appendix C(1)

Basin #	Name	Total Area SF	Total Area Acres	Qty of Lots	Lot Impervious SF	ROW/Tract Imp SF	Total Impervious SF	Total Pervious (Calc'd) SF
100	Pre-Developed Onsite	79,151	1.82	1	2,500	0	2,500	76,651
11	Lot 1 through 7	17,500	0.40	7	17,500		17,500	0
12	Lots 10, 11, & 12	7,500	0.17	3	7,500		7,500	0
13	Lots 8 & 9, Satter Street	54,151	1.24	2	5,000	15,444	20,444	33,707


13
Lots 8 & 9, Street, & Pervious Areas
12
Lots 10, 11, 12
11
Lots 1 - 7
2P
6% Planters
24P
Pond
Subcat
Reach
Pond
Link
Routing Diagram for 463-003 HydroCAD 2019-05-07
Prepared by Emerio Design LLC, Printed 5/15/2019
HydroCAD® 10.00-13 s/n 04804 © 2014 HydroCAD Software Solutions LLC

Summary for Subcatchment 11: Lots 1 - 7

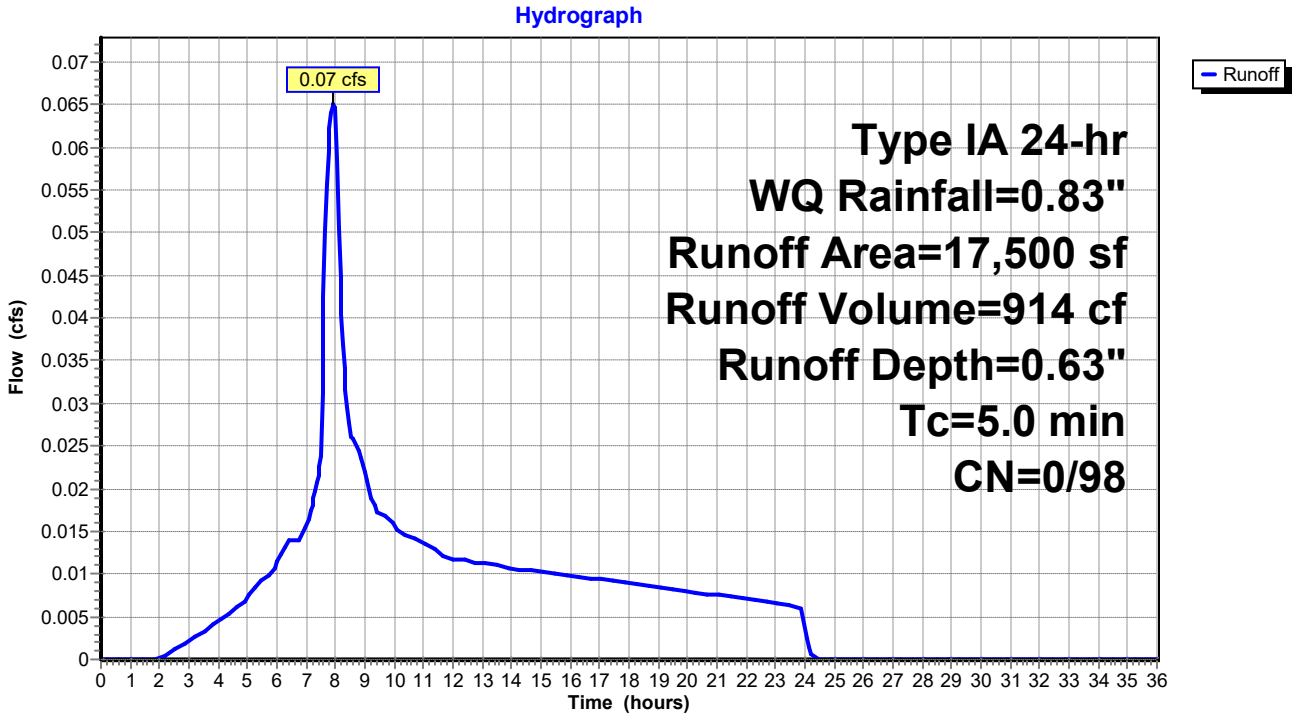
Runoff = 0.07 cfs @ 7.93 hrs, Volume= 914 cf, Depth= 0.63"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr WQ Rainfall=0.83"

	Area (sf)	CN	Description
*	17,500	98	Lots 1 - 7
	17,500	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 11: Lots 1 - 7



Summary for Subcatchment 12: Lots 10, 11, 12

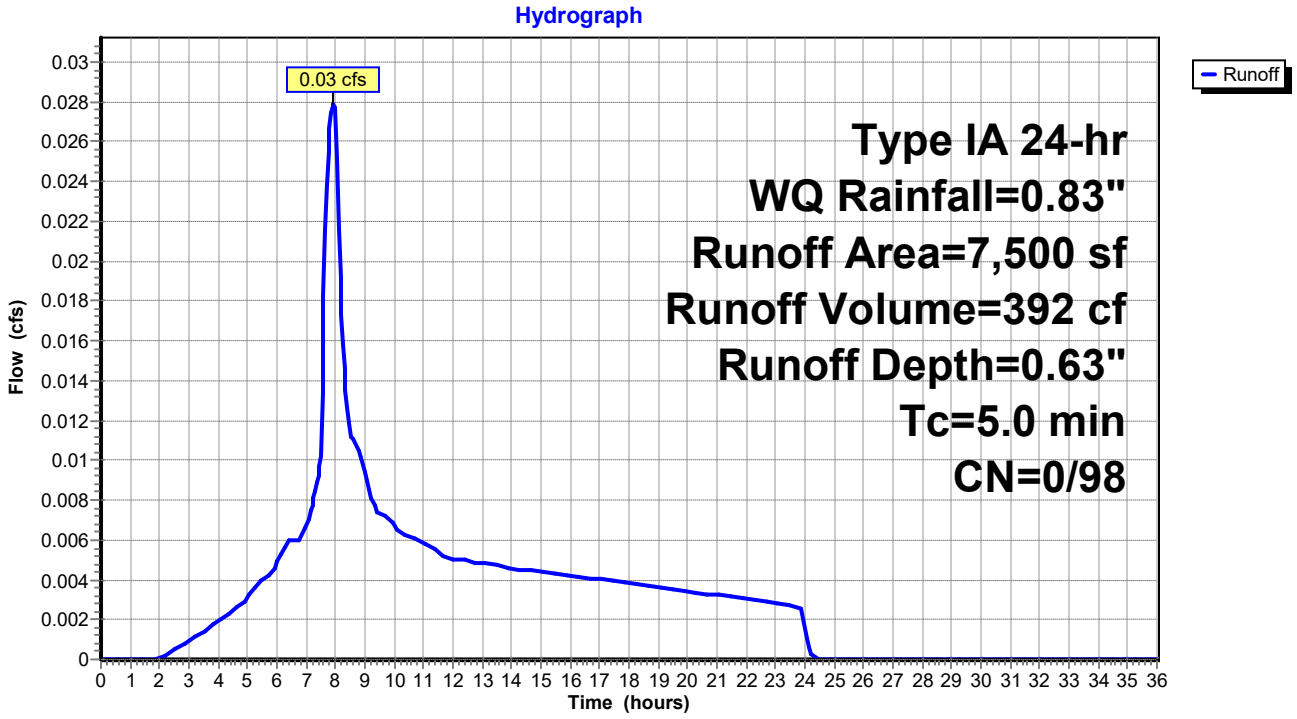
Runoff = 0.03 cfs @ 7.93 hrs, Volume= 392 cf, Depth= 0.63"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr WQ Rainfall=0.83"

	Area (sf)	CN	Description
*	7,500	98	3 lots
	7,500	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 12: Lots 10, 11, 12



Summary for Subcatchment 13: Lots 8 & 9, Street, & Pervious Areas

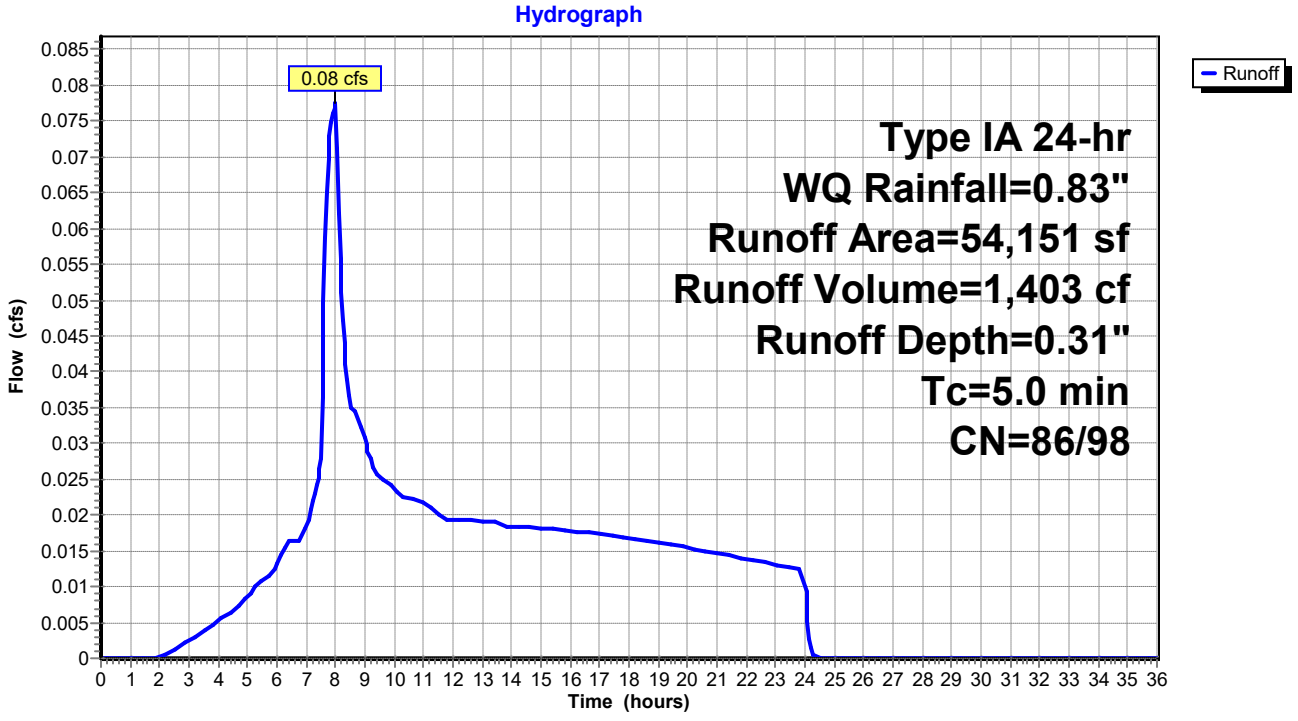
Runoff = 0.08 cfs @ 7.98 hrs, Volume= 1,403 cf, Depth= 0.31"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr WQ Rainfall=0.83"

	Area (sf)	CN	Description
*	15,444	98	streets & curb
*	5,000	98	Lots 8 & 9
	33,707	86	<50% Grass cover, Poor, HSG C
	54,151	91	Weighted Average
	33,707	86	62.25% Pervious Area
	20,444	98	37.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 13: Lots 8 & 9, Street, & Pervious Areas



Summary for Pond 2P: 6% Planters

Inflow Area = 7,500 sf,100.00% Impervious, Inflow Depth = 0.63" for WQ event
Inflow = 0.03 cfs @ 7.93 hrs, Volume= 392 cf
Outflow = 0.02 cfs @ 7.75 hrs, Volume= 392 cf, Atten= 25%, Lag= 0.0 min
Primary = 0.02 cfs @ 7.75 hrs, Volume= 392 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 603.03' @ 8.12 hrs Surf.Area= 450 sf Storage= 13 cf

Plug-Flow detention time= 4.5 min calculated for 391 cf (100% of inflow)
Center-of-Mass det. time= 4.5 min (729.4 - 724.9)

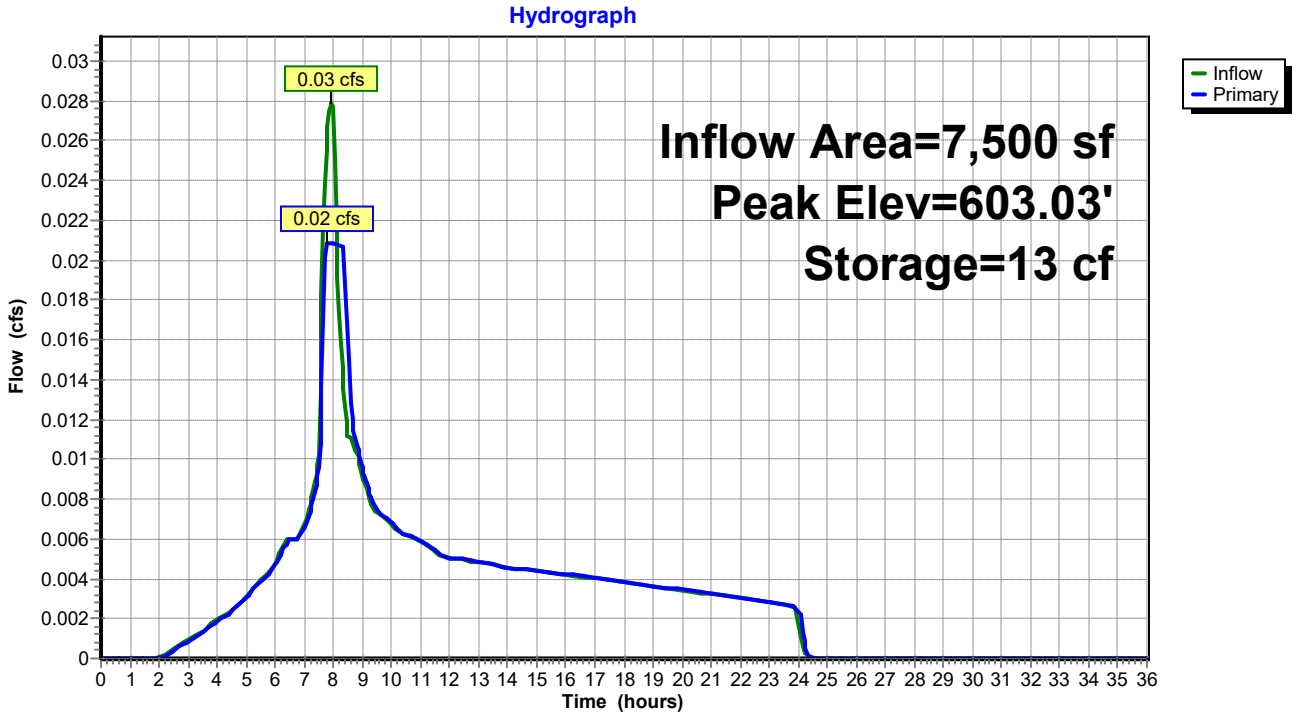
Volume	Invert	Avail.Storage	Storage Description
#1	603.00'	495 cf	**planters (Prismatic)** Listed below (Recalc) x 3

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
603.00	150	0	0
604.10	150	165	165

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	**6.0" Round Culvert X 3.00** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.45' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	603.00'	**2.000 in/hr Exfiltration over Surface area**
#3	Device 1	604.00'	**6.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 7.75 hrs HW=603.01' (Free Discharge)
└**1=Culvert** (Passes 0.02 cfs of 4.27 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.02 cfs)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: 6% Planters



Summary for Pond 24P: Pond

Inflow Area = 71,651 sf, 52.96% Impervious, Inflow Depth = 0.39" for WQ event
Inflow = 0.14 cfs @ 7.95 hrs, Volume= 2,318 cf
Outflow = 0.09 cfs @ 8.20 hrs, Volume= 2,318 cf, Atten= 35%, Lag= 14.9 min
Primary = 0.09 cfs @ 8.20 hrs, Volume= 2,318 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 595.06' @ 8.20 hrs Surf.Area= 1,984 sf Storage= 117 cf

Plug-Flow detention time= 11.7 min calculated for 2,315 cf (100% of inflow)
Center-of-Mass det. time= 11.7 min (772.3 - 760.5)

Volume	Invert	Avail.Storage	Storage Description
#1	595.00'	6,881 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
595.00	1,968	0	0
596.00	2,230	2,099	2,099
597.00	2,410	2,320	4,419
598.00	2,513	2,462	6,881

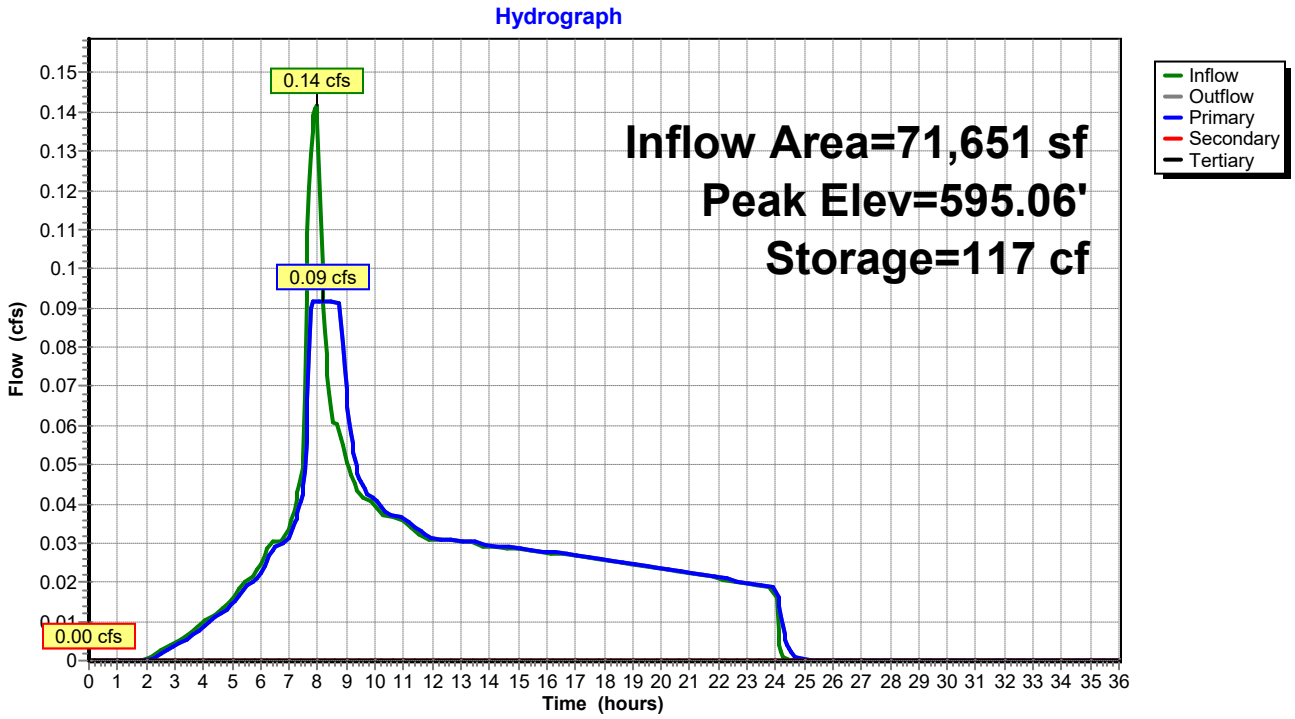
Device	Routing	Invert	Outlet Devices
#1	Primary	592.50'	**15.0" Round Culvert** L= 20.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 592.50' / 592.40' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	590.32'	**1.6" Vert. Low Orifice** C= 0.600
#3	Device 2	595.00'	**2.000 in/hr Exfiltration over Surface area**
#4	Device 2	595.79'	**24.0" x 24.0" Horiz. Ditch Inlet #1** C= 0.600 Limited to weir flow at low heads
#5	Device 1	596.30'	**4.0" Vert. High Orifice** C= 0.600
#6	Secondary	596.95'	**24.0" x 24.0" Horiz. Ditch Inlet #2** C= 0.600 Limited to weir flow at low heads
#7	Tertiary	596.95'	**48.0" Horiz. Overflow Manhole** C= 0.600 Limited to weir flow at low heads

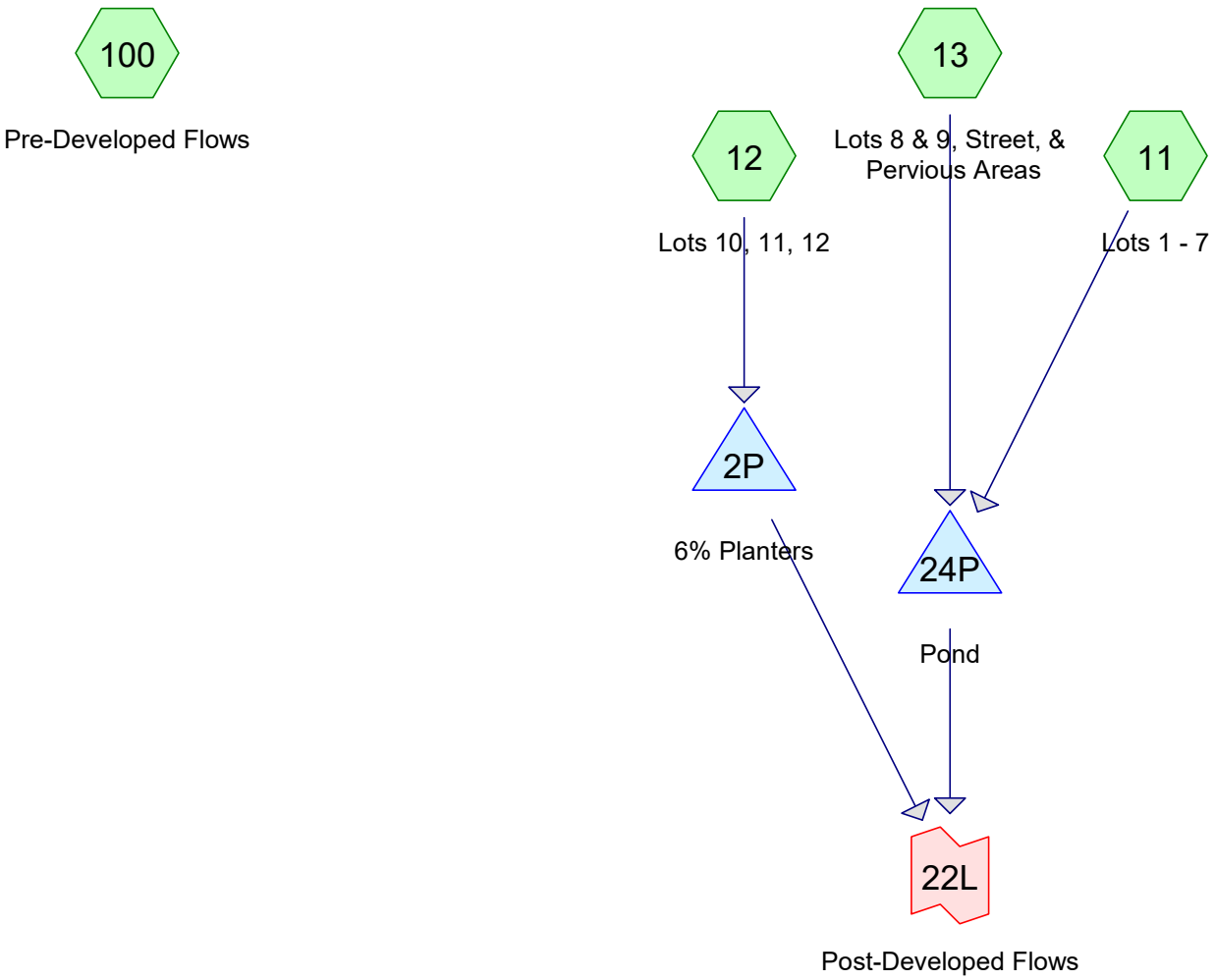
Primary OutFlow Max=0.09 cfs @ 8.20 hrs HW=595.06' (Free Discharge)
└─**1=Culvert** (Passes 0.09 cfs of 8.22 cfs potential flow)
  └─**2=Low Orifice** (Passes 0.09 cfs of 0.11 cfs potential flow)
    └─**3=Exfiltration** (Exfiltration Controls 0.09 cfs)
    └─**4=Ditch Inlet #1** (Controls 0.00 cfs)
  └─**5=High Orifice** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.00' (Free Discharge)
└─**6=Ditch Inlet #2** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.00' (Free Discharge)
└─**7=Overflow Manhole** (Controls 0.00 cfs)

Pond 24P: Pond





Subcat Reach Pond Link

Routing Diagram for 463-003 HydroCAD 2019-05-07
Prepared by Emerio Design LLC, Printed 5/15/2019

Summary for Subcatchment 11: Lots 1 - 7

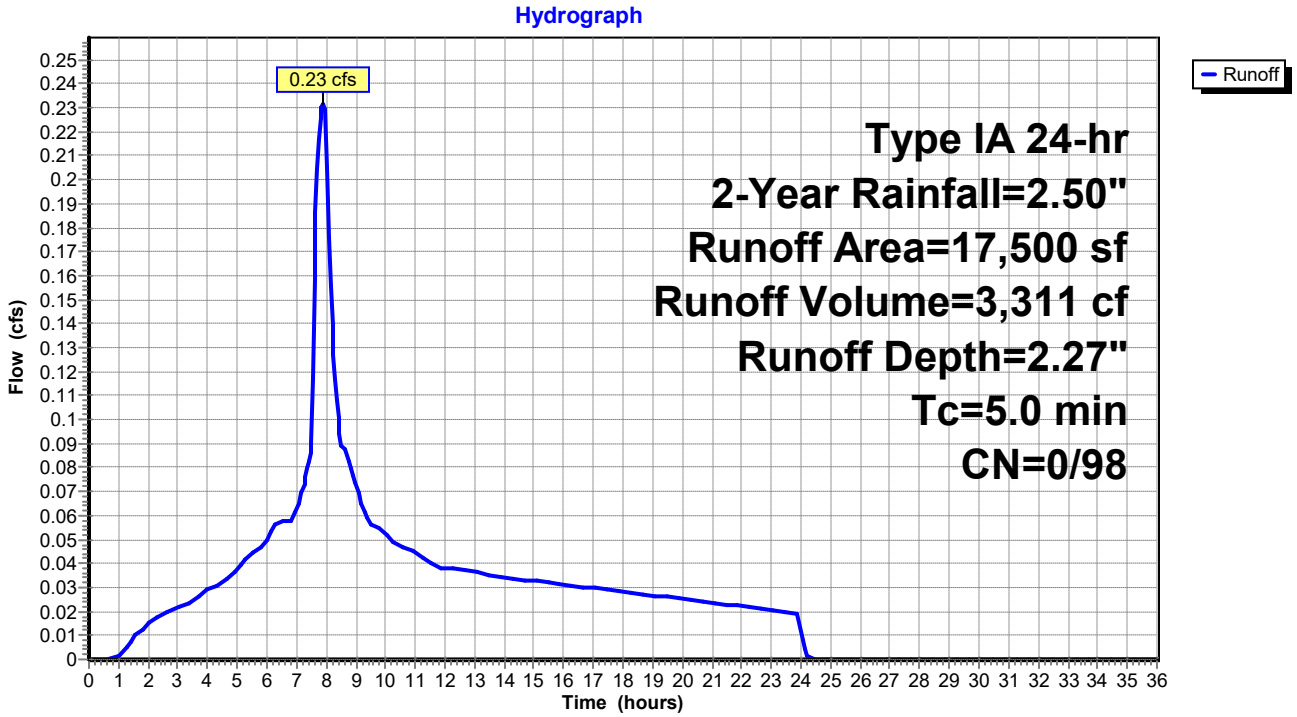
Runoff = 0.23 cfs @ 7.90 hrs, Volume= 3,311 cf, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-Year Rainfall=2.50"

	Area (sf)	CN	Description
*	17,500	98	Lots 1 - 7
	17,500	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 11: Lots 1 - 7



Summary for Subcatchment 12: Lots 10, 11, 12

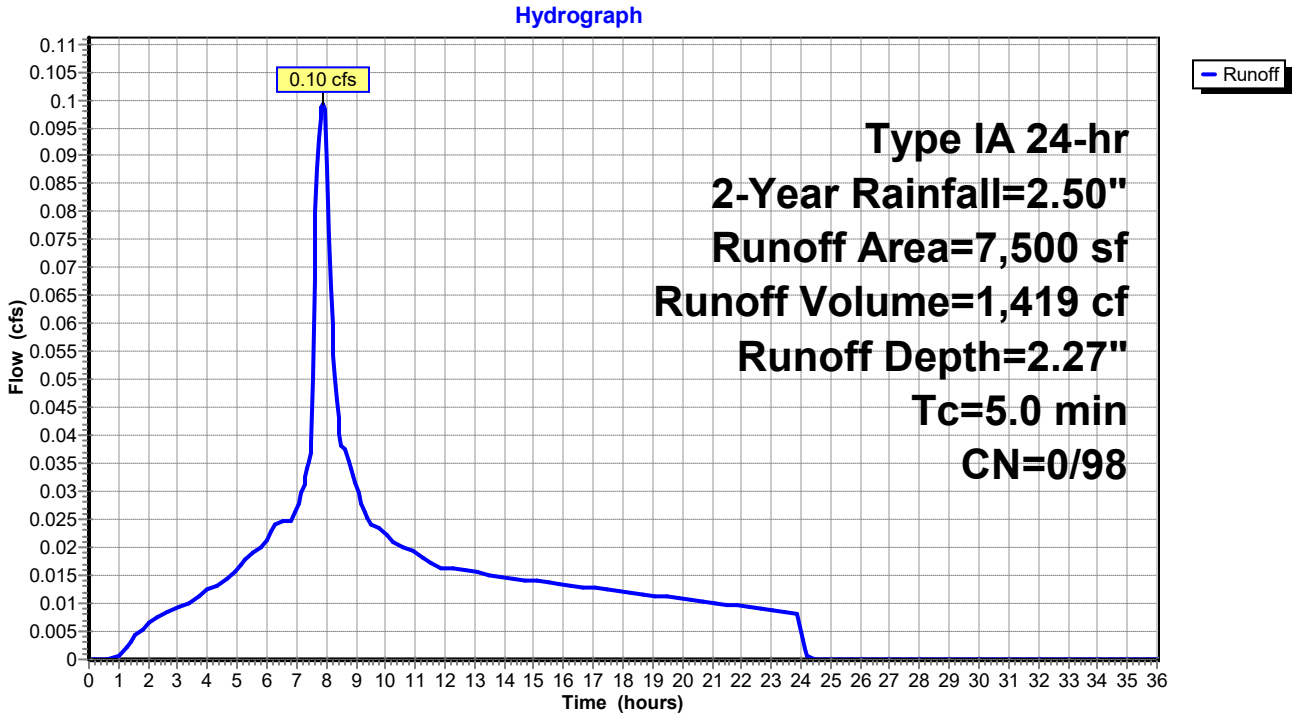
Runoff = 0.10 cfs @ 7.90 hrs, Volume= 1,419 cf, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-Year Rainfall=2.50"

	Area (sf)	CN	Description
*	7,500	98	3 lots
	7,500	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 12: Lots 10, 11, 12



Summary for Subcatchment 13: Lots 8 & 9, Street, & Pervious Areas

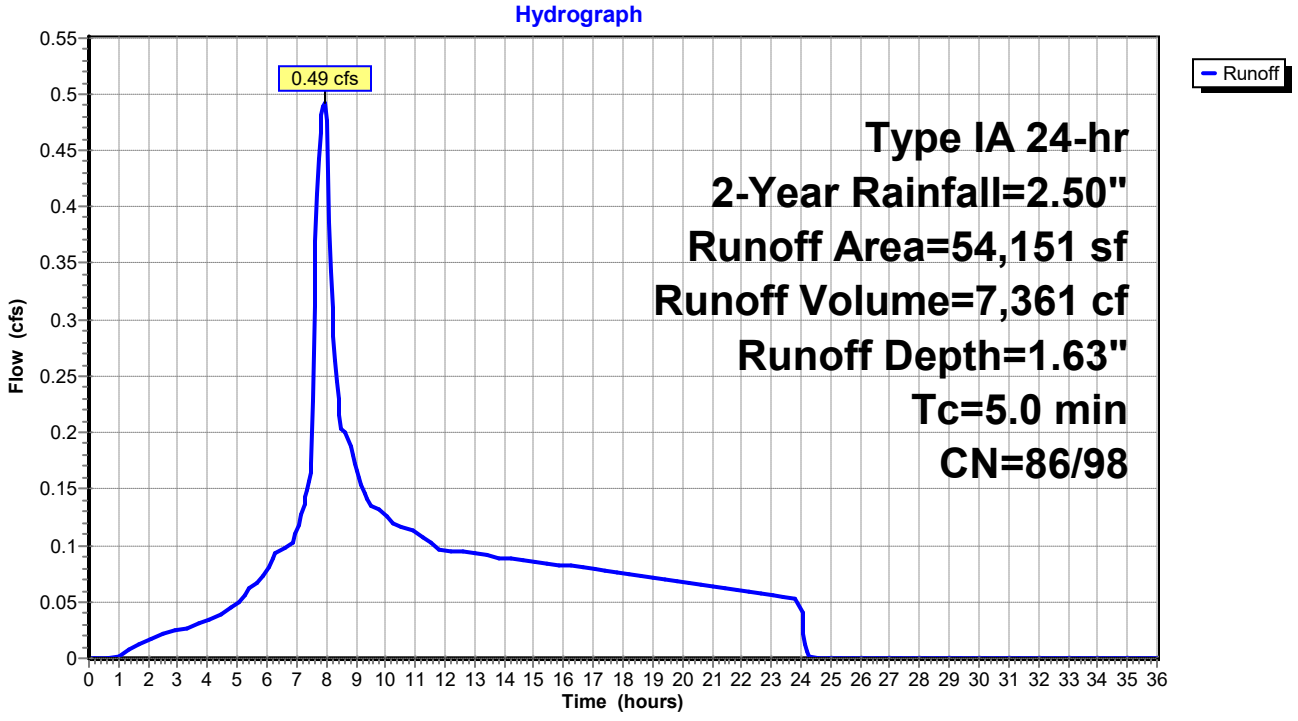
Runoff = 0.49 cfs @ 7.94 hrs, Volume= 7,361 cf, Depth= 1.63"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-Year Rainfall=2.50"

	Area (sf)	CN	Description
*	15,444	98	streets & curb
*	5,000	98	Lots 8 & 9
	33,707	86	<50% Grass cover, Poor, HSG C
	54,151	91	Weighted Average
	33,707	86	62.25% Pervious Area
	20,444	98	37.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 13: Lots 8 & 9, Street, & Pervious Areas



Summary for Subcatchment 100: Pre-Developed Flows

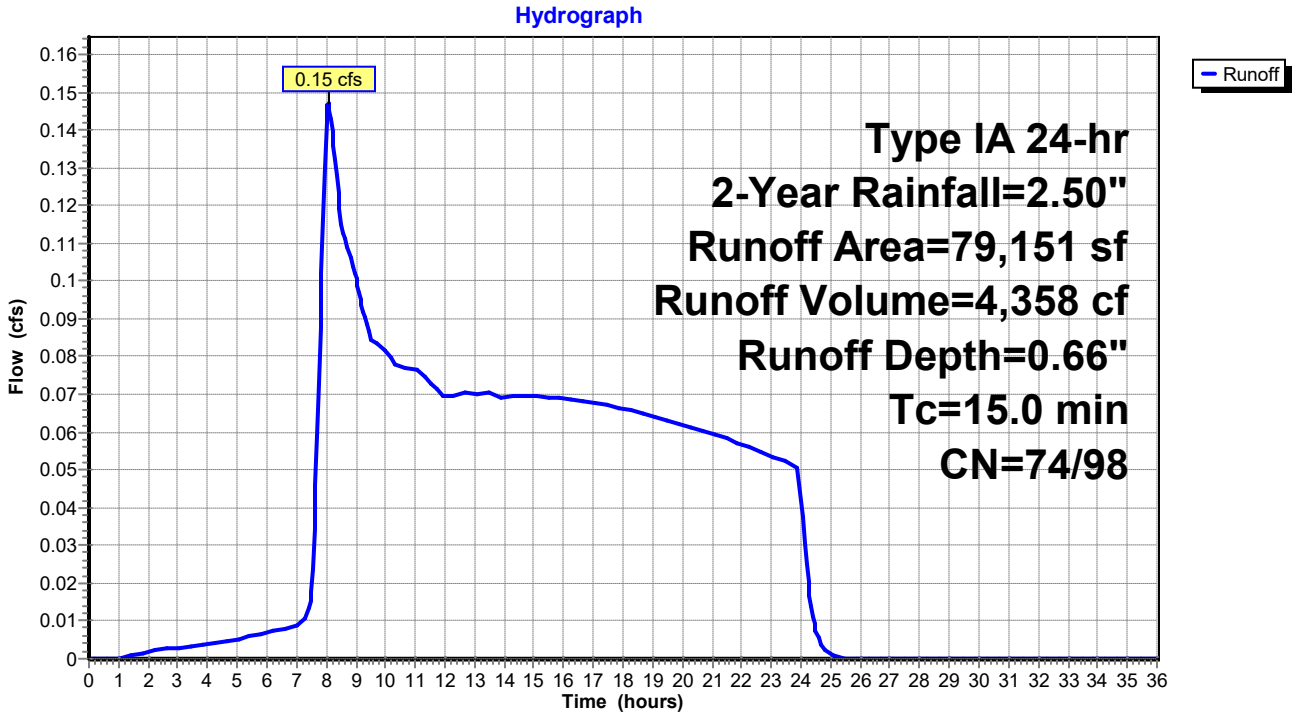
Runoff = 0.15 cfs @ 8.06 hrs, Volume= 4,358 cf, Depth= 0.66"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-Year Rainfall=2.50"

	Area (sf)	CN	Description
*	2,500	98	roofs
	76,651	74	>75% Grass cover, Good, HSG C
	79,151	75	Weighted Average
	76,651	74	96.84% Pervious Area
	2,500	98	3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 100: Pre-Developed Flows



Summary for Pond 2P: 6% Planters

Inflow Area = 7,500 sf,100.00% Impervious, Inflow Depth = 2.27" for 2-Year event
Inflow = 0.10 cfs @ 7.90 hrs, Volume= 1,419 cf
Outflow = 0.02 cfs @ 6.05 hrs, Volume= 1,419 cf, Atten= 79%, Lag= 0.0 min
Primary = 0.02 cfs @ 6.05 hrs, Volume= 1,419 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 603.58' @ 10.26 hrs Surf.Area= 450 sf Storage= 263 cf

Plug-Flow detention time= 98.6 min calculated for 1,419 cf (100% of inflow)
Center-of-Mass det. time= 98.6 min (772.4 - 673.8)

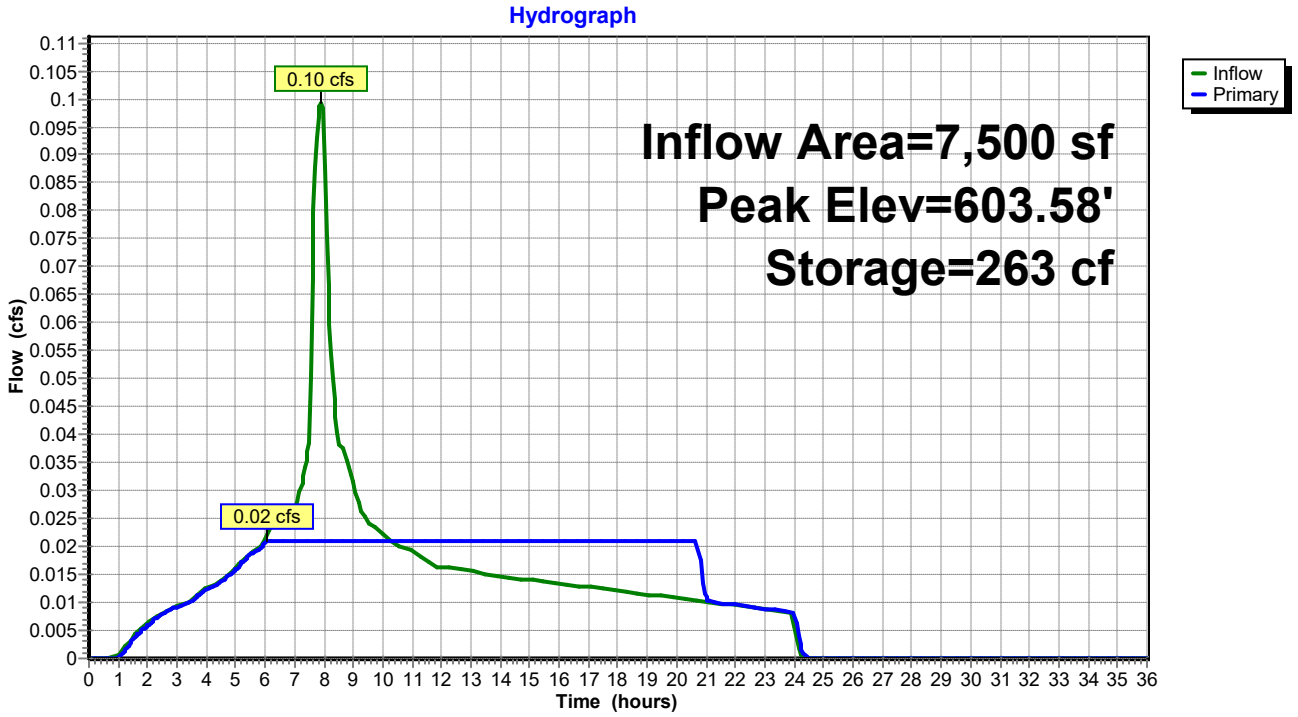
Volume	Invert	Avail.Storage	Storage Description
#1	603.00'	495 cf	**planters (Prismatic)** Listed below (Recalc) x 3

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
603.00	150	0	0
604.10	150	165	165

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	**6.0" Round Culvert X 3.00** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.45' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	603.00'	**2.000 in/hr Exfiltration over Surface area**
#3	Device 1	604.00'	**6.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 6.05 hrs HW=603.01' (Free Discharge)
↑**1=Culvert** (Passes 0.02 cfs of 4.27 cfs potential flow)
↑**2=Exfiltration** (Exfiltration Controls 0.02 cfs)
3=Orifice/Grate (Controls 0.00 cfs)

Pond 2P: 6% Planters



Summary for Pond 24P: Pond

Inflow Area = 71,651 sf, 52.96% Impervious, Inflow Depth = 1.79" for 2-Year event
Inflow = 0.72 cfs @ 7.93 hrs, Volume= 10,673 cf
Outflow = 0.13 cfs @ 12.67 hrs, Volume= 10,673 cf, Atten= 82%, Lag= 284.4 min
Primary = 0.13 cfs @ 12.67 hrs, Volume= 10,673 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 596.28' @ 12.67 hrs Surf.Area= 2,281 sf Storage= 2,733 cf

Plug-Flow detention time= 244.6 min calculated for 10,673 cf (100% of inflow)
Center-of-Mass det. time= 244.5 min (960.5 - 716.0)

Volume	Invert	Avail.Storage	Storage Description
#1	595.00'	6,881 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
595.00	1,968	0	0
596.00	2,230	2,099	2,099
597.00	2,410	2,320	4,419
598.00	2,513	2,462	6,881

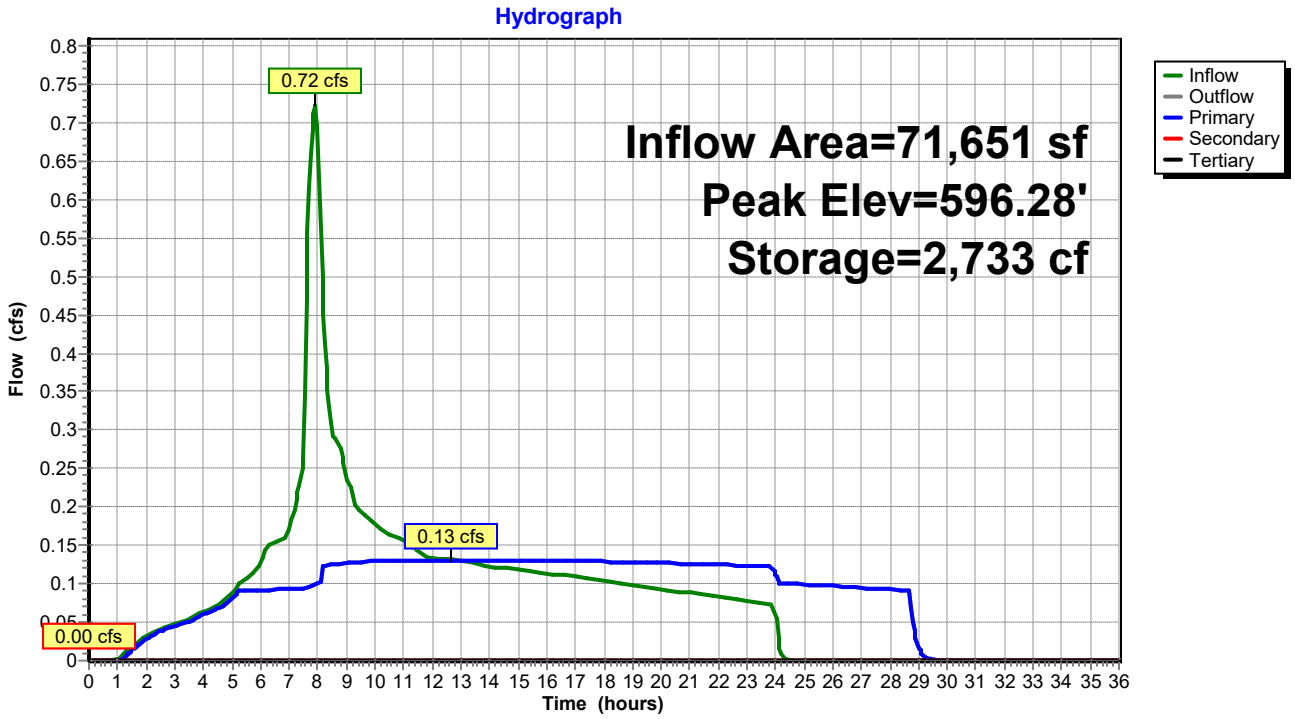
Device	Routing	Invert	Outlet Devices
#1	Primary	592.50'	**15.0" Round Culvert** L= 20.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 592.50' / 592.40' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	590.32'	**1.6" Vert. Low Orifice** C= 0.600
#3	Device 2	595.00'	**2.000 in/hr Exfiltration over Surface area**
#4	Device 2	595.79'	**24.0" x 24.0" Horiz. Ditch Inlet #1** C= 0.600 Limited to weir flow at low heads
#5	Device 1	596.30'	**4.0" Vert. High Orifice** C= 0.600
#6	Secondary	596.95'	**24.0" x 24.0" Horiz. Ditch Inlet #2** C= 0.600 Limited to weir flow at low heads
#7	Tertiary	596.95'	**48.0" Horiz. Overflow Manhole** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.13 cfs @ 12.67 hrs HW=596.28' (Free Discharge)
└─**1=Culvert** (Passes 0.13 cfs of 10.50 cfs potential flow)
  └─**2=Low Orifice** (Orifice Controls 0.13 cfs @ 9.36 fps)
    └─**3=Exfiltration** (Passes < 0.11 cfs potential flow)
    └─**4=Ditch Inlet #1** (Passes < 9.00 cfs potential flow)
  └─**5=High Orifice** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.00' (Free Discharge)
└─**6=Ditch Inlet #2** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.00' (Free Discharge)
└─**7=Overflow Manhole** (Controls 0.00 cfs)

Pond 24P: Pond

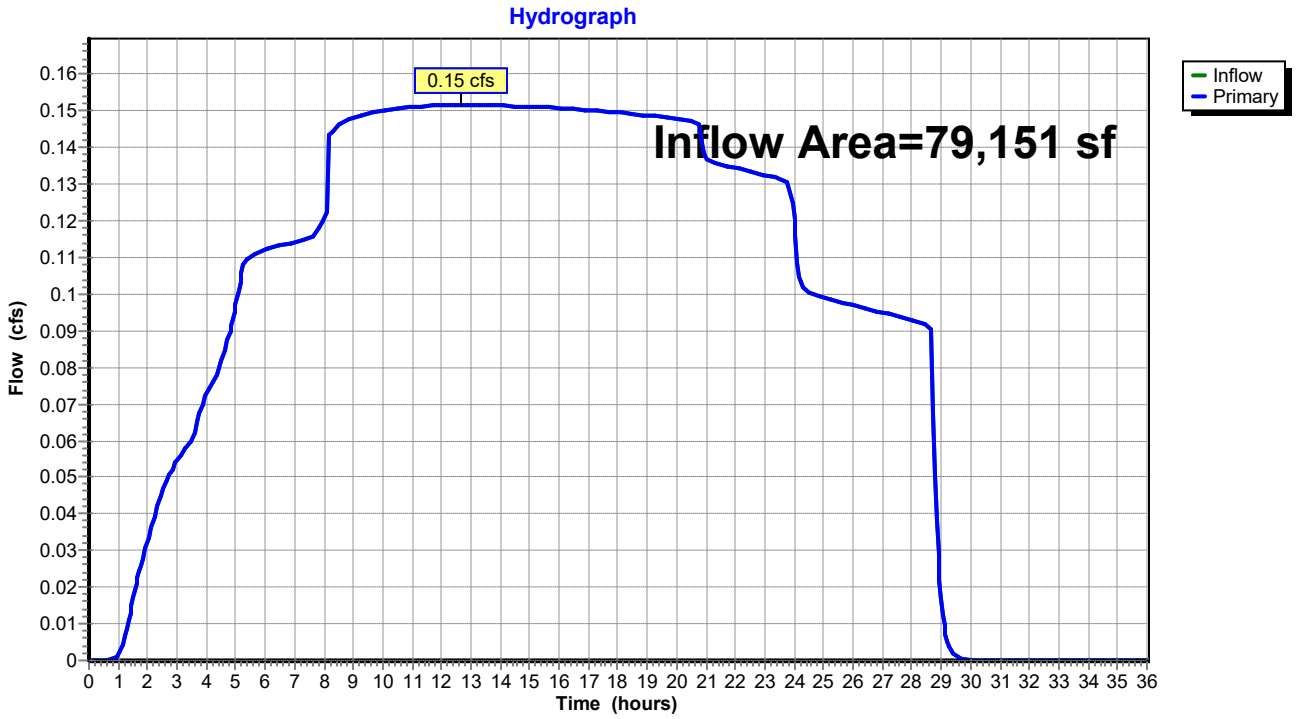


Summary for Link 22L: Post-Developed Flows

Inflow Area = 79,151 sf, 57.41% Impervious, Inflow Depth = 1.83" for 2-Year event
Inflow = 0.15 cfs @ 12.67 hrs, Volume= 12,092 cf
Primary = 0.15 cfs @ 12.67 hrs, Volume= 12,092 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link 22L: Post-Developed Flows



Summary for Subcatchment 11: Lots 1 - 7

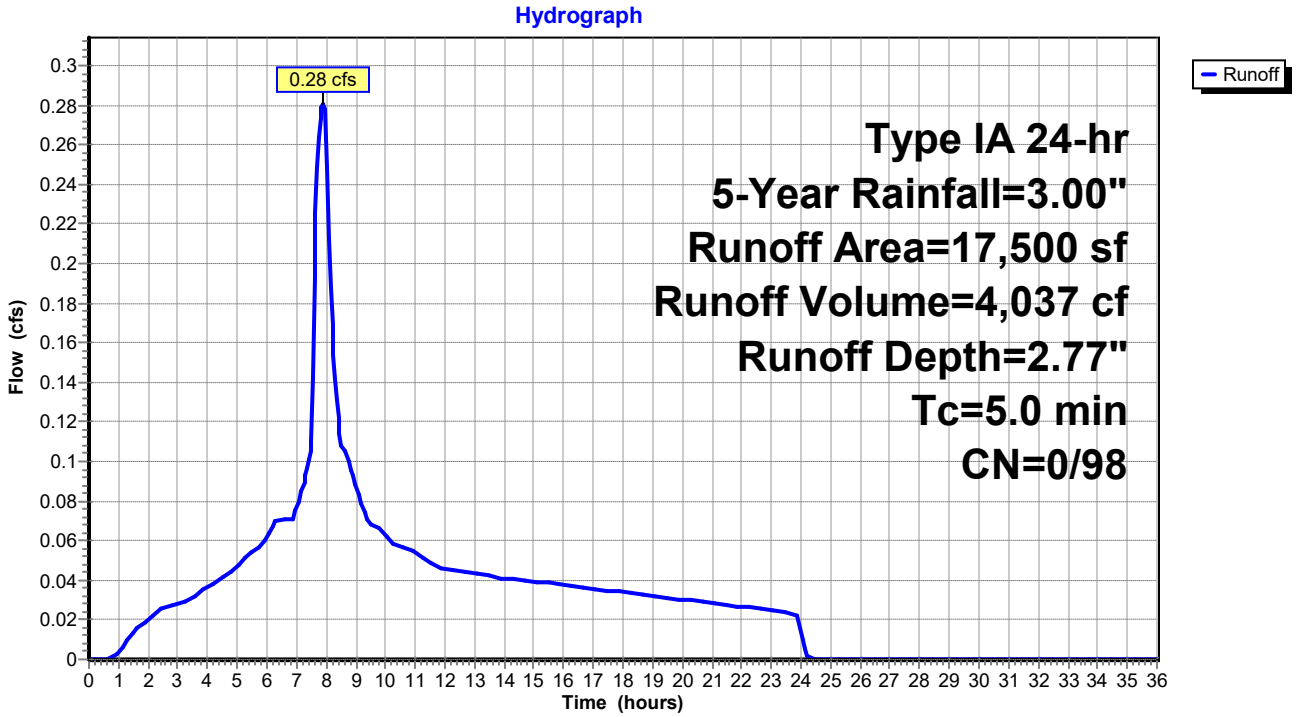
Runoff = 0.28 cfs @ 7.90 hrs, Volume= 4,037 cf, Depth= 2.77"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-Year Rainfall=3.00"

	Area (sf)	CN	Description
*	17,500	98	Lots 1 - 7
	17,500	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 11: Lots 1 - 7



Summary for Subcatchment 12: Lots 10, 11, 12

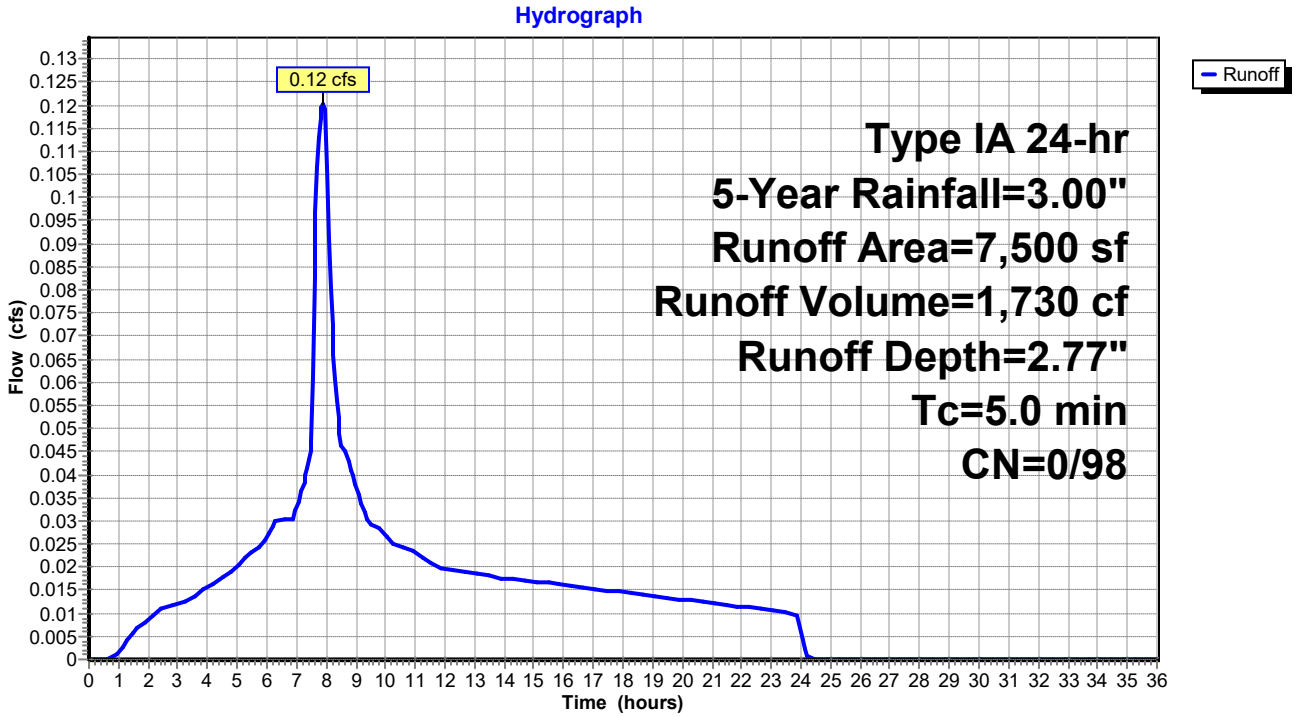
Runoff = 0.12 cfs @ 7.90 hrs, Volume= 1,730 cf, Depth= 2.77"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-Year Rainfall=3.00"

	Area (sf)	CN	Description
*	7,500	98	3 lots
	7,500	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 12: Lots 10, 11, 12



Summary for Subcatchment 13: Lots 8 & 9, Street, & Pervious Areas

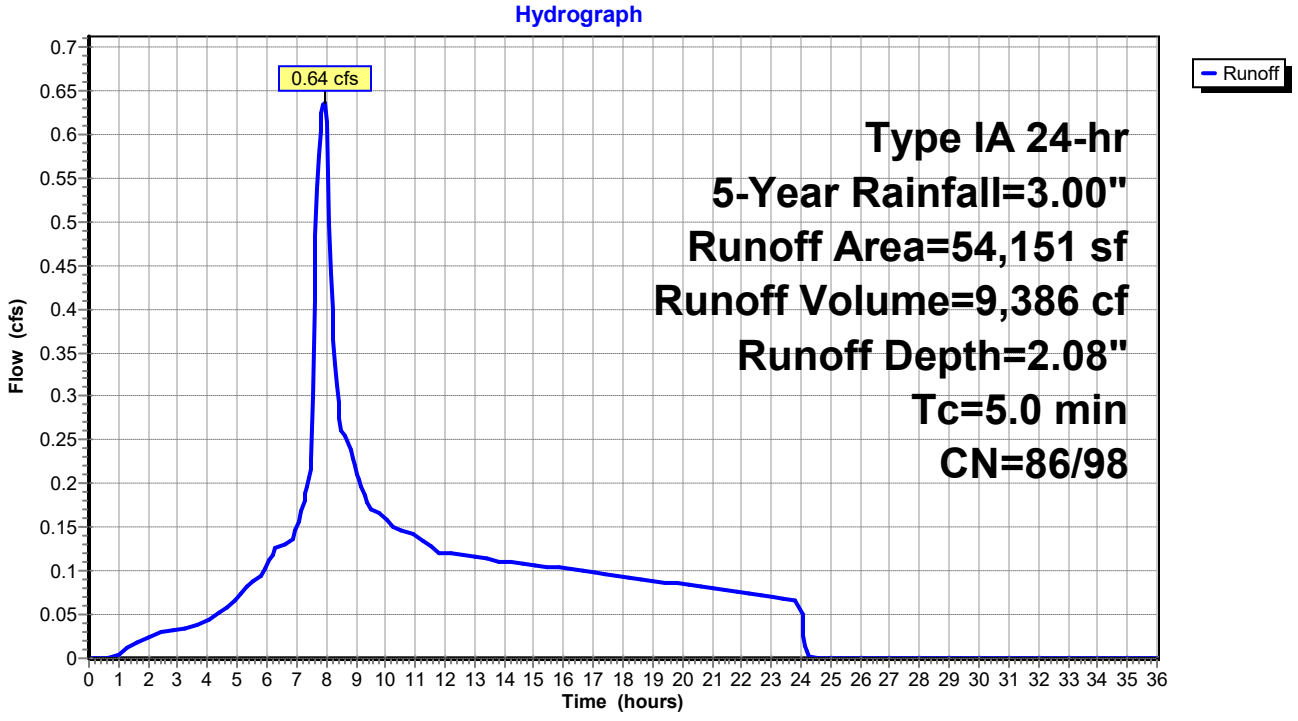
Runoff = 0.64 cfs @ 7.94 hrs, Volume= 9,386 cf, Depth= 2.08"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-Year Rainfall=3.00"

	Area (sf)	CN	Description
*	15,444	98	streets & curb
*	5,000	98	Lots 8 & 9
	33,707	86	<50% Grass cover, Poor, HSG C
	54,151	91	Weighted Average
	33,707	86	62.25% Pervious Area
	20,444	98	37.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 13: Lots 8 & 9, Street, & Pervious Areas



Summary for Subcatchment 100: Pre-Developed Flows

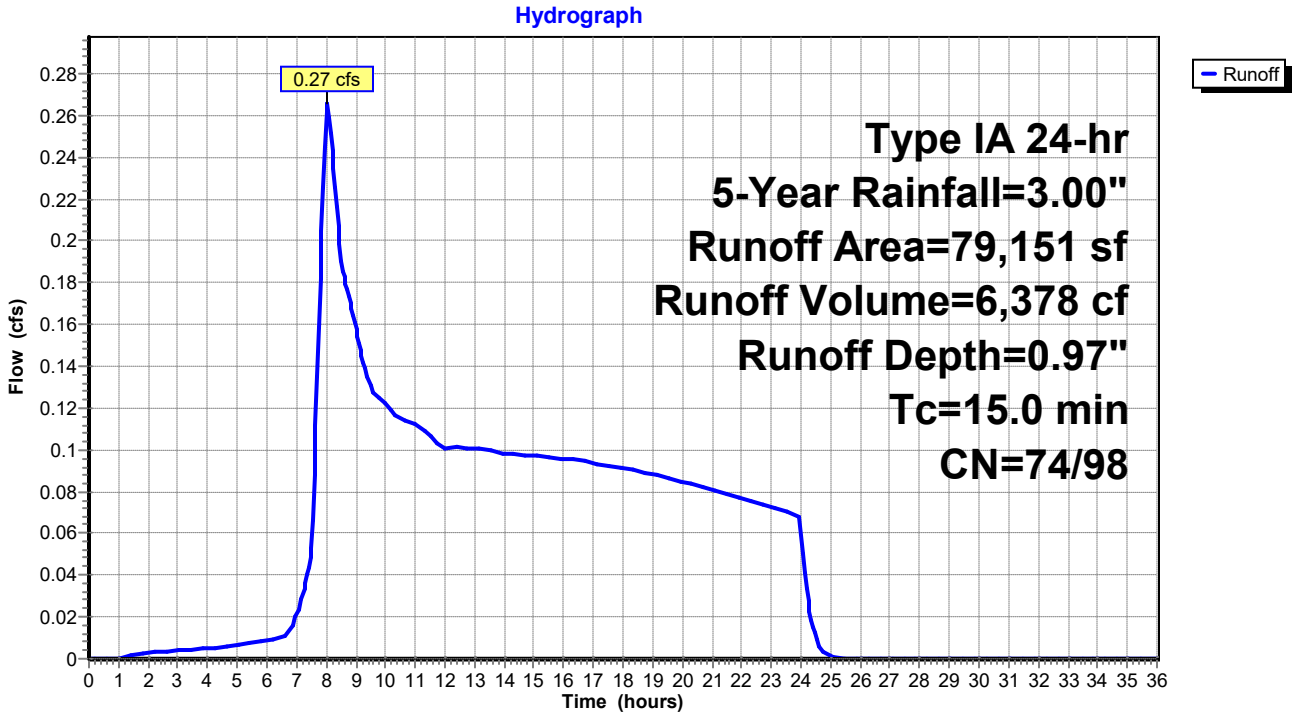
Runoff = 0.27 cfs @ 8.04 hrs, Volume= 6,378 cf, Depth= 0.97"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-Year Rainfall=3.00"

	Area (sf)	CN	Description
*	2,500	98	roofs
	76,651	74	>75% Grass cover, Good, HSG C
	79,151	75	Weighted Average
	76,651	74	96.84% Pervious Area
	2,500	98	3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 100: Pre-Developed Flows



Summary for Pond 2P: 6% Planters

Inflow Area = 7,500 sf,100.00% Impervious, Inflow Depth = 2.77" for 5-Year event
Inflow = 0.12 cfs @ 7.90 hrs, Volume= 1,730 cf
Outflow = 0.02 cfs @ 5.15 hrs, Volume= 1,730 cf, Atten= 83%, Lag= 0.0 min
Primary = 0.02 cfs @ 5.15 hrs, Volume= 1,730 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 603.90' @ 11.54 hrs Surf.Area= 450 sf Storage= 405 cf

Plug-Flow detention time= 187.3 min calculated for 1,728 cf (100% of inflow)
Center-of-Mass det. time= 187.2 min (855.4 - 668.2)

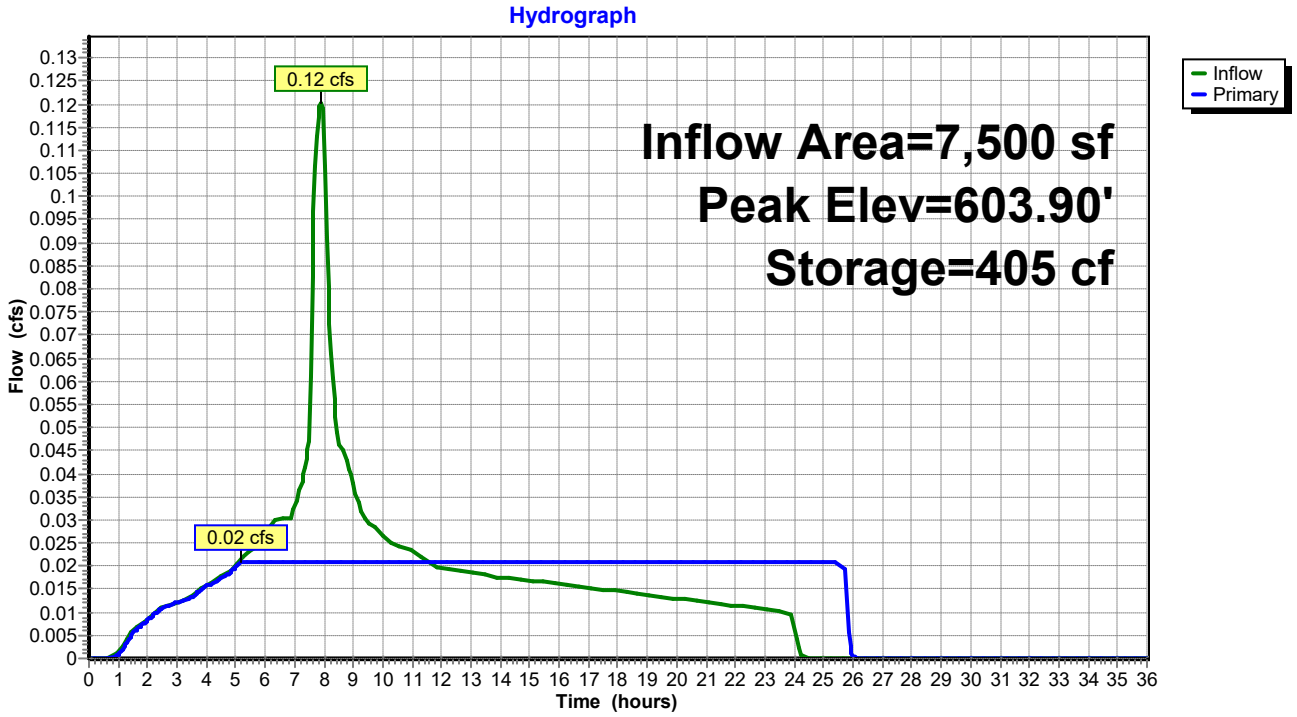
Volume	Invert	Avail.Storage	Storage Description
#1	603.00'	495 cf	**planters (Prismatic)** Listed below (Recalc) x 3

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
603.00	150	0	0
604.10	150	165	165

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	**6.0" Round Culvert X 3.00** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.45' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	603.00'	**2.000 in/hr Exfiltration over Surface area**
#3	Device 1	604.00'	**6.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 5.15 hrs HW=603.01' (Free Discharge)
└**1=Culvert** (Passes 0.02 cfs of 4.26 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.02 cfs)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: 6% Planters



Summary for Pond 24P: Pond

Inflow Area = 71,651 sf, 52.96% Impervious, Inflow Depth = 2.25" for 5-Year event
Inflow = 0.92 cfs @ 7.93 hrs, Volume= 13,423 cf
Outflow = 0.23 cfs @ 9.76 hrs, Volume= 13,423 cf, Atten= 74%, Lag= 109.9 min
Primary = 0.23 cfs @ 9.76 hrs, Volume= 13,423 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 596.52' @ 9.76 hrs Surf.Area= 2,324 sf Storage= 3,287 cf

Plug-Flow detention time= 249.9 min calculated for 13,404 cf (100% of inflow)
Center-of-Mass det. time= 250.1 min (959.0 - 708.9)

Volume	Invert	Avail.Storage	Storage Description
#1	595.00'	6,881 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
595.00	1,968	0	0
596.00	2,230	2,099	2,099
597.00	2,410	2,320	4,419
598.00	2,513	2,462	6,881

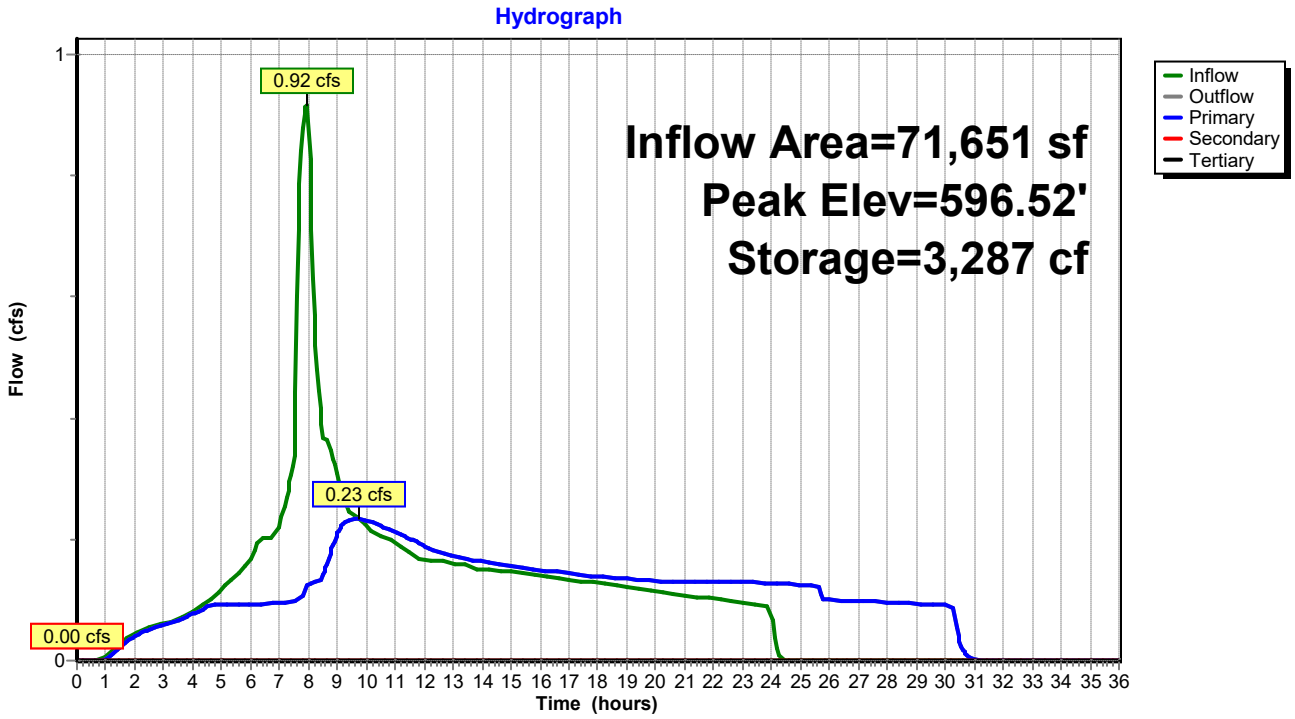
Device	Routing	Invert	Outlet Devices
#1	Primary	592.50'	**15.0" Round Culvert** L= 20.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 592.50' / 592.40' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	590.32'	**1.6" Vert. Low Orifice** C= 0.600
#3	Device 2	595.00'	**2.000 in/hr Exfiltration over Surface area**
#4	Device 2	595.79'	**24.0" x 24.0" Horiz. Ditch Inlet #1** C= 0.600 Limited to weir flow at low heads
#5	Device 1	596.30'	**4.0" Vert. High Orifice** C= 0.600
#6	Secondary	596.95'	**24.0" x 24.0" Horiz. Ditch Inlet #2** C= 0.600 Limited to weir flow at low heads
#7	Tertiary	596.95'	**48.0" Horiz. Overflow Manhole** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.23 cfs @ 9.76 hrs HW=596.52' (Free Discharge)
└─**1=Culvert** (Passes 0.23 cfs of 10.89 cfs potential flow)
  └─**2=Low Orifice** (Orifice Controls 0.13 cfs @ 9.66 fps)
    └─**3=Exfiltration** (Passes < 0.11 cfs potential flow)
    └─**4=Ditch Inlet #1** (Passes < 16.38 cfs potential flow)
  └─**5=High Orifice** (Orifice Controls 0.10 cfs @ 1.60 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.00' (Free Discharge)
└─**6=Ditch Inlet #2** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.00' (Free Discharge)
└─**7=Overflow Manhole** (Controls 0.00 cfs)

Pond 24P: Pond

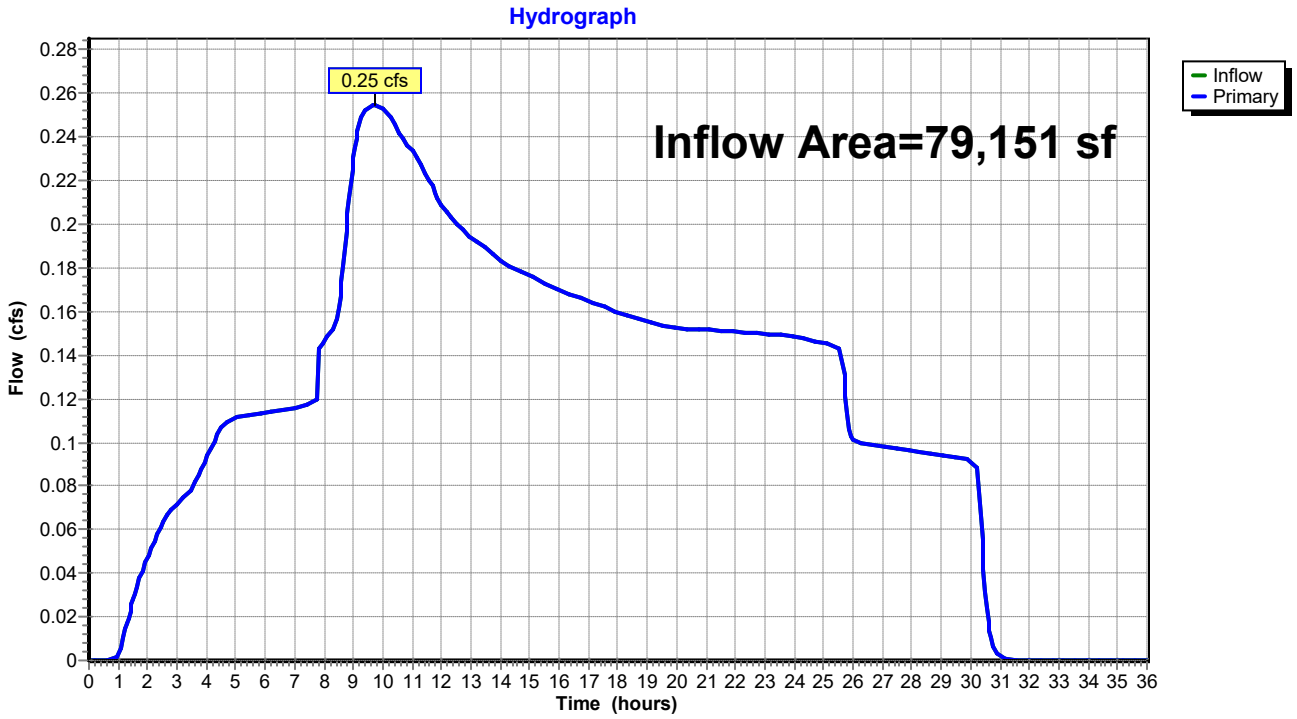


Summary for Link 22L: Post-Developed Flows

Inflow Area = 79,151 sf, 57.41% Impervious, Inflow Depth = 2.30" for 5-Year event
Inflow = 0.25 cfs @ 9.76 hrs, Volume= 15,153 cf
Primary = 0.25 cfs @ 9.76 hrs, Volume= 15,153 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link 22L: Post-Developed Flows



Summary for Subcatchment 11: Lots 1 - 7

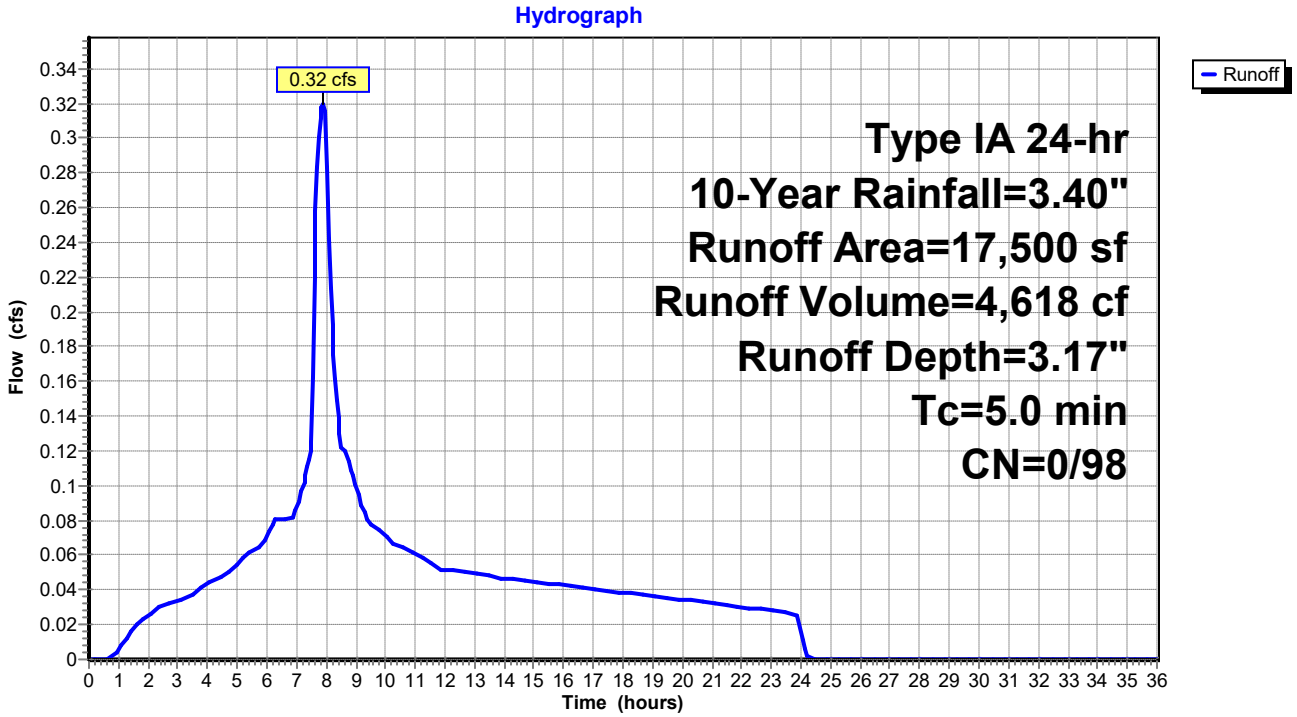
Runoff = 0.32 cfs @ 7.90 hrs, Volume= 4,618 cf, Depth= 3.17"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-Year Rainfall=3.40"

	Area (sf)	CN	Description
*	17,500	98	Lots 1 - 7
	17,500	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 11: Lots 1 - 7



Summary for Subcatchment 12: Lots 10, 11, 12

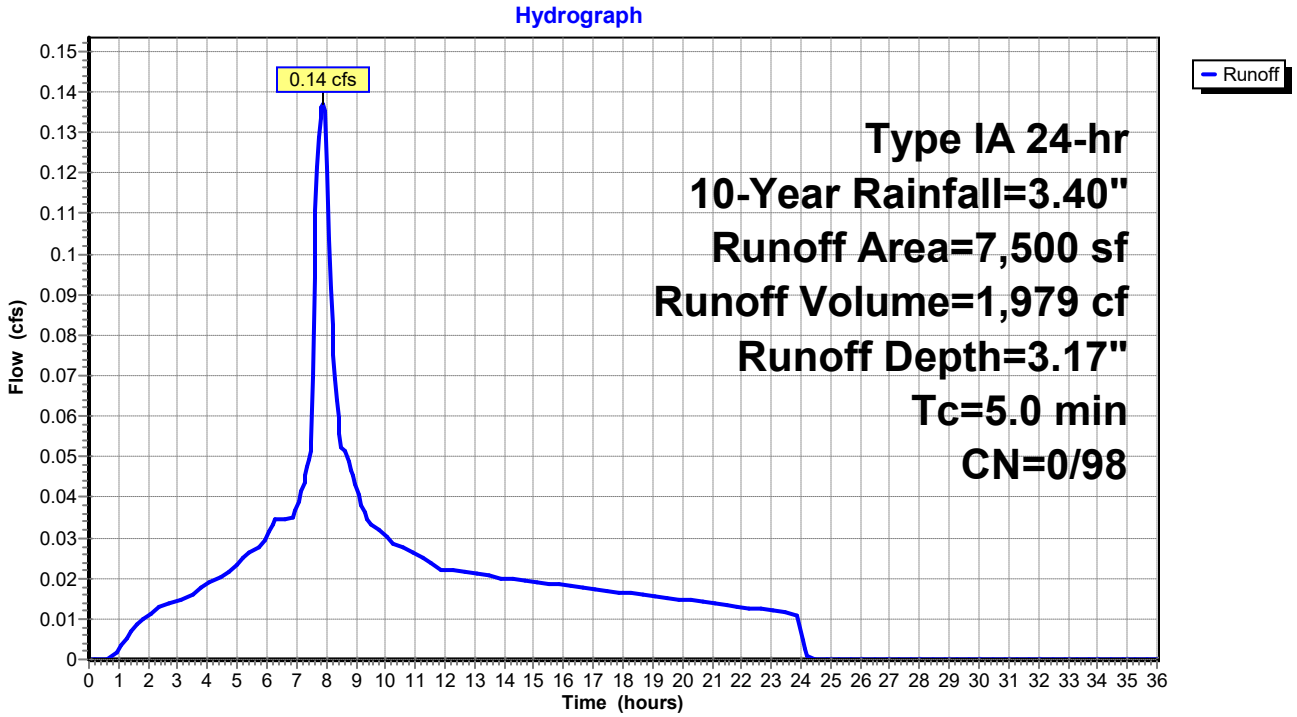
Runoff = 0.14 cfs @ 7.90 hrs, Volume= 1,979 cf, Depth= 3.17"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-Year Rainfall=3.40"

	Area (sf)	CN	Description
*	7,500	98	3 lots
	7,500	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 12: Lots 10, 11, 12



Summary for Subcatchment 13: Lots 8 & 9, Street, & Pervious Areas

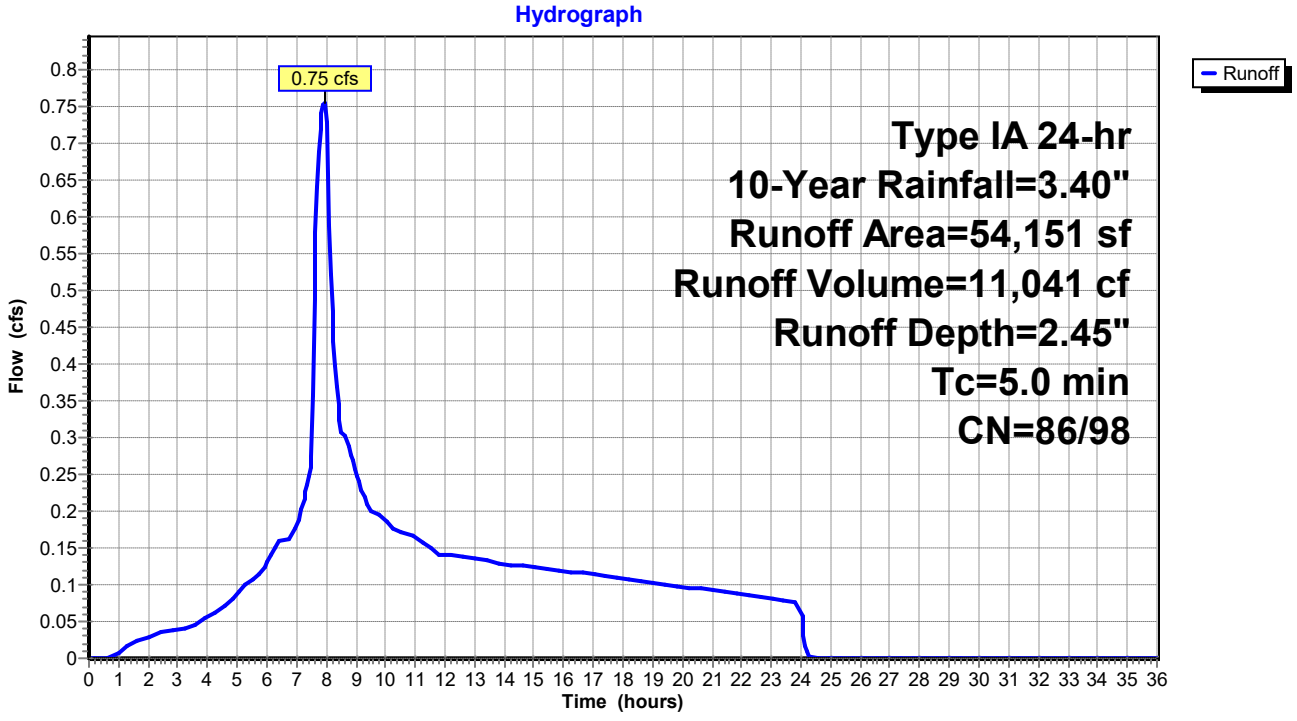
Runoff = 0.75 cfs @ 7.93 hrs, Volume= 11,041 cf, Depth= 2.45"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-Year Rainfall=3.40"

	Area (sf)	CN	Description
*	15,444	98	streets & curb
*	5,000	98	Lots 8 & 9
	33,707	86	<50% Grass cover, Poor, HSG C
	54,151	91	Weighted Average
	33,707	86	62.25% Pervious Area
	20,444	98	37.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 13: Lots 8 & 9, Street, & Pervious Areas



Summary for Subcatchment 100: Pre-Developed Flows

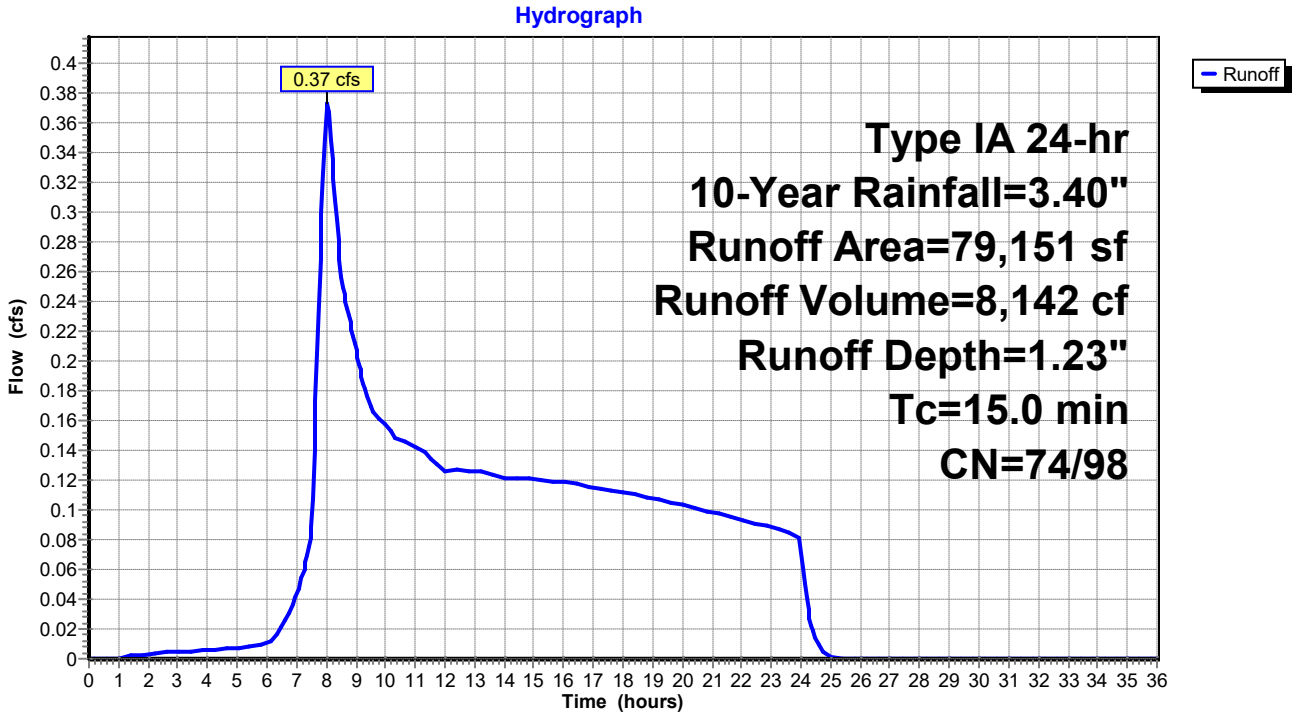
Runoff = 0.37 cfs @ 8.04 hrs, Volume= 8,142 cf, Depth= 1.23"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-Year Rainfall=3.40"

	Area (sf)	CN	Description
*	2,500	98	roofs
	76,651	74	>75% Grass cover, Good, HSG C
	79,151	75	Weighted Average
	76,651	74	96.84% Pervious Area
	2,500	98	3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 100: Pre-Developed Flows



Summary for Pond 2P: 6% Planters

Inflow Area = 7,500 sf,100.00% Impervious, Inflow Depth = 3.17" for 10-Year event
Inflow = 0.14 cfs @ 7.90 hrs, Volume= 1,979 cf
Outflow = 0.04 cfs @ 9.21 hrs, Volume= 1,979 cf, Atten= 72%, Lag= 78.8 min
Primary = 0.04 cfs @ 9.21 hrs, Volume= 1,979 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 604.01' @ 9.21 hrs Surf.Area= 450 sf Storage= 455 cf

Plug-Flow detention time= 216.9 min calculated for 1,976 cf (100% of inflow)
Center-of-Mass det. time= 216.9 min (881.7 - 664.8)

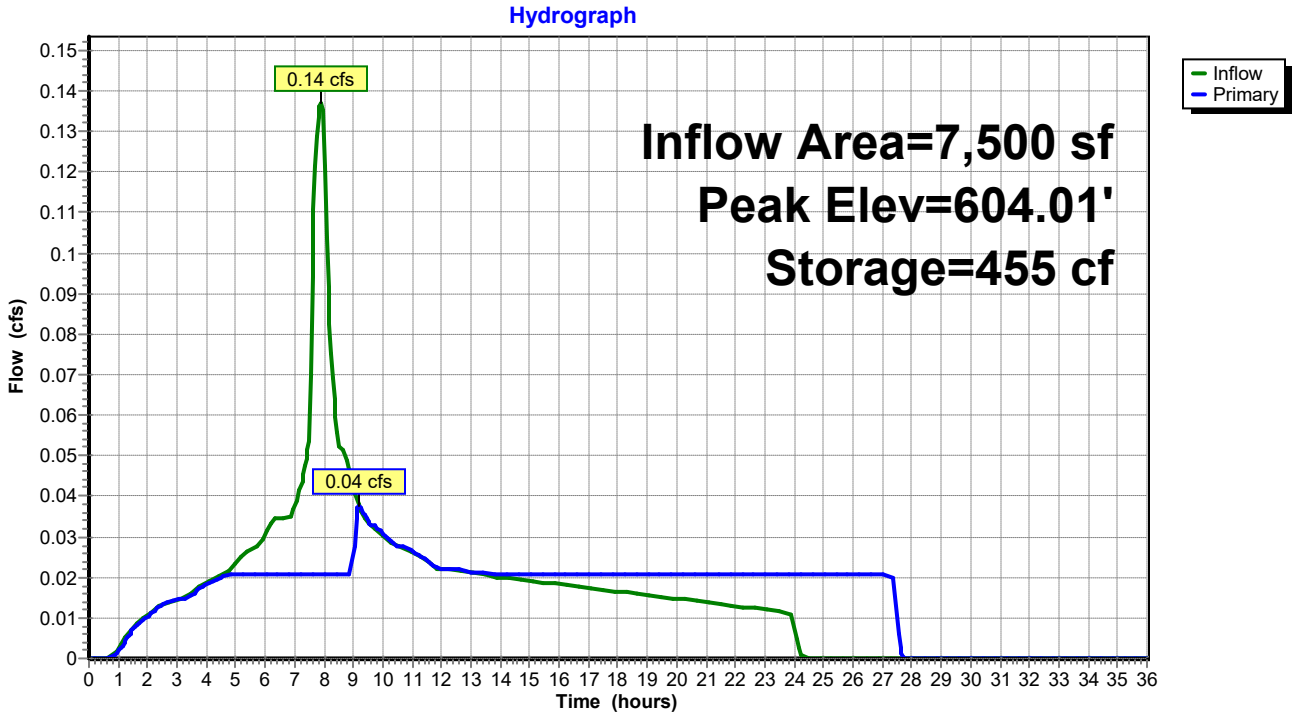
Volume	Invert	Avail.Storage	Storage Description
#1	603.00'	495 cf	**planters (Prismatic)** Listed below (Recalc) x 3

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
603.00	150	0	0
604.10	150	165	165

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	**6.0" Round Culvert X 3.00** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.45' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	603.00'	**2.000 in/hr Exfiltration over Surface area**
#3	Device 1	604.00'	**6.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.04 cfs @ 9.21 hrs HW=604.01' (Free Discharge)
└**1=Culvert** (Passes 0.04 cfs of 5.12 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.02 cfs)
  └**3=Orifice/Grate** (Weir Controls 0.02 cfs @ 0.33 fps)

Pond 2P: 6% Planters



Summary for Pond 24P: Pond

Inflow Area = 71,651 sf, 52.96% Impervious, Inflow Depth = 2.62" for 10-Year event
Inflow = 1.07 cfs @ 7.92 hrs, Volume= 15,660 cf
Outflow = 0.33 cfs @ 9.10 hrs, Volume= 15,660 cf, Atten= 69%, Lag= 70.8 min
Primary = 0.33 cfs @ 9.10 hrs, Volume= 15,660 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 596.68' @ 9.10 hrs Surf.Area= 2,353 sf Storage= 3,661 cf

Plug-Flow detention time= 234.7 min calculated for 15,660 cf (100% of inflow)
Center-of-Mass det. time= 234.6 min (938.8 - 704.2)

Volume	Invert	Avail.Storage	Storage Description
#1	595.00'	6,881 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
595.00	1,968	0	0
596.00	2,230	2,099	2,099
597.00	2,410	2,320	4,419
598.00	2,513	2,462	6,881

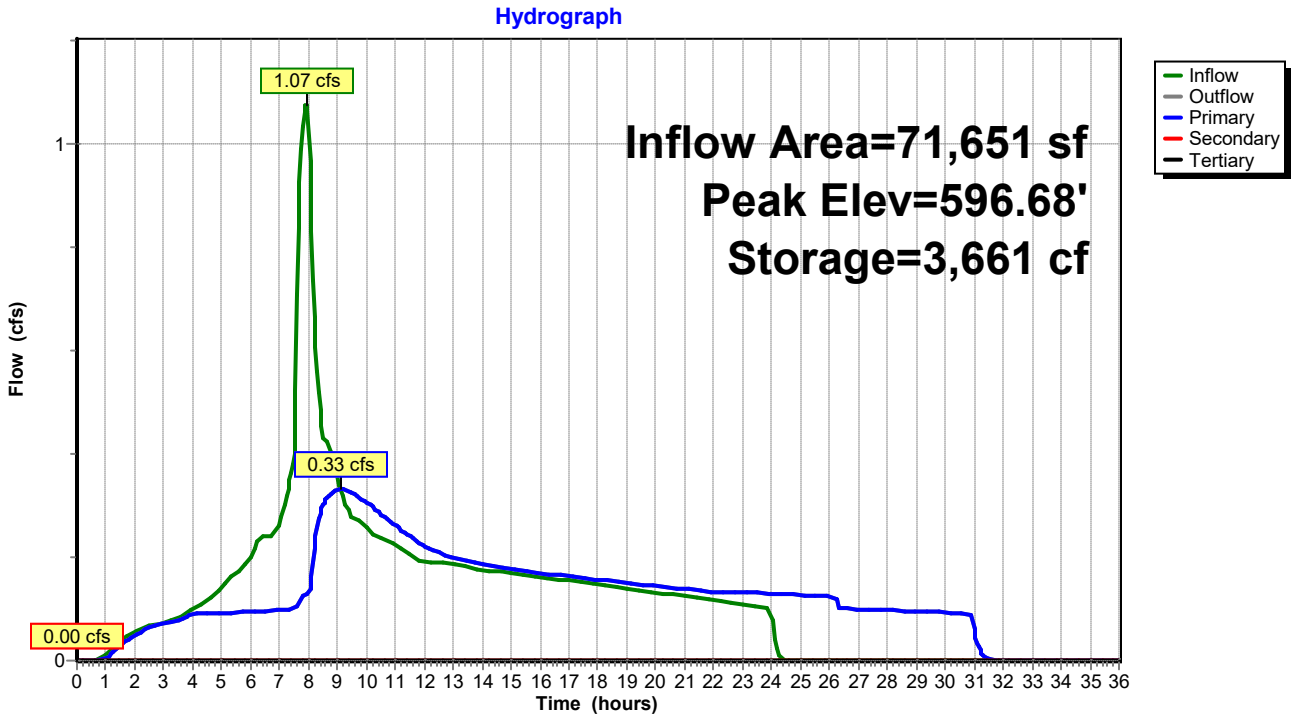
Device	Routing	Invert	Outlet Devices
#1	Primary	592.50'	**15.0" Round Culvert** L= 20.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 592.50' / 592.40' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	590.32'	**1.6" Vert. Low Orifice** C= 0.600
#3	Device 2	595.00'	**2.000 in/hr Exfiltration over Surface area**
#4	Device 2	595.79'	**24.0" x 24.0" Horiz. Ditch Inlet #1** C= 0.600 Limited to weir flow at low heads
#5	Device 1	596.30'	**4.0" Vert. High Orifice** C= 0.600
#6	Secondary	596.95'	**24.0" x 24.0" Horiz. Ditch Inlet #2** C= 0.600 Limited to weir flow at low heads
#7	Tertiary	596.95'	**48.0" Horiz. Overflow Manhole** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.33 cfs @ 9.10 hrs HW=596.68' (Free Discharge)
└─**1=Culvert** (Passes 0.33 cfs of 11.14 cfs potential flow)
  └─**2=Low Orifice** (Orifice Controls 0.14 cfs @ 9.85 fps)
    └─**3=Exfiltration** (Passes < 0.11 cfs potential flow)
    └─**4=Ditch Inlet #1** (Passes < 18.19 cfs potential flow)
  └─**5=High Orifice** (Orifice Controls 0.19 cfs @ 2.23 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.00' (Free Discharge)
└─**6=Ditch Inlet #2** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.00' (Free Discharge)
└─**7=Overflow Manhole** (Controls 0.00 cfs)

Pond 24P: Pond

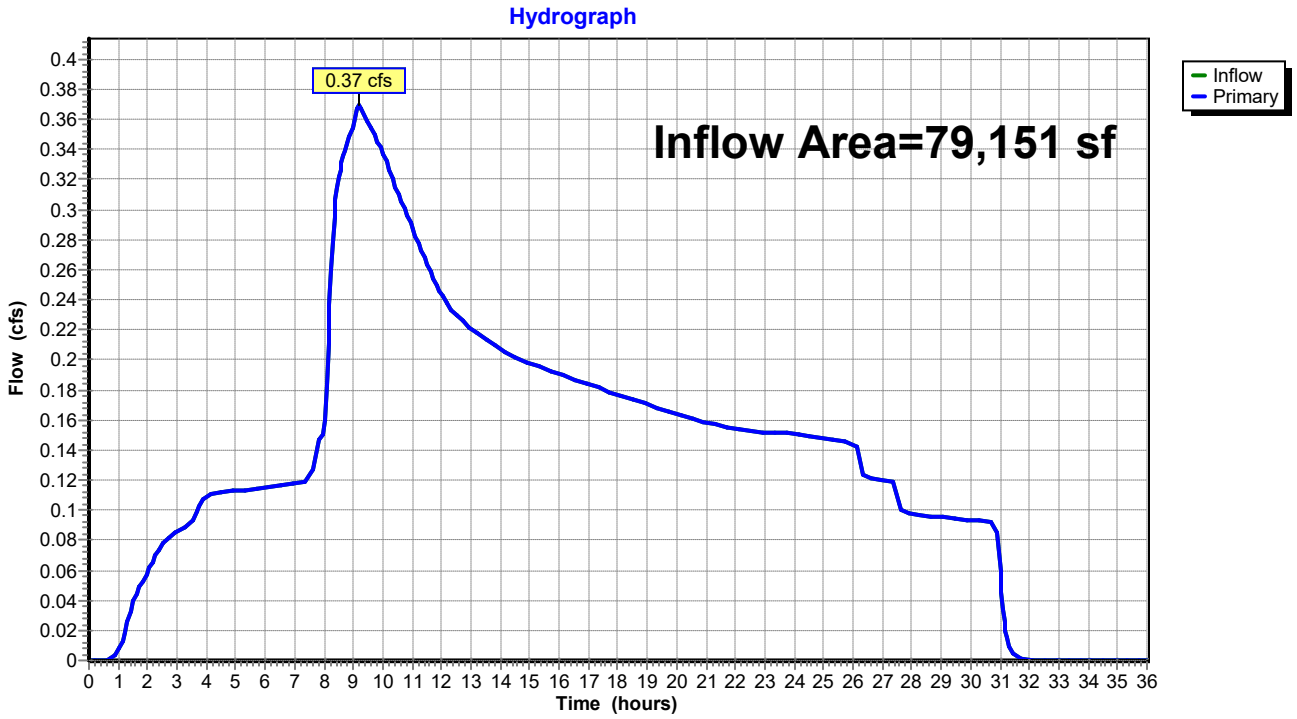


Summary for Link 22L: Post-Developed Flows

Inflow Area = 79,151 sf, 57.41% Impervious, Inflow Depth = 2.67" for 10-Year event
Inflow = 0.37 cfs @ 9.18 hrs, Volume= 17,639 cf
Primary = 0.37 cfs @ 9.18 hrs, Volume= 17,639 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link 22L: Post-Developed Flows



Summary for Subcatchment 11: Lots 1 - 7

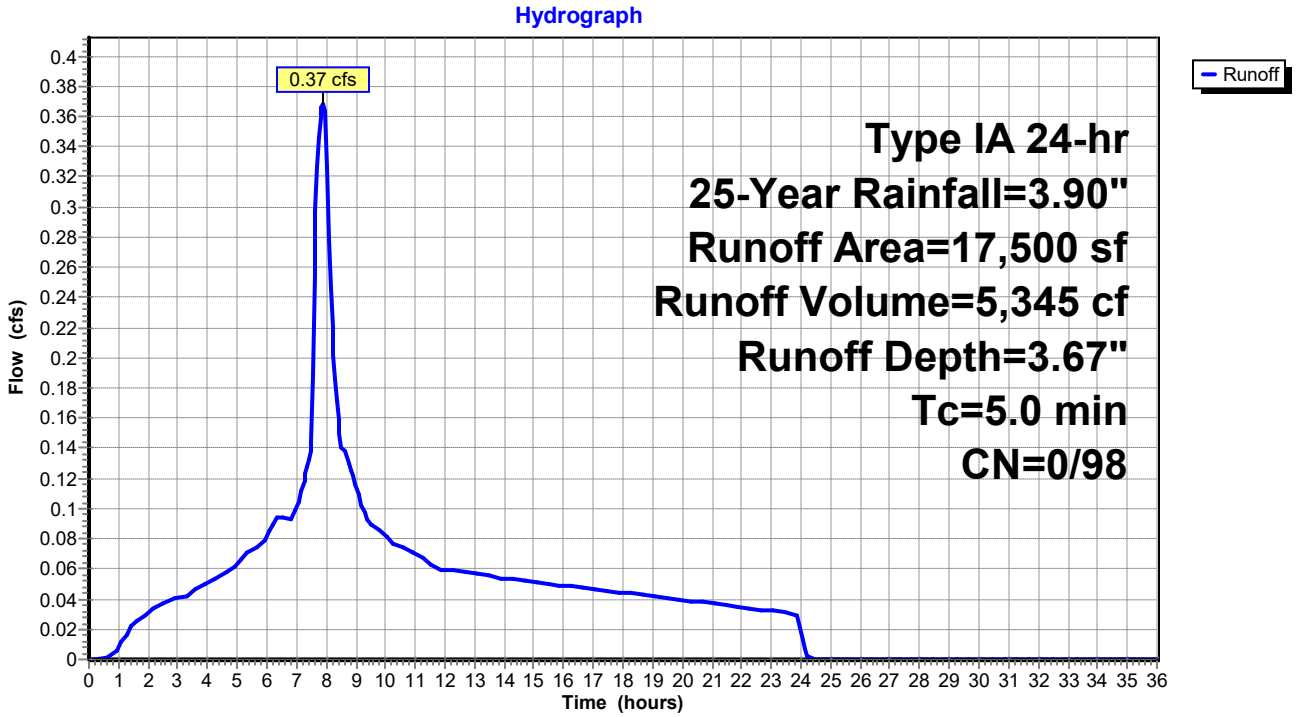
Runoff = 0.37 cfs @ 7.90 hrs, Volume= 5,345 cf, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-Year Rainfall=3.90"

	Area (sf)	CN	Description
*	17,500	98	Lots 1 - 7
	17,500	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 11: Lots 1 - 7



Summary for Subcatchment 12: Lots 10, 11, 12

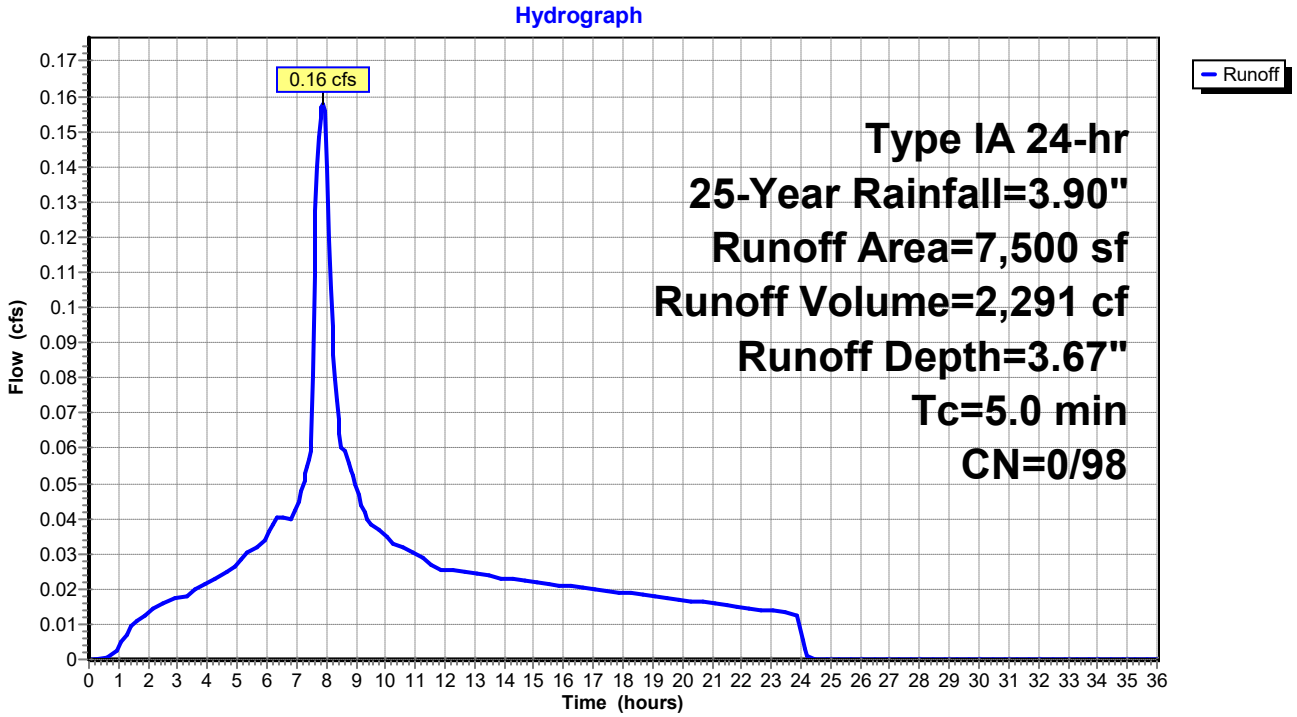
Runoff = 0.16 cfs @ 7.90 hrs, Volume= 2,291 cf, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-Year Rainfall=3.90"

	Area (sf)	CN	Description
*	7,500	98	3 lots
	7,500	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 12: Lots 10, 11, 12



Summary for Subcatchment 13: Lots 8 & 9, Street, & Pervious Areas

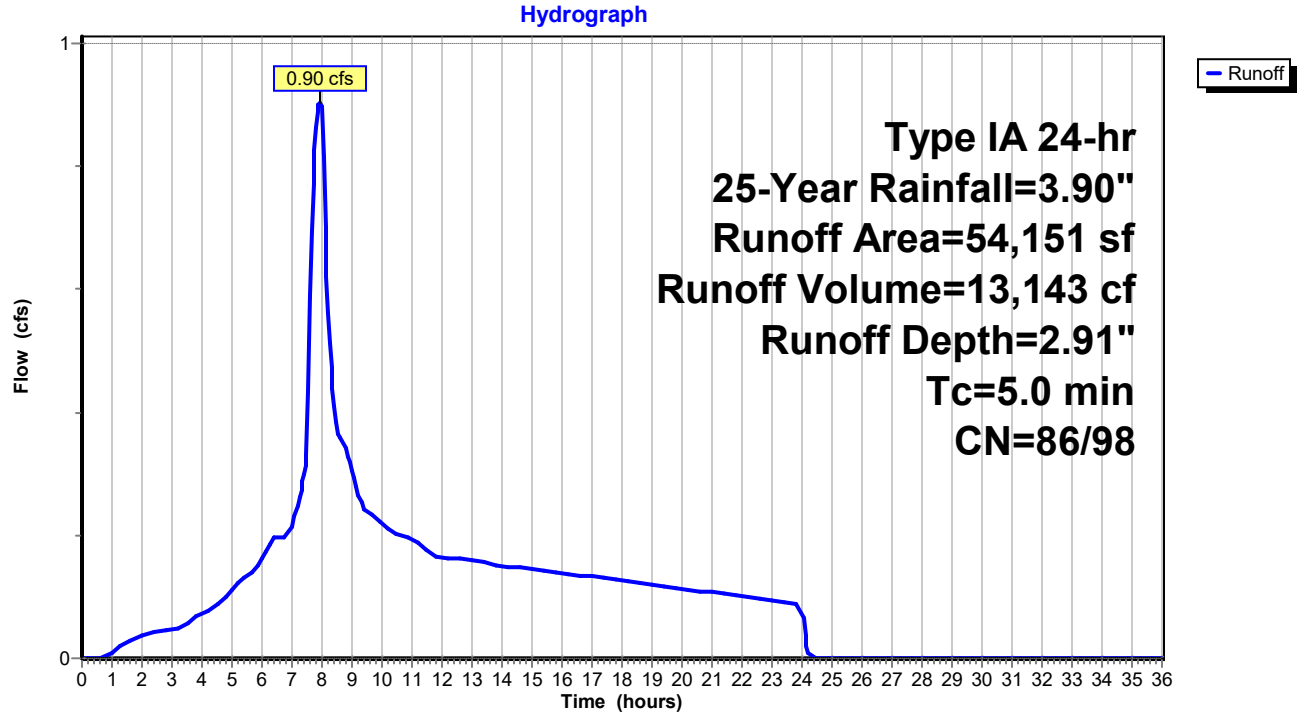
Runoff = 0.90 cfs @ 7.93 hrs, Volume= 13,143 cf, Depth= 2.91"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-Year Rainfall=3.90"

	Area (sf)	CN	Description
*	15,444	98	streets & curb
*	5,000	98	Lots 8 & 9
	33,707	86	<50% Grass cover, Poor, HSG C
	54,151	91	Weighted Average
	33,707	86	62.25% Pervious Area
	20,444	98	37.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 13: Lots 8 & 9, Street, & Pervious Areas



Summary for Subcatchment 100: Pre-Developed Flows

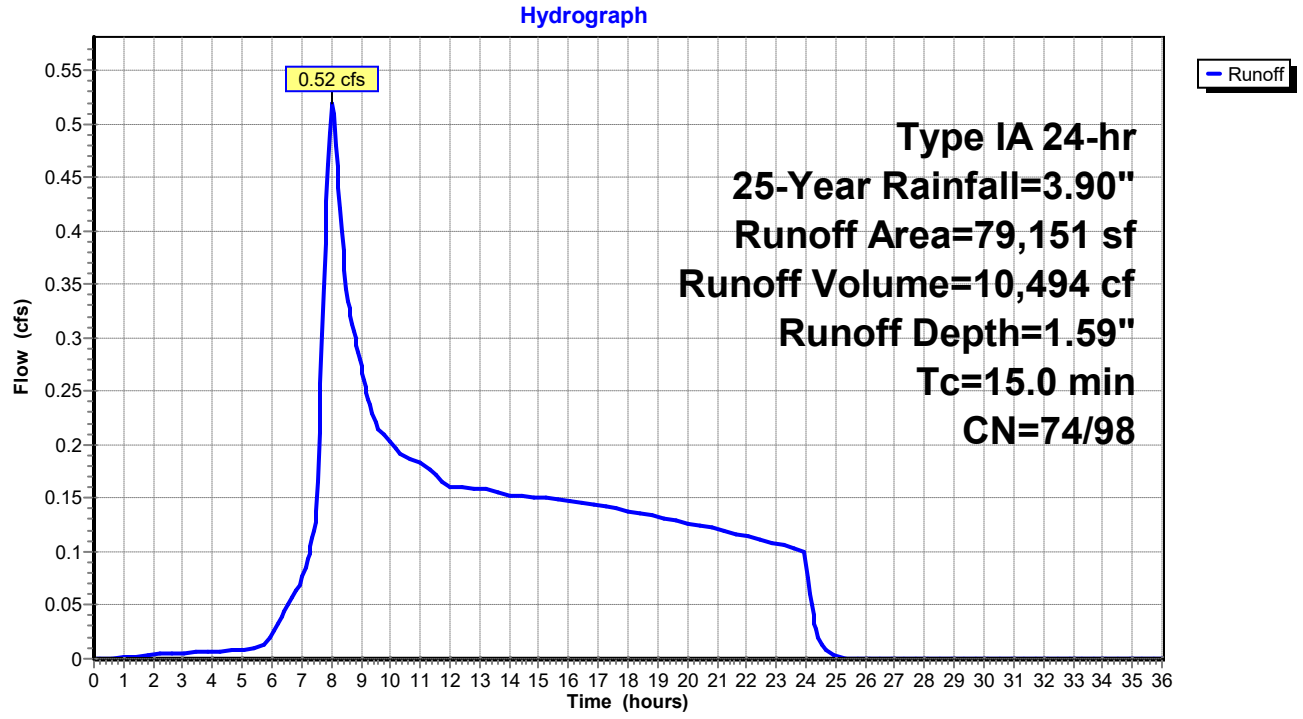
Runoff = 0.52 cfs @ 8.03 hrs, Volume= 10,494 cf, Depth= 1.59"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-Year Rainfall=3.90"

	Area (sf)	CN	Description
*	2,500	98	roofs
	76,651	74	>75% Grass cover, Good, HSG C
	79,151	75	Weighted Average
	76,651	74	96.84% Pervious Area
	2,500	98	3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 100: Pre-Developed Flows



Summary for Pond 2P: 6% Planters

Inflow Area = 7,500 sf,100.00% Impervious, Inflow Depth = 3.67" for 25-Year event
Inflow = 0.16 cfs @ 7.90 hrs, Volume= 2,291 cf
Outflow = 0.08 cfs @ 8.31 hrs, Volume= 2,291 cf, Atten= 49%, Lag= 24.9 min
Primary = 0.08 cfs @ 8.31 hrs, Volume= 2,291 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 604.02' @ 8.31 hrs Surf.Area= 450 sf Storage= 461 cf

Plug-Flow detention time= 210.6 min calculated for 2,288 cf (100% of inflow)
Center-of-Mass det. time= 210.7 min (872.1 - 661.3)

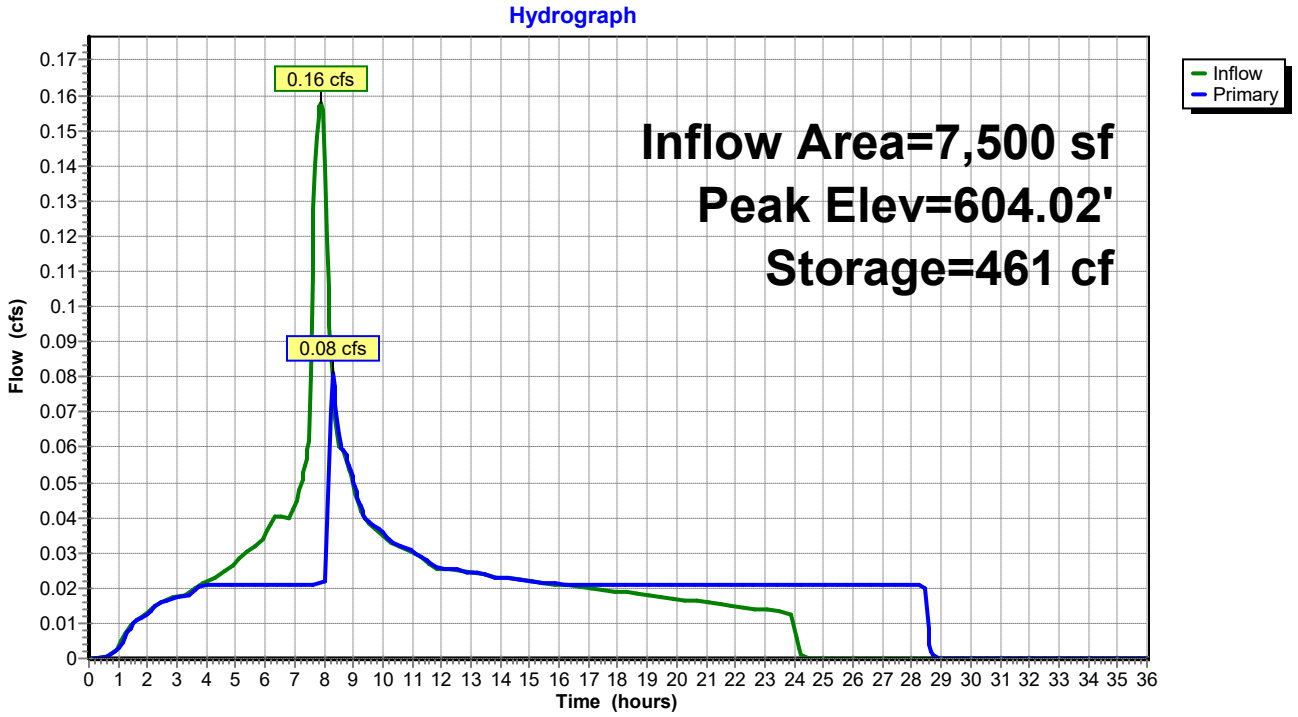
Volume	Invert	Avail.Storage	Storage Description
#1	603.00'	495 cf	**planters (Prismatic)** Listed below (Recalc) x 3

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
603.00	150	0	0
604.10	150	165	165

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	**6.0" Round Culvert X 3.00** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.45' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	603.00'	**2.000 in/hr Exfiltration over Surface area**
#3	Device 1	604.00'	**6.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.08 cfs @ 8.31 hrs HW=604.02' (Free Discharge)
└**1=Culvert** (Passes 0.08 cfs of 5.13 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.02 cfs)
  └**3=Orifice/Grate** (Weir Controls 0.06 cfs @ 0.51 fps)

Pond 2P: 6% Planters



Summary for Pond 24P: Pond

Inflow Area = 71,651 sf, 52.96% Impervious, Inflow Depth = 3.10" for 25-Year event
Inflow = 1.27 cfs @ 7.92 hrs, Volume= 18,488 cf
Outflow = 0.43 cfs @ 8.94 hrs, Volume= 18,488 cf, Atten= 66%, Lag= 61.0 min
Primary = 0.43 cfs @ 8.94 hrs, Volume= 18,488 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 596.94' @ 8.94 hrs Surf.Area= 2,400 sf Storage= 4,281 cf

Plug-Flow detention time= 216.8 min calculated for 18,463 cf (100% of inflow)
Center-of-Mass det. time= 217.1 min (916.2 - 699.1)

Volume	Invert	Avail.Storage	Storage Description
#1	595.00'	6,881 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
595.00	1,968	0	0
596.00	2,230	2,099	2,099
597.00	2,410	2,320	4,419
598.00	2,513	2,462	6,881

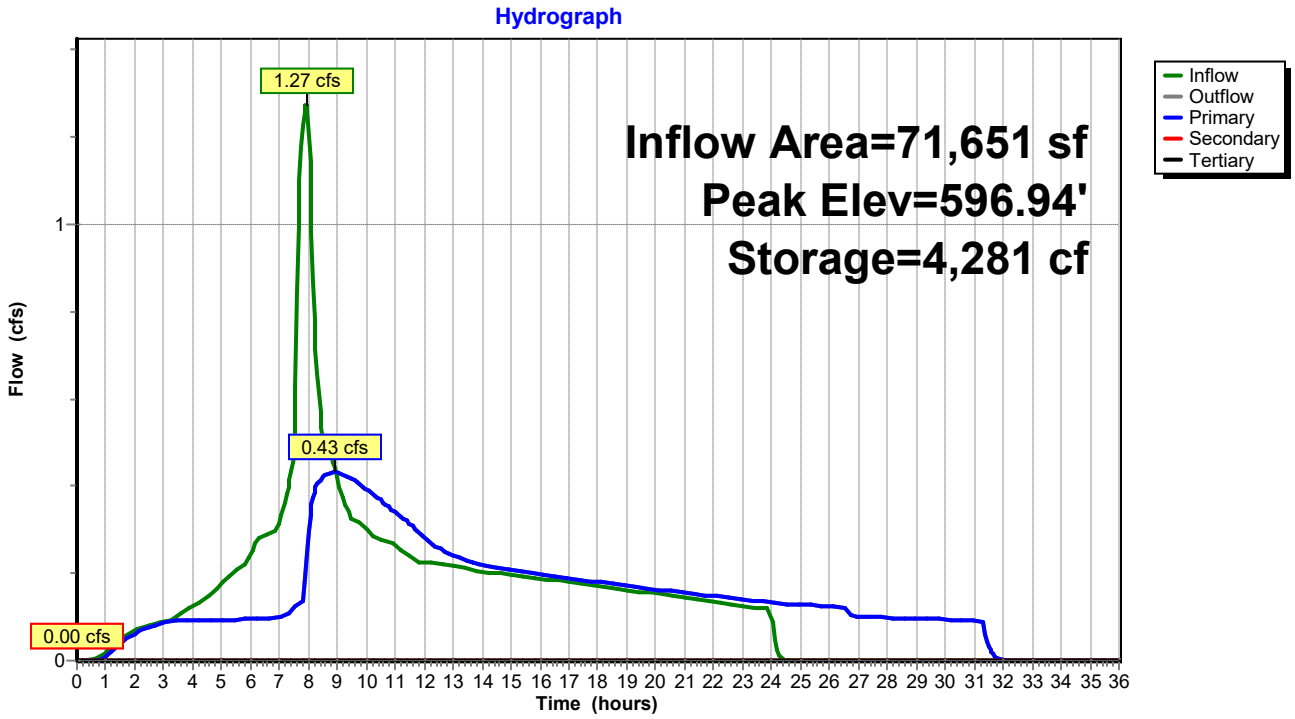
Device	Routing	Invert	Outlet Devices
#1	Primary	592.50'	**15.0" Round Culvert** L= 20.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 592.50' / 592.40' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	590.32'	**1.6" Vert. Low Orifice** C= 0.600
#3	Device 2	595.00'	**2.000 in/hr Exfiltration over Surface area**
#4	Device 2	595.79'	**24.0" x 24.0" Horiz. Ditch Inlet #1** C= 0.600 Limited to weir flow at low heads
#5	Device 1	596.30'	**4.0" Vert. High Orifice** C= 0.600
#6	Secondary	596.95'	**24.0" x 24.0" Horiz. Ditch Inlet #2** C= 0.600 Limited to weir flow at low heads
#7	Tertiary	596.95'	**48.0" Horiz. Overflow Manhole** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.43 cfs @ 8.94 hrs HW=596.94' (Free Discharge)
└─**1=Culvert** (Passes 0.43 cfs of 11.55 cfs potential flow)
  └─**2=Low Orifice** (Orifice Controls 0.14 cfs @ 10.15 fps)
    └─**3=Exfiltration** (Passes < 0.11 cfs potential flow)
    └─**4=Ditch Inlet #1** (Passes < 20.68 cfs potential flow)
  └─**5=High Orifice** (Orifice Controls 0.29 cfs @ 3.32 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.00' (Free Discharge)
└─**6=Ditch Inlet #2** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.00' (Free Discharge)
└─**7=Overflow Manhole** (Controls 0.00 cfs)

Pond 24P: Pond

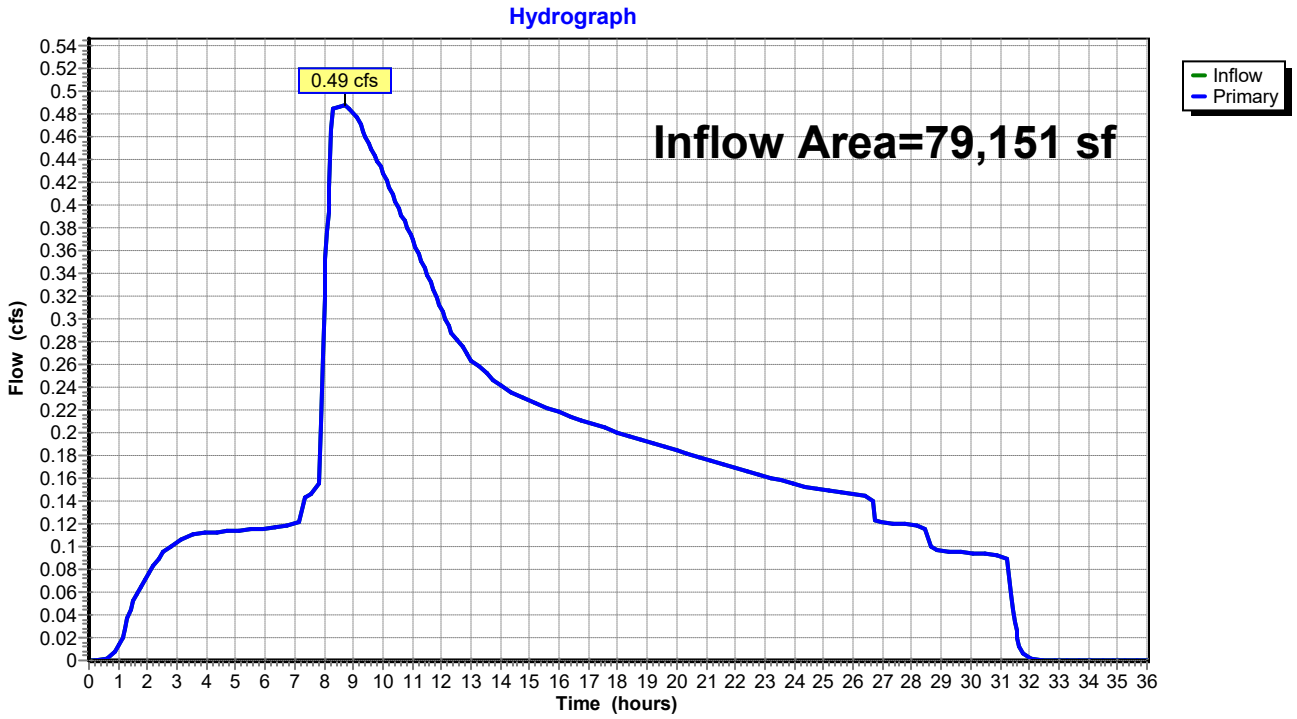


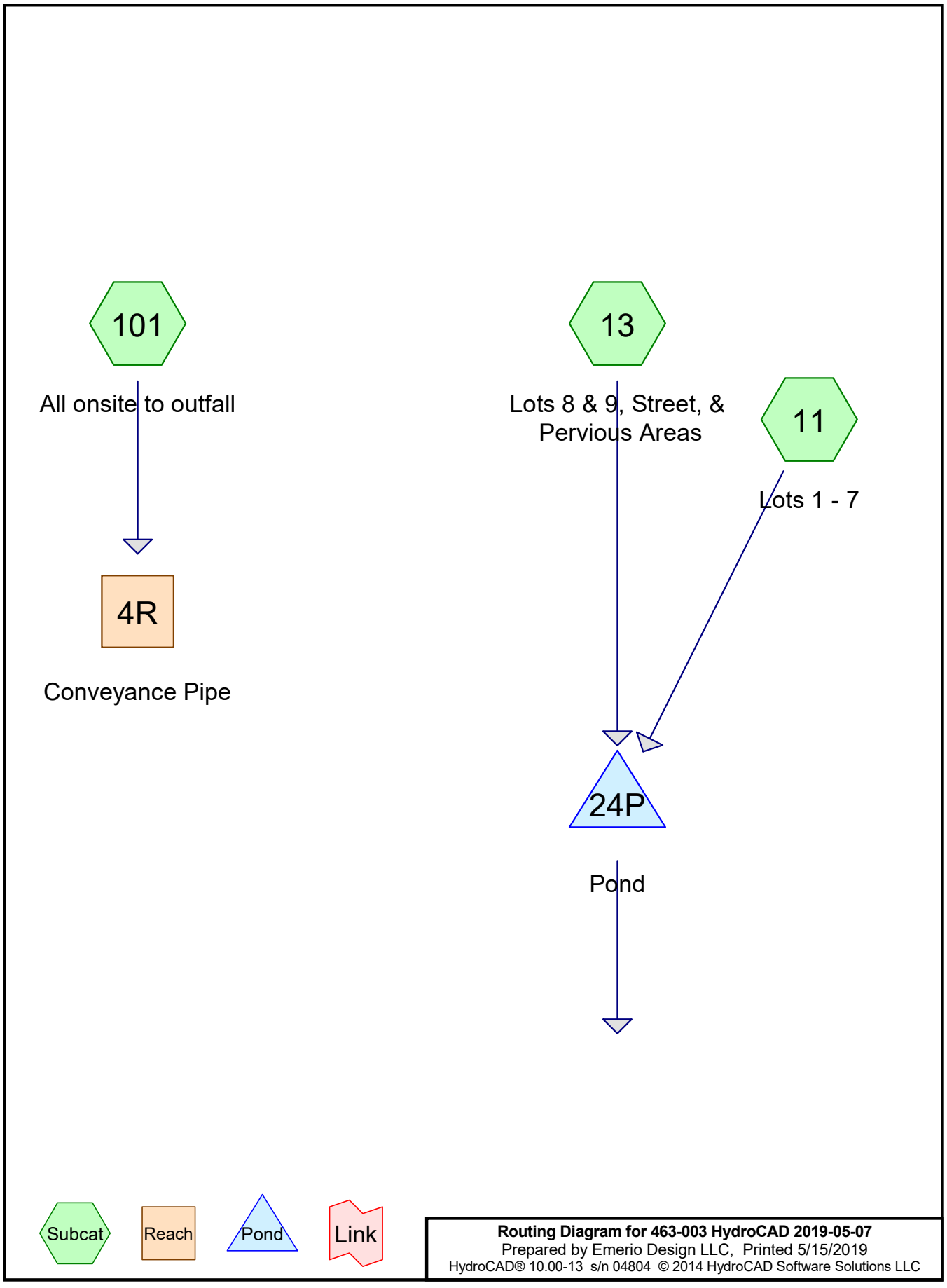
Summary for Link 22L: Post-Developed Flows

Inflow Area = 79,151 sf, 57.41% Impervious, Inflow Depth = 3.15" for 25-Year event
Inflow = 0.49 cfs @ 8.74 hrs, Volume= 20,779 cf
Primary = 0.49 cfs @ 8.74 hrs, Volume= 20,779 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link 22L: Post-Developed Flows




101
All onsite to outfall
4R
Conveyance Pipe
13
Lots 8 & 9, Street, &
Pervious Areas
11
Lots 1 - 7
24P
Pond
Subcat
Reach
Pond
Link
Routing Diagram for 463-003 HydroCAD 2019-05-07
Prepared by Emerio Design LLC, Printed 5/15/2019
HydroCAD® 10.00-13 s/n 04804 © 2014 HydroCAD Software Solutions LLC

Summary for Subcatchment 11: Lots 1 - 7

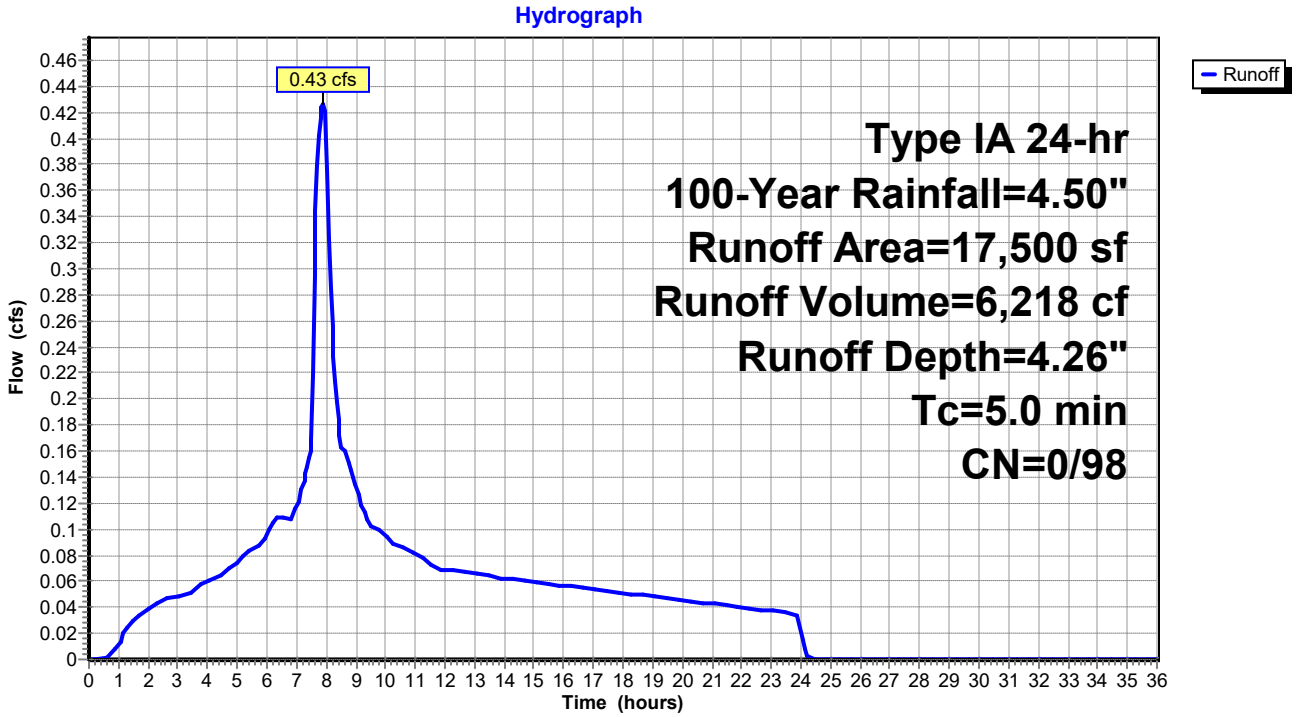
Runoff = 0.43 cfs @ 7.90 hrs, Volume= 6,218 cf, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-Year Rainfall=4.50"

	Area (sf)	CN	Description
*	17,500	98	Lots 1 - 7
	17,500	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 11: Lots 1 - 7



Summary for Subcatchment 13: Lots 8 & 9, Street, & Pervious Areas

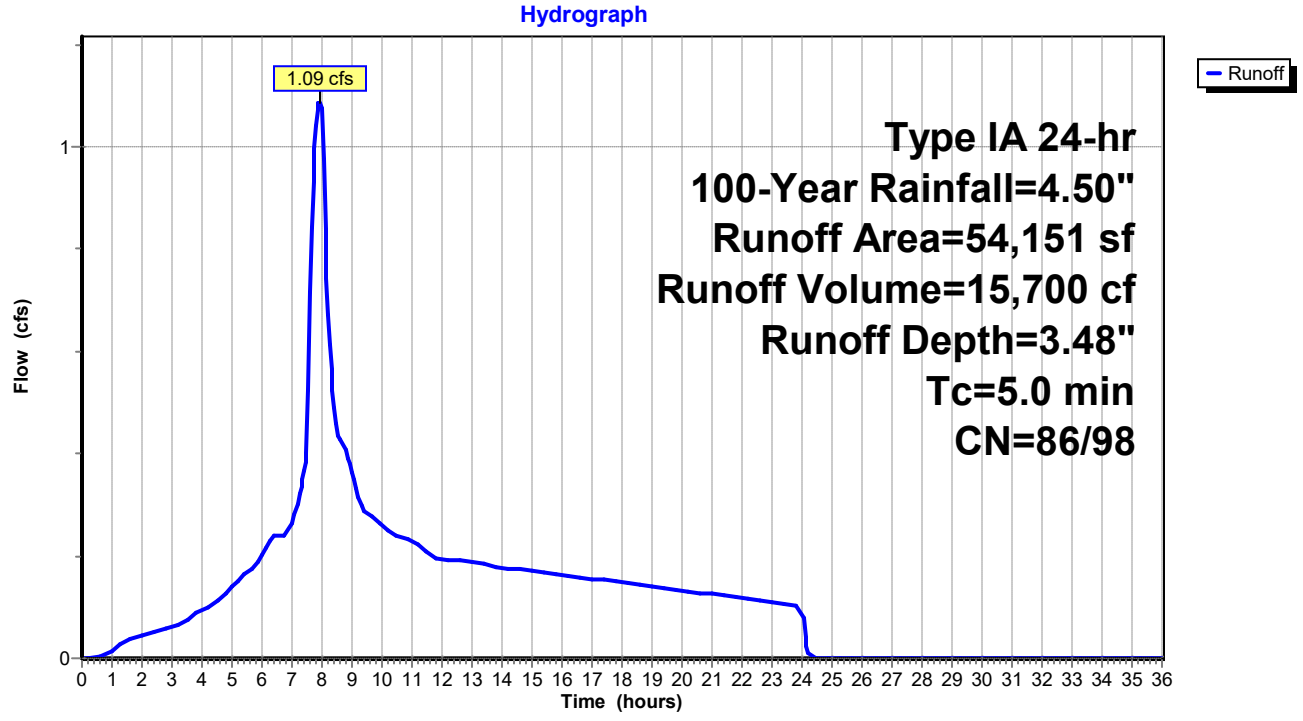
Runoff = 1.09 cfs @ 7.92 hrs, Volume= 15,700 cf, Depth= 3.48"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-Year Rainfall=4.50"

	Area (sf)	CN	Description
*	15,444	98	streets & curb
*	5,000	98	Lots 8 & 9
	33,707	86	<50% Grass cover, Poor, HSG C
	54,151	91	Weighted Average
	33,707	86	62.25% Pervious Area
	20,444	98	37.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 13: Lots 8 & 9, Street, & Pervious Areas



Summary for Subcatchment 101: All onsite to outfall

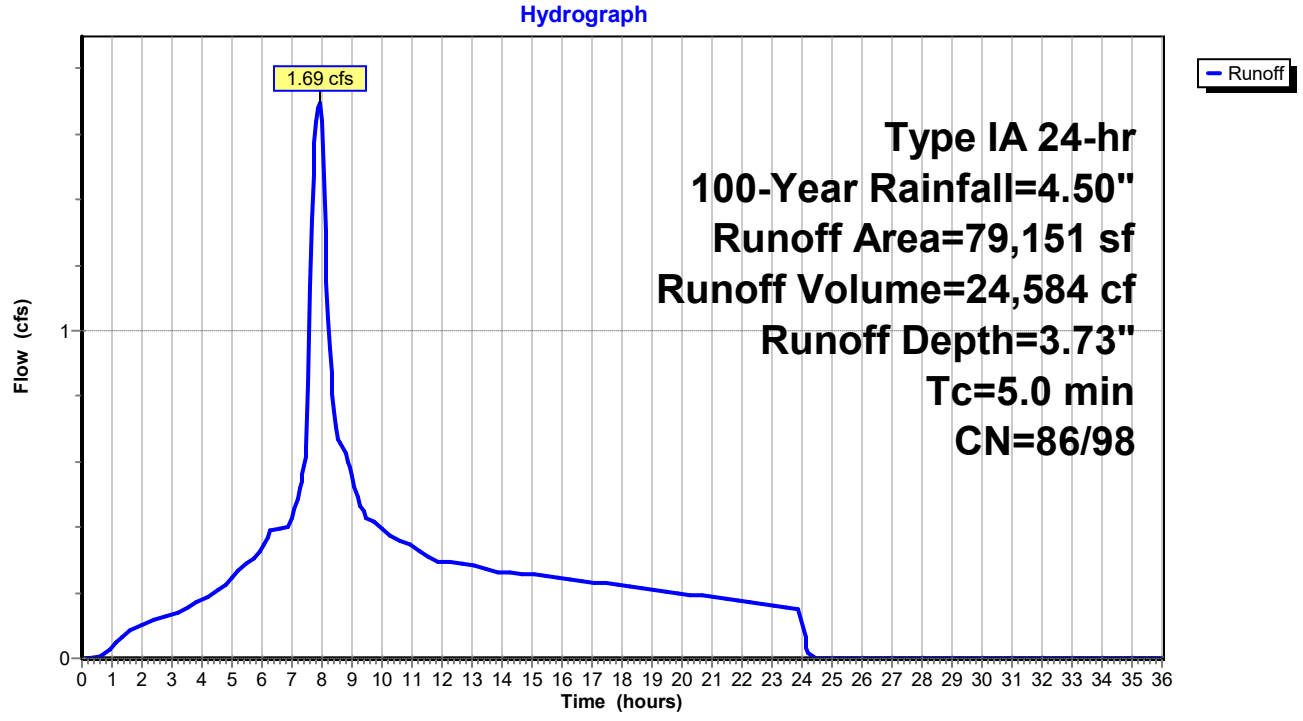
Runoff = 1.69 cfs @ 7.91 hrs, Volume= 24,584 cf, Depth= 3.73"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-Year Rainfall=4.50"

	Area (sf)	CN	Description
*	15,444	98	streets & curb
*	30,000	98	12 lots
	33,707	86	<50% Grass cover, Poor, HSG C
	79,151	93	Weighted Average
	33,707	86	42.59% Pervious Area
	45,444	98	57.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 101: All onsite to outfall



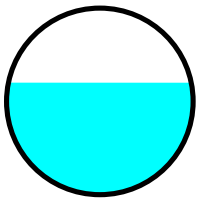
Summary for Reach 4R: Conveyance Pipe

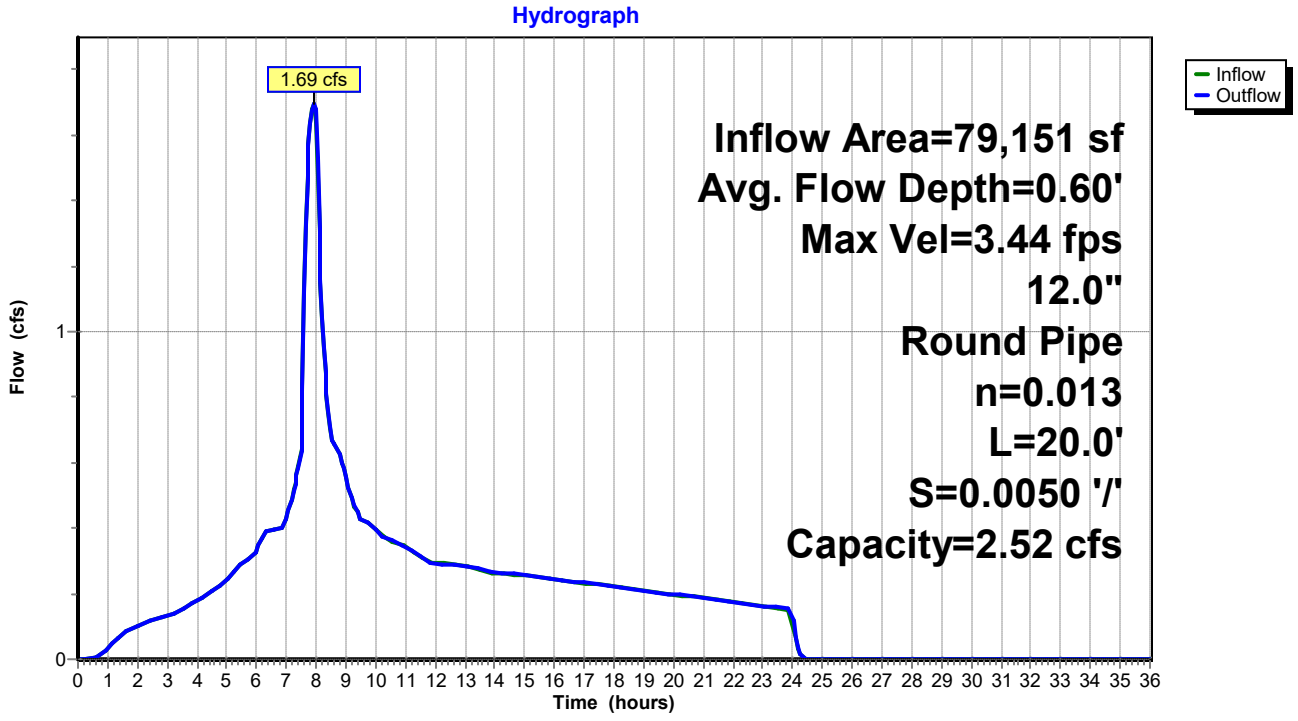
Inflow Area = 79,151 sf, 57.41% Impervious, Inflow Depth = 3.73" for 100-Year event
Inflow = 1.69 cfs @ 7.91 hrs, Volume= 24,584 cf
Outflow = 1.69 cfs @ 7.92 hrs, Volume= 24,584 cf, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.44 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.99 fps, Avg. Travel Time= 0.2 min

Peak Storage= 10 cf @ 7.92 hrs
Average Depth at Peak Storage= 0.60'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
n= 0.013
Length= 20.0' Slope= 0.0050 '/'
Inlet Invert= 100.00', Outlet Invert= 99.90'





Summary for Pond 24P: Pond

Inflow Area = 71,651 sf, 52.96% Impervious, Inflow Depth = 3.67" for 100-Year event
Inflow = 1.51 cfs @ 7.92 hrs, Volume= 21,919 cf
Outflow = 1.27 cfs @ 8.08 hrs, Volume= 21,919 cf, Atten= 16%, Lag= 9.6 min
Primary = 0.45 cfs @ 8.08 hrs, Volume= 20,778 cf
Secondary = 0.32 cfs @ 8.08 hrs, Volume= 444 cf
Tertiary = 0.50 cfs @ 8.08 hrs, Volume= 697 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 597.00' @ 8.08 hrs Surf.Area= 2,410 sf Storage= 4,427 cf

Plug-Flow detention time= 195.6 min calculated for 21,888 cf (100% of inflow)
Center-of-Mass det. time= 195.9 min (889.9 - 694.0)

Volume	Invert	Avail.Storage	Storage Description
#1	595.00'	6,881 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
595.00	1,968	0	0
596.00	2,230	2,099	2,099
597.00	2,410	2,320	4,419
598.00	2,513	2,462	6,881

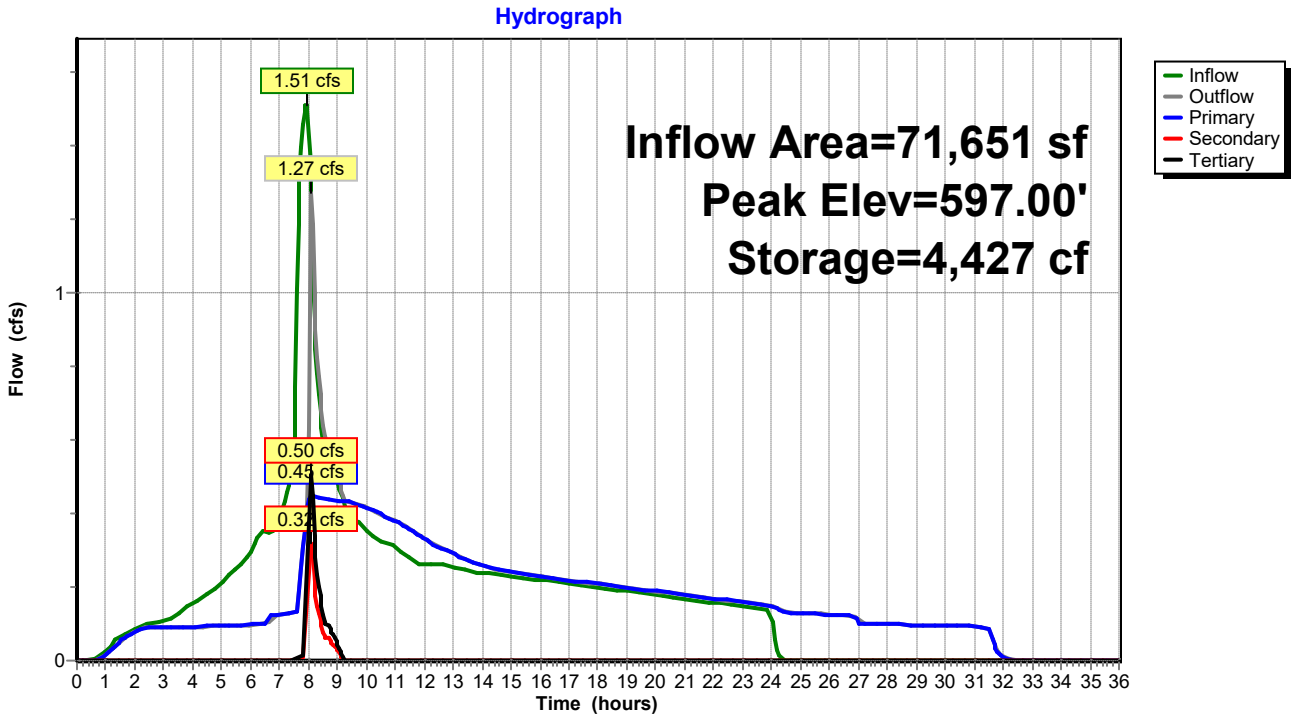
Device	Routing	Invert	Outlet Devices
#1	Primary	592.50'	**15.0" Round Culvert** L= 20.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 592.50' / 592.40' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	590.32'	**1.6" Vert. Low Orifice** C= 0.600
#3	Device 2	595.00'	**2.000 in/hr Exfiltration over Surface area**
#4	Device 2	595.79'	**24.0" x 24.0" Horiz. Ditch Inlet #1** C= 0.600 Limited to weir flow at low heads
#5	Device 1	596.30'	**4.0" Vert. High Orifice** C= 0.600
#6	Secondary	596.95'	**24.0" x 24.0" Horiz. Ditch Inlet #2** C= 0.600 Limited to weir flow at low heads
#7	Tertiary	596.95'	**48.0" Horiz. Overflow Manhole** C= 0.600 Limited to weir flow at low heads

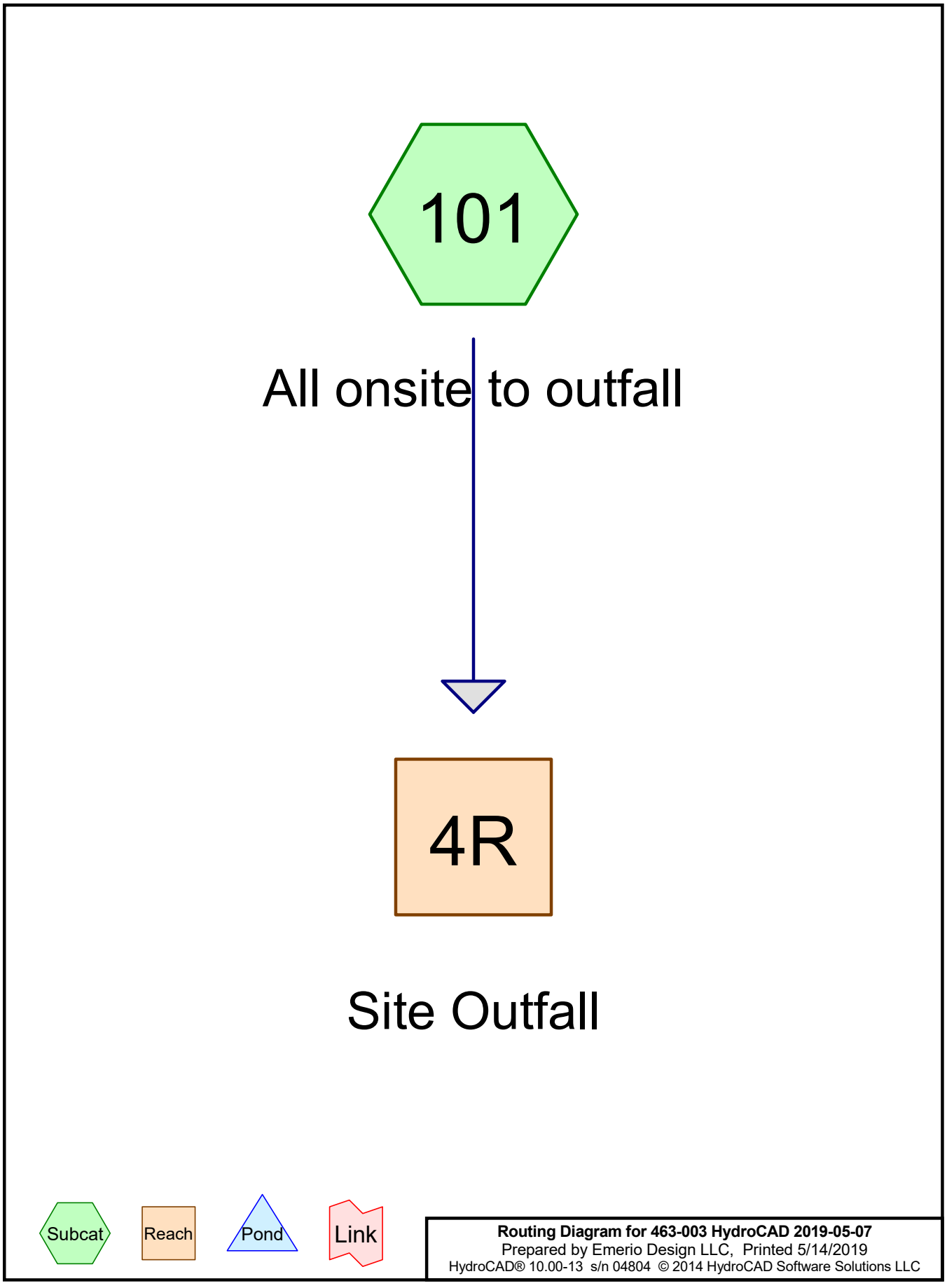
Primary OutFlow Max=0.45 cfs @ 8.08 hrs HW=597.00' (Free Discharge)
└─**1=Culvert** (Passes 0.45 cfs of 11.64 cfs potential flow)
  └─**2=Low Orifice** (Orifice Controls 0.14 cfs @ 10.22 fps)
    └─**3=Exfiltration** (Passes < 0.11 cfs potential flow)
    └─**4=Ditch Inlet #1** (Passes < 21.21 cfs potential flow)
  └─**5=High Orifice** (Orifice Controls 0.31 cfs @ 3.52 fps)

Secondary OutFlow Max=0.31 cfs @ 8.08 hrs HW=597.00' (Free Discharge)
└─**6=Ditch Inlet #2** (Weir Controls 0.31 cfs @ 0.75 fps)

Tertiary OutFlow Max=0.49 cfs @ 8.08 hrs HW=597.00' (Free Discharge)
└─**7=Overflow Manhole** (Weir Controls 0.49 cfs @ 0.75 fps)

Pond 24P: Pond




101
All onsite to outfall
4R
Site Outfall
Subcat
Reach
Pond
Link
Routing Diagram for 463-003 HydroCAD 2019-05-07
Prepared by Emerio Design LLC, Printed 5/14/2019
HydroCAD® 10.00-13 s/n 04804 © 2014 HydroCAD Software Solutions LLC

Summary for Subcatchment 101: All onsite to outfall

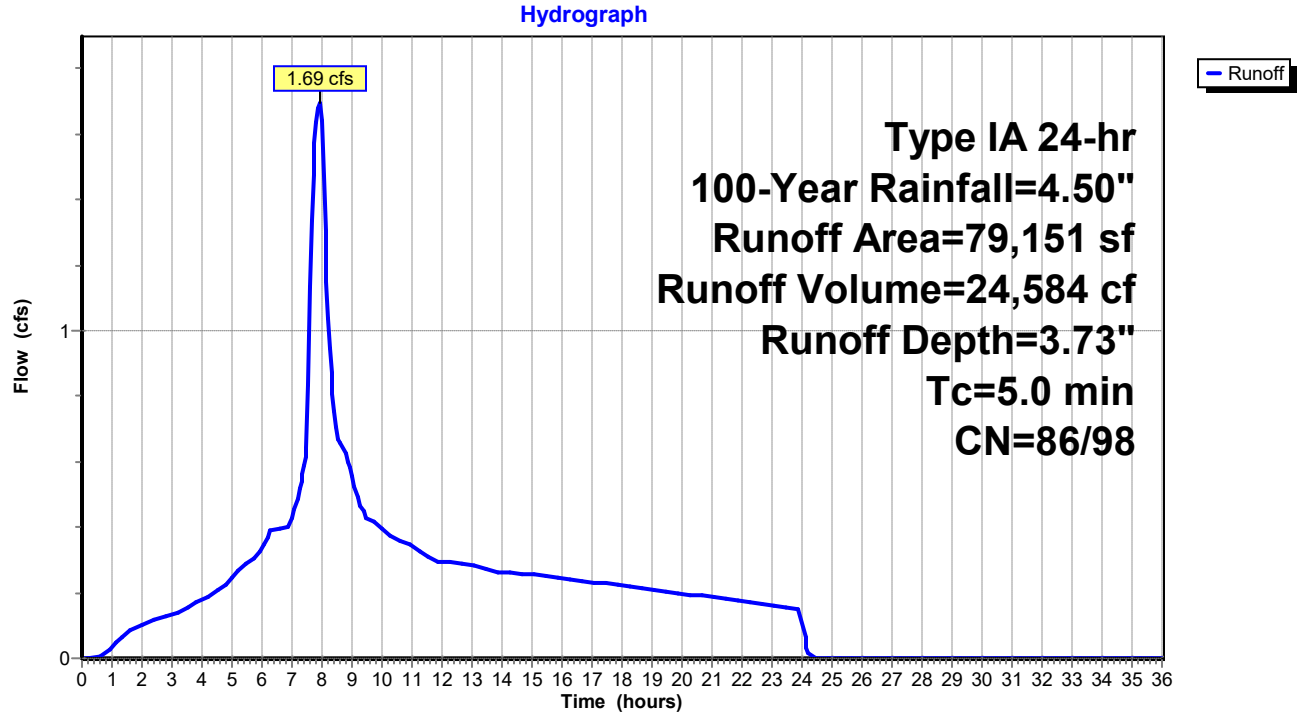
Runoff = 1.69 cfs @ 7.91 hrs, Volume= 24,584 cf, Depth= 3.73"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100-Year Rainfall=4.50"

	Area (sf)	CN	Description
*	15,444	98	streets & curb
*	30,000	98	12 lots
	33,707	86	<50% Grass cover, Poor, HSG C
	79,151	93	Weighted Average
	33,707	86	42.59% Pervious Area
	45,444	98	57.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 101: All onsite to outfall



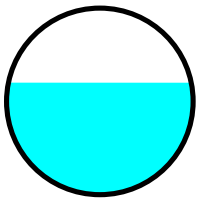
Summary for Reach 4R: Site Outfall

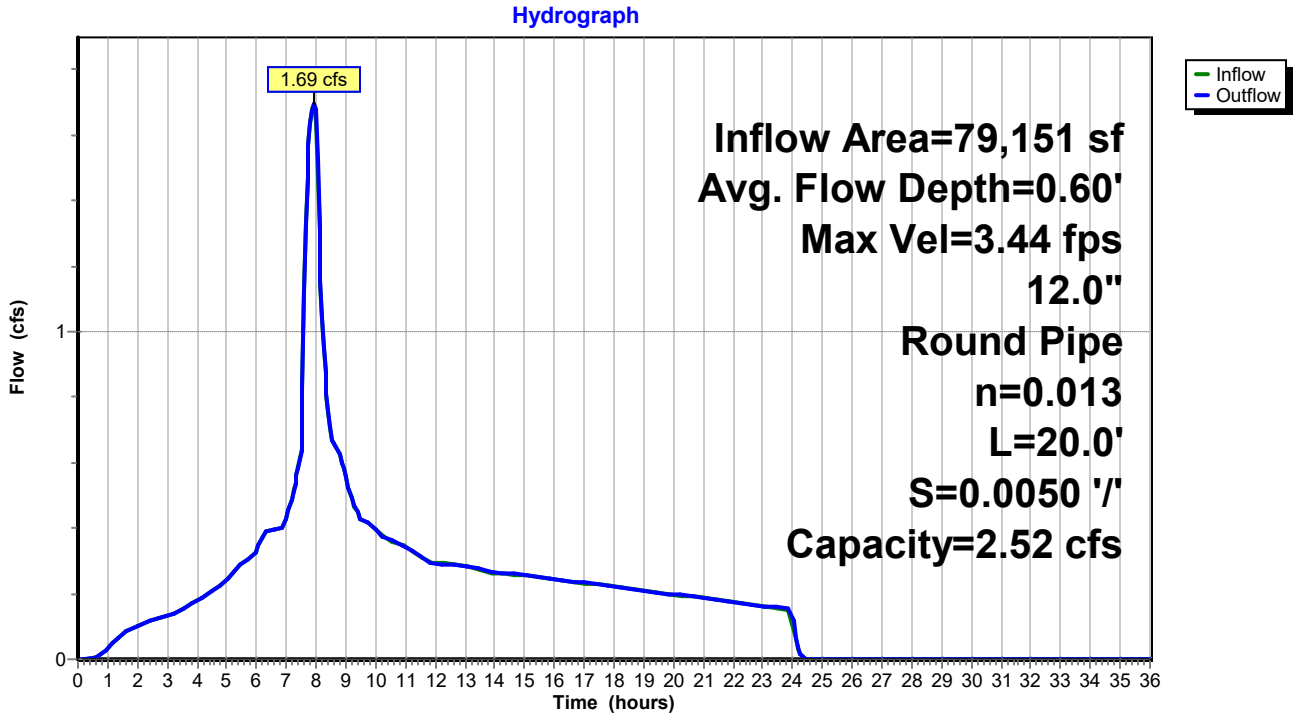
Inflow Area = 79,151 sf, 57.41% Impervious, Inflow Depth = 3.73" for 100-Year event
Inflow = 1.69 cfs @ 7.91 hrs, Volume= 24,584 cf
Outflow = 1.69 cfs @ 7.92 hrs, Volume= 24,584 cf, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.44 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.99 fps, Avg. Travel Time= 0.2 min

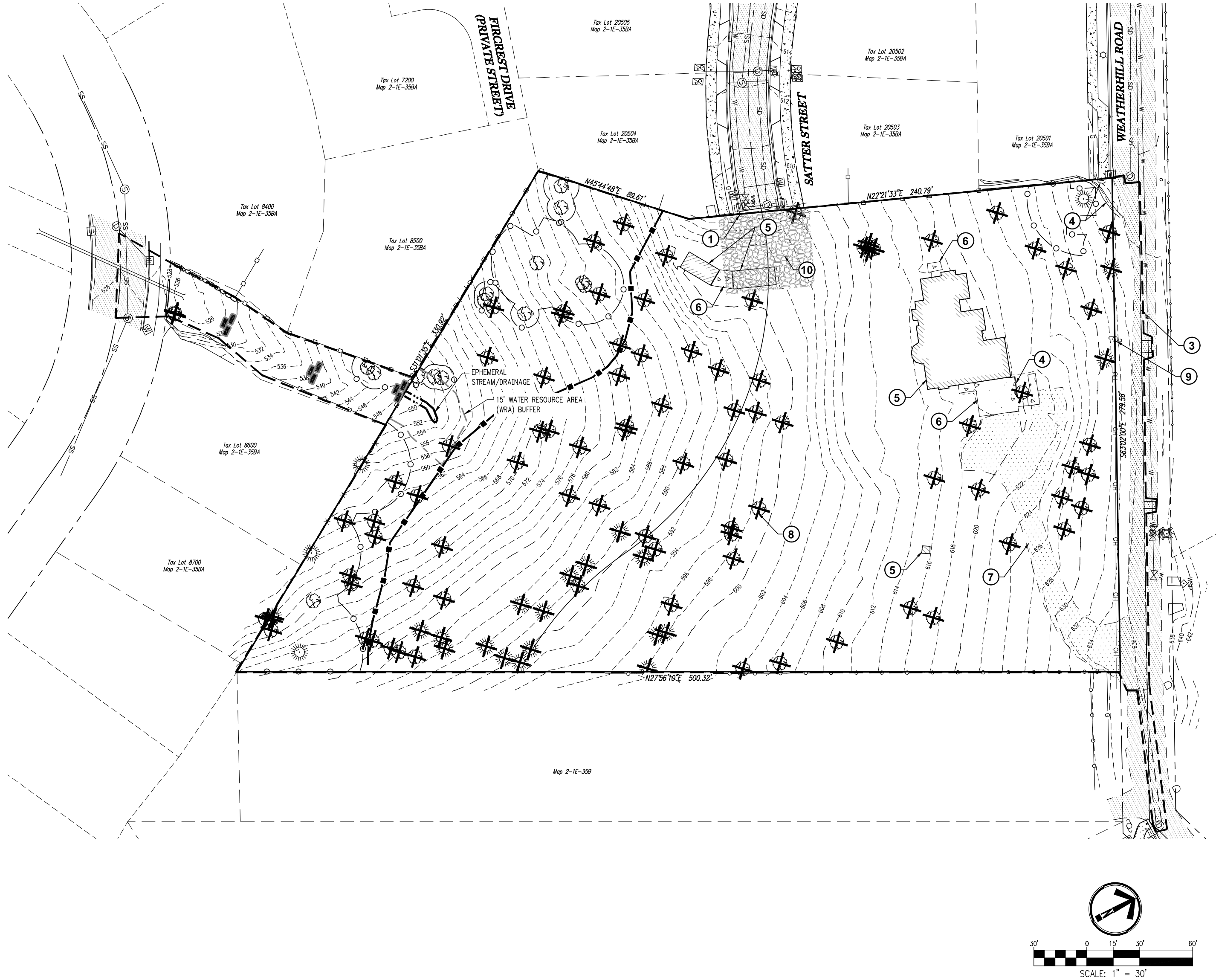
Peak Storage= 10 cf @ 7.92 hrs
Average Depth at Peak Storage= 0.60'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
n= 0.013
Length= 20.0' Slope= 0.0050 '/'
Inlet Invert= 100.00', Outlet Invert= 99.90'





Appendix D:



DEMOLITION KEY NOTES

1. REMOVE EXISTING END OF ROAD SIGN.
2. POTHOLE END OF SANITARY LINE AND REMOVE EXISTING PLUG. CONTRACTOR TO NOTIFY ENGINEER IF EXISTING SANITARY INVERT ELEVATION IS DIFFERENT THAN STATED ON THESE PLANS.
3. SAWCUT AND REMOVE EXISTING AC.
4. REMOVED EXISTING WALL
5. REMOVED EXISTING BUILDING/STRUCTURE
6. REMOVE EXISTING CONCRETE AREAS
7. REMOVE EXISTING AC DRIVEWAY
8. REMOVE EXISTING TREE (TYP.). SEE SHEET 3 & 4 FOR DETAILED TREE PLANS
9. REMOVE EXISTING POWER POLE. POWER TO BE UNDERGROUNDED.
10. INSTALL CONSTRUCTION ENTRANCE

GENERAL NOTES:

A. SEE SHEETS 3 AND 4 FOR TREE PRESERVATION PLAN. TREE PROTECTION TO BE INSTALLED BEFORE ANY SITE DEMOLITION, GRUBBING, OR CLEARING.

LEGEND

- BOUNDARY OF SITE
- LIMITS OF CONSTRUCTION
- EXISTING FENCE
- SILT FENCE
- TREE PROTECTION FENCE

SURVEYOR'S NOTE

THE DATUM FOR THIS SURVEY IS BASED UPON OREGON REAL-TIME GNSS NETWORK (ORGN). NAVD88.

A TOPCON PS104B, TRIMBLE RS INSTRUMENTS WERE USED TO COMPLETE THIS SURVEY.

BOUNDARIES WERE DRAWN PER PLAT AND MONUMENTS FOUND. NO PROPERTY CORNERS WERE SET IN THIS SURVEY.

NO WARRANTIES ARE MADE AS TO MATTERS OF UNWRITTEN TITLE, SUCH AS ADVERSE POSSESSION, ESTOPPEL, ACQUIESCENCE, ETC.

THE UNDERGROUND UTILITIES AS SHOWN ON THIS MAP HAVE BEEN LOCATED FROM FIELD SURVEY OF ABOVE GROUND STRUCTURES AND AS MARKED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPROMISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY SURVEYOR.

NO TITLE REPORT WAS SUPPLIED OR USED IN THE PREPARATION OF THIS MAP. THERE MAY EXIST EASEMENTS, CONDITIONS, OR RESTRICTIONS THAT COULD AFFECT THE TITLE OF THIS PROPERTY. NO ATTEMPT HAS BEEN MADE IN THIS SURVEY TO SHOW SUCH MATTERS THAT MAY AFFECT TITLE.

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON

22870 S WEATHERHILL ROAD

TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

EXISTING CONDITIONS, DEMOLITION, & PH 1 EROSION CONTROL PLAN

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
1	4/2019	2ND SUBMITTAL

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BEAVERTON, OREGON 97008
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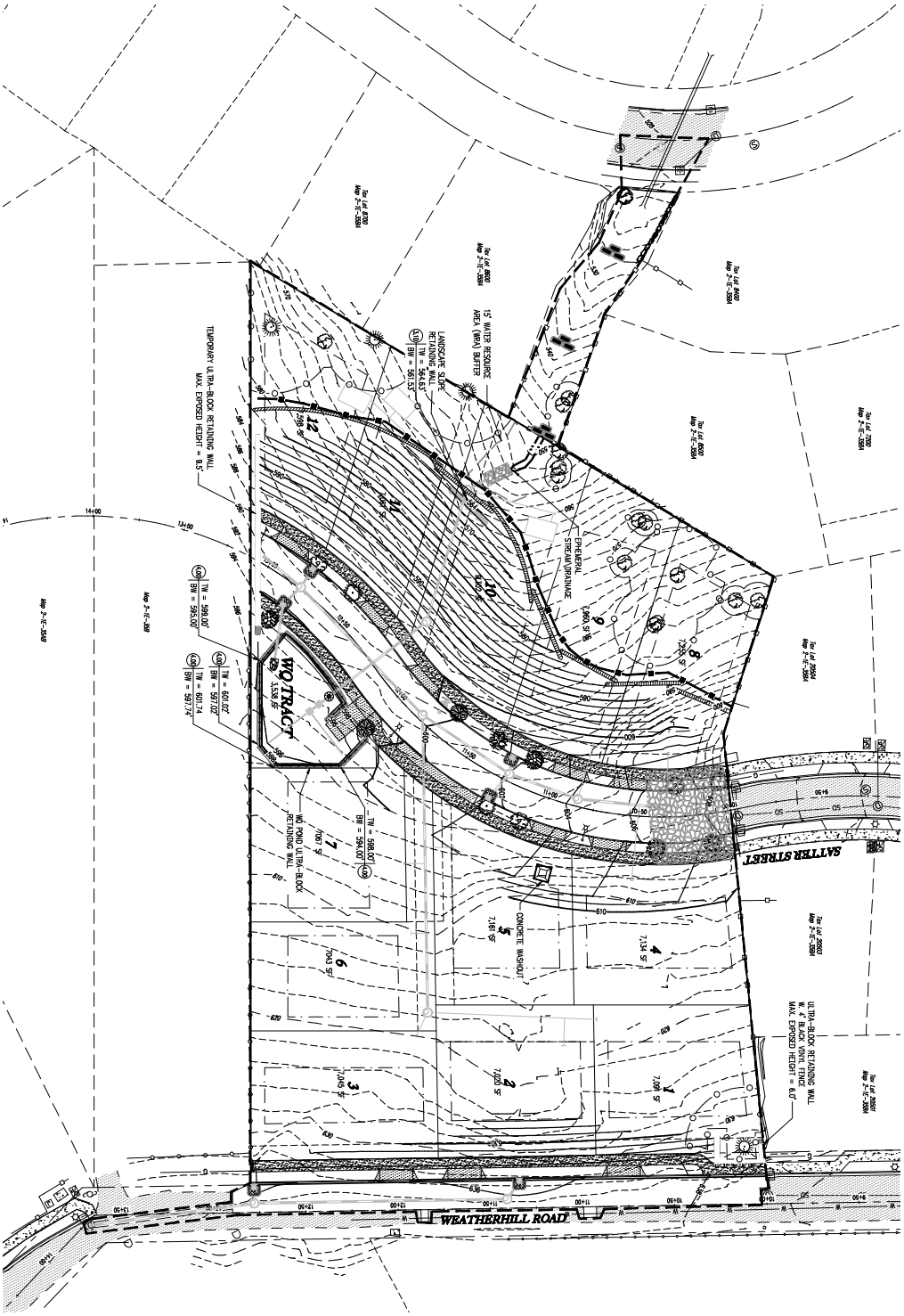
FAX: (503) 639-9592
www.emeriodesign.com

FILE:P:\463-003 Weatherhill Road Phase 1\dwg\plan\463-003_02exst, Layout: 2 EXISTING CONDITIONS DEMOLITION & PH 1 EROSION CONTROL PLAN, Plot Date: 5/16/2019 8:40 AM, by: Jacob Snyder



LEGEND

- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPERTY BOUNDARY LINE
- SIGNIFICANT RESOURCE OVERLAY ZONE (SROZ)
- PROPOSED LOT LINE
- PROPOSED RIGHT-OF-WAY LINE
- PROPOSED PUE EASEMENT
- PROPOSED SANITARY SEWER LINE
- PROPOSED STORM DRAIN LINE
- PROPOSED WATER LINE
- CONSTRUCTION TREE PROTECTION FENCE (6' HIGH CHAIN LINK WITH METAL POSTS)
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED CURB INLET CATCH BASIN
- PROPOSED FIRE HYDRANT
- PROPOSED SIDEWALK TO BE INSTALLED AT TIME OF STREET CONSTRUCTION
- PROPOSED LIDA PLANTER

SCALE: 1" = 30'

SHEET 10 OF 13

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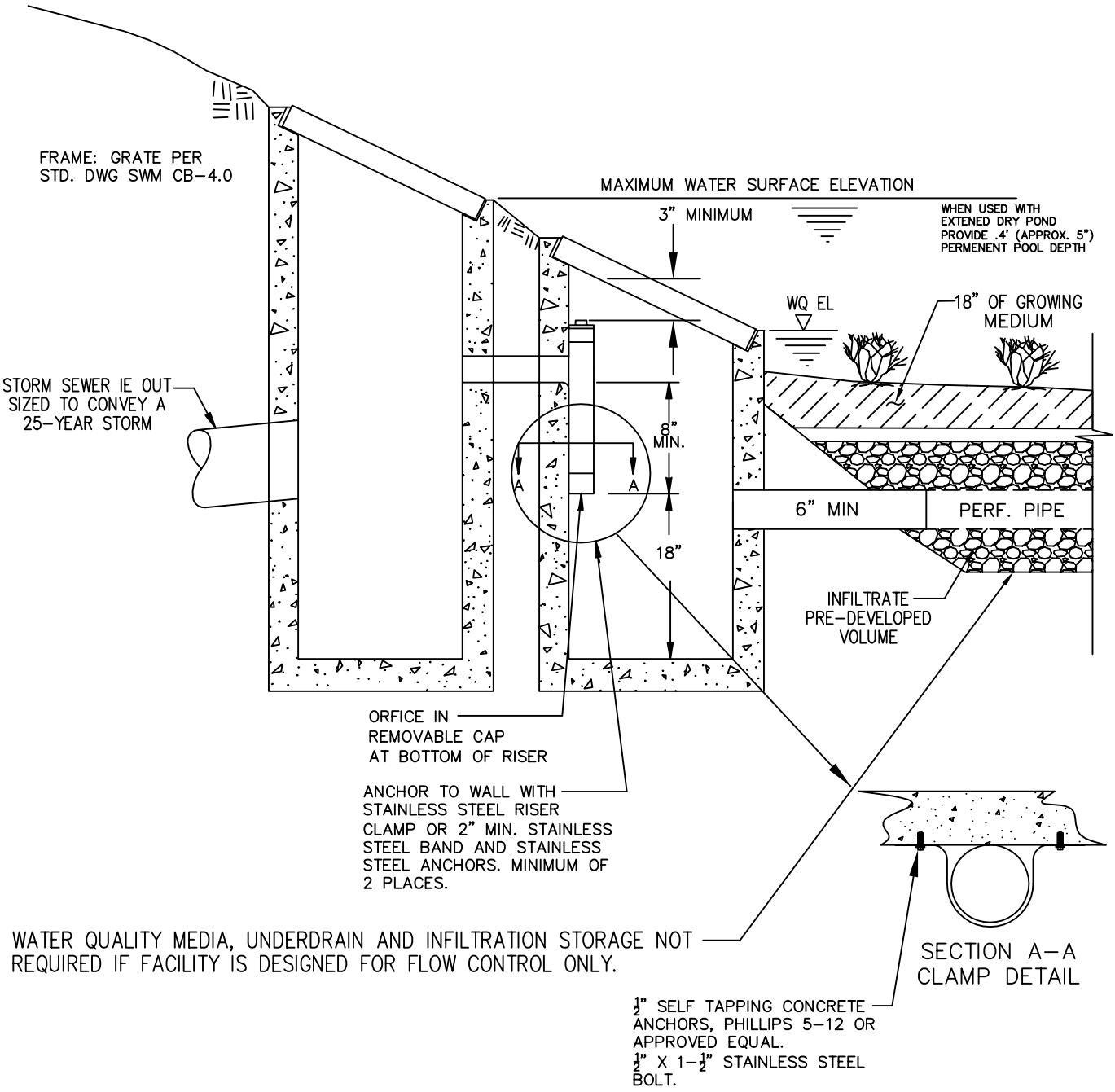
REVISIONS		
NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
1	4/2019	2ND SUBMITTAL

PHASE 2 GRADING & EROSION CONTROL PLAN

22870 S WEATHERHILL ROAD

TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

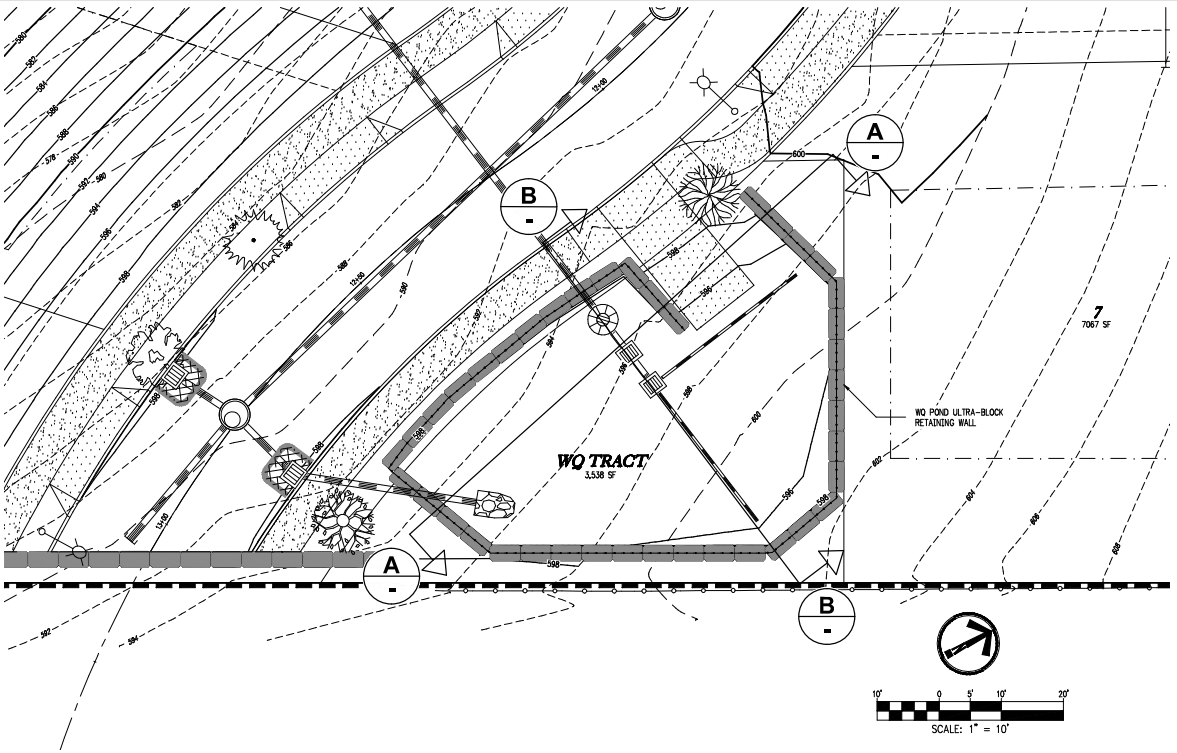
FILE: P:\463-003 Weatherhill Road Phase 1\dwg\plan\463-003_10grad, Layout: 10 PHASE 2 GRADING & EROSION CONTROL PLAN, Plot Date: 5/16/2019 8:47 AM, by: Jacob Snyder

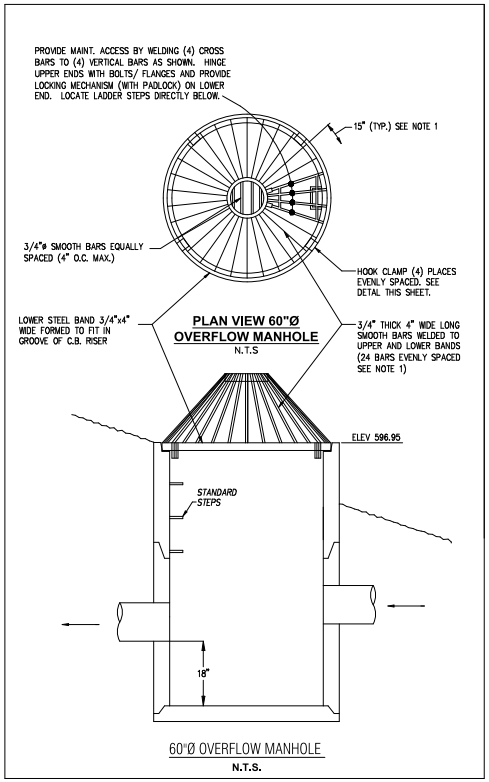


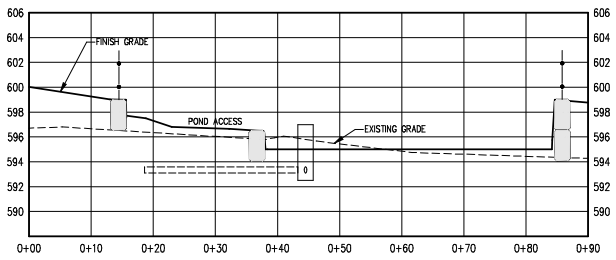
NOTES:

1. CONNECTING PIPE AND TEE SHALL BE 4", 6", OR 8" AWWA C-900 OR ASTM 3034 PVC,AND ONE SIZE LARGER THAN THE ORIFICE OPENING.
2. MAXIMUM ORIFICE OPENING SHALL BE 6" DIAMETER.
3. STRUCTURES TYPE AND SIZE SHALL CONFORM WITH DETAIL SWM FC-5.0.
4. FRAME AND GRATE SHALL CONFORM TO CATCH BASIN-FRAME AND GRATE (DETAIL SWM CB-4.0).
5. SUBMERGED ORFICE AND RISER SHALL BE SECURED FLUSH AGAINST WALL OF STRUCTURE AS APPROVED.
6. MAINTAINANCE ACCESS REQUIRED TO WITHIN 10' OF CENTER OF BOTH STRUCTURES AND EDGE OF MAINTENANCE ACCESS ROAD.

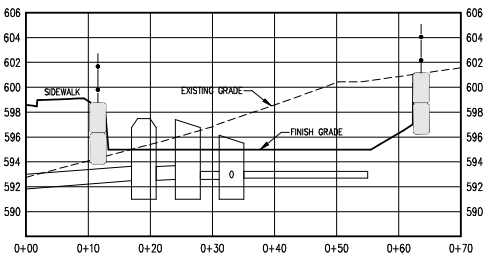
WATER ENVIRONMENT SERVICES www.co.clackamas.or.us/wes	CLACKAMAS COUNTY 150 BEAVERCREEK ROAD OREGON CITY, OR 97045	*APPROVAL DATE:* 2013 *SCALE:* N.T.S.	*STANDARD DRAWING*
		FLOW CONTROL-STRUCTURE TYPE 3	SWM FC-6.0



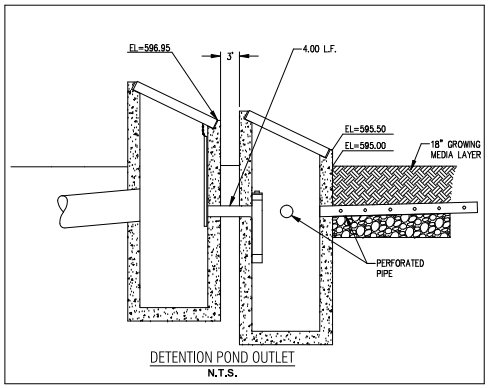




POND SECTION A-A - PROFILE
SCALE: 1"=10' HORZ. 1"=5' VERT.



POND SECTION B-B - PROFILE
SCALE: 1"=10' HORZ. 1"=5' VERT.



22870 S WEATHERHILL ROAD
TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

WATER QUALITY POND & DETAILS

REVISIONS

NO.	DATE	DESCRIPTION
0	7/2018	1ST SUBMITTAL
1	4/2019	2ND SUBMITTAL

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SHEET 13 OF 13

Tax Lot 20504
Map 2-1E-35BA

SATTER STREET

LEGEND

- RETAIN SIGNIFICANT TREE CANOPY
- REMOVE SIGNIFICANT TREE CANOPY
- RETAIN EVERGREEN TREE
- RETAIN DECIDUOUS TREE
- TREE PROTECTION FENCING

18" OAK

20712

20681

14" OAK

12" OAK

20680

61.6'

23.2'

42.8'

21.6'

36.6'

8
7,255 SF

9
7,960 SF

SCALE: 1" = 10'

PLANNING & BUILDING
CITY OF WEST LINN
INT. _____ TIME _____

22870 S WEATHERHILL ROAD

TAX MAP T2S R1E 35B
TAX LOT 405
WEST LINN, OREGON

LOT 8 BUILDING EXHIBIT

REVISIONS		
NO.	DATE	DESCRIPTION

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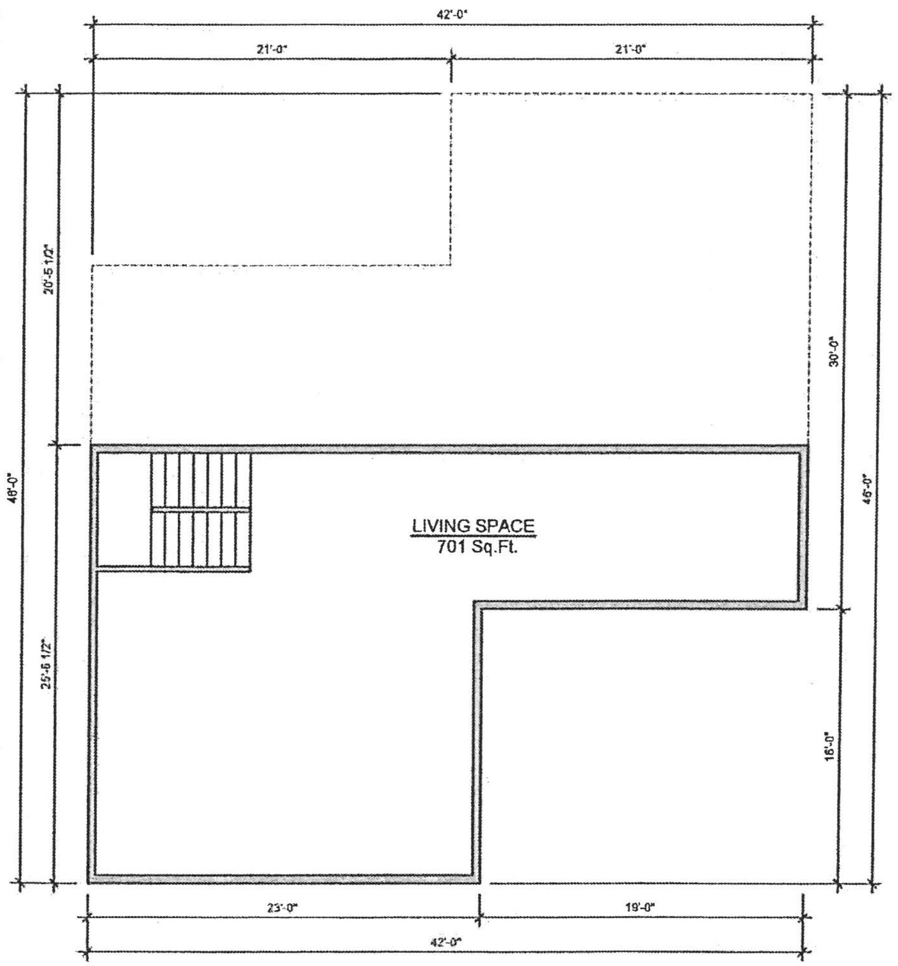
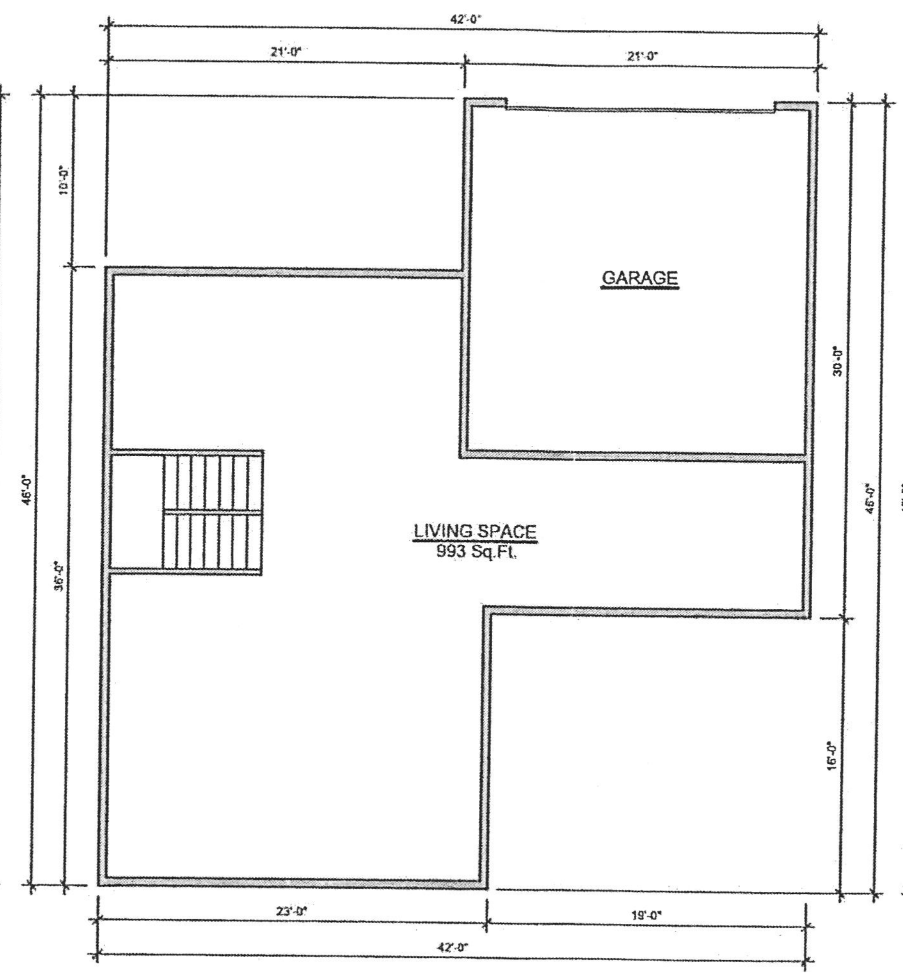
SHEET 1 OF 2

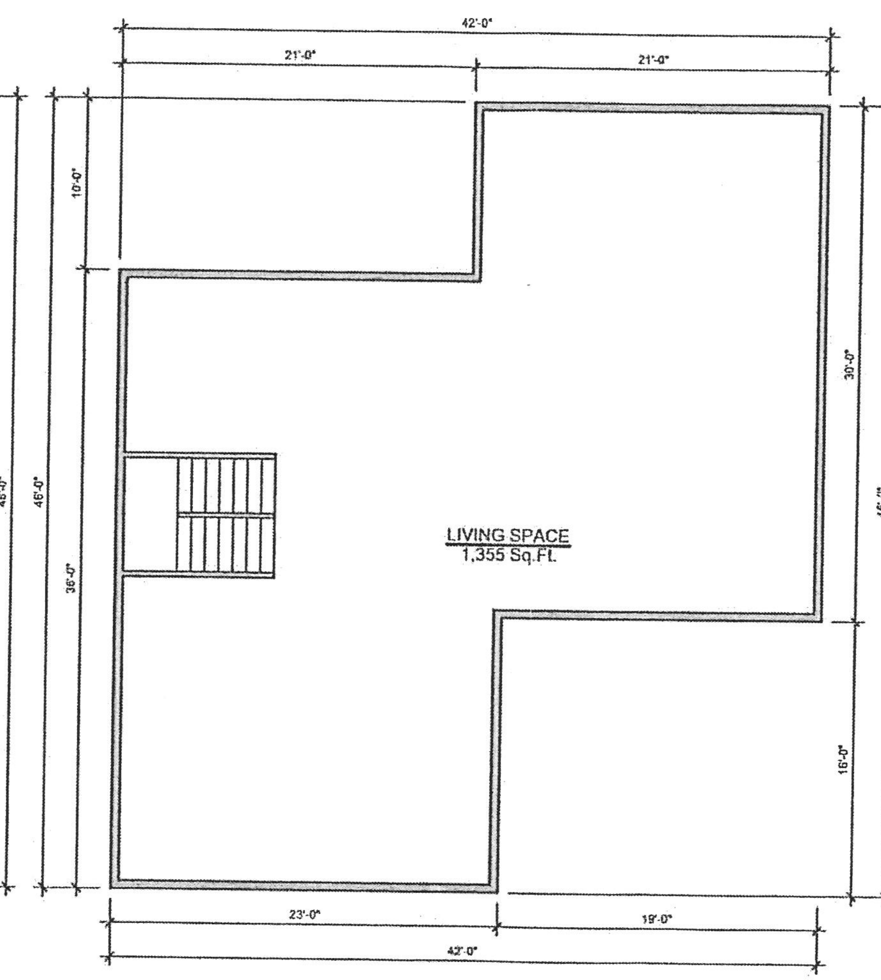
FILE:P:\463-003 Weatherhill Road Phase 1\dwg\plot\463-001_03b_tree_exhibit, Layout: 03B TREE EXHIBIT, Plot Date: 5/2/2019 10:14 AM, by: Jacob Snyder



LOWER FLOOR PLAN



MAIN FLOOR PLAN



UPPER FLOOR PLAN

BUILDING AREAS

LOWER FL AREA	:	701 Sq.Ft.
MAIN FL AREA	:	993 Sq.Ft.
UPPER FL AREA	:	1,355 Sq.Ft.
GARAGE	:	425 Sq.Ft.
TOTAL LIVING AREA	:	3,049 Sq.Ft.

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CONCEPTUAL RESIDENTIAL PLAN

DATE: 5/1/19
JOB NO: 483-003

REVISIONS

SYM	REVISION	DATE

Exhibit