TOWN OF VERNON **Planning & Zoning Commission (PZC)** Meeting Notice & Agenda **Thursday, May 19, 2022, 7:30 PM** Town Council Chambers 3rd 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 Talcottvile 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

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, Jose Miller, Mike Mitchell and Iris Mullan

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- 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 filled 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) AN NAME: hesi ding COMPANY: ADDRESS: B61) 7613 2 Allan TELEPHONE: Ilding, Com E-MAIL: PROPERTY OWNER (S) NAME: 4th Hartford C ADDRESS: Main OKIDS TELEPHONE: 203-943 9_EMAIL: - 3' IEN M . 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 371 Talcottylle Rd ADDRESS: ASSESSOR'S ID CODE: MAP # 4 BLOCK # LOT/PARCEL # 6B LAND RECORD REFERENCE TO DEED DESCRIPTION: VOLUME: PAGE 14%

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

__NO XYES

▲ 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?

<u>X</u>NO ____YES:

CHECK IF HISTORIC STATUS APPLIES: $M_{\mathcal{O}}$

LOCATED IN HISTORIC DISTRICT:

____INDIVIDUAL HISTORIC PROPERTY



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: hesi DING COMPANY: UIM ADDRESS: 0 7613 Allar **TELEPHONE:** , Com E-MAIL: PROPERTY OWNER (S) NAME: 4th FININ Var ADDRESS: DKIDL TELEPHONE: 20 EMAIL: . 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

Talcottylle Ro ADDRESS: ASSESSOR'S ID CODE: MAP # 4 BLOCK #_ LOT/PARCEL # 6B LAND RECORD REFERENCE TO DEED DESCRIPTION: VOLUME: PAGE 146 DOES THIS SITE CONTAIN A WATERCOURSE AND/OR WETLANDS? (SEE THE INLAND WETLANDS MAP AND **REGULATIONS**) __NO 🏹 YES Σ 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? Х _{NO} YES: No CHECK IF HISTORIC STATUS APPLIES:

____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 Borshesi
Title: Chairflay
company: Borghes, Building + ENG CO INC
Address: 2155 E MAIN
Torrington Ct 06790
Telephone: 960.482.7613 Fax: 860 482 5082
E-mail Allan@Borghesi building . 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: 61ennh @ Sympower, Net

05/05/2015

	III. PROP	ERTY
Address, 371	Talcottville Rd	
Assessor's ID Code:	Map # 4_ Block # Lot/Parcel	1#_6B
Land Record Reference to	Deed Description: Volume:Pa	ge 2.4

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

 \sum 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

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

XNo Yes:

> Bolton Coventry Ellington Manchester South Windsor Tolland

YYes

Check if Historic Status Applies:

No

Located in historic district:

Rockville Talcottville

Individual historic property

05/05/2015

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	$\mathbf{V} \in \{\mathbf{v}_{1}, \mathbf{v}_{2}\}$
	Project Name: Valvoline Building
	Project Contact Person:
	Name: Allan Borchesi
	Title: Chair Man
	company: Borghesi Building + Eng. Co INC
	Address:ZISS E Main
	Torrington Ct 06790
51	Telephone: 860 482-7613 Fax: 850 482 5082
	E-mail: AllAM @ Burghes, building, Com
	5

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".

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VI. APPROVAL (S) REQUESTED

Subdivision or Resubdivision

_____ Subdivision (Sub. Sec. 4, 5, 6)

_____ Resubdivision (Sub. Sec. 4, 5, 6)

____ Minor modification f 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)

X_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 Sp	ecial Permit(s). Cite		-	
	Section	1N 4,	9,4,14	
	General	Auto	9,4,14 Repair +	Servict
Special	Permit modifications	(ZR Sec. 17.3.)	2.2). Cite ZR Sectio	n and describe activ

Zoning:				
Site spe	cific change of zonin nent of Zoning Regu	ig district and m lations (Sec. 1.)	ар (ZR Sec. 1.2; 1.3 2; 1.3; 4)	; 4)
Site spe	cific change to the A	quifer Protectio	n 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

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

.

4-0004-008A5 TOWN OF VERNON 14 PARK RL VERNON CT 06066

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

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 04-9004-008AR VERNON POWN OF 14 PARK PL VERNON CT 06066

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

04-0004-0008A EXPCTAC 25 MAIN ST 4TH FL HARTFORD CT 06106

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

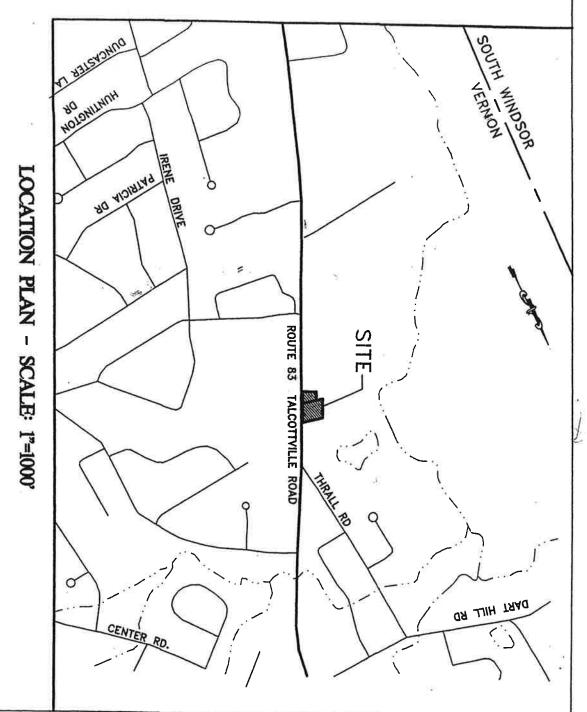
Signature

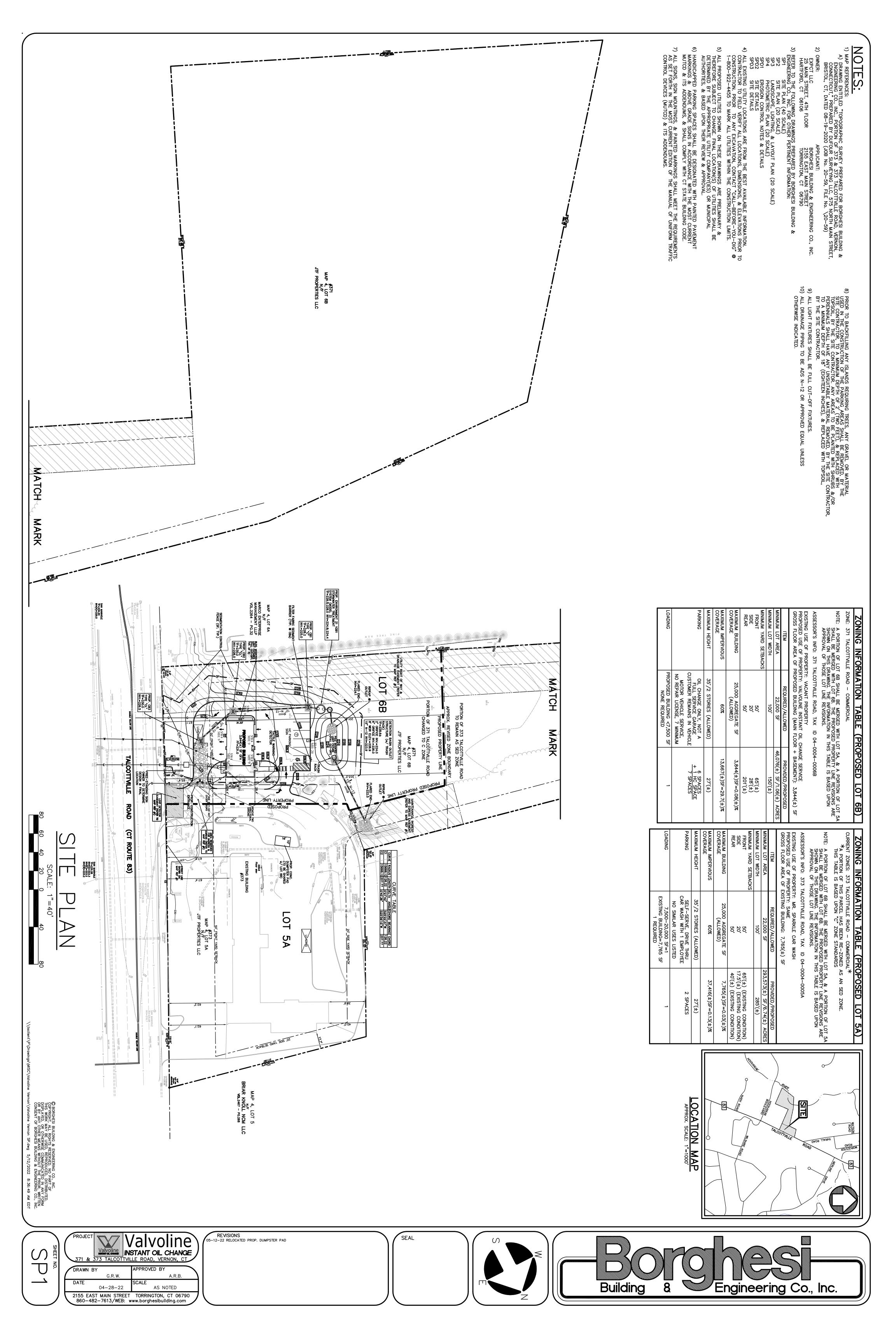
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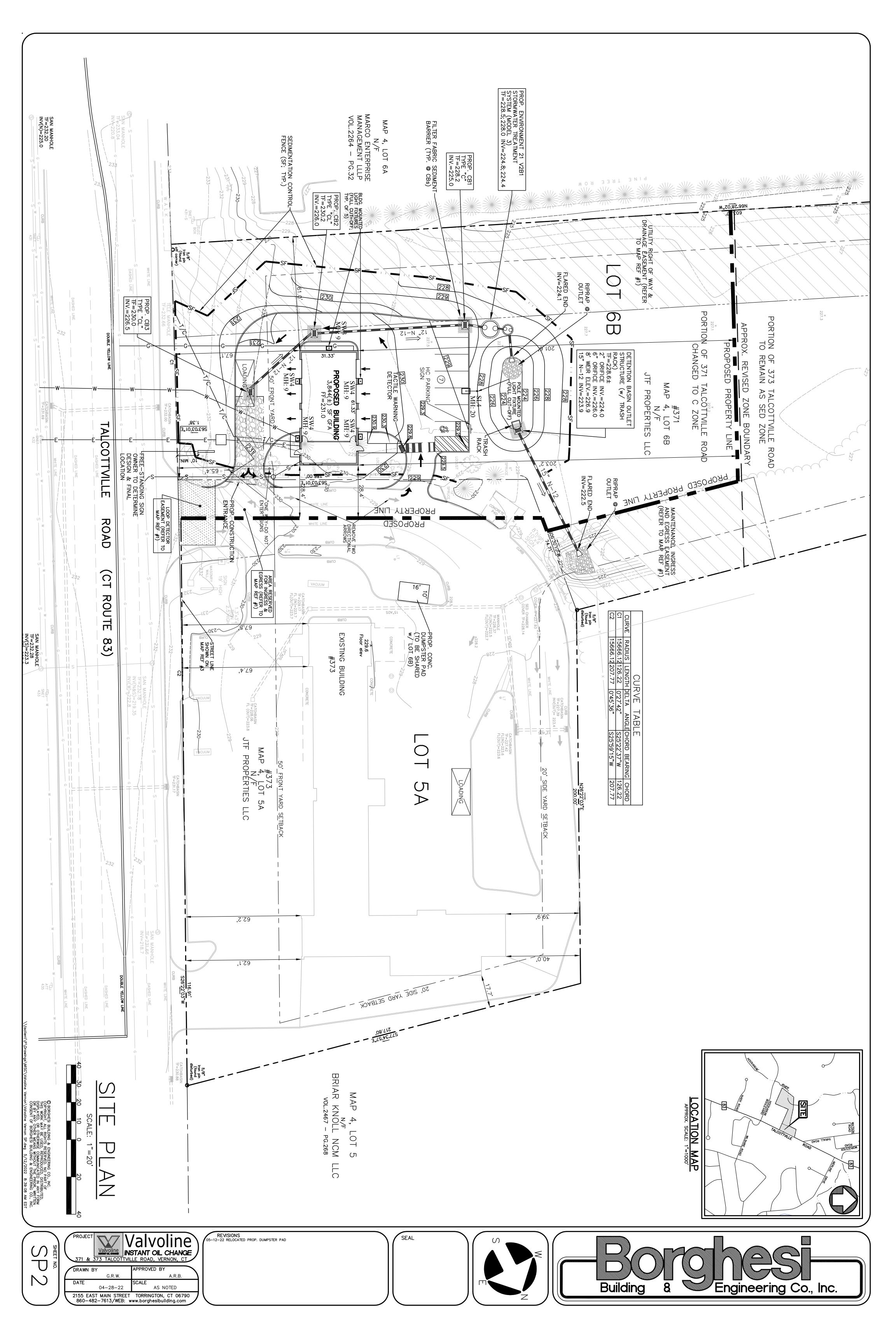
Date

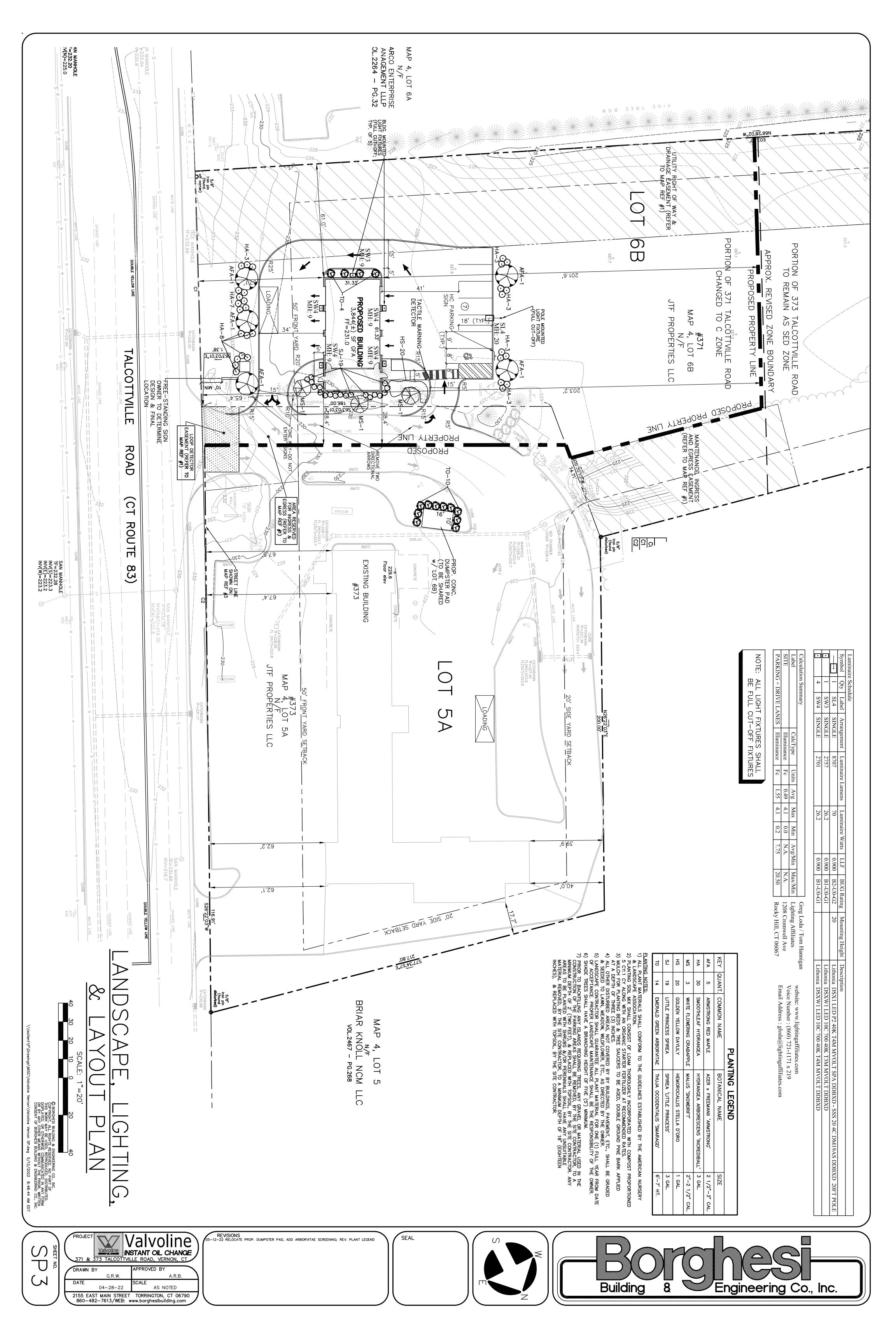
TO BE FILLED IN BY THE PLANNING DEPARTMENT

Date Application Submitted ______ Date Application Received by Commission ______ PZC File: _____





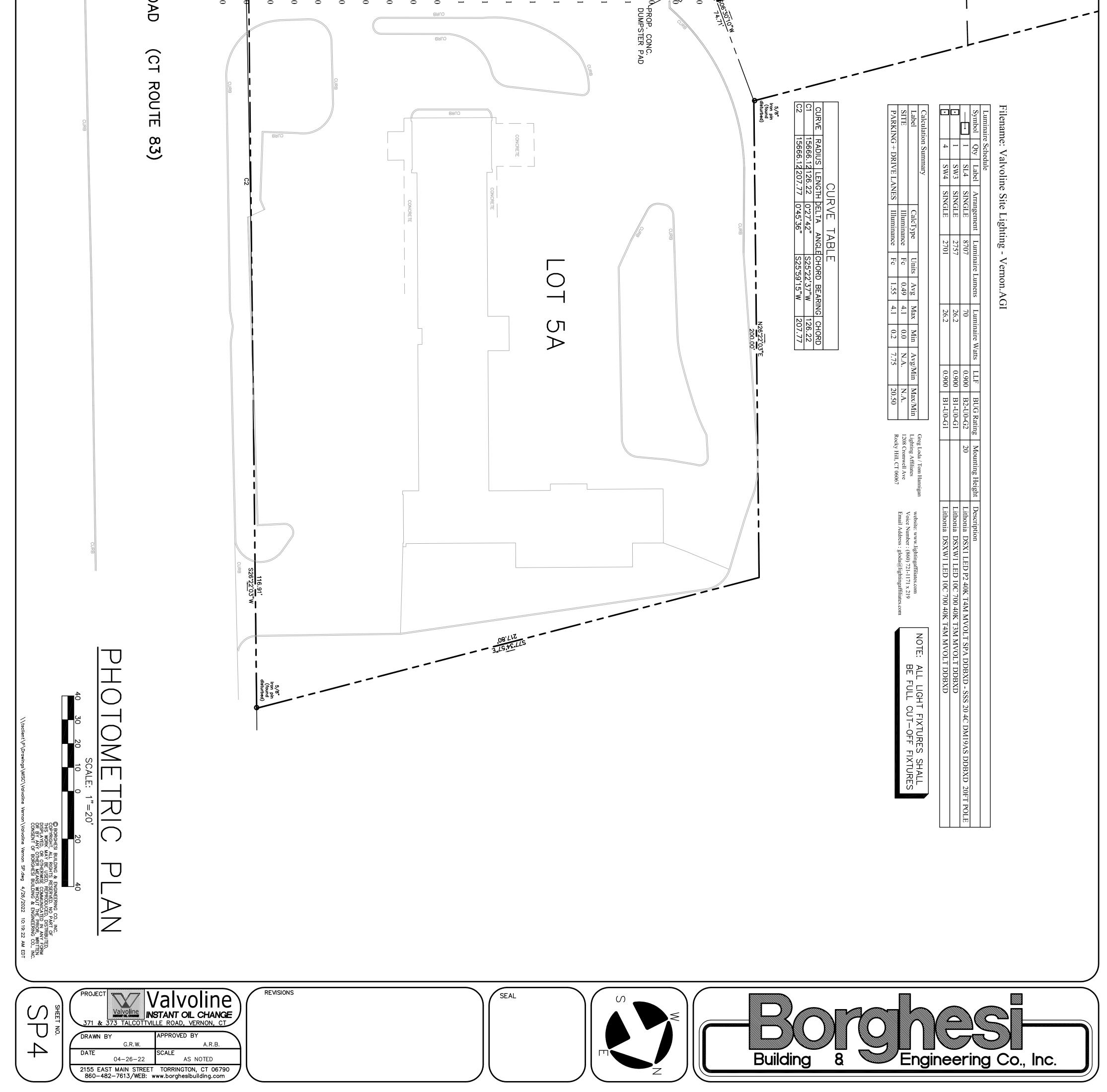


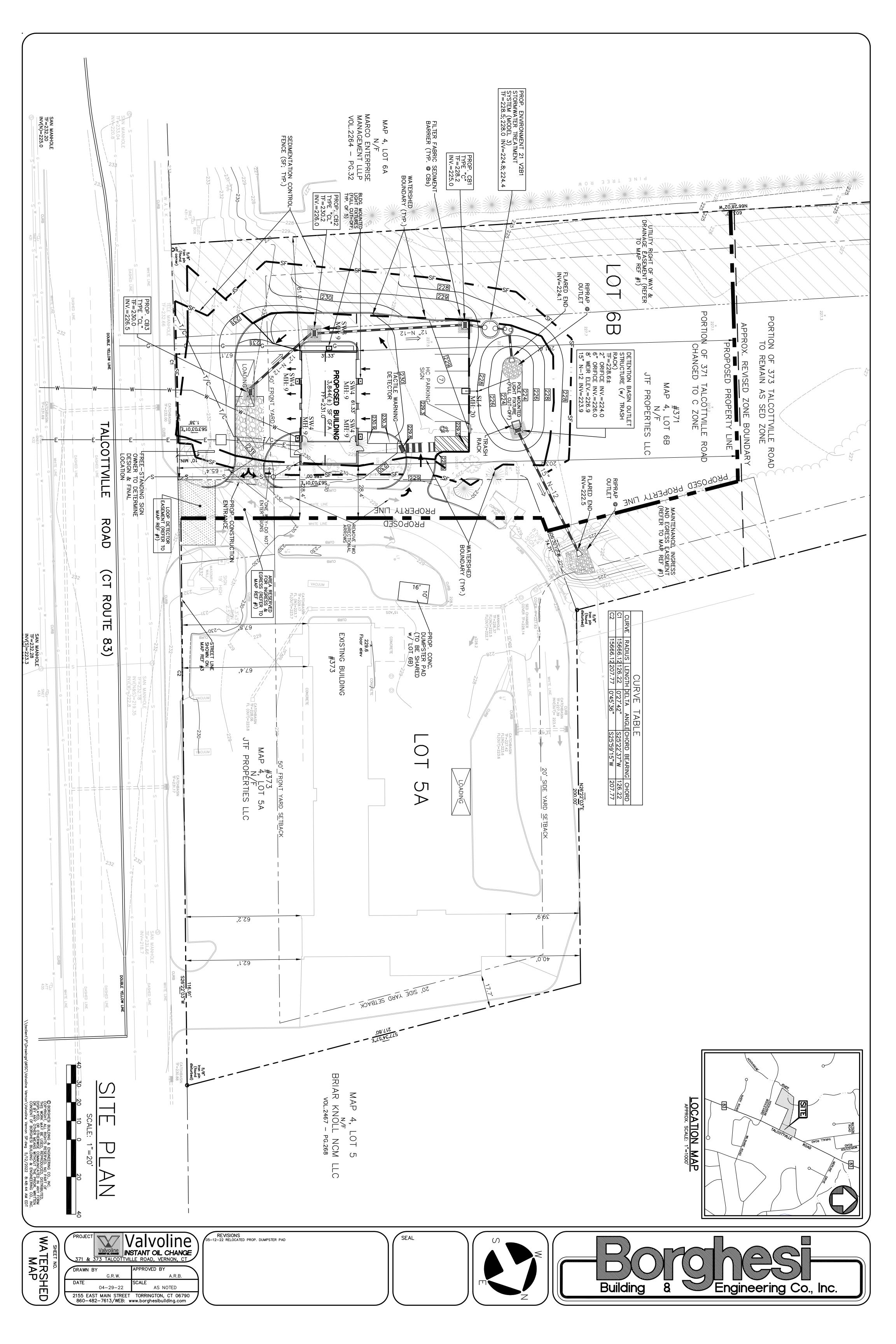


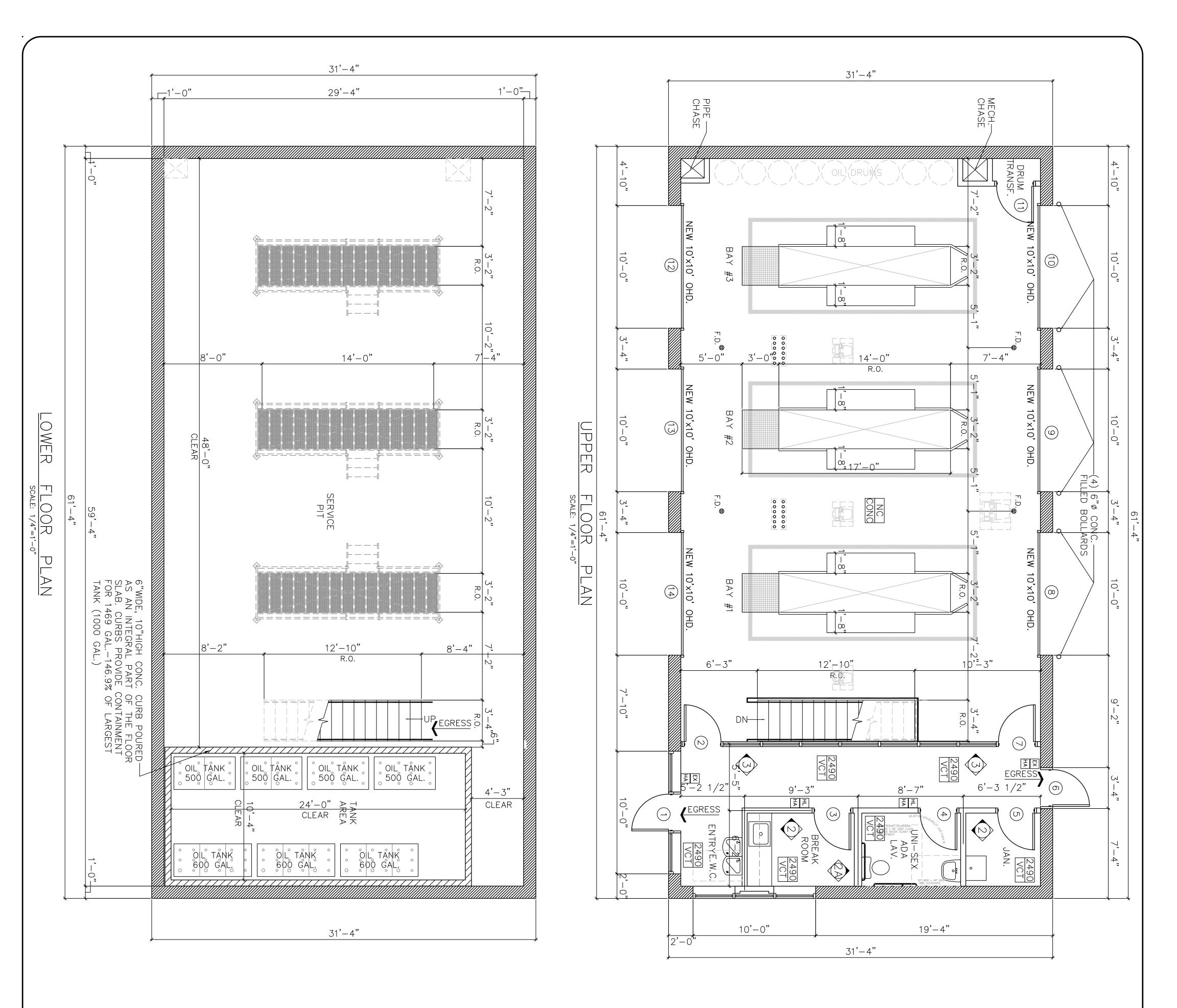
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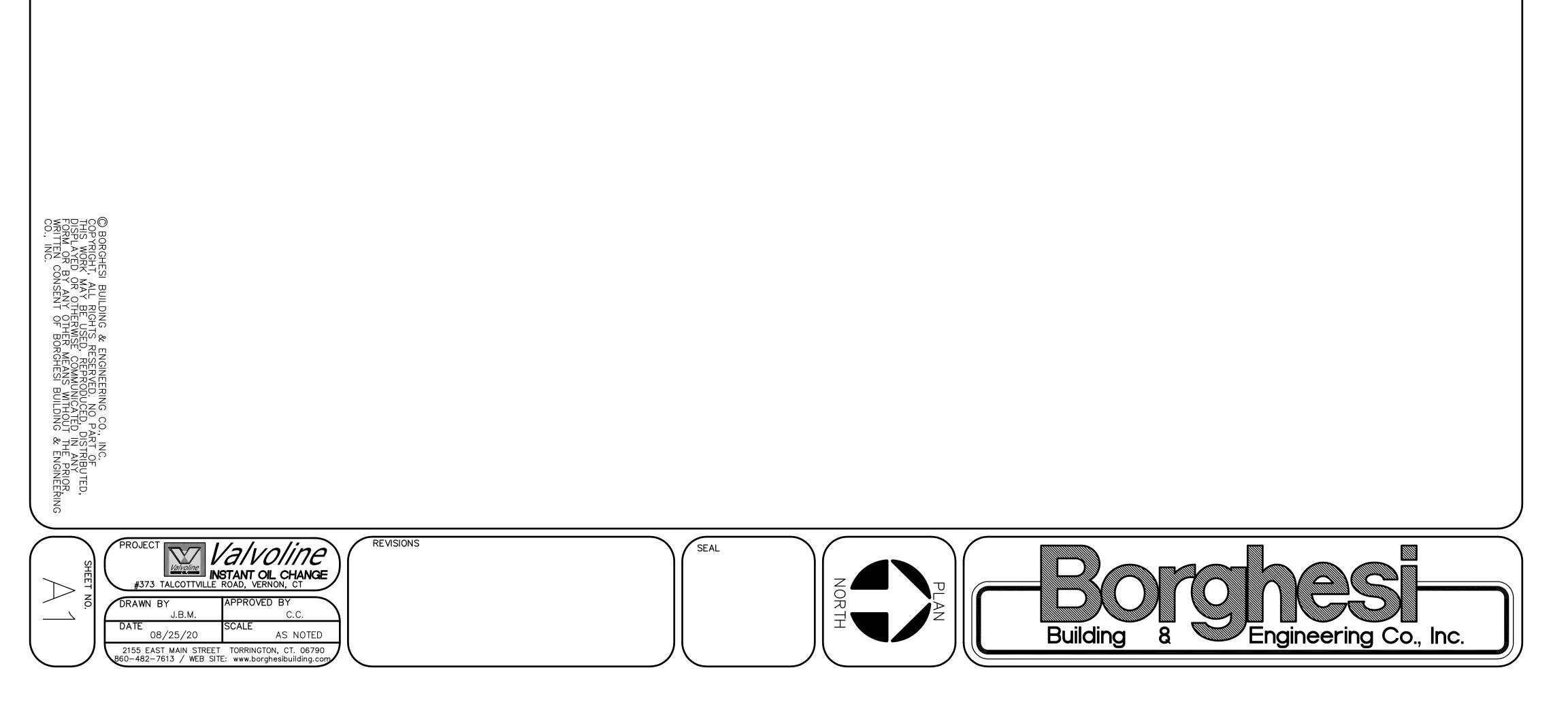
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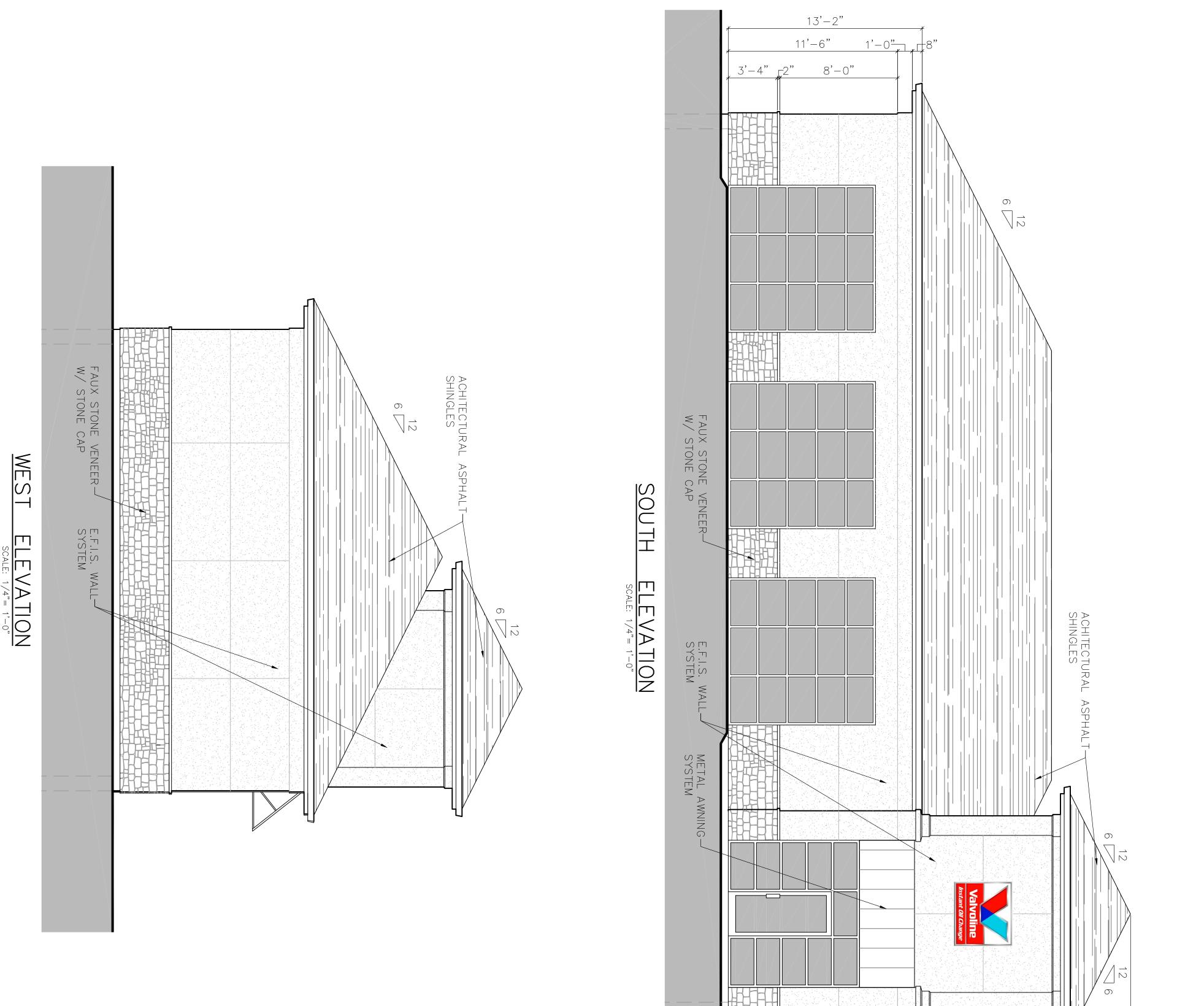
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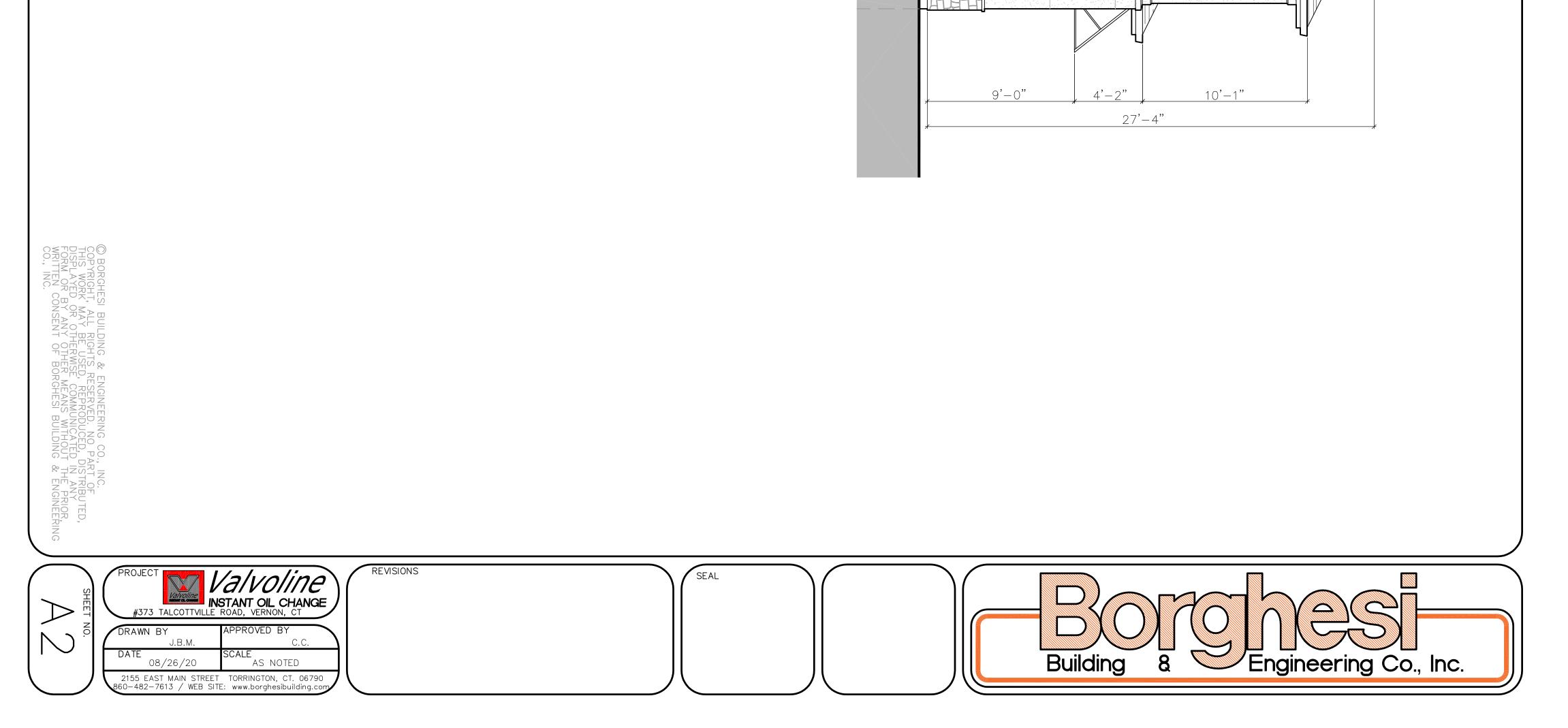


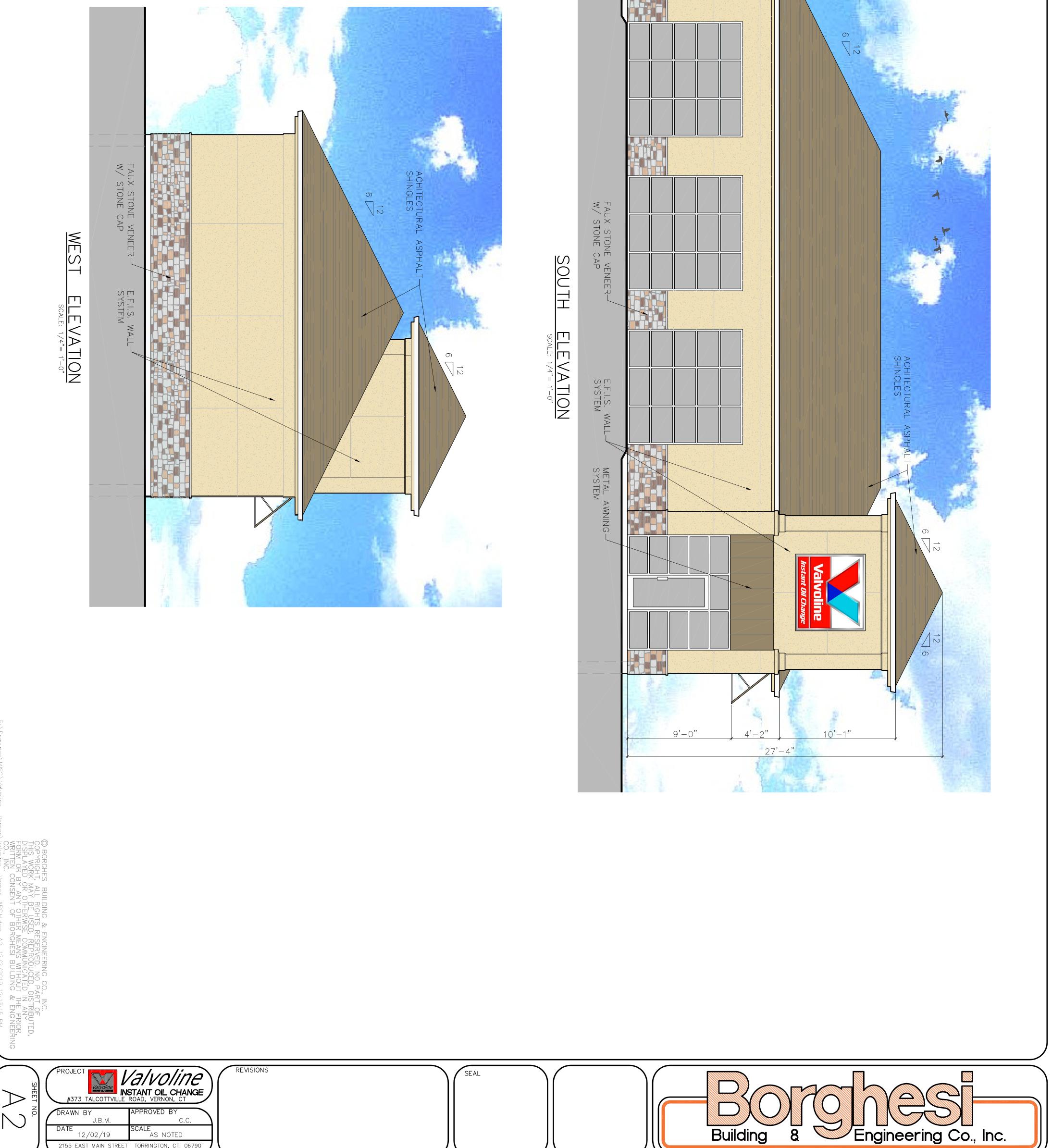


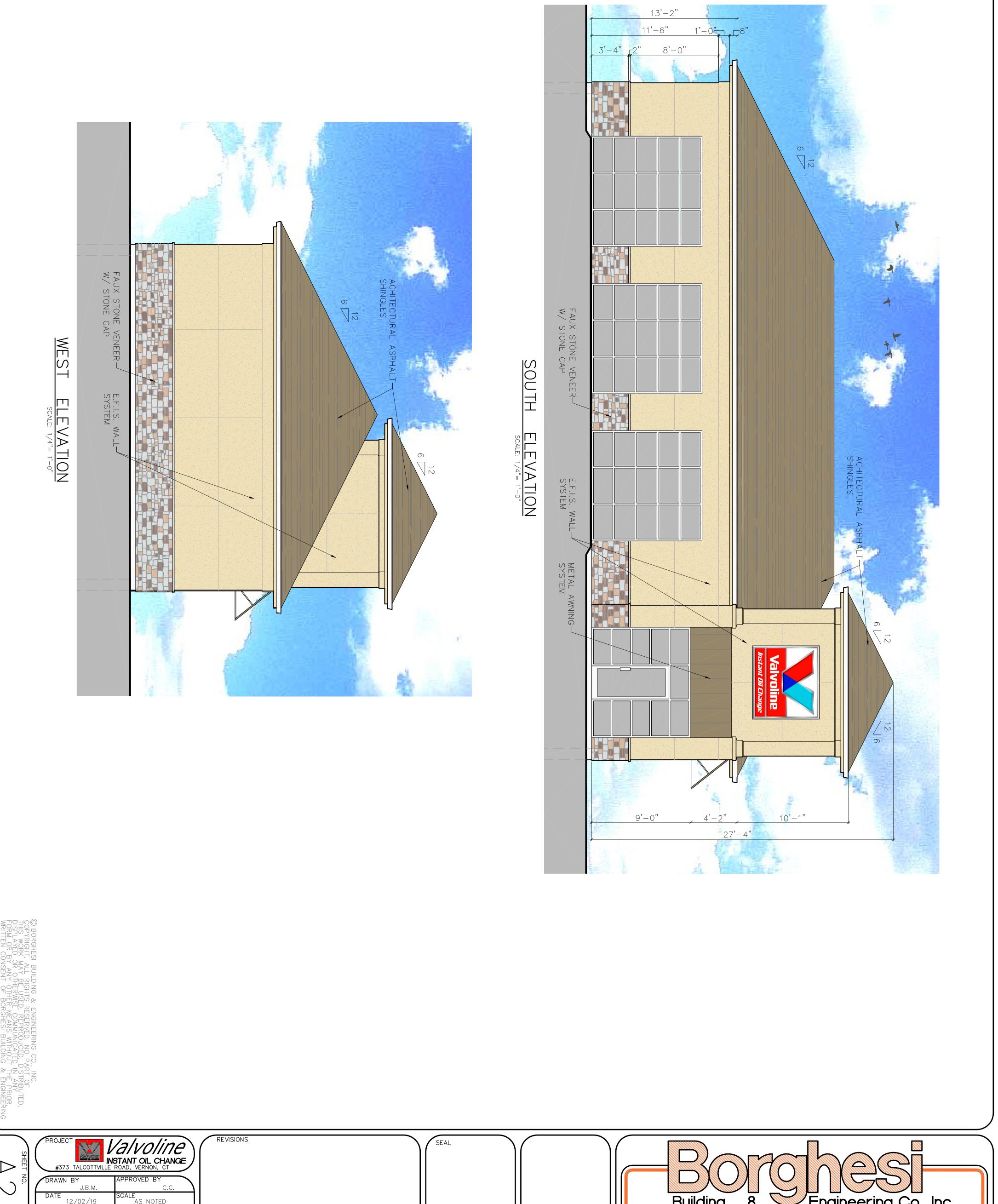




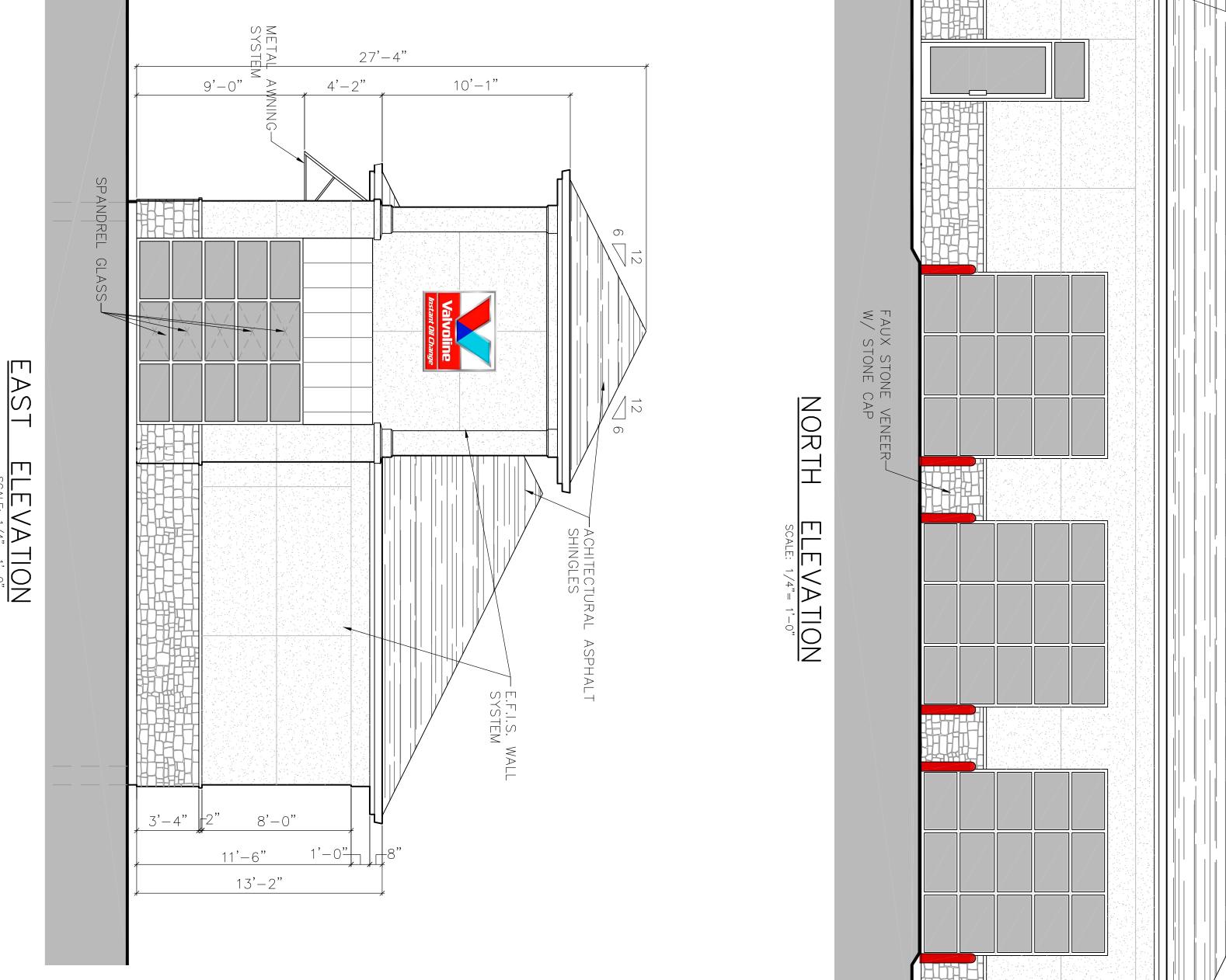


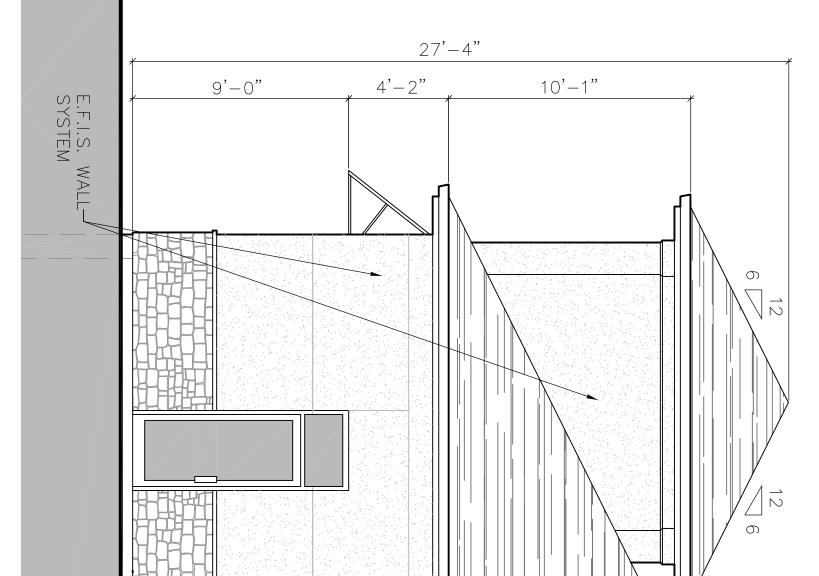






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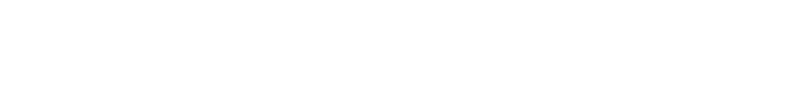


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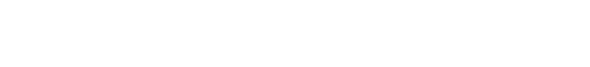








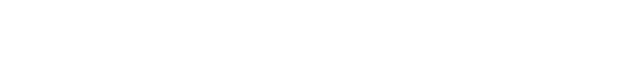






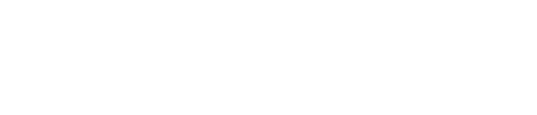


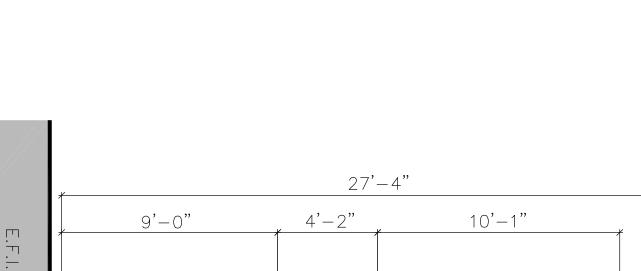


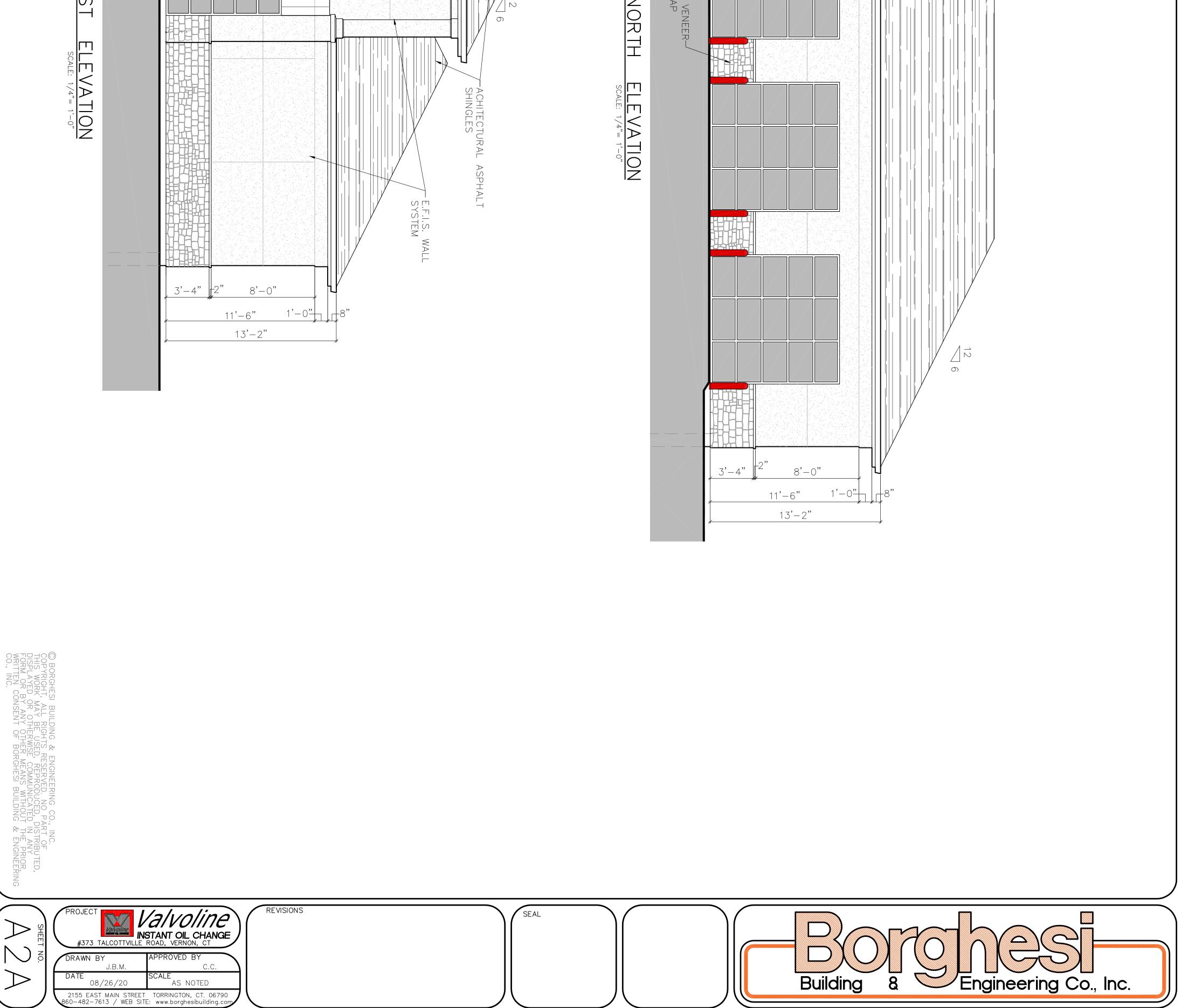


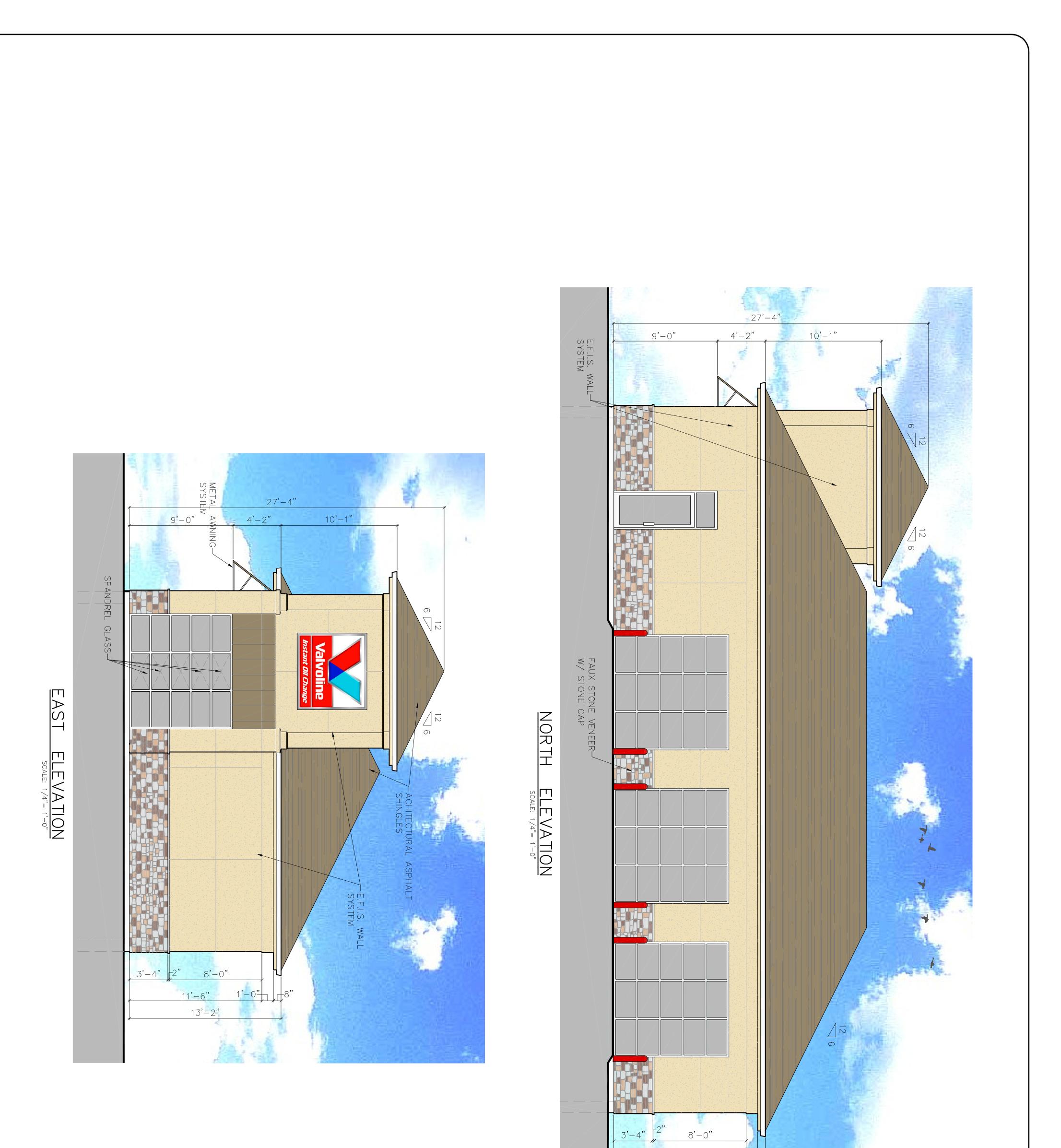


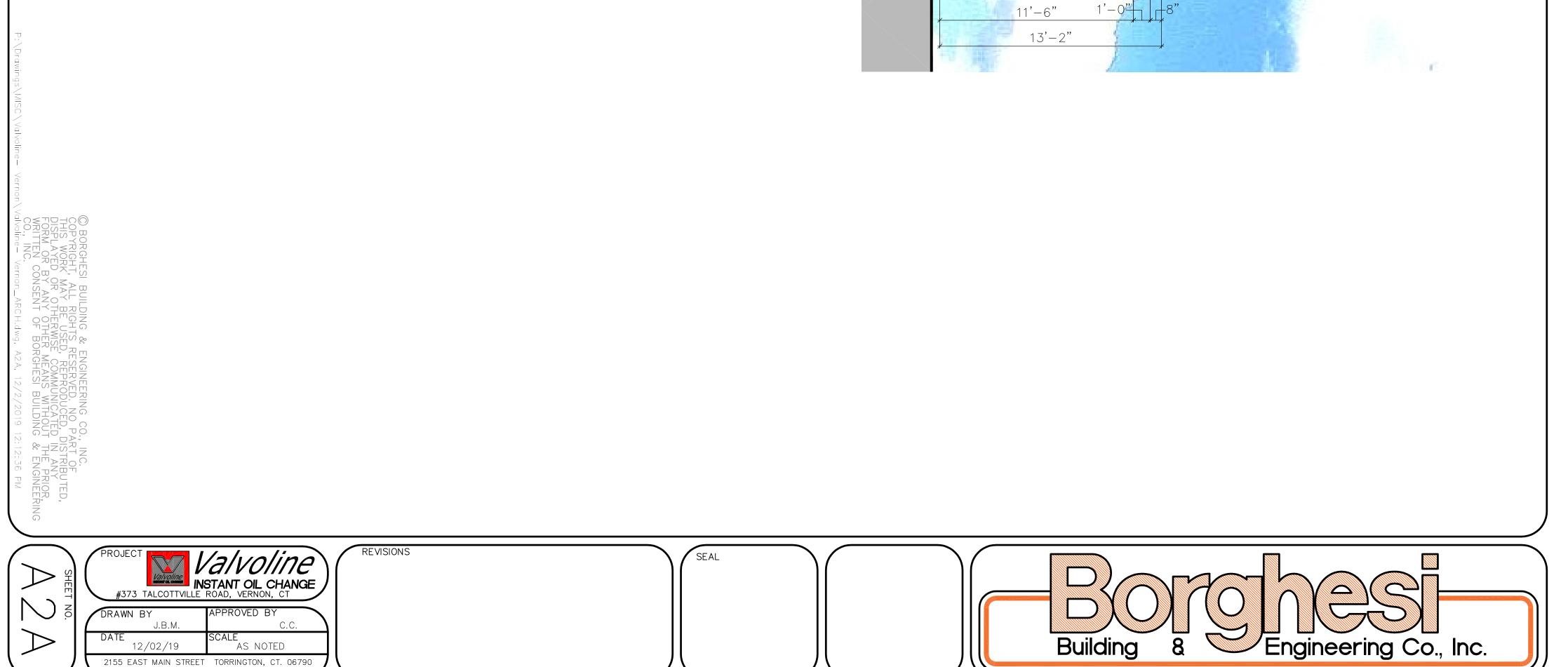












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EROSION	
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S INTRODUCTION:

PURSUANT TO CONNECTICUT P.A. 83–388, A SOIL EROSION AND SEDIMENT CONTROL PLAN AND NARRATIVE IS REQUIRED FOR THIS PROJECT. THIS NARRATIVE DESCRIBES MEASURES REQUIRED TO CONTROL SOIL EROSION DURING AND AFTER CONSTRUCTION OF THE PROPOSED SITE WORK SHOWN ON THIS PLAN. THE SOIL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THIS PLAN ARE DESIGNED IN ACCORDANCE WITH A DOCUMENT ENTITLED "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL," PUBLISHED BY THE CONNECTICUT GUIDELINES FOR SOIL AND WATER CONSERVATION IN COOPERATION WITH THE CT DEP.

THE GUIDELINES ARE OBTAINABLE FROM CONNECTICUT'S DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION AT THE FOLLOWING WEB ADDRESS: https://portal.ct.gov/DEEP/Water/Soil-Erosion-and-Sediment-Control-Guidelines/Guidelines-for-Soil-Erosion-and-Sediment-Control, AND SHOULD BE USED AS A REFERENCE IN CONSTRUCTING THE EROSION AND SEDIMENT CONTROLS INDICATED ON THESE PLANS.

PROJECT DESCRIPTION:

THE APPLICANT PROPOSES TO CONSTRUCT A 3,844 (\pm) SQUARE FOOT BUILDING WITH APPURTENANT PARKING. THE BUILDING WILL BE SERVED BY PUBLIC SEWER & WATER. THE SITE IS LOCATED AT 371–373 TALCOTTVILLE ROAD (CT RTE. 83) IN VERNON, CT. RUN OFF FROM THE DEVELOPED SITE WILL BE COLLECTED IN CATCH BASINS AND PIPED TO AN ON–SITE DETENTION BASIN, WHICH WILL OUTLET INTO AN EXISTING DRAINAGE EASEMENT. RIPRAP WILL BE INSTALLED AT ALL PIPE OUTLETS TO MINIMIZE SOIL EROSION.

ANTICIPATED START OF CONSTRUCTION IS SUMMER OF 2022. SEDIMENT AND EROSION CONTROL MEASURES WILL BE IMPLEMENTED AND WILL BE IN PROPER WORKING ORDER BEFORE CONSTRUCTION BEGINS. SEDIMENT AND EROSION MEASURES WILL BE MAINTAINED IN PROPER WORKING ORDER THROUGH COMPLETION OF CONSTRUCTION AND WILL REMAIN PLACE AND CONTINUE TO BE MAINTAINED AFTER CONSTRUCTION HAS BEEN COMPLETED, UNTIL ALL DISTURBED AREAS ARE STABILIZED. Ī

PERMITS. THE CONTRACTOR PRIOR TO COMMENCEMENT SHALL

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BARRIERS

TO BE CLEARED AS REQUIRED.

<u>CONSTRUCTION SCHEDULE:</u>
1. OBTAIN A COPY OF ALL PROJECT LAND-USE PERM BE FAMILIAR WITH ALL PERMIT REQUIREMENTS PRIO CONSTRUCTION.
2. INSTALL SILTATION CONTROL FENCES AND FILTER F AT EXISTING CATCH BASINS.
3. INSTALL CONSTRUCTION ENTRANCE.
4. REMOVE TREES, BRUSH, AND STUMPS IN AREAS TO STRIP TOPSOIL FROM WORK AREAS, STOCKPILE AND OF PILE.

of File.
6. ROUGH GRADE DETENTION BASIN.
7. ROUGH GRADE SITE, BEGIN CONSTRUCTION OF BUILDING.
8. INSTALL UTILITIES AND FILTER FABRIC SILT BARRIERS AT NEW CATCH BASINS.
9. BACKFILL FOUNDATION.
10. ROUGH GRADE NEW PARKING AREAS, INSTALL AND GRADE PAVEMENT BASE AND
11. PAVE PARKING AREAS AND INSTALL WALKS.
12. GRADE, STABILIZE AND SEED ALL DISTURBED AREAS.
13. MAINTAIN ALL EROSION CONTROL MEASURES UNTIL A DURABLE GRASS STAND IS
ESTABLISHED IN ALL NON-PAVED AREAS. BASINS. AND CURBS.

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LAND DI THE FOL ACTIVITIE 1. ALL / PROF <u>DISTURBANCE:</u> OLLOWING PROCEDURES SHALL BE USED FOR ALL LAND DISTURBING

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ACTIVITIES:
ALL AREAS SHALL REMAIN UNDISTURBED UNTIL IMMEDIATELY PRIOR TO PROPOSED CONSTRUCTION ACTIVITIES.
LAND CLEARING SHALL PROCEED AT THE SAME RATE AS CONSTRUCTION.
REMOVAL OF VEGETATION SHALL BE RESTRICTED TO THOSE AREAS NECESSARY FOR CURRENT CONSTRUCTION ACTIVITIES.
DISTURBED AREAS SHALL BE LIMITED TO A MAXIMUM OF 20 FEET BEYOND THE PHYSICAL DIMENSIONS OF THE ROADS, DRIVEWAYS, UTILITY TRENCHES, SEPTIC SYSTEMS, AND AREAS TO BE GRADED.
CONSTRUCTION EQUIPMENT AND MATERIALS SHALL BE CONFINED TO THE DISTURBED AREAS ONLY.
THE DEVELOPER SHALL BE RESPONSIBLE FOR THE CLEANING OF NEARBY STREETS, AS ORDERED BY THE TOWN OR STATE, OF ANY DEBRIS FROM HIS CONSTRUCTION ACTIVITES.
THE USE, STORAGE, OR DISPOSAL OF ANY MATERIAL NOT IN ACCORDANCE WITH WHAT IS SHOWN ON THE APPROVED PLAN OR REQUIRED BY THE REGULATORY AGENCY MAY RESULT IN THE IMMEDIATE REVOCATION OF ANY PERMIT/APPROVAL GRANTED BY THE COMMISSION.

GENERAL NOTES:

WHENEVER CONSTRUCTION SHALL TAKE PLACE IN AREAS DESIGNATED AS WETLANDS OR AS AREAS TO BE ECOLOGICALLY PROTECTED, THE CONTRACTOR SHALL TAKE SPECIAL CARE WITH HIS CONSTRUCTION METHODS AND SHALL COMPLY WITH THE FOLLOWING REGULATIONS:
THE DIVERSION OF WATERCOURSES SHALL BE CONDUCTED IN SUCH A MANNER AS TO PREVENT INJURY TO PERSONS OR PUBLIC HEALTH AND TO PREVENT FLOODING OF PUBLIC OR PRIVATE PROPERTY.
ALL EXISTING VEGETATION SHALL BE PROTECTED, AND ONLY THAT CLEARING AND CUTTING WHICH IS ABSOLUTELY NECESSARY FOR THE PROPOSED CONSTRUCTION OR TO PRESERVE ALL SPECIMEN TREES. THOSE TREES IDENTIFIED TO BE SAVED SHALL BE PROTECTED FROM DAMAGE BY CONSTRUCTION EQUIPMENT BY SUITABLE MEANS. ALL REGULATED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND CONTOURS.
EXCESS EXCAVATED MATERIAL, INCLUDING THAT RESULTING FROM CLEARING AND GRUBBING, SHALL NOT BE DEPOSITED WITHIN THE REGULATED AREA.

WORK WITHIN REGULATED AREAS: IF WORK IS REQUIRED WITHIN A REGULATED WETLAND, WATER COURSE, OR ADJACENT AREA, SITE DISTURBANCE SHALL BE LIMIED TO THE AREA ABSOLUTELY NECESSARY FOR CONSTRUCTION, DISTURBED AREAS SHALL BE RESTORED AS CLOSELY AS POSSIBLE TO THEIR ORIGINAL NATURAL STATE. THE DEVELOPER SHALL OBTAIN THE NECESSARY PERMIT(S) FROM THE TOWN WETLANDS, AND CONDITIONS FOR CONSTRUCTION WITHIN THESE REGULATED AREAS. THE CONTRACTOR SHAL REQUIRED TO STRICTLY ADHERE TO ALL REQUIREMENTS AND RESTRICTIONS INFOSED BY THE INDUCATING THE UMITS OF INLAND WETLANDS, AND CONDITIONS FOR CONSTRUCTION WITHIN THESE REGULATED AREAS. THE CONTRACTOR SHAL REQUIRED TO STRICTLY ADHERE TO ALL REQUIREMENTS AND RESTRICTIONS INFOSED BY THE WETLANDS PERMIT. SOIL EROSION AND SEDIMENT CONTROL MEASURES. ALL WATERCOURSES SHALL BE PROTECTED FROM SEDIMENTATION BOTH DURING AND AFTER CONSTRUCTION. THIS PROVISION APPLIES PARTICULARLY TO DEWATERING ACTINITIES, STORAGE OF EXCAVATED OR STOCKPILED MATERIAL, AND TRENCH OR DITCH EXCAVATION. THIS PROVISION APPLIES PARTICULARLY TO DEWATERING ACTINITIES, STORAGE OF EXCAVATED OR STOCKPILED MATERIAL, AND TRENCH OR DITCH EXCAVATION IN THE PLANS. TO INTERCEPT SULT AND SEDMENT EFORE TO BE REPLACED AS NOT SUBART TO PROPER ILTERING ACTION. DEPOSITS OF SEDIMENT AND SILT ARE TO BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDE OF THE HAYBALES NOT SUBJECT TO EROSION, HATER COURSES ARE STABLISTED IN AREAS MOT TO BE PARED TO INSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE FENCES ARE STABILIZED AND YEAGETARION AND STABILIZED IN AREAS ABOVE THE FENCES ARE STABILIZED AND YEAGETARD AND STABILED ON THE ABOVE THE FENCES ARE DURING CONSTRUCTION, EXPOSE AS SMALL AN AREA AS POSSIBLE FOR AS SHORT A DURING CONSTRUCTION, ANY ADDITIONAL SEDIMENT/EROSION CONTROL MEASURES OURSING CONSTRUCTION, ANY ADDITIONAL SEDIMENT/EROSION CONTROL MEASURES ON MAINTENANCE OF ALL SEDIMENT/EROSION CONTROL MEASURES UNTIL ALL AND MAINTENANCE OF ALL SEDIMENT/EROSION CONTROL MEASURES UNTIL ALL ON THE DEVELOPER ANA

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AND CKPILING:

APILES THAT CONSIST OF ERODIBLE MA OIL, ROAD FILL, SOILS EXCAVATED FROI S, ETC., SHALL CONFORM TO THE FOLL CATION-ALL STOCKPILES SHALL BE LOO E PROPOSED DISTURBANCE AND AWAY MATERIAL, FROM ROAD OLLOWING C LOCATED W VAY FROM T

AD CUTS CRITERIA WITHIN 1 THE FOL

RIPRAP: RIPRAP, IF SPECIFIED, IS TO BE INSTALLED FOR ENERGY DISSIPATION AND TO CONTROL EROSION. THE RIPRAP IS TO BE INSTALLED BEFORE THE OUTLET STRUCTURES ARE WORKING, AND ALL ADJACENT AREAS ARE TO BE IMMEDIATELY SEEDED, IF IN SEASON, OR THE SOIL IS TO BE STABILIZED BY OTHER METHODS. THIS MAY REQUIRE SODDING, MULCHING, OR OTHER METHODS AS DEFINED IN THE "GUIDELINES". RIPRAP SHALL BE INSPECTED PERIODICALLY TO DETERMINE IF HIGH FLOWS HAVE CAUSE SCOUR BENEATH THE RIPRAP OR FILTER BLANKET, OR DISLODGED ANY OF THE RIPRAP FILTER BLANKET MATERIALS. REPAIR IMMEDIATELY UPON OBSERVED FAILURE.

DISPOSAL OF TREES AND BRUSH: ALL VEGETATION REQUIRING REMOVAL FOR CONSTRUCTION DISPOSED OF OFF-SITE. NO TREES, BRUSH, OR STUMPS SH DISPOSED OF ON-SITE.

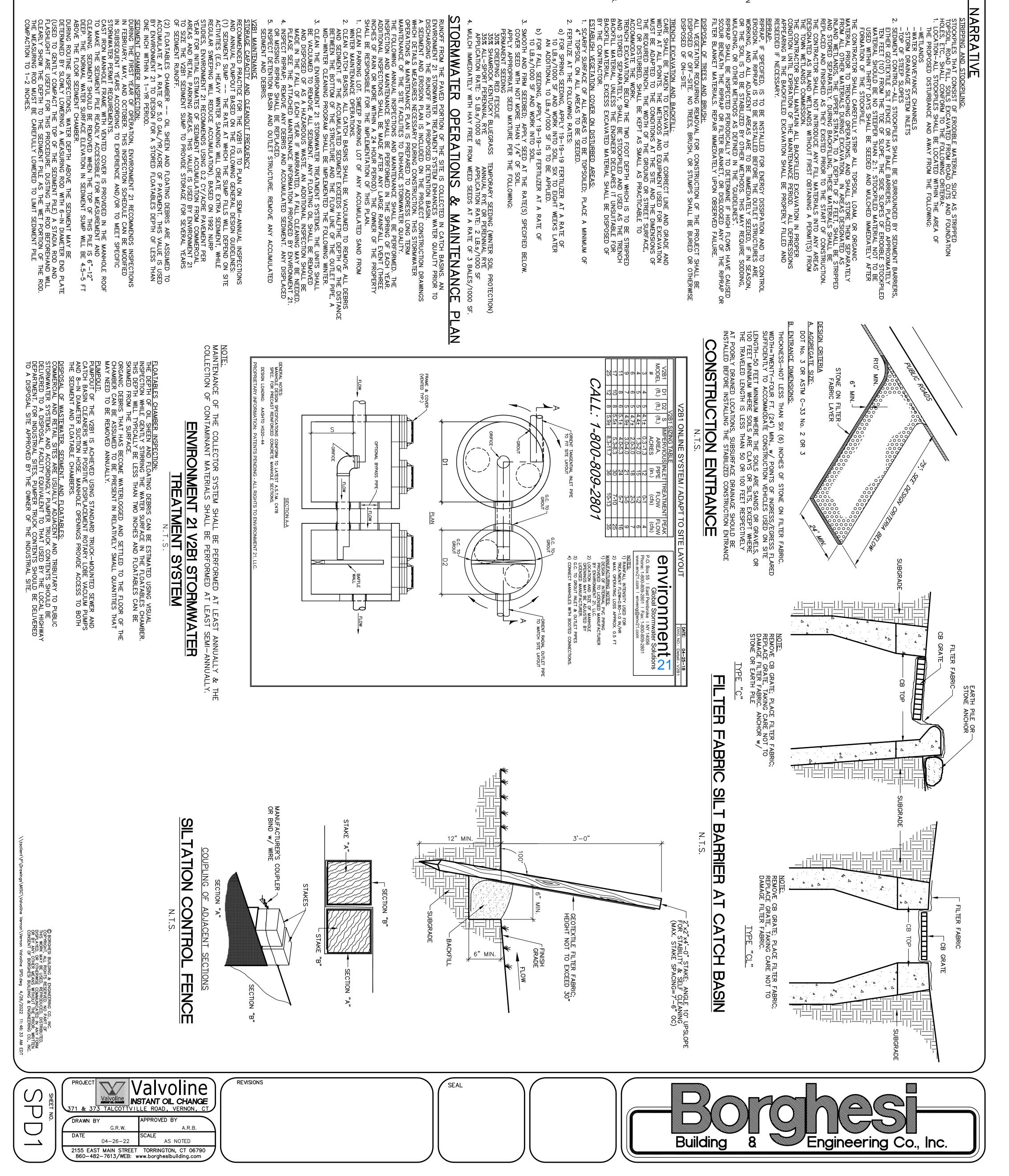
TRENCH EXCAVATION AND BACKFILL:
CARE SHALL BE TAKEN TO EXCAVATE TO THE CORRECT LINE AND GRADE AND WDTH AT ALL POINTS. THE METHODS AND EQUIPMENT USED FOR EXCAVATION MUST BE ADAPTED TO THE CONDITIONS AT THE SITE AND THE DIMENSIONS OF THE REQUIRED TRENCH. THE WIDTH OF THE GROUND OR STREET SURFACE, CUT OR DISTURBED, SHALL BE KEPT AS SMALL AS PRACTICABLE TO ACCOMMODATE THE WORK.
TRENCH EXCAVATION, BELOW THE TWO FOOT DEPTH WHICH IS TO BE STRIPPED AND STORED SEPARATELY, SHALL BE STOCKPILED AND USED AS THE TRENCH BACKFILL MATERIAL, UNLESS THE ENGINEER DECLARES IT UNSUITABLE FOR BACKFILL MATERIAL. EXCESS EXCAVATED MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR.
ESTABLISH VEGETATION COVER ON DISTURBED AREAS:

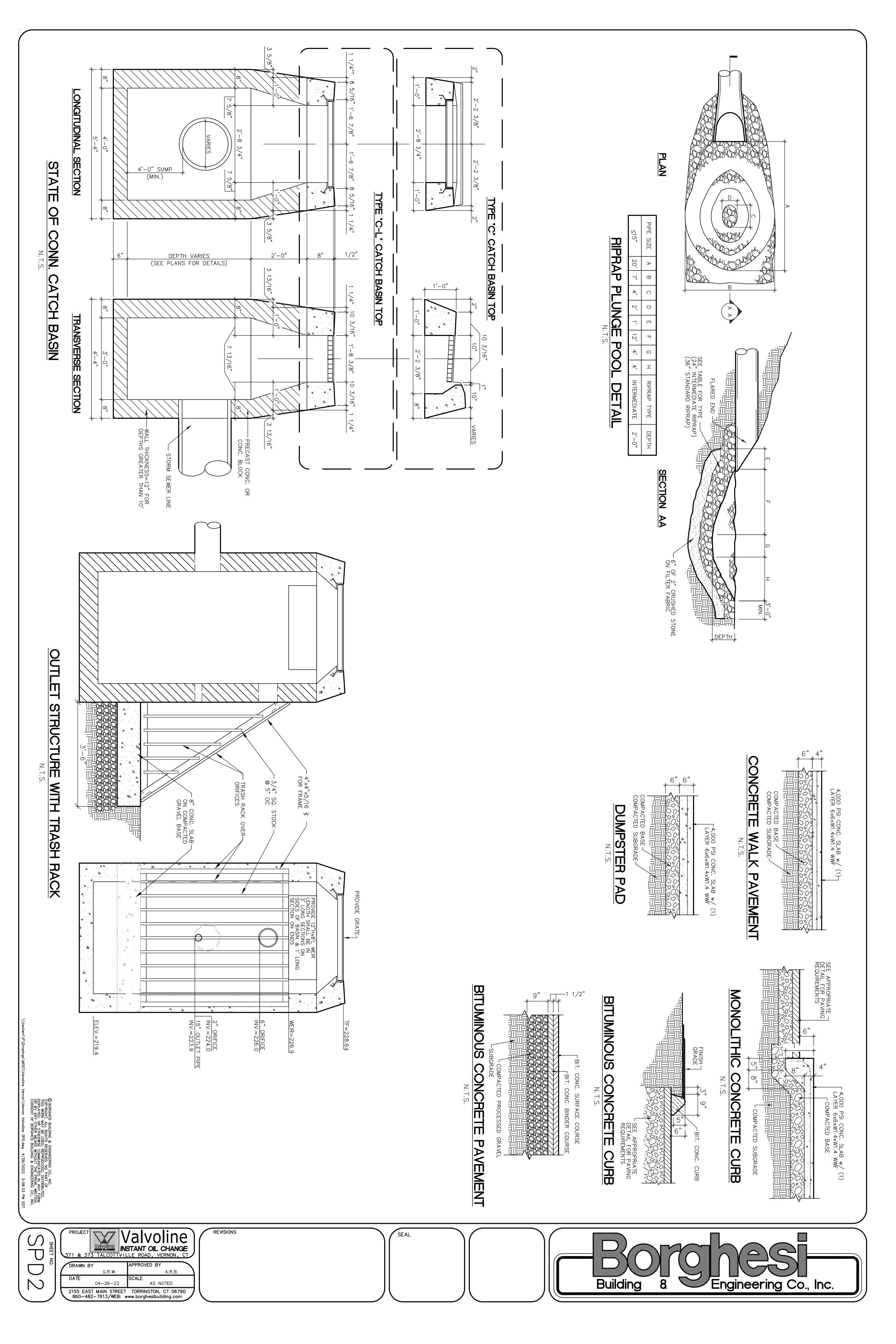
SCARIFY SURFACE OF ALL AREAS TO BE TOPSOILED; PLACE A MINIMUM OF 4" TOPSOIL ON ALL AREAS TO BE SEEDED.

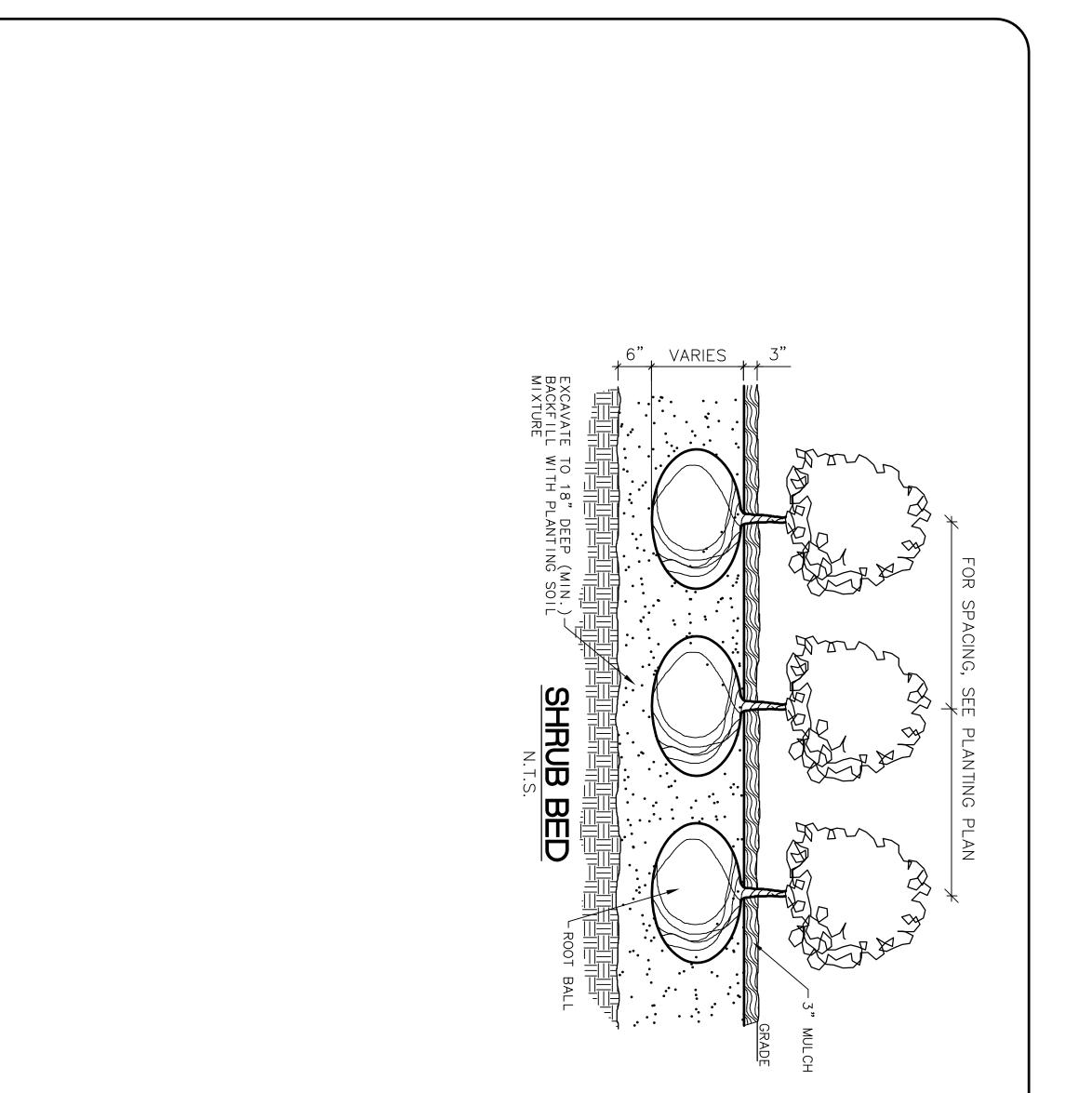
FERTILIZE AT THE FOLLOWING RATES:

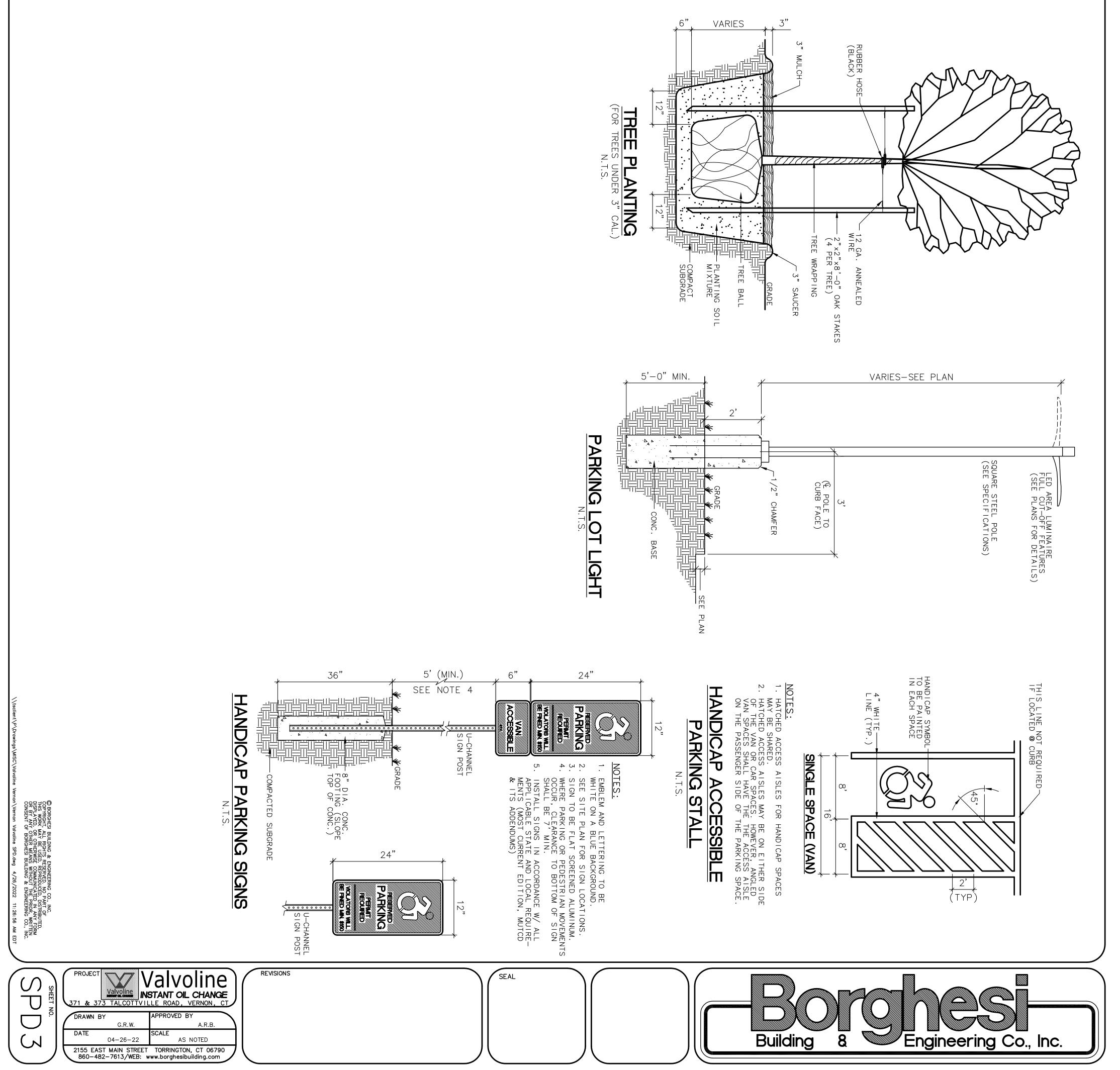
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4. N TORMWATER OPERATIONS 0









Hesketh

Civil & Traffic Engineers • Surveyors • Planners • Landscape Architects



F. A. Hesketh & Associates, Inc.

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

3 Creamery Brook • East Granby, CT 06026 shesketh@fahesketh.com

Tel 860.653.8000 • Fax 860.844.8600 www.fahesketh.com Nr. Alan Borghesi May 9, 2022 Page 2

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 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

Mr. Alan Borghesi May 9, 2022 Page 3

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 and combined traffic volume and combined traffic volume and Saturday peak hours.

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 & Associa Scott F. Hesketh, P Manager of Transport

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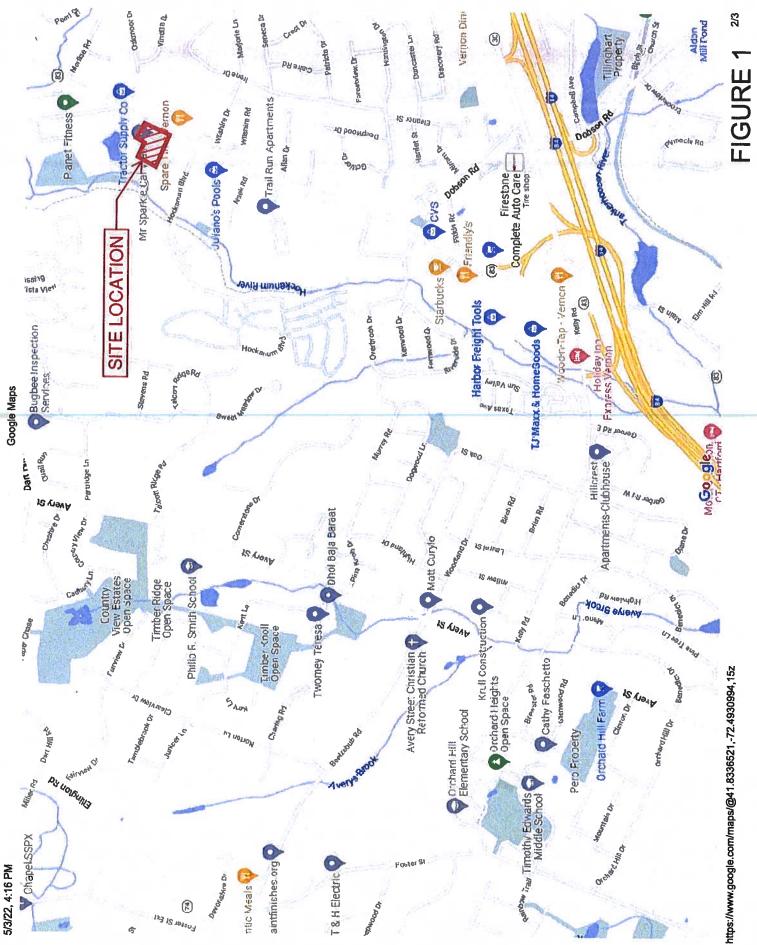
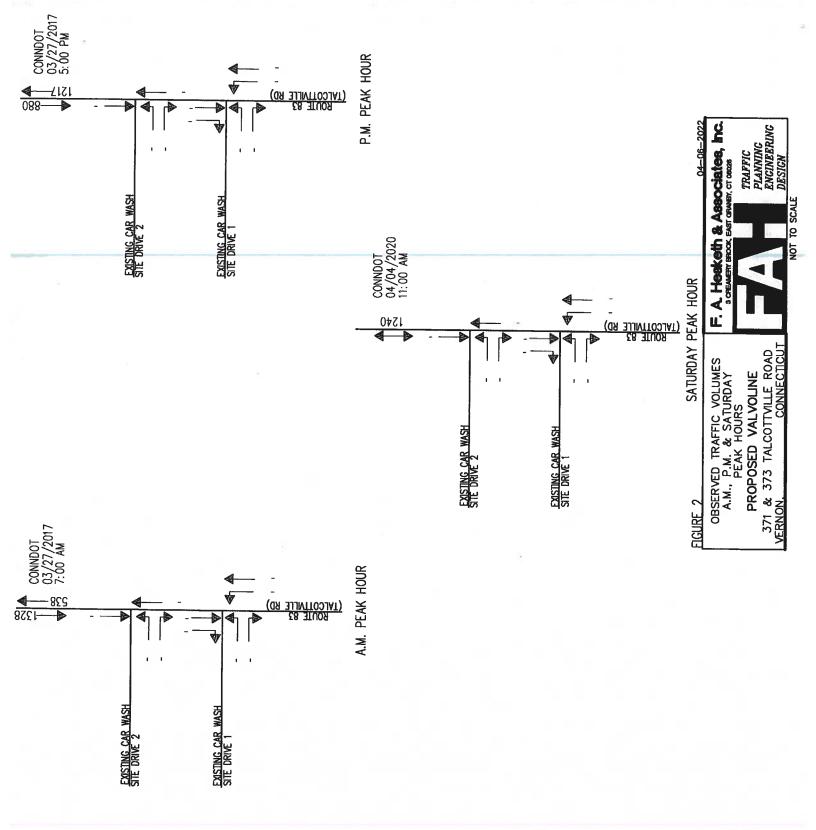


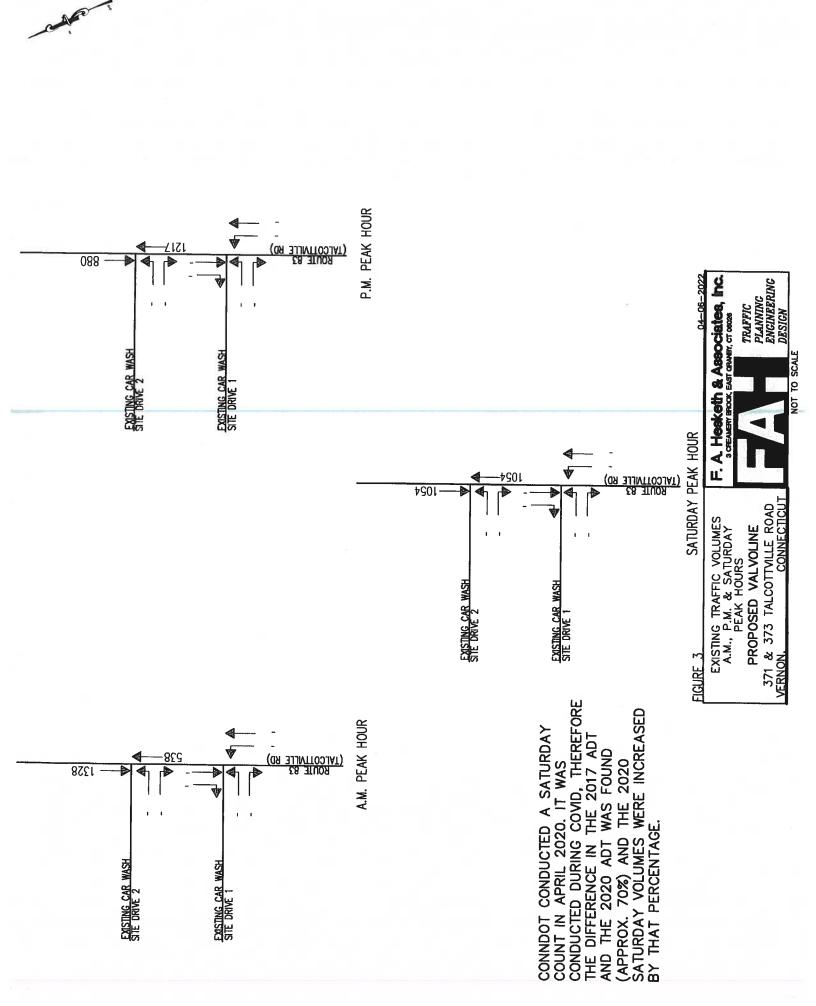
TABLE 1 ConnDOT TRAFFIC VOLUMES Route 83 south of Dart Hill Road STATION NO. 45

		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	538	1328	1866				
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	1217	880	2097				
6:00	930	744	1674		<u> </u>		
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	

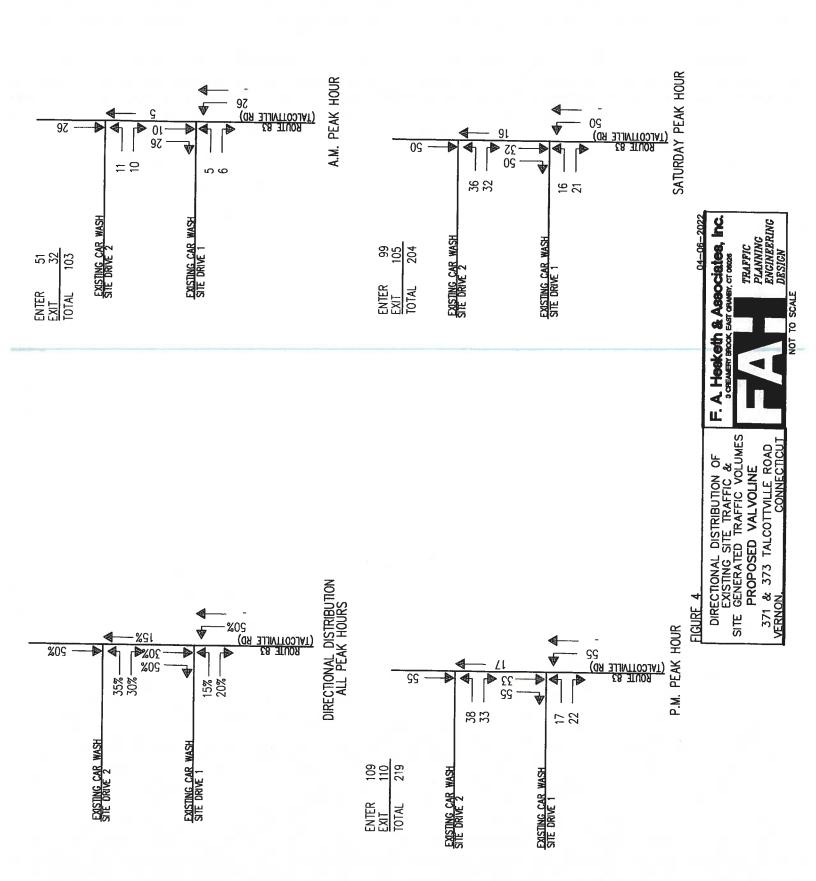
2017 ADT = 24,300 for station 45 in Vernon







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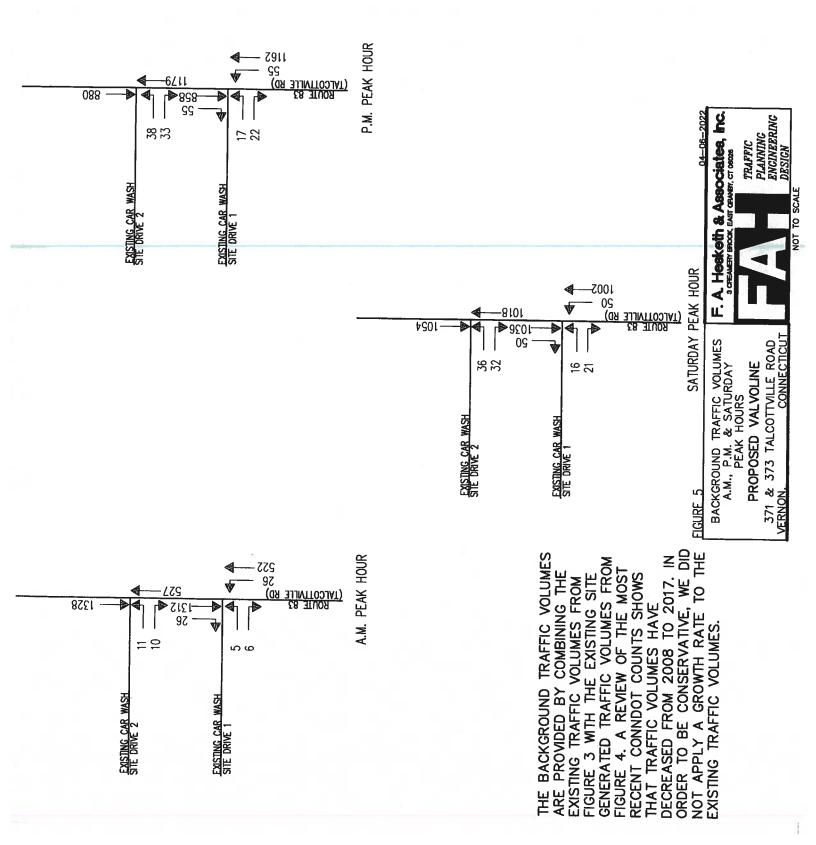


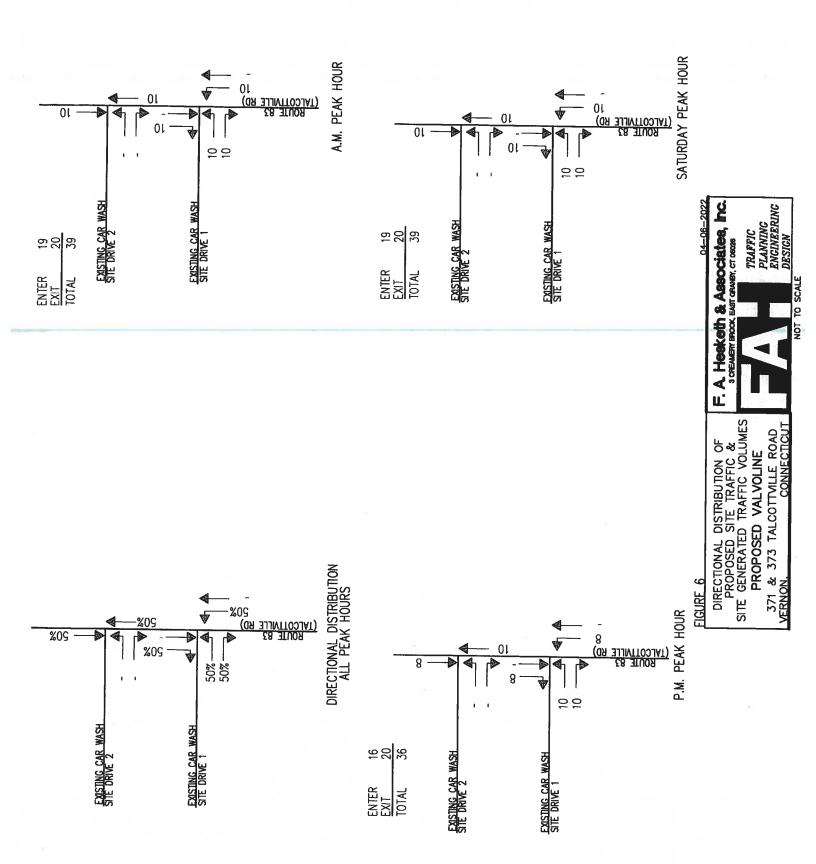
Table 2

Trip Generation Summary Proposed Car Wash & Quick Lubrication Vehicle Shop

371-373 Talcottville Road Vernon, CT

Total	82	122	204	39	14	243
		-	7	24		Ñ
SAT. Peak Hour Exit	44	61	105	20	80	125
Enter	38	61	66	19	9	118
Saturday ADT	1	1062	•	3	126	*
Hour Total	155	64	219	36	14	255
P.M. Peak Hour Exit To	78	32	110	20	9	130
Enter	11	32	109	16	80	125
t Hour Total	39	2	103	39	12	142
A.M. Peak Hour Exit To	20	12	32	20	9	52
Enter	19	32	51	19	9	8
Weekday ADT		864	a.	267	120	
Size	2 Tunnels	8 Wash Stalls	Combined	**3,844 s.f.	3 Servicing Positions	"Total
	Automated Car Wash*	Self-Service Car Wash		Quick Lubrication Vehicle Shop	m	
Land Use	Existing			Proposed Q		

*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. _ _ *Existing car wash plus oil change center.



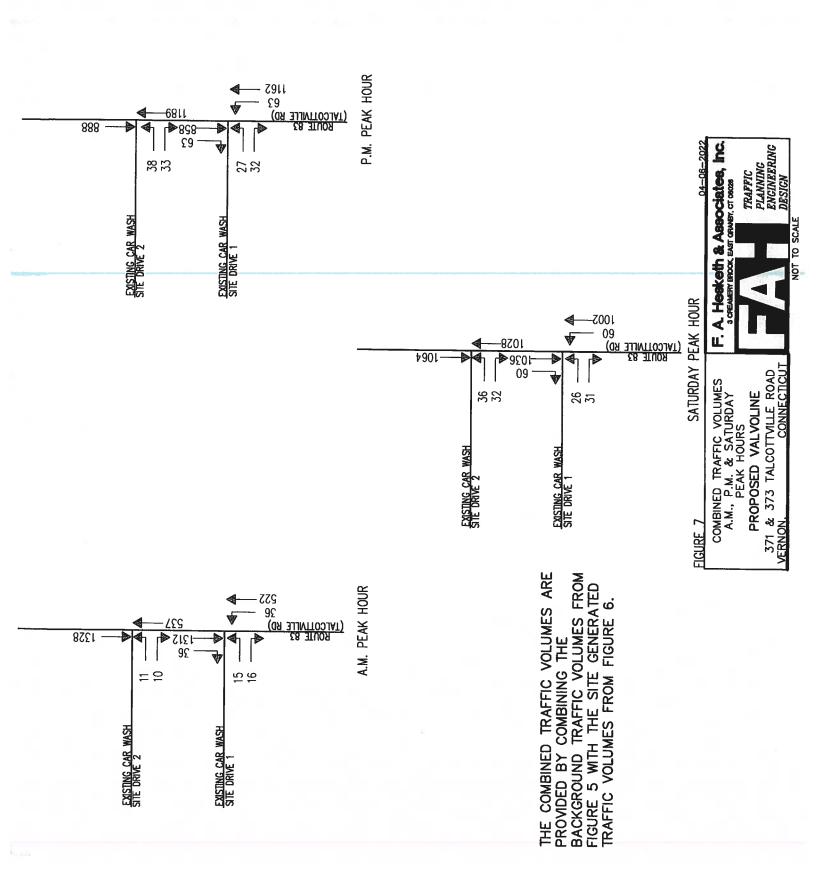


Table 3 Level of Service Summary Valvoline 371 & 373 Talcofttville Road Vernon, CT

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Queue 5 000 ი ე 00 **Combined Traffic** 0.54 0.11 0.32 0.44 0.48 0.08 0.33 0.34 읫 delay 68.8 85.2 13.5 12.0 0.0 0.0 Saturday Peak Hour <u>P</u>S LL. <u>ه م م</u> шo < < Queue 64 o <u>ب</u> **∞** o o 00 **Background Traffic** 0.09 0.32 0.44 0.47 0.08 0.33 0.32 읫 delay 46.2 82.0 13.4 11.7 0.0 LOS ш **20 < <** ഥന < < Queue 55 \$ v **∞** 0 0 00 Combined Traffic 0.48 0.10 0.37 0.37 0.43 0.38 0.28 낏 delay 68.8 12.3 54.1 10.8 0.0 0.0 P.M. Peak Hour LOS u. **6 4 4** ഥമ < < Queue 38 4 v ~ 0 0 00 **Background Traffic** 0.29 0.09 0.37 0.37 0.42 0.38 0.28 읫 39.6 <u>delav</u> 66.8 12.2 10.7 0.0 <u>Los</u> **م م** ш шo ح م Queue ₽ 0 28 ~ 0 0 00 **Combined Traffic** 0.30 0.09 0.17 0.56 0.15 0.03 0.17 0.42 읫 50.2 58.9 15.0 <u>delay</u> 13.6 0.0 0.0 A.M. Peak Hour Background Traffic **LOS** ւ 00 < < μU < < Queue × 2 2 600 Q 00 0.09 0.06 0.17 0.56 0.15 0.03 0.17 0.42 읫 delav 35.2 13.3 0.0 58.3 15.0 0.0 LOS ш **∞ < <** щΟ ح م Route 83 & Site Drive 2 Route 83 & Site Drive 1 Left Right <u>Time Period</u> 8 띱 ß ۹ 88 8

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umd Use: Quick Luthtadion Vehicle Shop (941) <u>Click (or</u> Description and Date Plots

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DATA STATISTICS

Caution - Smail Sample Size

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	Data Plot and Equation
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iTETupGen Web ensee App

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941 - Quick Lubrication Vehicle Shop

LAND USE :

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> DEPENDENT VARIABLE (M): General Urban/Suburban LAND USE SUBCATEGORY Servicing Positions SETTING LOCATION: ILE PENDO: Saturday AL Stat THE THE Vehicle

2 X = Number of Servicing Positions ø 4 ~ 8 sbn3 qhT = T

n. of Servicing Position

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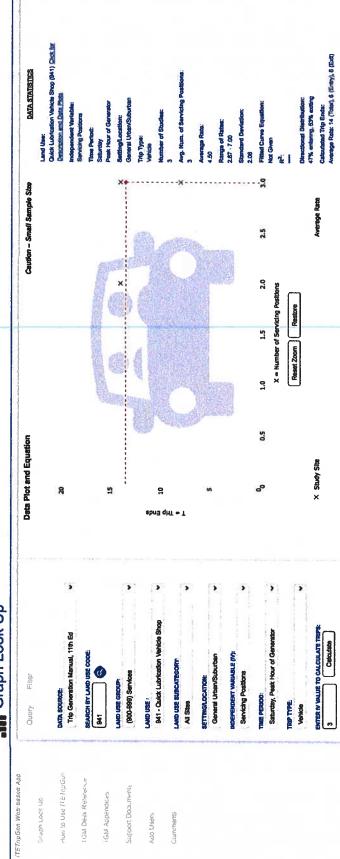
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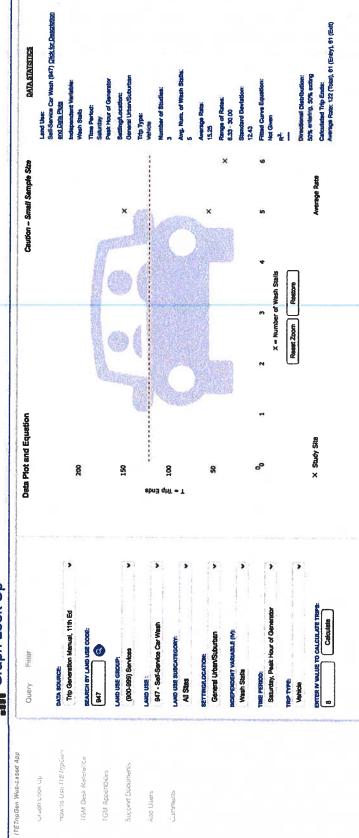
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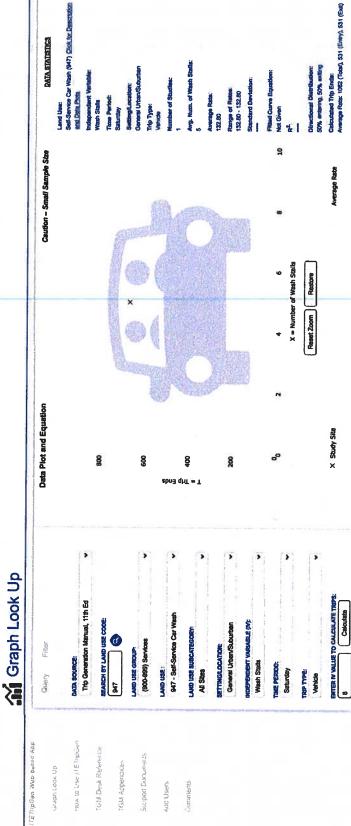
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SYNCHRO Capacity Analysis Worksheets

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rcent Blockage		L BALEY A	the United States	65.81.10 .1581.				1912120
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ume Right	0	11	0	0	0	0	and the second	1205 100
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ume to Capacity	0.15	0.03	0.17	0.17	0.42	0.42	Self-Warman and and and and	
ue Length 95th (ft)	13	2	0	0	0	0		last
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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y		٦	† †	† ‡	and an exist how	
Traffic Volume (veh/h)	5	6	26	522	1312	26	
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Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	State Car
Hourly flow rate (vph)	5	7	28	567	1426	28	Base of the last
Pedestrians		THE COLOR	San Sa		all an an	N. CARL	C G C AL
Lane Width (ft)					and in successful where	- and an approximately	and another
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Percent Blockage						1240 52 1022	Conception and the
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Upstream signal (ft)		distant de la companya de la compa	N. L. Stor Still	and accesso			
pX, platoon unblocked	The State		101234	199			S. Martin S. S.
vC, conflicting volume	1780	727	1454	STATE OF A	the second second	Es Weiner and	PARA CALLER
vC1, stage 1 conf vol			Config allo	190	1. 199	The second	Ser.
vC2, stage 2 conf vol			bild arthrough				Martin Street, o
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tC, single (s)	6.8	6.9	4.1		AND POLY DOLLA	AND	
tC, 2 stage (s)	Section 21	ALC: NA	Webs - Alan	Contraction (and the second
tF (s)	3.5	3.3	2.2		and the second second second		ERIONOUSESIST
p0 queue free %	93	98	94		5 . C. C.		T. Tenter al
cM capacity (veh/h)	69	366	461			And the second second	
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SATS STR
Volume Total	12	28	284	284	951	503	
Volume Left	5	28	0	0	0	0	
Volume Right	7	0	0	0	0	28	in the second
cSH	131	461	1700	1700	1700	1700	No. Contraction
Volume to Capacity	0.09	0.06	0.17	0.17	0.56	0.30	15-17 Taple
Queue Length 95th (ft)	7	5	0	0	0.00	0.00	
Control Delay (s)	35.2	13.3	0.0	0.0	0.0	0.0	NOLE REALLS
Lane LOS	E	B	0.0	0.0	0.0	0.0	A COM
Approach Delay (s)	35.2	0.6	11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	10121012	0.0		LEXCOLODY
Approach LOS	E	0.0	M. P. C.	ALC: NOT	0.0	S. S. S. S.	Truckers.
ntersection Summary							
Average Delay			0,4	an and a state of the		-	
Intersection Capacity Utilizati	ion	AL PARTY				6 Oamla	
Analysis Period (min)			47.1%	IC.	U Level o	DI SELVICE	
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Movement	EBL	EBR	NBL	NBT	SBT	SBR	S. CONSIL	
Lane Configurations	۲.	1		† †	11			944 (I)
Traffic Volume (veh/h)	38	33	0	1179	880	0	1241 S. 1. 45	NE STOR
Future Volume (Veh/h)	38	33	0	1179	880	0	A LANGE A SUM	
Sign Control	Stop			Free	Free		In Real Providence	abilitations
Grade	0%			0%	0%			194 - SAV
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	Constanting	- Suco
Hourly flow rate (vph)	41	36	0	1282	957	0		
Pedestrians	and the smil	1		SECONDE.	Territo Piso	S STATES		1.125
Lane Width (ft)		we have been					ANS MALE DESI	MAR NO
Walking Speed (ft/s)	स्था देखें के प्रियंत क स्थानिक स्थितिक			42 101	Section 2	A TANK THE	-03-550	Contra .
Percent Blockage	Contraction of the Contraction o			Curris Cost Cost and Co	ALC: N.C. SHE			REAL PARTY
Right turn flare (veh)			S. Status		Contra a		Share the s	
Median type				None	None		Consequencies of the second	and a
Median storage veh)				Detroit Bert	5039 ¹⁹ 7		S PAR	P - S
Upstream signal (ft)		a de role i de r		Constant Calmina	Concerned works	en de regeleres s		1.221
pX, platoon unblocked	A. S. S. S.		24.574	1915	185.28			
vC, conflicting volume	1598	478	957		New Assessment Street	CALCULATING OF STREET,		
vC1, stage 1 conf vol	and services in		P. GER A	5-0,30 - 11		The second		P
vC2, stage 2 conf vol	24;70(1/2/04/04/04/04/04/04	nor Libe Sub-sport			Plei Alterativa	House a service of the	and a star of the	NA.
vCu, unblocked vol	1598	478	957		No. 1 Con		N ICH	145
tC, single (s)	6.8	6.9	4.1	a sala kasala				1
C, 2 stage (s)						the starter	ALS ALS	1.7
F (s)	3.5	3.3	2.2		ACCUMULT FORM			
00 queue free %	58	93	100	Streets			and the	13
cM capacity (veh/h)	97	533	714					ALMAN S
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2	1	-
Volume Total	41	36	641	641	478	478		-
Volume Left	41	0	0	0	0	0	16,570,327	8.3
Volume Right	0	36	0	0	0	0		
SH	97	533	1700	1700	1700	1700	XOS OFFIC	
Volume to Capacity	0.42	0.07	0.38	0.38	0.28	0.28		84
Queue Length 95th (ft)	44	5	0.00	0.00	0.20	0.20	A LANGER	53
Control Delay (s)	66.8	12.2	0.0	0.0	0.0	0.0		145
ane LOS	F	B	0.0	0.0	0.0	0.0	1000 445	
Approach Delay (s)	41.3		0.0		0.0		COLDINE POR	
Approach LOS	41.5 E	2 1 1 19	0.0		0.0	A. C. S.	a galas	147
ntersection Summary		a state of the	No de La Cal					195
Average Delay			1.4	en gan	(Assession)	COLUMN AND	1988 - 1999	57.0
ntersection Capacity Utilizat	tion	1000 ACT 1000	42.6%	IC	U Level o	f Service		
Analysis Period (min)		VAL SELS	15	1000	C LGAGI U			125

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		h	1	† ‡	OBIT
Traffic Volume (veh/h)	17	22	55	1162	858	55
Future Volume (Veh/h)	17	22	55	1162	858	55
Sign Control	Stop	SNIME TO STATE	and the second second	Free	Free	In Bloch
Grade	0%		WE TEST SAVE	0%	0%	100000000000000000000000000000000000000
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		S. COM	GENERAL SUR	1200		
Lane Width (ft)	and a state of the state	and the second se				Set 199712 6
Walking Speed (ft/s)	NON STREET	States and	(Bala)	19 2 G	1.	10. A. 1 1
Percent Blockage	VALAGES AND SHE					
Right turn flare (veh)	A STAN LES	SALES STREET	and the	THE STORE	Will Colors	
Median type			Tes parte la	None	None	Steril South
Median storage veh)	Constant State	145N 20	S. Start	TIONO	THOMS	MARGANES!
Upstream signal (ft)	A CONTRACTOR OF				ale same a	and the second
pX, platoon unblocked			7	2/n - 2/6-1	0000000000	No. Service
vC, conflicting volume	1714	496	993	in the second	A COLUMN TO A COLUMN	
vC1, stage 1 conf vol		100	000		108 4 15 6	1244.04
vC2, stage 2 conf vol		1111	her in the	201 720 J 11 11 1		
vCu, unblocked vol	1714	496	993	and the second	and an end	
tC, single (s)	6.8	6.9	4.1		2313939310	
tC, 2 stage (s)	CHOICE STORE	0.0	A JONE	State P	VERSEALT	Non Contractor
tF (s)	3.5	3.3	2.2		1999 B	2. 42.9°29 - 49.
p0 queue free %	76	95	91	1110000000	a martin	Sale and the second
cM capacity (veh/h)	74	519	692	1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -		
		and the second second				
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	Ő
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	, Ε	В			1 Halas	
Approach Delay (s)	39.6	0.5			0.0	
Approach LOS	E	CALCER SEP		the states		
Intersection Summary						
Average Delay	State State	15.185.10	1.0	CARSE GI	C.F. Standard	
Intersection Capacity Utiliza	ation		42.1%	IC	U Level o	of Service
Analysis Period (min)			15	19003112		COLUCS
and a strong thinking	Contraction of the second	1210 10-17-	IV	and the second		

	٦	*	-	1	Ļ	1	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		ĥ	11	41		
Traffic Volume (veh/h)	16	21	50	1002	1036	50	16 Par
Future Volume (Veh/h)	16	21	50	1002	1036	50	The sales
Sign Control	Stop		Property and	Free	Free		19280
Grade	0%			0%	0%	and the second second	
Peak Hour Faotor	0.92	0.92	0.92	0.92	0.92	0.92	10,010
Hourly flow rate (vph)	17	23	54	1089	1126	54	and the second second
Pedestrians		105 4040	CARLON-PA	1000	THE	No. No. No.	A. M.
Lane Width (ft)		1100			Construction of the local		A State State State
Walking Speed (ft/s)					- 18 A		
Percent Blockage		ALC: A TOMAL		HILLAN COLOR	10.0520-002		CESSES NO.
Right turn flare (veh)		al a ser	The steel	States and			N. C. MALSON
Median type		Second Second		None	None		
Median storage veh)	and the set	ale top	and the second	ASA NO	None		ALC: SAL
Upstream signal (ft)		NU CONSTRUCTO	and Balling and	A WE WEIGHT	Serie de maine		Sets (Church)
pX, platoon unblocked	1		Sec. March	1.151	the Section		
vC, conflicting volume	1806	590	1180		A DAMAGE AN		
vC1, stage 1 conf vol			ALC: NO			1.00	Martin W
vC2, stage 2 conf vol		A BULLET	No. and at Course of the	ALL ALL Y STEPHA	and the second states		and the state
vCu, unblocked vol	1806	590	1180		- Contractor		-
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)		DATE SUP	STOLENSS!	The second		A PULL A PULL	- ANALAS
tF (s)	3.5	3.3	2.2		an al sena "A		
p0 queue free %	73	95	91	in the second second	Melliness		(1) (1)
cM capacity (veh/h)	64	451	588	ENTER OT CO			and sold of the
A						-	
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	- Y - Jan
Volume Total	40	54	544	544	751	429	
Volume Left	17	54	0	0	0	0	The state
Volume Right	23	0	0	0	0	54	
¢SH	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	В	Sec. 24. 19			S. Astorney	C ALGAN
Approach Delay (s)	46.2	0.6			0.0		
Approach LOS	E	The Party				1 Kean and	
Intersection Summary							Station .
Average Delay			1.0				
Intersection Capacity Utiliza	tion		46.9%	IC	U Level o	f Service	
Analysis Period (min)			15	1033000	E AN CASE	CISCO No. 1	

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	٦,	7	and the state of the	† †	† †	
Traffic Volume (veh/h)	36	32	0	1018	1054	0
Future Volume (Veh/h)	36	32	0	1018	1054	0
Sign Control	Stop	and the second second	and the second second	Free	Free	Value and the
Grade	0%	1.1-0.000.0001.0	ALVARUE STEPHEN	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		ALC: NO.	S 86 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	S. Maria	General State
Lane Width (ft)	CONTRACTOR OF THE REAL			A CASA AND		
Walking Speed (ft/s)			A.S.S.O	5 2.5		R. Bulle Bar
Percent Blockage	- ALAR CARDING		C. C	Service Internet Streets	and the second	AND STATES AND
Right turn flare (veh)		1.		10	a der auser	12 . A
Median type			A	None	None	
Median storage veh)	Contraction of the second			100 100		an and a straight
Upstream signal (ft)		ELOWER DE RECE	UNP DE MET DE		CH MATCHING	
pX, platoon unblocked			10.111.00			
vC, conflicting volume	1700	573	1146	812 215 COAL, N.I		and the second
vC1, stage 1 conf vol	WHAT DO SE	133 1.24	DATES		1 4 78	
vC2, stage 2 conf vol	CAL DAY OF AN	1000000000			And the second second	All and a state of the
vCu, unblocked vol	1700	573	1146			in the second
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	2 a 2		E Bard		AU 13/1-1	
tF (s)	3.5	3.3	2.2	· · ·		ALS - Sector and a life of a
p0 queue free %	53	92	100	IT S A MARK		S. Constant
cM capacity (veh/h)	83	463	605			UNDER STREET
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	39	35	554	the state of the s	and the second se	and the second se
Volume Left	39	0	0	554	573	573
Volume Right	0	35	ALC: NO BOARD	0	0	0
cSH	83	463	0	0	0	0
Volume to Capacity	CONTRACTOR OF A	and the state of the second	1700	1700	1700	1700
Queue Length 95th (ft)	0.47 49	0.08	0.33	0.33	0.34	0.34
	and the second	6	0	0	0	0
Control Delay (s)	82.0	13.4	0.0	0.0	0.0	0.0
Lane LOS	F	В	0.0	in the second		
Approach Delay (s)	49.5	3	0.0	Contract of the second	0.0	
Approach LOS	E	25123	CAL SHE	No section of the	W. Sec.	
ntersection Summary			SPAN.			
Average Delay		1125	1.6		al and a second	
Intersection Capacity Utilization	tion		39.1%	IC	U Level o	f Service
Analysis Period (mln)		Sec. Sec.	15	an same in	ALC: NO	

	هر	\mathbf{r}	1	1	Ļ	1		
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations	ሻ	7		† †	<u>†</u> †	an an air fin fan an a		
Traffic Volume (veh/h)	11	10	0	537	1328	0		
Future Volume (Veh/h)	11	10	0	537	1328	0	and the second se	
Sign Control	Stop	and the state	and the second	Free	Free		Shi ka shi ka shi	
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	10	1-1-1-1	A MAR		Call Street	STRUCTURE NO.		
Lane Width (ft)					N-CLASS CONTRACTOR	and share you share		
Walking Speed (ft/s)		111 3 4			The second second			
Percent Blockage			and the second sec	and the second second				
Right turn flare (veh)	8. P. S. F. P.	Sec. 1						
Median type				None	None		AND IN CONTRACTOR OF A DECISION OF A DECISIONO OF	
Median storage veh)	A STAR			ASPIE S				
Upstream signal (ft)	Contract days			and the local dates of				
pX, platoon unblocked	And Starten		Star Line	the state		Series Stalso		
vC, conflicting volume	1735	722	1443		COLOR STOL			
vC1, stage 1 conf vol	1	1000	Carl Gilling	ALC: NO	S. CARLON S.	a a marking	CONTRACTOR OF THE	ALL CONTRACTOR STATES
vC2, stage 2 conf vol		operation with the	A REAL PROPERTY AND A		CAUSIN DUSAS			
/Cu, unblocked vol	1735	722	1443	and the state		S. Marine Marine		
C, single (s)	6.8	6.9	4.1					
C, 2 stage (s)	Kathird I.	स्ति विशिध	10,186	Santa Santas	1 States			
F (s)	3.5	3.3	2.2	Colone 198 Acres				
00 queue free %	85	97	100	S. S. S. S.	Ship To			
cM capacity (veh/h)	79	369	466	801 BC 01327 PD	1297 D. 10 Sec.			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2		
Volume Total	12	11	292	292	722	722		
/olume Left	12	0	0	0	0	0		
Volume Right	0	11	0	0	0	0		
SH	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	0.17	0.17	0.42	0.42		
Control Delay (s)	58.9	15.0	0.0	0.0	0.0	0.0		
ane LOS	50.5 F	C	0.0	0.0	0.0	0.0		
Approach Delay (s)	37.9	J	0.0		0.0			
Approach LOS	E	AND TO AN	0.0		0.0	A Carlo		a and a second second second
ntersection Summary								
Average Delay	N. S. S.		0.4	1008323 A	SVIE SER		Gillen and Shire and	and the second
ntersection Capacity Utilizati	on		46.7%	IC	U Level o	of Service	A	
Analysis Period (min)	1. Steller	122.64%	15				ALL STREET	

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Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	Y		¥.	† †	↑ ₽	and the second			
Traffic Volume (veh/h)	15	16	36	522	1312	36	NIN LESSING & D		
Future Volume (Veh/h)	15	16	36	522	1312	36			State She deside
Sign Control	Stop	Segle Will	all the second	Free	Free		Personal Property in	di Martina da P	States and
Grade	0%			0%	0%		A CARD & ROOM		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	2.11年1月1日日日	11-131 W123	
Hourly flow rate (vph)	16	17	39	567	1426	39			A CONTRACTOR OF CASE
Pedestrians		SAME	No. Constant	SARA LES	and the	STATISTICS OF C	THE REAL STREET	18. 18 MA	Ca. Network
Lane Width (ft)			a ha Contain				an a	Contraction of the second	
Walking Speed (ft/s)	11-15-1	S. Local	m 11. 19. 5	1047-04				Stational Station	
Percent Blockage				C POWER CONTRACT					
Right turn flare (veh)	3-241				a second of	State State		Frank Start In	AN SALES
Median type	Contraction of the second	A DICK OF TO L		None	None				
Vedian storage veh)	R. AN		and the second		Eller P.A.	and the last			
Jpstream signal (ft)	Sector freque	oceano pares a	and the second se						
X, platoon unblocked	ALC: NO		1325326	a same Pice	Second-	A STATE OF STATE	NATIONAL TYPE		
C, conflicting volume	1807	732	1465	21.1123.221			EN DE DE RELETE	A SHOTTER 2	
/C1, stage 1 conf vol	R Hans				18-1-10-10-10-10-10-10-10-10-10-10-10-10-1			SV-SUPAL TO	177. Sec. 195. 19
C2, stage 2 conf vol		and the second second		And Indiana	- and a state of				A GUINT To for
Cu, unblocked vol	1807	732	1465	and the set	(Press)		and the second states	1010 (1010) A	A MANAGER
C, single (s)	6.8	6.9	4.1						C R AND AND A
C, 2 stage (s)		1.1.1.1.1.1		STATISTICS	CE SER CAR	Seren and the	A PORTA DO	STORA NO.	
= (s)	3.5	3.3	2.2						Sector Rectification
0 queue free %	75	95	91	Service State			Les ren mark		
M capacity (veh/h)	64	363	457		290408.2			A MARKAGE U.S.	AND A DECK
Direction, Lane #	EB 1	NB 1		NID O	004	00.0	Westman Prove	No. Contraction	24 Th Local Designation of the
folume Total	Statistical diversity of the local diversity	and the second se	NB 2	NB 3	6B 1	SB 2			
/olume Left	33 16	39	284	284	951	514		Contractor in the second	
/olume Right		39	0	0	0	0		3 F. S. (200)	
SH	17 112	0	0	0	0	39	AND DESCRIPTION OF THE OWNER		
olume to Capacity	and the second second second	457	1700	1700	1700	1700			4999 - E (Q))
	0.30	0.09	0.17	0.17	0.56	0.30	and the second	en la company	
Queue Length 95th (ft)	28	7	0	0	0	0	的是他是代码		
Control Delay (s)	50.2	13.6	0.0	0.0	0.0	0.0	Child another of the	and the second second	
ane LOS	F	B	行行相当法		SCHOOL ST	Sec. 20 Miles	10000		
pproach Delay (s)	50.2	0.9			0.0				
Approach LOS	F				1999 B.V.	and and the set			
ntersection Summary							We can be a set		S. S. S. S.
Average Delay		13.23.3	1.0		See As a Se	ASA PAR	a start and a start and a start		10 200
ntersection Capacity Utilization			47.4%	IC	U Level o	f Service		A	
Analysis Period (min)	n - 62 -	2 + Jerry	15	M. C. Star		Harris Carl	SAVE STOR	an a	

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	٢	1	and a second second	**	^	
Traffic Volume (veh/h)	38	33	0	1189	888	0
Future Volume (Veh/h)	38	33	0	1189	888	0
Sign Control	Stop	WE STORE		Free	Free	
Grade	0%			0%	0%	an ann an San
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	Ser. 1.35 (2)	N. E. S. P.	1000			Section States
Lane Width (ft)	energi nerganin gev	overstrone sites	CALL AND A REAL OF	COLUMN STREET		an is provide the
Walking Speed (ft/s)	AF SULAS			1	The last state	N.Y. H. Park
Percent Blockage	State of the second street in	Notes Calification and	A 10 10 10 10 10 10 10 10 10 10 10 10 10		E-A ATA TANK	CHI COLLEGICATION
Right turn flare (veh)	C.S. MORES	21. 400			STR. SHIT	
Median type		and the Provident	and the state	None	None	
Median storage veh)	See all and		1.55 . S	110110	110/10	100.1.3
Upstream signal (ft)	and the second second second	COMPACTING AND		18 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	一般的政治的思想	
pX, platoon unblocked	av saložubeo	UT THE ME	Section.	Contractor	100000	
vC, conflicting volume	1611	482	965		and section of the	
vC1, stage 1 conf vol	STANDARD					Salie Solo a
vC2, stage 2 conf vol	HORSEN THE MORE THAT IS NOT	and the second second				HE CLOCKER STOP
vCu, unblocked vol	1611	482	965	KARINE SHE		
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)			With State		(1.05/p.15)	Sale in the
tF (s)	3.5	3.3	2.2	a patient	and a second second	
p0 queue free %	57	93	100		and a second	
cM capacity (veh/h)	95	530	709			69 (M20) (SM6252)
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	CB 4	00.0
Volume Total	41	36	646	The second se	SB 1	SB 2
Volume Left	41	in the second	a loss of the second second	646	482	482
Volume Right	41	0 36	0	0	0	0
cSH	95	530	0	0	0	0
Volume to Capacity	0.43		1700	1700	1700	1700
Queue Length 95th (ft)		0.07	0.38	0.38	0.28	0.28
Control Delay (s)	45	5	0	0	0	0
	68.8	12.3	0.0	0.0	0.0	0.0
Lane LOS	F	В	Ste Wester	2112 2015	2	
Approach Delay (s)	42.4		0.0		0.0	and the second second
Approach LOS	E	COS ST DE		1940		and the second s
ntersection Summary					South State	2.616-54
Average Delay	Sec. 16	12-11.5	1.4	BALS N		
ntersection Capacity Utiliza	ation		42.9%	IC	U Level o	of Service
Analysis Period (min)	a series and		15	12 20 20		

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Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations	¥		7	^	朴			
Traffic Volume (veh/h)	27	32	63	1162	858	63		
Future Volume (Veh/h)	27	32	63	1162	858	63		
Sign Control	Stop	S. Strandh	Sauger Sal	Free	Free		and the second second	
Grade	0%		294.07232.17232	0%	0%			A MARK BY SOLD STORE
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
lourly flow rate (vph)	29	35	68	1263	933	68		
Pedestrians		a fill	NER CHI	- TALLACE		CAL INTERNATION		
ane Width (ft)	and an							
Walking Speed (ft/s)	Star Stall		1000	e en				
Percent Blockage	the second starts		the other of the dist	10000000000		and the second second second		
Right turn flare (veh)	ENGINESS	NA BAN			1.		Array Array and	
Aedian type	AND AND A DECK			None	None			
Aedian storage veh)	Star and	15 1 10	Sale free	TONG	TIONE			
Jpstream signal (ft)	A CONCIDENT	and the second		CAR SUNC	Contraction of		IL BOOM STREET,	and the second second
X, platoon unblocked			Set 1 martin	3-16-20.0				
C, conflicting volume	1734	500	1001	Charles and	10. 1. AND 10. 1			A STATE OF STATE
C1, stage 1 conf vol	Control in	000	1001	and the second	(573)-173 (Sec.)	CONTRACTOR -		
C2, stage 2 conf vol		an o se o se	Studio, nu la		and the second second			A STATE OF A STATE OF
Cu, unblocked vol	1734	500	1001	NAMES OF THE		1. A.S		STATISTICS AND
C, single (s)	6.8	6.9	4.1		and the second se			
C, 2 stage (s)	5.0	0.0	-T. I	distantin f	A.C.S.			
(S)	3.5	3.3	2.2	CUIL 2 LEE		CONTRACTOR OF		
0 queue free %	59	98	90	1.4.27		TER CONTRACT		
M capacity (veh/h)	71	516	687	刘章公臣《田 》。	120124-02122	all share and share a		
and a state of the second s		CTUT - THE MAN						
rection, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2		
olume Total	64	68	632	632	622	379		
olume Left	29	68	0	0	0	0		1
olume Right	35	0	0	0	0	68		
SH	134	687	1700	1700	1700	1700	a shirt of a second	and South Road St.
olume to Capacity	0.48	0.10	0.37	0.37	0.37	0.22		
ueue Length 95th (ft)	55	8	0	0	0	0		a state of the second
ontrol Delay (s)	54.1	10.8	0.0	0.0	0.0	0.0		
ane LOS	F	В			and shares sh	States and the	Service and service	and the second
pproach Delay (s)	54.1	0.6			0.0			
pproach LOS	awa F ila		and the second			in a star	Section Section	al and the faile
tersection Summary								
verage Delay		ALL STORE	1.8	Starter 1		A CARLENSE		Section and the section of the secti
tersection Capacity Utilization	1		42.7%	IC	U Level o	f Service		Α
nalysis Period (min)	Stell Long	1.11号	15	1.8.13	Maria Maria	C. C. WARTER		

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	٣	7	Arriver.	**	† †	
Traffic Volume (veh/h)	36	32	0	1028	1064	0
Future Volume (Veh/h)	36	32	0	1028	1064	0
Sign Control	Stop	Western		Free	Free	
Grade	0%	and Southern		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	Survey and	See Story		and the	-X 20.720	
Lane Width (ft)		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				NHANGSON BARANCE
Walking Speed (ft/s)	all and the			REAR	No. 1923	
Percent Blockage	1004 200		Carrier and a construction of the	A MORE AND A MORE AND A	Standard X.	
Right turn flare (veh)	West of a con	216 - S-65 (36)		Sec. No.	in a star	
Median type				None	None	
Median storage veh)		SEN US FUE	Charles .		Tione	a service of
Upstream signal (ft)	A STOLEN OF A STOLEN OF					
pX, platoon unblocked	a) the second	1.1		S. ST. LUNC	2515.23	
vC, conflicting volume	1716	578	1157	Second Second		
vC1, stage 1 conf vol		NE COR	ESTERATION AND	Seale South	and the second	1
vC2, stage 2 conf vol	W. Constant of Constant of Constant					
vCu, unblocked vol	1716	578	1157	W 21 Chant	STOL P BUTS	
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	1994 S 197	SAN STAT		W	NUMBER OF	THE STATE
tF (s)	3.5	3.3	2.2	Carl Carl		
p0 queue free %	52	92	100	R CHART	U-V-SAL	and the later
cM capacity (veh/h)	81	459	600	A ENACLING		
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	and the second se
Volume to Capacity	0.48	0.08	0.33	0.33	0.34	1700
Queue Length 95th (ft)	50	0.08	0.33		the second s	0.34
	85.2	13.5	the second of the second second	0	0	0
Control Delay (s) Lane LOS	65.2 F	and the second second second	0.0	0.0	0.0	0.0
Approach Delay (s)	and the second sec	В	0.0	State of the		
Approach LOS	51.3	11255	0.0		0.0	Real Protocol
	F		1.23/44/02	NE LOS DES	and the second	
Intersection Summary						
Average Delay		The street	1.6			all non
Intersection Capacity Utiliza	ation		39.4%	IC	U Level o	f Service
Analysis Period (min)	A Star	and a series	15	Sec. and	a denserte	

	×	\mathbf{i}	1	†	ţ	4		
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations	¥		5	^	≜ ₽			
Traffic Volume (veh/h)	26	31	60	1002	1036	60		STATE OF
Future Volume (Veh/h)	26	31	60	1002	1036	60	Ge State Real	SINGLES IS
Sign Control	Stop	and the state		Free	Free	States and the second		184
Grade	0%	NO. SPITALIST CAL	140 - 10 - 10 - 10	0%	0%		a subscription of the second	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	a and the state	
Hourly flow rate (vph)	28	34	65	1089	1126	65		44
Pedestrians	No. 18 2 St	AT STA	N-CK-	The Restar	Section Rate			30
Lane Width (ft)		0-0-1-0-1-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0		50 S. Apr	STRUMPIC RES	DE DUIT EVA VEB		0.52
Walking Speed (ft/s)	Martin St.	net and		S STORE STO		THE REAL	RE SINGLAR	
Percent Blockage	CORT OF CALLORING	CALIFORNIA CON	140410202425			district of the Station		\$rm.
Right turn flare (veh)					1000	S. A. S.		173
Median type		and the second		None	None			
Median storage veh)		- Alan Suite	S12 83	Distance in	States Park	104 Mar 12	2 Same B 1	ŝ
Upstream signal (ft)				NAME & PARTY OF		NAMACI PORT		-
pX, platoon unblocked	in she is	S	100 T.F.S.	1.200	1. 1. 1. 1. 1.		note attactio	
vC, conflicting volume	1833	596	1191	Contraction of the second				÷
vC1, stage 1 conf vol	The Cal	3 14					The Contraction	
vC2, stage 2 conf vol				EN AGAINE COM	1997 C 1997	28. 19. 19. 19.	Contract Street	-
vCu, unblocked vol	1833	596	1191		the Landson	AND STREET	alifette and the	
tC, single (s)	6.8	6.9	4.1			nd has been as		0
IC, 2 stage (s)				3413-54	185		NAME	ŝ
IF (s)	3.5	3.3	2.2					1
0 queue free %	53	92	89	- Carlos and - Car	2. Charles I	Contraction of the	n-on-Mushik	G
cM capacity (veh/h)	60	447	582	DANE SOLAR	14 JULY 1947			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2		-
Volume Total	62	65	544	544	751			2
/olume Left	28	65	044	0	751	440 0	-	
Volume Right	34	00	0	0	0	and a support of the second		
SH	114	582	1700	1700	1700	65	C. S. C. Composition	
Volume to Capacity	0.54	0.11	0.32	A COMPANY OF A COM	The second s	1700		
Queue Length 95th (ft)	0.54 64	0.11	and and a support of the	0.32	0.44	0.26	Contractory of the	
	68.8	12.0	0	0	0	0		
Control Delay (s) Lane LOS	00.0 F		0.0	0.0	0.0	0.0	AND DO DO DO DO	ž
Approach Delay (s)	ALL	B	ar thankste					
Approach LOS	68.8 F	0.7	Contraction of	the second second	0.0		COLUMN STORES	13
	P							
ntersection Summary								
Average Delay			2,1	A REAL			Paster Line V	k
ntersection Capacity Utilization	Can o concerna	an the free	47.2%	IC	U Level a	f Service	Service and a service of the service	
Analysis Period (min)			15	100		Sectories, th		

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

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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										
STORM (YEAR)	EXISTING (CFS)	PROPOSED (CFS)	CHANGE (CFS)								
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								

4/27/2022 Valvoline Vernon Drain BORGHESI BUILDING + ENGINEERING CO.

APPENDIX A:

HYDROLOGIC CALCULATIONS: EXISTING CONDITIONS

BORGHESI BUILDING & ENGINEERING CO.

Watershed Model Schematic

Hydraflow Hydrographs by Intelisolve v9.1

1 - Exis	ting Condition	

<u>Legend</u>

Hyd. Origin

1 SCS Runoff Existing Condition

Project: Valvoline Vernon Ex.gpw

Description

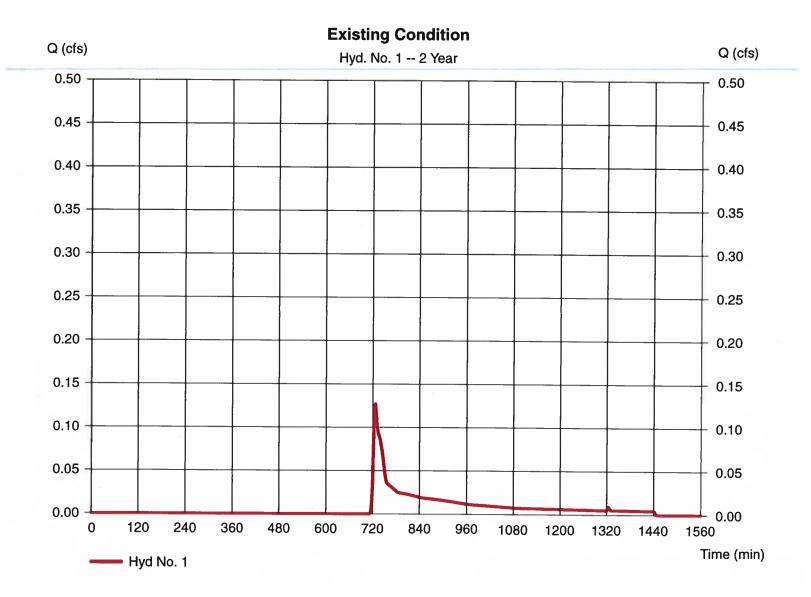
Wednesday, Apr 27, 2022

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.1

lyd. Io.	Hydrograph type	Inflow Hyd(s)				Peak Out	tflow (cfs))			Hydrograph description
	(origin)		1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
	SCS Runoff			0.127			0.506	0.709	0.927	1.156	Existing Condition
				galang den glang den provinsi paga dina na na na		2010-0000000000.000000000000000000000000					
								J.			
						-					
	file: Valvolin										, Apr 27, 2022

Hydraflow Hydrographs by	Wednesday, Apr 27, 2022		
Hyd. No. 1 Existing Condition	I		
Hydrograph type Storm frequency Time interval Drainage area Basin Slope Tc method Total precip. Storm duration	 SCS Runoff 2 yrs 1 min 0.370 ac 0.0 % TR55 3.20 in 24 hrs 	Peak discharge Time to peak Hyd. volume Curve number Hydraulic length Time of conc. (Tc) Distribution Shape factor	 = 0.127 cfs = 727 min = 615 cuft = 61 = 0 ft = 6.30 min = Type III = 484



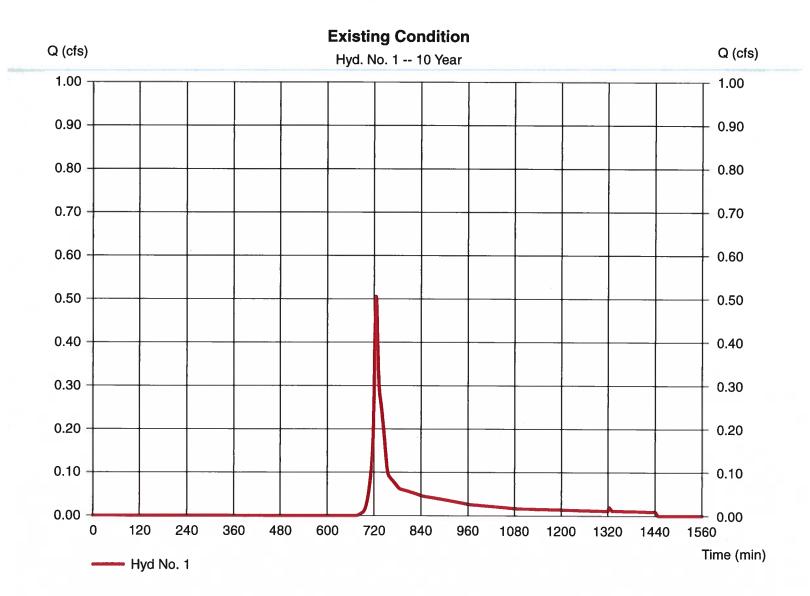
Hyd. No. 1

Existing Condition

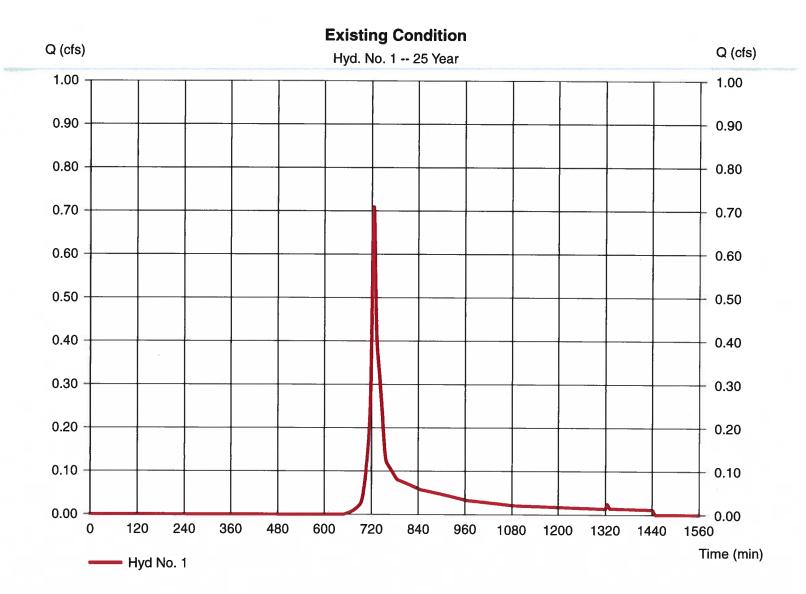
Description	A		B		<u>C</u>		<u>Totals</u>
Sheet Flow Manning's n-value Flow length (ft) Two-year 24-hr precip. (in) Land slope (%)	= 0.240 = 50.0 = 3.20 = 7.00		0.011 0.0 0.00 0.00		0.011 0.0 0.00 0.00		
Travel Time (min)	= 4.97	+	0.00	+	0.00	=	4.97
Shallow Concentrated Flow Flow length (ft) Watercourse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

Hydraflow Hydrographs by Intelisolve v9.1

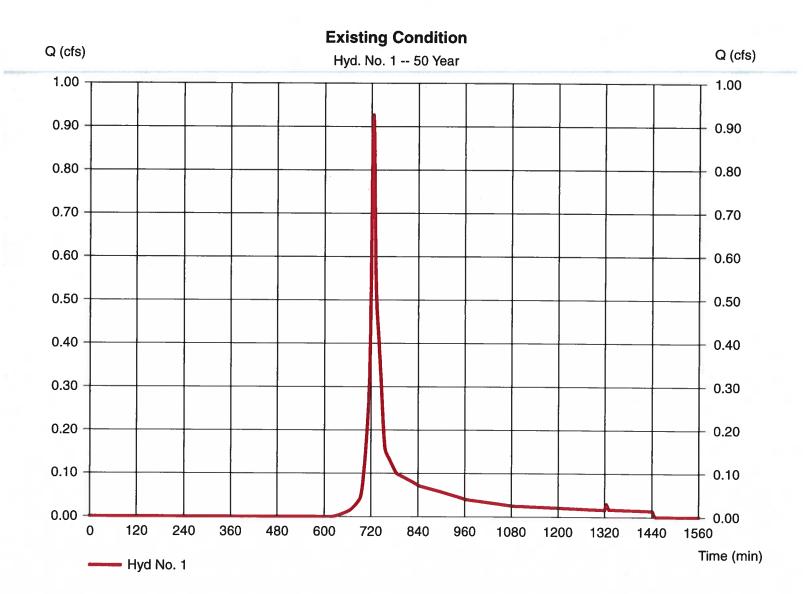
Hydraflow Hydrographs by	Wednesday, Apr 27, 2022	
Hyd. No. 1		
Existing Condition	1	
Hydrograph type Storm frequency Time interval Drainage area Basin Slope Tc method Total precip. Storm duration	 SCS Runoff 10 yrs 1 min 0.370 ac 0.0 % TR55 4.80 in 24 hrs 	Peak discharge= 0.506 cfs Time to peak= 725 min Hyd. volume= $1,732 \text{ cuft}$ Curve number= 61 Hydraulic length= 0 ft Time of conc. (Tc)= 6.30 min Distribution= Type IIIShape factor= 484



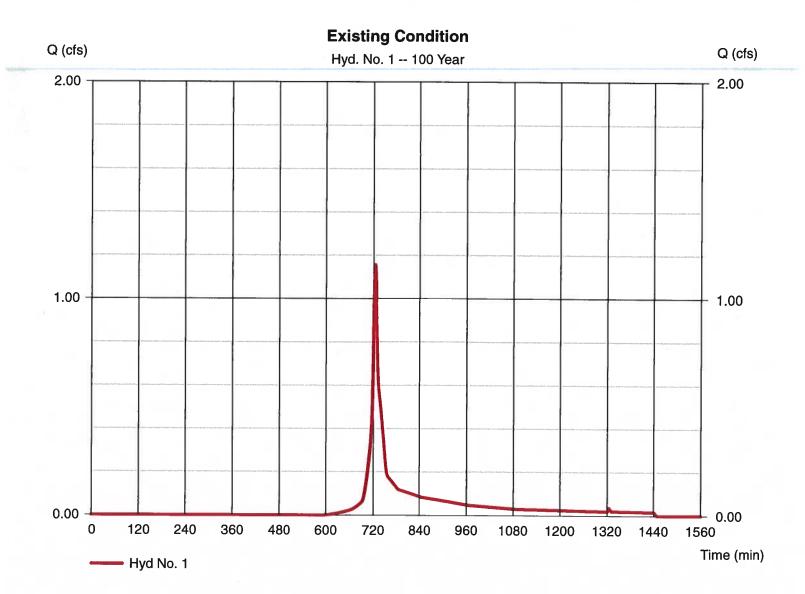
Hydraflow Hydrographs by	Intelisolve v9.1	Wednesday, Apr 27,	2022
Hyd. No. 1 Existing Condition			
Hydrograph type Storm frequency Time interval Drainage area Basin Slope Tc method Total precip. Storm duration	= SCS Runoff = 25 yrs = 1 min = 0.370 ac = 0.0 % = TR55 = 5.50 in = 24 hrs	Peak discharge= 0.709 cfs Time to peak= 725 min Hyd. volume= $2,325 \text{ cuft}$ Curve number= 61 Hydraulic length= 0 ft Time of conc. (Tc)= 6.30 min Distribution= Type IIIShape factor= 484	

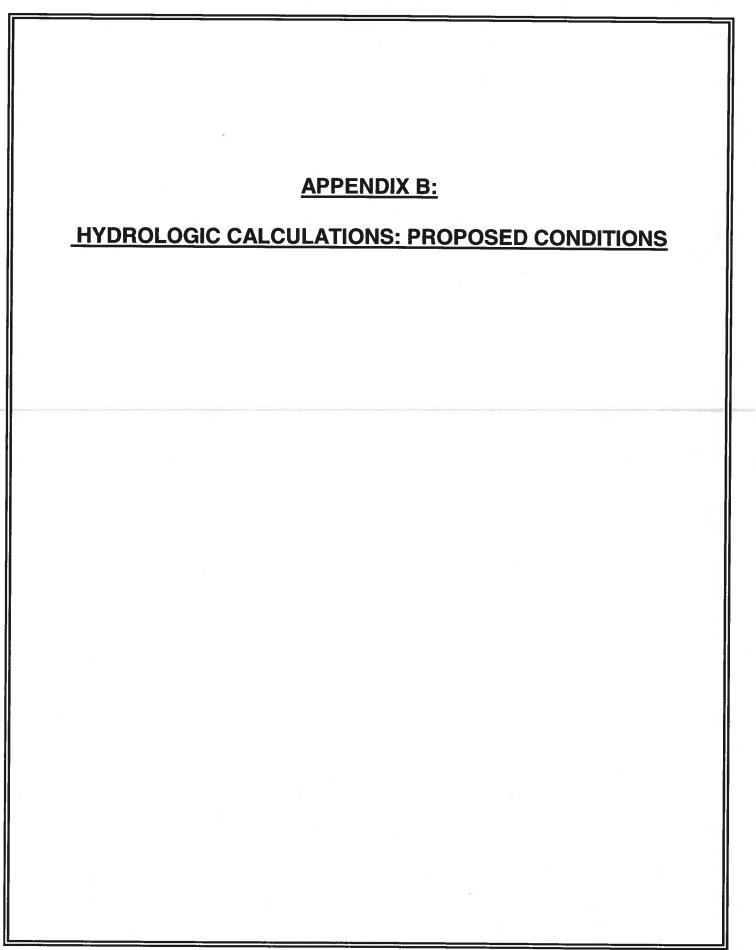


Hydraflow Hydrographs by	Wednesday, Apr 27,	Wednesday, Apr 27, 2022		
Hyd. No. 1 Existing Condition				
Hydrograph type Storm frequency Time interval Drainage area Basin Slope Tc method Total precip. Storm duration	 SCS Runoff 50 yrs 1 min 0.370 ac 0.0 % TR55 6.20 in 24 hrs 	Peak discharge= 0.927 cfs Time to peak= 725 min Hyd. volume= $2,965 \text{ cuft}$ Curve number= 61 Hydraulic length= 0 ft Time of conc. (Tc)= 6.30 min Distribution= Type IIIShape factor= 484		



Hydraflow Hydrographs by	Wednesday, Apr 27, 202	
Hyd. No. 1 Existing Condition		
Hydrograph type Storm frequency Time interval Drainage area Basin Slope Tc method Total precip. Storm duration	 SCS Runoff 100 yrs 1 min 0.370 ac 0.0 % TR55 6.90 in 24 hrs 	Peak discharge= 1.156 cfsTime to peak= 725 minHyd. volume= 3,643 cuftCurve number= 61Hydraulic length= 0 ftTime of conc. (Tc)= 6.30 minDistribution= Type IIIShape factor= 484





Watershed Model Schematic

Hydraflow Hydrographs by Intelisolve v9.1

Legend

Hyd. Origin

in Description

1SCS RunoffProposedCondition2ReservoirDet. Basin Outflow

Project: Valvoline Vernon Prop.gpw

Wednesday, Apr 27, 2022

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.1

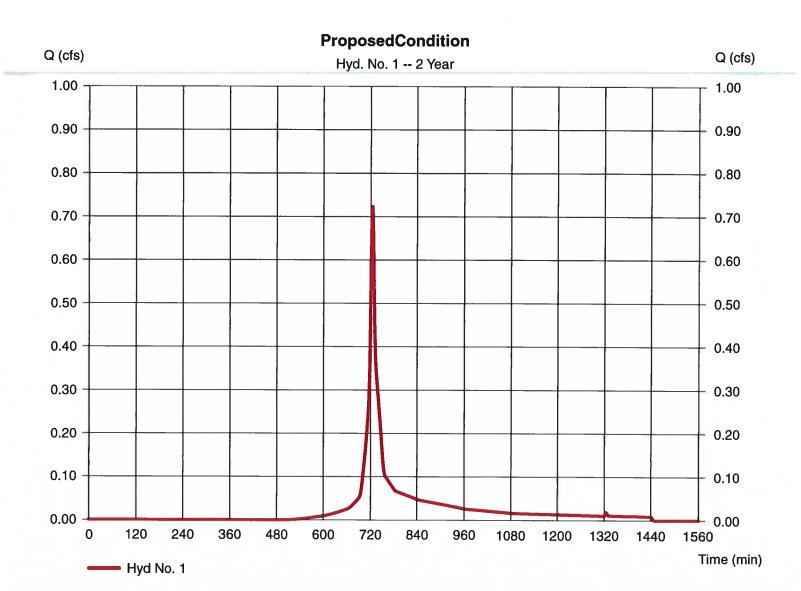
Hyd. No.	Hydrograph type	Inflow Hyd(s)				Hydrograph					
NO.	(origin)	riya(s)	1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	description
1 2	SCS Runoff Reservoir	1		0.723 0.116			1.338 0.281	1.614 0.494	1.891 0.669	2.170 0.810	ProposedCondition Det. Basin Outflow
				-							
time entre entre transference de	sag by the of types of the sector of the spectra of the spectra of the sector of the sector of the sector of the	den demonstration of the second second		s an-as any ann an an Ultrary and a		ารัฐประการสารกำระสารการการส	alge a fanal de service generation de la destaca	ilystystesis an einer setter star star star	anagaana	00001 (2000 100 100 100 100 100 100 100 100 100	
							,				
									f		

Proj. file: Valvoline Vernon Prop.gpw

Wednesday, Apr 27, 2022

Hydraflow Hydrographs by	Wednesday, Apr 27, 20	
Hyd. No. 1 ProposedCondition	n	
Hydrograph type Storm frequency Time interval Drainage area Basin Slope Tc method Total precip. Storm duration	= SCS Runoff = 2 yrs = 1 min = 0.370 ac = 0.0 % = USER = 3.20 in = 24 hrs	Peak discharge= 0.723 cfs Time to peak= 725 min Hyd. volume= $2,229 \text{ cuft}$ Curve number= 83^* Hydraulic length= 0 ft Time of conc. (Tc)= 5.00 min Distribution= Type IIIShape factor= 484

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



Hydraflow Hydrographs by Intelisolve v9.1 Wednesday, Apr 27, 2022 Hyd. No. 2 Det. Basin Outflow Hydrograph type = Reservoir Peak discharge $= 0.116 \, \text{cfs}$ Storm frequency = 2 yrsTime to peak = 755 min Time interval $= 1 \min$ Hyd. volume = 2,223 cuft Inflow hyd. No. = 1 - ProposedCondition Max. Elevation = 225.37 ft Reservoir name = <New Pond> Max. Storage = 834 cuft Storage Indication method used.

Q (cfs) Q (cfs) Hyd. No. 2 -- 2 Year 1.00 1.00 0.90 0.90 0.80 0.80 0.70 0.70 0.60 0.60 0.50 0.50 0.40 0.40 0.30 0.30 0.20 0.20 0.10 0.10 0.00 0.00 0 180 360 540 720 900 1080 1260 1440 1620 Time (min) Hyd No. 2 Hyd No. 1 Total storage used = 834 cuft

Det. Basin Outflow

4

Pond Report

Hydraflow Hydrographs by Intelisolve v9.1

Pond No. 1 - <New Pond>

Pond Data

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

Stage / Storage Table

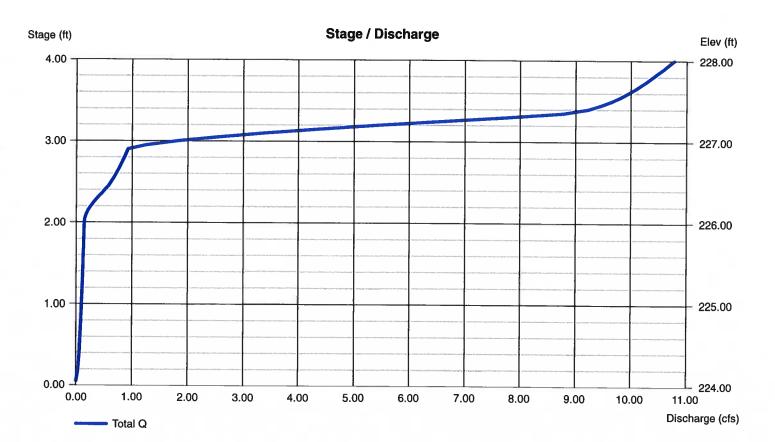
Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	224.00	400	0	0
0.50	224.50	550	236	236
1.00	225.00	700	312	548
1.50	225.50	850	387	935
2.00	226.00	1,000	462	1,397
2.50	226.50	1,225	555	1,952
3.00	227.00	1,450	668	2,620
3.50	227.50	1,675	780	3,401
4.00	228.00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

Culvert / Orifice Structures

Weir Structures

	[A]	[B]	[C]	[PrfRsr]		[A]	[B]	[C]	[D]	
Rise (in)	= 15.00	2.00	6.00	0.00	Crest Len (ft)	= 8.00	0.00	0.00	0.00	
Span (in)	= 15.00	2.00	6.00	0.00	Crest El. (ft)	= 226.90	0.00	0.00	0.00	
No. Barrels	= 1	1	1	0	Weir Coeff.	= 3.33	3.33	3.33	3.33	
Invert El. (ft)	= 224.00	224.00	226.00	0.00	Weir Type	= Rect				
Length (ft)	= 50.00	1.00	1.00	0.00	Multi-Stage	= Yes	No	No	No	
Slope (%)	= 1.00	1.00	1.00	n/a						
N-Value	= .013	.013	.013	n/a						(A)
Orifice Coeff.	= 0.60	0.60	0.60	0.60	Exfil.(in/hr)	= 0.000 (by	Wet area	ΰ		
Multi-Stage	= n/a	Yes	Yes	No	TW Elev. (ft)	= 0.00		- <i>,</i>		

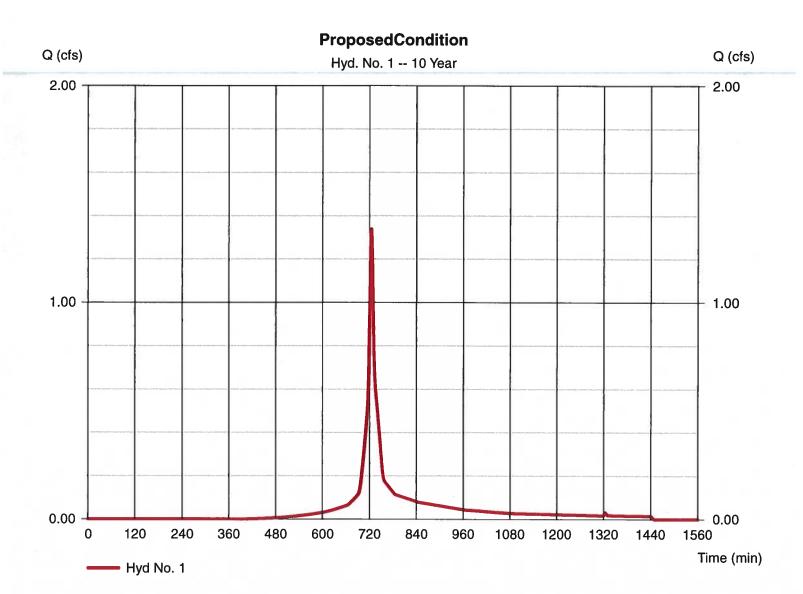
Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Wednesday, Apr 27, 2022

Hydraflow Hydrographs by	Wednesday, Apr 27, 2022		
Hyd. No. 1			
ProposedConditio	n		
Hydrograph type Storm frequency Time interval Drainage area Basin Slope Tc method Total precip. Storm duration	= SCS Runoff = 10 yrs = 1 min = 0.370 ac = 0.0 % = USER = 4.80 in = 24 hrs	Peak discharge Time to peak Hyd. volume Curve number Hydraulic length Time of conc. (Tc) Distribution Shape factor	 = 1.338 cfs = 725 min = 4,147 cuft = 83* = 0 ft = 5.00 min = Type III = 484

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



Hydraflow Hydrographs by Intelisolve v9.1

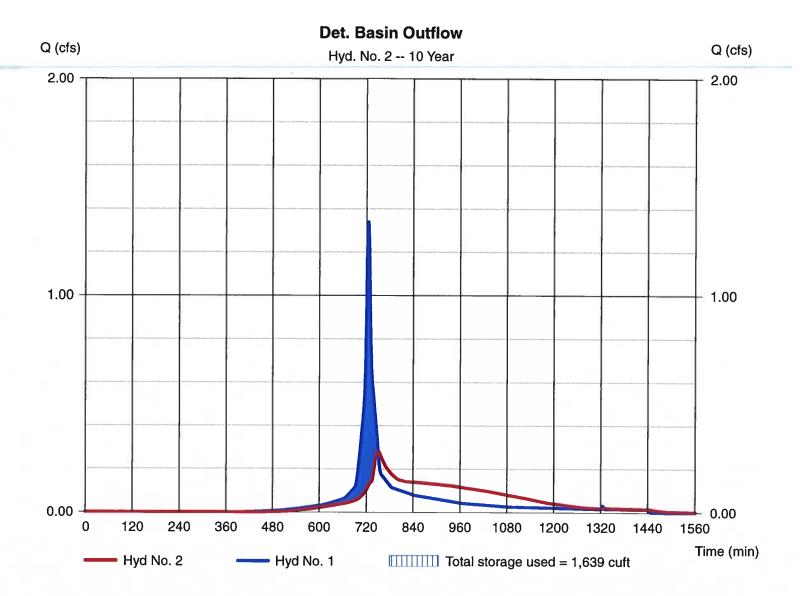
Hyd. No. 2

Det. Basin Outflow

Hydrograph type	= Reservoir	Peak discharge	= 0.281 cfs
Storm frequency	= 10 yrs	Time to peak	= 750 min
Time interval	= 1 min	Hyd. volume	= 4,141 cuft
Inflow hyd. No.	= 1 - ProposedCondition	Max. Elevation	= 226.22 ft
Reservoir name	= <new pond=""></new>	Max. Storage	= 1,639 cuft

Storage Indication method used.

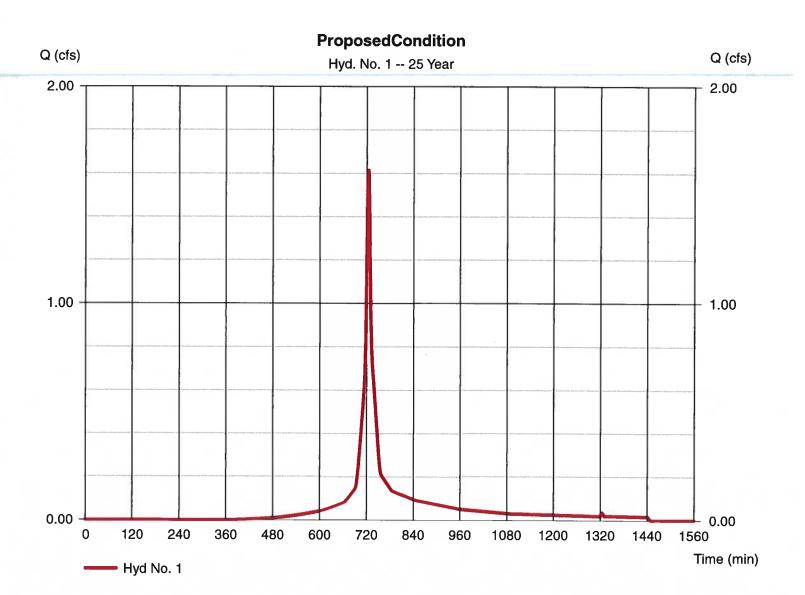
.



Wednesday, Apr 27, 2022

Hydraflow Hydrographs by	Hydraflow Hydrographs by Intelisolve v9.1			
Hyd. No. 1				
ProposedConditio	n			
Hydrograph type Storm frequency Time interval Drainage area Basin Slope Tc method Total precip. Storm duration	 SCS Runoff 25 yrs 1 min 0.370 ac 0.0 % USER 5.50 in 24 hrs 	Peak discharge= 1.614 cfs Time to peak= 725 min Hyd. volume= $5,028 \text{ cuft}$ Curve number= 83^* Hydraulic length= 0 ft Time of conc. (Tc)= 5.00 min Distribution= Type IIIShape factor= 484		

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



8

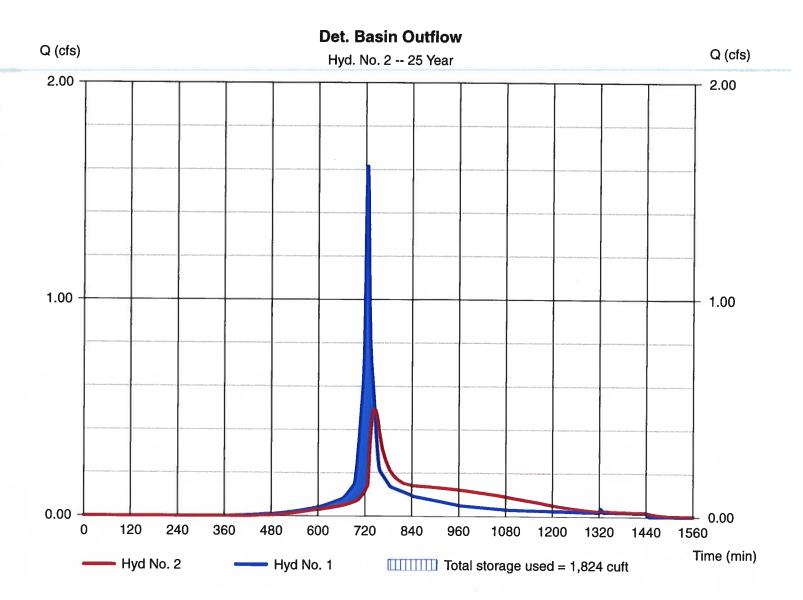
Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No. 2

Det. Basin Outflow

Hydrograph type	= Reservoir	Peak discharge	= 0.494 cfs
Storm frequency	= 25 yrs	Time to peak	= 744 min
Time interval	= 1 min	Hyd. volume	= 5,022 cuft
Inflow hyd. No.	= 1 - ProposedCondition	Max. Elevation	= 226.38 ft
Reservoir name	= <new pond=""></new>	Max. Storage	= 1,824 cuft

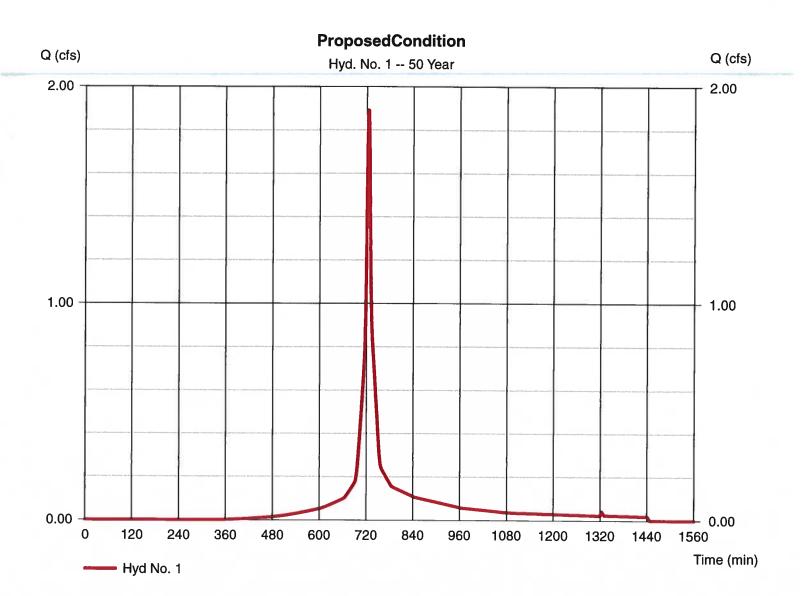
Storage Indication method used.



9

Hydraflow Hydrographs by	Hydraflow Hydrographs by Intelisolve v9.1			
Hyd. No. 1 ProposedConditio	n			
Hydrograph type Storm frequency Time interval Drainage area Basin Slope Tc method Total precip. Storm duration	= SCS Runoff = 50 yrs = 1 min = 0.370 ac = 0.0 % = USER = 6.20 in = 24 hrs	Peak discharge= 1.891 cfsTime to peak= 724 minHyd. volume= 5,924 cuftCurve number= 83^* Hydraulic length= 0 ftTime of conc. (Tc)= 5.00 minDistribution= Type IIIShape factor= 484		

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



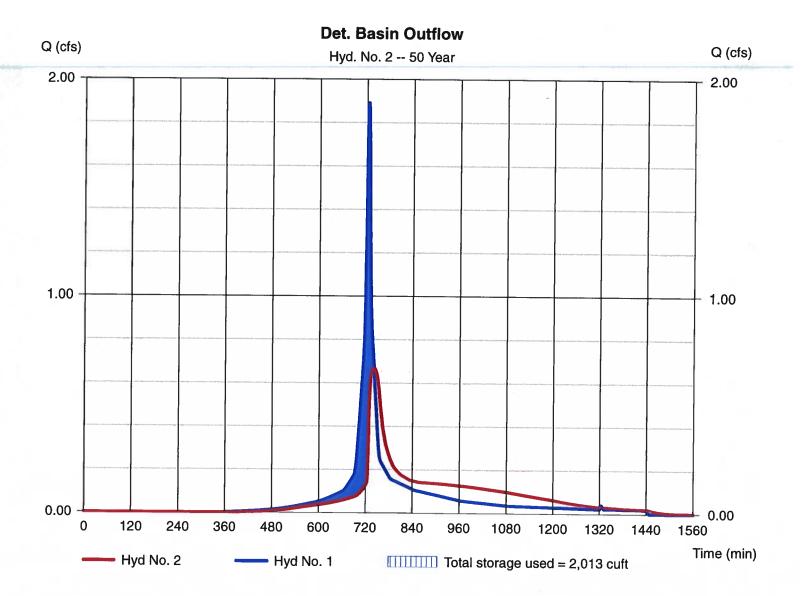
Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No. 2

Det. Basin Outflow

Hydrograph type	= Reservoir	Peak discharge	= 0.669 cfs
Storm frequency	= 50 yrs	Time to peak	= 741 min
Time interval	= 1 min	Hyd. volume	= 5,919 cuft
Inflow hyd. No.	= 1 - ProposedCondition	Max. Elevation	= 226.55 ft
Reservoir name	= <new pond=""></new>	Max. Storage	= 2,013 cuft
		-	-

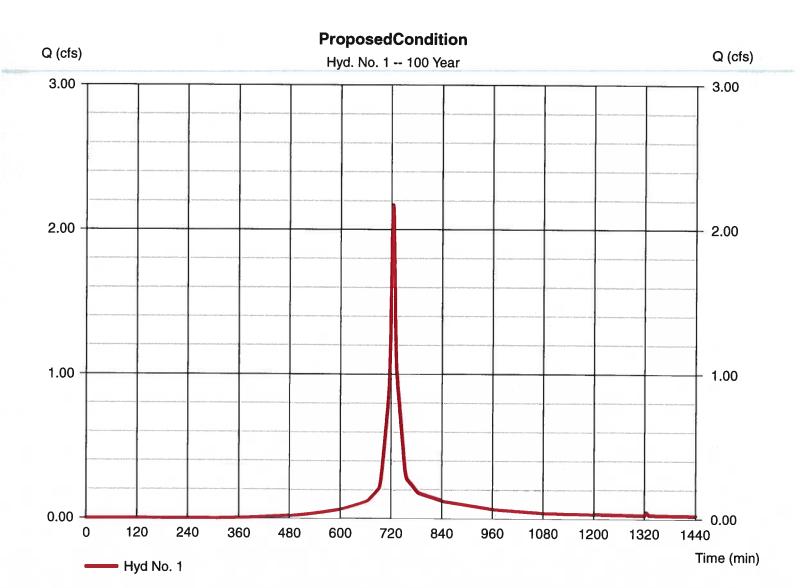
Storage Indication method used.



Wednesday, Apr 27, 2022

Hydraflow Hydrographs by	Wednesday, Apr 27, 2022	
Hyd. No. 1 ProposedConditio	'n	
Hydrograph type Storm frequency Time interval Drainage area Basin Slope Tc method Total precip. Storm duration	 SCS Runoff 100 yrs 1 min 0.370 ac 0.0 % USER 6.90 in 24 hrs 	Peak discharge $= 2.170 \text{ cfs}$ Time to peak $= 724 \text{ min}$ Hyd. volume $= 6,833 \text{ cuft}$ Curve number $= 83^*$ Hydraulic length $= 0 \text{ ft}$ Time of conc. (Tc) $= 5.00 \text{ min}$ Distribution $= \text{Type III}$ Shape factor $= 484$

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



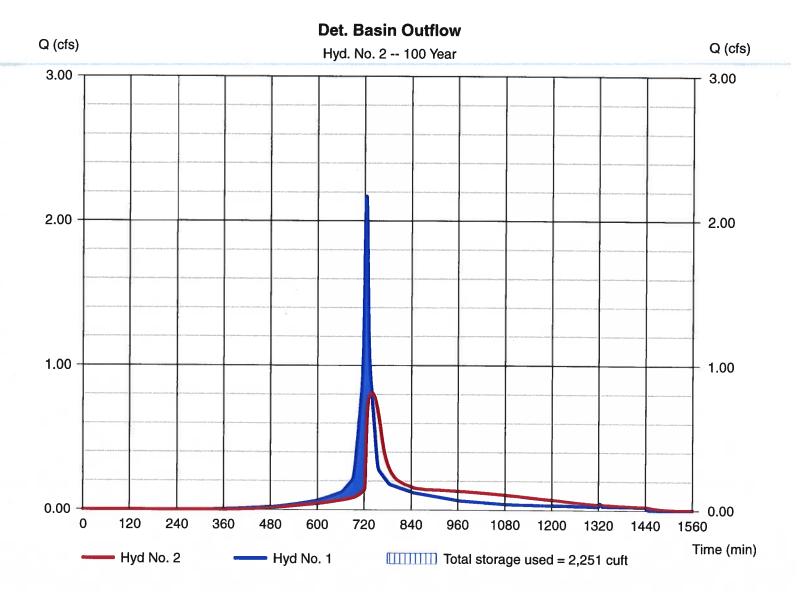
Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No. 2

Det. Basin Outflow

	= Reservoir	Peak discharge	= 0.810 cfs
Storm frequency	= 100 yrs	Time to peak	= 739 min
Time interval	= 1 min	Hyd. volume	= 6,827 cuft
Inflow hyd. No.	= 1 - ProposedCondition	Max. Elevation	= 226.72 ft
Reservoir name	= <new pond=""></new>	Max. Storage	= 2,251 cuft

Storage Indication method used.



Wednesday, Apr 27, 2022

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APPENDIX C: DRAINAGE PIPING CALCULATIONS & WQF

BORGHESI BUILDING & ENGINEERING CO.

BORGHESI BUILDING & ENGINEERING CO.

2155 EAST MAIN ST., TORRINGTON, CT

371 Talcottville Rd., Vernon, CT

RUNOFF CURVE NUMBERS								
LINE	AREA DE	SCRIPTION		AREA				тс
				(ACRE)	С	CA		(MIN)
PROPOSED				0.22	98	22		-
to	BLDG.			0.00	98	0		
/2B1	LAWN/GI	RASS		0.06	61	4		
	TOTAL			0.28	90.1	25		5
la= qu = P =	0.222 630 1.0			mwater Quali mwater Quali				
VATERSHED	AREA:			0.28	ACRES			
VATER QUAL		/IE, WQV= ((1")(R)(A)/1:	2 R=.05+.009(l)=		0.757	
				I = PERCEN		DUS =	78.57	%
		WQV=	1	0.757	0.28	1	12	=
ha go galagan tang an Abbil ab - mangaa aa a		n Barren er fenne som som for det som er el en som for som er efter som er efter som er efter som er er en som	0.02	AC-FT =	770	CF	an dan she we de Miller en ege wat de alegataje gerieren e	
Q = A =	0.8 0.3 0.000	in, WQV x12 acre sm	2/ Drainage	e Area				
WQF =	0.21	cfs						

Valvoline

V2B1

Hydrodynamic Separator aka Sand/Grit/Oil/Water Separator



V2B1 Sizing Chart

Based on removal of 80% TSS at 110 Microns.

V2B1	D1	D2	MIN. DEPTH	TREATMENT	MAX.INLET
MODEL	DIA	DIA	BELOW INLET	RATE	PIPE DIA.
NUMBER	(ft.)	(ft.)	INVERT (ft.)	(cfs)	(in.)
2	4	4	3.5	1.54	12
3	4	5 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	60	24 00	80

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

environment a 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.

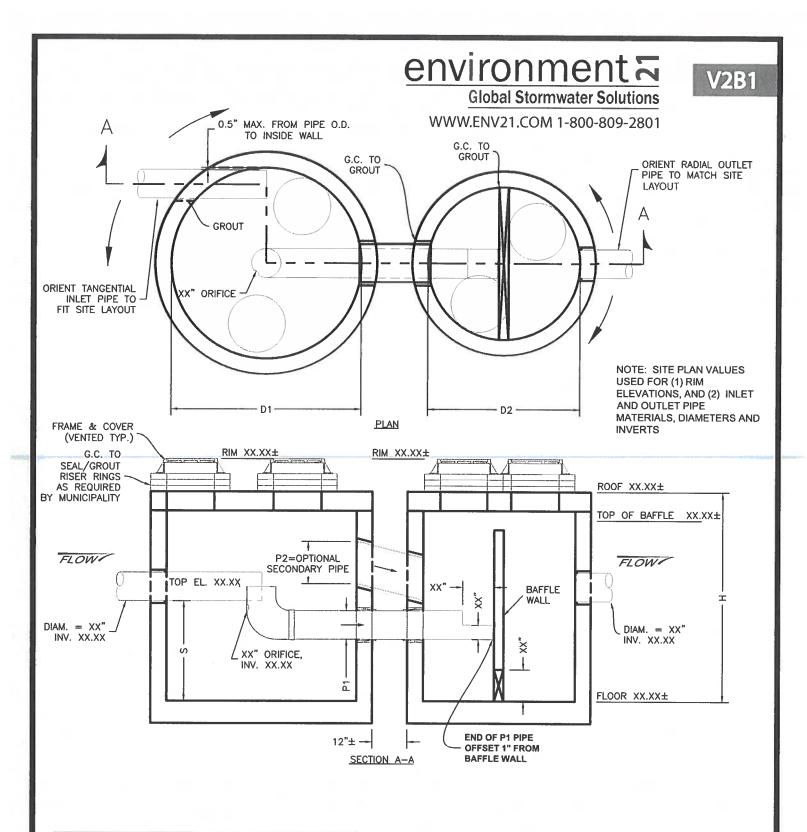
About the V2B1

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	IMPERVIOUS	D1	D2	Н	S			
MODEL	AREA,	(ft.)	(ft.)	(ft.)	(ft.)			
#	ACRES							
<mark>-3</mark>	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±			

Not to Scale

GENERAL NOTE:

MANHOLE DESIGN SPECIFICATIONS CONFORM TO LASTEST 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.

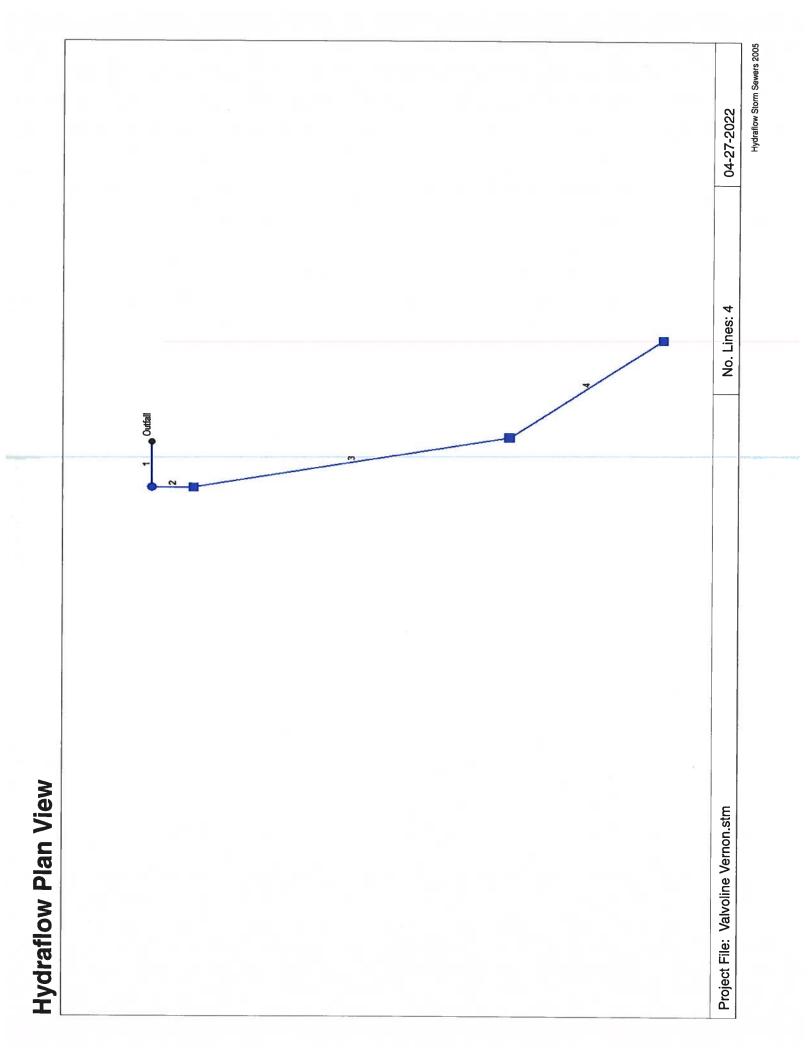
BORGHESI BUILDING & ENGINEERING CO.

2155 EAST MAIN ST., TORRINGTON, CT

Valvoline

371 Talcottville Rd., Vernon, CT

RUNOFF COEFFICIENTS							
LINE	AREA DESCRIPTION	AREA (ACRE)	С	CA	TC (MIN)		
	WAT	ERSHED ANAL	YSIS				
CB1	PAVED, BLDG.	0.13	0.95	0.12	- <u>-</u>		
	GRASS	0.00	0.30	0.00			
	TOTAL	0.13	0.95	0.12	5		
CB2	PAVED, BLDG.	0.04	0.95	0.04			
	GRASS	0.00	0.30	0.00			
	TOTAL	0.04	0.95	0.04	5		
CB3	PAVED, BLDG.	0.05	0.95	0.05			
	GRASS	0.06	0.30	0.02			
	TOTAL	0.11	0.60	0.07	5		



								,
Line ID			V2B1	CB1	CB2	CB3	2022	
im Elev	5	(H)	228.00	228.00	228.20	230.20	Run Date: 04-27-2022	
Grnd / Rim Elev	۹.	(t t)	228.00	228.20	230.20	230.00	Run Dat	
HGL Elev	ā	(t t)	226.40	226.46	226.54	226.61		
HGL	9	(H)	226.42	226.48	226.56			
Elev	ñ	(¥)	224.10	224.80	225.00	226.00	of lines: 4	
Invert Elev	dŊ	(t t)	224.40	225.00	226.00	226.50	Number of lines: 4	
Pipe	Slope	(%)	2.50	2.00	1.30	1.1		
<u>م</u>	Size	(ii)	얺	12	12	12	*	1
Vel		(ft/s)	1.73	1.73	1.14	1.65		
Cap		(cfs)	5.63	5.04	4.06	3.75	-	
Total	MOIL	(cfs)	1.36	1.36	0.66	0.44	1	
Rain	Ξ	(in/hr) (cfs)	6.0	6.0	6.3	6.7	-	Yrs.
	Syst	(min)	7.9	7.8	6.3	5.0	-	= 25
Тс	Inlet	(min)	0.0	5.0	5.0	5.0		urn perio
Area x C	Total		0.23	0.23	0.10	0.07		90; Reti
	Incr		0.00	0.12	0.04	0.07		.80) ^ 0.
Rnoff		ΰ	0.00	0.95	0.95	0.60		me + 15
Drng Area	Total	(ac)	0.28	0.28	0.15	0.11	Project File: Valvoline Vernon.stm	NOTES: Intensity = 101.98 / (Inlet time + 15.80) ^ 0.90; Return period
	lncr	(ac)	0.00	0.13	0.04	0.11	oline Ve	101.98
Len		£	12.0	10.0	77.0	45.0	 e: Valv	insity =
Station	Line To Line		End	-	0	ო	oject Filk	ES: Inte
		1					ードー	

Page 1

Storm Sewer Tabulation

APPENDIX D: WATERSHED MAP

PUBLIC HEARING(S) AND ACTION ON APPLICATIONS



Affordable Housing Plan



Town of Vernon

Planning & Zoning Commission

Draft: May 5, 2022

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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

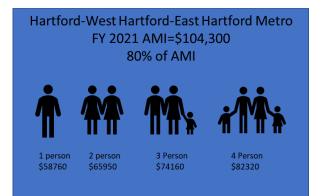
Impetus

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 specificy 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:



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

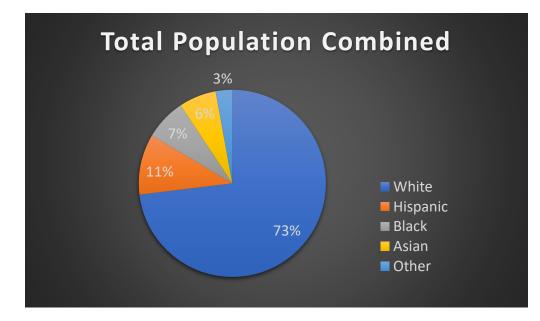
Housing Characteristics in Vernon

- 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

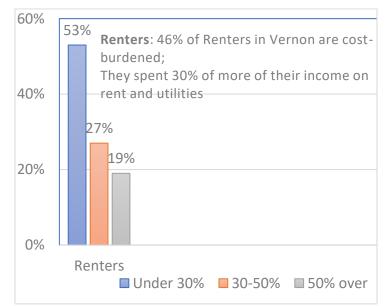
Other Below-Market Options

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.





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.

- 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.