

TOWN OF VERNON  
**Planning & Zoning Commission (PZC)**  
Meeting Notice & Agenda  
**Thursday, May 19, 2022, 7:30 PM**  
Town Council Chambers 3<sup>rd</sup> Floor  
14 Park Place  
Vernon, CT 06066

**AGENDA**

1. **Call to Order & Roll Call by Roland Klee, Chairman**
2. **Administrative Actions/Requests**
  - 2.1 Amendment/Adoption of Agenda - Additional business to be considered under agenda item #6 "Other Business" requires a Commission vote.
  - 2.2 Approval of the Minutes from **May 05, 2022**
3. **New Application(s) for receipt, if any:**

**3.1 PZ-2022-11, 371 Talcottville Rd.** An Application of Allan Borghesi for a Site Plan and Special Permit to develop a 3844 sq. ft. Valvoline Oil Change at 371 Talcottville Rd. (Tax Map 04, Block 04, Parcel 6B). The Special Permit requested includes Section 4.9.4.14 (general automotive repairing and services). The property is zoned Commercial.
4. **Public Hearing(s) and Action on Applications:**

**4.1 Affordable Housing Plan Initial Draft Transmittal.** Discuss the adoption of the Draft Affordable Housing Plan (AHP), 2022 to assist the town's future growth and to comply with the statutory requirements adopted by the Connecticut General Assembly.
5. **8-24 Referrals, If any**
6. **Other Business/Discussion**

Discussion on application review requirements.
7. **Public Comments Received**
8. **Adjournment**

*Roland Klee, Chair*  
**Planning & Zoning Commission**

# **DRAFT MINUTES**

TOWN OF VERNON  
**Planning & Zoning Commission (PZC)**  
Thursday, May 05, 2022, 7:30 PM  
14 Park Place  
Vernon, CT 06066

DRAFT MINUTES

RECEIVED  
VERNON TOWN CLERK  
22 MAY 10 11:31

1. **Call to Order & Roll Call by Roland Klee, Chairman at 7:30 PM**
  - Regular members present: Roland Klee, Carl Bard, Mike Baum, Robin Lockwood, Joseph Miller, Mike Mitchell and Iris Mullan
  - Alternate Member:
  - Absent Members: Alternate Yelena Damsky
  - Staff present: Shaun Gately, Interim Director, Luciana Granstrand, Planning Specialist
  - Recording secretary: Jill Rocco

2. **Administrative Actions/Requests**

2.1 Amendment/Adoption of Agenda - Additional business to be considered under agenda item #6 "Other Business" requires Commission vote.

Robin Lockwood **MOVED** to **ADOPT** the agenda. Joseph Miller seconded and the motion carried unanimously.

2.2 Approval of the Minutes from the **April 21, 2022**

Robin Lockwood **MOVED** to **APPROVE** the minutes from April 21, 2022. Mike Mitchell seconded and the motion carried unanimously.

3. **New Application(s) for receipt, if any:**

**NONE**

4. **Public Hearing(s) and Action on Applications:**

**4.1 PZ-2022-05, 501 Talcottville Rd. (Continued)** An Application of Vernon Development LLC for a Site Plan and Special Permits to develop a 10,000 sq. ft. day care center at 501 Talcottville Rd. (Tax Map 09, Block 007, Parcel 0001D). Special permits requested include Section 4.9.4.15.1 (more than 40 parking spaces); Section 4.9.4.15.2 (structure within 200 feet of a residence); Section 4.9.4.15.3 (parking within 100 feet of a residence). The property is zoned Commercial.

- Public Hearing continued from April 7, 2022.
- Shaun Gately, Interim Director, read memo dated May 5, 2022 to the Commission.
- Shaun Gately, Interim Director, read memo from David Smith, Town Engineer into record.
- Shaun Gately, Interim Director, read May 3, 2022 email from David Smith, Town Engineer into record.
- Shaun Gately, Interim Director, read memo from Chief of Police John Kelly into record.
- Shaun Gately, Interim Director, read letter from Judith Veillette, 786 Dart Hill Road.
- Shaun Gately, Interim Director, read additional letter from Judith Veillette.

- Timothy Coon, Principal Engineer with J.R. Russo & Associates spoke in regards to the application detailing traffic pattern.
- Commission asked questions in regards to dumpster noise, drainage system
- Timothy Coon, Principal Engineer responded.
- John Coro, 52 Worcester Rd., spoke in opposition.
- Tom Shirshac, 64 Worcester Rd., spoke in opposition.
- James King, 58 Worcester Rd., spoke in opposition.
- Debbie Mitchell, 19 Quarry Dr., spoke in opposition.
- Commission asked questions.
- Shaun Gately, Interim Director, clarified the drainage system concerns.
- Timothy Coon, Principal Engineer, addressed all questions and concerns.
- Shaun Gately, Interim Director, explained removal of invasive species.
- Commission asked a question in regards to traffic at intersection of Route 83 & Dart Hill Rd.
- Shaun Gately, Interim Director, responded.
- Discussion ensued.

Mike Mitchell **MOVED** to **CLOSE** the Public Hearing. Joseph Miller seconded and the motion carried unanimously.

Commission discussion ensued.

Commission took a ten-minute recess at 8:38 PM.

Chairman Roland Klee, **MOVED** to **RECONVENE** the meeting at 8:38. Mike Mitchell seconded and the motion carried unanimously.

Robin Lockwood **MOVED** to **DENY 4.1 PZ-2022-05, 501 Talcottville Rd.** An Application of Vernon Development LLC based upon finding that the application revised, does not meet the plan requirements because of the application 17.3.1.1 it shall not create a hazardous condition relative to public safety or health, 17.3.1.2 it shall be compatible with the neighboring uses, 17.3.1.4 it shall not hinder the future sound development of community. Mike Mitchell seconded and the motion carried unanimously.

**4.2 PZ-2022-06, 501 Talcottville Rd. (Continued)** An Application of 501 Talcottville Rd. LLC to permit the re-subdivision of land into one additional parcel, located at 501 Talcottville Rd. (Tax Map 09, Block 0007, Parcel 0001D). The property is zoned Commercial.

- Shaun Gately, Interim Director, re-opened the Public Hearing.
- John Oliveto, Professional Engineer, Alfred Benesch & Co., 120 Hebron Ave., Glastonbury, withdrew the application.

Robin Lockwood **MOVED** to **CLOSE** the Public Hearing. Joseph Miller seconded and the motion carried unanimously.

Mike Mitchell **MOVED** to **ACCEPT** the withdrawal at the request of the applicant **PZ-2022-06, 501 Talcottville Rd.** Robin Lockwood seconded and the motion carried unanimously.



**4.3 PZ 2022-10, 25 Park St.-Retail Cannabis (withdrawn)** An Application of Nick Tamborrino, SFC CT LLC, requesting a special permit pursuant to Section 4.26.5.26 (HD-DBR District) and Section 17 of the Vernon Zoning Regulations to permit allow a retail cannabis establishment at 25 Park St. (Tax Map 40, Lot 0107, Parcel 00005).

- Shaun Gately, Interim Director, explained that the application remained on the agenda due to the fact it was published in the Journal Inquirer.

5. **8-24 Referrals, If any**

**NONE**

6. **Other Business/Discussion**

**6.1 Vernon Zoning Regulations, Interpretation of "Personal Convenience Services"** and uses in the Commercial District.

- Shaun Gately, Interim Director, spoke to clarify regulations for staff to do what staff is tasked to do.
- Referencing cosmetic services, spas and beauty salons and special permits in regards to tattoo parlors.
- Shaun Gately asked "What does the commission consider a tattoo studio?"
- "Is the impact of these items and the services they provide similar, the same or completely different?"
- Lengthy discussion ensued.

Robin Lockwood **MOVED** that a tattoo parlor is the same as a beauty salon. Carl Bard seconded and the motion carried unanimously.

**6.2 2022 Affordable Housing Plan Initial Draft Transmittal**

- Shaun Gately explained there was a modification to the plan that the commission had originally seen referring to objectives and strategies on page 9 and removing changing zoning ordinance on multi-families.
- Discussion ensued.
- Shaun Gately, Interim Director, recommended a Public Hearing for the June 2, 2022 PZC meeting.
- Discussion ensued.

**6.3 Notification Letter:** The Planning Department received a notification letter from the Town of Manchester regarding a proposed text for their zoning regulation amendment application which was submitted to their Planning Department. The application requests a special exception trigger for uses that require 7+ loading docks or bays in all zones that already have a special exception trigger based on lot size & parking space quantity (CUD, IND, and Business zones). It was filed at Manchester's Planning Department and is available for public review until June 6, 2022.

- Shaun Gately, Interim Director, explained the letter from the Town of Manchester, no action needed by the Commission.

7. **Public Comments Received**

7.1 The Town received public comment from Judith Veillette.

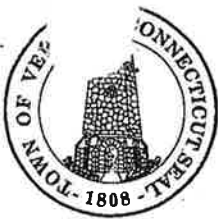
Shaun Gately, Interim Director, read this into record at the Public Hearing for **PZ-2022-05, 501 Talcottville Rd.** As stated in section 4.1 above.

7. **Adjournment**

Robin Lockwood **MOVED** to **ADJOURN** at 9:13PM. Carl Bard seconded and the motion carried unanimously.

Jill Rocco  
Recording Secretary

**APPLICATION**  
**For Receipt**



# TOWN OF VERNON PLANNING & ZONING COMMISSION (PZC)

## APPLICATION

(Revised March 2021)

The PZC may require additional information to be provided by the applicant in the course of reviewing the application and during the monitoring of the project. Provide all the information requested.

### APPLICANT(S)

NAME: Allan Borghesi  
COMPANY: Borghesi Building + Eng. Co Inc  
ADDRESS: 2155 E Main Torrington Ct 06790  
TELEPHONE: 860 482 7613 E-MAIL: Allan@Borghesi building, Com

### PROPERTY OWNER(S)

NAME: Expet LLC  
ADDRESS: 25 Main St 4th Floor Hartford Ct 06106  
TELEPHONE: 203-943-3739 EMAIL: Glennh@Synpower, Net

If the applicant is not the property owner, include a letter from the property owner authorizing the applicant to seek approval by the PZC, if no signature accompanies the application. (ZR Section 2.3)

### PROPERTY

ADDRESS: 371 Talcottville Rd

ASSESSOR'S ID CODE: MAP # 4 BLOCK #     LOT/PARCEL # 6B

LAND RECORD REFERENCE TO DEED DESCRIPTION: VOLUME: 1977 PAGE 146

DOES THIS SITE CONTAIN A WATERCOURSE AND/OR WETLANDS? (SEE THE INLAND WETLANDS MAP AND REGULATIONS)

    NO X YES

X NO REGULATED ACTIVITY WILL BE DONE

    REGULATED ACTIVITY WILL BE DONE

    IWC APPLICATION HAS BEEN SUBMITTED

ZONING DISTRICT    

IS THIS PROPERTY LOCATED WITHIN FIVE HUNDRED (500) FEET OF A MUNICIPAL BOUNDARY?

X NO

    YES:    

CHECK IF HISTORIC STATUS APPLIES: No

    LOCATED IN HISTORIC DISTRICT:    

    INDIVIDUAL HISTORIC PROPERTY



**TOWN OF VERNON PLANNING & ZONING COMMISSION (PZC)**

**APPLICATION**

(Revised March 2021)

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    REGULATED ACTIVITY WILL BE DONE

    IWC APPLICATION HAS BEEN SUBMITTED

ZONING DISTRICT                     

IS THIS PROPERTY LOCATED WITHIN FIVE HUNDRED (500) FEET OF A MUNICIPAL BOUNDARY?

☒ NO

    YES:                     

CHECK IF HISTORIC STATUS APPLIES: NO

    LOCATED IN HISTORIC DISTRICT:                     

    INDIVIDUAL HISTORIC PROPERTY

**TOWN OF VERNON PLANNING & ZONING COMMISSION (PZC)**

**APPLICATION**

This form is to be used to apply to the Vernon Planning & Zoning Commission (PZC) for a change of zoning district, amendment of the Zoning Regulations, Site Plan of Development (POD), Special Permit(s), amendment of the Subdivision Regulations, and/or approval of a (re) subdivision, or DMV location approval. Provide all the information requested.

The applicant must be the property owner, the property owner's agent, the Town of Vernon, or someone with a direct financial interest in the subject property; said interest shall be explained and written permission for this application must be obtained from the property owner and submitted with this application if the applicant is not the property owner (ZR Section 2.3).

*The list of approvals and the references to sections of the Regulations are for informational purposes only to assist with preparation of the PZC application and are not a definitive statement of the sole requirements that may apply to a specific project.*

The applicant understands that the application is complete only when all information and documents required by the PZC have been submitted and, further, that any approval by the PZC relies upon complete and accurate information being provided by the applicant. Incorrect information provided by the applicant may make the approval invalid. The PZC may require additional information to be provided by the applicant in the course of reviewing the application and during the monitoring of the project.

Provide all the information requested:

**I. APPLICANT:**

Name: Allan Borghesi  
Title: Chairman  
Company: Borghesi Building + Eng Co INC  
Address: 2155 E MAIN  
TORRINGTON CT 06790  
Telephone: 860-482-7613 Fax: 860 482 5082  
E-mail: Allan@BorghesiBuildings.com

**II. PROPERTY OWNER (S):**

Name: Expect LLC c/o Glen Holderbach  
Title: NA  
Company: Expect LLC  
Address: 25 Main St 4th Floor Hartford 06106  
Telephone: 203 943 3739 Fax: —  
E-mail: Glennh@Synpower.net

### III. PROPERTY

Address: 371 Talcottville Rd

Assessor's ID Code: Map # 4 Block # 1464 Lot/Parcel # 6B

Land Record Reference to Deed Description: Volume: 1464 Page 24

Does this site contain a watercourse and/or wetlands? (See the Inland Wetlands Map and IWR Section 2.14, 2.15, 2.23, 2.24, 3.11; 4)

   No

X Yes

X No work will be done in regulated area  
   Work will be done in the regulated area

   IWC application has been submitted

   IWC application has not been submitted

Zoning District C

Is this property located within five hundred (500) feet of a municipal boundary?

X No  
   Yes:

   Bolton  
   Coventry  
   Ellington  
   Manchester  
   South Windsor  
   Tolland

Check if Historic Status Applies: Nb

   Located in historic district:

   Rockville  
   Talcottville

   Individual historic property

#### IV. PROJECT

Project Name: Valvoline Building

Project Contact Person:

Name: Allan Borghesi

Title: Chairman

Company: Borghesi Building + Eng. Co Inc

Address: 2155 E Main

Torrington CT 06790

Telephone: 860 482 7613 Fax: 860 482 5082

E-mail: Allan @ Borghesi building, com



## V. PZC APPLICATION PROJECT SUMMARY

Describe the project briefly in regard to the purpose of the project and the activities that will occur. Attach to this application a complete and detailed description with maps and documentation as required by the "Town of Vernon Zoning Regulations" and "Town of Vernon Subdivision Regulations".

Purpose: Construct a Valvoline Oil Change

General Activities: Construct a 3844 Sq Ft  
Valvoline Oil Change Bldg

## VI. APPROVAL (S) REQUESTED

### ☐ Subdivision or Resubdivision

- ☐ Subdivision (Sub. Sec. 4, 5, 6)
- ☐ Resubdivision (Sub. Sec. 4, 5, 6)
- ☐ Minor modification of subdivision or resubdivision (Sub. Sec. 4.6)
- ☐ Town acceptance of a road (Sub. Sec. 6.5-6.8 & 9)
- ☐ Amendment of Subdivision Regulations (Sub. Sec. II)

See Subdivision Regulations Sec. 4 for application fee schedules.

### ☐ Soil Erosion and Sediment Control Plan (ESCP) (ZR Sec. 2.117; 18) (Sub. 6.14)

### ☒ Site Plan of Development (POD) (ZR Sec. 14)

- ☐ POD approval (ZR Sec. 14.1.1.1; 14.1.2)
- ☐ Modification of an approved POD (ZR Sec. 14.1.1.1)
- ☐ Minor modification of a site POD (ZR Sec. 14.1.1.2)

### ☐ Special Permit(s) (ZR Section 17.3)

- ☐ Special Permit in an aquifer area (ZR Sec. 2.4; 2.5; 2.119; 20)
- ☐ Special Permit for excavation (ZR Sec. 2.52; 2.79; 15)
- ☐ Special Permit for use in a district (ZR Sec. 1.2 & 4)
- ☐ Special Permit for lot coverage (ZR Sec. 1.2; 2.61; 2.68; 4)
- ☐ Special Permit for signs (ZR Sec. 1.2; 2.106-115; 4; 16; 21.7)
- ☐ Special Permit for parking (ZR Sec. 4; 12; 21.4)
- ☐ Special Permit for elderly housing (ZR Sec. 2.60; 17.4)
- ☐ Special Permit for Bed & Breakfast (B & B) (ZR Sec. 2.9; 17.3.4)
- ☐ Special Permit for serving alcohol (ZR Sec. 2.103, 17.1)
- ☐ Special Permit for massage (ZR Sec. 2.76-78; 4)
- ☐ Special Permit for telecommunications (ZR Sec. 2.21; 3.23 & 23)
- ☐ Special Permit for dumps and/or incinerators (ZR Section 8)

\_\_\_\_ Other Special Permit(s). Cite ZR Section and describe activity:

Section 4, 9, 4, 14  
General Auto Repair + Service

\_\_\_\_ Special Permit modifications (ZR Sec. 17.3.2.2). Cite ZR Section and describe activity.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_ **Zoning:**

\_\_\_\_ Site specific change of zoning district and map (ZR Sec. 1.2; 1.3; 4)

\_\_\_\_ Amendment of Zoning Regulations (Sec. 1.2; 1.3; 4)

\_\_\_\_ Site specific change to the Aquifer Protection Overlay Zone Map (ZR Sec. 20.3.2)

*See Zoning Regulations Section 22 for application fee schedules.*

✓ Dealer or Repairer License (location approval for DMV)

09-015H-0026B  
SCF RC FUNDING IV LLC  
902 CARNEGIE CENTER BLVD #520  
PRINCETON NJ 08540

~~04-0004-008A7~~  
~~VERNON TOWN OF~~  
~~14 PARK PL~~  
~~VERNON CT 06066~~

04-0004-0007A  
VERNON TOWN OF  
14 PARK PL  
VERNON CT 06066-3291

04-0004-0006B  
EXPCT LLC  
25 MAIN ST 4TH FL  
HARTFORD CT 06106

~~04-0004-008A5~~  
~~TOWN OF VERNON~~  
~~14 PARK PL~~  
~~VERNON CT 06066~~

~~04-0004-0005A~~  
~~EXPCT LLC~~  
~~25 MAIN ST 4TH FL~~  
~~HARTFORD CT 06106~~

09-015H-0026D  
ALDI INC (CONNECTICUT)  
C/O RYAN TAX COMPLIANCE SERVICES LLC  
PO BOX 460049 DEPT 501  
HOUSTON TX 77056

09-015H-0026A  
BOSTONMANCHESTER LLC  
715 BOYLSTON ST  
BOSTON MA 02116

04-0004-008A3  
PARK AT HOCKANUM CROSSING LLC  
75 HOCKANUM BLVD OFC  
VERNON CT 06066-4093

04-0004-0006A  
MARCO ENTERPRISE MANAGEMENT LLLP  
1440 CAXAMBAS CT  
MARCO ISLAND FL 34145-6604

04-0004-008A6  
VERNON SELF STORAGE CENTERS LLC  
PO BOX 68  
WILBRAHAM MA 01095

04-0004-008A4  
TOWN OF VERNON  
14 PARK PL  
VERNON CT 06066

04-0004-008A7  
CHAPMAN CLIFTON B  
75 HOCKANUM BLVD  
VERNON CT 06066

04-0004-00005  
BRIAR KNOLL NCM LLC  
2 ENTERPRISE DR STE 406  
SHELTON CT 06484

Per Connecticut General Statutes (CGS) Section 8-26: If an application submitted to the Planning & Zoning Commission (PZC) involves any activity or area regulated under the wetlands statutes, an application for this activity must be filed with the Inland Wetlands Commission (IWC) on or before the day the Planning & Zoning Commission (PZC) application is filed by the applicant. (IWR Sec. 3.11)

Per CGS Sec. 8-31: If the proposed activity is to take place within a watershed of a Water company, the applicant is required to file a copy of the application with the Water Company via certified mail within seven (7) days of the date of the application. (IWR Sec. 4.3.6).

The applicant, undersigned, has reviewed the "Town of Vernon Planning and Zoning Regulations and Inland Wetlands and Watercourses Regulations" and has prepared this application with complete and accurate information:

Property Owner, Applicant, or Applicant's Agent:

Allan R. Borghesi  
Allan Borghesi Signature Agent  
\_\_\_\_\_  
Signature

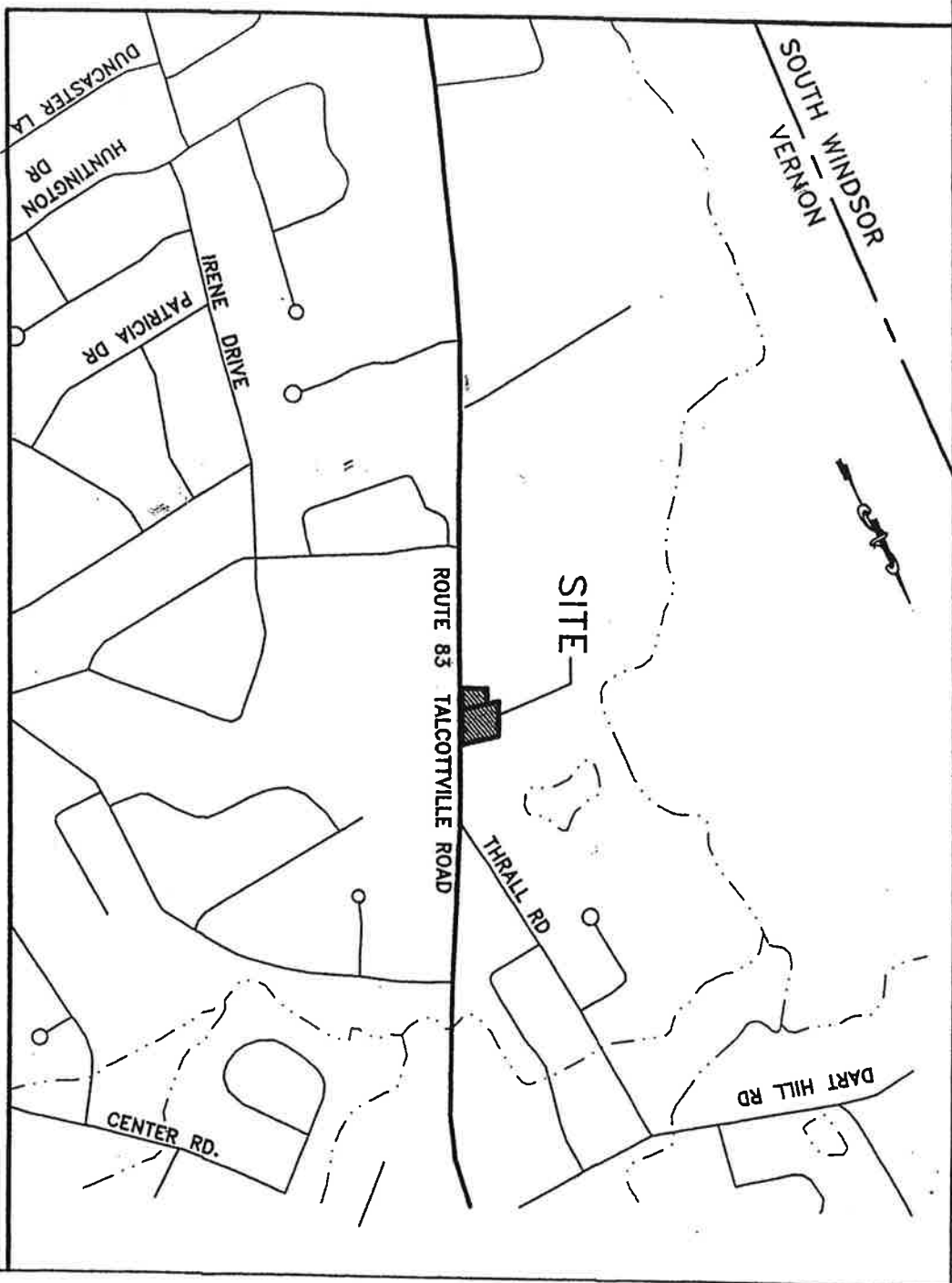
5/5/22  
Date  
\_\_\_\_\_  
Date

**TO BE FILLED IN BY THE PLANNING DEPARTMENT**

Date Application Submitted \_\_\_\_\_

Date Application Received by Commission \_\_\_\_\_

PZC File: \_\_\_\_\_



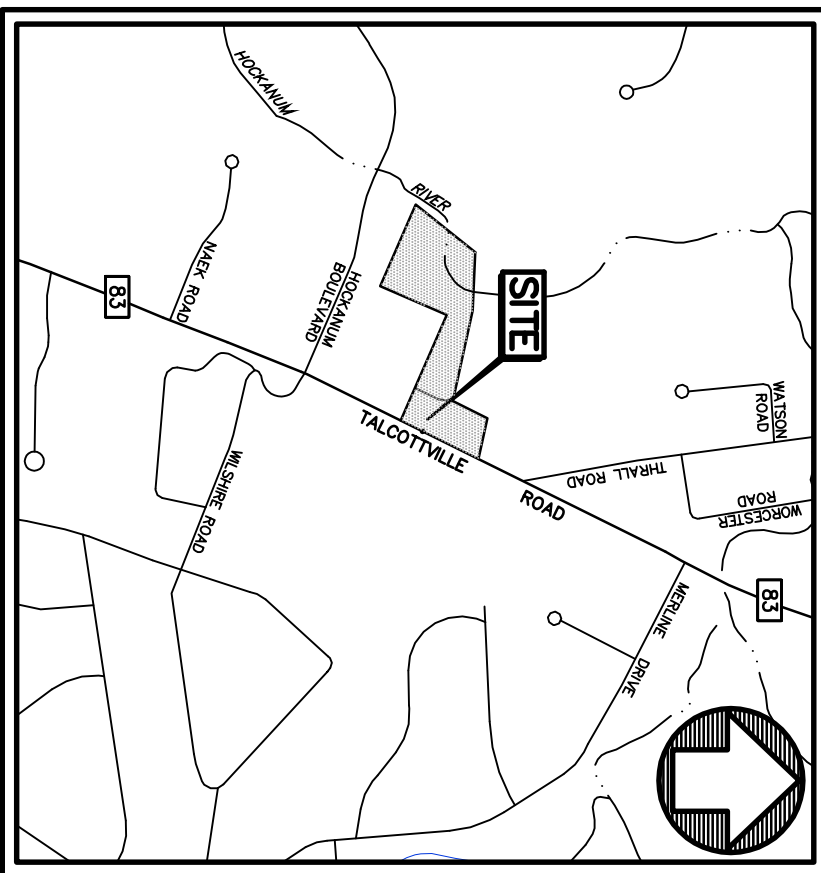
LOCATION PLAN - SCALE: 1"=1000'



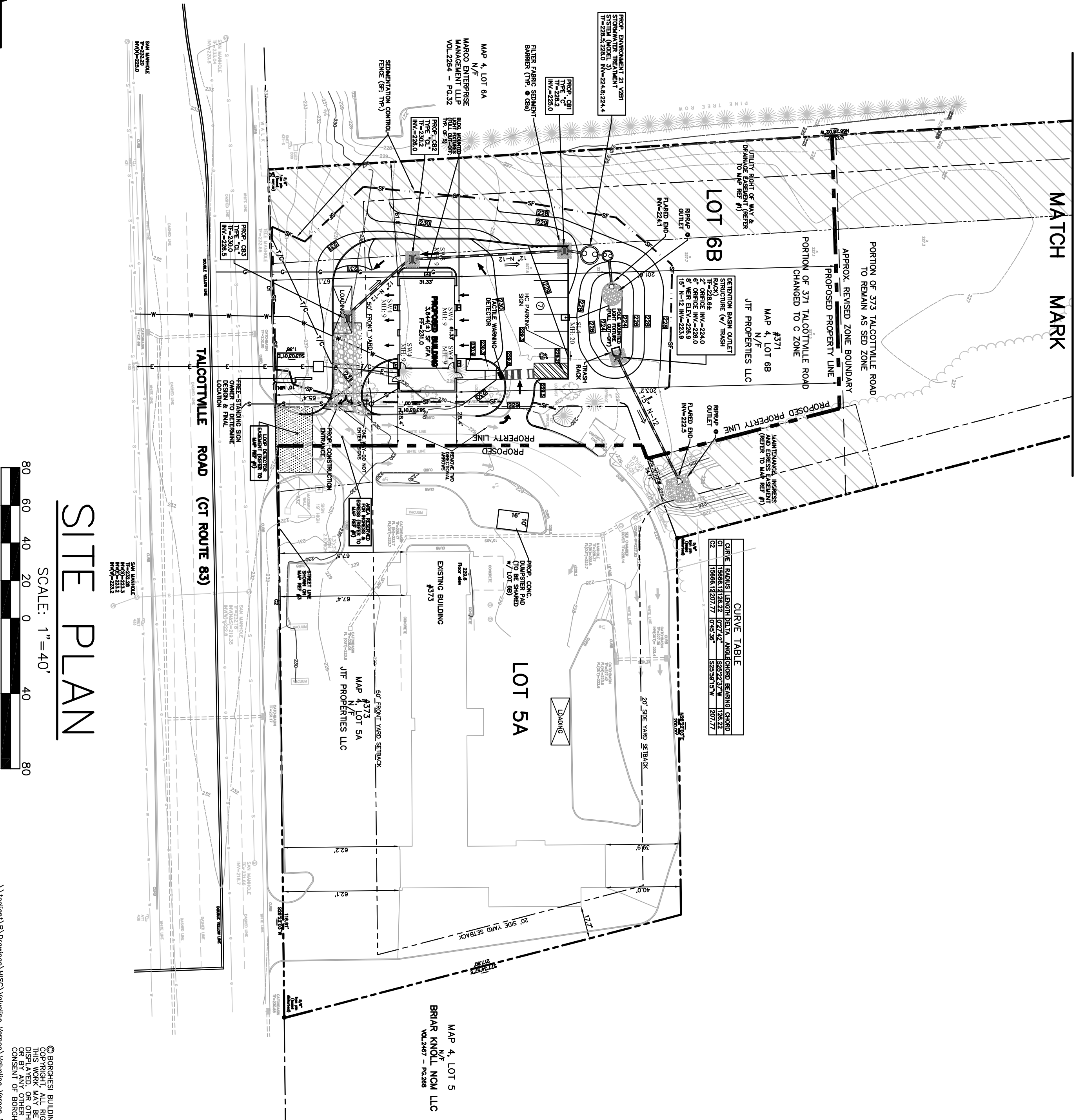
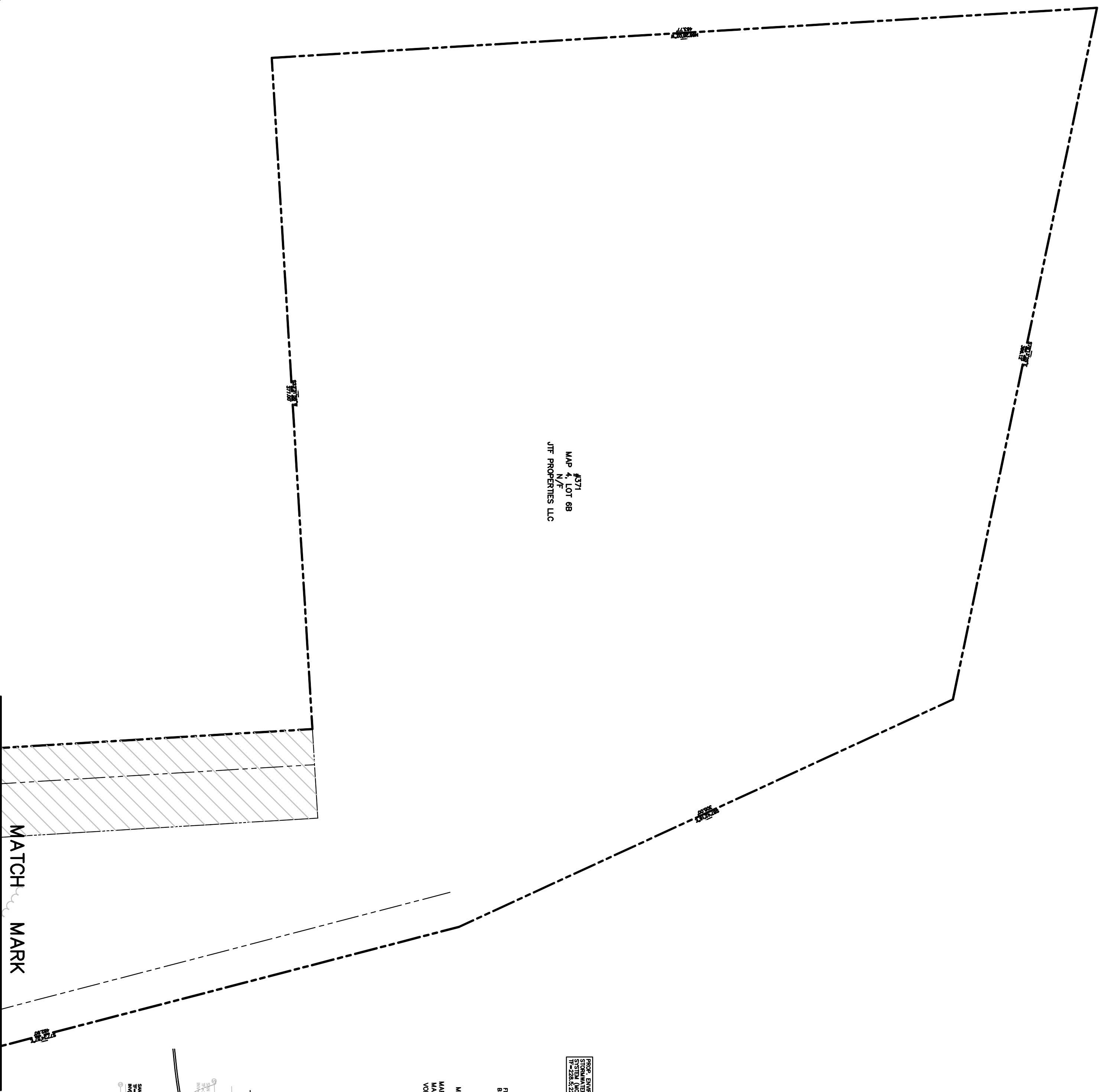
- 1) DRAW REFERENCES:  
A. MAPS ENTITLED "TOPOGRAPHIC SURVEY PREPARED FOR BORGHESI BUILDING & ENGINEERING CO., INC. FOR OTHER PERTINENT INFORMATION" (BORGHESI BUILDING & ENGINEERING CO., INC. 575 NORTH MAIN STREET, BRISTOL, CT. DATED 08-19-2020 (JOB NO. 20-59, FILE NO. 20-59))
- 2) OWNER:  
BORGHESI BUILDING & ENGINEERING CO., INC.  
575 NORTH MAIN STREET, 4TH FLOOR  
HARTFORD, CT 06106
- 3) REFER TO THE FOLLOWING DRAWINGS PREPARED BY BORGHESI BUILDING & ENGINEERING CO., INC. FOR OTHER PERTINENT INFORMATION:  
SP1 SITE PLAN (20 SCALE)  
SP2 SITE PLAN (20 SCALE)  
SP3 LANDSCAPE, LIGHTING, & LAYOUT PLAN (20 SCALE)  
SP4 PHOTOGRAPHIC PLAN (20 SCALE)  
SP5 EXISTING UTILITIES, NOTES & DETAILS  
SP6 SITE DETAILS  
SPD3 SITE DETAILS
- 4) ALL EXISTING UTILITY LOCATIONS ARE FROM THE BEST AVAILABLE INFORMATION, INCLUDING BUT NOT LIMITED TO, VERIFICATION OF LOCATIONS, DIMENSIONS, & ELEVATIONS PRIOR TO CONSTRUCTION. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL CALL 811 AT 1-800-922-4455 TO MARK ALL UTILITIES WITHIN THE CONSTRUCTION LIMITS.
- 5) ALL PROPOSED UTILITIES SHOWN ON THESE DRAWINGS ARE PRELIMINARY & THEREFORE SUBJECT TO CHANGE. FINAL UTILITY LOCATIONS(S) OF UTILITIES SHALL BE DETERMINED BY THE APPROPRIATE UTILITY COMPANY(S) OR MUNICIPAL AUTHORITIES, & BASED UPON THEIR REVIEW & APPROVAL.
- 6) HANDPAINTED PARKING SPACES SHALL BE DESIGNATED WITH PAINTED PAVEMENT MARKINGS. PARKING SPACES SHALL BE MARKED WITH WHITE PAVEMENT MARKINGS & ITS ADDENDUMS, & SHALL COMPLY WITH CT STATE BUILDING CODE.
- 7) ALL SIGNS, SIGN MOUNTINGS, & PAINTED MARKINGS SHALL MEET THE REQUIREMENTS AS SET FORTH IN THE MOST CURRENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) & ITS ADDENDUMS.
- 8) PRIOR TO JACKING UP ANY STANDS REQUIRING TREES, ANY GRAVEL OR MATERIAL SHALL BE PLACED UNDER THE STANDS TO PROTECT THE TREES. ANY TREES TO BE TOPSOILED, BY THE SITE CONTRACTOR, ANY AREAS TO BE PLANTED WITH SHRUBS &/OR TREES SHALL BE TOPSOILED TO A MINIMUM DEPTH OF 2' (TWO FEET), & REPLACED TO A MINIMUM DEPTH OF 18" (EIGHTEEN INCHES), & REPLACED WITH TOPSOIL.
- 9) ALL LIGHT FIXTURES SHALL BE PULL OUT-OFF FIXTURES.
- 10) ALL ORNAMENT PIPING TO BE ADS N-12 OR APPROVED EQUAL, UNLESS OTHERWISE INDICATED.

ZONING INFORMATION TABLE (PROPOSED LOT 6B)			
ZONE: 371 TALCOTTVILLE ROAD - COMMERCIAL  NOTE: A PORTION OF LOT 6B SHALL BE MERGED WITH LOT 5A, & A PORTION OF LOT 5A SHALL BE MERGED WITH LOT 6B. THE PROPOSED PROPERTY LINE REVISIONS ARE BASED UPON THE 2016 AERIAL PHOTOGRAPH. THE PROPOSED PROPERTY LINE REVISIONS ARE APPROVAL OF JOSEF LOT LINE REVISIONS.			
ASSESSOR'S INFO: 371 TALCOTTVILLE ROAD, TAX ID 04-0004-00068			
EXISTING USE OF PROPERTY: VACANT PROPERTY PROPOSED USE OF PROPERTY: VACANT INSTANT OIL CHANGE SERVICE		GROSS FLOOR AREA OF PROPOSED BUILDING (MAIN FLOOR + BASEMENT): 3,844(+/-) SF	
ITEM	REQUIRED / ALLOWED	PROVIDED / PROPOSED	
MINIMUM LOT AREA	22,000 SF	46,076(+/-) SF / 1,061(+/-) ACRES	
MINIMUM LOT WIDTH	100'	190'(+/-)	
MINIMUM YARD SETBACKS		65'(+/-) 28'(+/-) 20'(+/-)	
FRONT SIDE REAR	50' 50' 50'		
MAXIMUM BUILDING COVERAGE	25,000 (AGGREGATED) SF	3,844(+/-) SF = 0.08 (+/-) %	
MAXIMUM IMPERVIOUS COVERAGE	60%	13.667 (+/-) SF = 29.7 (+/-) %	
MAXIMUM HEIGHT	35' / 2 STOREYS (ALLOWED)	27' (+/-)	
PARKING	OIL CHANGE ONLY, NOT A FULL SERVICE GARAGE CUSTOMER REMAINS IN VEHICLE MOTOR VEHICLE SERVICE NO REPAIR LICENSE, 7 MINIMUM NOTE: REQUIRED	6 SPACES + 1 HC SPACE 7 SPACES	
LOADING	PROPOSED BUILDING < 7500 SF	1	

ZONING INFORMATION TABLE (PROPOSED LOT 5A)			
CURRENT ZONES: 373 TALCOTTVILLE ROAD - COMMERCIAL *S			
*S: PORTION OF THIS PARCEL HAS BEEN RE-ZONED AS AN SED ZONE.			
THIS TABLE IS BASED UPON "C" ZONE STANDARDS			
NOTE: A PORTION OF LOT 68 SHALL BE ZONED WITH LOT 5A, & A PORTION OF LOT 5A SHALL BE MERGED WITH LOT 68. THE PROPOSED PROPERTY LINE REVISIONS ARE APPROVED FOR THOSE LOT LINE REVISIONS APPEARING IN THIS TABLE IS BASED UPON APPROVAL OF THOSE LOT LINE REVISIONS.			
ASSESSOR'S INFO: 373 TALCOTTVILLE ROAD, TAX ID 04-0004-0005A			
EXISTING USE OF PROPERTY: MR. SPARKLE CAR WASH			
PROPOSED USE OF PROPERTY: SAME			
GROSS FLOOR AREA OF EXISTING BUILDING: 7,765(±) SF			
ITEM	REQUIRED/ALLOWED	PROVIDED/PROPOSED	
MINIMUM LOT AREA	22,000 SF	293,573(±) SF	1,325(±) ACRES
MINIMUM LOT WIDTH	100'	295(±)'	
MINIMUM YARD SETBACKS		65'(±) (EXISTING CONDITION)	
FRONT	50'	175(±) (EXISTING CONDITION)	
SIDE	20'	175(±) (EXISTING CONDITION)	
REAR	50'	40'(±) (EXISTING CONDITION)	
MAXIMUM BUILDING COVERAGE	25,000 SQUARE(±) SF (ALLOWED)	7,765(±) SF	0.03(±)%
MAXIMUM IMPERVIOUS COVERAGE	60%	37,416(±) SF	0.13(±)%
MAXIMUM HEIGHT	35' / 2 STORIES (ALLOWED)	27(±)'	
PARKING	SELF-SERVICE DRIVE THRU CAR WASH WITH 1 EMPLLOYEE NO SIMILAR USES LISTED	2 SPACES	
LOADING	7,500-20,000 SF=1 EXISTING BUILDING=7,765 SF 1 REQUIRED	1	



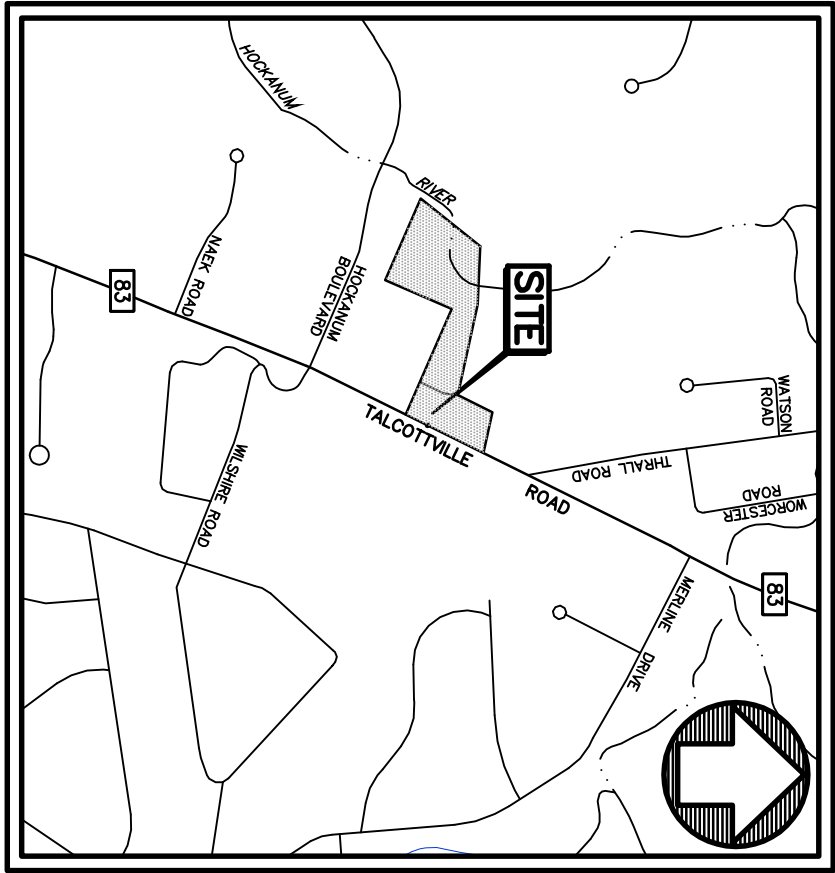
APPROX. SCALE: 1"=1000'



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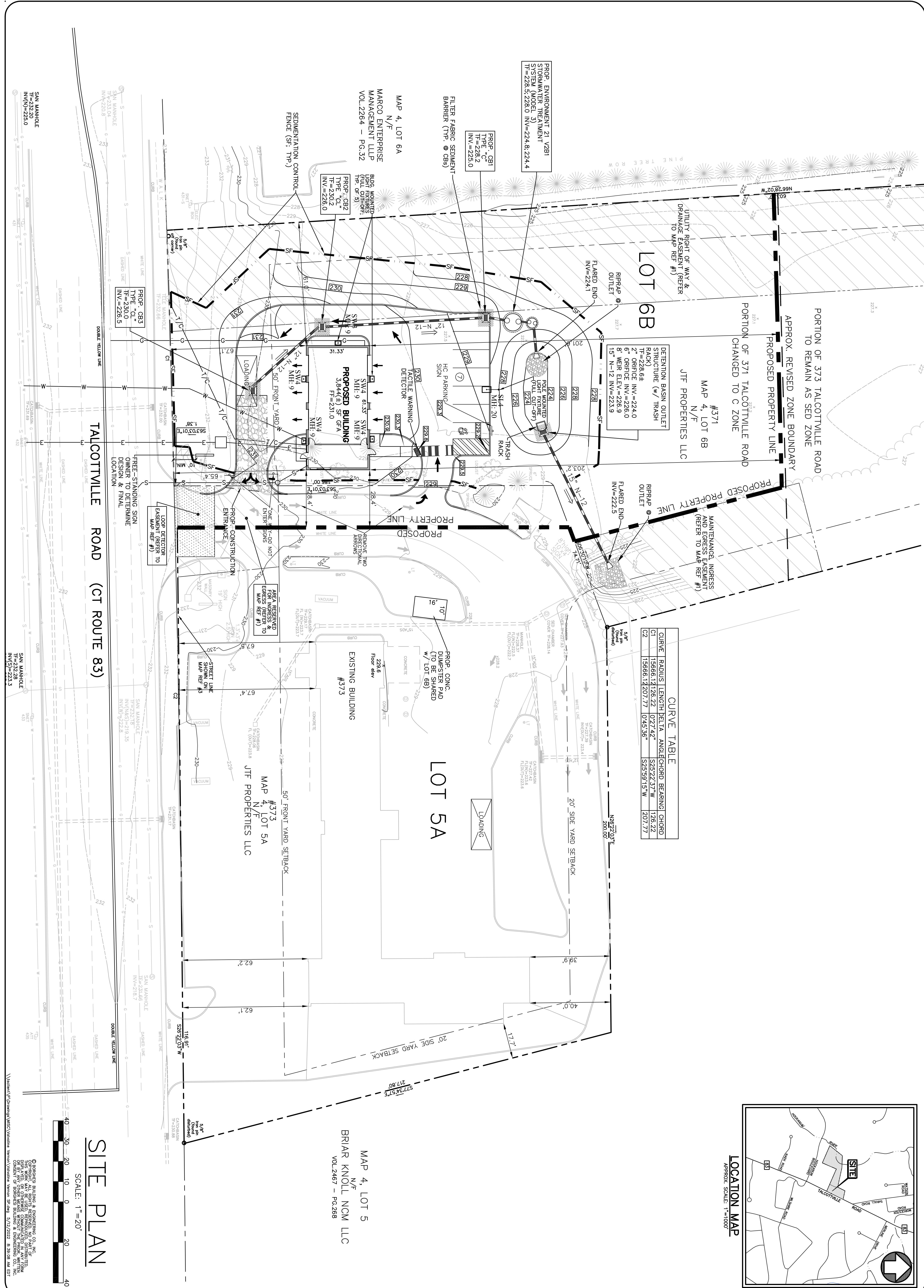
SHEET NO.  <div style="border: 1px solid black; padding: 5px; font-weight: bold; font-size: 1.2em;">SP1</div>	PROJECT <b>Valvoline</b> <b>INSTANT OIL CHANGE</b> 371 & 373 TALCOTTVILLE ROAD, VERNON, CT	REVISIONS 05-12-22 RELOCATED PROP. DUMPS/PAD	SEAL		<div style="border: 2px solid black; padding: 10px; text-align: center;"> </div>
	DRAWN BY G.R.W.	APPROVED BY A.R.B.			
	DATE 04-28-22	SCALE AS NOTED			
	2155 EAST MAIN STREET TORRINGTON, CT 06790 860-482-7613; WEB: <a href="http://www.borghesibuilding.com">www.borghesibuilding.com</a>				





LOCATION MAP  
APPROX. SCALE: 1"=1000'

CURVE TABLE				
CURVE	RADIUS	LENGTH	DELTA	ANGLE/CHORD BEARING
C1	15666.12	126.22	0°27'42"	S25°22'37"W 126.22
C2	15666.12	207.77	0°45'36"	S25°59'15"W 207.77



SITE PLAN  
SCALE: 1"=20'

PROJECT

Valvoline  
INSTANT OIL CHANGE

371 & 373 TALCOTTVILLE ROAD, VERNON, CT

MAP 4, LOT 5  
N/F  
BRIAR KNOLL NCM LLC  
VOL.2467 - PG.268

DRAWN BY

G.R.W.

APPROVED BY

A.R.B.

DATE

04-28-22

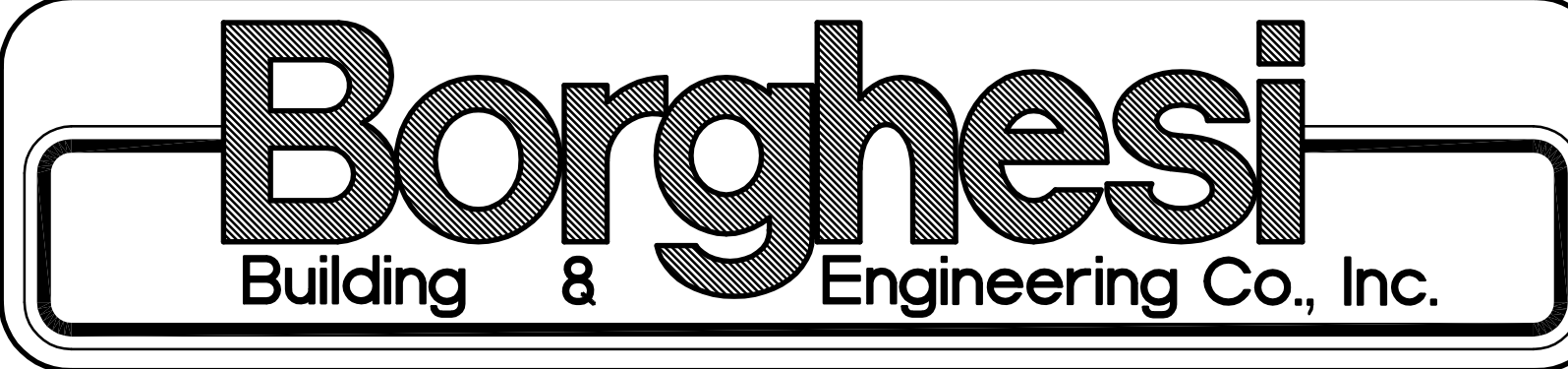
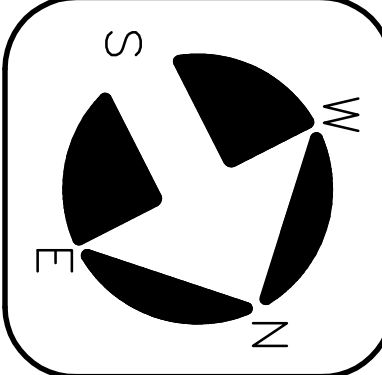
SCALE

AS NOTED

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REVISIONS  
05-12-22 RELOCATED PROP. DUMPSTER PAD

SEAL





Luminaire Schedule					
Symbol	Qty	Label	Arrangement	Luminaire Lumens	Luminaire Waits
	1	SI4	SINGLE	8707	70
	1	SV3	SINGLE	3757	26.2
	4	SW4	SINGLE	2701	26.2
				LLF	RLG Rating
				0.900	20
				0.900	20
				0.900	20
				0.900	20

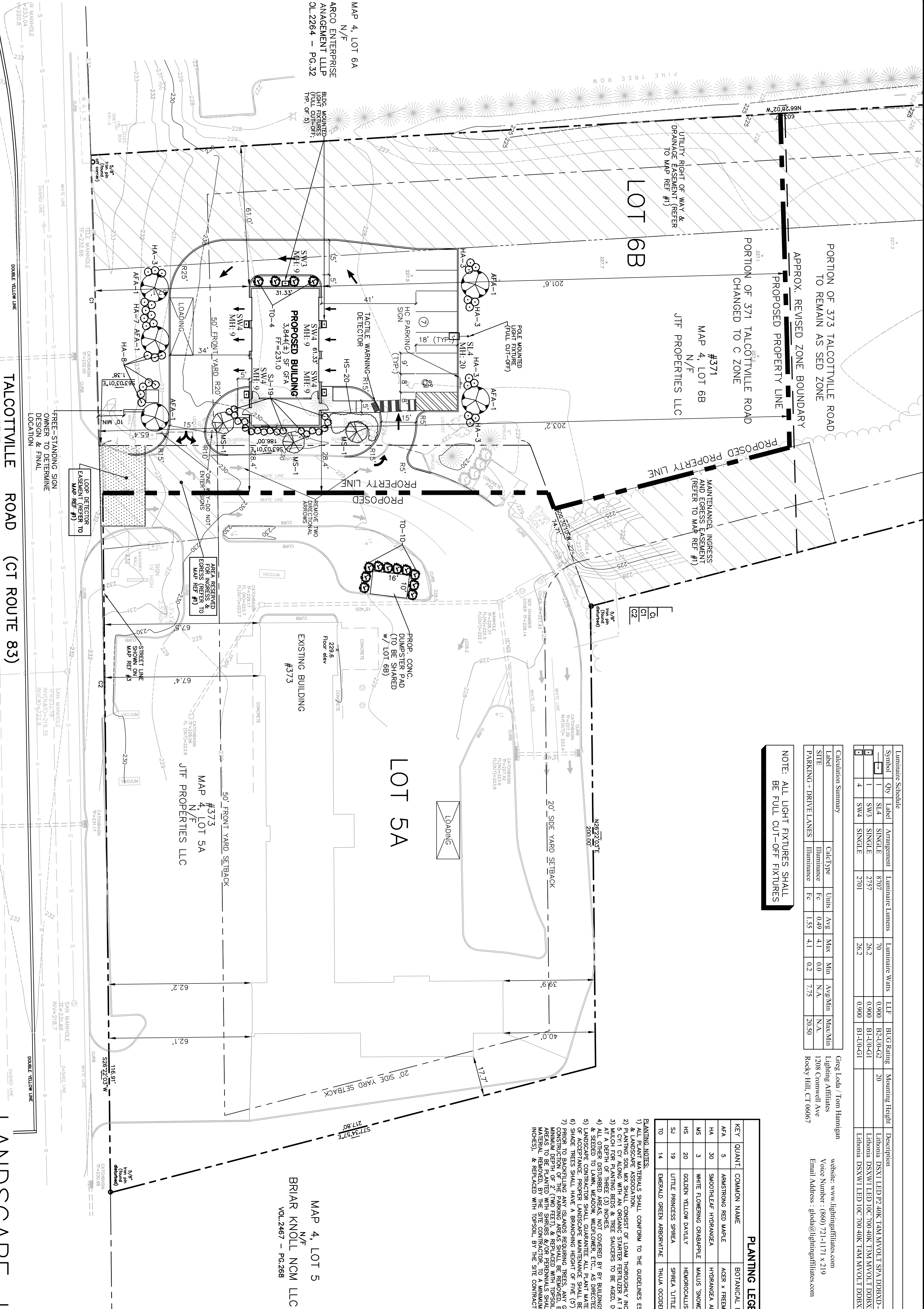
Calculation Summary					
Label	CalcType	Units	Avg	Max	Min
SITE	Illuminance	Fc	0.49	4.1	0.0
PARKING + DRIVE LANS	Illuminance	Fc	1.55	4.1	0.2
Greg Lodi / Tom Hamngan					
Lighting Affiliates					
1208 Cornwall Ave					
Rocky Hill, CT 06067					

NOTE: ALL LIGHT FIXTURES SHALL BE FULL CUT-OFF FIXTURES

#### PLANTING LEGEND

KEY	QUANT.	COMMON NAME	BOTANICAL NAME	SIZE
AFA	5	ARMSTRONG RED MAPLE	ACER * FREEMANI 'ARMSTRONG'	2 1/2"-3" CAL.
HA	30	SMOOTHLEAF HYDRANGEA	HYDRANGEA ARBORESCENS 'INCREDIBAL'	3 GAL.
MS	3	WHITE FLOWERING CRABAPPLE	MALUS 'SNOWDRIFT'	2"-2 1/2" CAL.
HS	20	GOLDEN YELLOW DAVIDY	HEMOCALLIS STELLA D'ORO	1 GAL.
SJ	19	LITTLE PRINCESS SPIREA	SPIREA 'LITTLE PRINCESS'	3 GAL.
TO	14	EMERALD GREEN ARBORVITAE	THUJA OCCIDENTALIS 'SMARAGD'	6"-7" HT.

- PLANTING NOTES:
- 1) ALL PLANT MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
  - 2) PLANTING SOIL MIX SHALL CONSIST OF LOAM TERROUSLY INCORPORATED WITH COMPOST PROPORTIONED 5:1 RATIO OF SOIL TO COMPOST.
  - 3) MULCH FOR PLANTING BEDS & TREE SAUCERS TO BE APPLIED, DOUBLE GROUND PINE BARK APPLIED AT A DEPTH OF THREE (3) INCHES.
  - 4) ALL OTHER DISTURBED AREAS, NOT COVERED BY BUILDINGS, PAVEMENT, ETC., SHALL BE GRADED.
  - 5) LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE. PROPER LANDSCAPE MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER.
  - 6) SHADE TREES SHALL HAVE A BRANCHING HEIGHT OF FIVE (5) MINIMUM.
  - 7) PRIOR TO BACKFILLING ANY ISLANDS REQUIRING TREES, ANY GRAVEL OR MATERIAL USED IN THE MINIMUM DEPTH OF 2" (TWO FEET) & REPLACED WITH TOPSOIL, BY THE SITE CONTRACTOR. ANY AREAS TO BE PLANTED WITH SHRUBS &/OR PERENNIALS SHALL HAVE ANY UNSUITABLE MATERIALS REMOVED TO A DEPTH OF 18" (EIGHTEEN INCHES) & REPLACED WITH TOPSOIL BY THE SITE CONTRACTOR.





Filename: Valvoline Site Lighting - Vernon.AGI

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Luminaire Lumens	Luminaire Waits	LLF
	1	SL4	SINGLE	8707	70	0.900
	1	SW3	SINGLE	2757	26.2	0.900
	4	SW4	SINGLE	2701	26.2	0.900

Calculation Summary						
Label	CalcType	Units	Avg	Max	Min	Avg/Min
SITE	Illuminance	Fc	0.49	4.1	0.0	N.A.
PARKING + DRIVE LANES	Illuminance	Fc	1.55	4.1	0.2	7.75
						20.50

Mounting Height			Description	
		20	Lithonia DSX11 LED P2 40K T14M MVOLT SPA DDBXD - SSS 20 4C DM19AS DDBXD 20FT POLE	
			Lithonia DSXW1 LED 10C 700 40K T14M MVOLT DDBXD	
			Lithonia DSXW1 LED 10C 700 40K T14M MVOLT DDBXD	

CURVE TABLE						
CURVE	RADIUS	LENGTH	DELTA - ANGLE	CHORD BEARING	CHORD	
C1	15666.12	26.22	0°27'42"	S25°22'37"W	126.22	
C2	15666.12	207.77	0°45'36"	S25°59'15"W	207.77	

Greg Lusk / Iron Hemitagon  
Lighting Affiliates  
1208 Cornwall Ave  
Rocky Hill, CT 06067

website: [www.lightingaffiliates.com](http://www.lightingaffiliates.com)  
Voice Number: (860) 721-1171 x 219  
Email Address: [greglusk@lightingaffiliates.com](mailto:greglusk@lightingaffiliates.com)

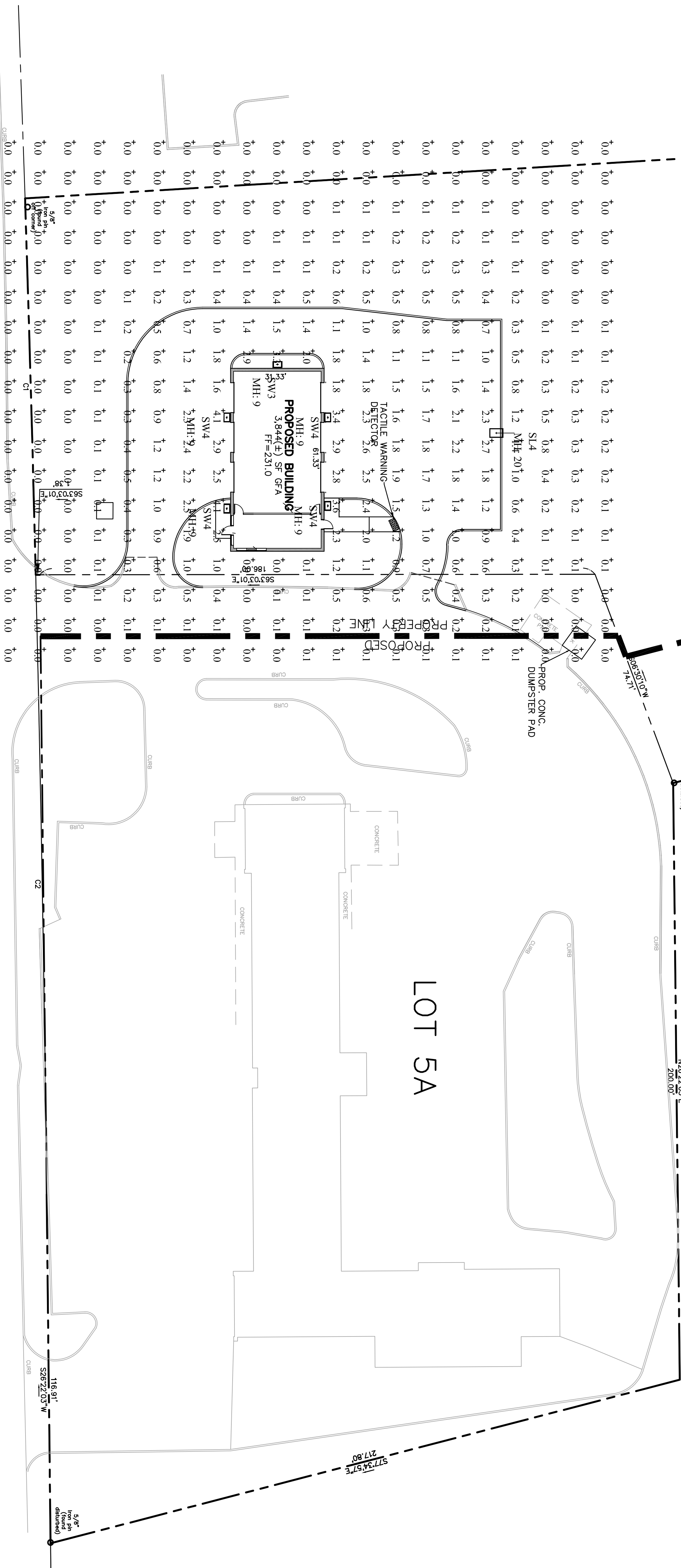
NOTE: ALL LIGHT FIXTURES SHALL  
BE FULL CUT-OFF FIXTURES

PORTION OF 373 TALCOTTVILLE ROAD  
TO REMAIN AS SED ZONE  
APPROX. PROPOSED ZONE BOUNDARY  
PROPOSED PROPERTY LINE  
PORTION OF 371 TALCOTTVILLE ROAD  
TO BE CHANGED TO C ZONE  
PROPOSED PROPERTY LINE

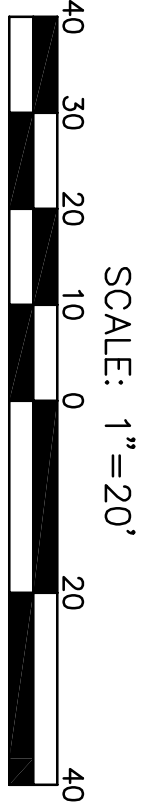
LOT 6B

LOT 5A

PROPOSED BUILDING  
MH: 9  
SW3  
3,844(±) SF GFA  
FF=231.0



## PHOTOMETRIC PLAN



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\\vclnet\c\pww\ag\MS\Vernon\Valvoline\_Vernon\_Sp.dwg 7/28/2022 10:19:22 AM LDI

PROJECT

Valvoline  
INSTANT OIL CHANGE

DRAWN BY

G.R.W.

APPROVED BY

A.R.B.

DATE

04-26-22

SCALE

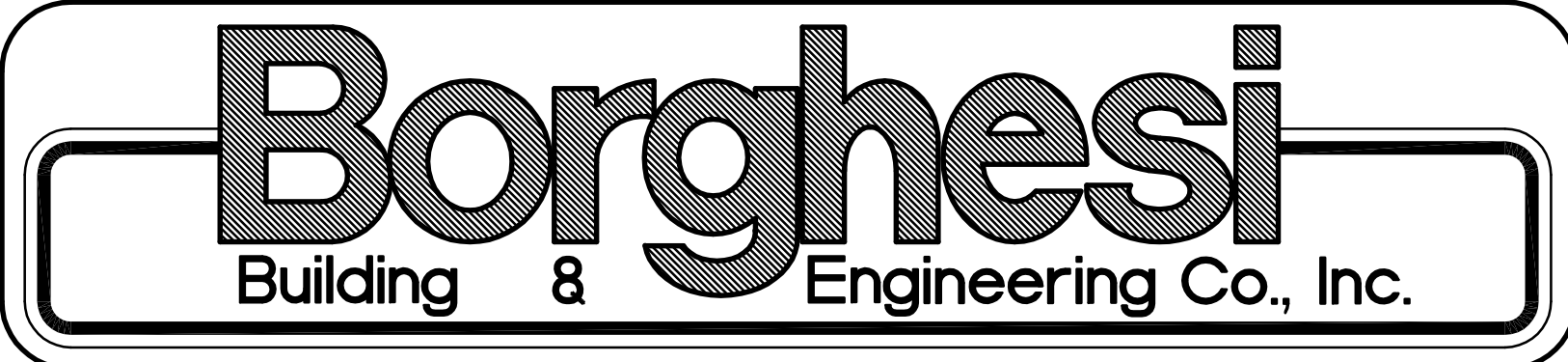
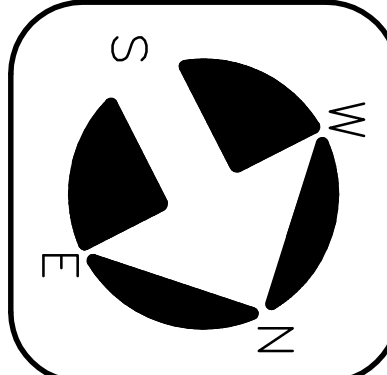
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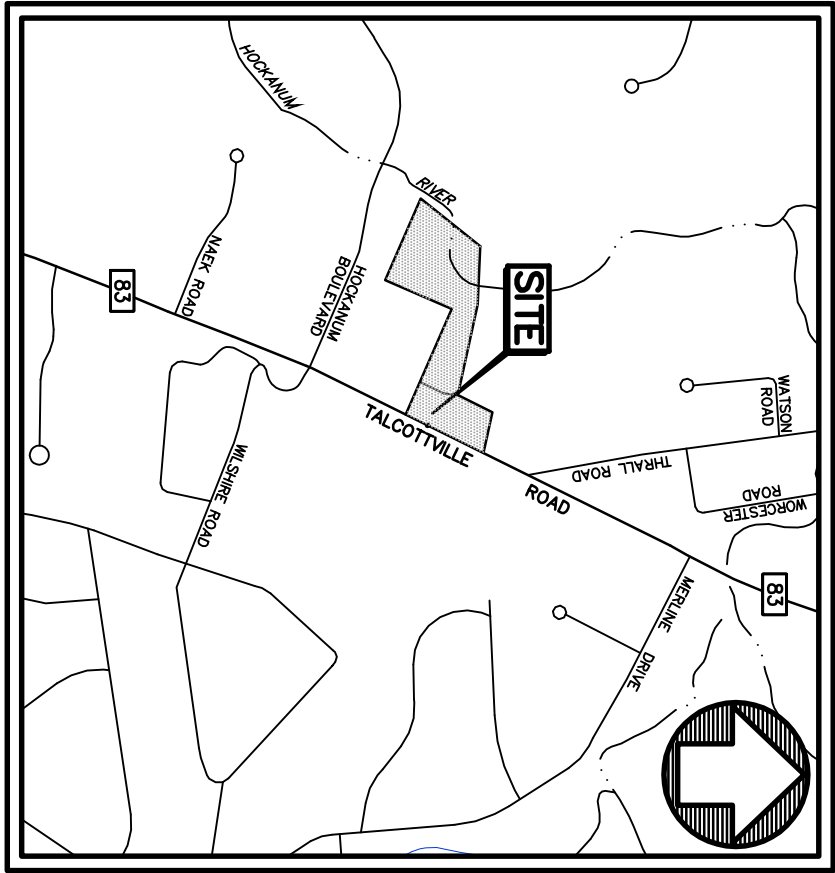
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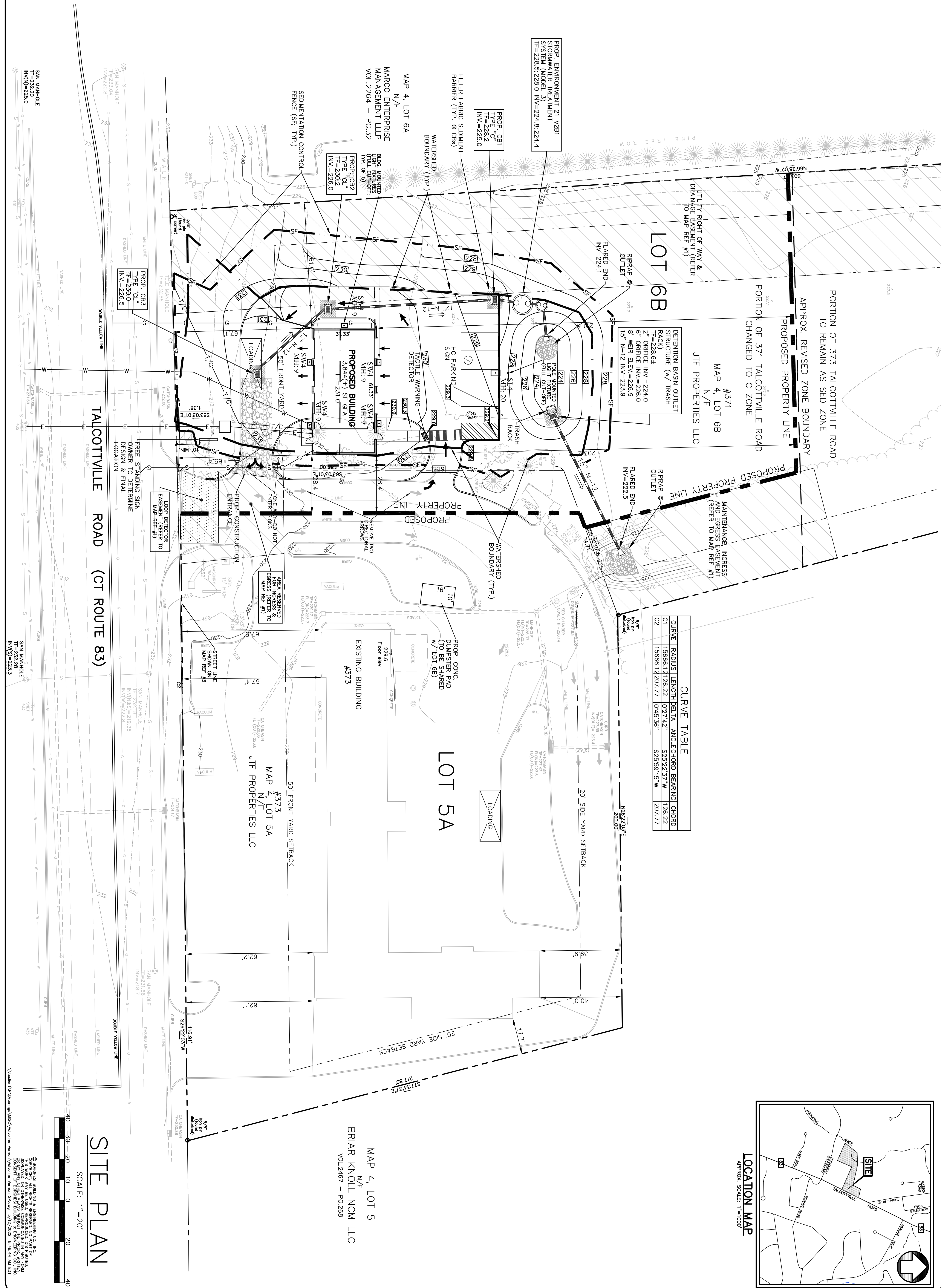






LOCATION MAP  
APPROX. SCALE: 1"=1000'

CURVE TABLE				
CURVE	RADIUS	LENGTH	DELTA ANGLE	CHORD BEARING
C1	15666.12	126.22	0°27'42"	S25°22'37"W 126.22
C2	15666.12	207.77	0°45'36"	S25°59'15"W 207.77



SITE PLAN  
SCALE: 1"=20'

SHEET NO.

WATERSHED MAP

PROJECT

371 & 373 TALCOTTVILLE ROAD, VERNON, CT

DRAWN BY

G.R.W.

APPROVED BY

A.R.B.

DATE

04-29-22

SCALE

AS NOTED

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REVISIONS

05-12-22 RELOCATED PROP. DUMPSTER PAD

SEAL

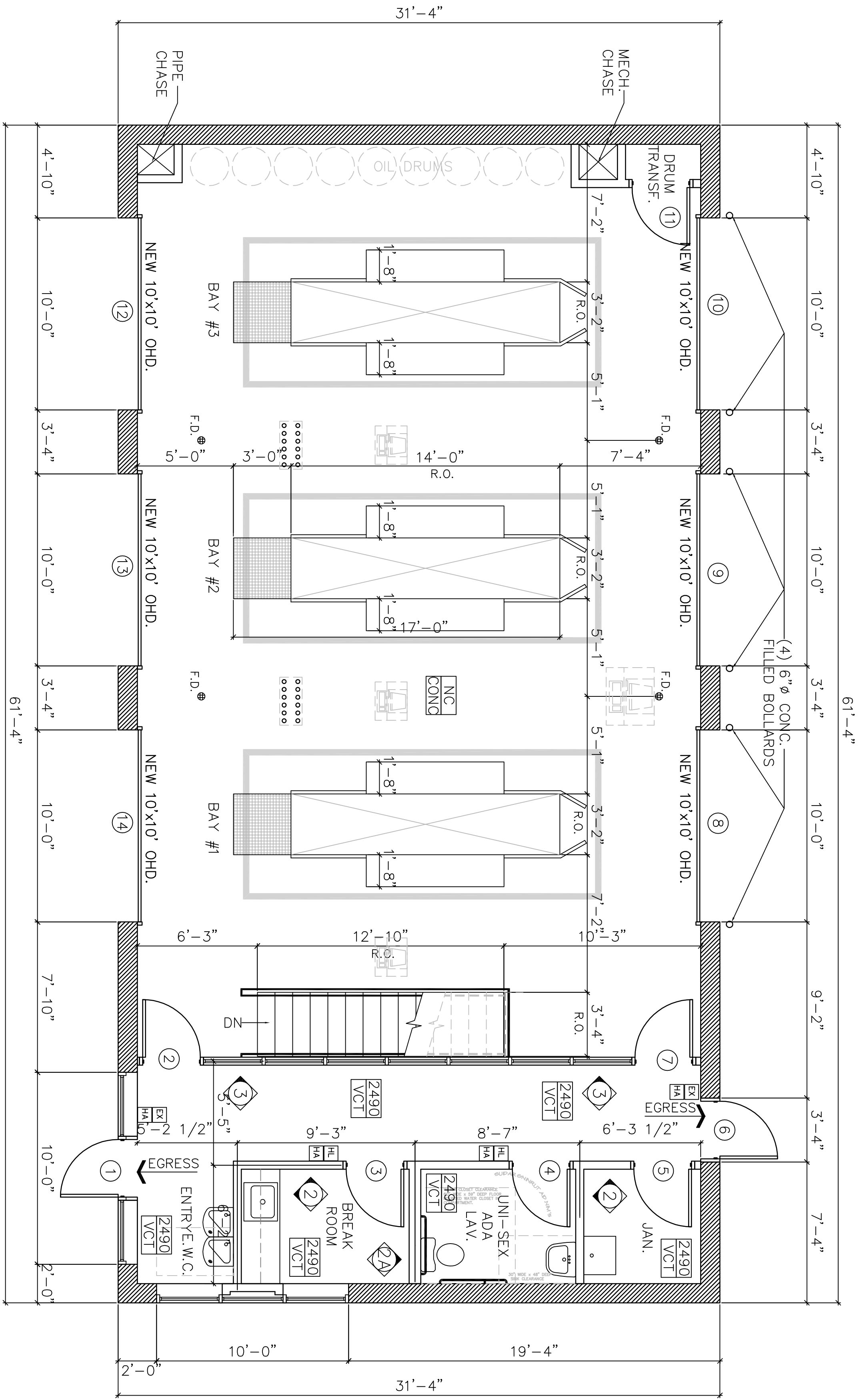
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W

N

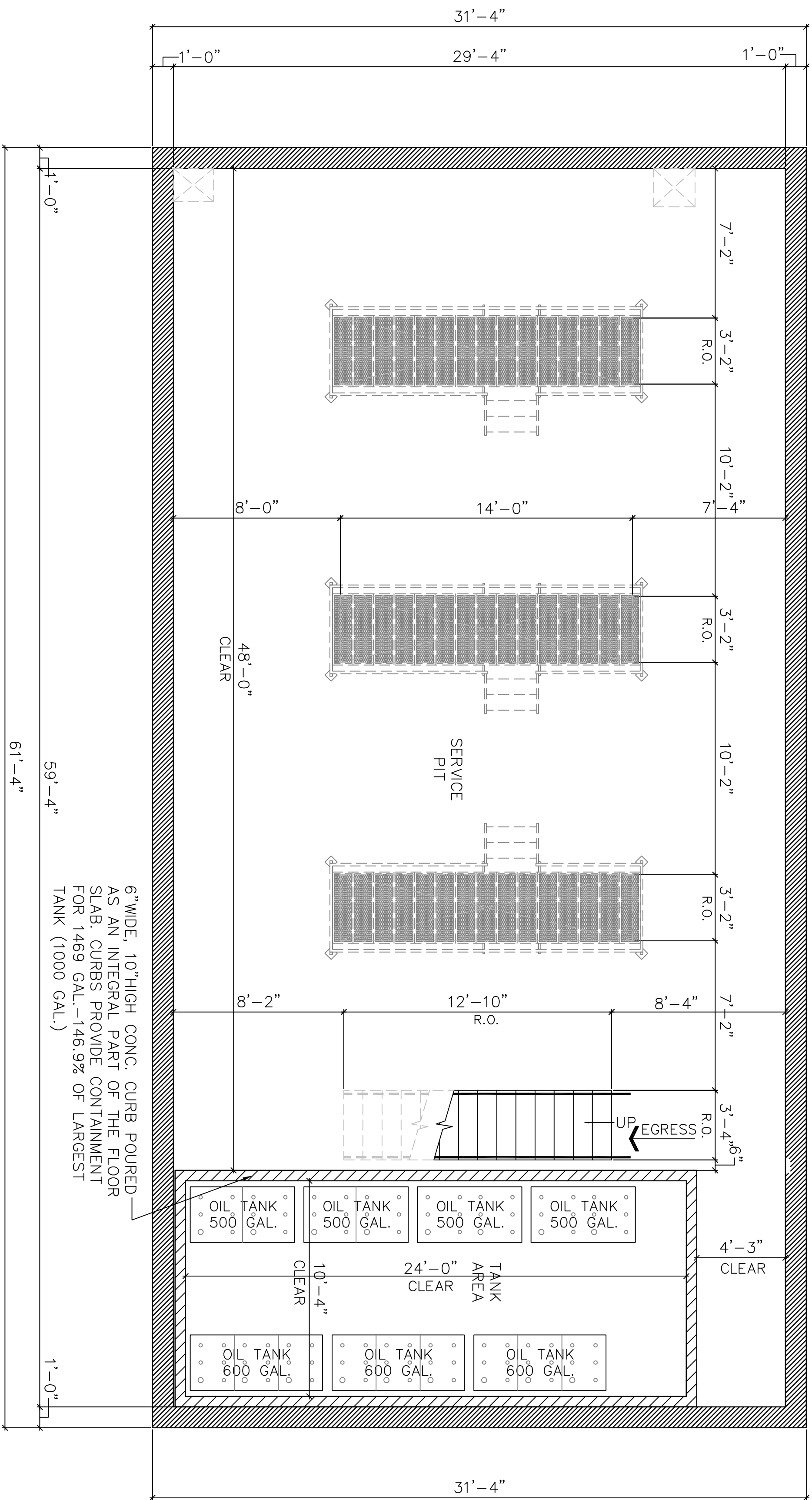
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UPPER FLOOR PLAN

SCALE: 1/4"=1'-0"




LOWER FLOOR PLAN

SCALE: 1/4"=1'-0"

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SHEET NO.  
A1

PROJECT

**Valvoline**  
INSTANT OIL CHANGE  
#373 TALCOTTVILLE ROAD, VERNON, CT

DRAWN BY

J.B.M.

APPROVED BY

C.C.

DATE

08/25/20

SCALE

AS NOTED

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860-482-7613 / WEB SITE: [www.borghesibuilding.com](http://www.borghesibuilding.com)

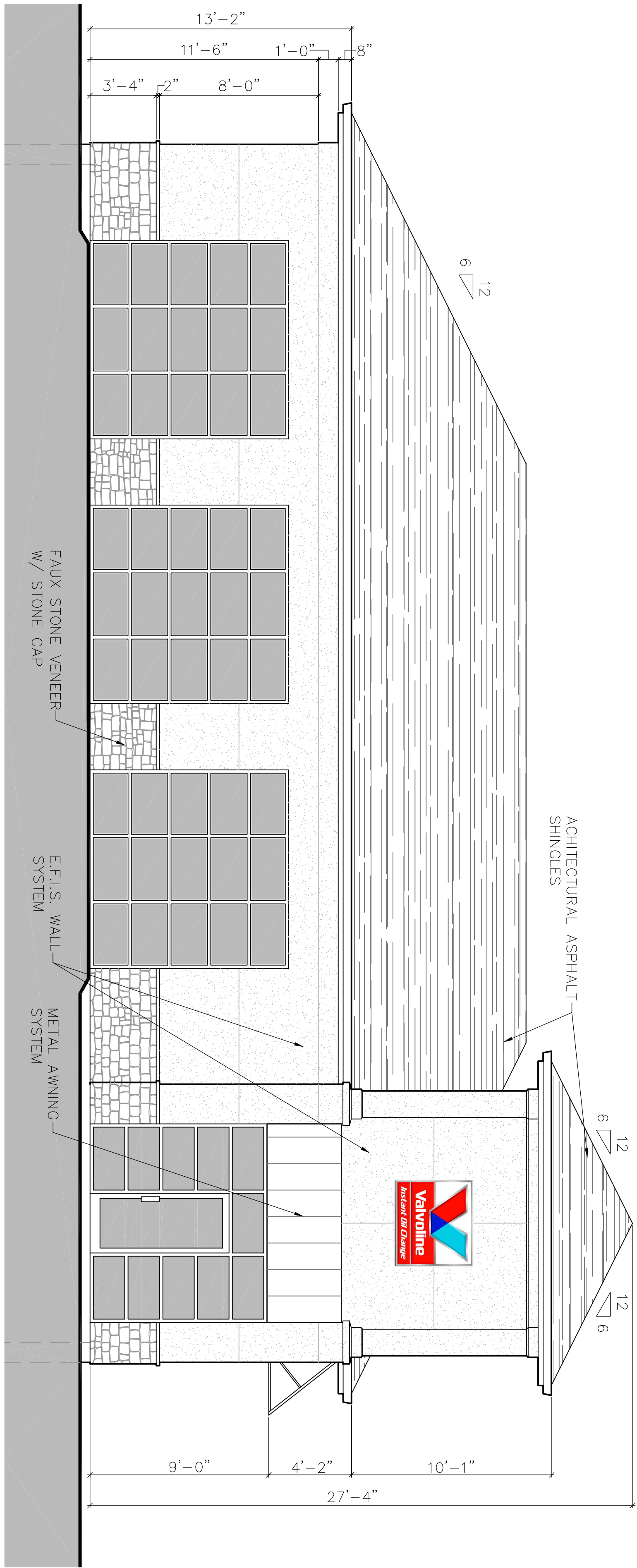
REVISIONS

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NORTH

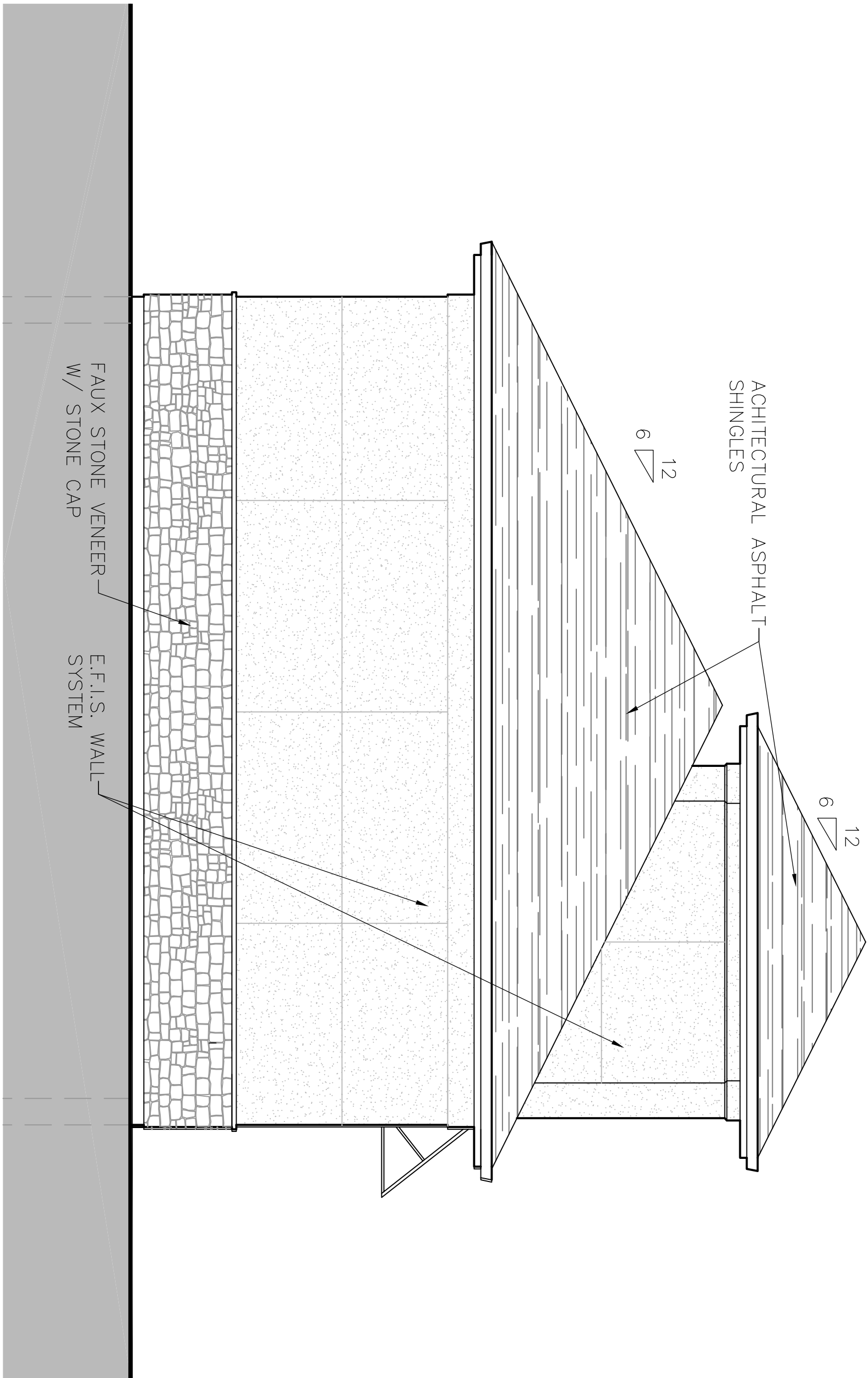
PLAN

**Borghesi**  
Building & Engineering Co., Inc.



SOUTH ELEVATION


SCALE: 1/4" = 1'-0"



WEST ELEVATION

SCALE: 1/4" = 1'-0"

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CO., INC.

PROJECT	
 <b>Valvoline</b> INSTANT OIL CHANGE	
#373 TALCOTTVILLE ROAD, VERNON, CT	
DRAWN BY	APPROVED BY
J.B.M.	C.C.
DATE	SCALE
08/26/20	AS NOTED
2155 EAST MAIN STREET TORRINGTON, CT. 06790	
860-482-7613 / WEB SITE: <a href="http://www.borghesibuilding.com">www.borghesibuilding.com</a>	

REVISIONS

SEAL

	
Building & Engineering Co., Inc.	

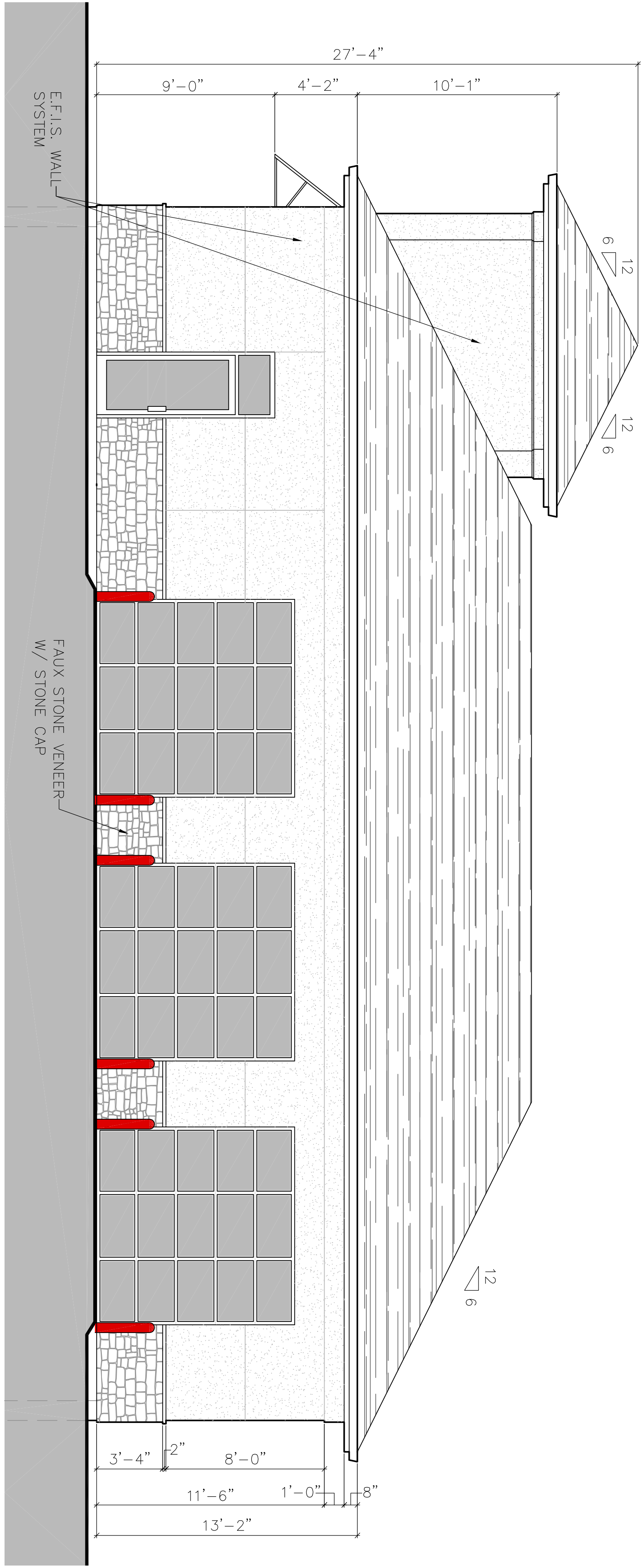
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SHEET NO.



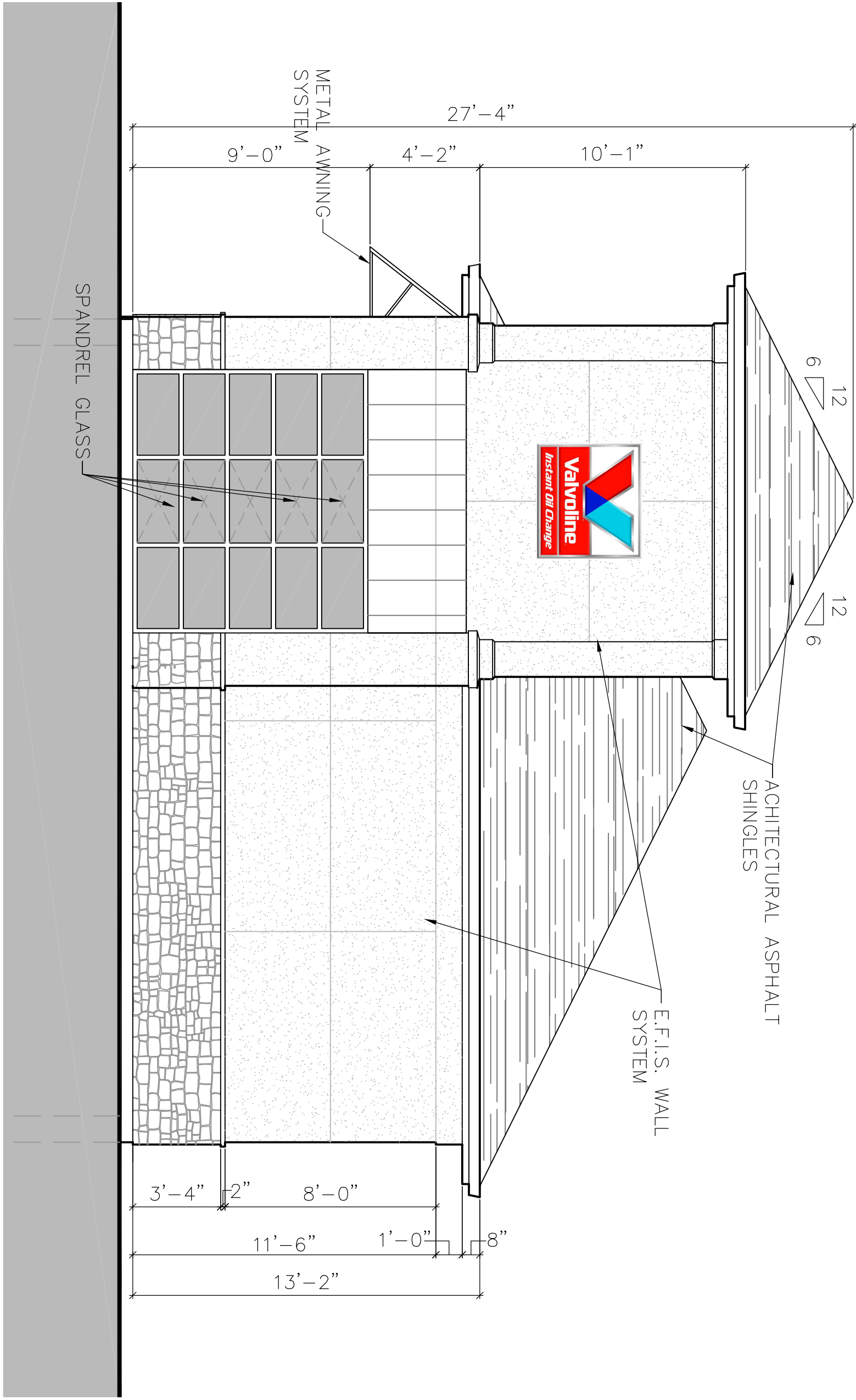






NORTH ELEVATION

SCALE: 1/4" = 1'-0"




EAST ELEVATION

SCALE: 1/4" = 1'-0"

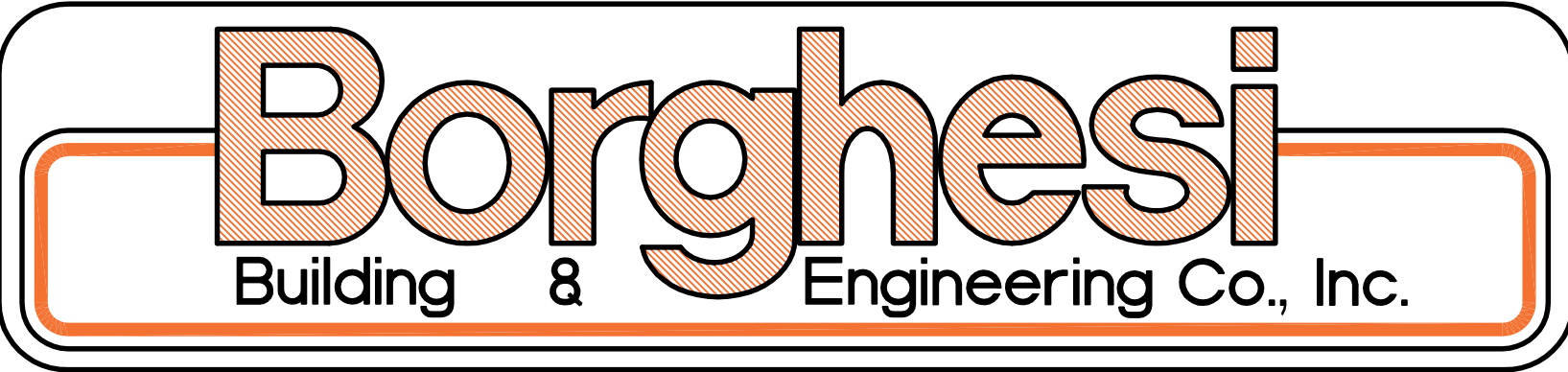
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SHEET NO.  
A2A

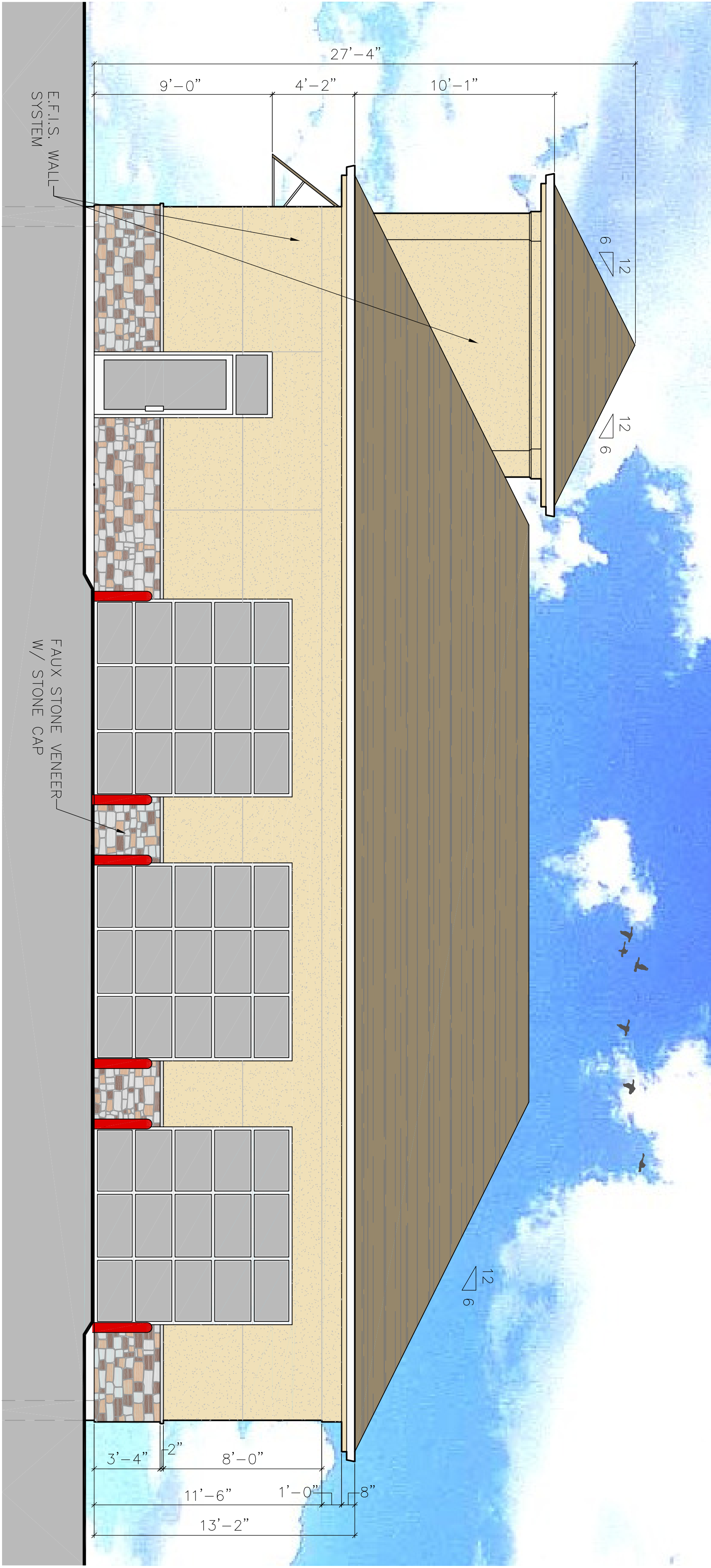
PROJECT  <b>Valvoline</b> INSTANT OIL CHANGE #373 TALCOTTVILLE ROAD, VERNON, CT	
DRAWN BY J.B.M.	APPROVED BY C.C.
DATE 08/26/20	SCALE AS NOTED
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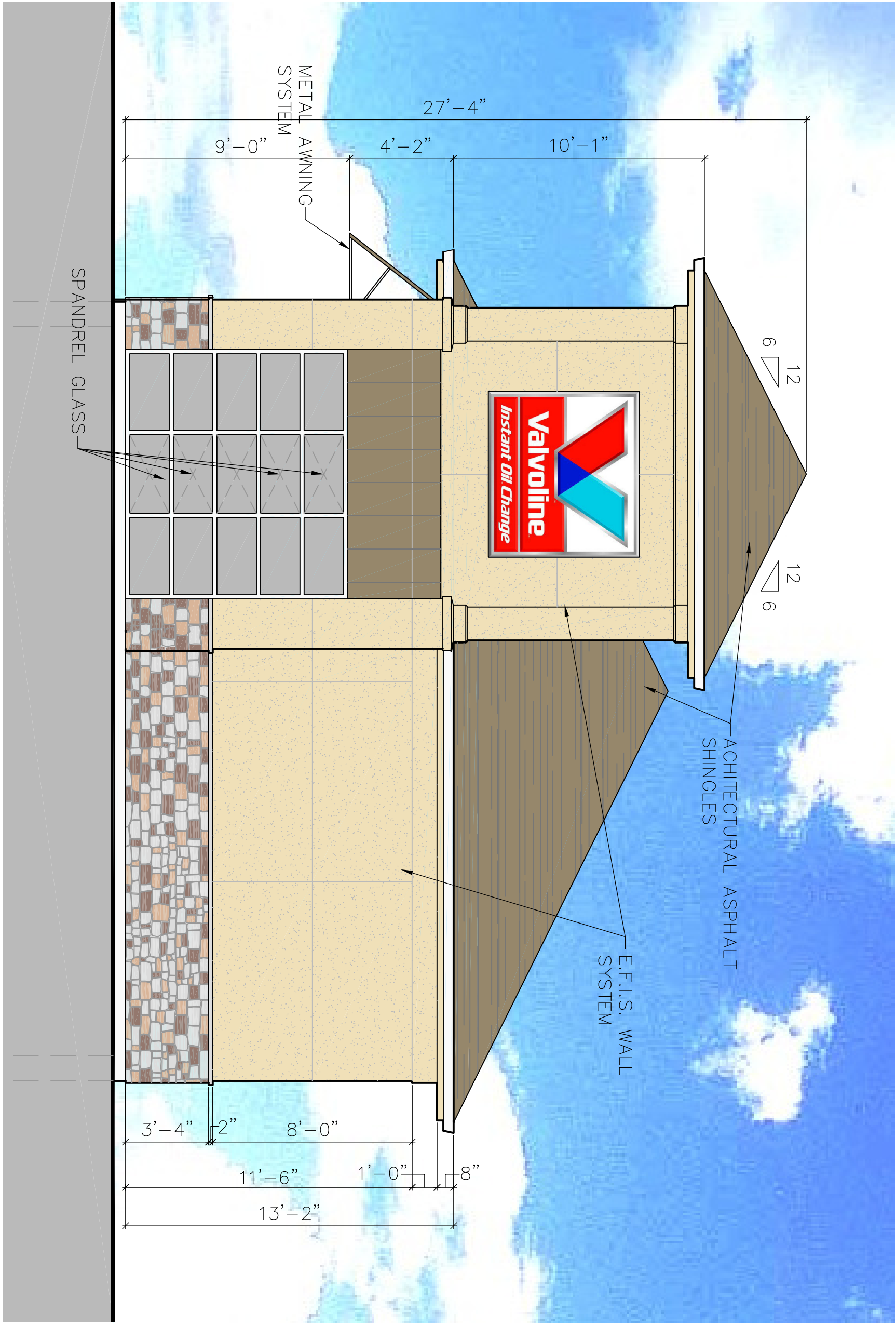







NORTH ELEVATION

SCALE: 1/4" = 1'-0"




EAST ELEVATION

SCALE: 1/4" = 1'-0"

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CO., INC. \Users\jms\Valvoline - Vernon\Arch\dwg\_424\_12/2/2019 12:12:35 PM

SHEET NO.  
A2A

PROJECT

**Valvoline**  
INSTANT OIL CHANGE  
#373 TALCOTTVILLE ROAD, VERNON, CT

DRAWN BY

J.B.M.

APPROVED BY

C.C.

DATE

12/02/19

SCALE

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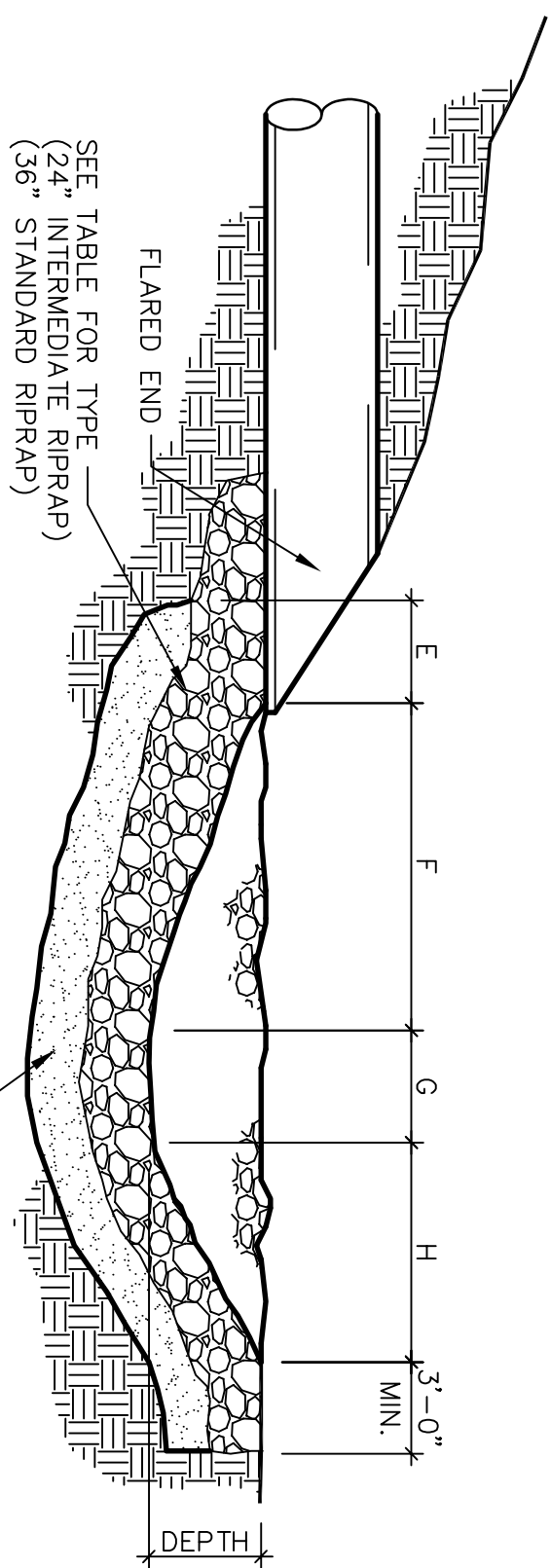
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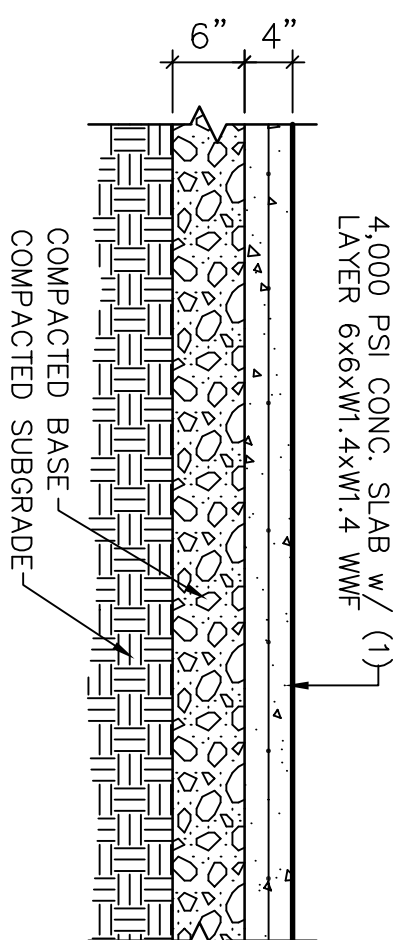




## SECTION AA

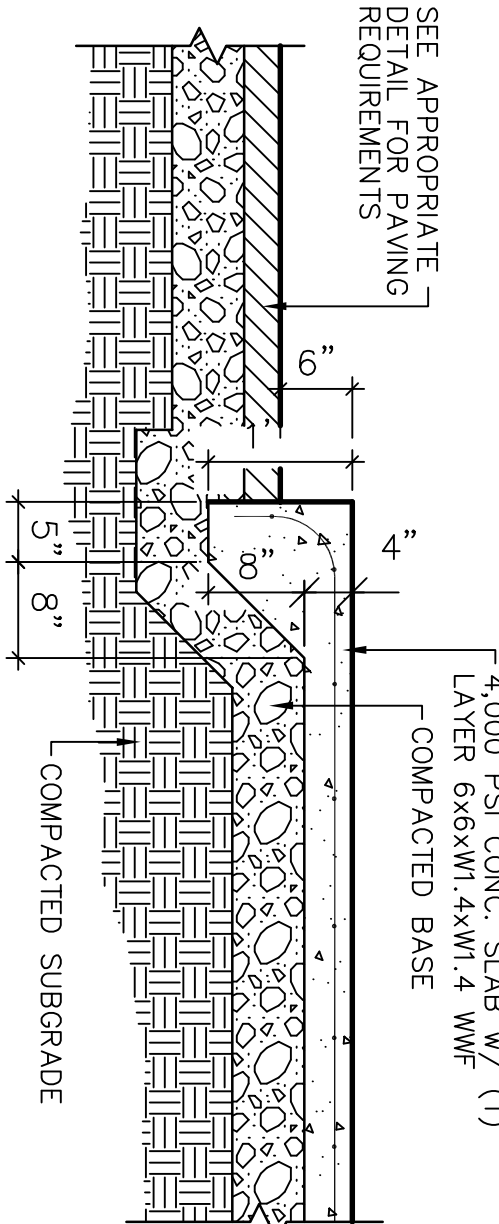
PIPE SIZE	A	B	C	D	E	F	G	H	RIPRAP TYPE	DEPTH
≤15"	20'	7'	4'	2'	1'	12'	4'	4'	INTERMEDIATE	2-0"

N.T.S



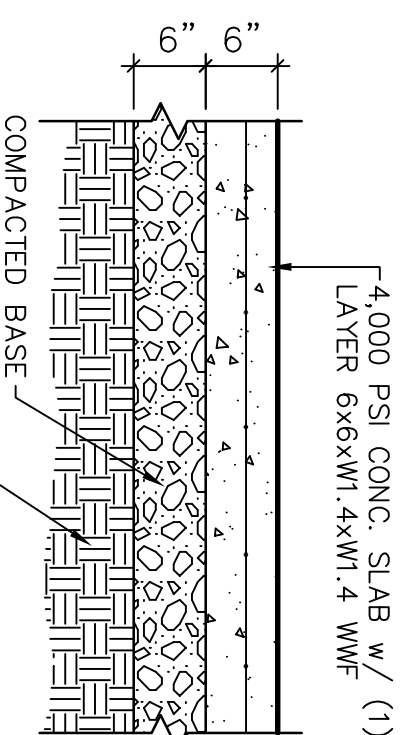
## CONCRETE WALK PAVEMENT

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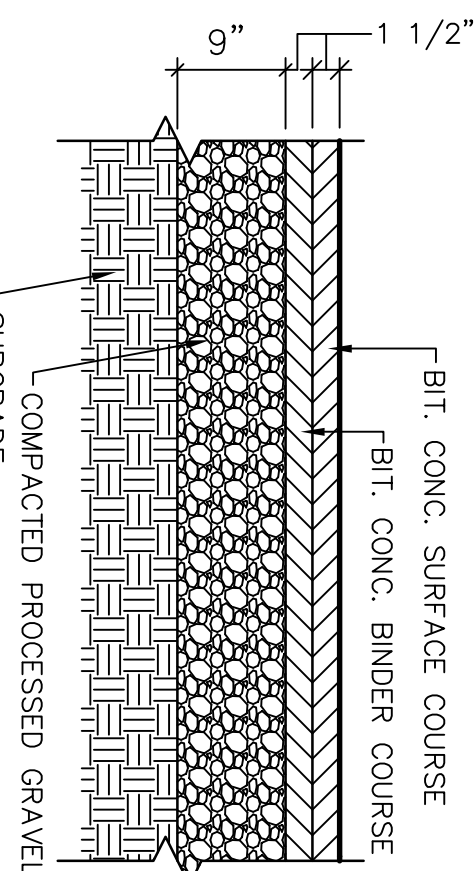
## MONOLITHIC CONCRETE CURE

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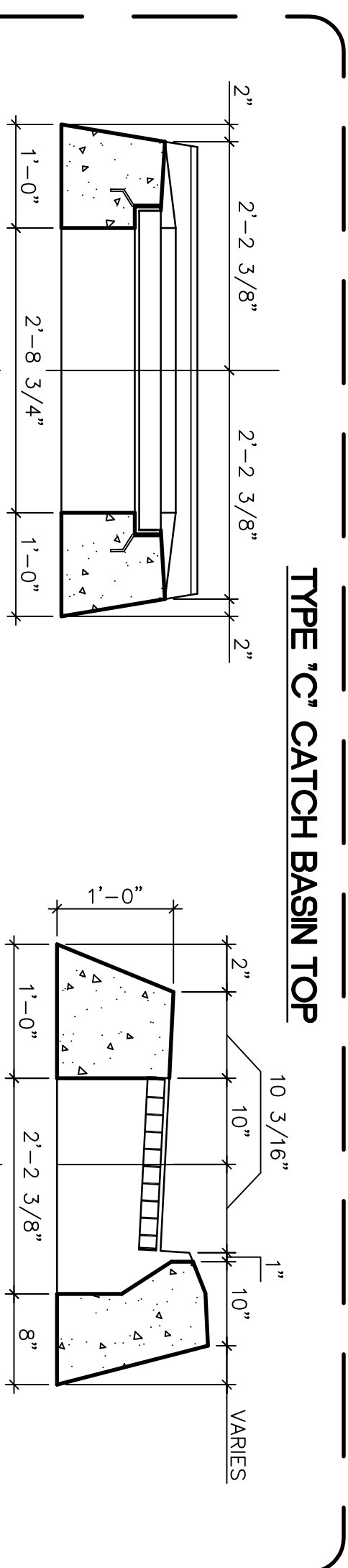
# DUMPSTER PAD

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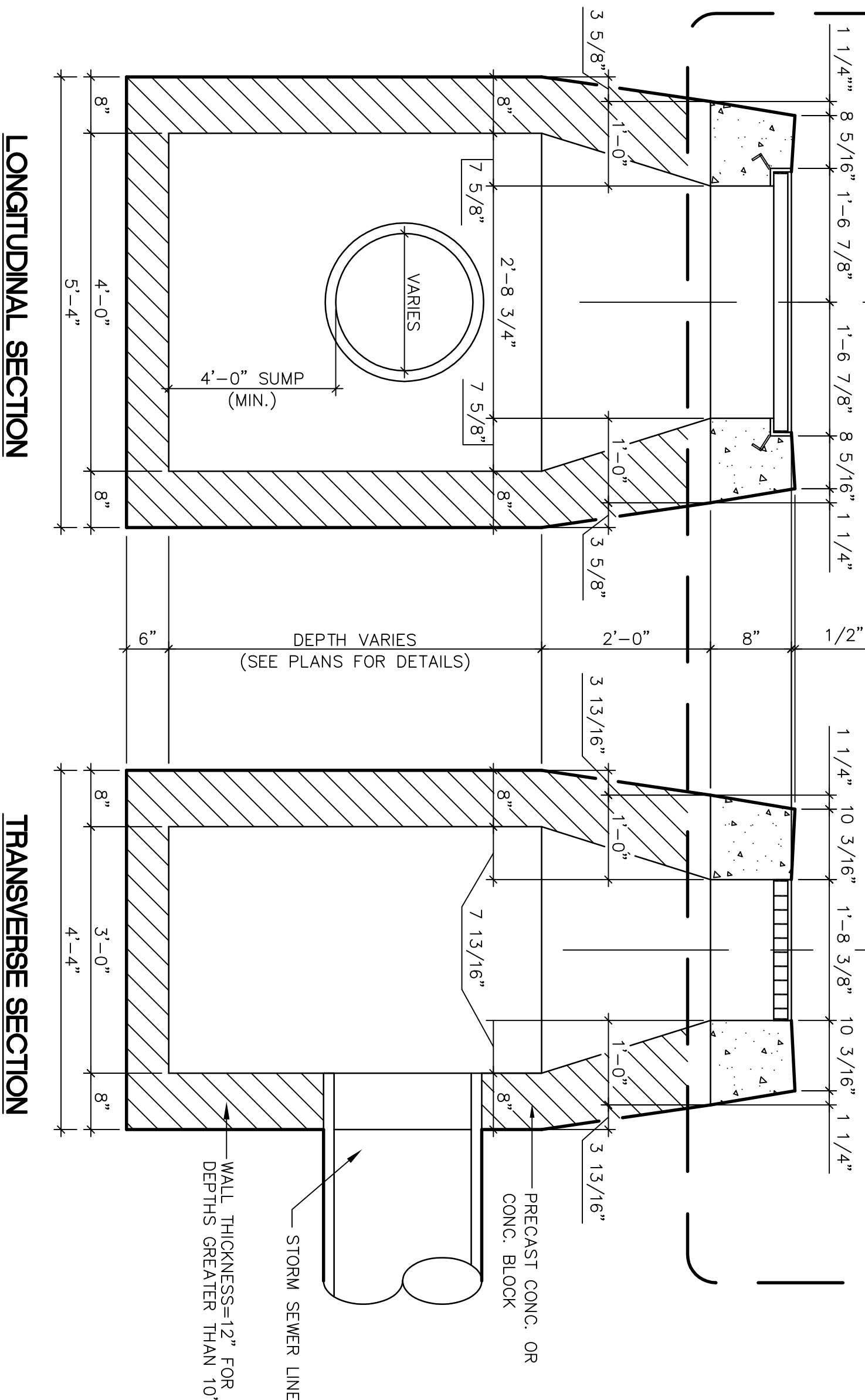


# BITUMINOUS CONCRETE PAVEMENT

N.T.S

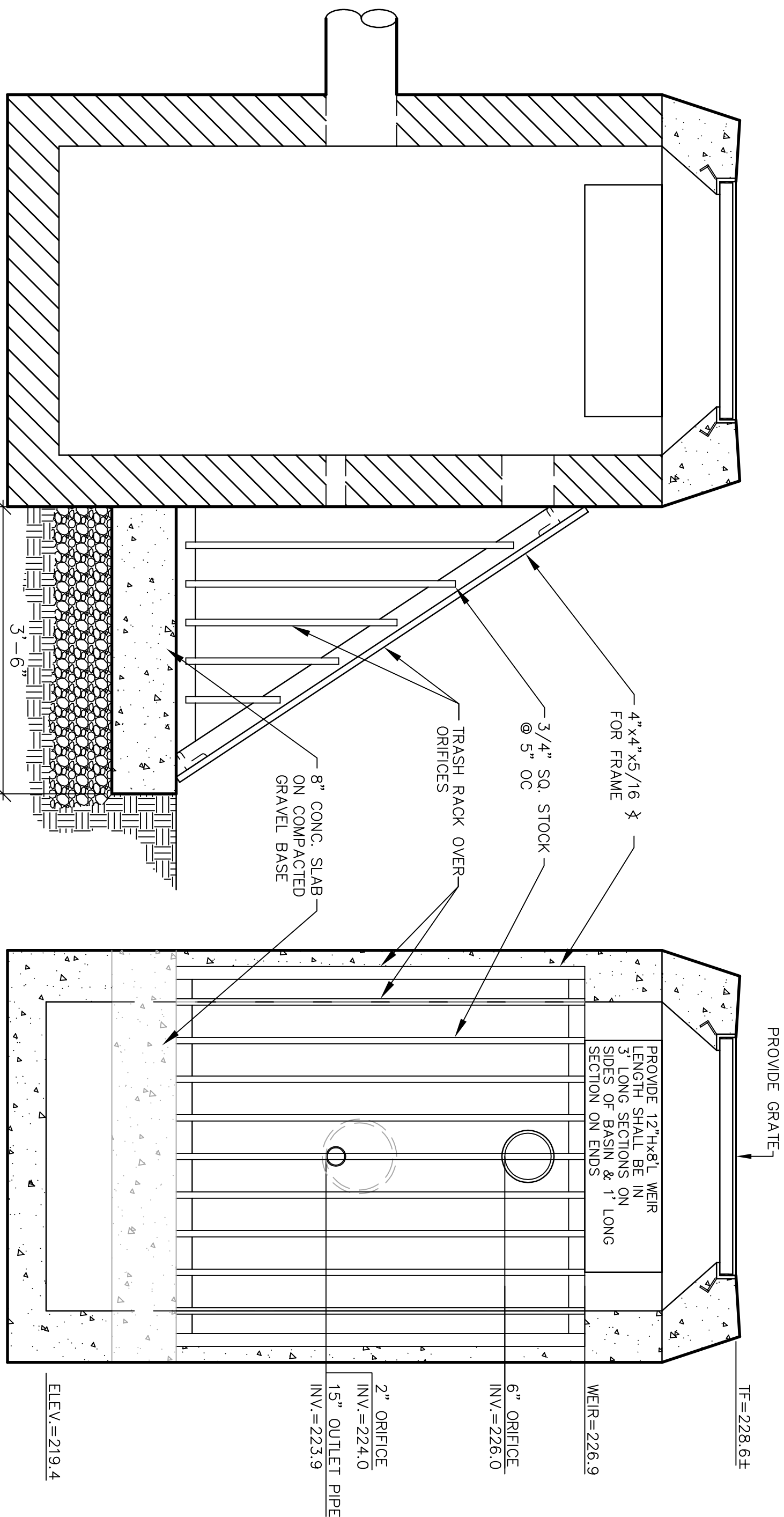


**TYPE "C-L" CATCH BASIN TOP**



STATE OF CONN. CATCH BASIN

N.T.S




## OUTLET STRUCTURE WITH TRASH RACK

N.T.S.

\\sccnet\p\Drawings\MISC\Valvoline Vernon\Valvoline SPD.dwg 4/28/2022 3:08:03 PM EED

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SHEET NO.  
SPD2

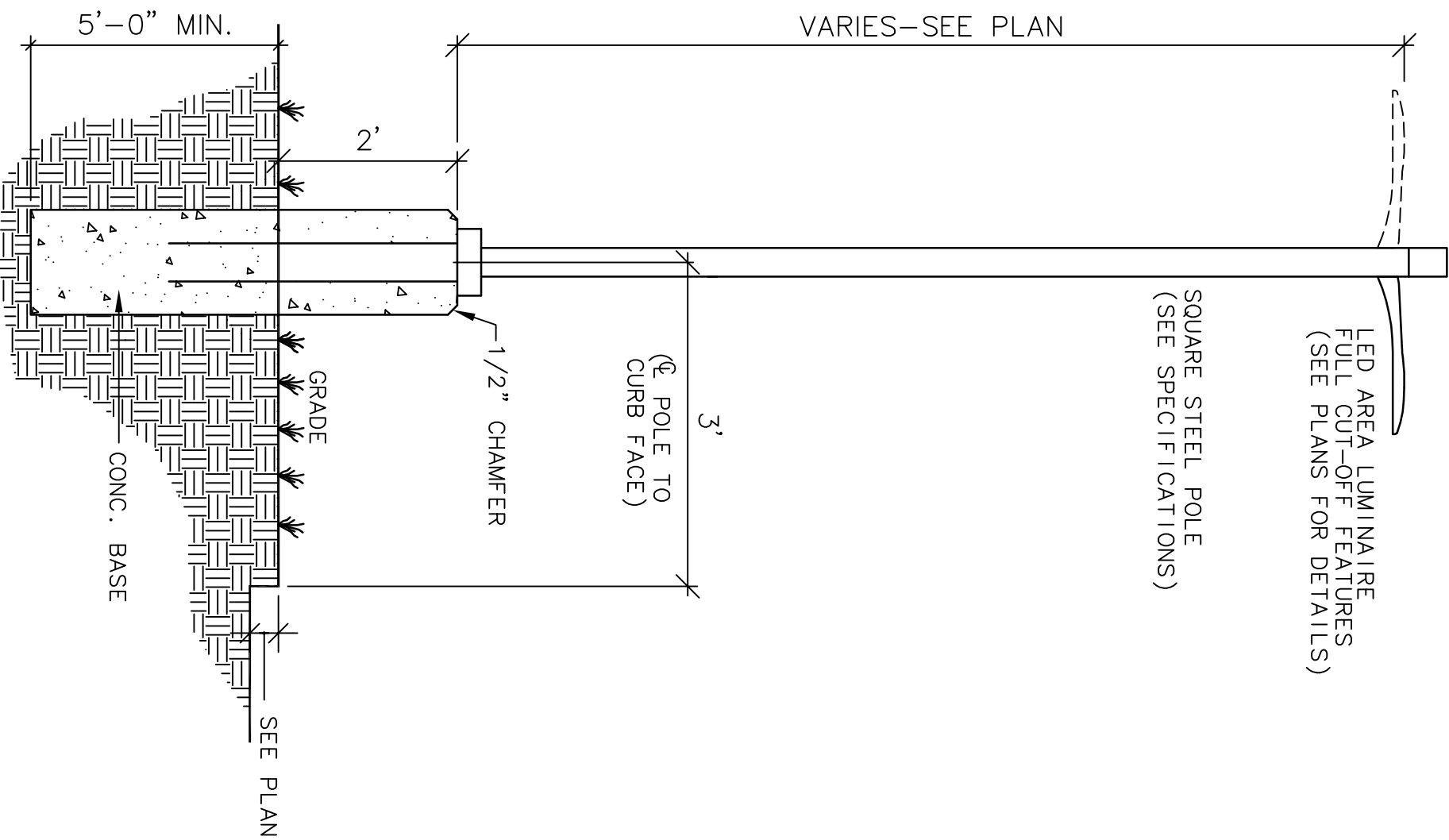
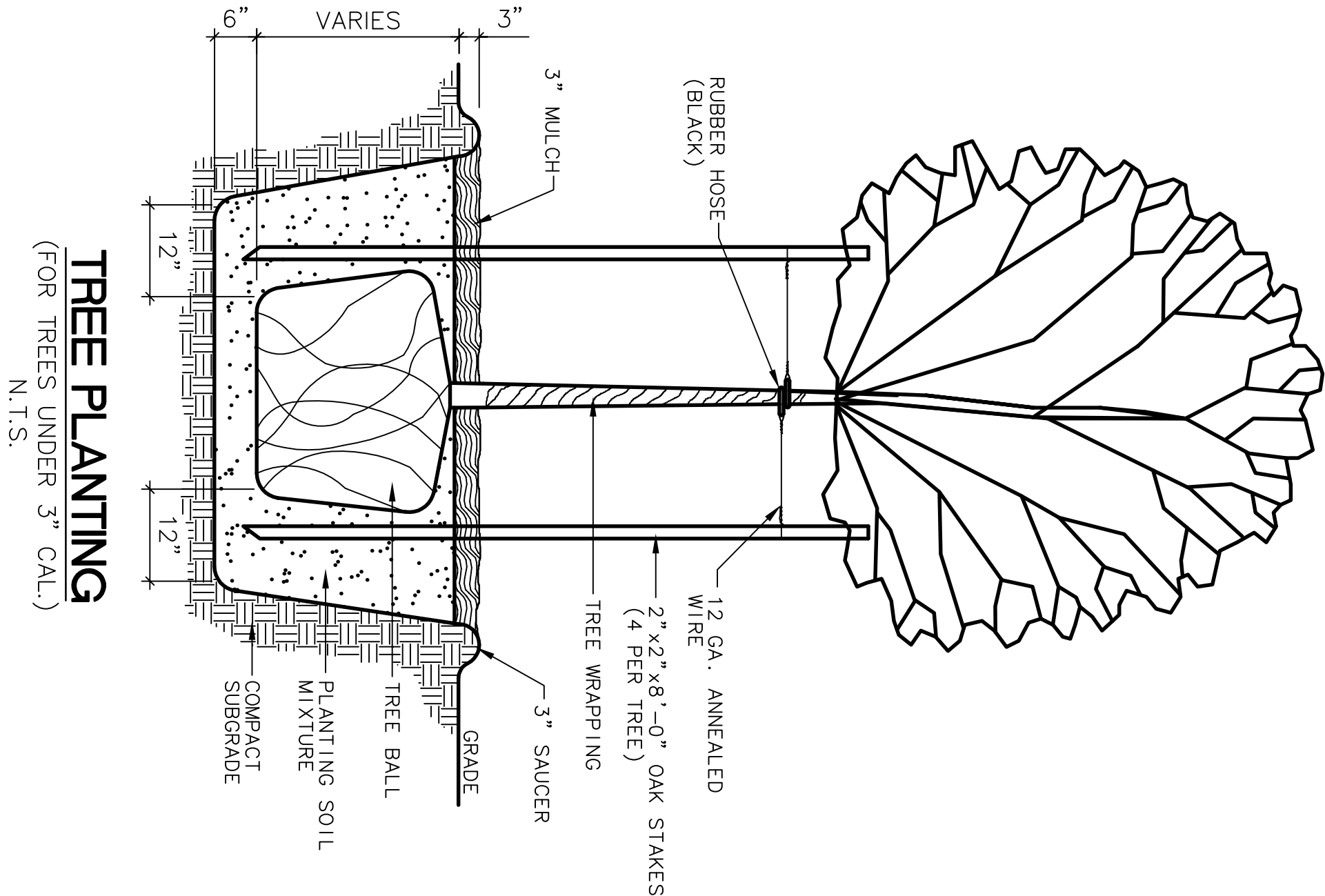
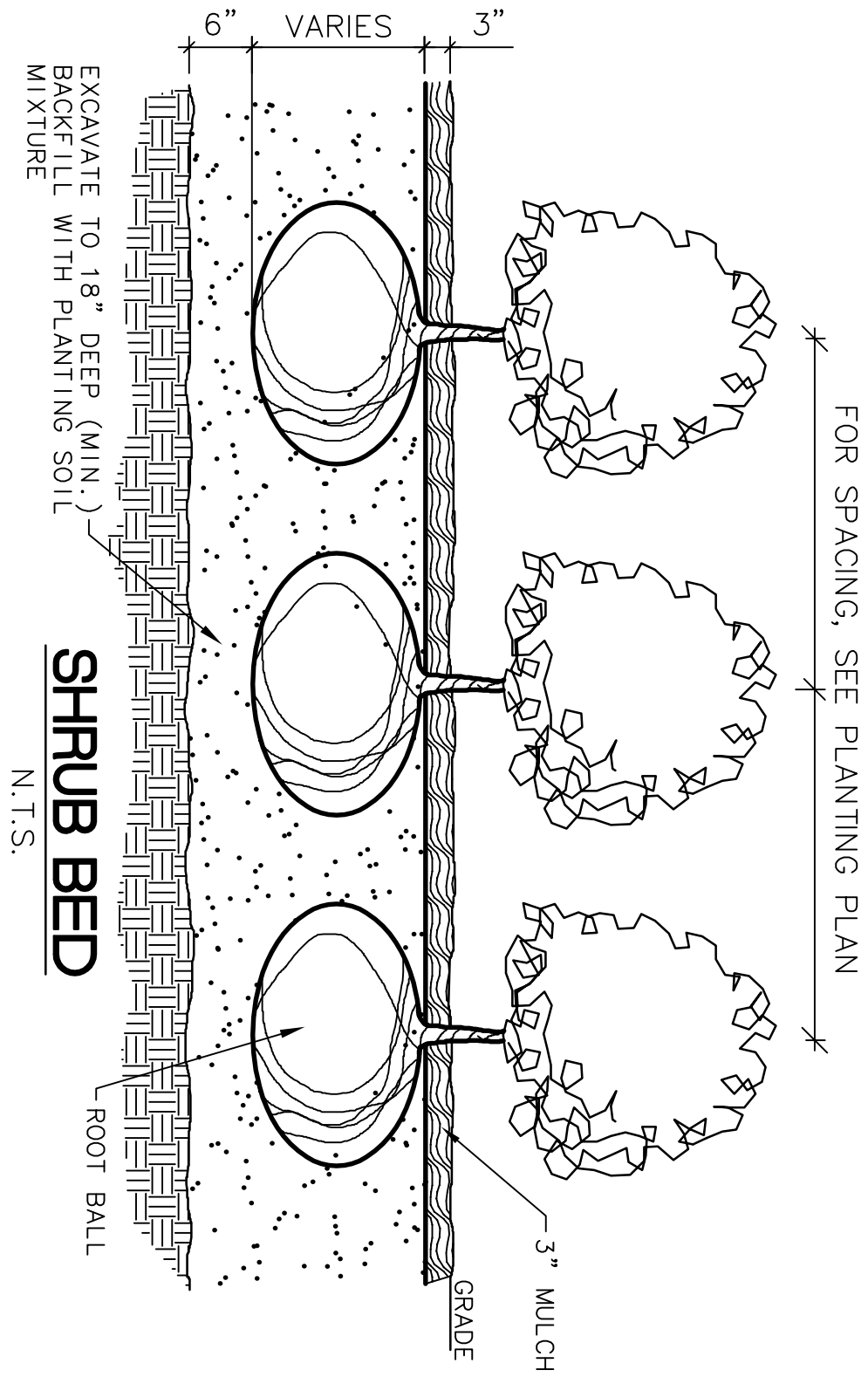
PROJECT		<b>Valvoline</b> INSTANT OIL CHANGE
371 & 373 TALCOTTVILLE ROAD, VERNON, CT		
DRAWN BY G.R.W.		APPROVED BY A.R.B.
DATE 04-26-22		SCALE AS NOTED
2155 EAST MAIN STREET TORRINGTON, CT 06790 860-482-7613/WEB: <a href="http://www.borghesibuilding.com">www.borghesibuilding.com</a>		

## REVISIONS

SEAL

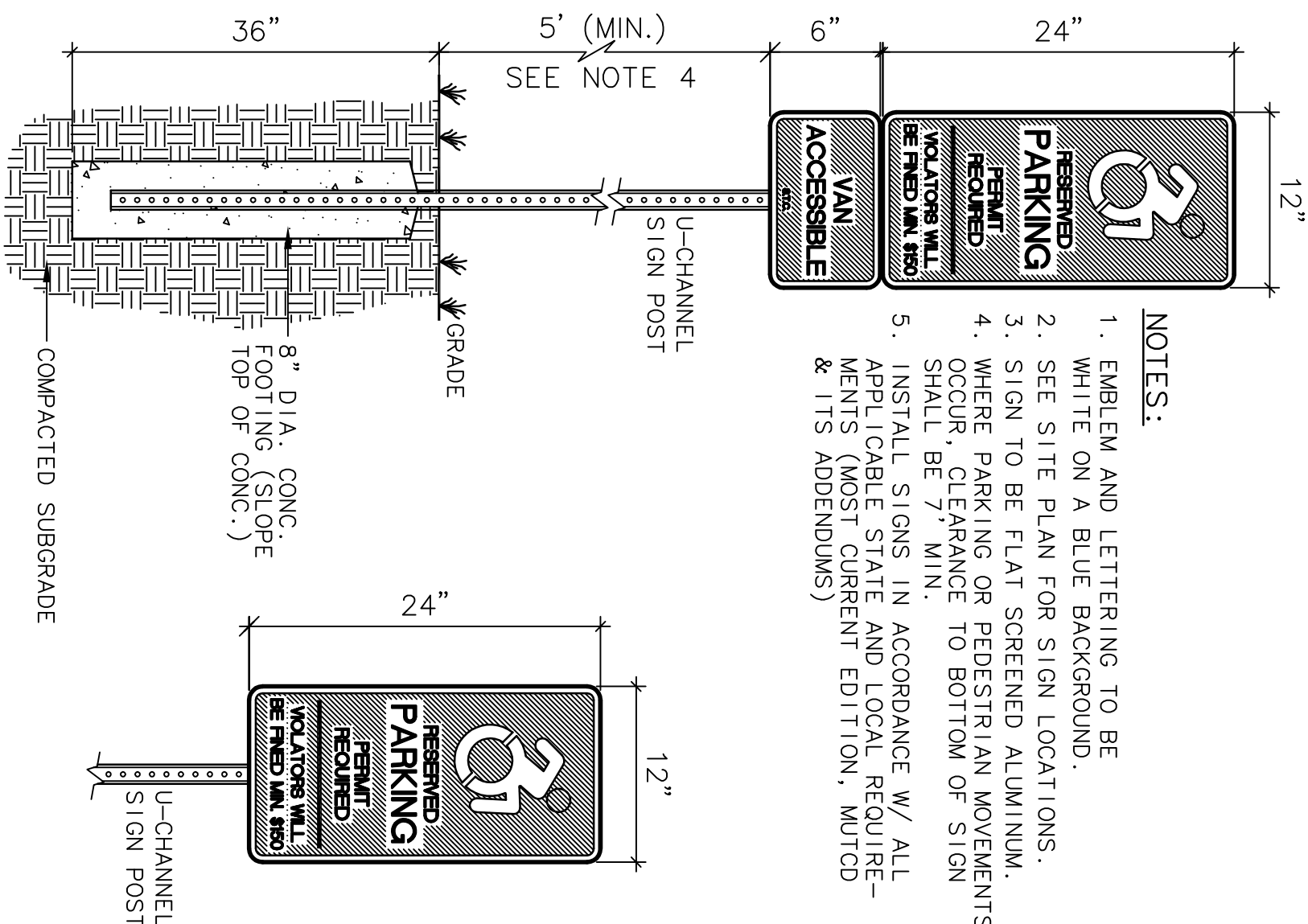


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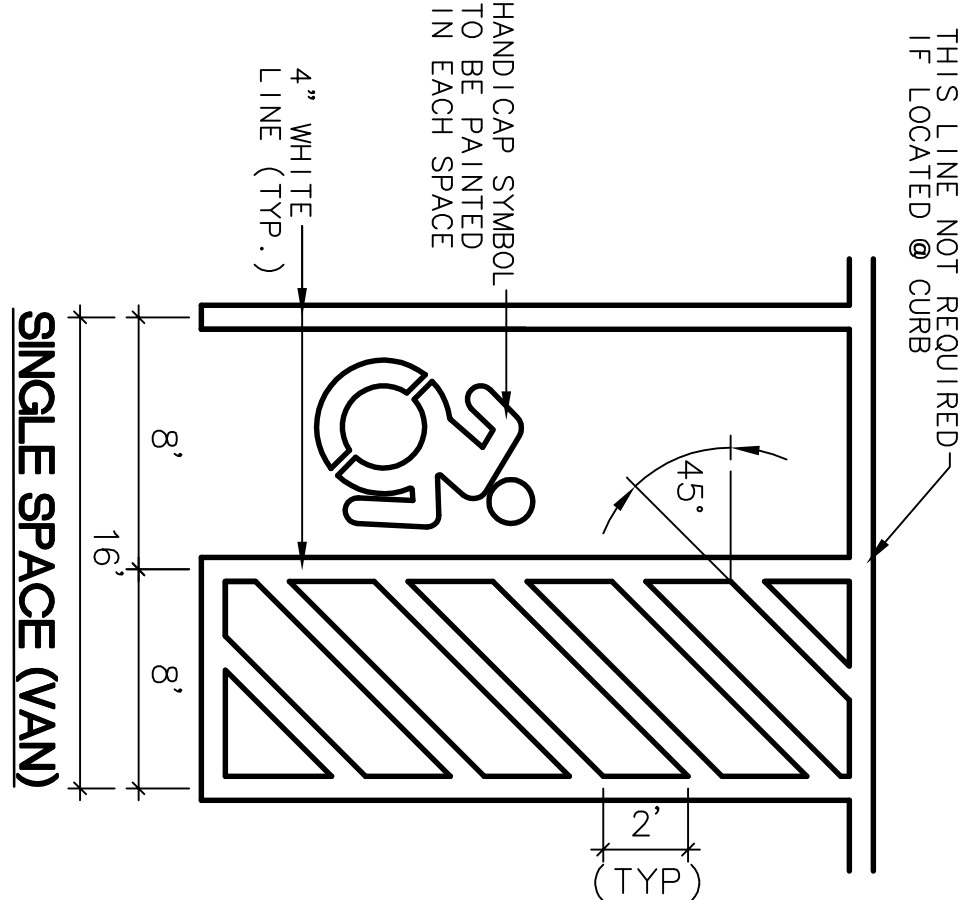
## PARKING LOT LIGHT

N.T.S.



## HANDICAP ACCESSIBLE PARKING STALL

N.T.S.



- NOTES:
1. HATCHED ACCESS AISLES FOR HANDICAP SPACES MAY BE SHARED.
  2. HATCHED ACCESS AISLES MAY BE ON EITHER SIDE OF THE VAN OR CAR SPACES. HOWEVER, ANGLED VAN SPACES SHALL HAVE THE ACCESS AISLE ON THE PASSENGER SIDE OF THE PARKING SPACE.

## HANDICAP ACCESSIBLE PARKING STALL

N.T.S.

- NOTES:
1. EMBLEM AND LETTERING TO BE WHITE ON A BLUE BACKGROUND.
  2. SEE SITE PLAN FOR SIGN LOCATIONS.
  3. SIGN TO BE FLAT SCREENED ALUMINUM.
  4. WHERE PARKING OR PEDESTRIAN MOVEMENTS OCCUR, CLEARANCE TO BOTTOM OF SIGN SHALL BE 7' MIN.
  5. INSTALL SIGNS IN ACCORDANCE W/ ALL APPLICABLE STATE AND LOCAL REQUIREMENTS (MOST CURRENT EDITION, MUTCD & ITS ADDENDUMS)

## HANDICAP PARKING SIGNS

N.T.S.

May 9, 2022

Mr. Alan Borghesi  
Borghesi Building & Engineering  
2155 East Main Street  
Torrington, CT 06790

**Re: Proposed Valvoline Oil and Lube Center  
371-373 Talcottville Road (Route 83)  
Vernon, CT  
Our File: 22055**

Dear Mr. Borghesi:

Pursuant to your request and authorization our office has prepared this letter to outline the trip generation potential of a proposed 3,844 s.f. Valvoline Instant Oil Change facility as part of the existing car wash facility at that location. The site location is presented in Figure 1.

The current site consists of a car wash with two automated tunnels and eight self service bays. Access to the site is provided by two unsignalized driveways to Route 83. The southerly driveway is a full service driveway and the northerly driveway is a one way exit only driveway. Both driveway approaches operate under stop sign control. The existing car wash facility will remain in its current condition. The Oil Change facility access is proposed off of the southerly car wash entrance drive.

The Connecticut DOT maintains a traffic volume count program on all state highways and some local roadways. Included within the DOT database is a count on Route 83, south of Dart Hill Road. These counts were conducted in 2020 and in 2017. The 2020 count was conducted during the pandemic, and the observed traffic volumes were lower than the 2017 counts, therefore, to be conservative, we used the 2017 count data for

analysis, as shown in Table 1. Since traffic volumes have declined due to the pandemic, a growth rate has not been applied.

In order to determine the trip generation potential of the proposed development, the Institute of Transportation Engineers (ITE) *Trip Generation* Report was consulted. *Trip Generation* presents trip generation estimates for many land uses based on counts conducted at existing facilities throughout the country. Included within the ITE database are the following land uses; Land Use Code (LUC): 947 – Self Serve Car Wash; LUC 948 – Automated Car Wash; and LUC 941: Quick Lubrication Vehicle Shop. The *Trip Generation* Report presents data based on building size, tunnels, and service bays.

According to the ITE report the existing car wash facility has a trip generation potential of 103 trips during the morning peak hour, a total of 219 trips, during the afternoon peak hour and a total of 204 trips during the Saturday peak hour. The proposed development with the quick lube center has a trip generation potential of 142 trips during the morning peak hour, 255 trips during the afternoon peak hour and 243 trips during the Saturday peak hour. Therefore, the proposed site will result in an increase of 39 trips during the morning and Saturday peak hour, and 36 trips during the afternoon peak hour. The site generated traffic is summarized in Table 2.

The site generated traffic was distributed to the local roadway network with a 50/50 directional distribution along Route 83. This distribution was used for the existing car wash as well as the proposed oil change facility. Capacity analyses were conducted for the background and the combined traffic volume conditions. The analysis was completed using a computer program known as SYNCHRO. The level of service results are presented in Table 3.

**North Site Drive** - This is an existing unsignalized driveway with Route 83 oriented in the north/south direction. The site driveway approaches from the west. Route 83



provides two southbound lanes and three northbound lanes, with one lane reserved for left turns into the residential driveway located immediately north of the site. The site driveway provides a two lane approach and operates under stop sign control. For purposes of this analysis we have analyzed the intersection with two lanes on each of the Route 83 approaches. The results indicate that the Route 83 approaches operate at a LOS A during peak hours under the background and combined traffic volume conditions. The site driveway approach operates with a LOS F for left turns and a LOS C for right turns during the morning peak hour and a LOS B during the afternoon and Saturday peak hours. These levels of service are the same under the background and combined traffic volume conditions.

As indicated above, there is a traffic signal located within 100 feet (north) of this intersection. The signal will result in queues in the northbound Route 83 lanes that will restrict exiting left turns. The queues are frequent, but of short duration, and should not significantly impact operations at the driveway.

**North Site Drive** - This is an existing unsignalized driveway with Route 83 oriented in the north/south direction. The site driveway approaches from the west. Route 83 provides two southbound lanes and three northbound lanes, with one lane reserved for left turns into the residential driveway located immediately north of the site. The left turn lane is utilized by vehicles entering the site driveway. The site driveway provides a single approach and operates under stop sign control. The results indicate that the Route 83 northbound approach operates at a LOS B for left turns and a LOS A for through vehicles. The southbound Route 83 approach operates at a LOS A during peak hours. These LOS are experienced under the background and combined traffic volume conditions. The site driveway approach operates with a LOS E during peak hours under the background traffic volumes. With the introduction of the site generated traffic the approach will operate at a LOS F during peak hours.

Mr. Alan Borghesi  
May 9, 2022  
Page 4

The LOS F calculated for the site driveways is not unusual for unsignalized driveways on Route 83 within the Town of Vernon. Although the LOS is F, average delays are not excessive and the volume to capacity ratios are a maximum of 56%.

Observations at the existing site driveways indicate that available intersection sight distances are in excess of 700 feet in each direction. The available sight distances meet the current ConnDOT requirement for an approach speed of 50 miles per hour. Route 83 in this area is posted at 40 miles per hour.

Based on the current traffic volumes on Route 83, the existing and proposed trip generation potential of the development, and the calculated levels of service as outlined above, it is my professional opinion that the traffic associated with the proposed Oil Change facility will not have a significant impact on the local roadway network. The site driveways to the site are existing to remain. They are properly designed to accommodate the anticipated driveway volumes and they are properly located with respect to available intersection sight distances.

We appreciate the opportunity to provide this analysis to you. We will be available to offer testimony in support of your application before local planning agencies upon your request. If you require additional information regarding this application, please do not hesitate to contact our office.

Very truly yours,

**F. A. Hesketh & Associates, Inc.**

  
Scott F. Hesketh, P.E.  
Manager of Transportation Engineering



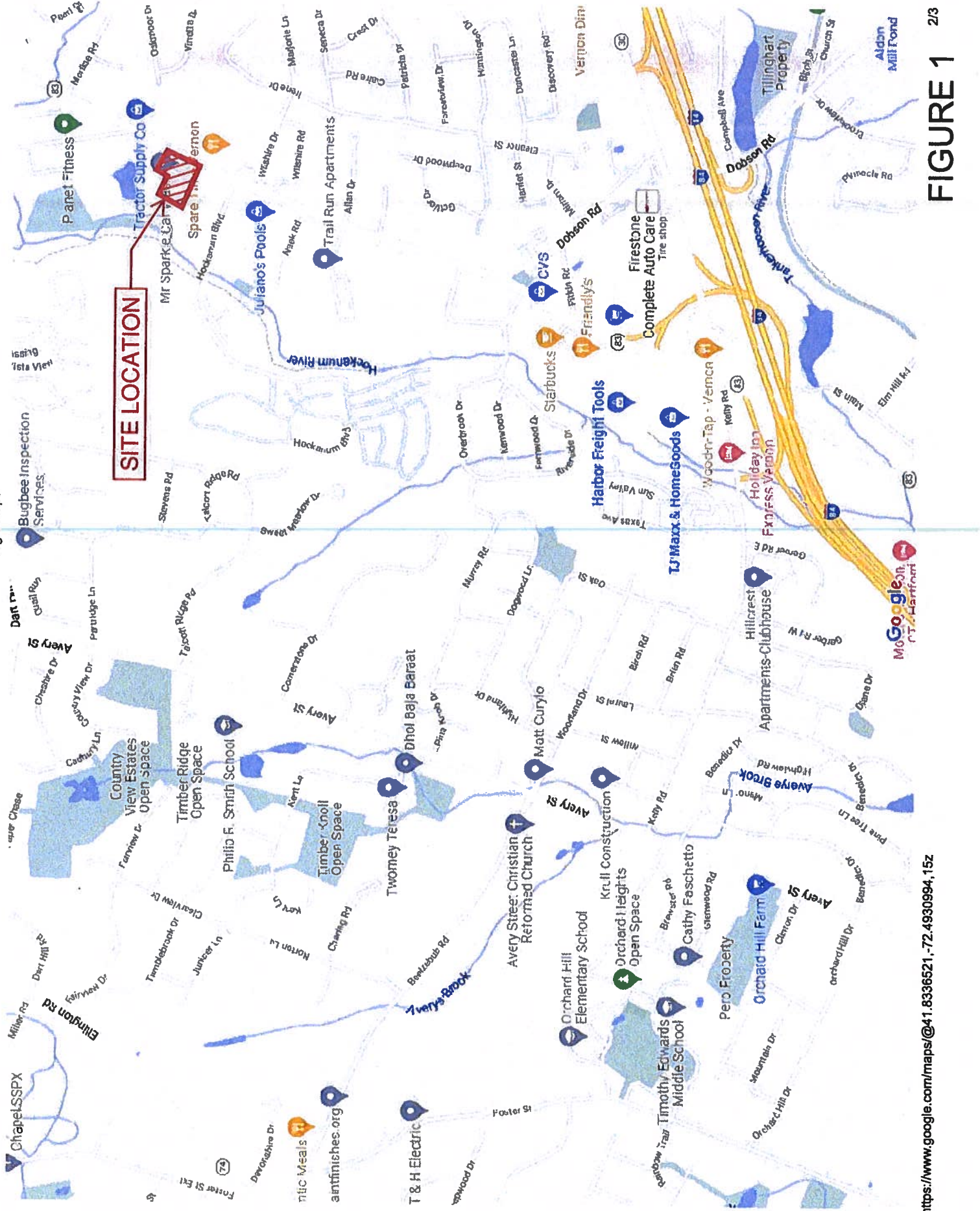
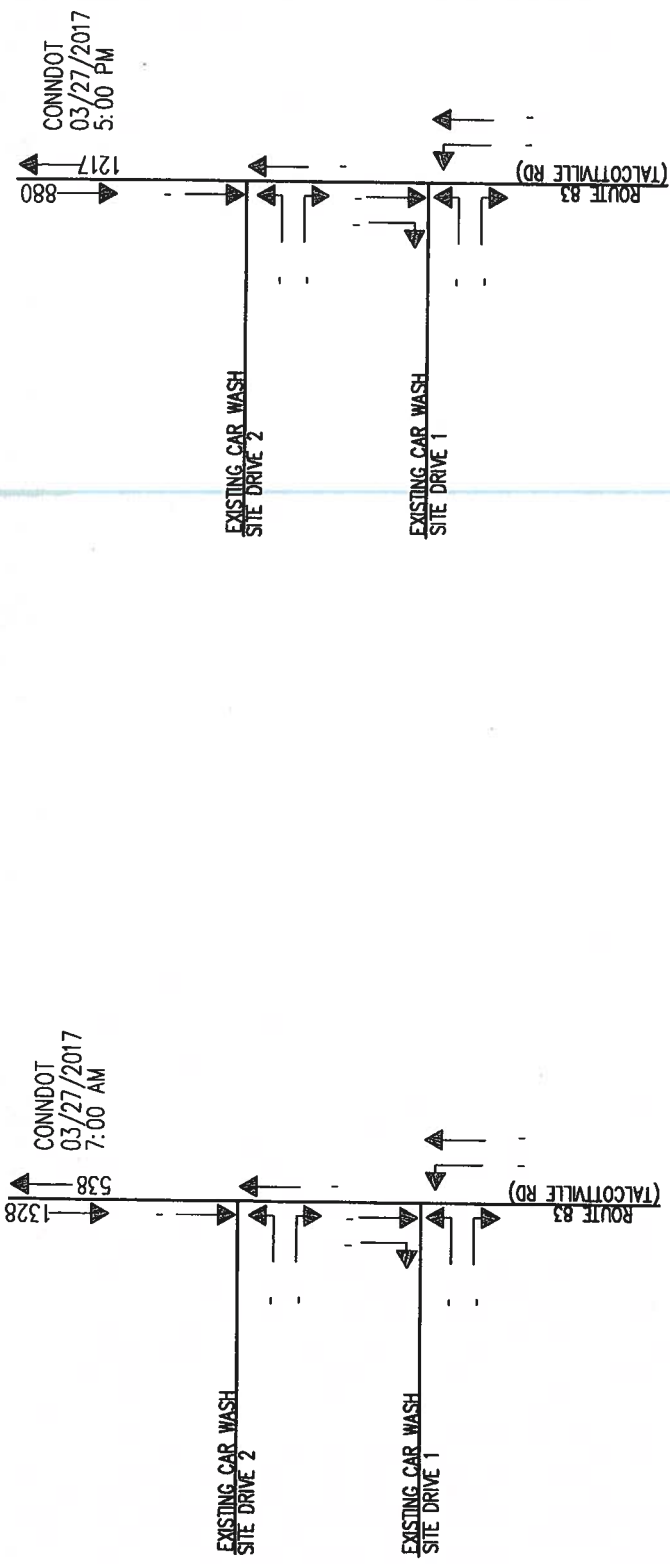


TABLE 1  
ConnDOT TRAFFIC VOLUMES  
Route 83 south of Dart Hill Road  
STATION NO. 45

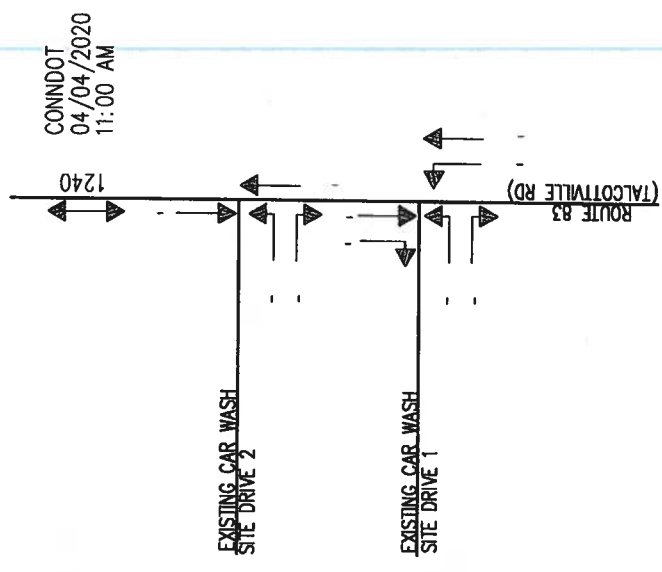
	27-Mar-17 Monday			28-Mar-17 Tuesday		
	<u>NB</u>	<u>SB</u>	<u>Total</u>	<u>NB</u>	<u>SB</u>	<u>Total</u>
12:00				91	43	134
1:00				40	35	75
2:00				20	28	48
3:00				27	45	72
4:00				72	102	174
5:00	81	310	391			
6:00	317	815	1132			
7:00	<b>538</b>	<b>1328</b>	<b>1866</b>			
8:00	454	1166	1620			
9:00	569	840	1409			
10:00	601	699	1300			
11:00	648	737	1385			
12:00	681	800	1481			
1:00	701	805	1506			
2:00	769	895	1664			
3:00	904	901	1805			
4:00	1103	935	2038			
5:00	<b>1217</b>	<b>880</b>	<b>2097</b>			
6:00	930	744	1674			
7:00	581	528	1109			
8:00	447	344	791			
9:00	335	189	524			
10:00	206	133	339			
11:00	109	93	202			
	11191	13142	24333	250	253	503

**2017 ADT = 24,300 for station 45 in Vernon**





A.M. PEAK HOUR



P.M. PEAK HOUR

**FIGURE 2** SATURDAY PEAK HOUR

OBSERVED TRAFFIC VOLUMES  
A.M., P.M. & SATURDAY  
PEAK HOURS

**PROPOSED VALVOLINE**  
371 & 373 TALCOTTVILLE ROAD  
VERNON, CONNECTICUT

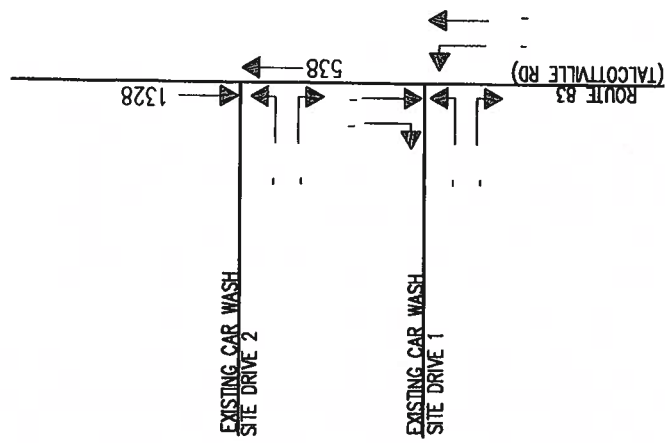
**F. A. Heeketh & Associates, Inc.**  
3 CREAMERY BROOK, EAST GRANBY, CT 06028

**FAH**

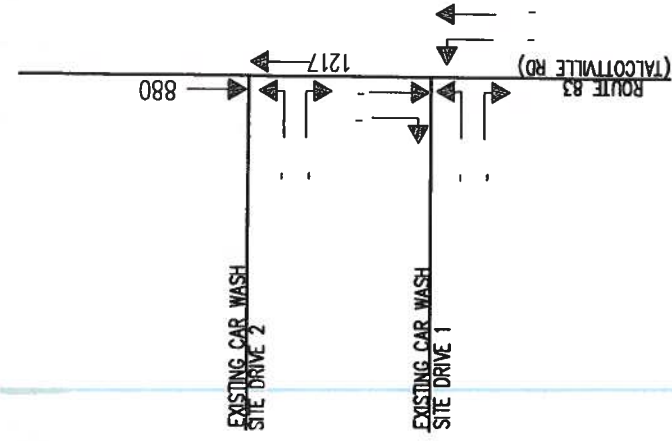
TRAFFIC  
PLANNING  
ENGINEERING  
DESIGN

04-08-2022

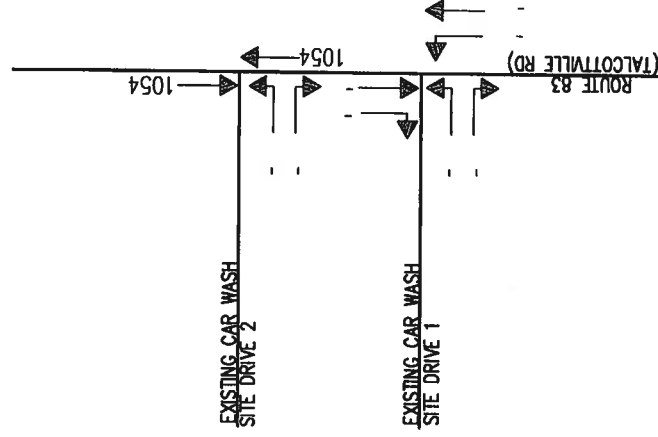
NOT TO SCALE



A.M. PEAK HOUR



P.M. PEAK HOUR

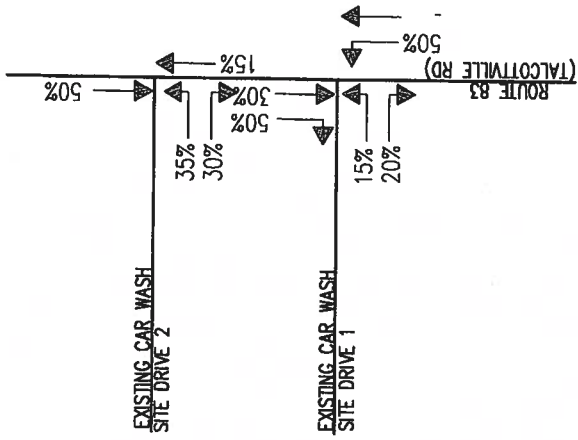


SATURDAY PEAK HOUR

CONNDOT CONDUCTED A SATURDAY COUNT IN APRIL 2020. IT WAS CONDUCTED DURING COVID, THEREFORE THE DIFFERENCE IN THE 2017 ADT AND THE 2020 ADT WAS FOUND (APPROX. 70%) AND THE 2020 SATURDAY VOLUMES WERE INCREASED BY THAT PERCENTAGE.

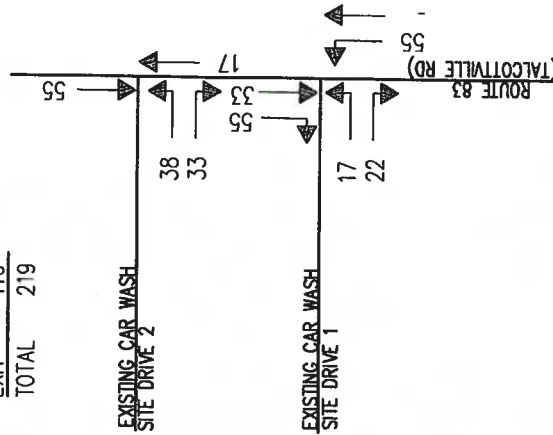
FIGURE 3

<b>EXISTING TRAFFIC VOLUMES</b> A.M., P.M. & SATURDAY PEAK HOURS <b>PROPOSED VALVOLUME</b> 371 & 373 TALCOTTVILLE ROAD VERNON, CONNECTICUT		04-06-2022 <b>F. A. Heeketh &amp; Associates, Inc.</b> 3 CREMERT BROOK, EAST GRANBY, CT 06026 <b>FAH</b> TRAFFIC PLANNING ENGINEERING DESIGN NOT TO SCALE
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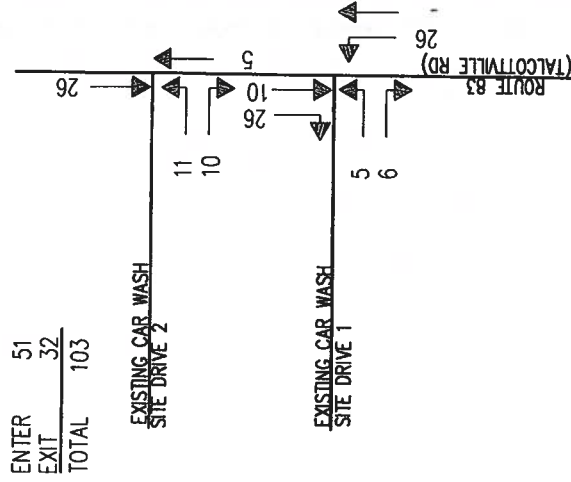


DIRECTIONAL DISTRIBUTION  
ALL PEAK HOURS

ENTER	109
EXIT	110
TOTAL	219

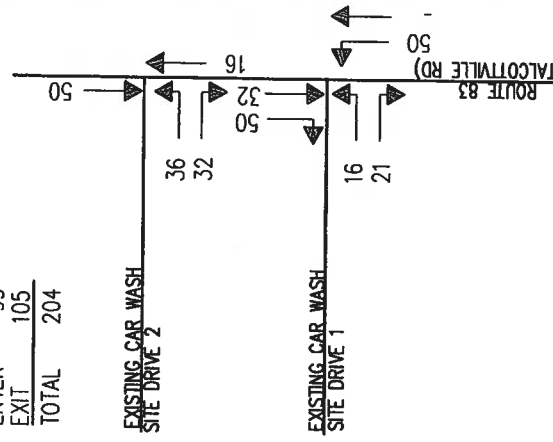


P.M. PEAK HOUR



A.M. PEAK HOUR

ENTER	99
EXIT	105
TOTAL	204



SATURDAY PEAK HOUR

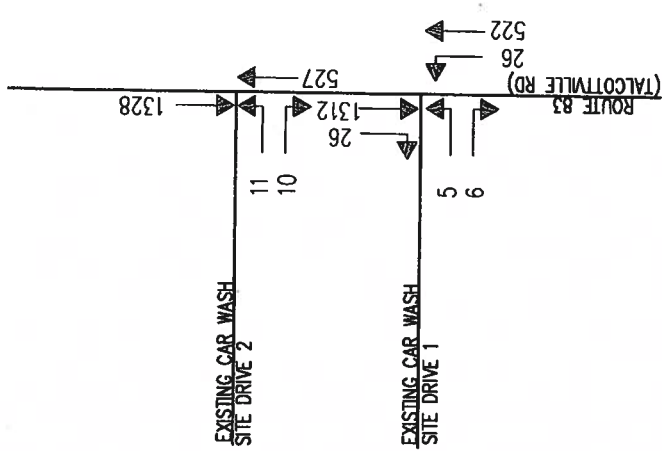
FIGURE 4

**F. A. Heeketh & Associates, Inc.**  
3 CREAMERY BROOK, EAST GRAFTON, CT 06026

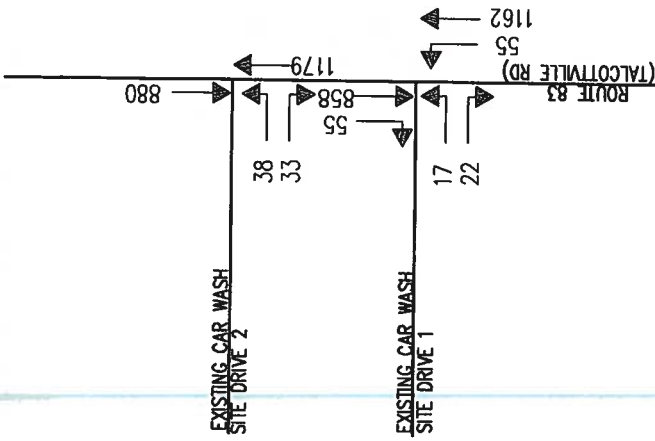
**FAH**  
TRAFFIC  
PLANNING  
ENGINEERING  
DESIGN

DIRECTIONAL DISTRIBUTION OF  
EXISTING SITE TRAFFIC &  
SITE GENERATED TRAFFIC VOLUMES  
PROPOSED VALVOLINE  
371 & 373 TALCOTTVILLE ROAD  
VERNON, CONNECTICUT

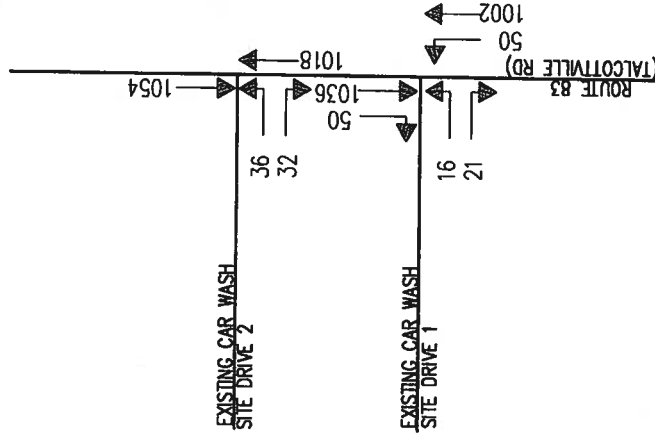
NOT TO SCALE



A.M. PEAK HOUR



P.M. PEAK HOUR



SATURDAY PEAK HOUR

THE BACKGROUND TRAFFIC VOLUMES ARE PROVIDED BY COMBINING THE EXISTING TRAFFIC VOLUMES FROM FIGURE 3 WITH THE EXISTING SITE GENERATED TRAFFIC VOLUMES FROM FIGURE 4. A REVIEW OF THE MOST RECENT CONDOT COUNTS SHOWS THAT TRAFFIC VOLUMES HAVE DECREASED FROM 2008 TO 2017. IN ORDER TO BE CONSERVATIVE, WE DID NOT APPLY A GROWTH RATE TO THE EXISTING TRAFFIC VOLUMES.

**FIGURE 5**

BACKGROUND TRAFFIC VOLUMES  
A.M., P.M. & SATURDAY  
PEAK HOURS

**PROPOSED VALVOLUME**  
371 & 373 TALCOTTVILLE ROAD  
VERNON, CONNECTICUT

04-06-2022

**F. A. Heeketh & Associates, Inc.**  
3 CREAMERY BROOK, EAST GRANBY, CT 06026

**FAH**

TRAFFIC  
PLANNING  
ENGINEERING  
DESIGN

NOT TO SCALE

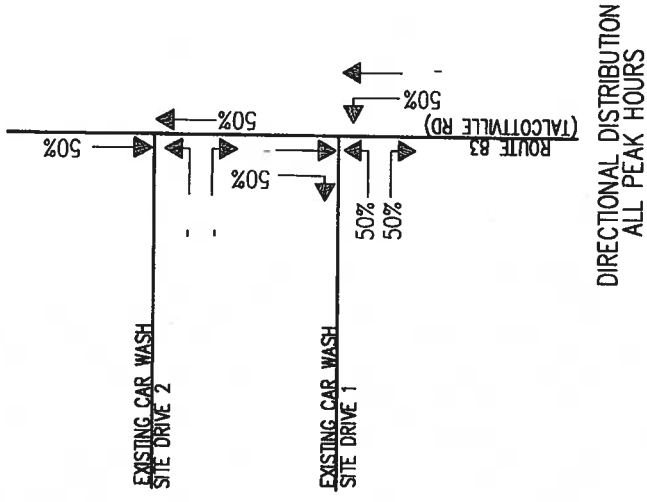
**Table 2**  
**Trip Generation Summary**  
**Proposed Car Wash & Quick Lubrication Vehicle Shop**  
**371-373 Talcottville Road Vernon, CT**

Land Use	Size	Weekday ADT	A.M. Peak Hour		P.M. Peak Hour		Saturday ADT	Enter	SAT. Peak Hour Exit	Total
			Enter	Exit	Enter	Exit				
Existing	Automated Car Wash*	-	19	20	77	78	-	38	44	82
	Self-Service Car Wash	864	32	12	32	32	1062	61	61	122
	Combined	-	51	32	109	110	-	99	105	204
Proposed	Quick Lubrication Vehicle Shop	267	19	20	16	20	-	19	20	39
	3 Servicing Positions	120	6	6	8	6	126	6	8	14
	<sup>a</sup> Total	-	70	52	125	130	-	118	125	243

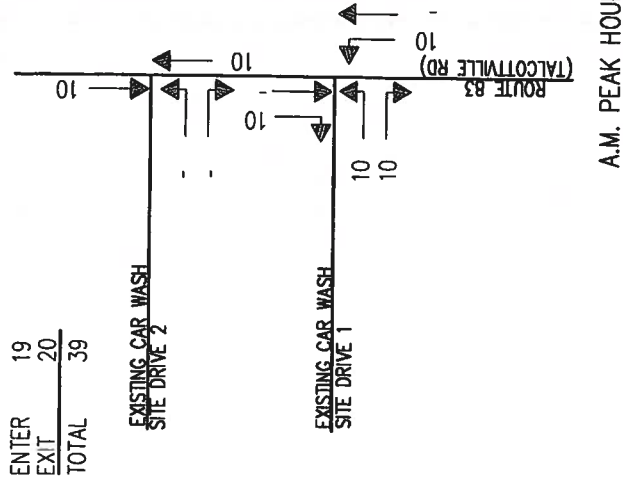
\*Morning Trips for the Automated Car Wash not available therefor 25% of the Afternoon trips were used for the Morning.

\*\*Saturday trips for the Quick Lubrication Vehicle Shop not available therefor the morning trips were used.

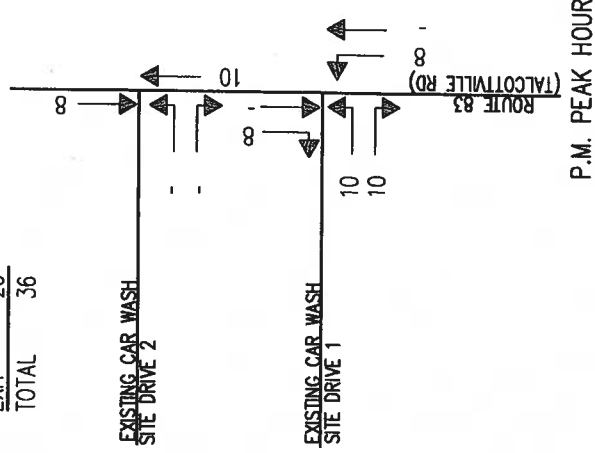
<sup>a</sup>Existing car wash plus oil change center.



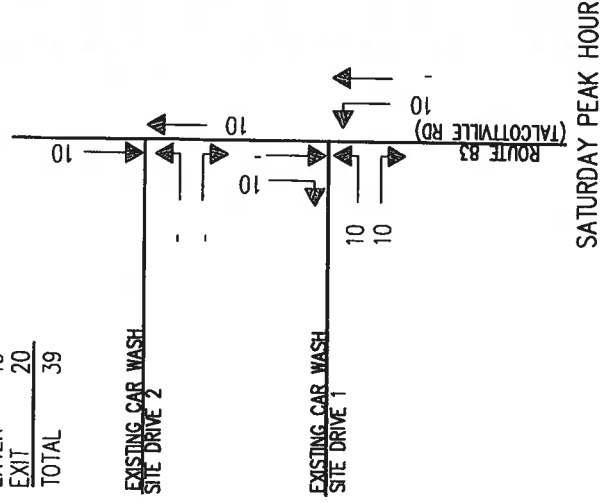
ENTER	16
EXIT	20
TOTAL	36



ENTER	19
EXIT	20
TOTAL	39



ENTER	19
EXIT	20
TOTAL	39



P.M. PEAK HOUR

SATURDAY PEAK HOUR

FIGURE 6

04-06-2022

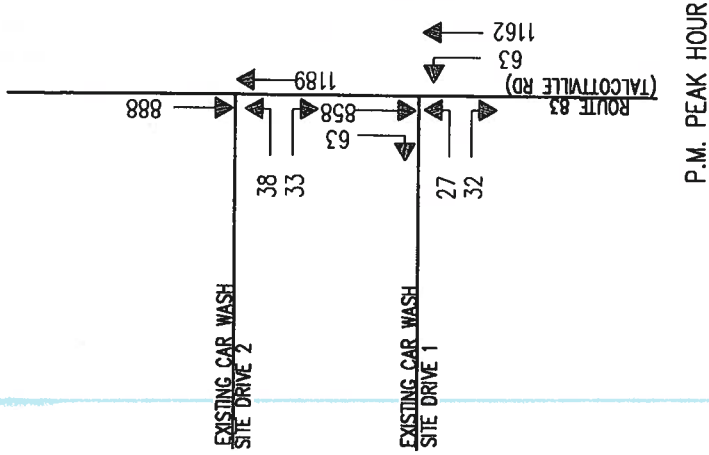
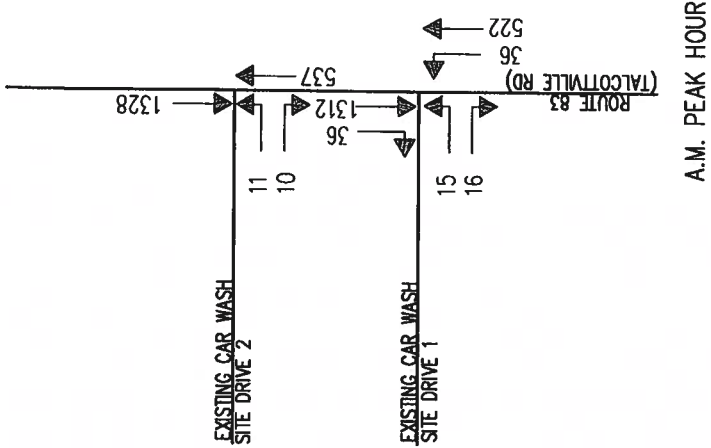
**F. A. Heeketh & Associates, Inc.**  
3 CREAMY BROOK EAST GRANBY, CT 06026

**FAH**

TRAFFIC  
PLANNING  
ENGINEERING  
DESIGN

DIRECTIONAL DISTRIBUTION OF  
PROPOSED SITE TRAFFIC &  
SITE GENERATED TRAFFIC VOLUMES  
PROPOSED VALVOLINE  
371 & 373 TALCOTTVILLE ROAD  
VERNON, CONNECTICUT

NOT TO SCALE



A.M. PEAK HOUR

P.M. PEAK HOUR

THE COMBINED TRAFFIC VOLUMES ARE PROVIDED BY COMBINING THE BACKGROUND TRAFFIC VOLUMES FROM FIGURE 5 WITH THE SITE GENERATED TRAFFIC VOLUMES FROM FIGURE 6.

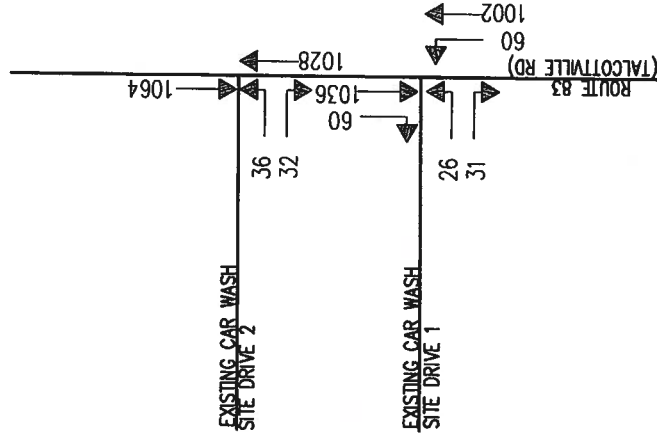


FIGURE 7 SATURDAY PEAK HOUR

04-06-2022

**F. A. Heeketh & Associates, Inc.**  
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**FAH**

TRAFFIC  
PLANNING  
ENGINEERING  
DESIGN

COMBINED TRAFFIC VOLUMES  
A.M., P.M. & SATURDAY  
PEAK HOURS  
PROPOSED VALVOLINE  
371 & 373 TALCOTTVILLE ROAD  
VERNON, CONNECTICUT

NOT TO SCALE

### Table 3

Time Period	A.M. Peak Hour						P.M. Peak Hour						Saturday Peak Hour							
	Background Traffic			Combined Traffic			Background Traffic			Combined Traffic			Background Traffic			Combined Traffic				
	LOS	delay	v/c	Queue	LOS	delay	v/c	Queue	LOS	delay	v/c	Queue	LOS	delay	v/c	Queue	LOS	delay	v/c	Queue
Route 83 & Site Drive 1																				
EB	E	35.2	0.09	7	F	50.2	0.30	28	E	39.6	0.29	28	F	54.1	0.48	55	E	46.2	0.32	31
NB	B	13.3	0.06	5	B	13.6	0.09	7	B	10.7	0.09	7	B	10.8	0.10	8	B	11.7	0.09	8
SB	A	0.0	0.17	0	A	0.0	0.17	0	A	0.0	0.37	0	A	0.0	0.37	0	A	0.0	0.32	0
	A	0.0	0.56	0	A	0.0	0.56	0	A	0.0	0.37	0	A	0.0	0.37	0	A	0.0	0.44	0
Route 83 & Site Drive 2																				
EB	F	58.3	0.15	13	F	58.9	0.15	13	F	66.8	0.42	44	F	68.8	0.43	45	F	82.0	0.47	49
	C	15.0	0.03	2	C	15.0	0.03	2	B	12.2	0.07	5	B	12.3	0.07	5	B	13.4	0.08	6
NB	A	0.0	0.17	0	A	0.0	0.17	0	A	0.0	0.38	0	A	0.0	0.38	0	A	0.0	0.33	0
SB	A	0.0	0.42	0	A	0.0	0.42	0	A	0.0	0.28	0	A	0.0	0.28	0	A	0.0	0.34	0



## ITE TripGen Web-based App



ITE TripGen Web-based App

Graph Look Up

How to Use ITE TripGen

Local Data Reference

ITE App/Docs

Support Documents

Add Users

Comments

## Graph Look Up

Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

941

LAND USE GROUP:

(900-999) Services

LAND USE:

941 - Quick Lubrication Vehicle Shop

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (V):

Servicing Positions

TIME PERIOD:

Saturday

TRIP TYPE:

Vehicle

ENTER IN VALUE TO CALCULATE TRIP:

3

Calculate

Data Plot and Equation

100

80

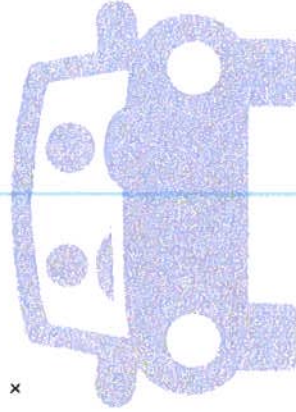
60

40

20

0

X



T = Trip Ends

X = Number of Servicing Positions

Reset Zoom

Restore

X Study Site

Average Rate

Caution - Small Sample Size

DATA STATISTICS

Land Use:

Quick Lubrication Vehicle Shop (941) Click for Description and Data File

Independent Variable:

Servicing Positions

Time Period:

Saturday

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

1

Avg. Num. of Servicing Positions:

2

Average Rate:

42.00

Range of Rates:

42.00 - 42.00

Standard Deviation:

---

Fitted Curve Equation:

Not Given

R<sup>2</sup>:

---

Directional Distribution:

50% entering, 50% exiting

Calculated Trip Ends:

Average Rate: 126 (Thru), 63 (Entry), 63 (Exit)

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and Y values.

ITE TripGen Web-based App



ITE TripGen Web-based App

Graph Look Up

How to Use ITE TripGen

IGM Data Reference

IGM Appendices

Support Documents

Add Users

Comments

Query Filter

DATA SOURCE: Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE: 941

LAND USE GROUP: (900-999) Services

LAND USE: 941 - Quick Lubrication Vehicle Shop

LAND USE SUBCATEGORY: All Sites

SETTING/LOCATION: General Urban/Suburban

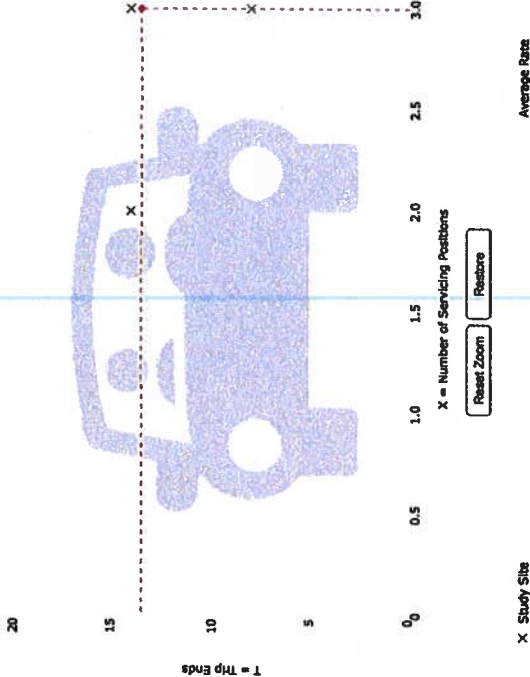
INDEPENDENT VARIABLE (IV): Servicing Positions

TIME PERIOD: Saturday, Peak Hour of Generator

TRIP TYPE: Vehicle

ENTER IV VALUE TO CALCULATE TRIPS: 3 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use: Quick Lubrication Vehicle Shop (941) Click for Description and Data File

Independent Variables: Servicing Positions

Time Period: Saturday

Peak Hour of Generator

Setting/Location: General Urban/Suburban

Trip Type: Vehicle

Number of Studies: 3

Avg. Num. of Servicing Positions: 3

Average Rate: 4.50

Range of Rates: 2.67 - 7.00

Standard Deviation: 2.08

Fitted Curve Equation: Not Given

R<sup>2</sup>: ---

Directional Distribution: 47% entering, 53% exiting

Calculated Trip Ends: Average Rate: 14 (Total), 6 (Entry), 8 (Exit)

**Data Plot and Equation**

Query Filter

**DATA SOURCE:** Trip Generation Manual, 11th Ed

**SEARCH BY LAND USE CODE:** 941

**LAND USE GROUP:** (900-999) Services

**LAND USE:** 941 - Quick Lubrication Vehicle Shop

**LAND USE SUBCATEGORY:** All Sites

**SETTING LOCATION:** General Urban/Suburban

**INDEPENDENT VARIABLE (X):** Servicing Positions

**TIME PERIOD:** Weekday

**TRIP TYPE:** Vehicle

**ENTER X VALUE TO CALCULATE TRIPS:** 3 Calculate

**Caution - Small Sample Size**

**DATA STATISTICS**

Land User:  
Quick Lubrication Vehicle Shop (941) Click for Description and Data Entry

Independent Variable:  
Servicing Positions

Time Period:  
Weekday

Setting Location:  
General Urban/Suburban

Trip Type:  
Vehicle

Number of Studies:  
1

Avg. Num. of Servicing Positions:  
2

Average Rate:  
40.00

Range of Rates:  
40.00 - 40.00

Standard Deviation:  
---

Fitted Curve Equation:  
Not Given

R<sup>2</sup>:  
---

Directional Distribution:  
50% entering, 50% exiting

Calculated Trip Ends:  
Average Rate: 120 (Total), 60 (Entry), 60 (Exit)

**X Study Site**

**Y = Trips Ends**

**X = Number of Servicing Positions**

Reset Zoom Restore

**Average Rate**

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and Y values.

## Graph Look Up

ITETripGen Web-based App

- Graph Look Up
- How to Use the TripGen
- TripGen Reference
- TripGen Appendices
- Support Documents
- App Users
- Comments

Query Filter

DATA SOURCE:  
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:  
947

LAND USE GROUP:  
(900-999) Services

LAND USE:  
947 - Self-Service Car Wash

LAND USE SUBCATEGORY:  
All Sites

SETTING/LOCATION:  
General Urban/Suburban

INDEPENDENT VARIABLE (V):  
Wash Stalls

TIME PERIOD:  
Weekday, AM Peak Hour of Generator

TRIP TYPE:  
Vehicle

ENTER IN VALUE TO CALCULATE THERE:  
8 Calculate

Data Plot and Equation

50  
40  
30  
20  
10  
0

X

2

4

6

8

10

Reset Zoom

Restore

X Study Site

Average Rate

Caution - Small Sample Size

DATA STATISTICS

Land Use:  
Self-Service Car Wash (947) [Click for Description](#)  
82nd Street L2508  
Independent Variable:  
Wash Stalls  
Time Period:  
Weekday  
AM Peak Hour of Generator  
Setting/Location:  
General Urban/Suburban  
Trip Type:  
Vehicle  
Number of Studies:  
1  
Avg. Num. of Wash Stalls:  
5  
Average Rate:  
8.00  
Range of Rates:  
8.00 - 8.00  
Standard Deviation:  
—  
Fitted Curve Equation:  
Not Given  
 $R^2$ :  
—  
Directional Distribution:  
50% entering, 50% exiting  
Calculated Trip Ends:  
Average Rate: 64 (Total), 32 (Entry), 32 (Exit)

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and Y values.

A024-0015 to 00-114166

ITy GTISS Pro

VERSION: 8.0 (UPDATES) | DATA: 11TH EDITION | TERMS AND CONDITIONS | PRIVACY | ITS MARKETPLACE

<https://itetripgen.org/Query>

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1/1

## Graph Look Up

ITE TripGen Web-based App

Graph Look Up

How to Use ITE TripGen

TSM Data Reference

TSM Applications

Support Documents

Add Users

Logins

Query Filter

DATA SOURCE: Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE: 947

LAND USE GROUP: (900-999) Services

LAND USE: 947 - Self-Service Car Wash

LAND USE SUBCATEGORY: All Sites

SETTING LOCATION: General Urban/Suburban

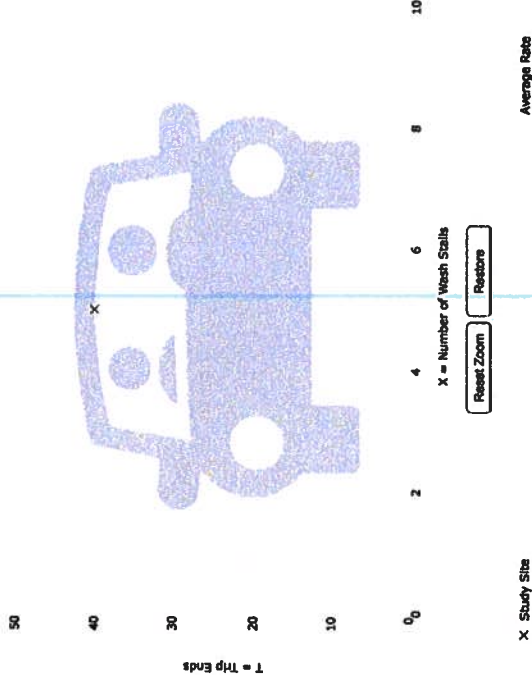
INDEPENDENT VARIABLE (N): Wash Stalls

TIME PERIOD: Weekday, PM Peak Hour of Generator

TRIP TYPE: Vehicle

ENTER IN VALUES TO CALCULATE TRIPS: 8 Calculate

Data Plot and Equation



DATA STATISTICS

Land Use: Self-Service Car Wash (947) Click for Description and Data Sheet

Independent Variable: Wash Stalls

Time Period: Weekday, PM Peak Hour of Generator

Setting Location: General Urban/Suburban

Trip Type: Vehicle

Number of Studies: 1

Avg. Num. of Wash Stalls: 5

Average Rate: 8.00

Range of Rates: 8.00 - 8.00

Standard Deviation: ---

Fitted Curve Equation: Not Given

R<sup>2</sup>: ---

Directional Distribution: 50% entering, 50% exiting

Calculated Trip Ends: Average Rate: 64 (Total), 32 (Entry), 32 (Exit)

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and Y values.





# Graph Look Up

ITE TripGen Web-based App

[Graph Look Up](#)[How to Use ITE TripGen](#)[TGM Desk Reference](#)[TGM Appendices](#)[Support Documents](#)[Add Users](#)[Comments](#)

Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

947

LAND USE GROUP:

(800-889) Services

LAND USE:

947 - Self-Service Car Wash

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

DEPENDENT VARIABLE (V):

Wash Stalls

TIME PERIOD:

Saturday, Peak Hour of Generator

TRIP TYPE:

Vehicle

ENTER IN VALUE TO CALCULATE TRIP:

8

Calculate

Data Plot and Equation

200

150

100

50

0

0

1

2

3

4

5

6

X = Number of Wash Stalls

Reset Zoom

Restore

X Study Site

Average Rate

Caution - Small Sample Size

DATA STATISTICS

Land Use:

Self-Service Car Wash (947) Click for Description

800 Data Code

Independent Variable:

Wash Stalls

Time Period:

Saturday

Peak Hour of Generator

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

3

Avg. Num. of Wash Stalls:

5

Average Rate:

13.25

Range of Rates:

6.33 - 30.00

Standard Deviation:

12.43

Fitted Curve Equation:

Not Given

R<sup>2</sup>:

---

Directional Distribution:

50% entering, 50% exiting

Calculated Trip Ends:

Average Rate: 122 (Mean), 61 (Entry), 61 (Exit)

Use the mouse wheel to Zoom Out or Zoom In.  
 Hover the mouse pointer on data points to view X and Y values.

Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

947

LAND USE GROUP:

(800-689) Services

LAND USE:

947 - Self-Service Car Wash

LAND USE SUBCATEGORY:

All Stalls

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Wash Stalls

TIME PERIOD:

Saturday

TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

8

Calculate

Data Plot and Equation

800

600

400

200

0

T = Trip Ends

2

4

6

8

10

X = Number of Wash Stalls

Reset Zoom

Reset

X Study Size

Average Rate

DATA STATISTICS

Land User:

Self-Service Car Wash (947) Click for Description and Data Sheet

Independent Variable:

Wash Stalls

Time Period:

Saturday

Selling Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Stalls:

1

Avg. Num. of Wash Stalls:

5

Average Rate:

132.80

Range of Rates:

132.80 - 132.80

Standard Deviation:

---

Fitted Curve Equation:

Not Given

R<sup>2</sup>:

---

Directional Distribution:

50% entering, 50% exiting

Calculated Trip Ends:

Average Rate: 1082 (Total), 531 (Entry), 531 (Exit)

Caution - Small Sample Size

Use the mouse wheel to Zoom Out or Zoom In.

Hover the mouse pointer on data points to view X and T values.

## Graph Look Up

ITETripGen Web-based App

Graph Look Up

How to Use ITETripGen

IGM Desk Reference

IGM Assemblies

Support Documents

Add Users

Comments

Query Filter

DATA SOURCE

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE

947

LAND USE GROUP

(900-999) Services

LAND USE

947 - Self-Service Car Wash

LAND USE SUBCATEGORY

All Sites

SETTING/LOCATION

General Urban/Suburban

INDEPENDENT VARIABLE (IV)

Wash Stalls

TIME PERIOD

Weekday

TRIP TYPE

Vehicle

ENTER IN VALUE TO CALCULATE TRIPS

8

Calculate

Data Plot and Equation

800

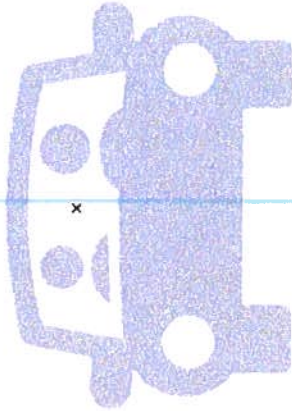
600

400

200

0

T = Trip Ends



2

4

6

8

10

X = Number of Wash Stalls

Reset Zoom

Restore

X Study Site

Average Rate

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land User:  
Self-Service Car Wash (947) Click for Description and Data Files

Independent Variable:

Wash Stalls

Time Period:

Weekday

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

1

Avg. Num. of Wash Stalls:

5

Average Rate:

108.00

Range of Rates:

108.00 - 108.00

Standard Deviation:

---

Fitted Curve Equation:

Not Given

R<sup>2</sup>:

---

Directional Distribution:

50% entering, 50% exiting

Calculated Trip Ends:

Average Rate: 864 (Total), 432 (Entry), 432 (Exit)



**SYNCHRO Capacity Analysis Worksheets**













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# HCM Unsignalized Intersection Capacity Analysis 1: ROUTE 83 & SITE DRIVE 2

## BACKGROUND TRAFFIC VOLUMES

A.M.


						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (veh/h)	11	10	0	527	1328	0
Future Volume (Veh/h)	11	10	0	527	1328	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	11	0	573	1443	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1730	722	1443			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1730	722	1443			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	97	100			
cM capacity (veh/h)	79	369	466			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	12	11	286	286	722	722
Volume Left	12	0	0	0	0	0
Volume Right	0	11	0	0	0	0
cSH	79	369	1700	1700	1700	1700
Volume to Capacity	0.15	0.03	0.17	0.17	0.42	0.42
Queue Length 95th (ft)	13	2	0	0	0	0
Control Delay (s)	58.3	15.0	0.0	0.0	0.0	0.0
Lane LOS	F	C				
Approach Delay (s)	37.6		0.0		0.0	
Approach LOS	E					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			46.7%		ICU Level of Service	A
Analysis Period (min)			15			



# HCM Unsignalized Intersection Capacity Analysis 2: ROUTE 83 & SITE DRIVE 1

## BACKGROUND TRAFFIC VOLUMES

A.M.

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	LT	RT	LT	TH	TH	LT
Traffic Volume (veh/h)	5	6	26	522	1312	26
Future Volume (Veh/h)	5	6	26	522	1312	26
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	7	28	567	1426	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1780	727	1454			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1780	727	1454			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	98	94			
cM capacity (veh/h)	69	366	461			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	12	28	284	284	951	503
Volume Left	5	28	0	0	0	0
Volume Right	7	0	0	0	0	28
cSH	131	461	1700	1700	1700	1700
Volume to Capacity	0.09	0.06	0.17	0.17	0.56	0.30
Queue Length 95th (ft)	7	5	0	0	0	0
Control Delay (s)	35.2	13.3	0.0	0.0	0.0	0.0
Lane LOS	E	B				
Approach Delay (s)	35.2	0.6			0.0	
Approach LOS	E					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			47.1%		ICU Level of Service	A
Analysis Period (min)			15			













# HCM Unsignalized Intersection Capacity Analysis

## 1: ROUTE 83 & SITE DRIVE 2

# BACKGROUND TRAFFIC VOLUMES

P.M.











						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	33	0	1179	880	0
Future Volume (Veh/h)	38	33	0	1179	880	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	36	0	1282	957	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1598	478	957			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1598	478	957			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	58	93	100			
cM capacity (veh/h)	97	533	714			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	41	36	641	641	478	478
Volume Left	41	0	0	0	0	0
Volume Right	0	36	0	0	0	0
cSH	97	533	1700	1700	1700	1700
Volume to Capacity	0.42	0.07	0.38	0.38	0.28	0.28
Queue Length 95th (ft)	44	5	0	0	0	0
Control Delay (s)	66.8	12.2	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	41.3		0.0		0.0	
Approach LOS	E					
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			42.6%		ICU Level of Service	A
Analysis Period (min)			15			



# HQM Unsignalized Intersection Capacity Analysis

## 2: ROUTE 83 & SITE DRIVE 1

BACKGROUND TRAFFIC VOLUMES  
P.M.

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	22	55	1162	858	55
Future Volume (Veh/h)	17	22	55	1162	858	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	24	60	1263	933	60
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1714	496	993			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1714	496	993			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	76	95	91			
cM capacity (veh/h)	74	519	692			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	42	60	632	632	622	371
Volume Left	18	60	0	0	0	0
Volume Right	24	0	0	0	0	60
cSH	145	692	1700	1700	1700	1700
Volume to Capacity	0.29	0.09	0.37	0.37	0.37	0.22
Queue Length 95th (ft)	28	7	0	0	0	0
Control Delay (s)	39.6	10.7	0.0	0.0	0.0	0.0
Lane LOS	E	B				
Approach Delay (s)	39.6	0.5			0.0	
Approach LOS	E					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			42.1%		ICU Level of Service	A
Analysis Period (min)			15			



# HCM Unsignalized Intersection Capacity Analysis 2: ROUTE 83 & SITE DRIVE 1

## BACKGROUND TRAFFIC VOLUMES

SATURDAY



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑↑	↑↑	
Traffic Volume (veh/h)	16	21	50	1002	1036	50
Future Volume (Veh/h)	16	21	50	1002	1036	50
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	23	54	1089	1126	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1806	590	1180			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1806	590	1180			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	73	95	91			
cM capacity (veh/h)	64	451	588			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	40	54	544	544	751	429
Volume Left	17	54	0	0	0	0
Volume Right	23	0	0	0	0	54
cSH	126	588	1700	1700	1700	1700
Volume to Capacity	0.32	0.09	0.32	0.32	0.44	0.25
Queue Length 95th (ft)	31	8	0	0	0	0
Control Delay (s)	46.2	11.7	0.0	0.0	0.0	0.0
Lane LOS	E	B				
Approach Delay (s)	46.2	0.6			0.0	
Approach LOS	E					
<b>Intersection Summary</b>						
Average Delay			1.0			
Intersection Capacity Utilization			46.9%		ICU Level of Service	A
Analysis Period (min)			15			















# HCM Unsignalized Intersection Capacity Analysis

## 1: ROUTE 83 & SITE DRIVE 2

# BACKGROUND TRAFFIC VOLUMES

SATURDAY

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (veh/h)	36	32	0	1018	1054	0
Future Volume (Veh/h)	36	32	0	1018	1054	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	35	0	1107	1146	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1700	573	1146			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1700	573	1146			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	53	92	100			
cM capacity (veh/h)	83	463	605			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	39	35	554	554	573	573
Volume Left	39	0	0	0	0	0
Volume Right	0	35	0	0	0	0
cSH	83	463	1700	1700	1700	1700
Volume to Capacity	0.47	0.08	0.33	0.33	0.34	0.34
Queue Length 95th (ft)	49	6	0	0	0	0
Control Delay (s)	82.0	13.4	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	49.5		0.0		0.0	
Approach LOS	E					
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			39.1%		ICU Level of Service	A
Analysis Period (min)			15			













# HCM Unsignalized Intersection Capacity Analysis

## 1: ROUTE 83 & SITE DRIVE 2

# COMBINED TRAFFIC VOLUMES

A.M.

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	10	0	537	1328	0
Future Volume (Veh/h)	11	10	0	537	1328	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	11	0	584	1443	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1735	722	1443			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1735	722	1443			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	97	100			
cM capacity (veh/h)	79	369	466			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	12	11	292	292	722	722
Volume Left	12	0	0	0	0	0
Volume Right	0	11	0	0	0	0
cSH	79	369	1700	1700	1700	1700
Volume to Capacity	0.15	0.03	0.17	0.17	0.42	0.42
Queue Length 95th (ft)	13	2	0	0	0	0
Control Delay (s)	58.9	15.0	0.0	0.0	0.0	0.0
Lane LOS	F	C				
Approach Delay (s)	37.9		0.0		0.0	
Approach LOS	E					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			46.7%		ICU Level of Service	A
Analysis Period (min)			15			



# HCM Unsignalized Intersection Capacity Analysis 2: ROUTE 83 & SITE DRIVE 1

COMBINED TRAFFIC VOLUMES  
A.M.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	LT	RT	LT	TH	TH	LT
Traffic Volume (veh/h)	15	16	36	522	1312	36
Future Volume (Veh/h)	15	16	36	522	1312	36
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	17	39	567	1426	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1807	732	1465			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1807	732	1465			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	75	95	91			
cM capacity (veh/h)	64	363	457			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	33	39	284	284	951	514
Volume Left	16	39	0	0	0	0
Volume Right	17	0	0	0	0	39
cSH	112	457	1700	1700	1700	1700
Volume to Capacity	0.30	0.09	0.17	0.17	0.56	0.30
Queue Length 95th (ft)	28	7	0	0	0	0
Control Delay (s)	50.2	13.6	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	50.2	0.9			0.0	
Approach LOS	F					
<b>Intersection Summary</b>						
Average Delay			1.0			
Intersection Capacity Utilization		47.4%		ICU Level of Service		A
Analysis Period (min)		15				



# HCM Unsignalized Intersection Capacity Analysis

## 1: ROUTE 83 & SITE DRIVE 2

# COMBINED TRAFFIC VOLUMES

P.M.













Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←	→	←	↑↑	↑↑	←
Traffic Volume (veh/h)	38	33	0	1189	888	0
Future Volume (Veh/h)	38	33	0	1189	888	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	36	0	1292	965	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1611	482	965			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1611	482	965			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	57	93	100			
cM capacity (veh/h)	95	530	709			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	41	36	646	646	482	482
Volume Left	41	0	0	0	0	0
Volume Right	0	36	0	0	0	0
cSH	95	530	1700	1700	1700	1700
Volume to Capacity	0.43	0.07	0.38	0.38	0.28	0.28
Queue Length 95th (ft)	45	5	0	0	0	0
Control Delay (s)	68.8	12.3	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	42.4		0.0		0.0	
Approach LOS	E					
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			42.9%	ICU Level of Service		A
Analysis Period (min)			15			



# HCM Unsignalized Intersection Capacity Analysis

## 2: ROUTE 83 & SITE DRIVE 1

COMBINED TRAFFIC VOLUMES  
P.M.

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	32	63	1162	858	63
Future Volume (Veh/h)	27	32	63	1162	858	63
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	35	68	1263	933	68
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1734	500	1001			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1734	500	1001			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	59	93	90			
cM capacity (veh/h)	71	516	687			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	64	68	632	632	622	379
Volume Left	29	68	0	0	0	0
Volume Right	35	0	0	0	0	68
cSH	134	687	1700	1700	1700	1700
Volume to Capacity	0.48	0.10	0.37	0.37	0.37	0.22
Queue Length 95th (ft)	55	8	0	0	0	0
Control Delay (s)	54.1	10.8	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	54.1	0.6			0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization		42.7%		ICU Level of Service		A
Analysis Period (min)		15				















# HCM Unsignalized Intersection Capacity Analysis

## 1. ROUTE 83 & SITE DRIVE 2

# COMBINED TRAFFIC VOLUMES

SATURDAY

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (veh/h)	36	32	0	1028	1064	0
Future Volume (Veh/h)	36	32	0	1028	1064	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	35	0	1117	1157	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1716	578	1157			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1716	578	1157			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	52	92	100			
cM capacity (veh/h)	81	459	600			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	39	35	558	558	578	578
Volume Left	39	0	0	0	0	0
Volume Right	0	35	0	0	0	0
cSH	81	459	1700	1700	1700	1700
Volume to Capacity	0.48	0.08	0.33	0.33	0.34	0.34
Queue Length 95th (ft)	50	6	0	0	0	0
Control Delay (s)	85.2	13.5	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	51.3		0.0		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			39.4%		ICU Level of Service	A
Analysis Period (min)			15			













# HCM Unsignalized Intersection Capacity Analysis

## 2. ROUTE 83 & SITE DRIVE 1

# COMBINED TRAFFIC VOLUMES

SATURDAY

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	31	60	1002	1036	60
Future Volume (Veh/h)	26	31	60	1002	1036	60
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	34	65	1089	1126	65
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1833	596	1191			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1833	596	1191			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	53	92	89			
cM capacity (veh/h)	60	447	582			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	62	65	544	544	751	440
Volume Left	28	65	0	0	0	0
Volume Right	34	0	0	0	0	65
cSH	114	582	1700	1700	1700	1700
Volume to Capacity	0.54	0.11	0.32	0.32	0.44	0.26
Queue Length 95th (ft)	64	9	0	0	0	0
Control Delay (s)	68.8	12.0	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	68.8	0.7			0.0	
Approach LOS	F					
<b>Intersection Summary</b>						
Average Delay			2.1			
Intersection Capacity Utilization			47.2%		ICU Level of Service	A
Analysis Period (min)			15			



# **DRAINAGE REPORT**

## **Valvoline**

371 Talcottville Road  
Vernon, CT

April 27, 2022



PREPARED BY:

## **BORGHESI BUILDING & ENGINEERING CO.**

2155 EAST MAIN STREET  
TORRINGTON, CT 06790  
(860) 482-7613



## **TABLE OF CONTENTS**

**SUMMARY**

**APPENDIX A: HYDROLOGIC CALCULATIONS: EXISTING CONDITIONS**

**APPENDIX B: HYDROLOGIC CALCULATIONS: PROPOSED CONDITIONS**

**APPENDIX C: DRAINAGE PIPING CALCULATIONS & WQF**

**APPENDIX D: WATERSHED MAP**

## **SUMMARY**

The applicant proposes to construct a 3,844 sf oil change facility at 371 Talcottville Road, Vernon, CT. The site is presently a field. Minor grading is required for construction. The proposed drainage system is designed with detention basin to reduce post -development flows to pre-development levels for the 2-yr, 10-yr, 25-yr, 50-yr, and 100-year storms.

The proposed site grading will direct runoff from the proposed parking area into catch basins. The catch basins are equipped with 4' sumps to capture sediment in the runoff. An Environment 21 V2B1 stormwater treatment system is used to further cleanse the stormwater prior entering the detention basin. The detention basin reduces the post-development flows to pre-development levels prior to discharging into an existing on-site drainage system. A summary of the watershed analysis is found on the next page. Hydraflow Hydrographs software is used to evaluate the pre- and post- development conditions.

The Environment 21 V2B1 stormwater treatment system is designed to treat the water quality flow. See Appendix C for calculations.

The proposed piping system is designed for a 25-year storm in accordance with CONNDOT methods. The rational method is used to estimate rates of runoff from the watershed. Watershed areas for the basins are determined using site plans prepared by Borghesi Building & Engineering Co. (BBE). A watershed map is presented in Appendix D.

"Hydraflow" software is used to evaluate the proposed drainage system. The software uses the Rational Method for hydrologic calculations and basic hydraulic principals to evaluate selected pipe sizes and inverts. All pipes are designed to convey the design flow while maintaining at least 1.0 feet of freeboard in each basin.

Drainage calculations for the proposed piping system are found in Appendix C.

**BORGHESI BUILDING & ENGINEERING CO.**

2155 EAST MAIN ST., TORRINGTON, CT

**Valvoline**

371 Talcottville Rd., Vernon, CT

**SUMMARY OF DISCHARGES**

<b>STORM (YEAR)</b>	<b>EXISTING (CFS)</b>	<b>PROPOSED (CFS)</b>	<b>CHANGE (CFS)</b>
2	0.13	0.12	-0.01
10	0.51	0.28	-0.23
25	0.71	0.49	-0.22
50	0.93	0.67	-0.26
100	1.16	0.81	-0.35

**APPENDIX A:**  
**HYDROLOGIC CALCULATIONS: EXISTING CONDITIONS**

# Watershed Model Schematic

Hydraflow Hydrographs by Intelisolve v9.1

1 - Existing Condition



**Legend**

<u>Hyd. Origin</u>	<u>Description</u>
1	SCS Runoff Existing Condition





# Hydrograph Report

3

Hydraflow Hydrographs by Intelisolve v9.1

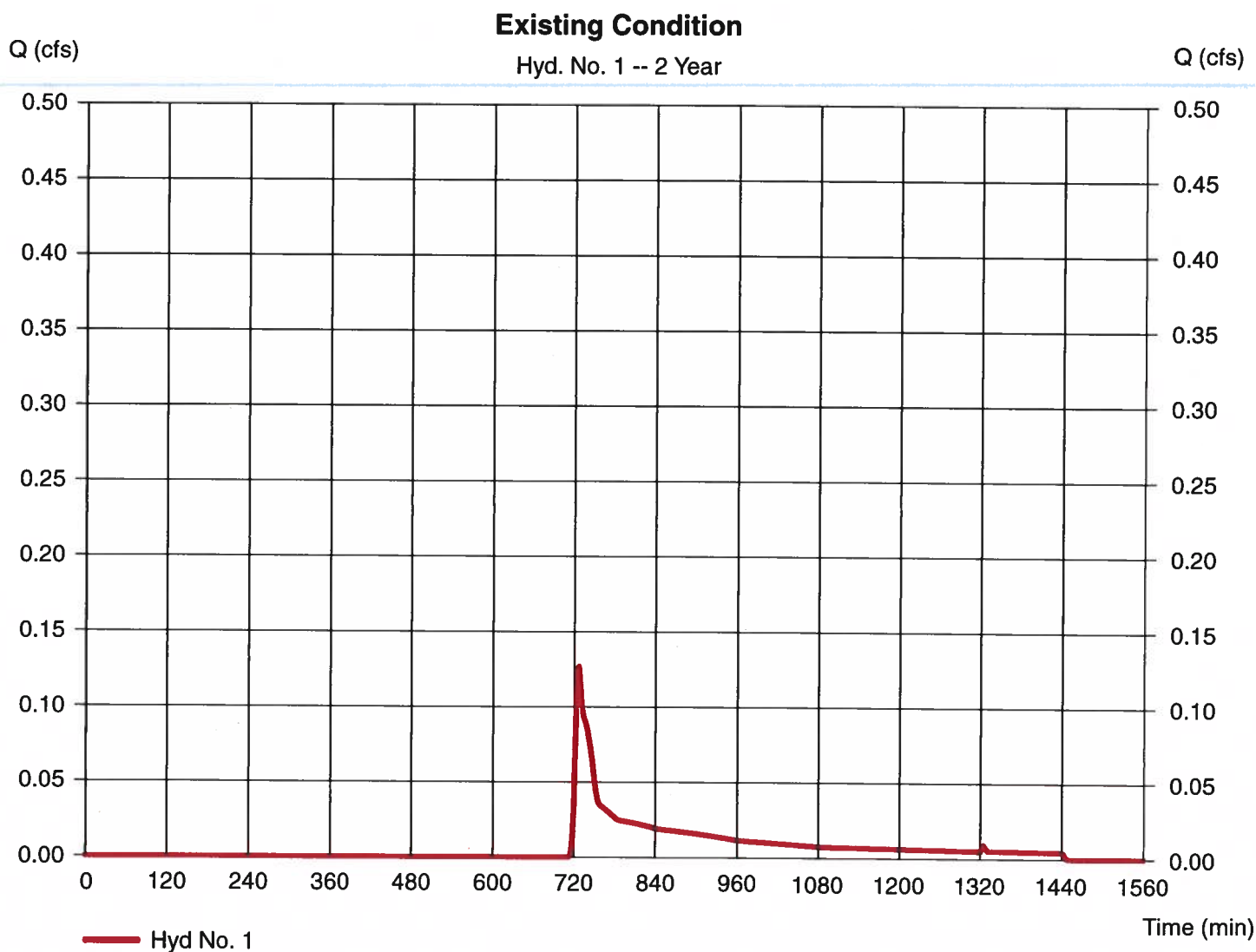
Wednesday, Apr 27, 2022

## Hyd. No. 1

### Existing Condition

Hydrograph type = SCS Runoff  
Storm frequency = 2 yrs  
Time interval = 1 min  
Drainage area = 0.370 ac  
Basin Slope = 0.0 %  
Tc method = TR55  
Total precip. = 3.20 in  
Storm duration = 24 hrs

Peak discharge = 0.127 cfs  
Time to peak = 727 min  
Hyd. volume = 615 cuft  
Curve number = 61  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 6.30 min  
Distribution = Type III  
Shape factor = 484



# TR55 Tc Worksheet

4

Hydraflow Hydrographs by Intelisolve v9.1

## Hyd. No. 1

Existing Condition

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
<b>Sheet Flow</b>				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 50.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.20	0.00	0.00	
Land slope (%)	= 7.00	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 4.97</b>	<b>+</b>	<b>0.00</b>	<b>+</b>
			<b>0.00</b>	<b>= 4.97</b>
<b>Shallow Concentrated Flow</b>				
Flow length (ft)	= 130.00	0.00	0.00	
Watercourse slope (%)	= 1.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 1.61	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 1.34</b>	<b>+</b>	<b>0.00</b>	<b>+</b>
			<b>0.00</b>	<b>= 1.34</b>
<b>Channel Flow</b>				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
<b>Travel Time (min)</b>	<b>= 0.00</b>	<b>+</b>	<b>0.00</b>	<b>+</b>
			<b>0.00</b>	<b>= 0.00</b>
<b>Total Travel Time, Tc .....</b>				<b>6.30 min</b>

# Hydrograph Report

5

Hydraflow Hydrographs by Intelisolve v9.1

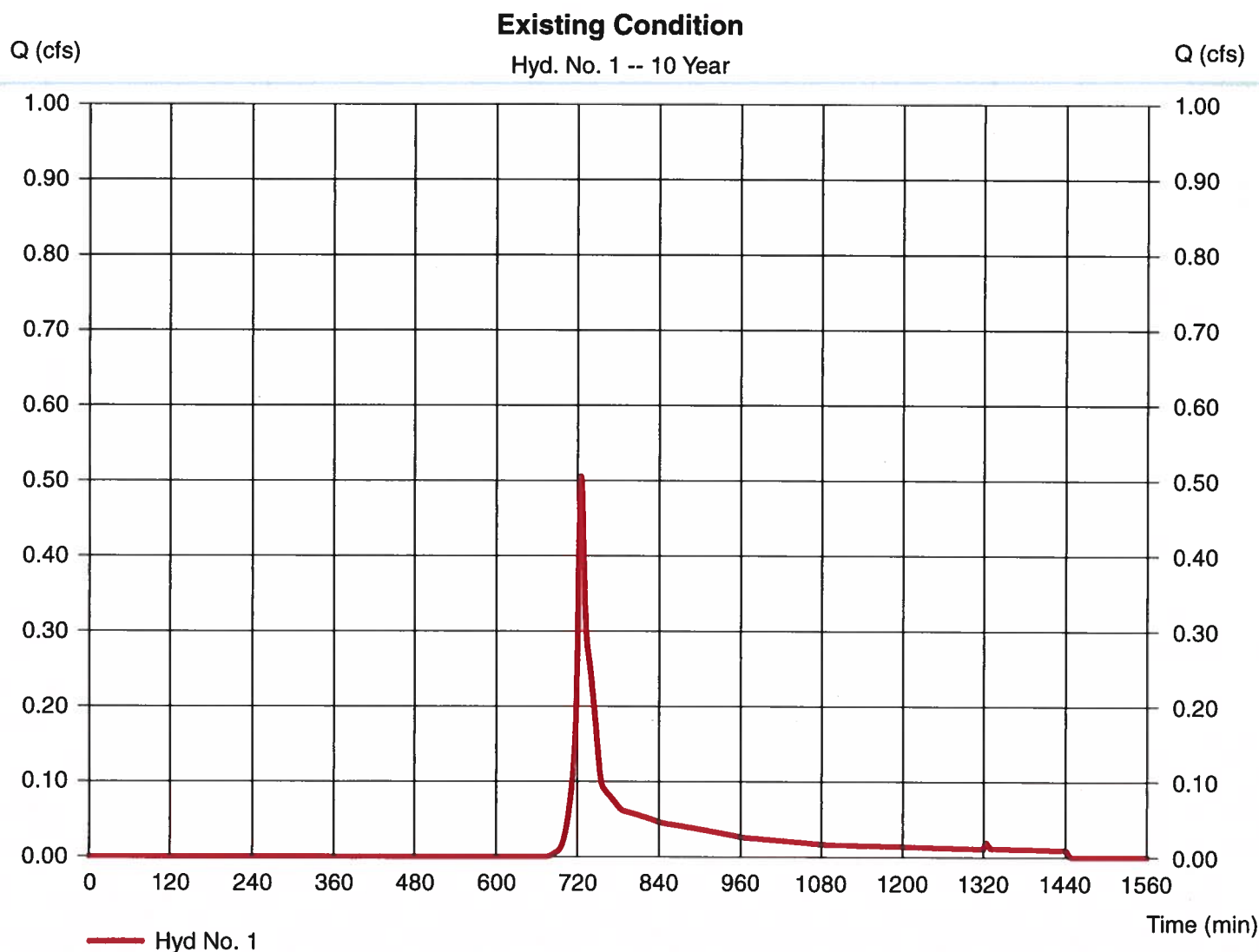
Wednesday, Apr 27, 2022

## Hyd. No. 1

### Existing Condition

Hydrograph type = SCS Runoff  
Storm frequency = 10 yrs  
Time interval = 1 min  
Drainage area = 0.370 ac  
Basin Slope = 0.0 %  
Tc method = TR55  
Total precip. = 4.80 in  
Storm duration = 24 hrs

Peak discharge = 0.506 cfs  
Time to peak = 725 min  
Hyd. volume = 1,732 cuft  
Curve number = 61  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 6.30 min  
Distribution = Type III  
Shape factor = 484



# Hydrograph Report

6

Hydraflow Hydrographs by Intelisolve v9.1

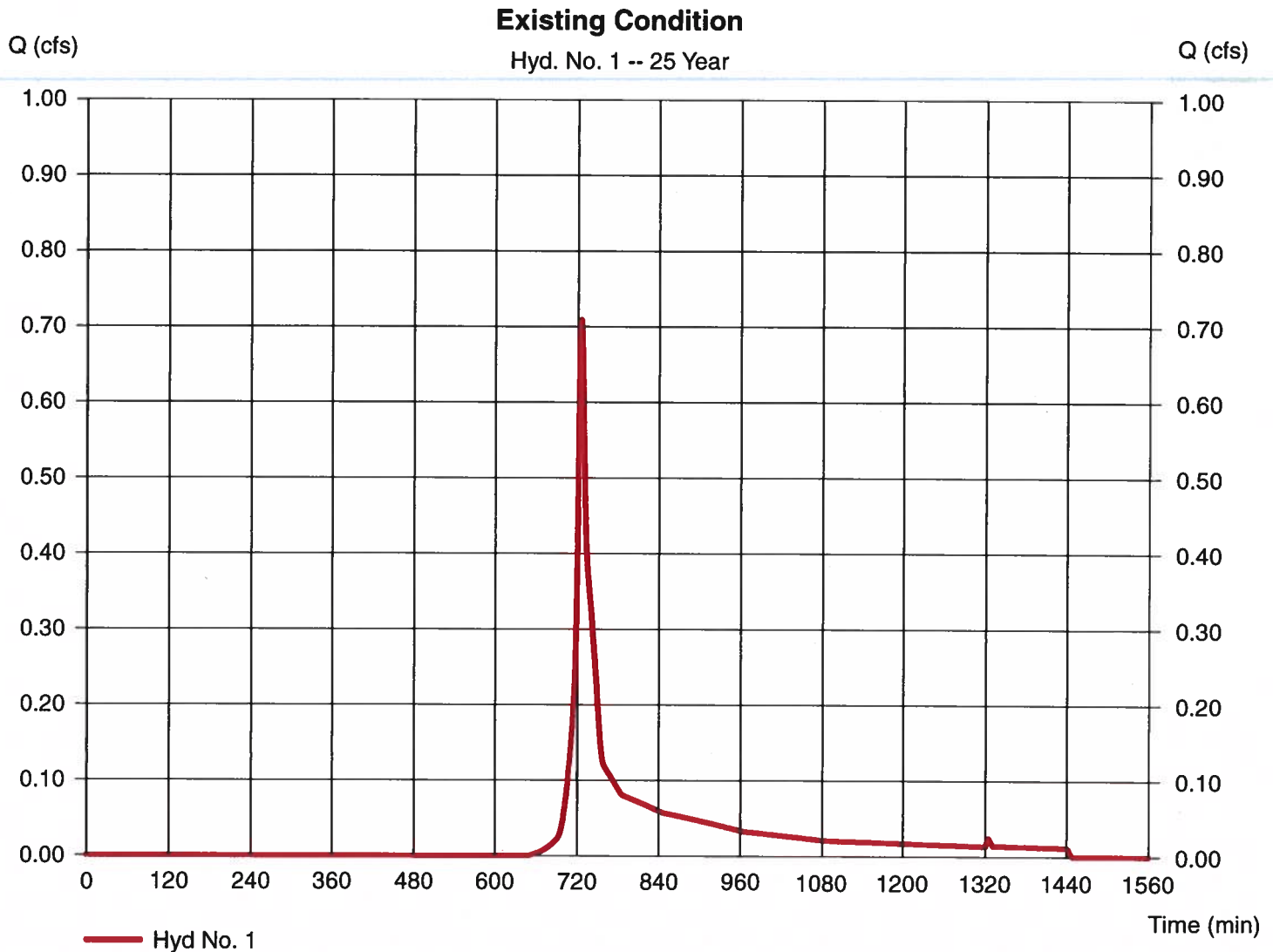
Wednesday, Apr 27, 2022

## Hyd. No. 1

### Existing Condition

Hydrograph type = SCS Runoff  
Storm frequency = 25 yrs  
Time interval = 1 min  
Drainage area = 0.370 ac  
Basin Slope = 0.0 %  
Tc method = TR55  
Total precip. = 5.50 in  
Storm duration = 24 hrs

Peak discharge = 0.709 cfs  
Time to peak = 725 min  
Hyd. volume = 2,325 cuft  
Curve number = 61  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 6.30 min  
Distribution = Type III  
Shape factor = 484



# Hydrograph Report

7

Hydraflow Hydrographs by Intelisolve v9.1

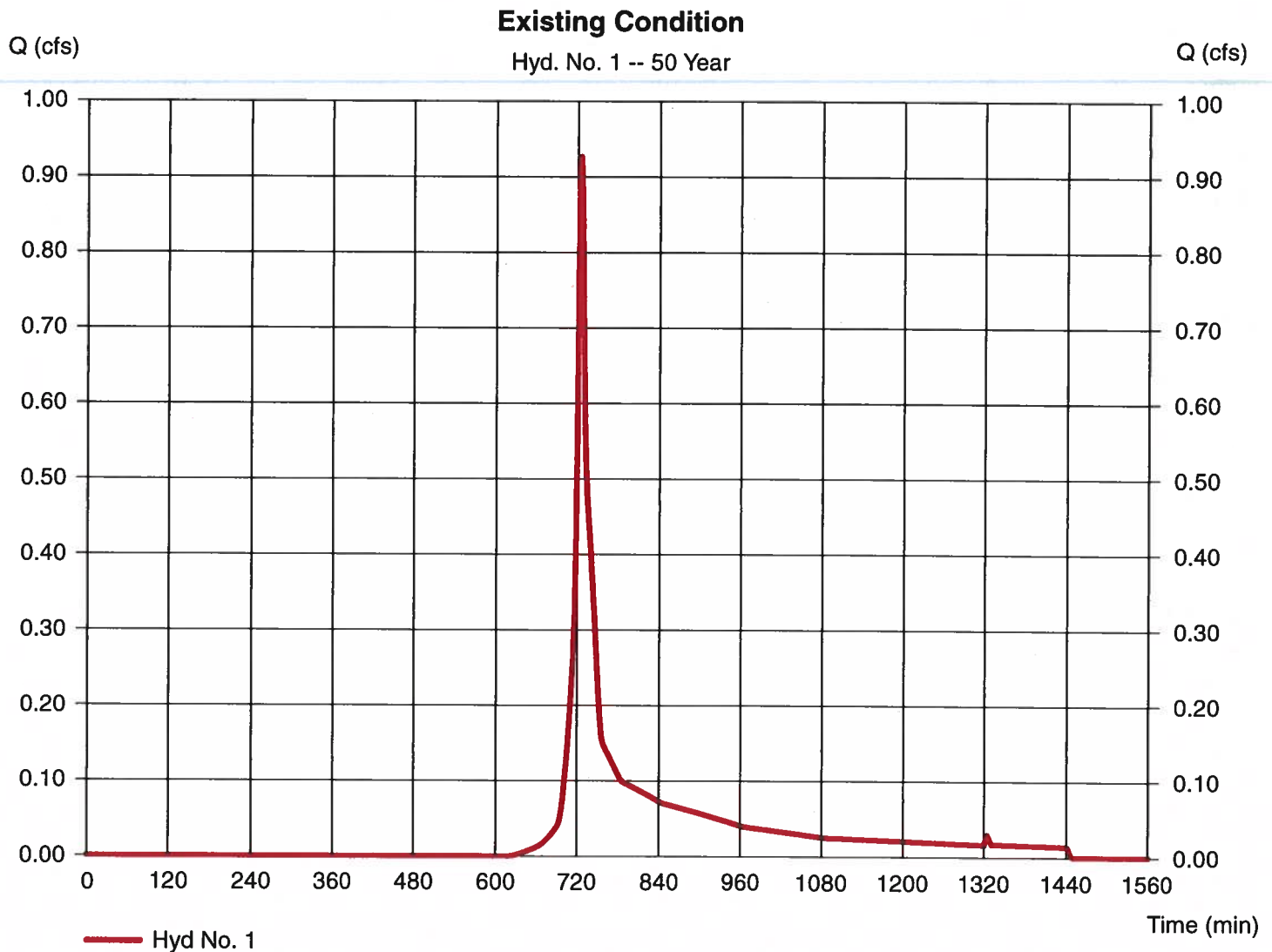
Wednesday, Apr 27, 2022

## Hyd. No. 1

### Existing Condition

Hydrograph type = SCS Runoff  
Storm frequency = 50 yrs  
Time interval = 1 min  
Drainage area = 0.370 ac  
Basin Slope = 0.0 %  
Tc method = TR55  
Total precip. = 6.20 in  
Storm duration = 24 hrs

Peak discharge = 0.927 cfs  
Time to peak = 725 min  
Hyd. volume = 2,965 cuft  
Curve number = 61  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 6.30 min  
Distribution = Type III  
Shape factor = 484





# Hydrograph Report

8

Hydraflow Hydrographs by Intelisolve v9.1

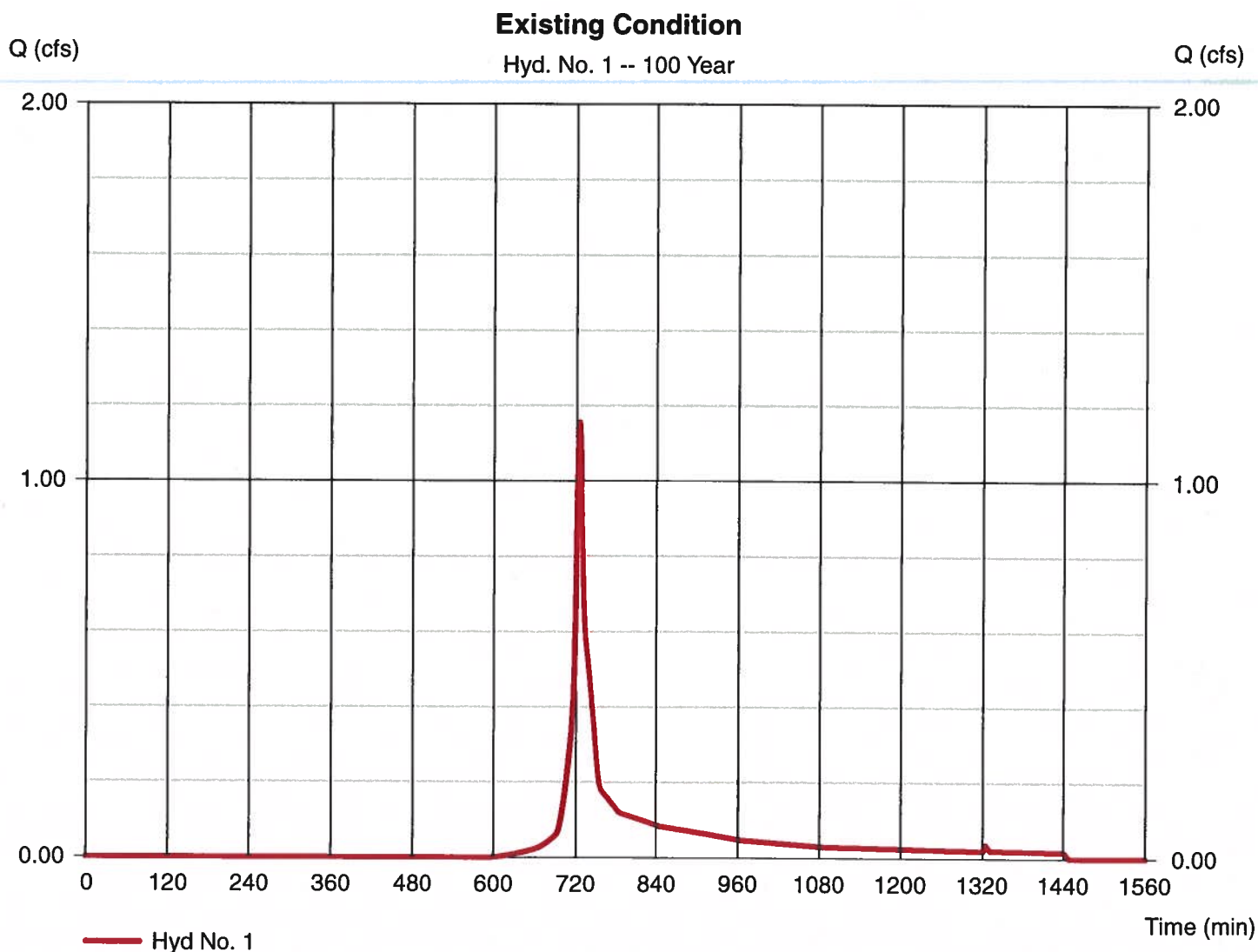
Wednesday, Apr 27, 2022

## Hyd. No. 1

### Existing Condition

Hydrograph type = SCS Runoff  
Storm frequency = 100 yrs  
Time interval = 1 min  
Drainage area = 0.370 ac  
Basin Slope = 0.0 %  
Tc method = TR55  
Total precip. = 6.90 in  
Storm duration = 24 hrs

Peak discharge = 1.156 cfs  
Time to peak = 725 min  
Hyd. volume = 3,643 cuft  
Curve number = 61  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 6.30 min  
Distribution = Type III  
Shape factor = 484

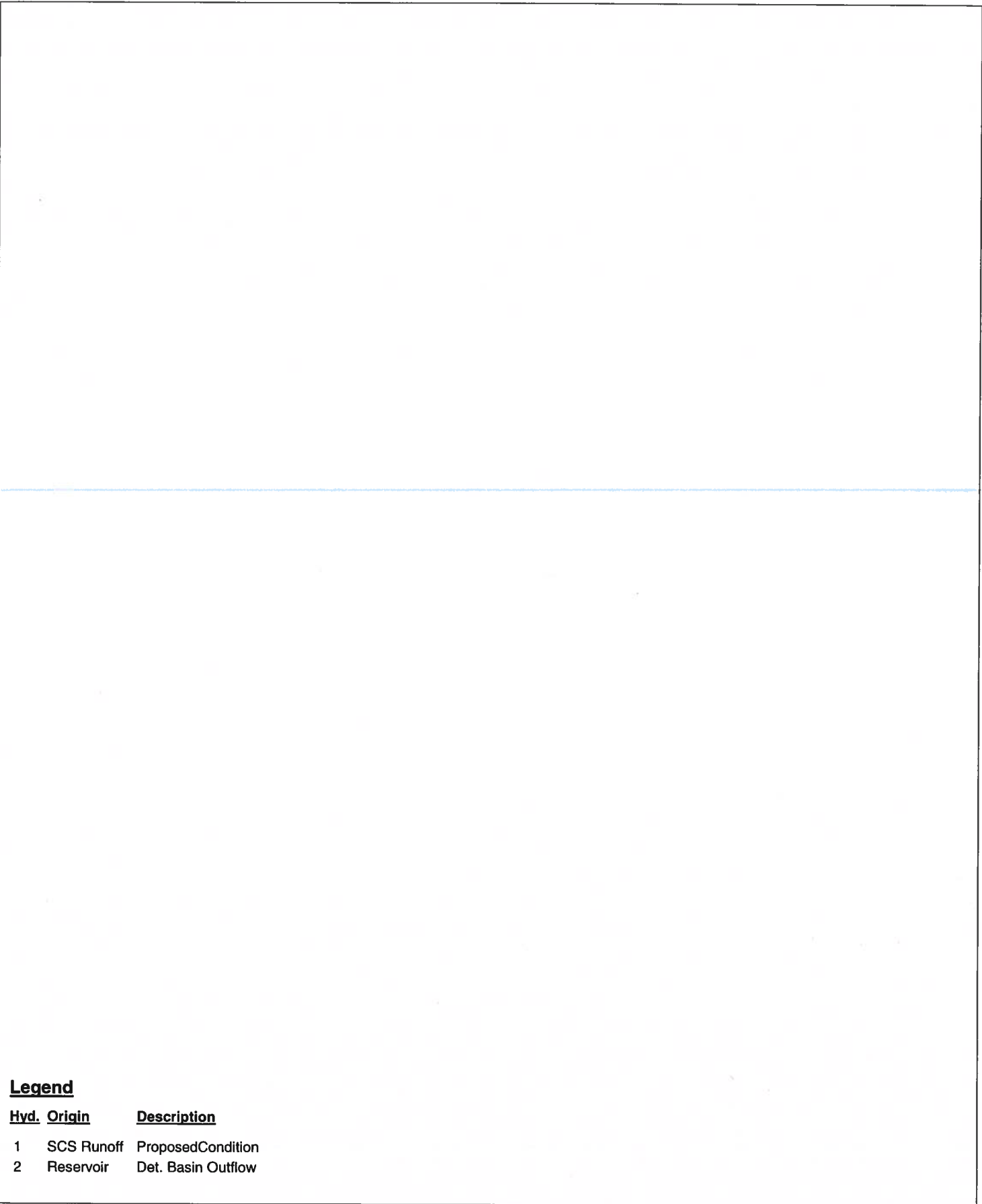


**APPENDIX B:**

**HYDROLOGIC CALCULATIONS: PROPOSED CONDITIONS**

# Watershed Model Schematic

Hydraflow Hydrographs by Intelisolve v9.1



<b><u>Legend</u></b>		
<b><u>Hyd.</u></b>	<b><u>Origin</u></b>	<b><u>Description</u></b>
1	SCS Runoff	ProposedCondition
2	Reservoir	Det. Basin Outflow





# Hydrograph Report

3

Hydraflow Hydrographs by Intelisolve v9.1

Wednesday, Apr 27, 2022

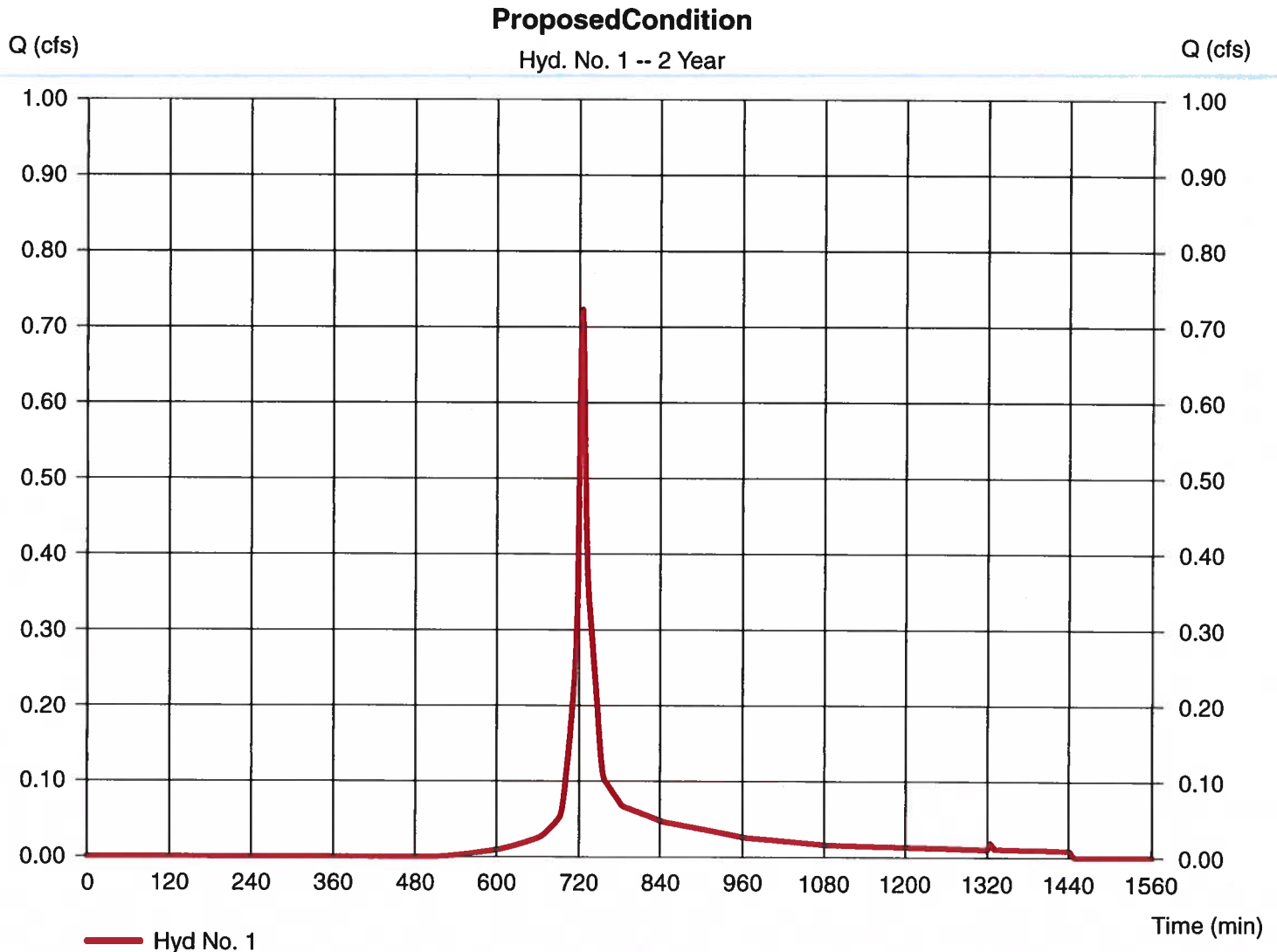
## Hyd. No. 1

### ProposedCondition

Hydrograph type = SCS Runoff  
Storm frequency = 2 yrs  
Time interval = 1 min  
Drainage area = 0.370 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 3.20 in  
Storm duration = 24 hrs

Peak discharge = 0.723 cfs  
Time to peak = 725 min  
Hyd. volume = 2,229 cuft  
Curve number = 83\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.00 min  
Distribution = Type III  
Shape factor = 484

\* Composite (Area/CN) =  $[(0.220 \times 98) + (0.150 \times 61)] / 0.370$



# Hydrograph Report

4

Hydraflow Hydrographs by Intelisolve v9.1

Wednesday, Apr 27, 2022

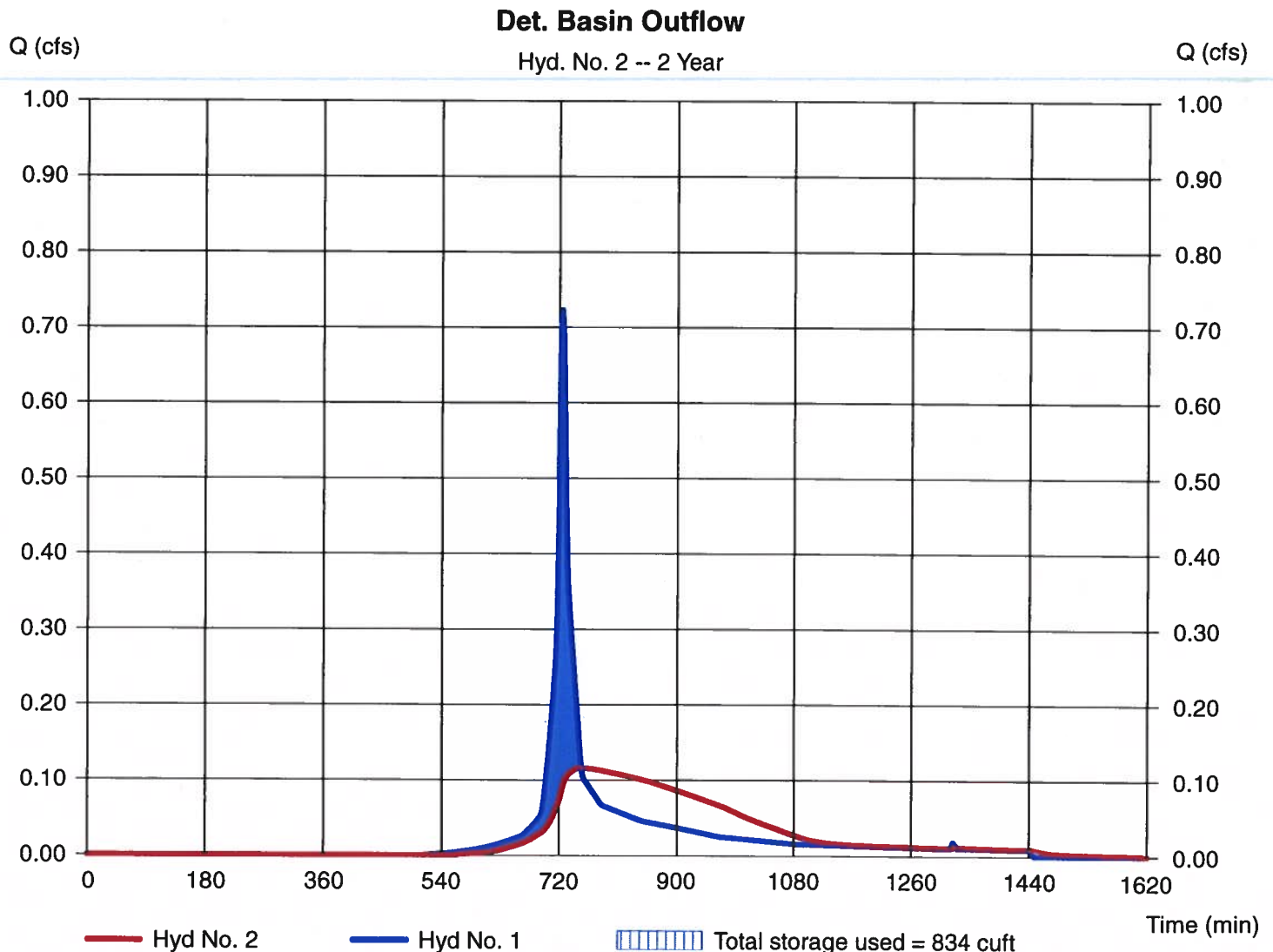
## Hyd. No. 2

### Det. Basin Outflow

Hydrograph type = Reservoir  
Storm frequency = 2 yrs  
Time interval = 1 min  
Inflow hyd. No. = 1 - ProposedCondition  
Reservoir name = <New Pond>

Peak discharge = 0.116 cfs  
Time to peak = 755 min  
Hyd. volume = 2,223 cuft  
Max. Elevation = 225.37 ft  
Max. Storage = 834 cuft

Storage Indication method used.





# Pond Report

5

Hydraflow Hydrographs by Intelisolve v9.1

Wednesday, Apr 27, 2022

**Pond No. 1 - <New Pond>**

## Pond Data

**Contours** - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 224.00 ft

## Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	224.00	400	0	0
0.50	224.50	550	236	236
1.00	225.00	700	312	548
1.50	225.50	850	387	935
2.00	226.00	1,000	462	1,397
2.50	226.50	1,225	555	1,952
3.00	227.00	1,450	668	2,620
3.50	227.50	1,675	780	3,401
4.00	228.00	1,900	893	4,294

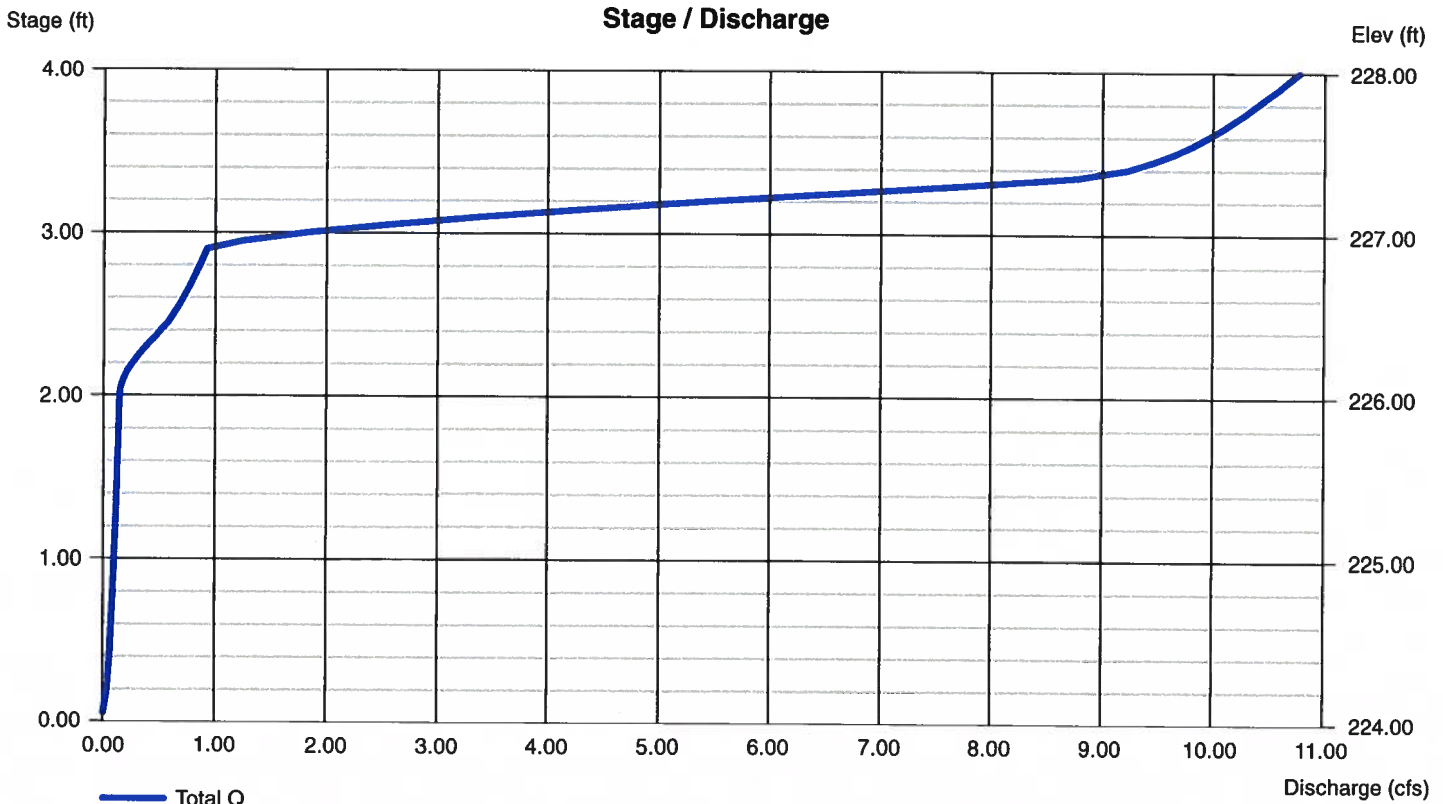
## Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.00	6.00	0.00
Span (in)	= 15.00	2.00	6.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 224.00	224.00	226.00	0.00
Length (ft)	= 50.00	1.00	1.00	0.00
Slope (%)	= 1.00	1.00	1.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

## Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 8.00	0.00	0.00	0.00
Crest El. (ft)	= 226.90	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



# Hydrograph Report

6

Hydraflow Hydrographs by Intelisolve v9.1

Wednesday, Apr 27, 2022

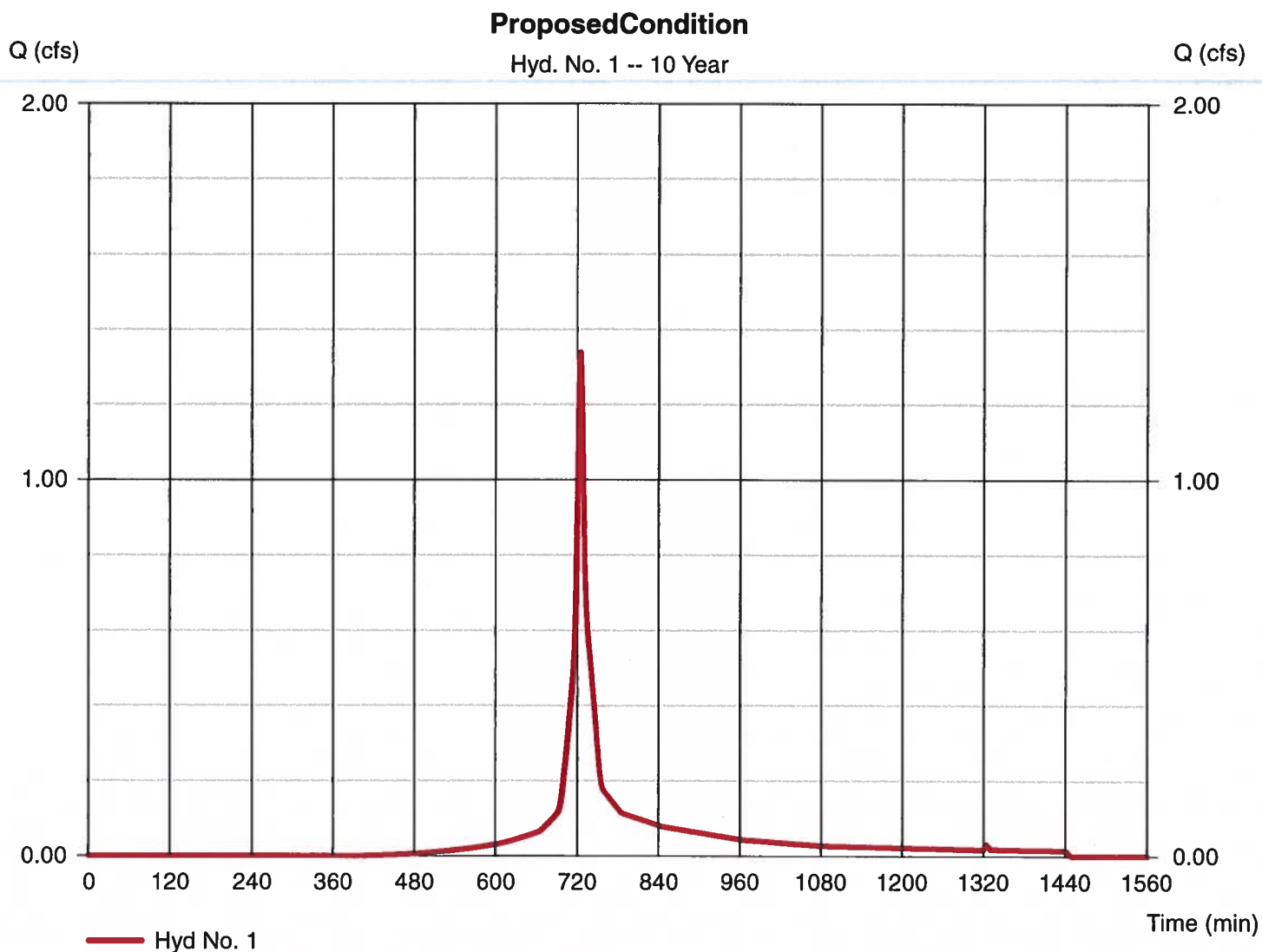
## Hyd. No. 1

### ProposedCondition

Hydrograph type = SCS Runoff  
Storm frequency = 10 yrs  
Time interval = 1 min  
Drainage area = 0.370 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.80 in  
Storm duration = 24 hrs

Peak discharge = 1.338 cfs  
Time to peak = 725 min  
Hyd. volume = 4,147 cuft  
Curve number = 83\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.00 min  
Distribution = Type III  
Shape factor = 484

\* Composite (Area/CN) =  $[(0.220 \times 98) + (0.150 \times 61)] / 0.370$



# Hydrograph Report

7

Hydraflow Hydrographs by Intelisolve v9.1

Wednesday, Apr 27, 2022

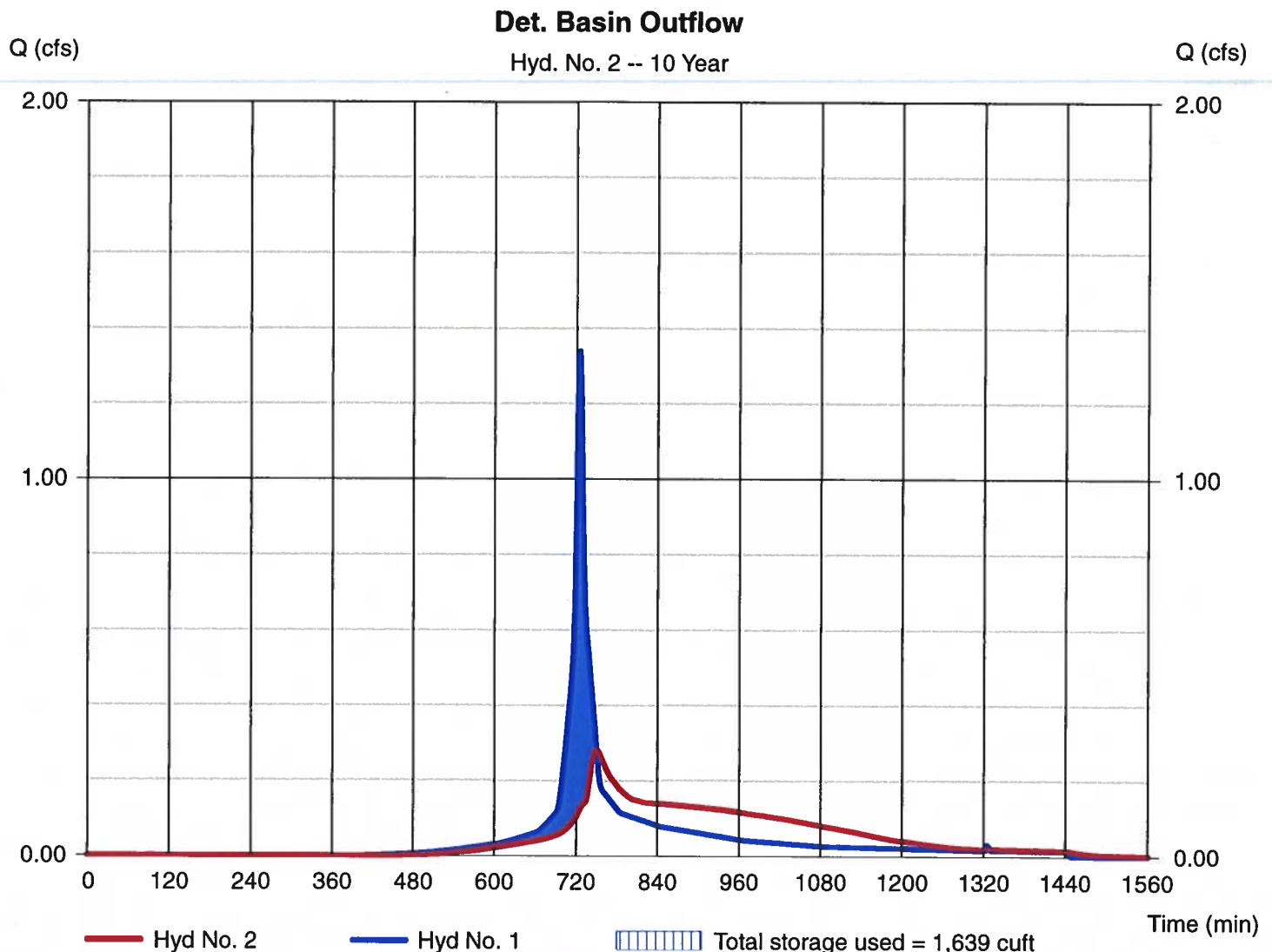
## Hyd. No. 2

### Det. Basin Outflow

Hydrograph type = Reservoir  
Storm frequency = 10 yrs  
Time interval = 1 min  
Inflow hyd. No. = 1 - ProposedCondition  
Reservoir name = <New Pond>

Peak discharge = 0.281 cfs  
Time to peak = 750 min  
Hyd. volume = 4,141 cuft  
Max. Elevation = 226.22 ft  
Max. Storage = 1,639 cuft

Storage Indication method used.





# Hydrograph Report

8

Hydraflow Hydrographs by Intelisolve v9.1

Wednesday, Apr 27, 2022

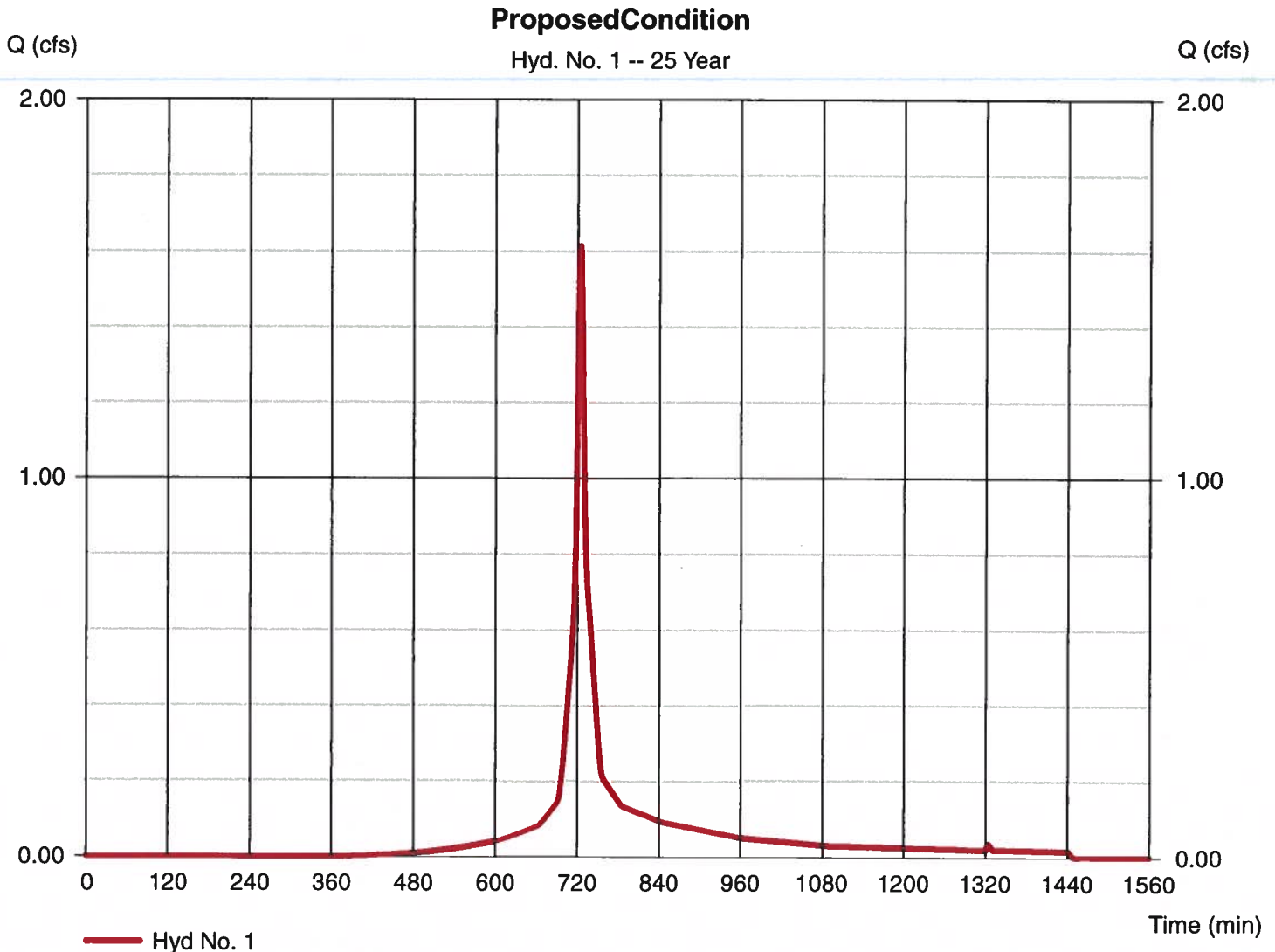
## Hyd. No. 1

### ProposedCondition

Hydrograph type = SCS Runoff  
Storm frequency = 25 yrs  
Time interval = 1 min  
Drainage area = 0.370 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 5.50 in  
Storm duration = 24 hrs

Peak discharge = 1.614 cfs  
Time to peak = 725 min  
Hyd. volume = 5,028 cuft  
Curve number = 83\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.00 min  
Distribution = Type III  
Shape factor = 484

\* Composite (Area/CN) =  $[(0.220 \times 98) + (0.150 \times 61)] / 0.370$



# Hydrograph Report

9

Hydraflow Hydrographs by Intelisolve v9.1

Wednesday, Apr 27, 2022

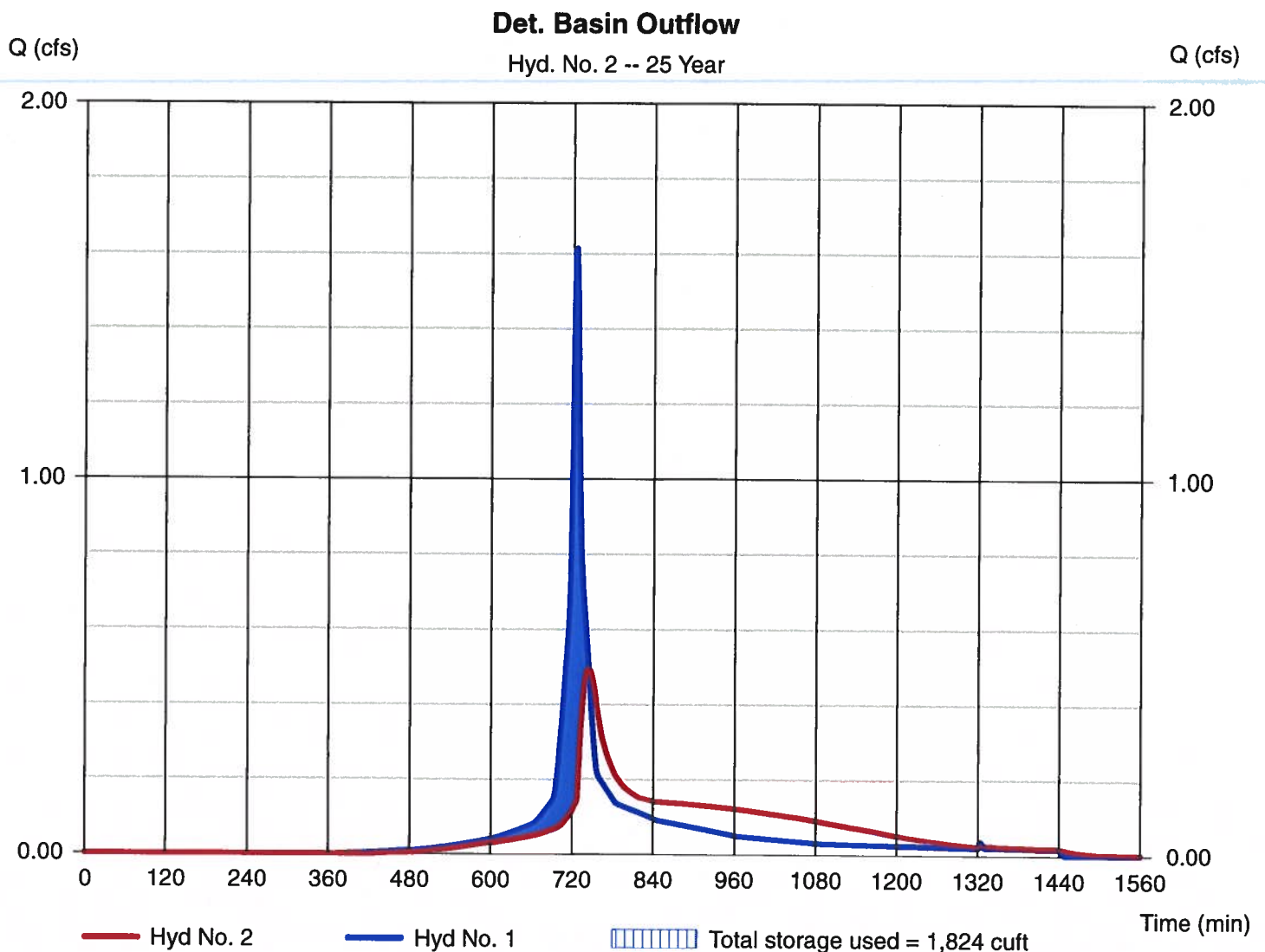
## Hyd. No. 2

### Det. Basin Outflow

Hydrograph type = Reservoir  
Storm frequency = 25 yrs  
Time interval = 1 min  
Inflow hyd. No. = 1 - ProposedCondition  
Reservoir name = <New Pond>

Peak discharge = 0.494 cfs  
Time to peak = 744 min  
Hyd. volume = 5,022 cuft  
Max. Elevation = 226.38 ft  
Max. Storage = 1,824 cuft

Storage Indication method used.



# Hydrograph Report

10

Hydraflow Hydrographs by Intelisolve v9.1

Wednesday, Apr 27, 2022

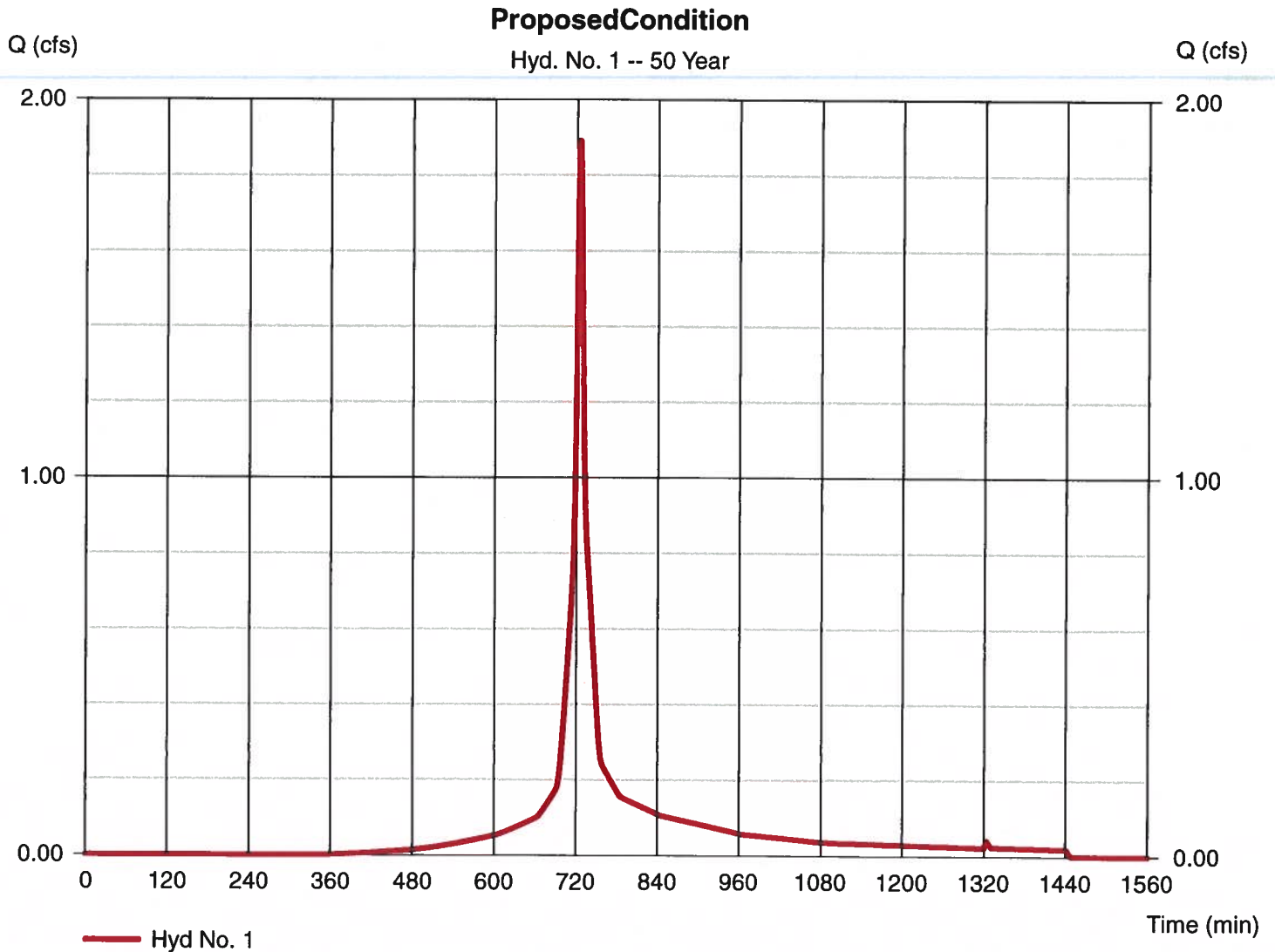
## Hyd. No. 1

### ProposedCondition

Hydrograph type = SCS Runoff  
Storm frequency = 50 yrs  
Time interval = 1 min  
Drainage area = 0.370 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.20 in  
Storm duration = 24 hrs

Peak discharge = 1.891 cfs  
Time to peak = 724 min  
Hyd. volume = 5,924 cuft  
Curve number = 83\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.00 min  
Distribution = Type III  
Shape factor = 484

\* Composite (Area/CN) =  $[(0.220 \times 98) + (0.150 \times 61)] / 0.370$





# Hydrograph Report

11

Hydraflow Hydrographs by Intelisolve v9.1

Wednesday, Apr 27, 2022

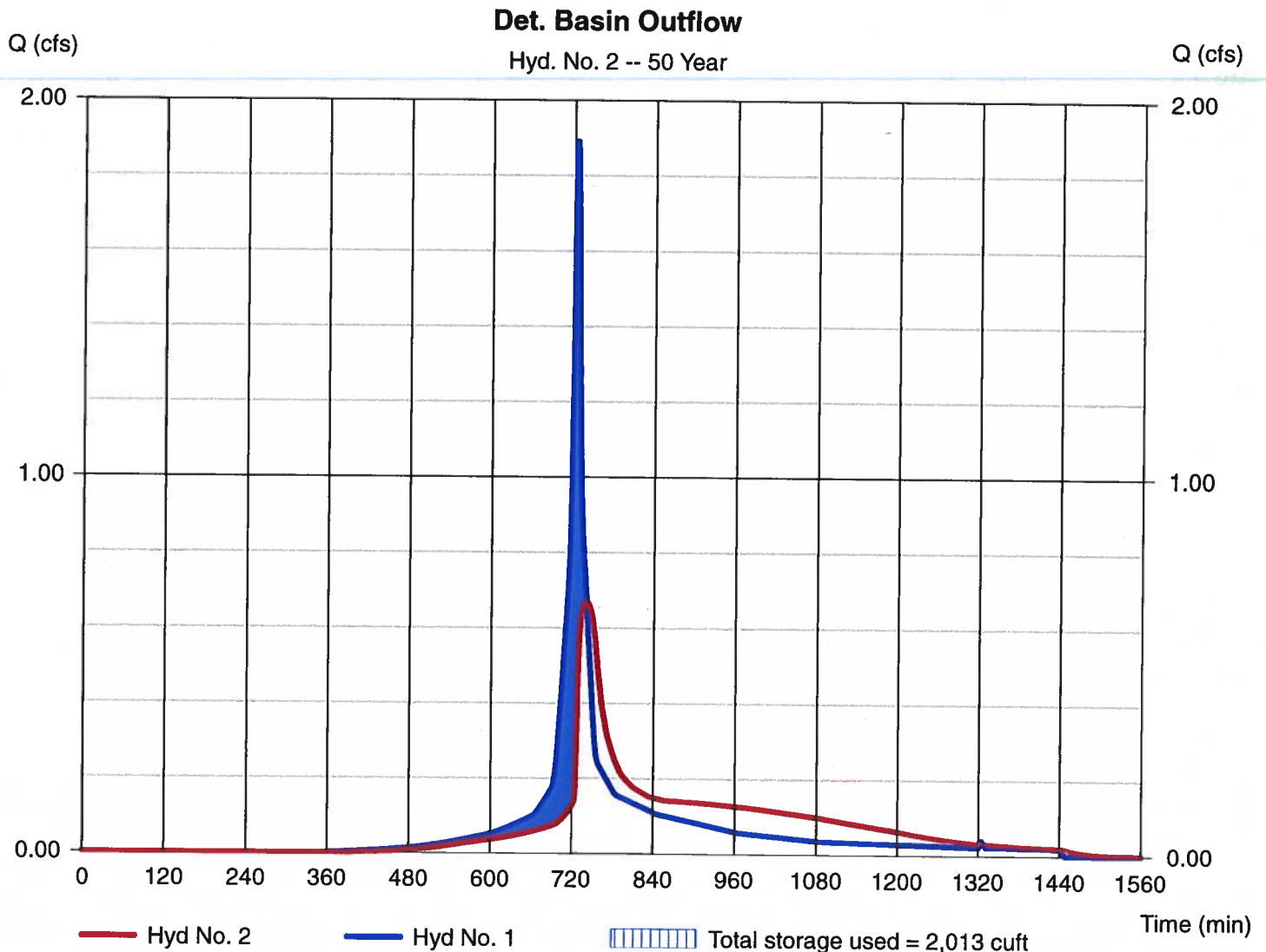
## Hyd. No. 2

### Det. Basin Outflow

Hydrograph type = Reservoir  
Storm frequency = 50 yrs  
Time interval = 1 min  
Inflow hyd. No. = 1 - ProposedCondition  
Reservoir name = <New Pond>

Peak discharge = 0.669 cfs  
Time to peak = 741 min  
Hyd. volume = 5,919 cuft  
Max. Elevation = 226.55 ft  
Max. Storage = 2,013 cuft

Storage Indication method used.



# Hydrograph Report

12

Hydraflow Hydrographs by Intelisolve v9.1

Wednesday, Apr 27, 2022

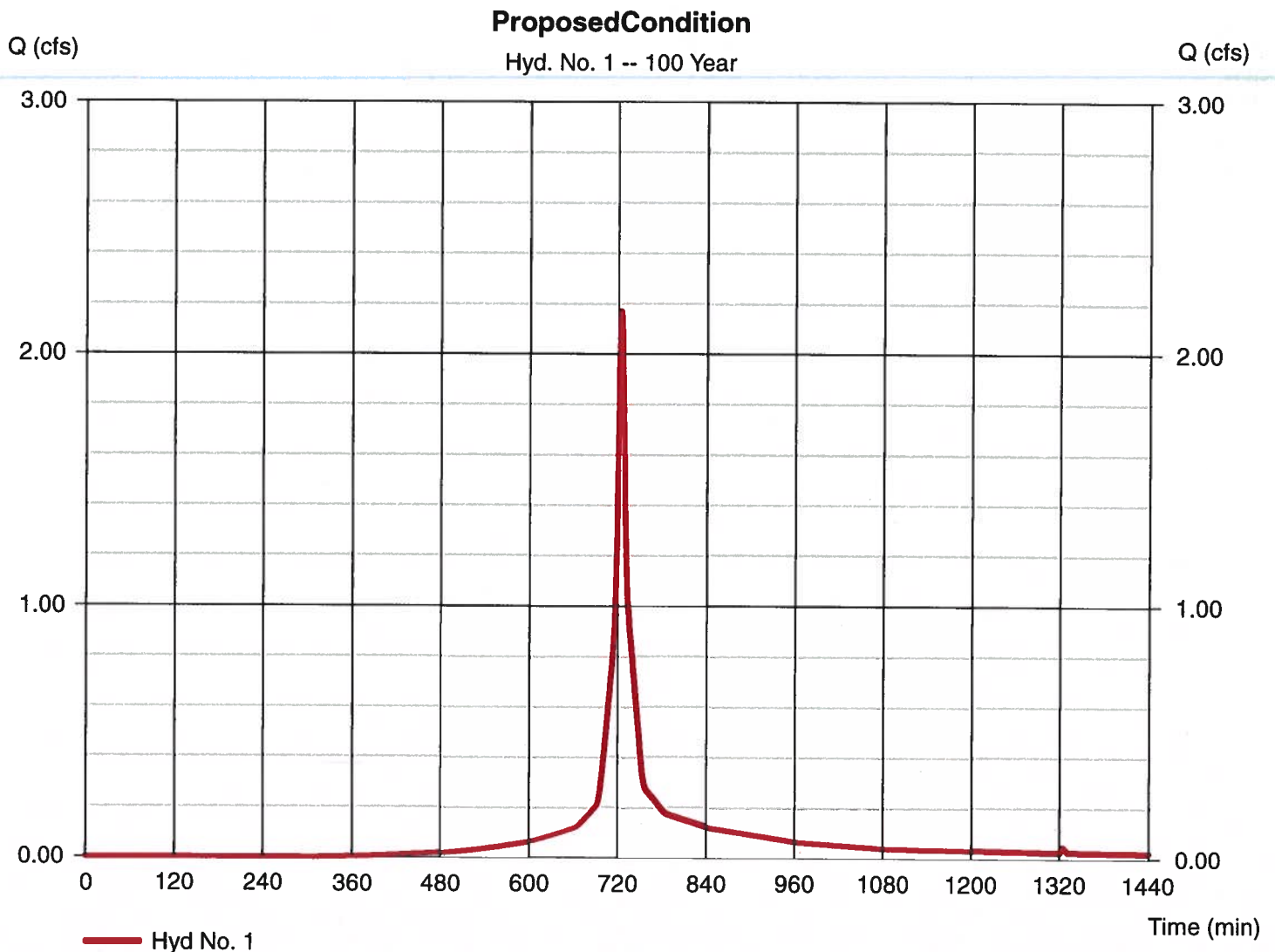
## Hyd. No. 1

### ProposedCondition

Hydrograph type = SCS Runoff  
Storm frequency = 100 yrs  
Time interval = 1 min  
Drainage area = 0.370 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.90 in  
Storm duration = 24 hrs

Peak discharge = 2.170 cfs  
Time to peak = 724 min  
Hyd. volume = 6,833 cuft  
Curve number = 83\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.00 min  
Distribution = Type III  
Shape factor = 484

\* Composite (Area/CN) =  $[(0.220 \times 98) + (0.150 \times 61)] / 0.370$



# Hydrograph Report

13

Hydraflow Hydrographs by Intelisolve v9.1

Wednesday, Apr 27, 2022

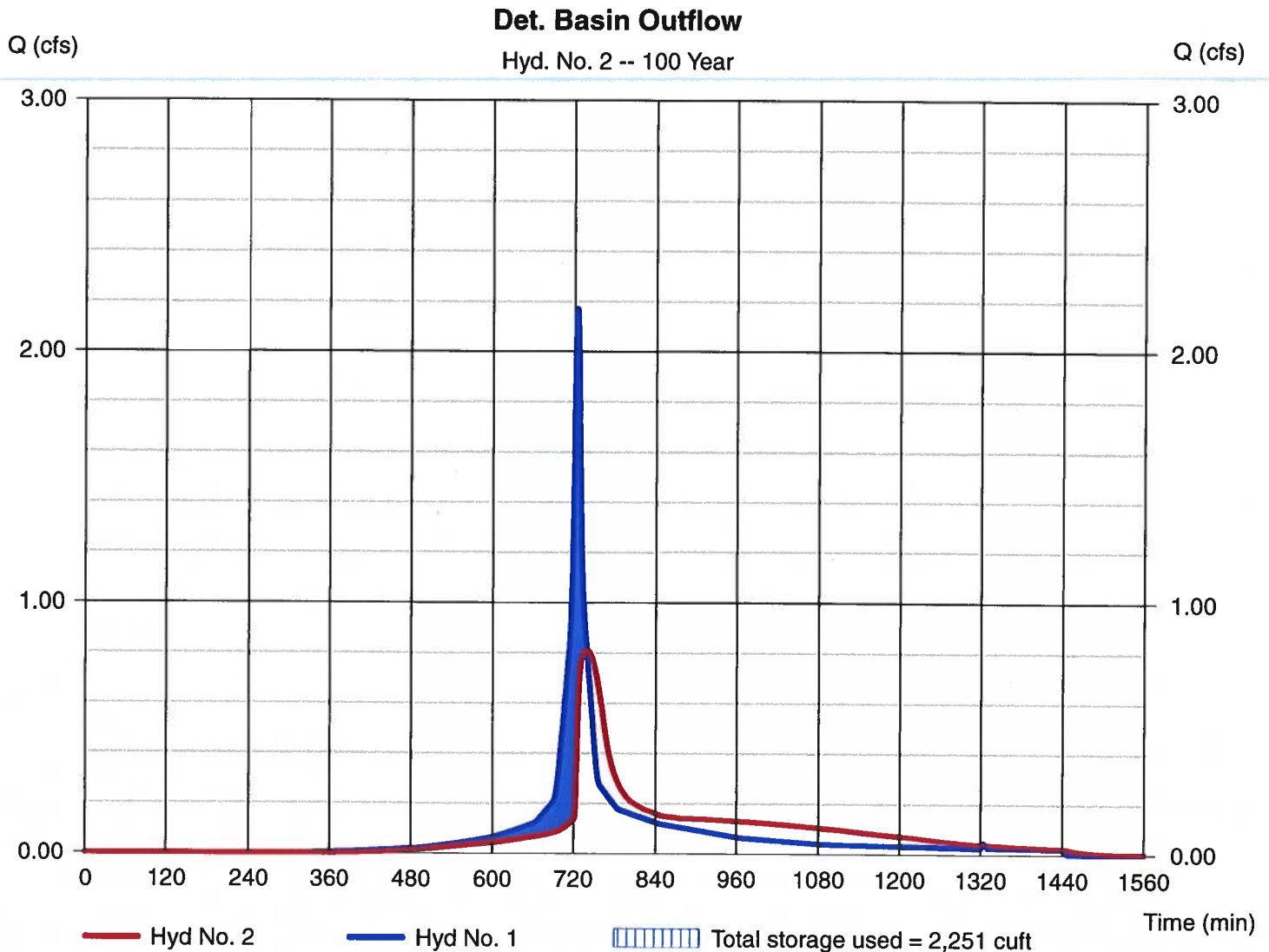
## Hyd. No. 2

### Det. Basin Outflow

Hydrograph type = Reservoir  
Storm frequency = 100 yrs  
Time interval = 1 min  
Inflow hyd. No. = 1 - ProposedCondition  
Reservoir name = <New Pond>

Peak discharge = 0.810 cfs  
Time to peak = 739 min  
Hyd. volume = 6,827 cuft  
Max. Elevation = 226.72 ft  
Max. Storage = 2,251 cuft

Storage Indication method used.





## **APPENDIX C: DRAINAGE PIPING CALCULATIONS & WQF**

**BORGHESI BUILDING & ENGINEERING CO.**

2155 EAST MAIN ST., TORRINGTON, CT

**Valvoline**

371 Talcottville Rd., Vernon, CT

**RUNOFF CURVE NUMBERS**

LINE	AREA DESCRIPTION	AREA (ACRE)	C	CA	TC (MIN)
PROPOSED to V2B1	PAVED	0.22	98	22	
	BLDG.	0.00	98	0	
	LAWN/GRASS	0.06	61	4	
	TOTAL	0.28	90.1	25	

5

la= 0.222 2004 Connecticut Stormwater Quality Manual Table 4-1, p. B-2  
qu = 630 2004 Connecticut Stormwater Quality Manual Exhibit 4-III, p. B-2  
P = 1.0

WATERSHED AREA: 0.28 ACRES

WATER QUALITY VOLUME, WQV= (1")(R)(A)/12 R=.05+.009(I)= 0.757

I = PERCENT IMPERVIOUS = 78.57 %

WQV= 1 0.757 0.28 / 12 =  
0.02 AC-FT = 770 CF

Q = 0.8 in, WQV x12/ Drainage Area

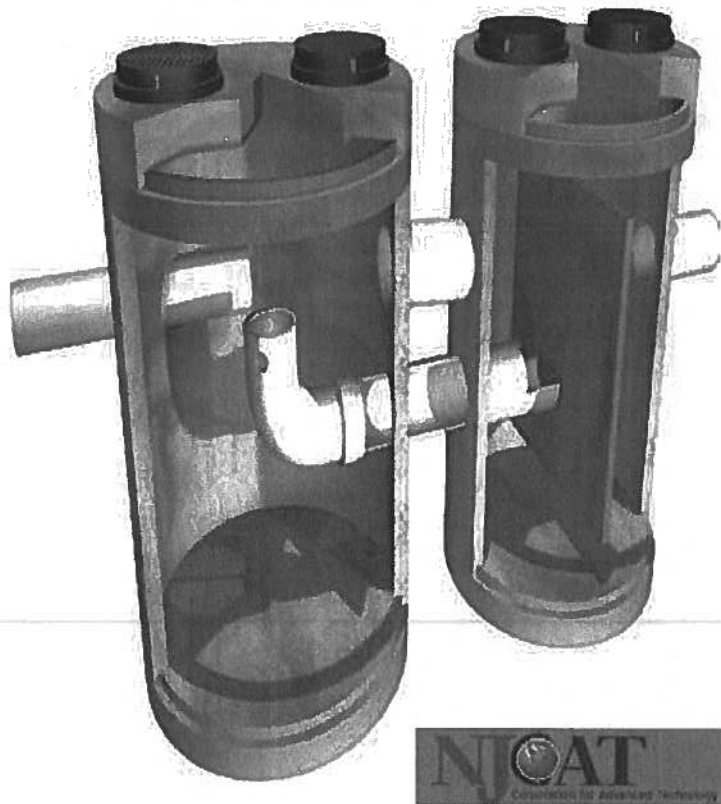
A = 0.3 acre

0.000 sm

WQF = 0.21 cfs

## V2B1

# Hydrodynamic Separator aka Sand/Grit/Oil/Water Separator



## V2B1 Sizing Chart

Based on removal of 80% TSS at 110 Microns.

V2B1 MODEL NUMBER	D1 DIA (ft.)	D2 DIA (ft.)	MIN. DEPTH BELOW INLET INVERT (ft.)	TREATMENT RATE (cfs)	MAX. INLET PIPE DIA. (in.)
2	4	4	3.5	1.54	12
3	4	5	3.5	1.97	16
4	5	5	4.5	2.40	21
6	6	5	4.5	2.93	24
7	6	6	4.5	3.46	24
8	7	6	4.5	4.08	30
9	7	5	4.5	3.55	30
10	8	5	4.5	4.27	36
11	8	6	4.5	4.80	36
12	8	7	4.5	5.42	36
13	8	8	5.0	6.14	36
14	10	5	5.0	6.00	42
15	10	6	5.0	6.53	42
16	10	7	5.0	7.15	42
17	10	8	5.0	7.87	42
18	10	10	5.5	9.60	42
19	12	5	5.0	8.11	48
20	12	6	5.0	8.64	48
21	12	7	5.5	9.26	48
22	12	10	5.5	11.71	48
25	12	8	5.5	9.98	48
40	12	12	5.5	13.47	48
50	16	10	6.0	17.09	72
60	20	10	6.0	24.00	80

Note: Some diameter sizes may not be available from some affiliates.

# environment

Global Stormwater Solutions

WWW.ENV21.COM 1-800-809-2801

## V2B1 Properties

- NJCAT Verified
- Constructed with local materials (manhole, pipe, etc.)
- Swirl technology in the first chamber
- Patented center draw
- 2 manhole configuration
- Baffle wall (floatable collection) in the second chamber

## Benefits

- Shallower Manholes
- Ease of maintenance
- No inserts means autonomy
- Each V2B1 design is unique to the site conditions
- Design includes shop drawings, specifications, maintenance schedule and back-water analysis.

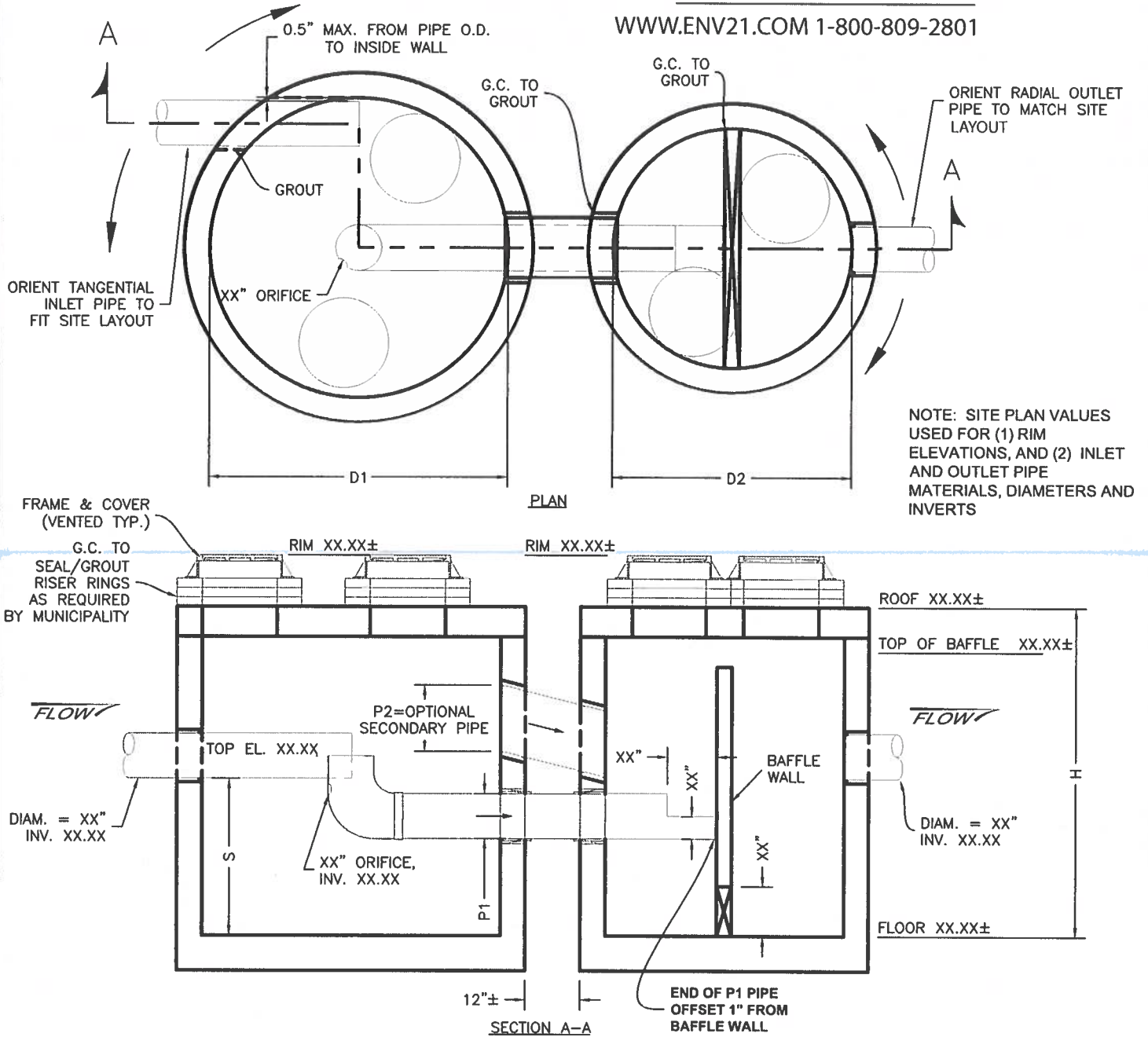
## About the V2B1

The V2B1's unique standard pre-cast concrete, two-manhole design helps you meet the EPA goal of 80% TSS removal efficiency.

The inlet manhole has a tangential mounted inlet pipe that creates a swirl flow pattern, which improves flow distribution and reduces turbulence, thus enhancing sedimentation settling. The environment 21 "Center Withdrawal Elbow Pipe" conveys flow to the outlet manhole where floatable debris is retained by using an underflow baffle wall. All environment 21 products are designed with ease of maintenance in mind. The V2B1 has access openings to all stages of the separation process and has a direct and unobstructed access to the sump. The V2B1 is ideal for all sites requiring a hydrodynamic separator especially those with unique site scenarios involving other utilities.

## Let ENV 21 do the work for you.

ENV 21 will size, design and provide you with the appropriate product to fit your project and your budget. We will provide you with shop drawings, specifications, installation details, back-water analysis, and a maintenance schedule. We even offer maintenance agreements with maintenance performed according to the recommended schedule.



V2B1 SIZING TABLE					
V2B1 MODEL #	IMPERVIOUS AREA, ACRES	D1 (ft.)	D2 (ft.)	H (ft.)	S (ft.)
3	0.3-1.3	4	5	7±	4.1±
4	1.3-2.0	5	5	7±	4.4±
6	2.0-3.0	6	5	8±	4.7±
9	3.0-4.0	7	5	8±	4.9±
11	4.0-5.3	8	6	9±	5.1±
17	5.3-8.3	10	8	10±	5.5±
25	8.3-11.7	12	8	11±	5.9±

#### GENERAL NOTE:

MANHOLE DESIGN SPECIFICATIONS CONFORM TO LATEST A.S.T.M. C478 SPEC. FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS. DESIGN LOADING: AASHTO HS20-44

#### MANUFACTURING NOTES:

- 1) DESIGN OF INTERNAL PVC PIPING PROVIDED TO LICENSED MANUFACTURER BY ENVIRONMENT 21, LLC.
- 2) LOCATION AND SIZE OF MANHOLE OPENINGS MAY BE ADJUSTED BY LICENSED MANUFACTURER.



**BORGHESI BUILDING & ENGINEERING CO.**

2155 EAST MAIN ST., TORRINGTON, CT

**Valvoline**

371 Talcottville Rd., Vernon, CT

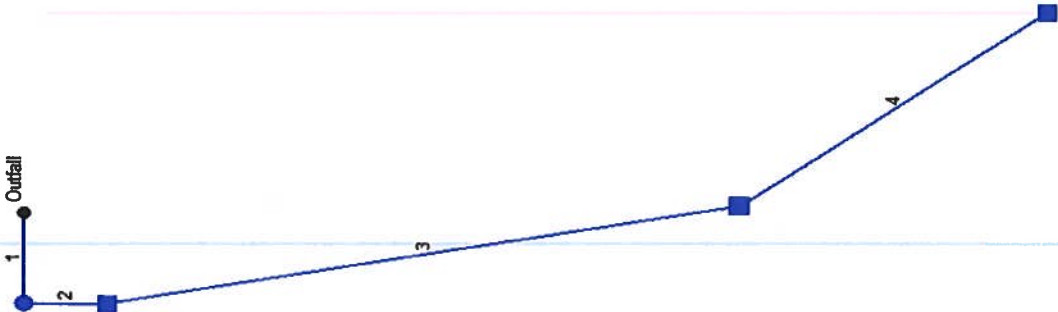
**RUNOFF COEFFICIENTS**

LINE	AREA DESCRIPTION	AREA (ACRE)	C	CA	TC (MIN)
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**WATERSHED ANALYSIS**

CB1	PAVED, BLDG.	0.13	0.95	0.12	5
	GRASS	0.00	0.30	0.00	
	TOTAL	0.13	0.95	0.12	
CB2	PAVED, BLDG.	0.04	0.95	0.04	5
	GRASS	0.00	0.30	0.00	
	TOTAL	0.04	0.95	0.04	
CB3	PAVED, BLDG.	0.05	0.95	0.05	5
	GRASS	0.06	0.30	0.02	
	TOTAL	0.11	0.60	0.07	

Hydraflow Plan View



Project File: Valvoline Vernon.stm

No. Lines: 4

04-27-2022

# Storm Sewer Tabulation

Station		Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	12.0	0.00	0.28	0.00	0.23	0.0	7.9	6.0	1.36	5.63	1.73	12	2.50	224.40	224.10	226.42	226.40	228.00	228.00	V2B1	
2	1	10.0	0.13	0.28	0.95	0.23	5.0	7.8	6.0	1.36	5.04	1.73	12	2.00	225.00	224.80	226.48	226.46	228.20	228.00	CB1	
3	2	77.0	0.04	0.15	0.95	0.10	5.0	6.3	6.3	0.66	4.06	1.14	12	1.30	226.00	225.00	226.56	226.54	230.20	228.20	CB2	
4	3	45.0	0.11	0.11	0.60	0.07	5.0	5.0	6.7	0.44	3.75	1.65	12	1.11	226.50	226.00	226.78	226.61	230.00	230.20	CB3	
Project File: Valvoline Vernon.stm															Number of lines: 4				Run Date: 04-27-2022			
NOTES: Intensity = 101.98 / (Inlet time + 15.80) ^ 0.90; Return period = 25 Yrs.																						

## **APPENDIX D: WATERSHED MAP**



# **PUBLIC HEARING(S) AND ACTION ON APPLICATIONS**



# Affordable Housing Plan

## Town of Vernon

Planning & Zoning  
Commission

Draft: May 5, 2022



# TABLE OF CONTENTS

Introduction _____	Page 3
Plan of Conservation and Development Overview _____	Page 4
Housing and Demographic Data _____	Page 5
Role of the Vernon Housing Authority _____	Page 6
Assessment of Housing Burden & Gap _____	Page 7
Assessment of Barriers _____	Page 8
Objectives and Strategies _____	Page 9

# INTRODUCTION





## Impetus

Effective July 24, 2017 The Connecticut General Statutes, Title 8 Chapter 126a, Section 8-30j requires every municipality in the State to prepare and adopt an Affordable Housing Plan once every five years. For inaugural plans, municipalities have until July 2022 to adopt an Affordable Housing Plan. The Plan must specify how the Town of Vernon intends to increase affordable opportunities within the community.

*The Plan of Conservation & Development and the Affordable Housing Plan are companion local policy documents*

## Definition

**Affordable Housing** is generally defined as housing (rental or owner-occupied) which costs less than 30% of the gross income of a household earning 80% or less of the area median income (ami). Paying more than 30% of housing costs like mortgage, rent, insurance, utilities, means that a household is cost-burdened, making it potentially difficult to afford other necessities such as food, medical care, clothing, and transportation. This calculation is adjusted annually and by household size:

Hartford-West Hartford-East Hartford Metro FY 2021 AMI=\$104,300 80% of AMI			
			
1 person \$58760	2 person \$65950	3 Person \$74160	4 Person \$82320

Monthly Housing Costs (Rent/Mortgage plus Utilities) at 30% for Select Households	
1 Person	\$1442
2 Person	\$1648
3 Person	\$1854
4 Person	\$2058



# PLAN OF CONSERVATION AND DEVELOPMENT (POCD)

An updated POCD, the Town's aspirational policy document intended to help guide development, open space preservation, and other local initiatives, was adopted in November of 2021. Housing Policy, with specific goals, objectives, strategies, and implementation measures, is a point of prioritization. Goal 4 of the Quality of Life Theme:

***Maintain a diverse housing stock that supports all people of all ages, income levels, life stages, and backgrounds.***

Objectives include:

- Provide a diversity of housing for all
- Promote a range of residential densities and housing types (all types as below)
- Grow sustainable, efficient, and accessible housing choices
- Increase the number of affordable units



A critical Implementation measure is to complete an Town wide Affordable Housing Plan.

# HOUSING & DEMOGRAPHIC DATA

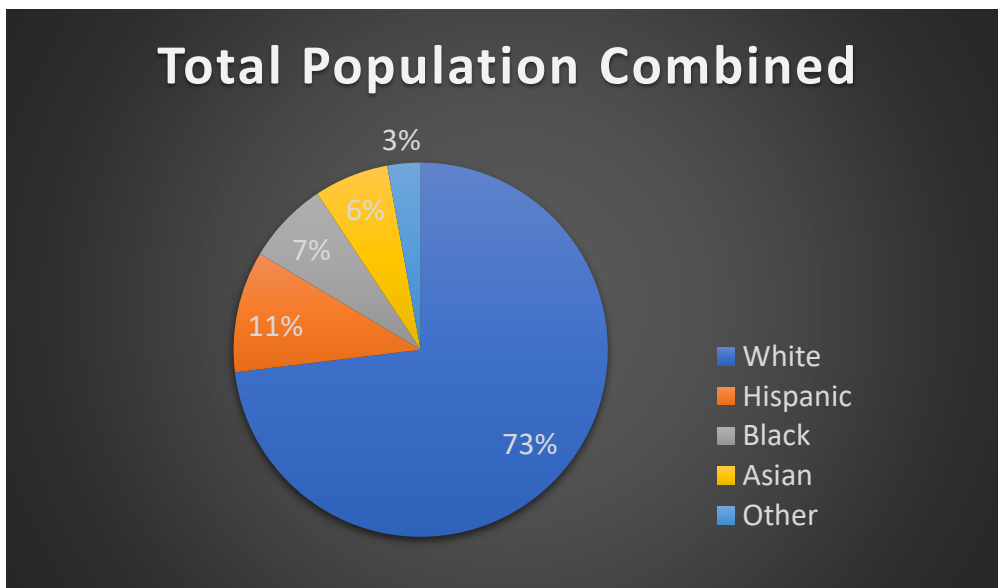
## Housing Characteristics in Vernon

- 14,761 units (13,918 occupied, 843 vacant)
- 47% of the units are rented; 52% are owner occupied.
- 51% single family units; 49% consists of 2 or more units.
- *Estimated 2339 units are designated as “affordable,” or 16.83% (based on new 2020 State data).*
- Median House price: \$207,600; Median Rent: \$1058

The pursuit of affordable housing is a hallmark of Connecticut State planning law. The Affordable Housing Appeals Act (Connecticut General Statute 8-30g) sets a goal of 10% of all units in a municipality meet the definition of affordable. According to the Connecticut Department of Housing, Vernon maintains over 16% affordable units.

## Population & Income Characteristics

- 2020 Total Population-30,215 (3% growth from 2010)
- Median Household Income-\$64,587
- 9.5% in poverty
- 4.4% unemployment
- Please see the POCD for additional data sets



# VERNON HOUSING AUTHORITY

The Vernon Housing Authority (VHA) plays an important role in local affordable housing options, serving the housing needs the Town for over 60 years. The Housing Authority provides multiple subsidized programs for community members including the Section 8 Voucher Program, Public Housing locations and projects, Congregate care, and other housing resources for Vernon residents.

During the POCD data collection phase, the VHA provided a great deal of information related to their operations, illustrating how immense the demand is in Vernon for affordable housing opportunities. For their public housing availability, the VHA reported 100% occupancy (June 2020) with over 500 applicants on the waiting list. For the voucher program, there were over 4,000 applicants on the Housing Voucher Program waitlist.

Select/Estimated Affordable Units and Voucher Availability In the Town of Vernon	
VHA Properties	323
Housing Choice Voucher (Federal)	317
State of CT Housing Voucher (State)	666
CT Rental Assistance	485
Project Based Vouchers	54
Private Developer Subsidized or LITEC Units	384

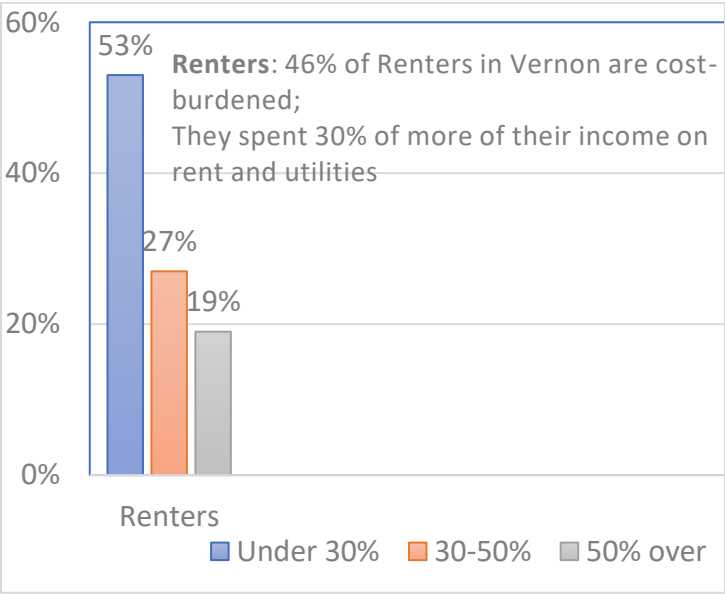
## Other Below-Market Options

In Vernon, there are approximately 384 affordable residential units under private apartment ownership in projects such as Loom City Lofts, Old Talcott Mill, and Park West Apartments. These projects typically include Federal Low-income Housing Tax Credits to the owners for the provision of affordable units, in whole or in part of multi-family developments.

# ASSESSMENT OF HOUSING BURDEN & GAP

## Cost Burdened Households

36% of ALL households in Vernon spend more than 30% of the household income on housing and related costs. 46% of renters and 28% of homeowners fit this category. Renters demand for affordable units is the most significant, identifiable gap.



2021 Government Assisted Units 1509	2021 Rental Assistance Units 470	2021 Deed Restricted Units 12
--	-------------------------------------	----------------------------------

## Waitlists

The waitlist numbers for both the Housing Authority Voucher program and private sector subsidized units (anecdotally) in the thousands represents a clear deficit in the supply of affordable units. Demand outpaces the supply by multitudes.



# ASSESSMENT OF BARRIERS

The availability of new affordable units may be constricted by a number of local factors.

1. **Market demand a limited land Zoned for multi-family units.** The Vernon housing marketplace is robust in terms of market-rate multi-family development. Recent demand has brought the Town several hundred new multi-family units in such developments as Trail Run and The Lofts. Market rate demand and market rate financing appear to often hedge ahead of subsidized development. Vernon is also limited in the total undeveloped acres for multi-family development. Although the recent POCD provides support for new multi-family development, existing zoning is quite limited.
2. **Opposition to projects.** Particularly higher density projects of any style, public opposition during the public process can be challenging for owners, developments, and applicants. While many of the public concerns for multi-family projects or subdivisions are quite legitimate (traffic, design, architectural, stormwater runoff, etc...), the process can be tinged with irrational, unreasonable, or other subjective biases. This raises the development costs for the project and dissuades potential investors.
3. **Aging Housing Stock.** Over 54% of Vernon's housing stock was constructed before 1970; 20% before 1950. An aging housing stock increases the costs on homeownership, first-time home buyers, and investors. Repair costs, energy efficiencies, roofs, foundations, and other major systems increase costs and presents a true barrier to affordability.
4. **Funding and Financing.** The VHA spends a great majority of its capital reserves on repair and maintenance. There currently is little opportunity to expand the total number of units they manage. Additional public investment could initiate new units based on current demand.

# OBJECTIVES & STRATEGIES

**Provide a diversity of housing and housing types for all ages and income levels and expand affordable housing opportunities.**

- a. Review and Update Zoning Requirements to permit accessory dwelling units, in a manner best suited for the Town.
- b. To encourage a mixed-income approach to housing, evaluate a community inclusionary requirement for a certain percentage of affordable units within every new market-rate development.
- c. Expand Landlord education and outreach to encourage, maintain, and/or require all units achieve minimum quality and good repair standards.
- d. Consider a long-term approach to enhanced housing inspections.
- e. Support the Connecticut Housing Finance Authority mortgage programs to expand home ownership opportunities.
- f. Increase the number of affordable units offered by the Vernon Housing Authority.
- g. Identify opportunities for live-work housing units in the Rockville Historic District, in support of the Arts district initiation.