

MEMO

To:	Ms. Sue Brown Town Planner Town of Manchester-by-the-Sea 10 Central Street Manchester-by-the-Sea, MA 01944	From:	Carlton M. Quinn, P.E.
		A&M Project #:	2725-01
		Date:	July 7, 2022
		Re:	Municipal Water Capacity The Sanctuary – School Street Manchester-by-the-Sea, MA

Copy:

Allen & Major Associates, Inc. (A&M) is pleased to present our review of the municipal water capacity for the proposed development (The Sanctuary) on School Street in Manchester-by-the-Sea, Massachusetts. The purpose of the review was to confirm there is adequate water capacity in the School Street water system.

The following documents are attached and were used in the evaluation:

- Hydraulic Review of Proposed School Street Development, dated June 3, 2022, prepared by Tata & Howard
- Conceptual Sewer & Water Main Extension Plan & Profile, dated July 7, 2022, prepared by Allen & Major Associates, Inc.

Project Description

SLV School Street LLC's proposed multi-family development, The Sanctuary, includes 136 residential units (232 bedrooms). The development's domestic and fire water service is proposed to be connected to the municipal water main. It is anticipated that, due to the elevation of the building, that a booster pump will be required. The booster pump cannot be fully designed until the building design has progressed to building permit level design and the buildings domestic and fire water loads can be calculated. The booster pump will require a BRP WS 33 Distribution Modification < 3,300 people approval from the MassDEP.

The booster pump is proposed to be fed by the municipal water system that will require a main extension of approximately 3,700 linear feet from the south to the north side of Route 128 on School Street (from Essex Country Club driveway to proposed development driveway). The current proposal is to directionally drill both the water and sewer approximately 600 linear feet between the exit ramp clover leaves with the remainder of the main extension is proposed to be standard trenched installation within the paved area of school street.

The proposed development will produce an estimated Title V flow of 25,520 gallons per day (GPD) (232 bedrooms x 110 GPD/bedroom).

Hydraulic Capacity Analysis

The attached hydraulic capacity review was performed by the Town's municipal water consultant, Tata & Howard. Per their review, a minimum pressure and flow of water can be provided to the project **without** the need for a booster pump if 3,700 linear feet of 12" water main was installed from the Essex Country Club

driveway to the new development. The applicant will still provide infrastructure for the booster system as it still assumed the booster pump will provide greater than minimum pressures and flows to the proposed development.

Therefore, with the assumption the proposed development provides a new 12" municipal main the water capacity within the flow path of the proposed development is adequate to accommodate the proposed water flows. **The applicant will continue to work with the DPW to provide the most appropriate design for the Town.**

Conceptual Water Main Extension Plan & Profile

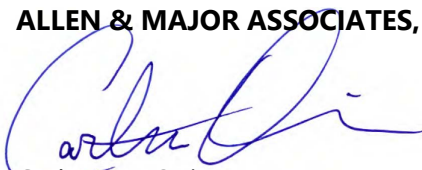
A&M has provided a conceptual water system plan and profile. The plan proposes to install approximately 3,700 LF of 12" CLDI water main in School Street from the project driveway to the Essex Country Club driveway. This water main will need to cross Route 128 and is currently proposed to be direction drilled approximately 600 linear feet between the exit ramp clover leaves.

Water System Evaluation

A&M has evaluated the water infrastructure in the proposed development's flow path from the development's booster pump station to the connection point of the municipal water system. A&M has concluded the municipal system has available capacity for the proposed project.

Very Truly Yours,

ALLEN & MAJOR ASSOCIATES, INC.



Carlton M. Quinn, PE
Senior Project Manager



June 3, 2022

Mr. Geoff Engler
SLV School Street, LLC
257 Hillside Avenue
Needham, MA 02494

Subject: Hydraulic Review of Proposed School Street Development
T&H No. 7199

Dear Mr. Engler:

As requested, Tata & Howard, Inc. has performed a hydraulic review of the proposed water distribution system infrastructure of the proposed School Street development located on School Street, across from Atwater Avenue. The project includes one multi-family residential building and parking garage with 136 total units. Based on the Utility Plans prepared by Allen & Major Associates, Inc. dated July 16, 2021, and information provided by the Developer, the building includes one three story building with a buried parking garage with a total of 136 one, two, and three bedroom apartments. As part of this review, we have reviewed the Utility Plans and Grading & Drainage Plans, prepared by Allen & Major Associates, Inc. both dated July 16, 2021. It should be noted that the evaluation was completed using the proposed piping configurations in the July 2021 plans. A potential booster pump station to serve the proposed building was not included in the evaluation.

The review includes an evaluation of the proposed water service in relation to the existing water distribution system. This evaluation utilizes the Town of Manchester-by-the-Sea's hydraulic model to evaluate projected static pressures and available fire flow in the proposed development. The planned water main improvements on School Street were also updated in the hydraulic model, as the project is anticipated to be completed before the proposed development. Two flow tests were conducted in the vicinity of the proposed development on May 12, 2022 and were used to confirm existing conditions. The results of the flow tests are presented in Table No. 1. The flow test locations are shown on Figure No. 1.

Determination of Flow

The estimate of water usage for the proposed development was provided by Allen & Major Associates, Inc. There are 232 bedrooms proposed with an average day demand of 25,520 gallons per day (gpd), or 17.7 gallons per minute (gpm).

Typically, the highest observed maximum daily demand (MDD) to ADD ratio is used to predict future MDD. According to the demand summary completed in the 2018 Capital Efficiency Plan based on the Town's Annual Statistical Reports from 2013 to 2016, the highest MDD/ADD ratio occurred in 2016. The 2016 MDD/ADD ratio of 3.20 was used to estimate the MDD for the proposed development. Using this factor and the ADD of 25,520 gpd, the estimated MDD at the proposed development is 81,664 gpd. The estimated ADD and MDD does not include water usage associated with irrigation. If the proponent plans to use water for any irrigation purposes, the proponent should provide the information on anticipated irrigation usage to further evaluate the estimated demands in comparison to the available supply.

The peak hour demand of the proposed development was estimated with a peaking factor of six times the average day demand, a total of approximately 106 gpm. These flows were added to the maximum day demand (MDD) for the existing system of approximately 1.4 million gallons per day, or approximately 970 gpm.

Site Plans

Based on the preliminary water main configuration presented by the proponent in the Site Plans, we offer the following comments and recommendations.

1. In general, fire hydrants should be placed at an interval of approximately 500 feet and isolation valves at an interval of 1,000 feet, in accordance with standard waterworks practice. Currently, the fire hydrants and isolation valves are not placed to meet these intervals. Final hydrant locations should be approved by the Manchester-by-the-Sea Water and Fire Departments. We recommend installing valves at intervals of 1,000 feet to allow for isolated shutdowns, if necessary, in the future.
2. The proposed pipe material and diameter are not provided. All proposed pipe should be a minimum of 8-inch diameter and be Class 52 cement lined ductile iron pipe.

Hydraulic Evaluation

Tata & Howard conducted hydraulic simulations using the model of the existing Manchester-by-the-Sea water distribution system. The model was updated to include approximately 3,700 linear feet of new 8-inch diameter water main on School Street from the existing distribution system main near the Essex County Club driveway to driveway of the proposed development and approximately 1,750 linear feet of 8-inch diameter water main within the new development. The 3,700 feet of water main on school street includes replacement of approximately 1,350 linear feet of existing 6-inch diameter main on School Street. This evaluation also incorporates the ongoing cleaning and lining project on School Street from the Central Street intersection to the Essex County Club driveway. According to the Grading and Drainage Plan, the maximum ground elevation in the new development is approximately 124 feet above mean sea level (MSL). This

location is where the proposed water service is shown entering the building. The ground elevation on School Street at the proposed driveway is approximately 51 feet above MSL. The static pressures at these two locations are shown on Figure No. 1.

The model simulation was completed using the existing MDD for the Manchester-by-the-Sea system with the additional estimated demand from the proposed development. The Moses Hill Standpipe was set at a hydraulic grade line elevation of approximately 262 feet above MSL, and the Water Treatment Plant was online. The results of the simulations show that the static pressure at the connection to the proposed building (ground elevation 124 feet above MSL) under MDD conditions is approximately 57 pounds per square inch (psi). The static pressure on School Street at the proposed driveway is approximately 90 psi. The Massachusetts Department of Environmental Protection (MassDEP) published Guidelines for Public Water Systems recommend a minimum pressure of 35 psi at ground level under average day, maximum day, and peak hour demand condition. For mains or individual service lines where static pressure is above 100 psi, it is recommended that pressure reducing devices be utilized.

The developer has submitted a needed fire flow of 1,000 gpm at 20 psi. The 2014 ISO Guidelines for Determination of Needed Fire Flow states that where evidence is available from local fire or building officials to document the installation, approval, testing, and maintenance of the sprinkler system as defined in Chapter 6 of the NFPA Standard, the needed fire flow shall be the greater of the demand at the base of the sprinkler system riser or 1,000 gpm at 20 psi.

It is recommended that a distribution system provide a minimum pressure of 20 psi at ground level throughout the system under MDD during a fire event. Information obtained from the hydraulic model indicates that an estimated available fire flow of approximately 650 gpm is available within the proposed development while maintaining 20 psi throughout the distribution system under MDD conditions. If the 3,700 linear feet of new 8-inch diameter water main from the Essex County Club driveway to the new development was 12-inch diameter ductile iron water main, the estimated available fire flow within the development would be approximately 1,000 gpm.

Mr. Geoff Engler
SLV School Street, LLC

Page 4 of 4
June 3, 2022

We appreciate the opportunity to assist you on this important matter. If you have any questions regarding this letter, please contact our office.

Sincerely,

TATA & HOWARD, INC.



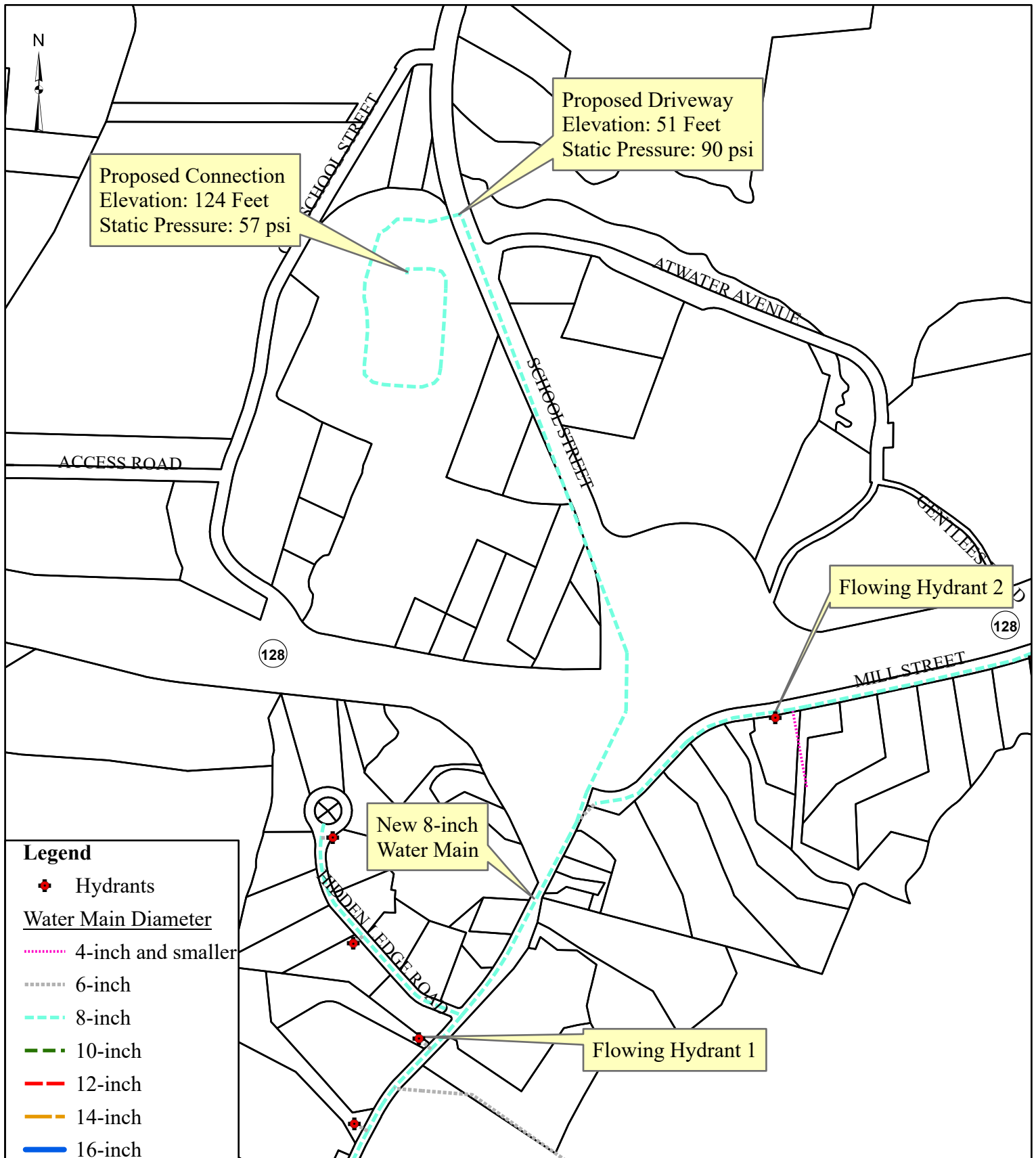
Justine M. Carroll, P.E.
Vice President

cc: Charles Dam, MBTS

Attachments

Table No. 1
Flow Test Results (May 12, 2022)

Location of Flowing Hydrant	Static Pressure		Residual Pressure		Estimated Available Flow at 20 psi (gpm)
	Flowing Hydrant (psi)	Residual Hydrant A (psi)	Residual Hydrant A (psi)	Observed Flow (gpm)	
School Street at Hidden Ledge Road	97	96	69	590	1,030
13-19 Mill Street	100	95	18	650	640



Date: June, 2022
Approximate Scale: 1" = 500'

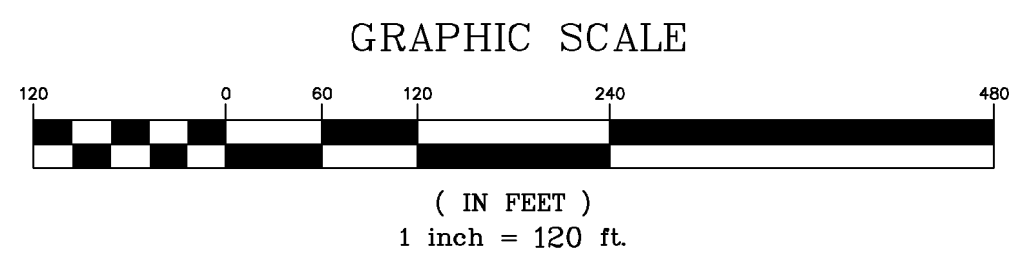
Proposed School Street Development
Manchester-by-the-Sea, MA

Figure No.

1



- DIG SAFE**
- BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233
- NOTES:**
1. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION, ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
 2. THIS PLAN WAS PREPARED USING AVAILABLE SITE INFORMATION FROM SEVERAL SOURCES, SOME OF WHICH IS UNCONFIRMED. CONTOURS SHOWN WERE TAKEN FROM MASS GIS; ALL ELEVATIONS REFER TO NAVD 88.
 3. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
 4. ALL UTILITIES SHOWN ON THIS PLAN ARE FOR COORDINATION PURPOSES ONLY. MEP ENGINEER SHALL COORDINATE WITH THE MANCHESTER-BY-THE-SEA DPW & CITY ENGINEER TO DETERMINE THE FINAL LOCATION, SIZE AND MATERIAL OF EACH UTILITY PROPOSED.
 5. FIRE HYDRANTS SHALL BE PLACED AT AN INTERVAL OF APPROXIMATELY 500 FEET AND ISOLATION VALVES AT AN INTERVAL OF 1,000 FEET, IN ACCORDANCE WITH STANDARD WATERWORKS PRACTICE. FINAL HYDRANT LOCATIONS SHOULD BE APPROVED BY THE MANCHESTER-BY-THE-SEA WATER & FIRE DEPARTMENTS.
 6. ALL PROPOSED PIPE SHALL ME A CLASS 52 CEMENT LINED DUCTILE IRON PIPE.



N:\PROJECTS\2725-01\CIVIL\DRAWINGS\CONCEPTUAL\2022-06-14 - CONCEPTUAL SEWER AND WATER MAINS\WATER AND SEWER MAIN PROFILE.DWG

REV	DATE	DESCRIPTION

APPLICANT/OWNER:
SLV SCHOOL STREET, LLC
257 HILLSIDE AVENUE
NEEDHAM, MA 02494

PROJECT:
**THE SANCTUARY
SCHOOL STREET
MANCHESTER-BY-THE-SEA, MA**

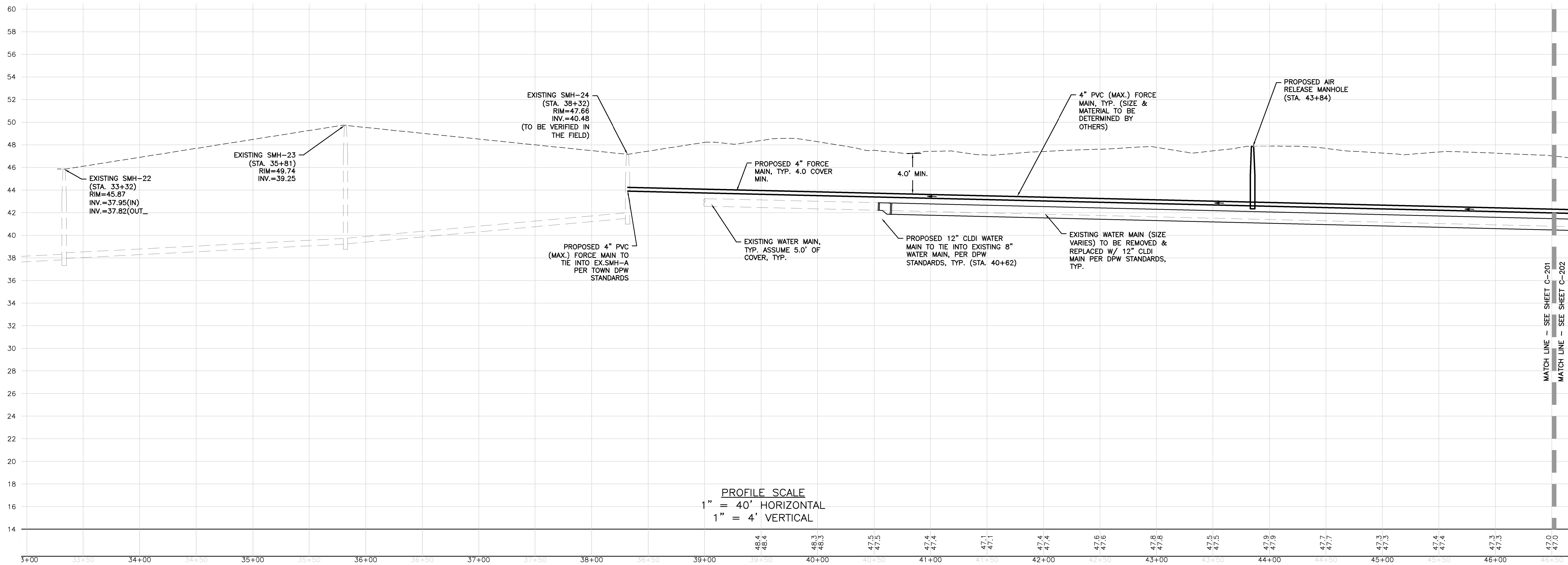
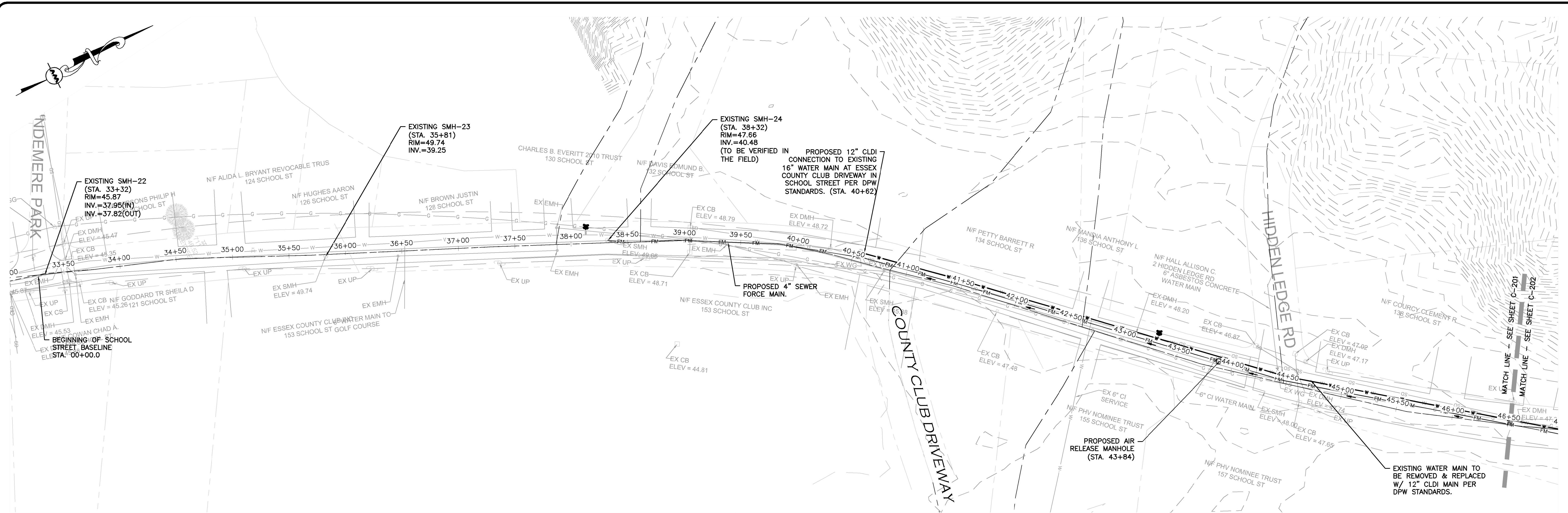
PROJECT NO. 2725-01 DATE: 07-07-2022
SCALE: 1"=120' DWG. NAME: C-2725-01
DESIGNED BY: SJL CHECKED BY: CMQ

PREPARED BY:
**ALLEN & MAJOR
ASSOCIATES, INC.**
civil engineering • land surveying
environmental consulting • landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801-8501
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

THIS DRAWING HAS BEEN PREPARED IN DIGITAL FORMAT. CLIENT/CUSTOMER'S REPRESENTATIVE OR CONSULTANTS MAY BE PROVIDED COPIES OF DRAWINGS AND SPECIFICATIONS FOR HIS/HER INFORMATION AND/OR SPECIFIC USE ON THIS PROJECT. DUE TO THE POTENTIAL THAT THE PROVIDED INFORMATION MAY BE MODIFIED UNINTENTIONALLY OR OTHERWISE, ALLEN & MAJOR ASSOCIATES, INC. MAY REMOVE ALL INDICATION OF THE DOCUMENT'S AUTHORITY ON THE DIGITAL MEDIA. PRINTED REPRESENTATIONS OR PORTABLE DOCUMENT FORMAT OF THE DRAWINGS AND SPECIFICATIONS ISSUED SHALL BE THE ONLY RECORD COPIES OF ALLEN & MAJOR ASSOCIATES, INC.'S WORK PRODUCT.

DRAWING TITLE:
**CONCEPTUAL SEWER &
WATER EXTENSION OVERALL
PLAN**
Copyright © 2022 Allen & Major Associates, Inc.
All Rights Reserved.

SHEET No.
C-200



DIG SAFE

BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233

NOTES:

- THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
- THIS PLAN WAS PREPARED USING AVAILABLE SITE INFORMATION FROM SEVERAL SOURCES, SOME OF WHICH IS UNCONFIRMED. CONTOURS SHOWN WERE TAKEN FROM MASS GIS; ALL ELEVATIONS REFER TO NAVD 88.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
- ALL UTILITIES SHOWN ON THIS PLAN ARE FOR COORDINATION PURPOSES ONLY. MEP ENGINEER SHALL COORDINATE WITH THE MANCHESTER-BY-THE-SEA DPW & CITY ENGINEER TO DETERMINE THE FINAL LOCATION, SIZE AND MATERIAL OF EACH UTILITY PROPOSED.
- FIRE HYDRANTS SHALL BE PLACED AT AN INTERVAL OF APPROXIMATELY 500 FEET AND ISOLATION VALVES AT AN INTERVAL OF 1,000 FEET, IN ACCORDANCE WITH STANDARD WATERWORKS PRACTICE. FINAL HYDRANT LOCATIONS SHOULD BE APPROVED BY THE MANCHESTER-BY-THE-SEA WATER & FIRE DEPARTMENTS.
- ALL PROPOSED PIPE SHALL ME A CLASS 52 CEMENT LINED DUCTILE IRON PIPE.

PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

REV	DATE	DESCRIPTION

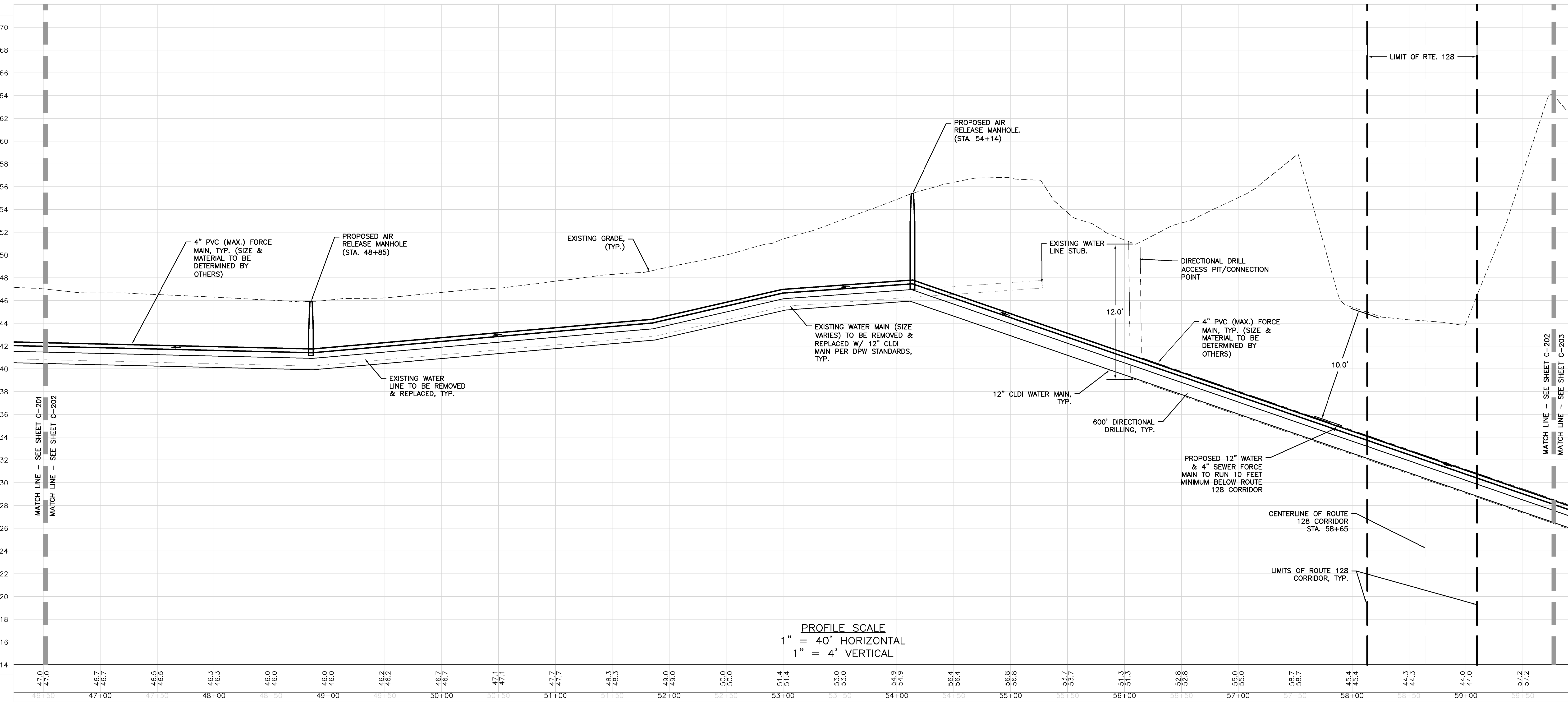
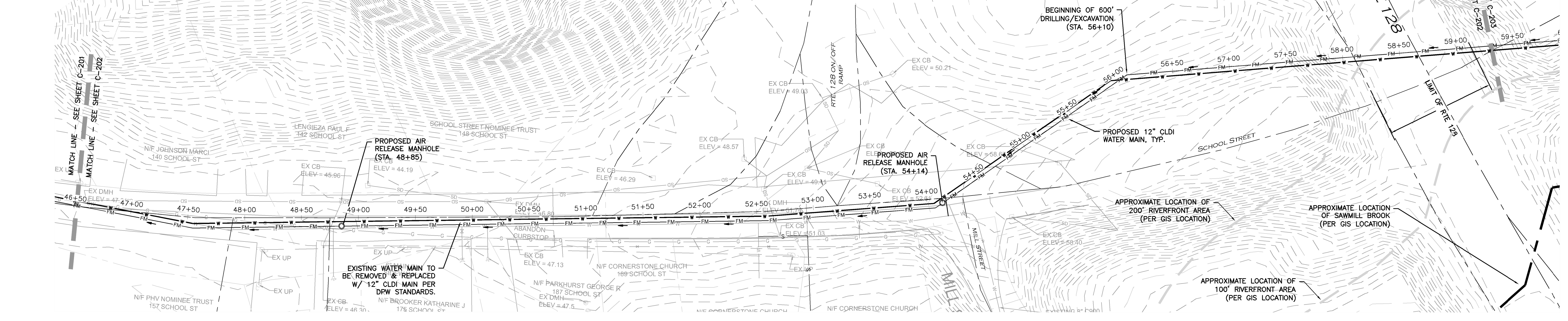
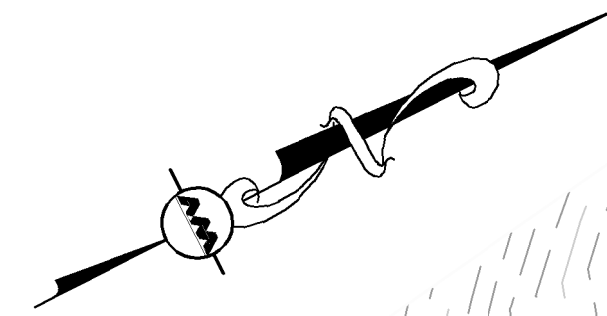
APPLICANT/OWNER:
SLV SCHOOL STREET, LLC
257 HILLSIDE AVENUE
NEEDHAM, MA 02494

PROJECT:
**THE SANCTUARY
SCHOOL STREET
MANCHESTER-BY-THE-SEA, MA**

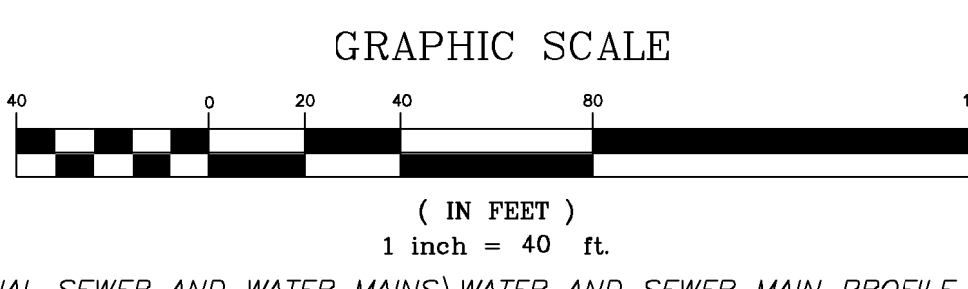
PROJECT NO. 2725-01 DATE: 07-07-2022
SCALE: 1"=40' DWG. NAME: C2725-01
DESIGNED BY: SJL CHECKED BY: CMQ

PREPARED BY:
**ALLEN & MAJOR
ASSOCIATES, INC.**
civil engineering • land surveying
environmental consulting • landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801-5501
TEL: (781) 935-6889
FAX: (781) 935-2896

WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH
THIS DRAWING HAS BEEN PREPARED IN DIGITAL FORMAT. CLIENT/CLIENTS REPRESENTATIVE OR CONSULTANTS MAY BE PROVIDED COPIES OF DRAWINGS AND SPECIFICATIONS FOR HIS/HER INFORMATION AND/OR SPECIFIC USE ON THIS PROJECT. DUE TO THE POTENTIAL THAT THE PROVIDED INFORMATION MAY BE MODIFIED UNINTENTIONALLY OR OTHERWISE, ALLEN & MAJOR ASSOCIATES, INC. MAY REMOVE ALL INDICATION OF THE DOCUMENT'S AUTHORITY ON THE DIGITAL MEDIA. PRINTED REPRESENTATIONS OR PORTABLE DOCUMENT FORMAT OF THE DRAWINGS AND SPECIFICATIONS ISSUED SHALL BE THE ONLY RECORD COPIES OF ALLEN & MAJOR ASSOCIATES, INC.'S WORK PRODUCT.
DRAWING TITLE:
**CONCEPTUAL SEWER &
WATER EXTENSION PLAN &
PROFILE**
SHEET No.
C-201



- NOTES:**
1. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION, ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
 2. THIS PLAN WAS PREPARED USING AVAILABLE SITE INFORMATION FROM SEVERAL SOURCES, SOME OF WHICH IS UNCONFIRMED. CONTOURS SHOWN WERE TAKEN FROM MASS GIS; ALL ELEVATIONS REFER TO NAVD 88.
 3. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
 4. ALL UTILITIES SHOWN ON THIS PLAN ARE FOR COORDINATION PURPOSES ONLY. MEP ENGINEER SHALL COORDINATE WITH THE MANCHESTER-BY-THE-SEA DPW & CITY ENGINEER TO DETERMINE THE FINAL LOCATION, SIZE AND MATERIAL OF EACH UTILITY PROPOSED.
 5. FIRE HYDRANTS SHALL BE PLACED AT AN INTERVAL OF APPROXIMATELY 500 FEET AND ISOLATION VALVES AT AN INTERVAL OF 1,000 FEET, IN ACCORDANCE WITH STANDARD WATERWORKS PRACTICE. FINAL HYDRANT LOCATIONS SHOULD BE APPROVED BY THE MANCHESTER-BY-THE-SEA WATER & FIRE DEPARTMENTS.
 6. ALL PROPOSED PIPE SHALL ME A CLASS 52 CEMENT LINED DUCTILE IRON PIPE.



N:\PROJECTS\2725-01\CIVIL\DRAWINGS\CONCEPTUAL\2022-06-14 - CONCEPTUAL SEWER AND WATER MAINS\WATER AND SEWER MAIN PROFILE.DWG

REV	DATE	DESCRIPTION

APPLICANT/OWNER:
SLV SCHOOL STREET, LLC
257 HILLSIDE AVENUE
NEEDHAM, MA 02494

PROJECT:
**THE SANCTUARY
SCHOOL STREET
MANCHESTER-BY-THE-SEA, MA**

PROJECT NO. 2725-01 DATE: 07-07-2022
SCALE: 1"=40' DWG. NAME: C2725-01
DESIGNED BY: SJL CHECKED BY: CMQ

PREPARED BY:

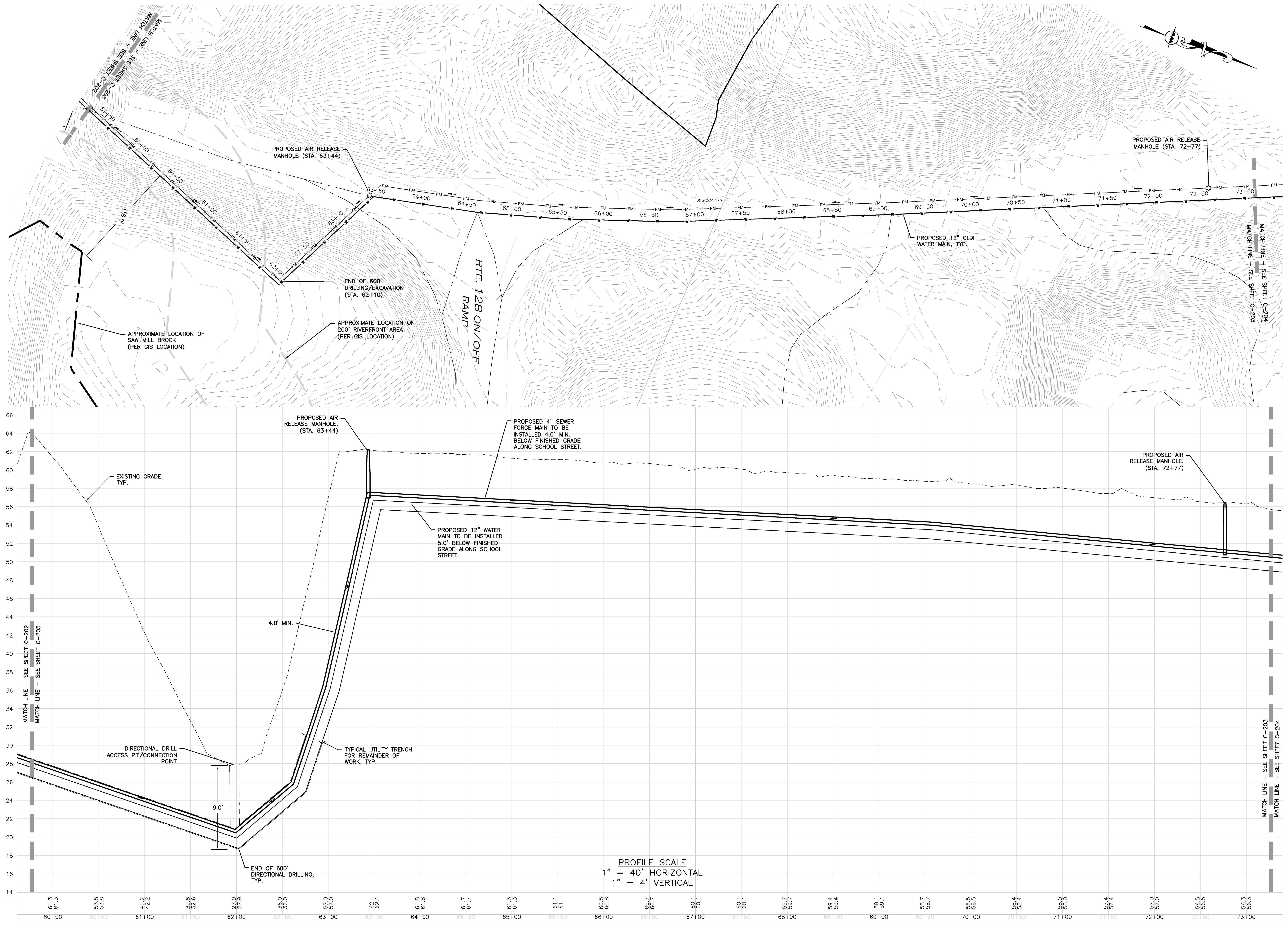
**ALLEN & MAJOR
ASSOCIATES, INC.**
civil engineering • land surveying
environmental consulting • landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801-8501
TEL: (781) 935-6889
FAX: (781) 935-2896

WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

THIS DRAWING HAS BEEN PREPARED IN DIGITAL FORMAT. CLIENTS/CLIENTS' REPRESENTATIVE OR CONSULTANTS MAY BE PROVIDED COPIES OF DRAWINGS AND SPECIFICATIONS FOR HIS/HER INFORMATION AND/OR SPECIFIC USE ON THIS PROJECT. DUE TO THE POTENTIAL THAT THE PROVIDED INFORMATION MAY BE MODIFIED UNINTENTIONALLY OR OTHERWISE, ALLEN & MAJOR ASSOCIATES, INC. MAY REMOVE ALL INDICATION OF THE DOCUMENT'S AUTHORITY ON THE DIGITAL MEDIA. PRINTED REPRESENTATIONS OR PORTABLE DOCUMENT FORMAT OF THE DRAWINGS AND SPECIFICATIONS ISSUED SHALL BE THE ONLY RECORD COPIES OF ALLEN & MAJOR ASSOCIATES, INC.'S WORK PRODUCT.

DRAWING TITLE:
**CONCEPTUAL SEWER &
WATER EXTENSION PLAN &
PROFILE**

SHEET No.
C-202



DIG SAFE

BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233

NOTES:

- THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION, ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
- THIS PLAN WAS PREPARED USING AVAILABLE SITE INFORMATION FROM SEVERAL SOURCES, SOME OF WHICH IS UNCONFIRMED. CONTOURS SHOWN WERE TAKEN FROM MASS GIS; ALL ELEVATIONS REFER TO NAVD 88.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
- ALL UTILITIES SHOWN ON THIS PLAN ARE FOR COORDINATION PURPOSES ONLY. MEP ENGINEER SHALL COORDINATE WITH THE MANCHESTER-BY-THE-SEA DPW & CITY ENGINEER TO DETERMINE THE FINAL LOCATION, SIZE AND MATERIAL OF EACH UTILITY PROPOSED.
- FIRE HYDRANTS SHALL BE PLACED AT AN INTERVAL OF APPROXIMATELY 500 FEET AND ISOLATION VALVES AT AN INTERVAL OF 1,000 FEET, IN ACCORDANCE WITH STANDARD WATERWORKS PRACTICE. FINAL HYDRANT LOCATIONS SHOULD BE APPROVED BY THE MANCHESTER-BY-THE-SEA WATER & FIRE DEPARTMENTS.
- ALL PROPOSED PIPE SHALL ME A CLASS 52 CEMENT LINED DUCTILE IRON PIPE.

PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

REV	DATE	DESCRIPTION

APPLICANT/OWNER:
SLV SCHOOL STREET, LLC
257 HILLSIDE AVENUE
NEEDHAM, MA 02494

PROJECT:
**THE SANCTUARY
SCHOOL STREET
MANCHESTER-BY-THE-SEA, MA**

PROJECT NO.	2725-01	DATE:	07-07-2022
SCALE:	1"=40'	DWG. NAME:	C2725-01
DESIGNED BY:	SJL	CHECKED BY:	CMQ

PREPARED BY:

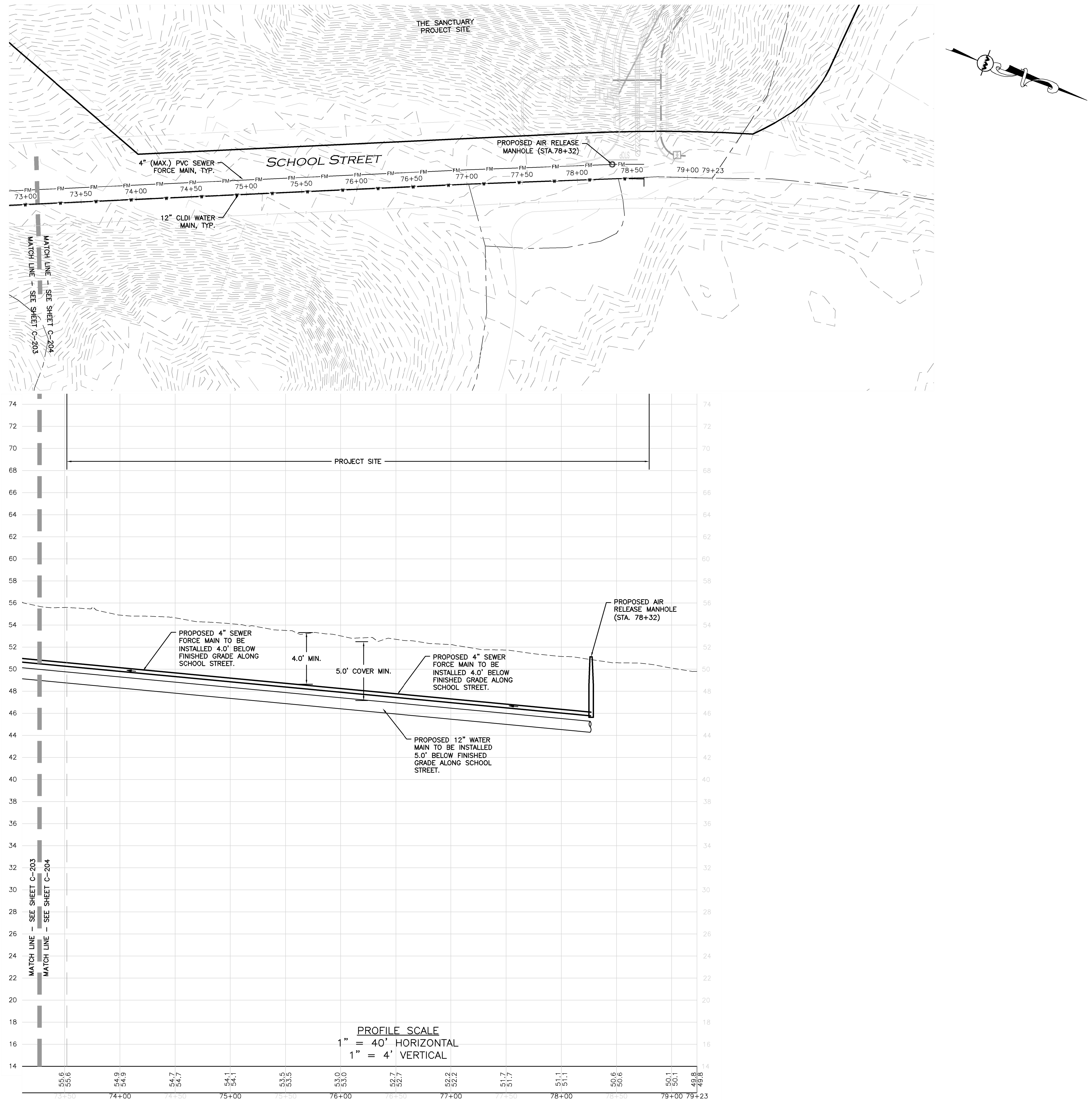
**ALLEN & MAJOR
ASSOCIATES, INC.**
civil engineering • land surveying
environmental consulting • landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801-8501
TEL: (781) 935-6889
FAX: (781) 935-2896

WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

THIS DRAWING HAS BEEN PREPARED IN DIGITAL FORMAT. CLIENT/CLIENTS REPRESENTATIVE OR CONSULTANTS MAY BE PROVIDED COPIES OF DRAWINGS AND SPECIFICATIONS FOR HIS/HER INFORMATION AND/OR SPECIFIC USE ON THIS PROJECT. DUE TO THE POTENTIAL THAT THE PROVIDED INFORMATION MAY BE MODIFIED UNINTENTIONALLY OR OTHERWISE, ALLEN & MAJOR ASSOCIATES, INC. MAY REMOVE ALL INDICATION OF THE DOCUMENTS AUTHORITY ON THE DIGITAL MEDIA. PRINTED REPRESENTATIONS OR PORTABLE DOCUMENT FORMAT OF THE DRAWINGS AND SPECIFICATIONS ISSUED SHALL BE THE ONLY RECORD COPIES OF ALLEN & MAJOR ASSOCIATES, INC.'S WORK PRODUCT.

DRAWING TITLE: CONCEPTUAL SEWER & WATER EXTENSION PLAN & PROFILE	SHEET No. C-203
--	---------------------------

Copyright © 2022 Allen & Major Associates, Inc.
All Rights Reserved.



DIG SAFE



BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233

NOTES:

1. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
2. THIS PLAN WAS PREPARED USING AVAILABLE SITE INFORMATION FROM SEVERAL SOURCES, SOME OF WHICH IS UNCONFIRMED. CONTOURS SHOWN WERE TAKEN FROM MASS GIS; ALL ELEVATIONS REFER TO NAVD 88.
3. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE

EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

4. ALL UTILITIES SHOWN ON THIS PLAN ARE FOR COORDINATION PURPOSES ONLY. MEP ENGINEER SHALL COORDINATE WITH THE MANCHESTER-BY-THE-SEA DPW & CITY ENGINEER TO DETERMINE THE FINAL LOCATION, SIZE AND MATERIAL OF EACH UTILITY PROPOSED.
5. FIRE HYDRANTS SHALL BE PLACED AT AN INTERVAL OF APPROXIMATELY 500 FEET AND ISOLATION VALVES AT AN INTERVAL OF 1,000 FEET, IN ACCORDANCE WITH STANDARD WATERWORKS PRACTICE. FINAL HYDRANT LOCATIONS SHOULD BE APPROVED BY THE MANCHESTER-BY-THE-SEA WATER &

FIRE DEPARTMENTS.

6. ALL PROPOSED PIPE SHALL ME A CLASS 52 CEMENT LINED DUCTILE IRON PIPE.

N:\PROJECTS\2725-01\CIVIL\DRAWINGS\CONCEPTUAL\2022-06-14 - CONCEPTUAL SEWER AND WATER MAINS\WATER AND SEWER MAIN PROFILE.DWG

REV	DATE	DESCRIPTION

APPLICANT/OWNER:

SLV SCHOOL STREET, LLC
257 HILLSIDE AVENUE
NEEDHAM, MA 02494

PROJECT:

THE SANCTUARY
SCHOOL STREET
MANCHESTER-BY-THE-SEA, MA

PROJECT NO. 2725-01 DATE: 07-07-2022

SCALE: 1"=40' DWG. NAME: C-2725-01

DESIGNED BY: SJL CHECKED BY: CMQ

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering • land surveying
environmental consulting • landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801-8501
TEL: (781) 935-6889
FAX: (781) 935-2896

WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

THIS DRAWING HAS BEEN PREPARED IN DIGITAL FORMAT. CLIENT/CLIENTS REPRESENTATIVE OR CONSULTANTS MAY BE PROVIDED COPIES OF DRAWINGS AND SPECIFICATIONS FOR HIS/HER INFORMATION AND/OR SPECIFIC USE ON THIS PROJECT. DUE TO THE POTENTIAL THAT THE PROVIDED INFORMATION MAY BE MODIFIED UNINTENTIONALLY OR OTHERWISE, ALLEN & MAJOR ASSOCIATES, INC. MAY REMOVE ALL INDICATION OF THE DOCUMENT'S AUTHORSHIP ON THE DIGITAL MEDIA. PRINTED REPRESENTATIONS OR PORTABLE DOCUMENT FORMAT OF THE DRAWINGS AND SPECIFICATIONS ISSUED SHALL BE THE ONLY RECORD COPIES OF ALLEN & MAJOR ASSOCIATES, INC.'S WORK PRODUCT.

DRAWING TITLE:
CONCEPTUAL SEWER &
WATER EXTENSION PLAN &
PROFILE

SHEET No.

C-204

Copyright © 2022 Allen & Major Associates, Inc.
All Rights Reserved