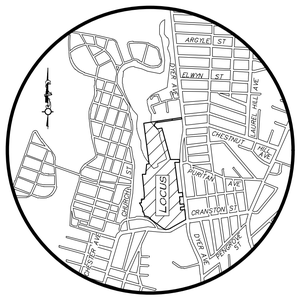


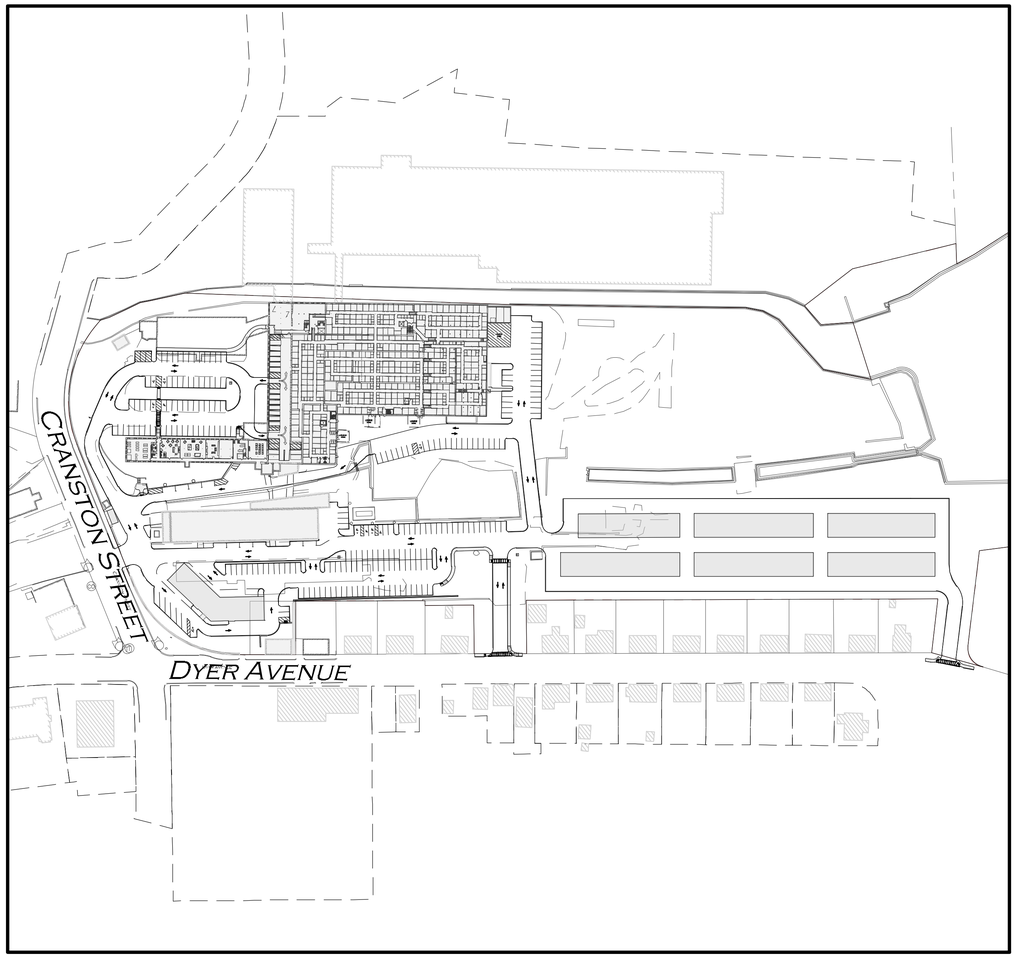
LOCUS MAP
(NOT TO SCALE)

SITE DEVELOPMENT PLAN SET

CRANSTON PRINT WORKS SITE REDEVELOPMENT

MAP 8, LOT 195,1617 & 2711

1381 CRANSTON STREET, CRANSTON, RI



GRAPHIC SCALE

120 0 60 120 240 480

(IN FEET)
1 inch = 120 ft.

APPLICANT/OWNER:
CPW TRUE STORAGE, LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101
603-231-1936

LAND SURVEYOR, CIVIL ENGINEER & LANDSCAPE ARCHITECT:
ALLEN & MAJOR ASSOCIATES, INC.
100 COMMERCE WAY
WOBURN, MA 01888-0118
(781) 935-6889

ARCHITECT
TRUE STORAGE - ARCHITECTURE DEPARTMENT
670 N. COMMERCIAL ST.
MANCHESTER, NH 03101
603-622-6223

PLAN NOTES:

1. EXISTING CONDITIONS ARE BASED UPON PLAN ENTITLED "EXISTING CONDITIONS – 1381 CRANSTON STREET – CRANSTON, RI" AS PREPARED BY ALLEN & MAJOR ASSOCIATES, INC.
2. THE NATURAL HERITAGE SURVEY HAS BEEN CHECKED AND IT IS VERIFIED THAT THERE IS NO ENDANGERED PLANTS OR ANIMALS IN OR AROUND THE PROJECT SITE.
3. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
4. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK. THE CONTRACTOR SHALL ALSO CONTACT THE CITY DEPARTMENT OF PUBLIC WORKS AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF LOCAL UTILITIES.

LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	REVISED
COVER	C	01/25/23	10/29/24
EXISTING CONDITIONS	V-101	04/11/22	-
EXISTING CONDITIONS	V-102	04/11/22	-
EXISTING CONDITIONS	V-103	04/11/22	-
LOCUS PLAN	C-001	10/29/30	01/23/25
GENERAL LOCATION PLAN	C-002	10/29/30	01/23/25
SITE PREPARATION PLAN	C-100	01/25/23	01/23/25
SOIL EROSION & SEDIMENT CONTROL PLAN	C-101A	01/25/23	01/23/25
SOIL EROSION & SEDIMENT CONTROL NOTES	C-101B	01/25/23	01/23/25
SOIL EROSION & SEDIMENT CONTROL DETAILS	C-101C	01/25/23	01/23/25
OVERALL LAYOUT & MATERIALS	C-102	01/25/23	01/23/25
LAYOUT & MATERIALS PLAN	C-102A	01/25/23	01/23/25
LAYOUT & MATERIALS PLAN	C-102B	01/25/23	01/23/25
LAYOUT & MATERIALS PLAN	C-102C	01/25/23	01/23/25
LAYOUT & MATERIALS PLAN	C-102D	01/25/23	01/23/25
LAYOUT & MATERIALS PLAN	C-102E	01/25/23	01/23/25
LAYOUT & MATERIALS PLAN	C-102F	01/25/23	01/23/25
OVERALL GRADING & DRAINAGE PLAN	C-103	01/25/23	01/23/25
GRADING & DRAINAGE PLAN	C-103A	01/25/23	01/23/25
GRADING & DRAINAGE PLAN	C-103B	01/25/23	01/23/25
GRADING & DRAINAGE PLAN	C-103C	01/25/23	01/23/25
GRADING & DRAINAGE PLAN	C-103D	01/25/23	01/23/25
GRADING & DRAINAGE PLAN	C-103E	01/25/23	01/23/25
GRADING & DRAINAGE PLAN	C-103F	01/25/23	01/23/25
OVERALL UTILITIES PLAN	C-104	01/25/23	01/23/25
UTILITIES PLAN	C-104A	01/25/23	01/23/25
UTILITIES PLAN	C-104B	01/25/23	01/23/25
UTILITIES PLAN	C-104C	01/25/23	01/23/25
UTILITIES PLAN	C-104D	01/25/23	01/23/25
UTILITIES PLAN	C-104E	01/25/23	01/23/25
UTILITIES PLAN	C-104F	01/25/23	01/23/25
FIRE TRUCK TURNING PLAN	C-106A	01/25/23	01/23/25
FIRE TRUCK TURNING PLAN	C-106B	01/25/23	01/23/25
WETLAND PLAN	C-107	10/16/23	01/23/25
DETAILS	C-501	01/25/23	01/23/25
DETAILS	C-502	01/25/23	01/23/25
DETAILS	C-503	01/25/23	01/23/25
DETAILS	C-504	01/25/23	01/23/25
DETAILS	C-505	01/26/23	01/23/25
DETAILS	C-506	07/10/23	01/23/25
DETAILS	C-507	10/16/23	01/23/25
OVERALL LANDSCAPE PLAN	L-100	01/25/23	01/23/25
LANDSCAPE PLAN	L-101A	01/25/23	01/23/25
LANDSCAPE PLAN	L-101B	01/25/23	01/23/25
LANDSCAPE PLAN	L-101C	01/25/23	01/23/25
LANDSCAPE PLAN	L-101D	01/25/23	01/23/25
LANDSCAPE PLAN	L-101E	01/25/23	01/23/25
LANDSCAPE PLAN	L-101F	01/25/23	01/23/25
LANDSCAPE DETAILS	L-501	01/25/23	01/23/25
LANDSCAPE DETAILS	L-502	01/25/23	01/23/25
LANDSCAPE DETAILS	L-503	-	01/23/25

ISSUED FOR RIDEM PERMITTING: JUNE 16, 2023
ISSUED FOR WATER & SEWER PERMITTING: AUGUST 9, 2023
ISSUED FOR RIDEM PERMITTING: NOVEMBER 29, 2023
ISSUED FOR WATER & SEWER PERMITTING: JANUARY 17, 2024
ISSUED FOR WATER & SEWER PERMITTING: MARCH 11, 2024
ISSUED FOR WATER & SEWER PERMITTING: OCTOBER 10, 2024
ISSUED FOR MASTER PLAN REVIEW: JANUARY 25, 2023
ISSUED FOR WATER & SEWER PERMITTING: JULY 10, 2023
ISSUED FOR RIDEM PERMITTING: OCTOBER 16, 2023
ISSUED FOR RIDEM PERMITTING: JANUARY 17, 2024
ISSUED FOR RIDEM PERMITTING: FEBRUARY 21, 2024
ISSUED FOR WATER & SEWER PERMITTING: MAY 28, 2024

ISSUED FOR DEVELOPMENT PLAN REVIEW: JANUARY 23, 2025

PREVIOUS APPROVAL NOTES:	
CITY OF CRANSTON DEVELOPMENT PLAN REVIEW	GRANTED JULY 21, 2022
MAJOR LAND DEVELOPMENT MASTER PLAN APPROVAL	GRANTED APRIL 4, 2023
ZONE CHANGE APPROVAL	GRANTED APRIL 27, 2023
PROVIDENCE WATER SUPPLY BOARD WATER SERVICE MODIFICATION	PENDING
VEOLIA WATER SANITARY SEWER SERVICE MODIFICATION	PENDING
RI ENERGY GAS SERVICE MODIFICATION	PENDING
RI ENERGY ELECTRIC SERVICE MODIFICATION	PENDING
CITY OF CRANSTON DEPARTMENT OF PUBLIC WORKS ROAD CUT	PENDING

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
7	01-23-25	ISSUED FOR DEVELOPMENT PLAN REVIEW
6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
5	05-28-24	MISC. REVS. PER SEWER DEPT COMMENTS
4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS

APPLICANT\OWNER:
CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:
SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:		DWG.:	C-2038-08_COVER
DESIGNED BY:	JRG	CHECKED BY:	MAM

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
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

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DRAWING TITLE: COVER
SHEET No. C
01 OF 51

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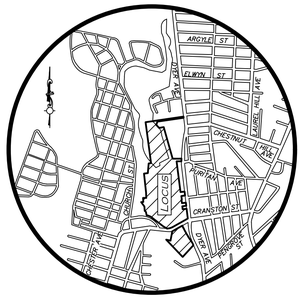
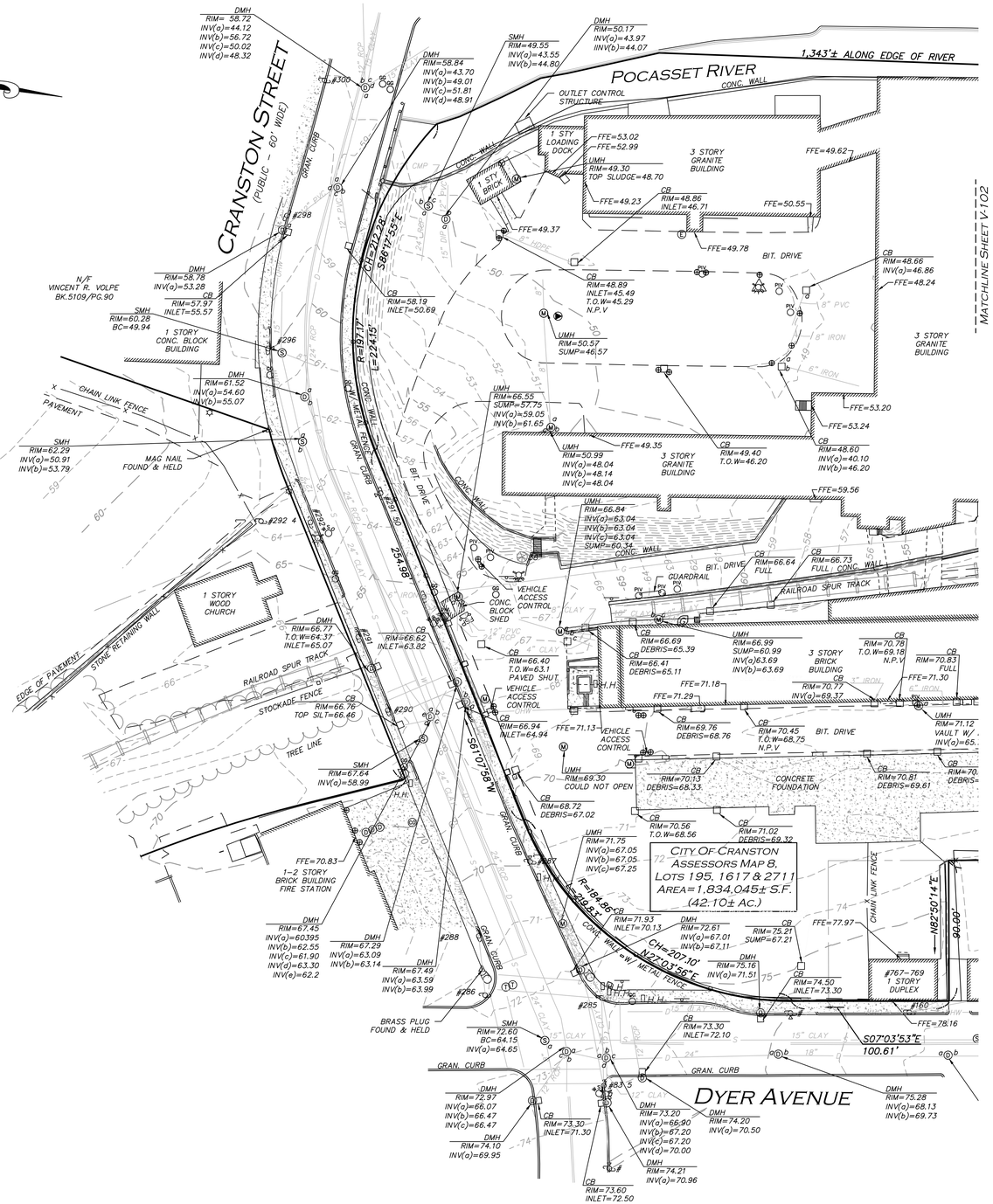


LOCUS MAP
(NOT TO SCALE)



UTILITY STATEMENT

THE UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. ALLEN & MAJOR ASSOCIATES, INC. (A&M) MAKES NO GUARANTEE THAT THE UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. A&M FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. A&M HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

NOTES

1. NORTH ARROW IS BASED ON RHODE ISLAND STATE PLANE COORDINATE SYSTEM (NAD 83).
2. BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM THE CITY OF CRANSTON, RI ASSESSORS DATABASE.
3. VERTICAL DATUM IS NAVD 88.
4. CONTOUR INTERVAL IS ONE FOOT (1').

LOCUS REFERENCES

–CITY OF CRANSTON ASSESSORS MAP 8, LOTS 195, 203, 1617, 2711 & 2739
–RECORD OWNER: GABHALTAIS TEAGHLAIGH LLC, 1381 CRANSTON ASSOCIATES, INC.
–DEED BOOK 6300, PAGE 154
–PLAN ENTITLED, "ALTA/ACSM URBAN LAND TITLE SURVEY FOR CRANSTON PRINT WORKS COMPANY CRANSTON, RI", DATED APRIL, 1999, SCALE 1"=200' PREPARED BY BIBEAULT AND FLORENTZ ASSOCIATES, INC.
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–PLAN NO. 911 AS FILED WITH THE CITY OF CRANSTON.

WE HEREBY CERTIFY THAT:

THIS PLAN IS THE RESULT OF AN ACTUAL ON THE GROUND SURVEY PERFORMED ON OR BETWEEN MARCH 8, 2022 AND APRIL 12, 2022.

THIS SURVEY HAS BEEN CONDUCTED AND THE PLAN HAS BEEN PREPARED PURSUANT TO SECTION 9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ON NOVEMBER 25, 2015 AS FOLLOWS:

TYPE OF BOUNDARY SURVEY:
BOUNDARY SURVEY

CLASS OF ACCURACY:
HORIZONTAL – CLASS 1
VERTICAL – V–1

THE PURPOSE FOR THE CONDUCT OF THE SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS: TO DOCUMENT EXISTING SITE TOPOGRAPHIC AND BOUNDARY CONDITIONS.

ALLEN & MAJOR ASSOCIATES, INC.

MAY 17, 2022

NORMAN I. LIPSITZ, PLS 1772
PROFESSIONAL LAND SURVEYOR FOR
ALLEN & MAJOR ASSOCIATES, INC.

NORMAN I. LIPSITZ
No. 1772
PROFESSIONAL LAND SURVEYOR
05/17/22

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

BRADY SULLIVAN PROPOERTIES
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

1381 CRANSTON STREET
CRANSTON, RI

PROJECT NO. 2038-08	DATE: 04/11/22
SCALE: 1" = 40'	DWG. NAME: S-2038-08-EC
DRAFTED BY: AJR	CHECKED BY: NIL

PREPARED BY:

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

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DRAWING TITLE:	SHEET No.
EXISTING CONDITIONS	V-101

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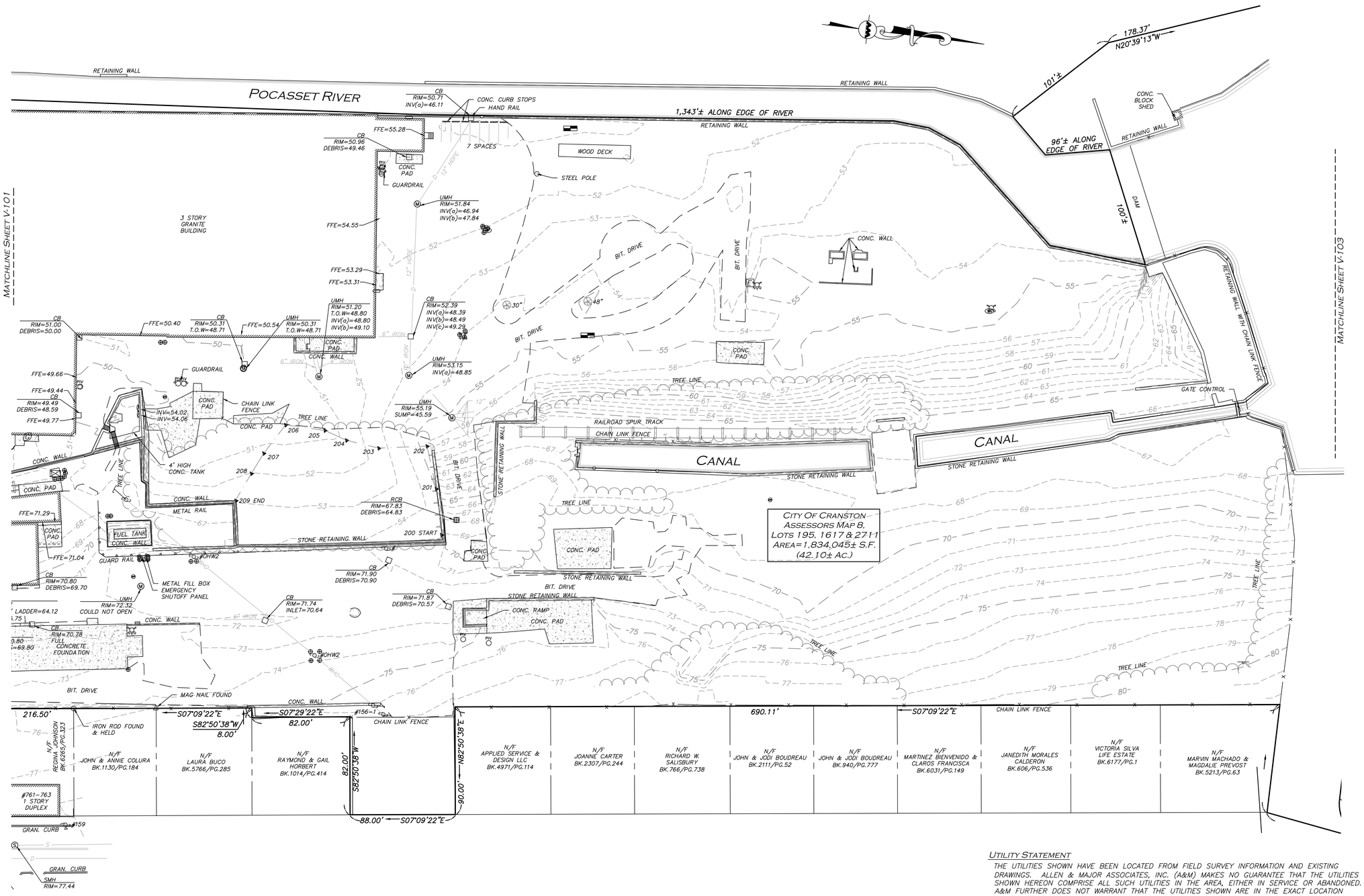

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NOTES

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3. VERTICAL DATUM IS NAVD 88.
4. CONTOUR INTERVAL IS ONE FOOT (1').
5. SEE SHEET V–103 FOR LEGEND.

GRAPHIC SCALE

40 0 20 40 80 161

(IN FEET)
1 inch = 40 ft.

N:\PROJECTS\2038-08\SURVEY\DRAWINGS\CURRENT\S-2038-08-EC.DWG

WE HEREBY CERTIFY THAT:

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TYPE OF BOUNDARY SURVEY:
BOUNDARY SURVEY

CLASS OF ACCURACY:
HORIZONTAL – CLASS 1
VERTICAL – V–1

THE PURPOSE FOR THE CONDUCT OF THE SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS: TO DOCUMENT EXISTING SITE TOPOGRAPHIC AND BOUNDARY CONDITIONS.

ALLEN & MAJOR ASSOCIATES, INC.

MAY 17, 2022

NORMAN I. LIPSITZ, PLS 1772
PROFESSIONAL LAND SURVEYOR FOR
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NORMAN I. LIPSITZ
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PROFESSIONAL LAND SURVEYOR
05/17/22

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

BRADY SULLIVAN PROPOERTIES
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

1381 CRANSTON STREET
CRANSTON, RI

PROJECT NO.	2038-08	DATE:	04/11/22
SCALE:	1" = 40'	DWG. NAME:	S-2038-08-EC
DRAFTED BY:	AJR	CHECKED BY:	NIL

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
100 COMMERCE WAY
WOBURN MA 01801-8501
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DRAWING TITLE:
EXISTING CONDITIONS

SHEET No.
V-102

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Locus References

- CITY OF CRANSTON ASSESSORS MAP 8, LOTS 195, 203, 1617, 2711 & 2739
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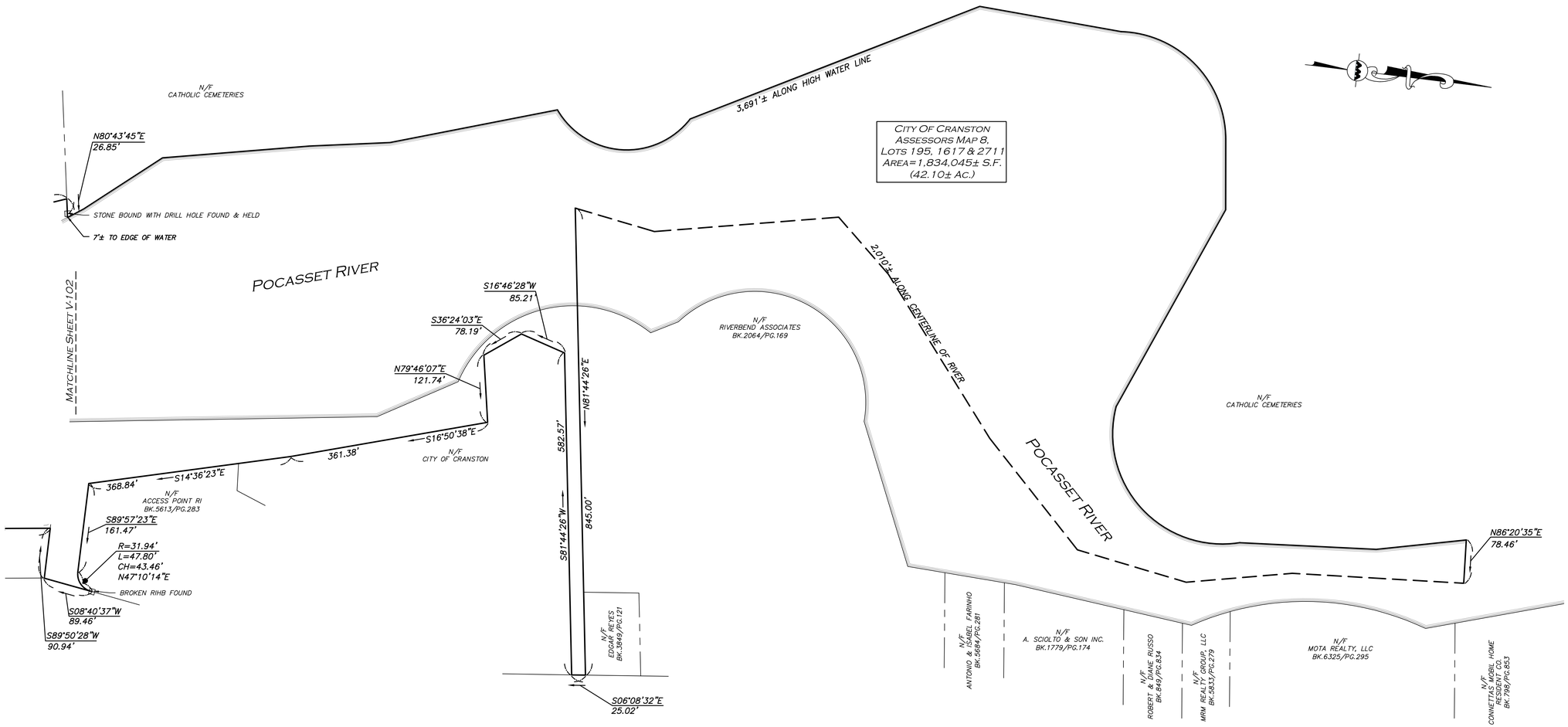
3. VERTICAL DATUM IS NAVD 88.
4. CONTOUR INTERVAL IS ONE FOOT (1').

LEGEND

STONE BOUND (SB)	⊡	BOLLARD	⊕	BUILDING OVERHANG	----------	GAS LINE	——G——
IRON PIPE (IP)	o	CLEANOUT	CO	EASEMENT LINE	—— ——	ELECTRIC LINE	——E——
IRON ROD (IR)	○	INVERT (INV)	INV	1' CONTOUR	— — 53 — —	TELEPHONE LINE	——T——
PK NAIL	△	LIGHT	☼	5' CONTOUR	— —55— —	OVERHEAD WIRES	——OHW——
DRAIN MANHOLE (DMH)	Ⓓ	VENT	V	PROPERTY LINE	———	FINISHED FLOOR ELEVATION	FFE
SEWER MANHOLE (SMH)	Ⓢ	DOWNSPOUT	▭	ABUTTERS LINE	—— — — ——	BITUMINOUS	BIT.
MISC. MANHOLE (MH)	Ⓜ	FLAG POLE	⚑	TREE LINE	∩∩∩∩∩	CONCRETE	CONC.
TELEPHONE MANHOLE (TMH)	Ⓣ	TRANSFORMER	⊠	EDGE OF PAVEMENT	— — — —	GRANITE	GRAN.
CATCH BASIN (CB)	□	TEST PIT LOCATION	▬	EDGE OF WATER	≈≈≈≈≈	BOTTOM CENTER	(BC)
UTILITY POLE	⌀	SIGN	▭	CURB	═══	REINFORCED CONCRETE PIPE	RCP
UTILITY POLE W/LIGHT	⌀☼	HAND HOLE	H.H.	CHAIN LINK FENCE	——x——	POLYVINYL CHLORIDE PIPE	PVC
GUY WIRE	⌐	ELECTRIC BOX	E	STOCKADE FENCE	——▫——	CORRUGATED METAL PIPE	CMP
FIRE HYDRANT	⍟	GAS METER	G	METAL FENCE	——o——	CAST IRON PIPE	CI
FIRE STANDPIPE	⍟	TRAFFIC MAST	◇	GUARDRAIL	▫ ▫ ▫ ▫	DUCTILE IRON PIPE	DI
WATER SERVICE	W	PARKING SPACE COUNT	16	WATER LINE	——W——	NOW OR FORMERLY	N/F
WATER GATE	⍟	CONCRETE		SEWER LINE	——S——	BOOK	BK.
GAS GATE	⍟	BUILDING		DRAIN LINE	——D——	PAGE	PG.



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

N:\PROJECTS\2038-08\SURVEY\DRAWINGS\CURRENT\S-2038-08-EC.DWG

WE HEREBY CERTIFY THAT:

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BOUNDARY SURVEY

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VERTICAL – V-1

THE PURPOSE FOR THE CONDUCT OF THE SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS: TO DOCUMENT EXISTING SITE TOPOGRAPHIC AND BOUNDARY CONDITIONS.

ALLEN & MAJOR ASSOCIATES, INC.

MAY 17, 2022

NORMAN I. LIPSITZ, PLS 1772
PROFESSIONAL LAND SURVEYOR FOR
ALLEN & MAJOR ASSOCIATES, INC.

NORMAN I. LIPSITZ
No. 1772
PROFESSIONAL LAND SURVEYOR
05/17/22

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

BRADY SULLIVAN PROPOERTIES
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

1381 CRANSTON STREET
CRANSTON, RI

PROJECT NO.	2038-08	DATE:	04/11/22
SCALE:	1" = 100'	DWG. NAME:	S-2038-08-EC
DRAFTED BY:	AJR	CHECKED BY:	NIL

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
100 COMMERCE WAY
WOBURN MA 01801-8500
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:

EXISTING CONDITIONS

SHEET No.

V-103

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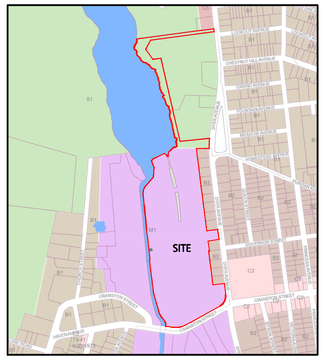

ZONING LOCUS PLAN
SCALE: 1" = 800'

ZONING DISTRICTS

B-2: RESIDENTIAL
B-1: RESIDENTIAL
M-1: INDUSTRIAL
S-1: OPEN SPACE
C-2: COMMERCIAL

CRANSTON PRINT WORKS POND

PROJECT SITE

195
17.32 AC

1617
14970 sf

2711
6938 sf

POCASSET RIVER

STREET
CHURCH STREET
DYER AVENUE
QUEEN STREET
VICTORIA AVENUE
PURITAN AVENUE
HOMESTEAD AVENUE
MEADOW AVENUE
FOUNTAIN AVENUE
CASINO AVENUE
CHESTNUT HILL AVENUE
LOOKOUT AVENUE
PRINCESS AVENUE
CHESTNUT HILL
RIVERBEND

TAX MAP LOCUS PLAN
SCALE: 1" = 100'

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\C-2038-08_LOCUS PLAN.DWG

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
7	01-23-25	ISSUED FOR DEVELOPMENT PLAN REVIEW
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5	05-28-24	MISC. REVS. PER SEWER DEPT COMMENTS
4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS

APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 100'	DWG.:C-2038-08_LOCUS PLAN	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ♦ land surveying
environmental consulting ♦ landscape architecture
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DRAWING TITLE:

LOCUS PLAN

SHEET No.

C-001

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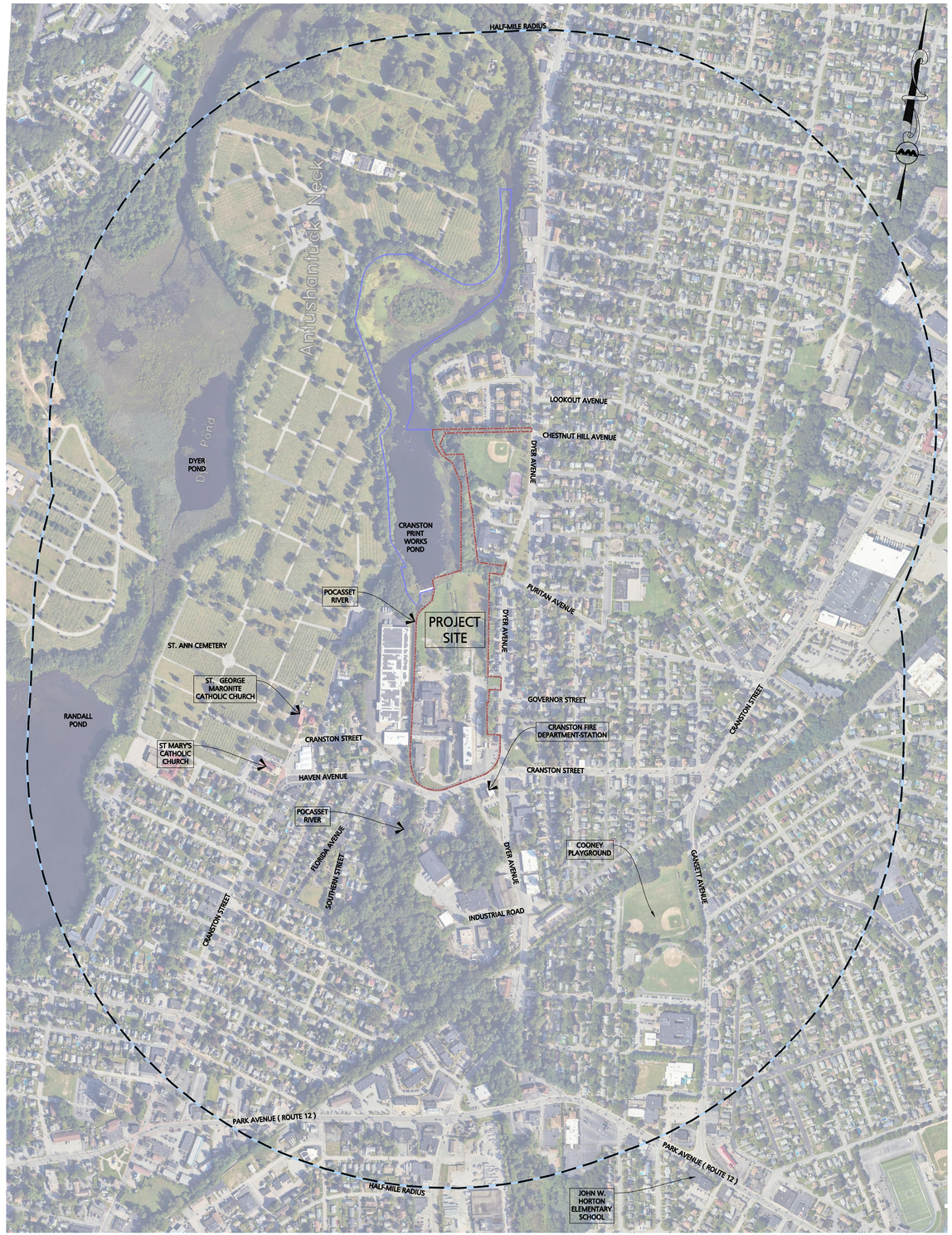
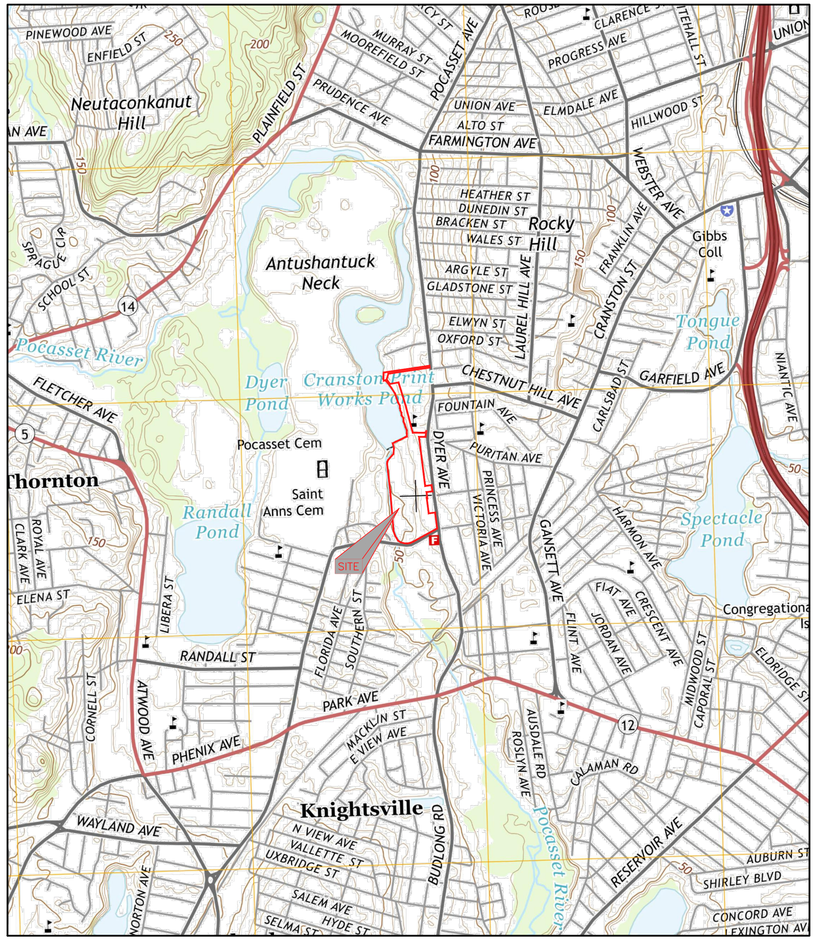


PHOTO OBTAINED GROM GOOGLE EARTH PRO
DATE OF PHOTOGRAPHY APRIL 2024

AERIAL LOCUS PLAN
SCALE: 1" = 400'

GRAPHIC SCALE
400 0 200 400 800
(IN FEET)
1 inch = 400 ft.



USGS LOCUS PLAN
SCALE: 1" = 1000'

GRAPHIC SCALE
1000 0 500 1000 2000
(IN FEET)
1 inch = 1000ft.

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 400'	DWG.:C2038-08_LOCUS PLAN	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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DRAWING TITLE:

GENERAL LOCATION PLAN

SHEET No.

C-002

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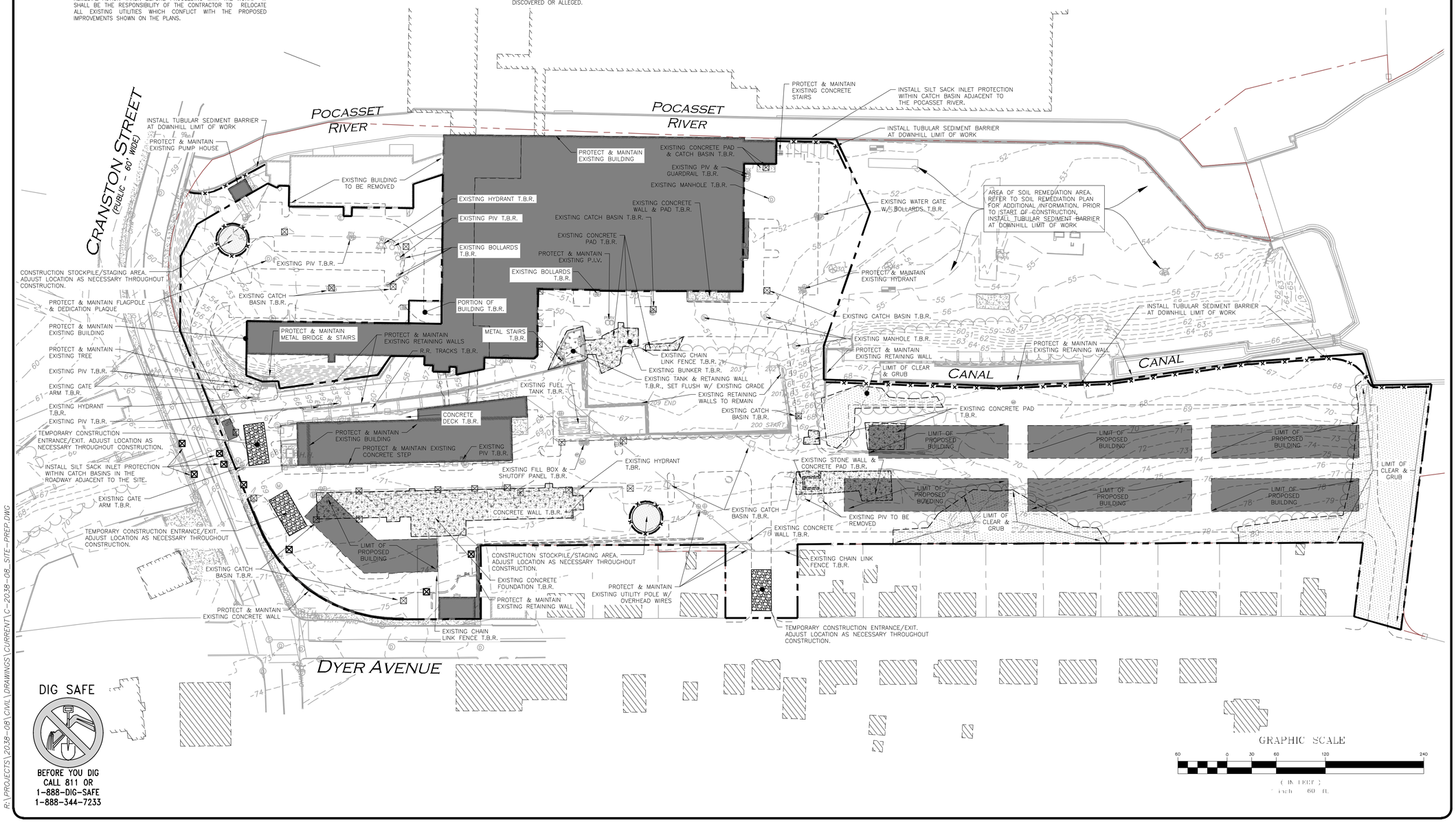
GENERAL NOTES:

1. THE MOST CURRENT EDITION OF THE STATE OF RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE RHODE ISLAND STANDARD DETAILS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO THE CURRENT VERSION OF THE STANDARD SPECIFICATIONS MAY BE OBTAINED AT THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS IN ADDITION, THE CITY OF CRANSTON STANDARD SPECIFICATIONS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO
2. ALL REQUIRED SITE IMPROVEMENTS SHALL BE INSPECTED BY THE TOWN ENGINEER TO ENSURE SATISFACTORY COMPLETION. IN NO CASE SHALL THE INSTALLATION OF ANY IMPROVEMENTS BE STARTED UNTIL PRIOR NOTIFICATION IS GIVEN TO THE CITY ENGINEER. AT LEAST A 48-HOUR NOTICE SHALL BE GIVEN TO THE TOWN ENGINEER PRIOR TO ANY SUCH START OF CONSTRUCTION. A FINAL INSPECTION OF ALL SITE IMPROVEMENTS, UTILITIES AND GRADING WILL BE MADE TO DETERMINE WHETHER THE WORK IS SATISFACTORY AND IN SUBSTANTIAL AGREEMENT WITH THE APPROVED FINAL CONSTRUCTION DRAWING AND THE TOWN SPECIFICATIONS.
3. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
4. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
5. ALTHOUGH CERTAIN ITEMS HAVE BEEN NOTED ON THIS DRAWING FOR DEMOLITION, NO ATTEMPT HAS BEEN MADE TO DELINEATE EACH AND EVERY ITEM THAT REQUIRES DEMOLITION FOR THE COMPLETION OF THE PROJECT. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL NECESSARY DEMOLITION WORK TO COMPLETE THE PROJECT. ALLEN & MAJOR ASSOCIATES, INC. IS NOT RESPONSIBLE FOR SITE DEMOLITION ITEMS NOT SHOWN ON THE SURVEY, OR SPECIFICALLY NOTED. THE DEMOLITION NOTES AND ARROWS ON THIS PLAN ARE TYPICAL AND DO NOT REFLECT QUANTITY.
6. WRITTEN DIMENSIONS ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS OR CONDITIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR.
7. IF SOILS WHICH ARE SUSPECTED TO BE CONTAMINATED ARE ENCOUNTERED DURING CONSTRUCTION, THEN THE APPLICANT MUST CONTACT RIDEM OFFICE OF LAND REVITALIZATION AND SUSTAINABLE MATERIALS MANAGEMENT.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY ALLEN & MAJOR ASSOCIATES DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK, OR THE OWNER'S EMPLOYEES, CUSTOMERS, OR THE GENERAL PUBLIC. THE SEAL OF THE ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PROVIDE THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), STATE, AND LOCAL REGULATIONS.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY'S GOVERNING AUTHORITY'S SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COSTS SHALL BE INCLUDED IN BASE BID.
10. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
11. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK. THE CONTRACTOR SHALL ALSO CONTACT THE CITY DEPARTMENT OF PUBLIC WORKS AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF LOCAL UTILITIES.
12. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. IT'S 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.
13. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.
14. ALL MONITORING WELLS ARE TO BE COMPLETELY REMOVED. IF ANY MONITORING WELL IS TO BE LEFT IN PLACE, A CERTIFIED WELL DRILLER WILL NEED TO DECOMMISSION THE WELL AND FILE A WELL REPORT WITH THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. NOT ALL MONITORING WELLS ARE SHOWN ON THIS DRAWING.

LEGEND

- TUBULAR BARRIER
- CATCH BASIN FILTER
- STABILIZED ENTRANCE
- STOCKPILE/STAGING AREA
- LIMIT OF DISTURBANCE
- BUILDING TO BE REMOVED
- CONCRETE TO BE REMOVED
- CATCH BASIN T.B.R.
- LIMIT OF 'CLEAR AND GRUB'



DIG SAFE

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GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\C-2038-08_SITE-PREP.DWG

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:
SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 60'	DWG.:C-2038-08_SITE-PREP	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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DRAWING TITLE: SITE PREPARATION PLAN

SHEET No. C-100

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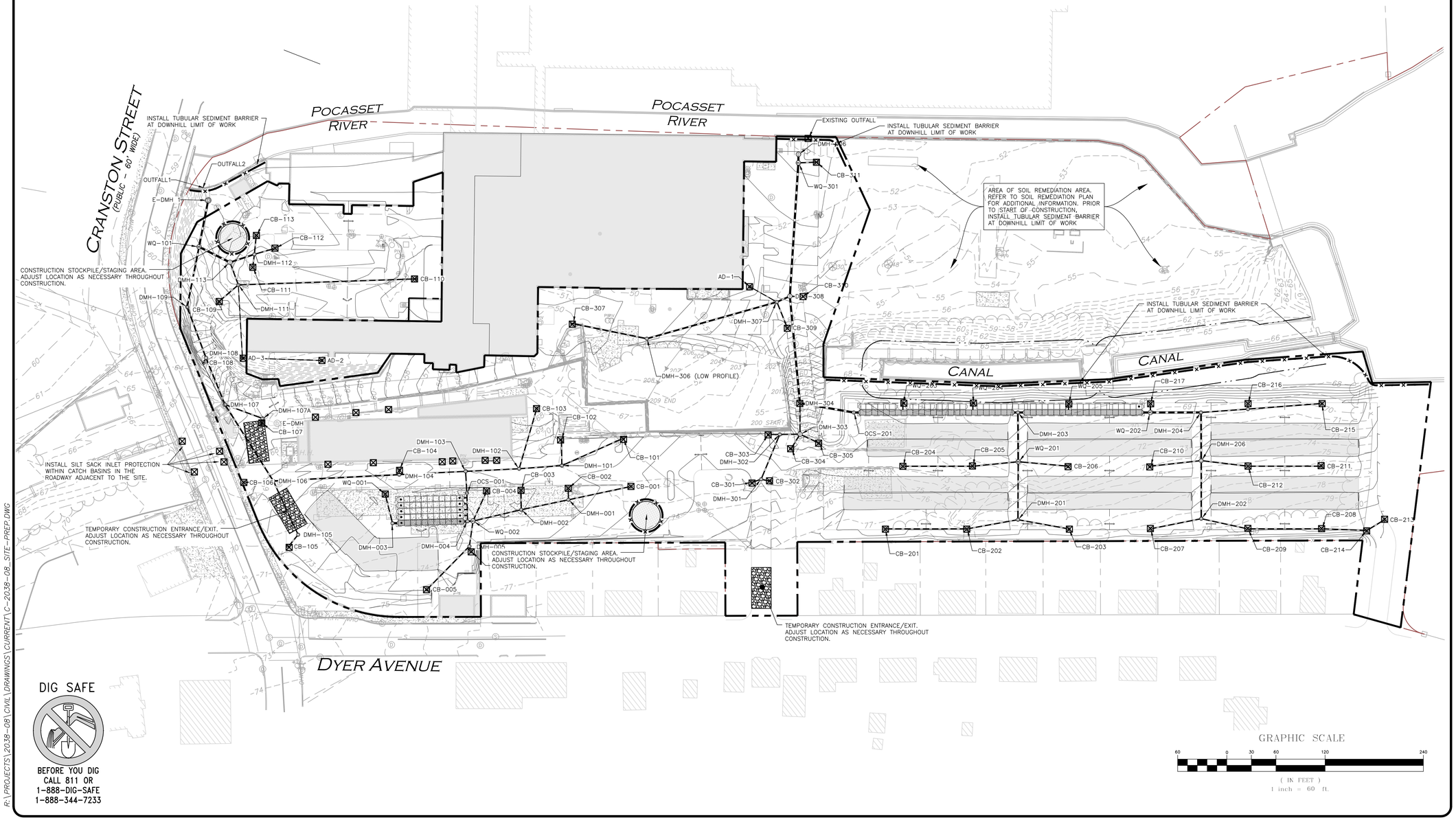
LEGEND

TUBULAR BARRIER	
CATCH BASIN FILTER	
STABILIZED ENTRANCE	
STOCKPILE/STAGING AREA	
LIMIT OF DISTURBANCE	
BUILDING TO BE REMOVED	
CONCRETE TO BE REMOVED	
CATCH BASIN T.B.R.	
LIMIT OF 'CLEAR AND GRUB'	



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1-888-344-7233

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

R:\PROJECTS\2038-08\CIVIL DRAWINGS\CURRENT\C-2038-08_SITE-PREP.DWG

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RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR
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ASSESSORS MAP 8, LOTS 195, 1617 & 2711
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PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 60'	DWG.:	C-2038-08_SITE-PREP
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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DRAWING TITLE:

SOIL EROSION AND SEDIMENT CONTROL PLAN

SHEET No.

C-101A

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08 OF 51

EROSION CONTROL AND SEDIMENT CONTROL NOTES

1. OWNER AND CONTRACTOR ARE RESPONSIBLE FOR COMPLIANCE WITH THE CONSTRUCTION GENERAL PERMIT NOI. COPIES OF ALL SCEC REPORTS SHALL BE PROVIDED TO THE CITY OF CRANSTON WITHIN 3 DAYS OF EACH INSPECTION.

2. APPLICABLE WORK AND MATERIALS SHALL COMPLY WITH ALL CITY OF CRANSTON, RIDEM, AND O.S.H.A. STANDARDS. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE SITE PLAN REGULATIONS FROM THE CITY OF CRANSTON PLANNING DEPARTMENT, AND THE PUBLIC WORKS DEPARTMENT SPECIFICATIONS, USDA SOIL CONSERVATION SERVICE VEGETATIVE PRACTICES IN SITE DEVELOPMENT.

3. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES, AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK.

4. ALL DISTURBED AREAS NOT OTHERWISE NOTED SHALL RECEIVE 4" OF SUITABLE LOAM & SEED UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED. TEMPORARY SEEDING MIX SHALL BE APPLIED AT RATE OF 5 LBS PER 1,000 S.F. WITH A MIXTURE OF 40% CREEPING RED FESCUE, 20% ANNUAL RYE GRASS, 20% KENTUCKY BLUEGRASS, 10% RED TOP, & 10% PERENNIAL RYE GRASS. CONTRACTOR SHALL AVOID PLANTING ANY INVASIVE SPECIES OR PROHIBITED PLANTS

5. AREAS WITH OVER 3:1 SLOPES SHALL BE PROTECTED WITH AN EROSION CONTROL BLANKET OR JUTE MESH.

6. SILT CONTROL SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE. ANY MODIFICATIONS TO SILT CONTROLS SHOWN ON THE APPROVED PLANS AS A RESULT OF ACTUAL FIELD CONDITIONS OR CONSTRUCTION PRACTICES SHALL BE INSTALLED IN ACCORDANCE WITH APPROVED SOIL EROSION AND SEDIMENT EROSION CONTROL PLAN.

7. AREAS OF EXPOSED SOIL UNDERGOING CONSTRUCTION THAT WILL NOT BE COVERED AND OR FINISHED GRADED WITHIN 7 DAYS OF EXPOSURE SHALL BE ANCHORED WITH TEMPORARY EROSION CONTROL MEASURES WITHIN 7 DAYS OF DISTURBANCE. TEMPORARY EROSION CONTROL MEASURES SHALL INCLUDE EROSION CONTROL MESH, NETTING, MULCH AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND SHOWN ON THE DESIGN PLANS. IF HAY OR STRAW MULCH IS USED IT SHALL BE APPLIED AT THE RATE OF 1.5 TO 2 TONS PER ACRE OR 70 TO 90 LBS. PER 1,000 S.F. APPLICATION AREA SHALL BE SUFFICIENTLY COVERED WITH MULCH TO AVOID ANY VISIBLE SOIL EXPOSURE. MULCH SHALL BE KEPT MOIST TO AVOID LOSS DUE TO WIND. MULCH AND NETTING SHALL BE APPLIED IN THE BASE OF ALL GRASSED WATERWAYS AND IN VEGETATIVE SLOPES WHICH EXCEED 15% AND DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS.

8. IF DISTURBED AREAS DO NOT RECEIVE FINAL SEEDING BY SEPTEMBER 15 OF THE CONSTRUCTION YEAR, THEN ALL DISTURBED AREAS SHALL BE SEEDED WITH A WINTER COVER CROP AT THE RATE OF 2 LBS PER 1,000 SQUARE FEET. WINTER SEEDING SHALL BE COVERED WITH EROSION CONTROL MESH (MULCH AND NETTING). HEAVY GRADE MATS SHALL BE USED IN THE BASE OF ALL GRASSED WATERWAYS, ON VEGETATED SLOPES IN EXCESS OF 15%, AND ANY DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS. MULCH AND NETTING SHALL ALSO BE PROVIDED FOR ADDITIONAL WINTER PROTECTION.

9. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR LESS THAN 90 DAYS SHALL BE COVERED WITH HAY AND MULCH (AT 100LBS/1,000 SF), OR WITH AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR 90 DAYS OR MORE SHALL BE SEEDED WITH WINTER RYE (FOR FALL SEEDING AT 3LB/1,000 SF) OR OATS (FOR SUMMER SEEDING AT 2LB/1,000 SF) AND THEN COVERED WITH HAY MULCH (AT 100LB/1,000 SF) OR AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL. LOAM SHALL BE STOCKPILED AT LOCATIONS DESIGNATED BY THE OWNER AND ENGINEER.

10. ALL FILTER BARRIERS, SILT SACKS, AND EROSION CONTROL MEASURES SHALL BE INSTALLED ACCORDING TO THE STORMWATER POLLUTION PREVENTION PLANS. THESE SHALL BE MAINTAINED DURING CONSTRUCTION TO REMOVE SEDIMENT FROM RUNOFF WATER. ALL THE FILTER BARRIERS AND EROSION CONTROL BERMS SHALL BE INSPECTED AFTER ANY RAINFALL OR RUNOFF EVENT, MAINTAINED AND CLEANED UNTIL ALL AREAS HAVE AT LEAST 85-90% VIGOROUS PERENNIAL COVER OF GRASSES.

11. A WATERING TRUCK SHALL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AND AS REQUIRED.

12. THE CONTRACTOR SHALL USE EXTREME CAUTION TO AVOID ALLOWING SEDIMENTS TO ENTER THE STORM DRAIN SYSTEM DURING CONSTRUCTION. CATCH BASIN INLETS SHALL ALSO BE PROTECTED DURING CONSTRUCTION BY THE USE OF STONE INLET PROTECTION AROUND EACH INLET. SILT SACKS SHALL ALSO BE INSTALLED IN ALL EXISTING BASINS. INLET PROTECTION MAY BE REMOVED ONLY AFTER FINISHED AREAS ARE PAVED AND THE VEGETATED SLOPES ARE ESTABLISHED WITH AT LEAST 85-90% OF VIGOROUS PERENNIAL GROWTH.

13. REVEGETATION MEASURES SHALL COMMENCE IMMEDIATELY UPON THE COMPLETION OF CONSTRUCTION. FOLLOWING SEED BED PREPARATION ALL AREAS NOT NOTED TO RECEIVE COVER SHALL BE LOAM AND SEEDED. AREAS SEEDED BETWEEN MAY 15 TO AUGUST 15TH SHALL BE COVERED WITH HAY OR STRAW MULCH. VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA SHALL BE ACHIEVED PRIOR TO OCTOBER 15TH. HAY AND STRAW MULCHES SHALL BE ANCHORED WITH MULCH NETTING OR TACKIFIER SO THAT THEY ARE NOT BLOWN AWAY BY WIND OR WASHED AWAY BY FLOWING WATER. HAY OR STRAW MULCH SHALL BE APPLIED AT A RATE OF 1.5 TO 2 TONS PER ACRE OR 70 TO 90 LBS. PER 1,000 S.F.

13. IN LIEU OF SOIL TESTS, SOIL AMENDMENTS FOR TEMPORARY SEEDED AREAS MAY BE APPLIED AS FOLLOWS:
    - 10-10-10 FERTILIZER (N-P205-K20 OR EQUAL)- APPLICATION RATE= 25 LBS/1,000 S.F.
    - GROUND LIMESTONE (85% OF TOTAL CARBONATES. LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT 50% WILL PASS A 100 MESH SIEVE AND 90% WILL PASS THROUGH A 20 MESH SIEVE.APPLICATION RATE= 100 LB/1,000 S.F.
    - WHEN FERTILIZER IS APPLIED WITHIN 100' OF ANY RIVER, STREAM, POND, OR LAKE IT SHALL BE RESTRICTED TO A LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER.

14. LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE PER SPECIFICATIONS. LOAM SHALL BE FREE OF SOIL & CLAY LUMPS, STONES, WEEDS, ROOTS OR OTHER DELETERIOUS MATERIAL AND MEET THE LOAM SPECIFICATION DETAIL.

15. EROSION CONTROL MESH SHALL BE APPLIED IN ACCORDANCE WITH THE PLANS OVER ALL FINISHED SEEDED AREAS AS SPECIFIED ON THE DESIGN PLANS.

16. AT THE OWNER'S DISCRETION ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED TO MAINTAIN STABILITY OF EARTHWORKS AND FINISHED GRADED AREAS. THE CONTRACTOR, AT HIS EXPENSE, WILL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY ADDITIONAL MEASURES AS SPECIFIED BY THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO REQUESTS BY NH DES AND THE MUNICIPALITY, AS AUTHORIZED BY THE OWNER.

17. INSPECTIONS AND MONITORING MAINTENANCE MEASURES SHALL BE APPLIED DURING THE ENTIRE CONSTRUCTION CYCLE. WEEKLY INSPECTIONS SHALL BE HELD THROUGH THE DURATION OF CONSTRUCTION ACTIVITY. WEEKLY INSPECTION REPORTS SHALL BE MAINTAINED IN THE CONTRACTORS FIELD OFFICE. IN ADDITION TO THE NORMAL WEEKLY INSPECTIONS, THE CONTRACTOR SHALL PERFORM AN INSPECTION OF ALL EROSION CONTROL MEASURES AFTER EACH RAINFALL AT A MINIMUM OF (1/2" OR GREATER OF RAINFALL) OR RUNOFF EVENT, AND PERFORM THE NECESSARY REPAIRS. THE INSPECTIONS SHALL INCLUDE BUT NOT BE LIMITED TO THE SITE'S DOWN STREAM DISCHARGE POINTS. THE CONTRACTOR SHALL MAINTAIN A LOG IN ACCORDANCE WIT THE PLANS AND RIDEM

18. IF ANY EVIDENCE OF SEDIMENTATION IS OBSERVED IN THE INLETS, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROVIDE A PLAN TO THE ENGINEER TO REMOVE ANY ACCUMULATED SEDIMENT IN THESE AREAS. THE CONTRACTOR SHALL ALSO IMMEDIATELY PROVIDE ADDITIONAL ON SITE EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT FURTHER DEGRADATION OF THE AREA.

19. FOLLOWING THE TEMPORARY OR FINAL SEEDINGS, THE CONTRACTOR SHALL INSPECT THE WORK AREA BIMONTHLY TO ENSURE THE AREAS HAVE A MINIMUM OF 85-90% VEGETATED VIGOROUS GROWTH. RESEEDING SHALL BE CARRIED OUT BY THE CONTRACTOR WITH FOLLOW UP INSPECTIONS IN THE EVEN OF ANY FAILURES UNTIL VEGETATION IS ADEQUATELY ESTABLISHED.

20. THE AREA OR AREAS OF ENTRANCE AND EXIT TO AND FROM THE SITE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.

21. STOCKPILES SHALL BE SURROUNDED ON THEIR PERIMETERS WITH STAKED HAYBALES AND/OR SILTATION FENCES TO PREVENT AND/OR CONTROL SILTATION AND EROSION.

22. ALL EXISTING & PROPOSED CATCH BASINS SUBJECT TO STORMWATER RUNOFF DURING CONSTRUCTION SHALL HAVE STONE INLET PROTECTION AND SILT SACKS INSTALLED OR AS DIRECTED BY THE OWNER/ENGINEER. NO SEDIMENTATION SHALL ENTER THE ON-SITE OR OFF-SITE DRAINAGE SYSTEMS AT ANY TIME.

23. IF DEWATERING IS NECESSARY IT SHALL ONLY BE COMPLETED AS FOLLOWS: THE DISCHARGE SHALL BE STOPPED IMMEDIATELY IF THE RECEIVING AREA SHOWS ANY SIGN OF INSTABILITY OR EROSION. ALL CHANNELS, SWALES, AND DITCHES DUG FOR DISCHARGING WATER FROM THE EXCAVATED AREA SHALL BE STABLE PRIOR TO DIRECTING DISCHARGE TO THEM. IF A CONSTRUCTION EQUIPMENT BUCKET IS USED, IT SHALL EMPTY THE MATERIAL TO A STABLE AREA. NO DEWATERING SHALL OCCUR DURING PERIODS OF INTENSE, HEAVY RAIN. FLOW TO THE SEDIMENT REMOVAL STRUCTURE SHALL NOT EXCEED THE STRUCTURE'S CAPACITY TO SETTLE AND FILTER FLOW OR ITS VOLUME CAPACITY. WHENEVER POSSIBLE, THE DISCHARGE FROM THE SEDIMENT REMOVAL STRUCTURE SHALL DRAIN TO A WELL-VEGETATED BUFFER BY SHEET FLOW WHILE MAXIMIZING THE DISTANCE TO THE NEAREST WATER RESOURCE AND MINIMIZING THE SLOPE OF THE BUFFER AREA. THERE SHALL BE NO DIRECT DISCHARGE TO EXISTING WETLANDS OR STREAMS. ALL DISCHARGE SHALL BE IN COMPLIANCE WITH STATE, LOCAL, AND FEDERAL REQUIREMENTS.

24. ALL TREE STUMPS WILL BE GROUND INTO MULCH ON SITE AND USED FOR EROSION CONTROL OR REMOVED BY TRUCK FOR RETAIL SALE

RHODE ISLAND STORMWATER MANAGEMENT, DESIGN, AND INSTALLATION RULES:

8.16.D.4 PRESERVE TOPSOIL: SITE OWNERS AND OPERATORS MUST PRESERVE EXISTING TOPSOIL ON THE CONSTRUCTION SITE TO THE MAXIMUM EXTENT FEASIBLE AND AS NECESSARY TO SUPPORT HEALTHY VEGETATION. IF IT IS DETERMINED THAT PRESERVING NATIVE TOPSOIL IS INFEASIBLE, THE REASONS WHY THIS WAS DETERMINED MUST BE ADDRESSED IN THE SESC PLAN.

8.16.D.5 STABILIZE SOILS: STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING OR OTHER EARTH DISTURBANCE ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. STABILIZATION MUST BE COMPLETED USING VEGETATIVE STABILIZATION MEASURES OR USING ALTERNATIVE MEASURES WHENEVER VEGETATIVE MEASURES ARE DEEMED IMPRACTICABLE OR DURING PERIODS OF DROUGHT. ALL DISTURBED SOILS EXPOSED PRIOR TO OCTOBER 15TH SHALL BE SEEDED BY THAT DATE. ANY SUCH AREAS WHICH DO NOT HAVE ADEQUATE VEGETATIVE STABILIZATION BY NOVEMBER 15TH MUST BE STABILIZED THROUGH THE USE OF NON-VEGETATIVE EROSION CONTROL MEASURES. IF WORK CONTINUES WITHIN ANY OF THESE AREAS DURING THE PERIOD FROM OCTOBER 15TH THROUGH APRIL 15TH, CARE MUST BE TAKEN TO ENSURE THAT ONLY THE AREA REQUIRED FOR THAT DAY'S WORK IS EXPOSED, AND ALL ERODIBLE SOIL MUST BE RESTABILIZED WITHIN 5 WORKING DAYS. IN LIMITED CIRCUMSTANCES, STABILIZATION MAY NOT BE REQUIRED IF THE INTENDED FUNCTION OF A SPECIFIC AREA OF THE SITE NECESSITATES THAT IT REMAIN DISTURBED.

8.16.D.8 ESTABLISH TEMPORARY CONTROLS FOR THE PROTECTION OF POST-CONSTRUCTION STORMWATER CONTROL MEASURES: TEMPORARY MEASURES SHALL BE INSTALLED TO PROTECT PERMANENT OR LONG-TERM STORMWATER CONTROL AND TREATMENT MEASURES AS THEY ARE INSTALLED AND THROUGHOUT THE CONSTRUCTION PHASE OF THE PROJECT SO THAT THEY WILL FUNCTION PROPERLY WHEN THEY ARE BROUGHT ONLINE. THE PLAN SHALL IDENTIFY AREAS WHERE INFILTRATION MEASURES ARE PROPOSED AND PROVIDE MEASURES TO RESTRICT CONSTRUCTION ACTIVITY TO PREVENT COMPACTION OF THE AREA. IN CASES WHERE THIS IS NOT POSSIBLE TO AVOID THE AREA THE PLAN MUST INCLUDE METHODS TO RESTORE THE INFILTRATION CAPACITY OF THE SOILS.

8.16.D.11 PROPERLY DESIGN CONSTRUCTED STORMWATER CONVEYANCE CHANNELS: TEMPORARY CONVEYANCE PRACTICES MUST BE SIZED TO HANDLE THE PEAK FLOW FROM THE 10-YEAR, 24-HOUR TYPE III DESIGN STORM. TEMPORARY CONVEYANCE MEASURES MAY BE REQUIRED TO BE SIZED TO HANDLE THE PEAK FLOW FROM LARGER DESIGN STORMS AS DETERMINED ON A CASE-BY-CASE BASIS.

8.16.D.12 RETAIN SEDIMENT ON-SITE

a. THE SESC PLAN SHALL CONTAIN A COMBINATION OF PRACTICES THAT CONTROL EROSION, CONTROL RUN-OFF, AND CONTROL SEDIMENT. THE COMBINATION OF PRACTICES MUST BE DESIGNED TO PREVENT DISCHARGES OF SEDIMENT. ALL PLANS SHALL INCLUDE INLET PROTECTION, CONSTRUCTION ENTRANCES, AND CONTAINMENT OF STOCKPILED MATERIALS.

b. FOR DISTURBED AREAS <1 ACRE: THOSE AREAS WITH A COMMON DRAINAGE LOCATION THAT SERVES AN AREA WITH LESS THAN 1 ACRE DISTURBED AT ONE TIME, A COMBINATION OF PHASING, STABILIZATION AND CONVEYANCES THAT PROVIDE RUN-OFF CONTROL WILL BE SUFFICIENT.

c. FOR DISTURBED AREAS 1 TO 5 ACRES: THOSE AREAS WITH A COMMON DRAINAGE LOCATION THAT SERVES AN AREA BETWEEN 1 AND 5 ACRES DISTURBED AT ONE TIME, A TEMPORARY SEDIMENT TRAP MUST BE PROVIDED WHERE ATTAINABLE AND WHERE THE SEDIMENT TRAP IS ONLY INTENDED TO BE USED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER TERM PROJECTS WITH A COMMON DRAINAGE LOCATION THAT SERVES BETWEEN 1 AND 5 ACRES DISTURBED AT ONE TIME, A TEMPORARY SEDIMENT BASIN MUST BE PROVIDED WHERE ATTAINABLE. TEMPORARY SEDIMENT TRAPPING PRACTICES MUST BE SIZED TO HAVE A TOTAL STORAGE VOLUME CAPABLE OF STORING 1 INCH OF RUNOFF FROM THE CONTRIBUTING AREA OR 1.34 CUBIC YARDS PER ACRE OF DRAINAGE AREA. A MINIMUM OF 50% OF THE TOTAL VOLUME SHALL BE STORAGE BELOW THE OUTLET (WET STORAGE). THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK PROVIDES THE RECOMMENDED AND PRIMARY MEANS TO ACHIEVE THIS PERFORMANCE CRITERIA.

d. FOR DISTURBED AREAS > 5 ACRES: THOSE AREAS WITH A COMMON DRAINAGE LOCATION THAT SERVES AN AREA WITH GREATER THAN 5 ACRES DISTURBED AT ONE TIME, A TEMPORARY (OR PERMANENT) SEDIMENT BASIN MUST BE PROVIDED WHERE ATTAINABLE UNTIL FINAL STABILIZATION OF THE SITE IS COMPLETE. THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK PROVIDES THE RECOMMENDED AND PRIMARY MEANS TO ACHIEVE THIS PERFORMANCE CRITERIA. THE VOLUME OF WET STORAGE SHALL BE AT LEAST TWICE THE SEDIMENT STORAGE VOLUME AND SHALL HAVE A MINIMUM DEPTH OF 2 FEET. SEDIMENT STORAGE VOLUME MUST ACCOMMODATE A MINIMUM OF 1 YEAR OF PREDICTED SEDIMENT LOAD. SEE THE SEDIMENT VOLUME FORMULA IN THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK AS THE RECOMMENDED AND PRIMARY MEANS TO ACHIEVE THIS PERFORMANCE CRITERIA. IN ADDITION TO SEDIMENT STORAGE VOLUME AND WET STORAGE VOLUME, THE SEDIMENT BASIN SHALL PROVIDE ADEQUATE RESIDENCE STORAGE VOLUME TO PROVIDE A MINIMUM 10 HOURS RESIDENCE TIME FOR A 10 -YEAR FREQUENCY, 24 HOUR DURATION, TYPE III DISTRIBUTION STORM. TO THE MAXIMUM EXTENT PRACTICABLE, OUTLET STRUCTURES MUST BE UTILIZED THAT WITHDRAW WATER FROM THE SURFACE OF TEMPORARY SEDIMENTATION BASINS, IF REQUIRED OR SPECIFIED BY THE DESIGNER, FOR THE PURPOSE OF MINIMIZING THE DISCHARGE OF POLLUTANTS. EXCEPTIONS MAY INCLUDE PERIODS OF EXTENDED COLD WEATHER, WHERE ALTERNATIVE OUTLETS ARE REQUIRED DURING FROZEN PERIODS. IF SUCH A DEVICE IS INFEASIBLE FOR PORTIONS OF OR THE ENTIRE CONSTRUCTION PERIOD JUSTIFICATION MUST BE MADE IN THE SESC PLAN

GENERAL SEQUENCE OF CONSTRUCTION:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES.
2. PREPARE TEMPORARY PARKING AND STORAGE AREA. UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILER, PARKING, LAY DOWN, CONCRETE WASHOUT, MASONS AREA, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., DENOTE THEM ON THE SITE MAPS IMMEDIATELY AND NOTE ANY CHANGES IN THE LOCATIONS AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.
3. CONSTRUCT THE FILTER BARRIERS ON THE SITE AND AT THE PERIMETER PRIOR TO ALL EARTHMOVING ACTIVITIES.
4. CLEAR AND GRUB THE SITE.
5. CONSTRUCT THE TEMPORARY SEDIMENTATION AND SEDIMENT TRAP BASINS AS NECESSARY.
6. CONSTRUCT STORMWATER MEASURES. PONDS AND SWALES SHALL BE INSTALLED PRIOR TO ROUGH GRADING AND STABILIZED PRIOR TO RECEIVING RUNOFF.
7. HALT ALL ACTIVITIES AND CONTACT THE CIVIL ENGINEERING CONSULTANT TO PERFORM INSPECTION OF BMPS. GENERAL CONTRACTOR SHALL SCHEDULE AND CONDUCT STORM WATER PRE-CONSTRUCTION MEETING WITH ENGINEER AND ALL GROUND DISTURBING CONTRACTORS BEFORE PROCEEDING WITH CONSTRUCTION.
8. BEGIN GRADING THE SITE.
9. START CONSTRUCTION OF BUILDING PAD AND STRUCTURES. TEMPORARILY SEED DENUDED AREAS. ALL CUT AND FILL SLOPES SHALL BE SEEDED / LOAMED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
10. INSTALL BUILDING, UTILITIES, STORM SEWERS, CURBS AND GUTTERS.
11. INSTALL INLET PROTECTION DEVICES AROUND ALL STORM DRAIN STRUCTURES.
12. INSTALL RIP RAP AROUND OUTLET STRUCTURES.
13. FINALIZE GRADING, AND PREPARE SITE FOR PAVING. NOTE, ALL PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
14. PAVE SITE.
15. COMPLETE FINISH GRADING AND INSTALL PERMANENT SEEDING AND PLANTING.
16. ONCE SITE IS STABILIZED, REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES (AFTER APPROVAL BY CIVIL ENGINEER, OWNER, TOWN OF PLAISTOW, AND NHDES).

POST CONSTRUCTION PHASE

THE DEVELOPER (OWNER) WILL BE RESPONSIBLE FOR MAINTENANCE OF THE SYSTEMS IN ACCORDANCE WITH THE PROJECT OPERATION AND MAINTENANCE PLAN INCLUDING THE FOLLOWING:

1. INSPECTION OF ALL DRAINAGE FACILITIES AND SYSTEMS THREE MONTHS. DURING THE FIRST YEAR OF OPERATION, ALL DRAINAGE FACILITIES SHOULD BE INSPECTED AFTER EVERY STORM, AND 2-3 DAYS AFTERWARD. THESE INSPECTIONS SHOULD LOOK FOR EVIDENCE STRUCTURAL DAMAGE, SILT ACCUMULATION (NEAR INLET INVERTS ON CATCH BASINS), AND IMPROPER FUNCTION.
2. AFTER INSPECTION, IF ANY OF THE ABOVE CONDITIONS EXIST, THE OWNER SHALL IMMEDIATELY ARRANGE FOR ALL NECESSARY REPAIRS AND SEDIMENT REMOVAL.
3. THE CATCH BASINS ARE TO BE INSPECTED ANNUALLY. REMOVE OIL, DEBRIS, AND SEDIMENT AFTER INSPECTIONS.
4. ALL GRADED SLOPES SHALL BE INSPECTED FOR EROSION. UPON DISCOVERY OF ANY EROSION, LOAM AND SEED SHALL BE PUT IN PLACE AND NURTURED.
5. CONTRACTOR SHALL SPREAD PERMANENT SEED AT A RATE OF 5 LBS PER 1,000 S.F. IN ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER MATERIALS, AND AT AREAS SHOWN ON THE PLAN PER SPECIFICATIONS BELOW:

SCIENTIFIC NAME	COMMON NAME	PROPORTION BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
FESTUCA RUBRA "RUBRA"	CREEPING RED FESCUE	37%	95%	90%
PAO PRAENTENSIS "BARON"	BARON KENTUCKY BLUEGRASS	40%	85%	90%
LOLIUM PERENNE "PALMER"	PALMER PERENNIAL RYEGRASS	15%	95%	90%
FESTUCA RUBRA COMMUTATA WILMA	WILMA CHEWINGS	8%	95%	80%

STORMWATER PROTECTION NOTES

MAXIMUM OPEN AREA ALLOWED.

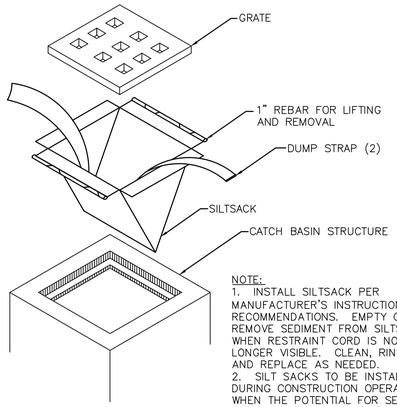
(a) ALL AREAS OF UNSTABILIZED SOIL SHALL BE:
  (1) TEMPORARILY STABILIZED AS SOON AS PRACTICABLE BUT NO LATER THAN 45 DAYS OF INITIAL DISTURBANCE, UNLESS A SHORTER TIME IS SPECIFIED BY LOCAL AUTHORITIES, THE CONSTRUCTION SEQUENCE APPROVED AS PART OF THE ISSUED PERMIT, OR AN INDEPENDENT MONITOR; AND
  (2) PERMANENTLY STABILIZED AS SOON AS PRACTICABLE BUT NO LATER THAN 3 DAYS OF FINAL GRADING.
(b) EXCEPT AS FURTHER LIMITED BY (E), BELOW, THE AREA OF UNSTABILIZED SOIL SHALL NOT EXCEED 5 ACRES AT ANY TIME UNLESS THE APPLICANT:
  (1) SUBMITS DOCUMENTATION THAT THE REQUIRED AREAS OF EARTH CUTS AND FILLS ARE SUCH THAT AN AREA OF DISTURBANCE OF 5 ACRES OR LESS WOULD UNREASONABLY LIMIT THE CONSTRUCTION SCHEDULE;
  (2) SUBMITS A CONSTRUCTION SEQUENCE PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST; AND
  (3) EMPLOYS AN ENVIRONMENTAL MONITOR DURING CONSTRUCTION.
(c) SUBJECT TO (D) BELOW, THE ENVIRONMENTAL MONITOR SHALL:
  (1) INSPECT THE PROJECT SITE AT LEAST ONCE EACH WEEK FROM THE START EARTH DISTURBANCE ACTIVITIES UNTIL ALL EARTH DISTURBANCE ACTIVITIES ARE COMPLETED AND THE SITE IS STABILIZED;
  (2) IN ADDITION TO REGULAR WEEKLY INSPECTIONS, INSPECT THE PROJECT SITE DURING ANY RAIN EVENT IN WHICH 0.5 INCH OF PRECIPITATION OR MORE FALLS WITHIN A 24 HOUR PERIOD, PROVIDED THAT IF THE ENVIRONMENTAL MONITOR IS UNABLE TO BE PRESENT DURING SUCH A STORM, THE MONITOR SHALL INSPECT THE SITE WITHIN 24 HOURS OF THE RAIN EVENT;
  (3) SUBMIT A WRITTEN REPORT, STAMPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, TO THE DEPARTMENT WITHIN 24 HOURS OF EACH INSPECTION THAT:
    a. DESCRIBES THE PROGRESS OF THE PROJECT, INCLUDING WHETHER ALL CONDITIONS OF THE PERMIT ARE BEING MET AND, IF NOT, WHICH REQUIREMENTS ARE NOT BEING MET;
    b. IF ANY REQUIREMENTS ARE NOT BEING MET, AN EXPLANATION OF THE CORRECTIVE ACTION(S) THAT WILL BE OR ARE BEING TAKEN TO BRING THE PROJECT INTO COMPLIANCE WITH APPLICABLE REQUIREMENTS AND THE DEADLINE BY WHICH SUCH ACTIONS WILL BE COMPLETED; AND
    c. INCLUDES PHOTOGRAPHS OF THE SITE THAT ARE REPRESENTATIVE OF THE PROJECT; AND
  (1) RETAIN A COPY OF THE REPORT PREPARED PURSUANT TO (3), ABOVE, ON-SITE FOR REVIEW DURING SITE INSPECTIONS BY FEDERAL, STATE, AND LOCAL OFFICIALS.
(d) ROUTINE INSPECTION FREQUENCY MAY BE REDUCED FROM ONCE EACH WEEK TO AT LEAST ONCE EACH MONTH IF EITHER OF THE FOLLOWING CONDITIONS IS MET:
  (1) WORK HAS BEEN SUSPENDED AND THE ENTIRE SITE IS STABILIZED IN ACCORDANCE WITH ENV-WQ 1505.03; OR
  (2) RUNOFF IS UNLIKELY BECAUSE:
    a. THE GROUND IS FROZEN OR THE SITE IS COVERED WITH SNOW OR ICE; AND
    b. THE PROJECT IS IN AN AREA WHERE FROZEN CONDITIONS ARE ANTICIPATED TO CONTINUE FOR MORE THAN ONE MONTH.

STABILIZATION.

A SITE SHALL BE DEEMED TO BE STABILIZED WHEN IT IS IN A CONDITION IN WHICH THE SOILS ON THE SITE WILL NOT ERODE UNDER THE CONDITIONS OF A 10-YEAR STORM, SUCH AS BUT NOT LIMITED TO:
(a) IN AREAS THAT WILL NOT BE PAVED, A MINIMUM OF 85% VEGETATIVE COVER HAS BEEN ESTABLISHED, A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED, OR EROSION CONTROL BLANKETS HAVE BEEN INSTALLED OR
(b) IN AREAS TO BE PAVED, BASE COURSE GRAVELS HAVE BEEN INSTALLED.

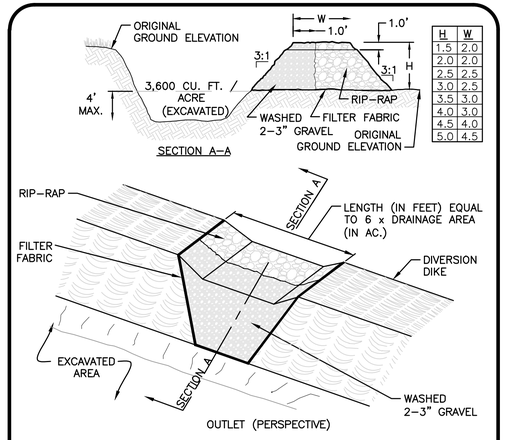
COLD WEATHER SITE STABILIZATION.

(a) TO ADEQUATELY PROTECT WATER QUALITY DURING COLD WEATHER AND DURING SPRING RUNOFF, THE ADDITIONAL STABILIZATION TECHNIQUES SPECIFIED IN THIS SECTION SHALL BE EMPLOYED DURING THE PERIOD FROM NOVEMBER 30 THROUGH MAY 1.
(b) THE AREA OF EXPOSED, UNSTABILIZED SOIL SHALL BE LIMITED TO ONE ACRE AND SHALL BE PROTECTED AGAINST EROSION BY THE METHODS DESCRIBED IN THIS SECTION PRIOR TO ANY THAW OR SPRING MELT EVENT. THE ALLOWABLE AREA OF EXPOSED SOIL MAY BE INCREASED IF A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY THE DEPARTMENT.
(c) ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15H, OR WHICH ARE DISTRUBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE.
(d) THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
(e) ALL PROPOSED STABILIZATION IN ACCORDANCE WITH (C) OR (D), ABOVE, SHALL BE COMPLETED WITHIN A DAY OF ESTABLISHING THE GRADE THAT IS FINAL OR THAT OTHERWISE WILL EXIST FOR MORE THAN 5 DAYS.
(f) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIG



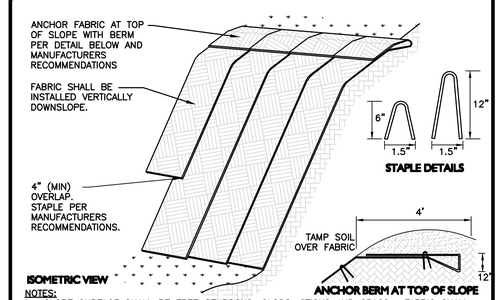
NOTE:
1. INSTALL SILTSACK PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. EMPTY OR REMOVE SEDIMENT FROM SILTSACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.
2. SILT SACKS TO BE INSTALLED DURING CONSTRUCTION OPERATIONS WHEN THE POTENTIAL FOR SEDIMENT TO ENTER EXISTING & PROPOSED BASINS EXISTS.

SILT SACK INLET DETAIL — NOT TO SCALE — 3



H	W
1.5	2.0
2.0	2.0
2.5	2.5
3.0	2.5
3.5	3.0
4.0	3.0
4.5	4.0
5.0	4.5

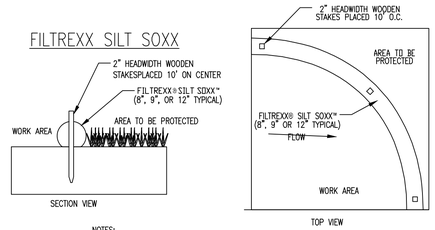
TEMPORARY SEDIMENT AREA — NOT TO SCALE



NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. FABRIC SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING FABRIC. PLACE FABRIC WITHIN 24 HOURS AFTER SEEDING.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
4. CHOOSE MATERIAL BASED ON SLOPE, SOILS, AND APPLICATION.
5. EROSION CONTROL FABRIC IS REQUIRED ON ALL SLOPES GREATER THAN 3:1.
6. PROVIDE SHOP DRAWING FOR APPROVAL PRIOR TO INSTALLATION.

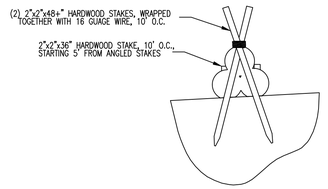
EROSION CONTROL FABRIC DETAIL — NOT TO SCALE — 3

FILTREXX SILT SOXX

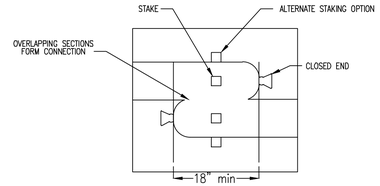


NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILT SOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

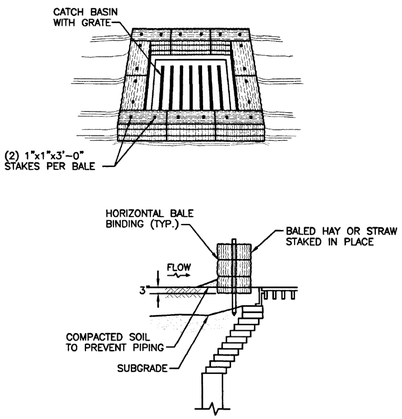
FILTREXX PYRAMID STAKING DETAIL



COMPOST SOCK CONNECTION/ATTACHMENT DETAIL



SILT SOXX DETAIL — NOT TO SCALE — 3



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 209 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS INLET PROTECTION CAN ALSO BE USED WHEN CONSTRUCTION SEQUENCING REQUIRES A CATCH BASIN TO BE EXPOSED TO SEDIMENT FROM THE SUBGRADE. THIS WILL BE ACHIEVED BY INSTALLING THE BALED HAY AS SHOWN ON THIS DETAIL INTO THE SUBGRADE.
3. THE PERIMETER CONFIGURATION OF THE BALED HAY WILL VARY DEPENDING ON THE PARTICULAR TYPE OF CATCH BASIN INLET BEING CONSTRUCTED. THE ENGINEER WILL PROVIDE SPECIFIC DIRECTION IN SUCH CASES.

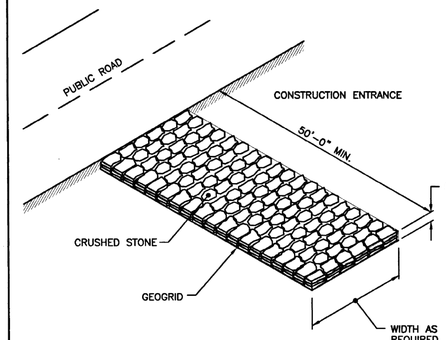
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS NO.	BY	DATE

BALED HAY CATCH BASIN INLET PROTECTION

JUNE 15, 1998 (ISSUE DATE)

R.I. STANDARD 9.8.0



NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 211 OF THE R.I. STANDARD SPECIFICATIONS.

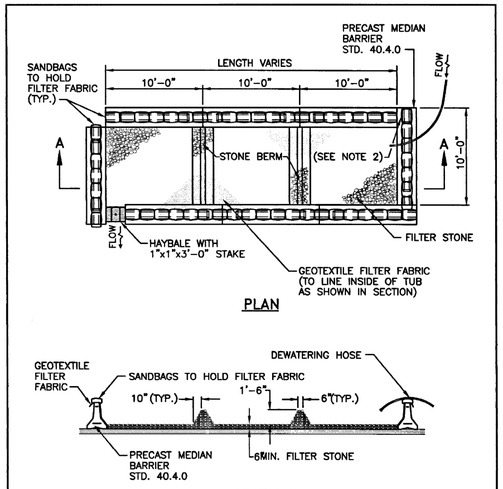
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS NO.	BY	DATE

CONSTRUCTION ACCESS

JUNE 15, 1998 (ISSUE DATE)

R.I. STANDARD 9.9.0



NOTS:
1. SHALL BE IN ACCORDANCE WITH SECTION 208 OF THE R.I. STANDARD SPECIFICATIONS.
2. PROVIDE ADDITIONAL SAND BAGS AS REQUIRED TO FILL SPACE BETWEEN ADJACENT BARRIERS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS NO.	BY	DATE

DEWATERING BASIN

JUNE 15, 1998 (ISSUE DATE)

R.I. STANDARD 9.7.0

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = ##'	DWG.:C-2038-08_SITE-PREP	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ♦ land surveying
environmental consulting ♦ landscape architecture
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DRAWING TITLE:

SOIL EROSION AND SEDIMENT CONTROL DETAILS

SHEET No.

C-101B

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10 OF 51

R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\C-2038-08_SITE-PREP.DWG

ZONING SUMMARY TABLE
INDUSTRIAL (M-1) DISTRICT [1]

ITEM	REQUIRED	PROPOSED
MINIMUM LOT AREA	30,000 SF	1,834,045± SF
MINIMUM LOT WIDTH	150 FT	489± FT
MINIMUM FRONTAGE	150 FT	800± FT
FRONT YARD SETBACK	40 FT	38± FT (EXISTING)
REAR YARD SETBACK	30 FT	1,928± FT
SIDE YARD SETBACK	20 FT	0.9± FT (EXISTING)
MAXIMUM DWELLING UNIT DENSITY [1]	150	129
MAXIMUM LOT COVERAGE	60%	6.9%
MAXIMUM BUILDING HEIGHT [1]	50 FT + 10FT MECH. EQUP.	48± FT (EXISTING)
MAXIMUM NUMBER OF STORIES [1]	4	2
TOTAL UPLAND AREA	N/A	42.4%

[1] ZONE CHANGE AMENDMENT NO. 2023-6 APPROVED 04/27/2023

PARKING SUMMARY TABLE

PER CHAPTER 17.64 – OFF-STREET PARKING	REQUIRED PARKING	PROPOSED PARKING
SELF-STORAGE: 99,920± SF GFA (BUILDING B – 601 UNITS)	8	8
ITE DEMAND RATIO*: MIN. 1.36 SPACE / 100 UNIT – MAX. 2.35 SPACE/ 100 UNIT		
PROPOSED SELF-STORAGE: 52,200± SF GFA (256 UNITS)	4	4
ITE DEMAND RATIO*: MIN. 1.36 SPACE / 100 UNIT – MAX. 2.35 SPACE/ 100 UNIT		
MULTI-FAMILY DWELLING UNITS: 100 UNITS	200	244
2 SPACES / DWELLING UNIT		
TOTAL:	212	256

TABLE NOTES:

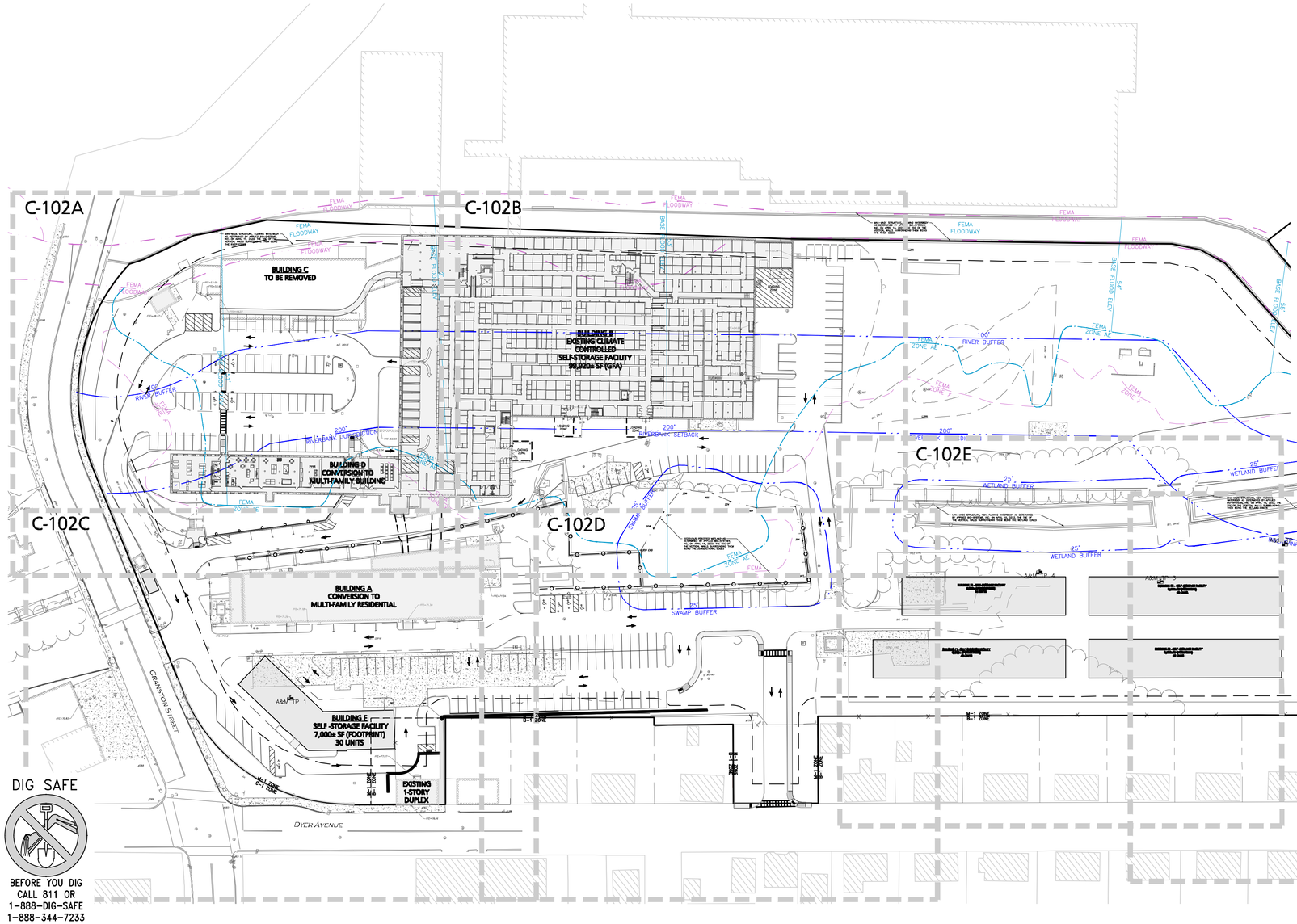
* *5TH EDITION OF THE PARKING GENERATION MANUAL PUBLISHED BY THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE). THE LATEST EDITION OF THE PARKING GENERATION MANUAL WAS PUBLISHED IN JANUARY 2019 AND INCLUDES PARKING DEMAND DATA FOR SELF-STORAGE FACILITIES, A USE WHICH ITE CLASSIFIES AS A "MINI-WAREHOUSE"*

ADA SPACES REQUIRED:
(201-300) TOTAL PARKING SPACES PROVIDED, 7 SHALL BE THE MINIMUM ADA PARKING PROVIDED, 2 SPACE BEING VAN ACCESSIBLE.

PROVIDED: 10 SPACES, 6 SPACES BEING VAN ACCESSIBLE.

LEGEND

- PROPERTY LINE
- SIGN
- BOLLARD
- BUILDING
- CURB
- RETAINING WALL
- PARKING STRIPING
- ROADWAY STRIPING
- TRAFFIC ARROWS
- HEAVY DUTY CONCRETE
- SIDEWALK
- ADA ACCESSIBLE RAMP
- SETBACK LINE
- SAW-CUT LINE
- PARKING COUNT (10)
- STEEL GUARDRAIL
- CHAIN LINK FENCE
- PEDESTRIAN GUARDRAIL



GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

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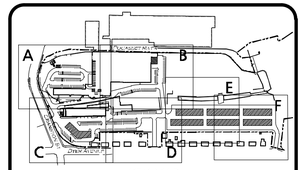
R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\C-2038-08_LAYOUT & MATERIALS.DWG

GENERAL NOTES:

1. ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTIES DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
2. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS
3. ALL PROPERTY MARKERS AND STREET LINE MONUMENTS SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION. ANY DAMAGE TO THESE ITEMS SHALL BE REPAIRED AND RESTORED BY A SURVEYOR REGISTERED IN THE STATE OF RHODE ISLAND AT THE CONTRACTORS EXPENSE.
4. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION MEETING WITH THE CITY, THE APPROPRIATE UTILITY COMPANIES, THE OWNER AND OWNER'S REPRESENTATIVE. THE MEETING SHALL TAKE PLACE PRIOR TO THE START OF CONSTRUCTION AND THE CONTRACTOR MUST PROVIDE 48 HOURS NOTICE TO ALL ATTENDEES PRIOR TO THE START OF THE MEETING.
5. APPROPRIATE WARNING SIGNS, MARKERS, BARRICADES AND/OR FLAGMEN SHALL BE PROVIDED TO REGULATE TRAFFIC. CONSTRUCTION TRAFFIC CONTROL SHALL BE IMPLEMENTED PER THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE LOCAL AUTHORITY.
6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ADDITIONAL BENCHMARK INFORMATION IF REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING BENCHMARKS. IF IT IS NECESSARY TO RELOCATE A BENCHMARK, IT SHALL BE RELOCATED BY A RHODE ISLAND PROFESSIONAL LAND SURVEYOR AND DONE SO AT THE CONTRACTOR'S EXPENSE.
7. ALL PERMITS AND APPROVALS NECESSARY FROM AGENCIES GOVERNING THE WORK SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK.
8. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY SITE WORK OR EARTHWORK OPERATIONS, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITE WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DETERMINED NECESSARY BY ON SITE INSPECTIONS BY THE OWNER, THEIR REPRESENTATIVES, OR REGULATORY AGENCIES HAVING JURISDICTION AT NO ADDITIONAL COST TO THE OWNER.
9. CONSTRUCTION DURING WET WEATHER OR WINTER CONDITIONS IS TO BE ANTICIPATED AND PROVISIONS TO ADEQUATELY ADDRESS THESE CONDITIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
10. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS INCLUDING THE CITY, RIDOT, RIDEM, MUTCD, AND AASHTO. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY ALLEN & MAJOR ASSOCIATES DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK, OR THE OWNER'S EMPLOYEES, CUSTOMERS, OR THE GENERAL PUBLIC. THE SEAL OF THE ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PROVIDE THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), STATE, AND LOCAL REGULATIONS.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY'S GOVERNING AUTHORITY'S SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COSTS SHALL BE INCLUDED IN BASE BID.
12. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
13. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK. THE CONTRACTOR SHALL ALSO CONTACT THE CITY DEPARTMENT OF PUBLIC WORKS AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF LOCAL UTILITIES.
14. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. IT'S 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.
15. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.
16. WITHIN THE LIMITS OF WORK, ALL TOPSOIL IS TO BE REMOVED FROM THE SITE. EXISTING TOPSOIL WITHIN THE PROPERTY IS NOT TO BE STOCKPILED AND REUSED WITHIN THE PROPOSED LANDSCAPE AREAS DUE TO THE PRESENCE OF JAPANESE KNOT WEED. REFER TO THE LANDSCAPE DRAWINGS AND SPECIFICATIONS REGARDING THE TREATMENT FOR THE JAPANESE KNOT WEED IN THE AREA WHERE THE TOPSOIL IS NOT COMPLETELY REMOVED FROM THE SITE.



KEY MAP
NOT TO SCALE

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS

APPLICANT\OWNER:
CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:
SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 60'	DWG.:	C2038-08_LAYOUT & MATERIALS
DESIGNED BY:	JRG	CHECKED BY:	MAM

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
TEL: (781) 935-6889
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DRAWING TITLE:
LAYOUT & MATERIALS PLAN

SHEET No.
C-102

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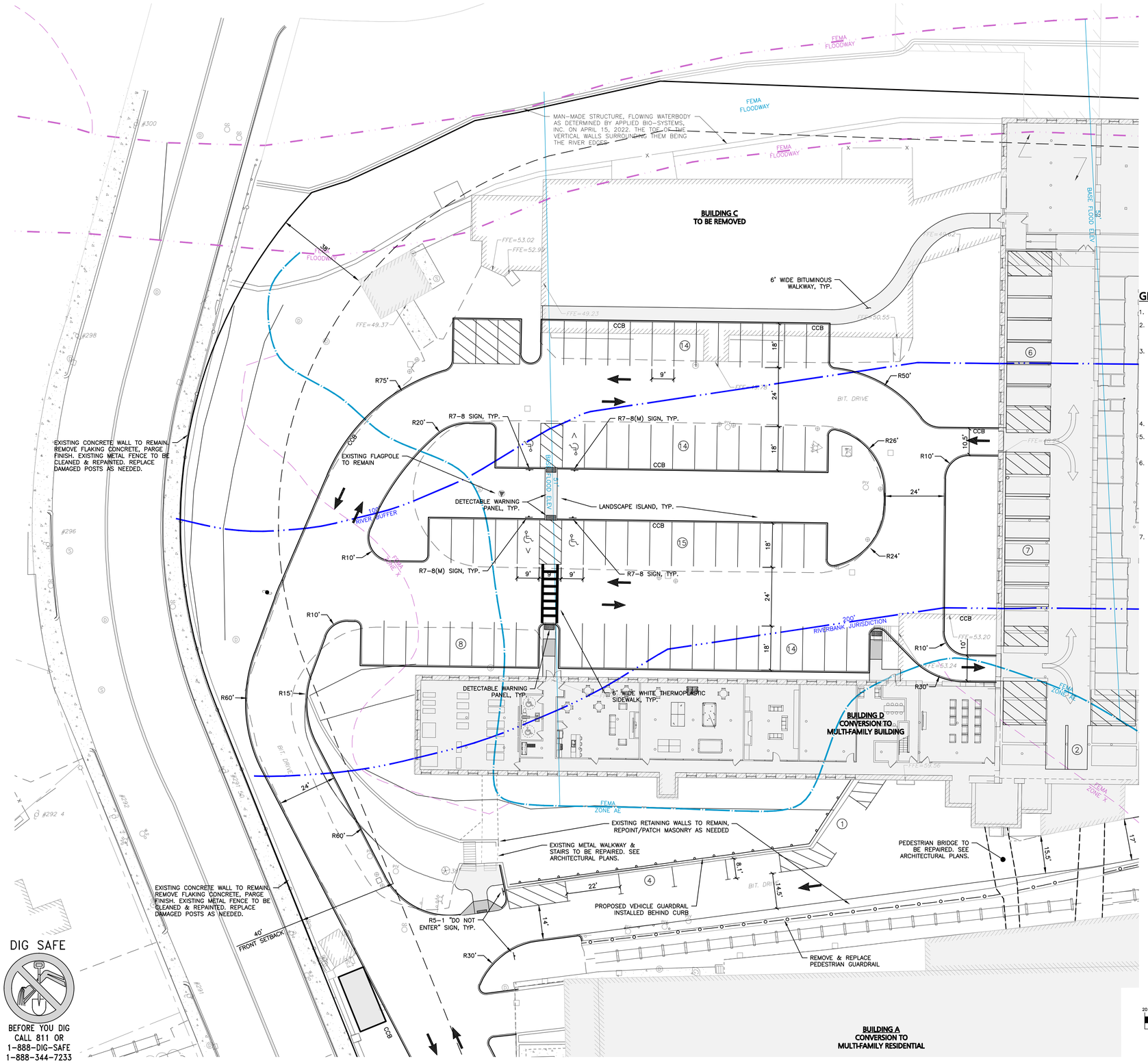

LEGEND

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- BUILDING
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- ADA ACCESSIBLE RAMP
- SETBACK LINE
- SAW-CUT LINE
- PARKING COUNT (10)
- STEEL GUARDRAIL
- CHAIN LINK FENCE
- PEDESTRIAN GUARDRAIL

GENERAL NOTES:

1. REFER TO SHEET C-102 FOR ADDITIONAL COMPLIANCE INFORMATION.
2. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS INCLUDING THE TOWN OF CRANSTON, RIDOT, RIDEP, MUTCD, AND AASHTO.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY ALLEN & MAJOR ASSOCIATES DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK, OR THE OWNER'S EMPLOYEES, CUSTOMERS, OR THE GENERAL PUBLIC. THE SEAL OF THE ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PROVIDE THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE
4. ALL ELEVATIONS REFER TO NAVD 88.
5. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
6. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS, SPECIFICATIONS, OR RELATIVE CODES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT PRIOR TO START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AND/OR DESIGN INTENT OF THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
7. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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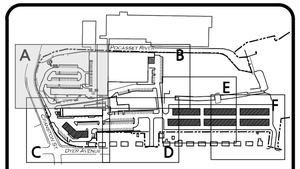
R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\C-2038-08_LAYOUT & MATERIALS.DWG



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SCALE:	1" = 20'	DWG.:C2038-08_LAYOUT & MATERIALS	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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environmental consulting ♦ landscape architecture
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DRAWING TITLE:
LAYOUT & MATERIALS PLAN

SHEET No.
C-102A

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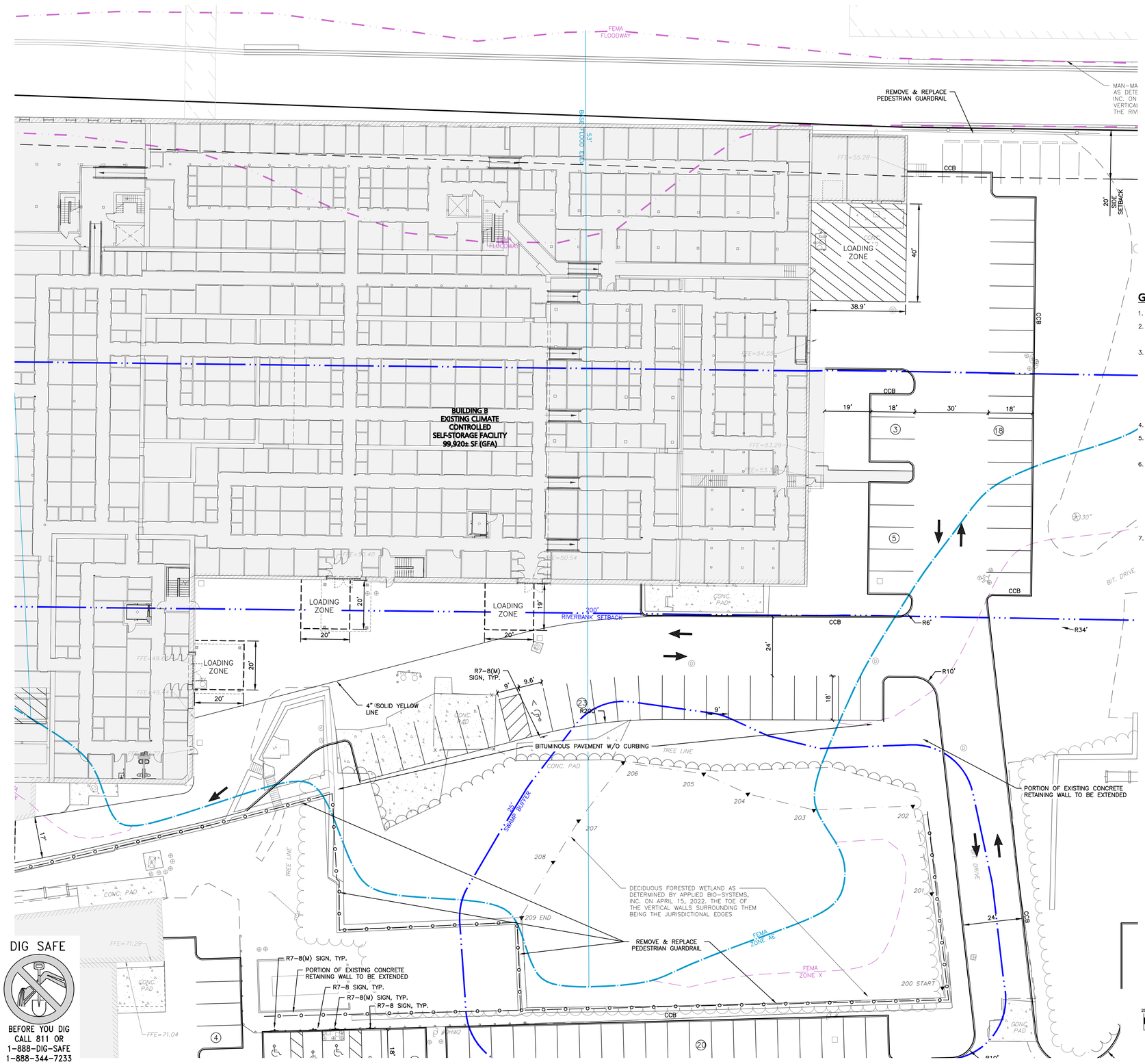

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LEGEND

- PROPERTY LINE
- SIGN
- BOLLARD
- BUILDING
- CURB
- RETAINING WALL
- PARKING STRIPING
- ROADWAY STRIPING
- TRAFFIC ARROWS
- HEAVY DUTY CONCRETE
- SIDEWALK
- ADA ACCESSIBLE RAMP
- SETBACK LINE
- SAW-CUT LINE
- PARKING COUNT (10)
- STEEL GUARDRAIL
- CHAIN LINK FENCE
- PEDESTRIAN GUARDRAIL

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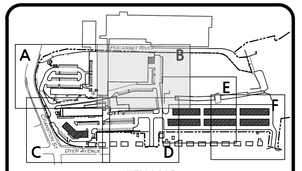

KEY MAP
NOT TO SCALE

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 20'	DWG.:C2038-08_LAYOUT & MATERIALS	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:
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civil engineering ♦ land surveying
environmental consulting ♦ landscape architecture
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DRAWING TITLE: LAYOUT & MATERIALS PLAN

SHEET No. C-102B

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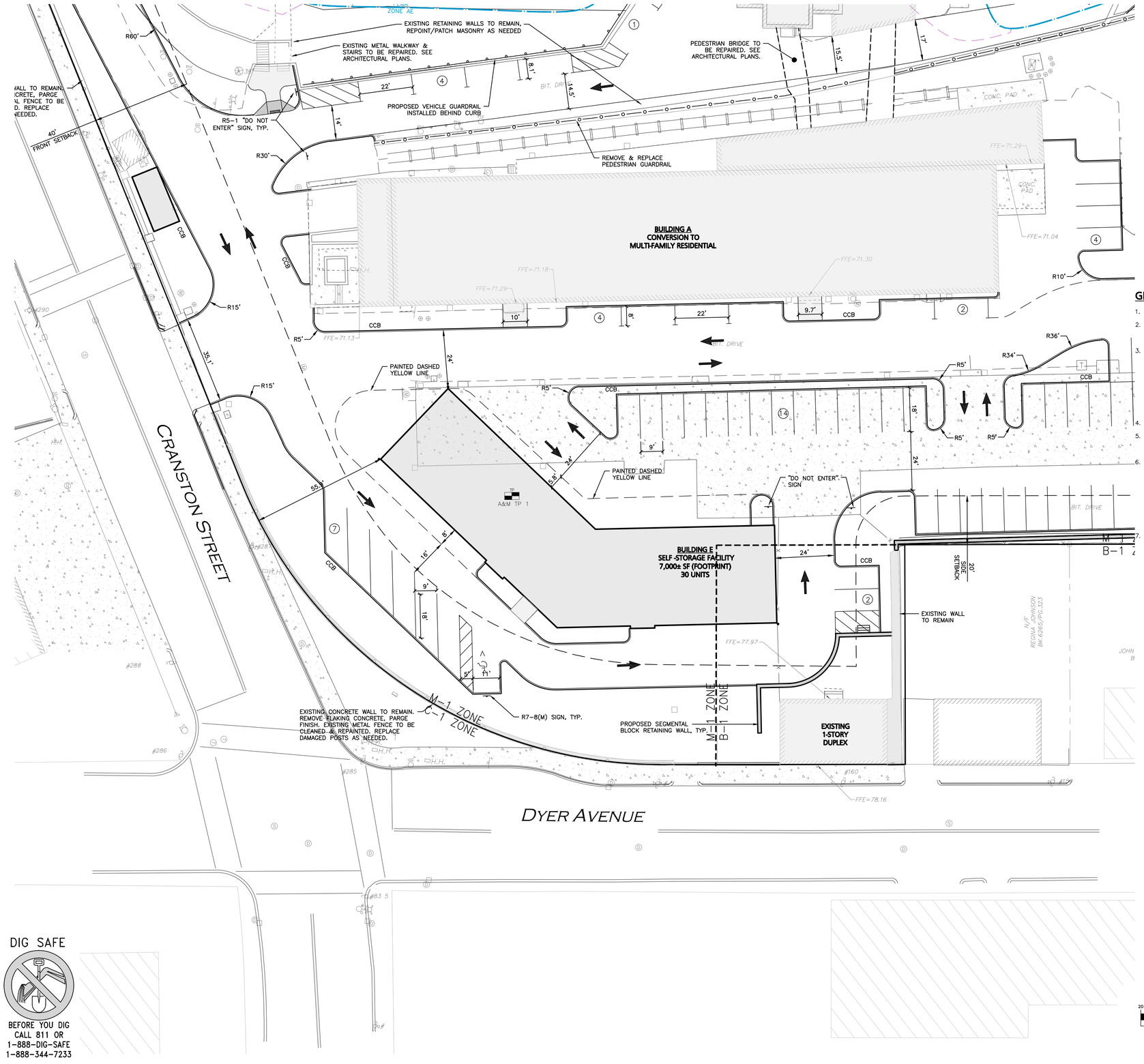

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DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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LAYOUT & MATERIALS PLAN

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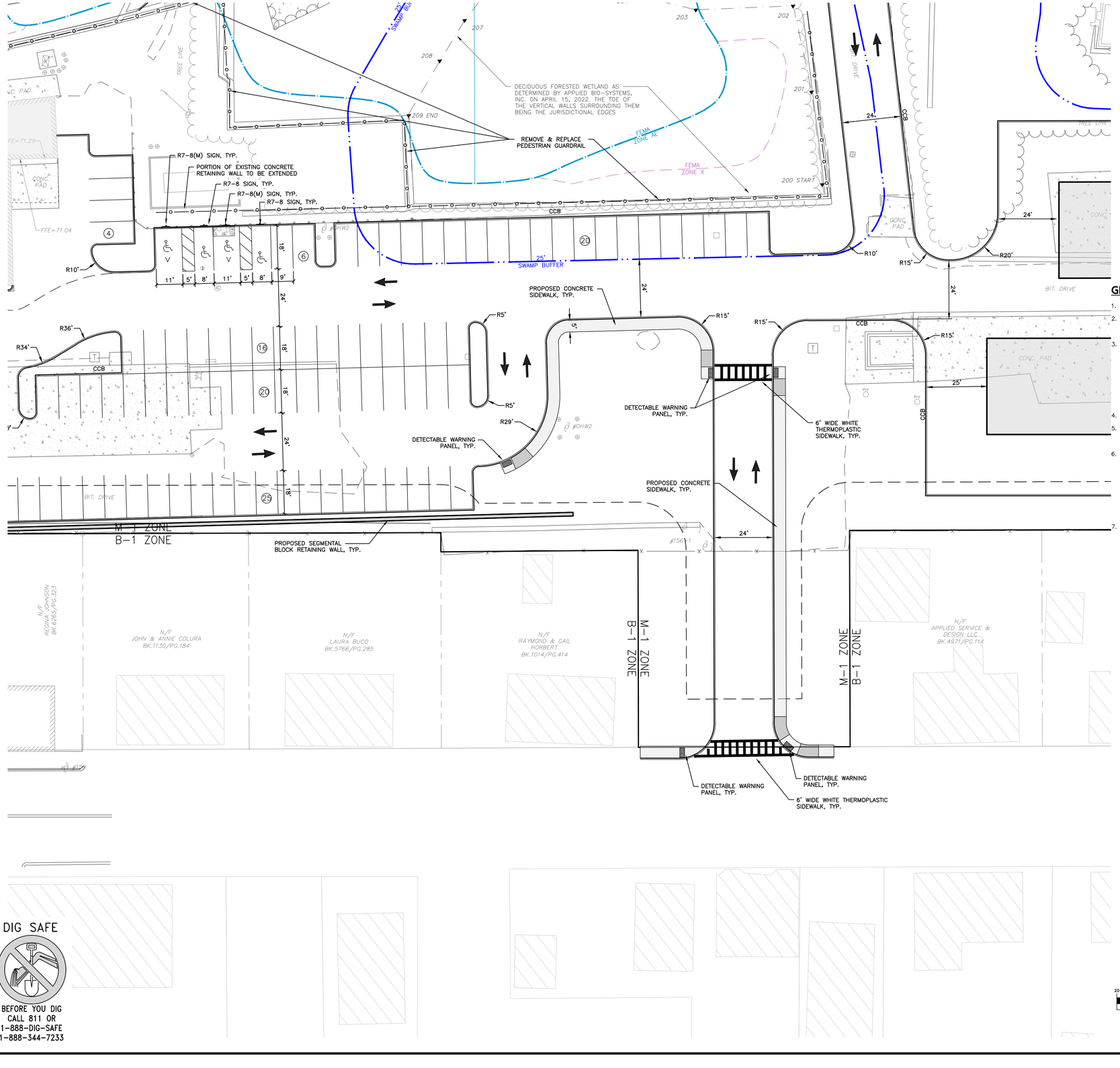

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GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
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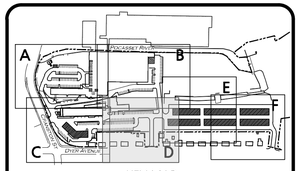

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DESIGNED BY:	JRG	CHECKED BY:	MAM

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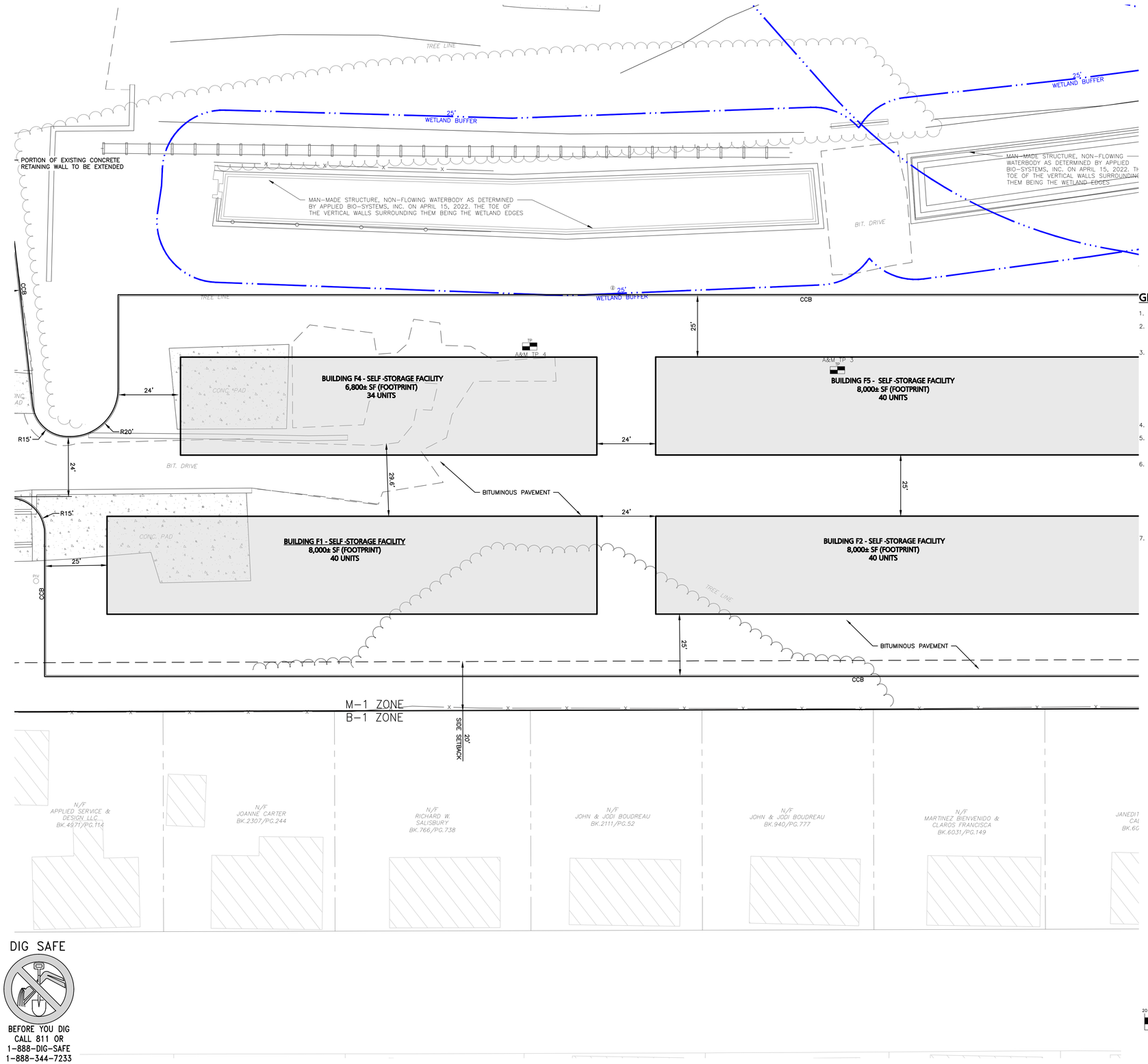

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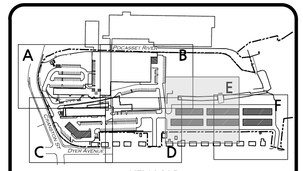

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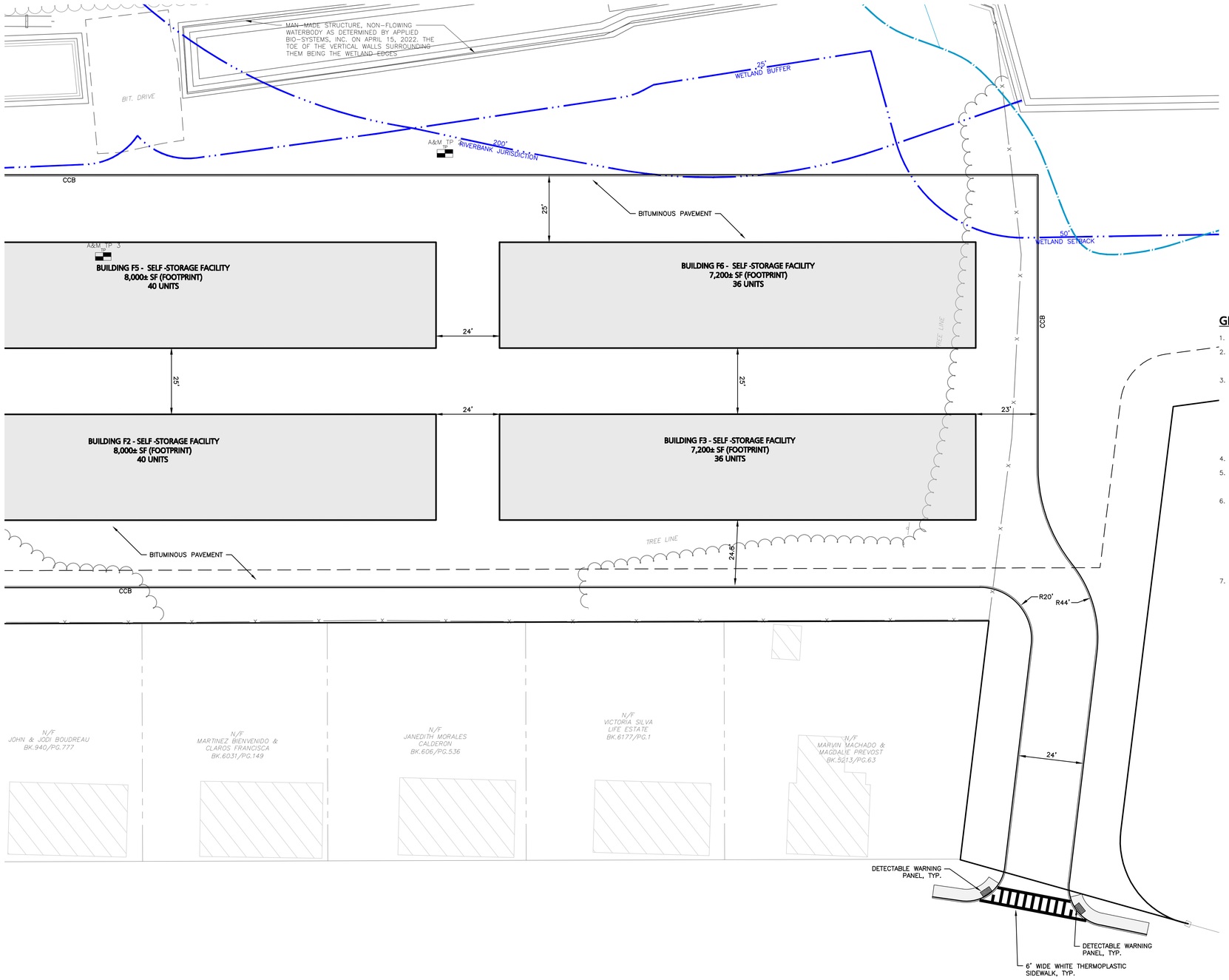

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LEGEND

- PROPERTY LINE
- SIGN
- BOLLARD
- BUILDING
- CURB
- RETAINING WALL
- PARKING STRIPING
- ROADWAY STRIPING
- TRAFFIC ARROWS
- HEAVY DUTY CONCRETE
- SIDEWALK
- ADA ACCESSIBLE RAMP
- SETBACK LINE
- SAW-CUT LINE
- PARKING COUNT (10)
- STEEL GUARDRAIL
- CHAIN LINK FENCE
- PEDESTRIAN GUARDRAIL

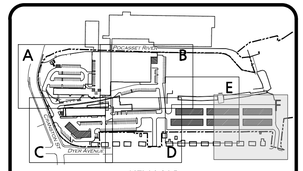
GENERAL NOTES:

1. REFER TO SHEET C-102 FOR ADDITIONAL COMPLIANCE INFORMATION.
2. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS INCLUDING THE TOWN OF CRANSTON, RIDOT, RIDEP, MUTCD, AND AASHTO.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY ALLEN & MAJOR ASSOCIATES DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK, OR THE OWNER'S EMPLOYEES, CUSTOMERS, OR THE GENERAL PUBLIC. THE SEAL OF THE ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PROVIDE THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE
4. ALL ELEVATIONS REFER TO NAVD 88.
5. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
6. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS, SPECIFICATIONS, OR RELATIVE CODES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT PRIOR TO START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AND/OR DESIGN INTENT OF THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
7. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



KEY MAP
NOT TO SCALE

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
7	01-23-25	ISSUED FOR DEVELOPMENT PLAN REVIEW
6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
5	05-28-24	MISC. REVS. PER SEWER DEPT COMMENTS
4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS

APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 20'	DWG.:	C2038-08_LAYOUT & MATERIALS
DESIGNED BY:	JRG	CHECKED BY:	MAM

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
TEL: (781) 935-6889
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WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

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DRAWING TITLE:
LAYOUT & MATERIALS PLAN

SHEET No.
C-102F

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LEGEND

- DRAIN MANHOLE (D)
- CATCH BASIN
- CATCH BASIN – DOUBLE GRATE
- WATER QUALITY UNIT (WQ)
- AREA DRAIN
- DRAIN LINE
- 5' CONTOUR (70)
- 1' CONTOUR (63)
- SPOT GRADE ×71.50
- INFILTRATION SYSTEM
- INFILTRATION CHAMBER
- ISOLATOR ROW
- FLOW DIRECTION

A&M TP-1 — Date: 9/29/2023 — Witnessed by M. Malynowski, PE

-	0 - 24	Pavement road box		
B	24 - 54	Sand - Med to Course	10YR 4/6	
C	54 - 102	Sand - Med to Course	10YR 5/4	Fine cobbles

Pit Bottom: 102" — Mottles: n/a
Observed Water: n/a — Some glaying: n/a
Restrictive Layer: n/a — Pit elevation: 71.5
Seepage: n/a — ESHWT / Restrictive Layer: 63.0

A&M TP-2 — Date: 9/29/2023 — Witnessed by M. Malynowski, PE

	0 - 15	Top Soil & Fill		
B	15 - 33	Sand - Fine to Med	10YR 3/2	some pebbles
C	33 - 50	Fine Sandy Loam	5Y 5/2	

Pit Bottom: 50" — Mottles: n/a
Observed Water: n/a — Some glaying: n/a
Restrictive Layer: n/a — Pit elevation: 68.2
Seepage: 50" — ESHWT / Restrictive Layer: 64.0

A&M TP-3 — Date: 9/29/2023 — Witnessed by M. Malynowski, PE

	0 - 15	Top Soil & Fill		
B	15 - 33	Sand - Fine to Med	10YR 3/2	some pebbles
C1	33 - 53	Fine Sandy Loam	2.5Y 5/2	
C2	53 - 89	Fine Sandy Loam	5Y 5/2	

Pit Bottom: 89" — Mottles: n/a
Observed Water: n/a — Some glaying: n/a
Restrictive Layer: n/a — Pit elevation: 69.4
Seepage: n/a — ESHWT / Restrictive Layer: 62.0

A&M TP-4 — Date: 9/29/2023 — Witnessed by M. Malynowski, PE

	0 - 18	Top Soil & Fill		
B	18 - 52	Sand - Fine to Med	10YR 3/2	some pebbles
C1	52 - 96	Fine Sandy Loam	2.5Y 5/2	

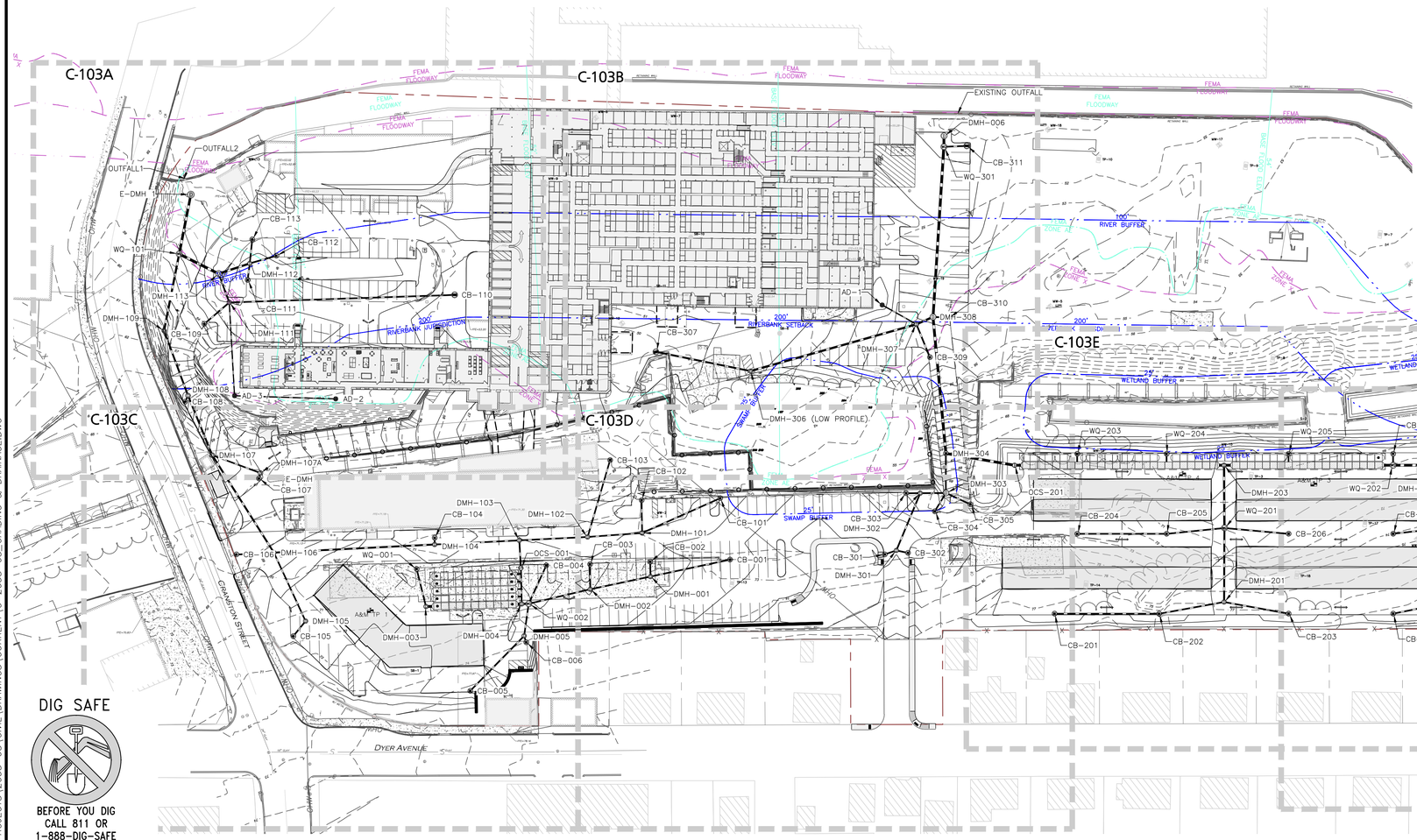
Pit Bottom: 96" — Mottles: n/a
Observed Water: n/a — Some glaying: n/a
Restrictive Layer: n/a — Pit elevation: 68.75
Seepage: n/a — ESHWT / Restrictive Layer: 60.75

EROSION CONTROL NOTES

1. THE SEDIMENTATION AND EROSION CONTROLS DEPICTED SOIL EROSION AND SEDIMENTATION CONTROL (SCSE) PLAN ARE THE MINIMUM REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER MAINTENANCE OF ALL EROSION CONTROLS AND SHALL INSTALL ADDITIONAL MITIGATION MEASURES AS MAY BE NECESSARY TO ENSURE PROTECTION OF ALL NATURAL RESOURCES.
2. THE FOLLOWING DOCUMENTS ARE CONSIDERED PART OF THE PROJECT PLANS AND THE CONTRACTOR/OWNER MUST MAINTAIN THESE DOCUMENTS AS PART OF A FULL PLAN SET: SOIL EROSION AND SEDIMENT CONTROL PLAN (SESC), SHEET C–101A & C–102B. THE SESC CONTAINS THE FOLLOWING:
   2.1. EROSION CONTROL MEASURES
   2.2. SHORT TERM MAINTENANCE
   2.3. ESTABLISHMENT OF VEGETATIVE COVER
   2.4. CONSTRUCTION POLLUTION PREVENTION
   2.5. SEQUENCE OF CONSTRUCTION
   2.6. OPERATION AND MAINTENANCE PLAN (O&M)
   2.7. LONG TERM MAINTENANCE
   2.8. LONG TERM POLLUTION PREVENTION
3. THE SITE IS NOT WITHIN A:
   3.1. GROUNDWATER PROTECTION AREA (RIDEM)
   3.2. NATURAL HERITAGE AREA (RIDEM)
   3.3. GROUNDWATER PROTECTION OVERLAY DISTRICT (TOWN)
4. PRIOR TO THE START OF ANY CONSTRUCTION, ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE INSTALLED AS DEPICTED HEREON. THE CONTRACTOR SHALL MAINTAIN THESE MEASURES UNTIL ALL WORK IS COMPLETED AND ALL AREAS HAVE BEEN STABILIZED.
5. AT NO TIME SHOULD HEAVY EQUIPMENT CROSS THE EROSION CONTROL BARRIERS OR OPERATE BEYOND THE LIMIT OF WORK DEPICTED HEREON. ALL FUELING OF CONSTRUCTION EQUIPMENT IS TO BE DONE IN THE UPLANDS OUTSIDE OF THE 100' BUFFER ZONE.
6. TEMPORARY STABILIZATION OF DISTURBED AREAS IS TO LIMIT EROSION TOWARD THE WETLAND AREAS. ALL TRENCHES ARE TO BE FILLED ON A DAILY BASIS WITH SPECIAL CARE TAKEN TO AVOID ROUTING RAINFALL THROUGH GULLIES TOWARD THE WETLAND AREAS. TEMPORARY DETENTION BASINS ARE TO BE INSTALLED IN AREAS PRONE TO CHANNEL FLOWS DURING PERIODS OF HIGH INTENSITY RAINFALL.
7. THE CONTRACTOR IS TO USE PROPER JUDGMENT RELATIVE TO CONSTRUCTION PRACTICES DURING ADVERSE WEATHER CONDITIONS OR PERIODS OF HIGH GROUNDWATER. NO WORK IS TO BE PERFORMED NEAR THE WETLAND AREAS DURING PERIODS OF HEAVY RAINFALL.
8. PERIODIC MAINTENANCE OF THE EROSION CONTROL. MEASURES IS REQUIRED IN ORDER TO INSURE THE PROPER PROTECTION OF THE RESOURCE: AREAS. ALL EROSION CONTROL STRUCTURES ARE TO BE INSPECTED ON A WEEKLY BASIS OR WHENEVER THERE IS A STORM EVENT EXCEEDING 1/2" OF RAIN IN TWENTY FOUR HOURS.
9. THE TREE CLEARING REMOVAL LIMITS SHALL NOT EXTEND BEYOND THE SILTFENCE/HAYBALE EROSION CONTROL BARRIERS AND THE LIMIT OF WORK. AREAS OF EXISTING VEGETATION TO REMAIN ARE TO BE PROTECTED THROUGHOUT CONSTRUCTION.
10. THE BASE OF ALL STOCKPILES SHALL BE CONTAINED WITHIN THE EROSION CONTROL MEASURES LIMITS. STOCKPILES TO BE LEFT OVER 30 DAYS SHALL BE SEEDED WITH ANNUAL RYE GRASS.
11. THE FUNCTIONING OF THE TEMPORARY SEDIMENT CONTROLS OR CONSTRUCTION OPERATIONS SHALL NOT CAUSE NOTICEABLE SEDIMENT PLUMES. IF PLUMES OCCUR, THE CONTRACTOR SHALL STOP WORK AND INSTALL ADDITIONAL SEDIMENTATION CONTROLS IMMEDIATELY TO PREVENT FURTHER SEDIMENTATION.
12. AFTER THE CONSTRUCTION/INSTALLATION OF THE PERMANENT DRAINAGE /INFRASTRUCTURE, THE CONTRACTOR SHALL INSTALL AND MAINTAIN THE APPROPRIATE SEDIMENTATION CONTROLS TO PROTECT THE INTEGRITY OF THE STRUCTURES DURING THE ONGOING CONSTRUCT/ON. ALL CATCH BASINS SHALL HAVE A SILT SAC CATCH BASIN FILTER INSTALLED. THE FILTERS SHALL BE MAINTAINED AND/OR REPLACED AS NECESSARY UNTIL THE CONSTRUCTION IS COMPLETED.
13. ALL DISTURBED AREAS TO BE LEFT DORMANT FOR MORE THAN 60 DAYS SHALL BE STABILIZED BY TEMPORARILY SEEDING OR MULCHING.
14. DEWATERING OPERATIONS, IF REQUIRED SHALL DISCHARGE ONTO STABILIZED AREAS AND ALL DISCHARGE WATER IS TO PASS THROUGH SEDIMENTATION CONTROL DEVICES TO PREVENT IMPACTS UPON THE WETLANDS RESOURCES, DRAINAGE SYSTEMS. AND ABUTTING PROPERTIES

GRADING & DRAINAGE NOTES:

1. THE MOST CURRENT EDITION OF THE STATE OF RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE RHODE ISLAND STANDARD DETAILS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO THE CURRENT VERSION OF THE STANDARD SPECIFICATIONS MAY BE OBTAINED AT THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS IN ADDITION, THE CITY OF CRANSTON STANDARD SPECIFICATIONS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO
2. ALL REQUIRED SITE IMPROVEMENTS SHALL BE INSPECTED BY THE TOWN ENGINEER TO ENSURE SATISFACTORY COMPLETION. IN NO CASE SHALL THE INSTALLATION OF ANY IMPROVEMENTS BE STARTED UNTIL PRIOR NOTIFICATION IS GIVEN TO THE CITY ENGINEER. AT LEAST A 48–HOUR NOTICE SHALL BE GIVEN TO THE TOWN ENGINEER PRIOR TO ANY SUCH START OF CONSTRUCTION. A FINAL INSPECTION OF ALL SITE IMPROVEMENTS, UTILITIES AND GRADING WILL BE MADE TO DETERMINE WHETHER THE WORK IS SATISFACTORY AND IN SUBSTANTIAL AGREEMENT WITH THE APPROVED FINAL CONSTRUCTION DRAWING AND THE TOWN SPECIFICATIONS.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY ALLEN & MAJOR ASSOCIATES DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK, OR THE OWNER'S EMPLOYEES, CUSTOMERS, OR THE GENERAL PUBLIC. THE SEAL OF THE ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PROVIDE THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE BY THE US OCCUPATIONAL SAFETY AND HEATH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
4. ALL ELEVATIONS REFER TO NAVD 88.
5. PIPE DIMENSIONS ARE MEASURED FROM THE INSIDE FACE OF THE STRUCTURE.
6. 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.
7. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE. UTILITIES ARE TO BE REMOVED TO THE RIGHT–OF–WAY.
8. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED. AT NO TIME SHALL CUT OF FILL SLOPES EXCEED 2:1.
9. EXISTING AND PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT
10. ROOF DRAINS SHALL CONNECT TO NEAREST DRAIN STRUCTURE. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS.
11. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
12. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
13. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 6" ABOVE FINISH GRADE. LIDS SHALL BE LABELED "DRAIN".
14. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
15. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
16. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
17. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH COUNTY SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
18. ALL CATCH BASINS ON–SITE SHALL BE EQUIPPED WITH HOODS AND 4 FOOT SUMPS AND SHALL CONFORM TO LOCAL DRAINAGE REQUIREMENTS.
19. A MINIMUM OF 18" VERTICAL CLEARANCE SHALL BE MAINTAINED WHERE WATER SERVICES CROSS STORM DRAIN LINES. WATER SERVICES SHALL BE ENCASED IN CONCRETE REGARDLESS OF CLEARANCE WHEN PASSING BELOW STORM DRAIN LINES. ENCASEMENT SHALL EXTEND ALONG WATER SERVICE A MINIMUM DISTANCE OF TEN FEET FROM THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE.
20. ALL DRAINAGE SHALL CONFORM TO LOCAL AND RIDEM REQUIREMENTS.
21. PRIOR TO CONSTRUCTION OF IMPERVIOUS AREAS, ALL DRAINAGE STRUCTURES, PIPES AND BASINS SHALL BE INSTALLED AND INSPECTED FOR PROPER FUNCTION.
22. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS, SPECIFICATIONS, OR RELATIVE CODES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT PRIOR TO START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AND/OR DESIGN INTENT OF THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
23. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.
14. WORK SHOWN ON THE PLANS FOR WHICH THERE ARE NO PARTICULAR DETAILS OR SPECIFICATIONS DOES NOT RELIEVE THE CONTRACTOR FROM FINISHING AND INSTALLING THE WORK. THE CONTRACTOR SHALL THOROUGHLY EXAMINE THE CONTRACT DOCUMENTS AND PLANS AND INSPECT THE SITE, AND THE BID PRICE SHALL INCLUDE ALL SERVICES AND MATERIALS AS NECESSARY TO COMPLETE THE PROJECT. ANY CHANGES TO THE PROJECT OR THE INSTALLATION OF AN ITEM FOR WHICH NO PARTICULAR DETAIL OR SPECIFICATION WAS PROVIDED MUST BE REVIEWED BY AND ACCEPTABLE TO THE ENGINEER.
15. CONTRACTOR SHALL RECORD AND PROVIDE AS–BUILT DRAWINGS IN ACCORDANCE WITH LOCAL UTILITY REQUIREMENTS FOR ALL NEW INFRASTRUCTURE AND PROVIDE THE CITY OF CRANSTON WITH AS–BUILTS OF THE STORMWATER MANAGEMENT SYSTEM, SEWER SYSTEM, AND WATER SYSTEM.
16. ALL CRUSHED STONE SHALL BE WASHED CRUSHED STONE.



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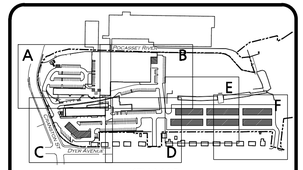

KEY MAP
NOT TO SCALE

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

PROFESSIONAL ENGINEER FOR
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SCALE:	1" = 60'	DWG.:C2038_GRADING & DRAINAGE	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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environmental consulting ♦ landscape architecture
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DRAWING TITLE: GRADING & DRAINAGE PLAN

SHEET No. C-103

18 OF 51

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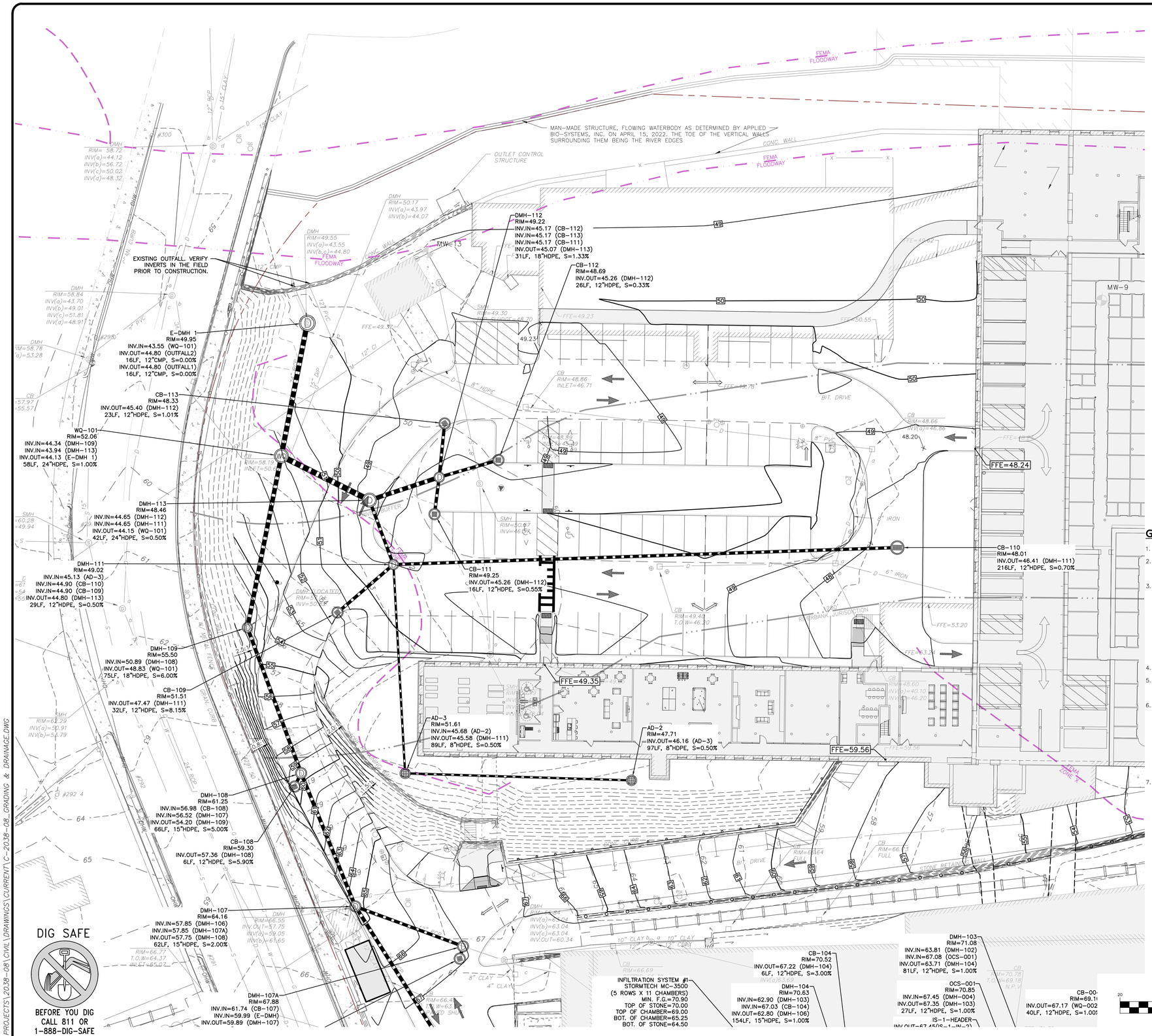

LEGEND

DRAIN MANHOLE	D
CATCH BASIN	
CATCH BASIN – DOUBLE GRATE	
WATER QUALITY UNIT	WQ
AREA DRAIN	
DRAIN LINE	
5' CONTOUR	70
1' CONTOUR	63
SPOT GRADE	×71.50
INFILTRATION SYSTEM	
INFILTRATION CHAMBER	
ISOLATOR ROW	
FLOW DIRECTION	

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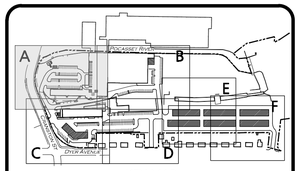
GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



KEY MAP
NOT TO SCALE

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
7	01-23-25	ISSUED FOR DEVELOPMENT PLAN REVIEW
6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
5	05-28-24	MISC. REVS. PER SEWER DEPT COMMENTS
4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS

APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 20'	DWG.:	C2038-08_GRADING & DRAINAGE
DESIGNED BY:	JRG	CHECKED BY:	MAM

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
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

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DRAWING TITLE: GRADING & DRAINAGE PLAN

SHEET No. C-103A

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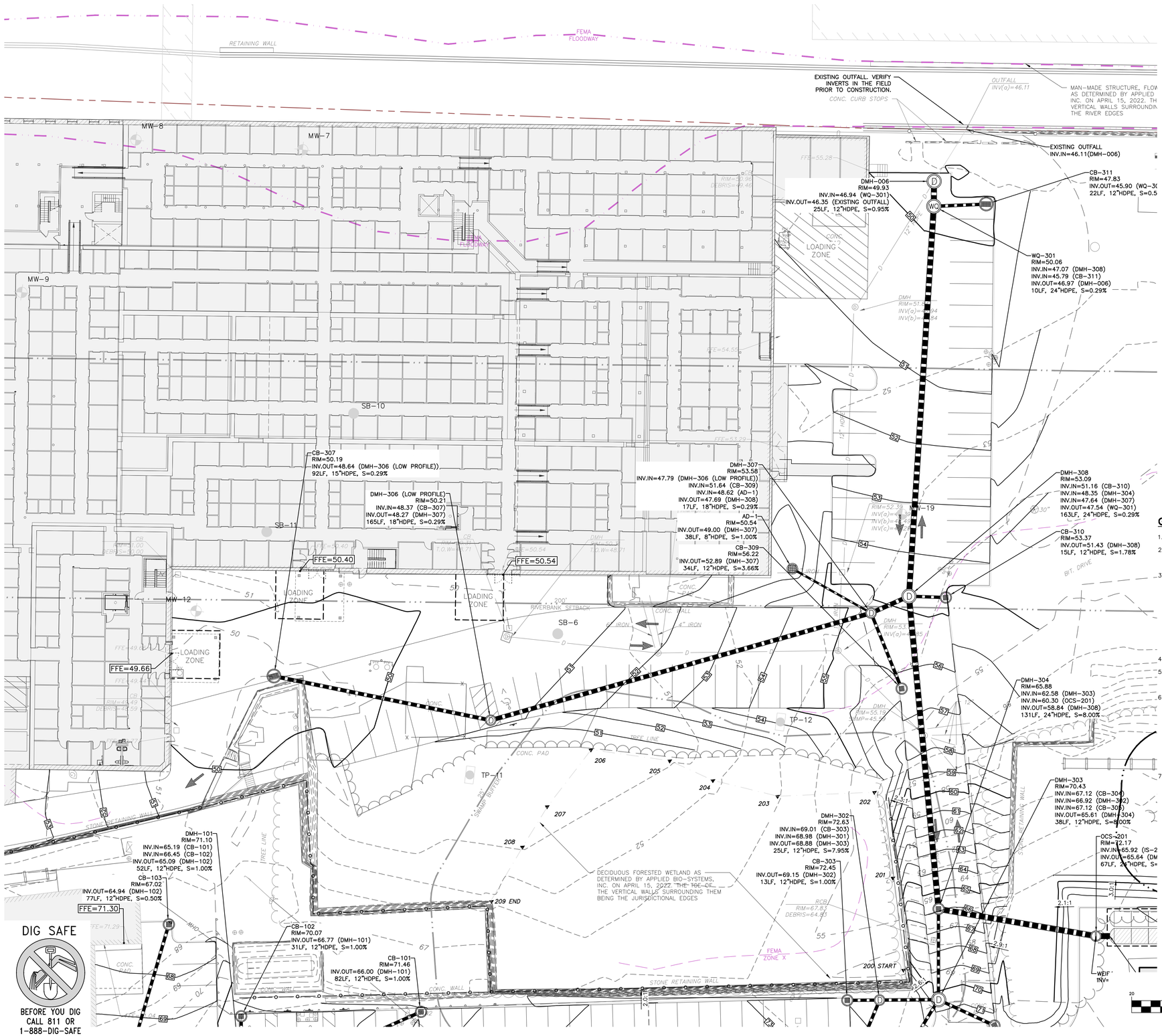
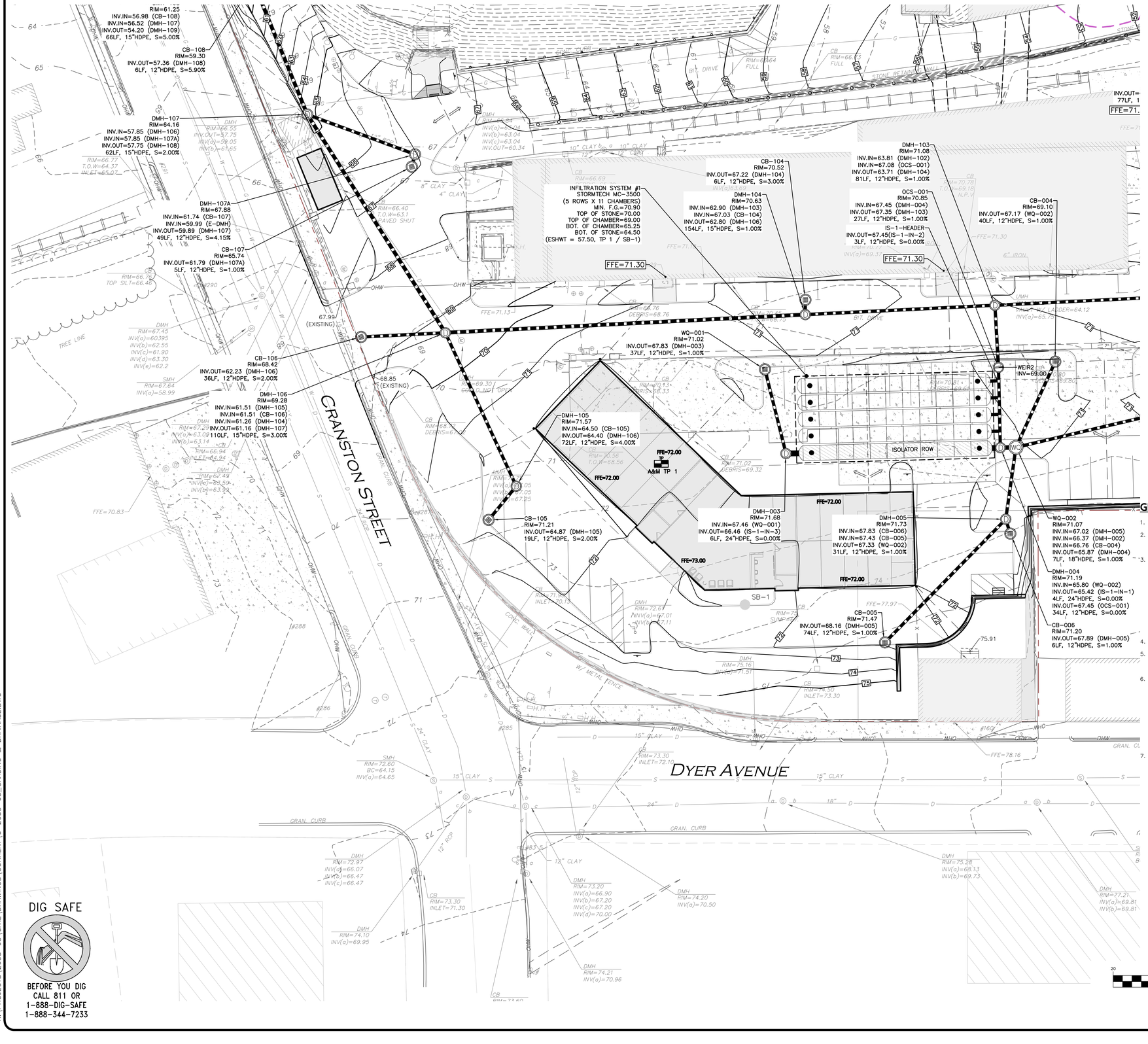

RETAINING WALL
FEMA FLOODWAY
MW-8
MW-7
MW-9
MW-12
SB-10
SB-11
SB-6
TP-11
TP-12
EXISTING OUTFALL. VERIFY INVERTS IN THE FIELD PRIOR TO CONSTRUCTION.
CONC. CURB STOPS
OUTFALL INV(a)=46.11
MAN-MADE STRUCTURE, FLOW AS DETERMINED BY APPLIED INC. ON APRIL 15, 2022. TH VERTICAL WALLS SURROUNDIN THE RIVER EDGES
EXISTING OUTFALL INV.IN=46.11(DMH-006)
DMH-006 RIM=49.93 INV.IN=46.94 (WQ-301) INV.OUT=46.35 (EXISTING OUTFALL) 25LF, 12"HDPE, S=0.95%
CB-311 RIM=47.83 INV.OUT=45.90 (WQ-3 22LF, 12"HDPE, S=0.5
WQ-301 RIM=50.06 INV.IN=47.07 (DMH-308) INV.IN=45.79 (CB-311) INV.OUT=46.97 (DMH-006) 10LF, 24"HDPE, S=0.29%
LOADING ZONE
CB-307 RIM=50.19 INV.OUT=48.64 (DMH-306 (LOW PROFILE)) 92LF, 15"HDPE, S=0.29%
DMH-306 (LOW PROFILE) RIM=50.21 INV.IN=48.37 (CB-307) INV.OUT=48.27 (DMH-307) 165LF, 18"HDPE, S=0.29%
DMH-307 RIM=53.58 INV.IN=47.79 (DMH-306 (LOW PROFILE)) INV.IN=51.64 (CB-309) INV.IN=48.62 (AD-1) INV.OUT=47.69 (DMH-308) 17LF, 18"HDPE, S=0.29%
AD-1 RIM=50.54 INV.OUT=49.00 (DMH-307) 38LF, 8"HDPE, S=1.00%
CB-309 RIM=56.22 INV.OUT=52.89 (DMH-307) 34LF, 12"HDPE, S=3.66%
DMH-308 RIM=53.09 INV.IN=51.16 (CB-310) INV.IN=48.35 (DMH-304) INV.IN=47.64 (DMH-307) INV.OUT=47.54 (WQ-301) 163LF, 24"HDPE, S=0.29%
CB-310 RIM=53.37 INV.OUT=51.43 (DMH-308) 15LF, 12"HDPE, S=1.78%
DMH-304 RIM=65.88 INV.IN=62.58 (DMH-303) INV.IN=62.30 (OCS-201) INV.OUT=58.84 (DMH-308) 131LF, 24"HDPE, S=8.00%
DMH-303 RIM=70.43 INV.IN=67.12 (CB-304) INV.IN=66.92 (DMH-302) INV.IN=67.12 (CB-305) INV.OUT=65.61 (DMH-304) 38LF, 12"HDPE, S=5.00%
OCS-201 RIM=72.17 INV.IN=65.92 (IS-2 INV.OUT=65.64 (DM 67LF, 24"HDPE, S=
DMH-302 RIM=72.63 INV.IN=69.01 (CB-303) INV.IN=68.98 (DMH-301) INV.OUT=68.88 (DMH-303) 25LF, 12"HDPE, S=7.95%
CB-303 RIM=72.45 INV.OUT=69.15 (DMH-302) 13LF, 12"HDPE, S=1.00%
DMH-101 RIM=71.10 INV.IN=65.19 (CB-101) INV.IN=66.45 (CB-102) INV.OUT=65.09 (DMH-102) 52LF, 12"HDPE, S=1.00%
CB-103 RIM=67.02 INV.OUT=64.94 (DMH-102) 77LF, 12"HDPE, S=0.50%
CB-102 RIM=70.07 INV.OUT=66.77 (DMH-101) 31LF, 12"HDPE, S=1.00%
CB-101 RIM=71.46 INV.OUT=66.00 (DMH-101) 82LF, 12"HDPE, S=1.00%
FFE=50.40
FFE=50.54
FFE=49.66
FFE=71.30
FFE=55.28
FFE=54.55
FFE=53.29
RIVERBANK SETBACK
200' RIVERBANK SETBACK
DECIDUOUS FORESTED WETLAND AS DETERMINED BY APPLIED BIO-SYSTEMS, INC. ON APRIL 15, 2022. THE TOE OF THE VERTICAL WALLS SURROUNDING THEM BEING THE JURISDICTIONAL EDGES
200' START
209 END
FEMA ZONE X
STONE RETAINING WALL
CONC. WALL
TREE LINE
SWAMP BUFFER
CONC. PAD
2.5:1
3.0:1
2.1:1
WEIR INV=
RCB RIM=67.87 DEBRIS=64.93
DMH RIM=53.58 INV(a)=49.34 INV(b)=49.24
DMH RIM=53.37 INV(a)=49.25 INV(c)=49.15
DMH RIM=55.16 INV=45.93
DMH RIM=52.39 INV(a)=48.71 INV(b)=48.61 INV(c)=48.51
CB RIM=51.00 DEBRIS=49.40
CB RIM=50.92 DEBRIS=49.42
CB RIM=51.49 DEBRIS=49.59
CB RIM=51.49 DEBRIS=49.59
CB RIM=51.49 DEBRIS=49.59



LEGEND

- DRAIN MANHOLE
- CATCH BASIN
- CATCH BASIN – DOUBLE GRATE
- WATER QUALITY UNIT
- AREA DRAIN
- DRAIN LINE
- 5' CONTOUR
- 1' CONTOUR
- SPOT GRADE
- INFILTRATION SYSTEM
- INFILTRATION CHAMBER
- ISOLATOR ROW
- FLOW DIRECTION

GRADING & DRAINAGE NOTES:

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2. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS INCLUDING THE CITY OF CRANSTON, RIDOT, RIDEM, MUTCD, AND AASHTO.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY ALLEN & MAJOR ASSOCIATES DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK, OR THE OWNER'S EMPLOYEES, CUSTOMERS, OR THE GENERAL PUBLIC. THE SEAL OF THE ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PROVIDE THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE
4. ALL ELEVATIONS REFER TO NAVD 88.
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6. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS, SPECIFICATIONS, OR RELATIVE CODES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT PRIOR TO START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AND/OR DESIGN INTENT OF THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
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GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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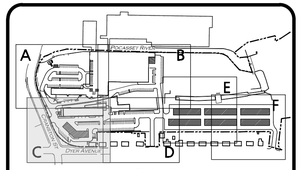

KEY MAP
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RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

PROFESSIONAL ENGINEER FOR
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670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

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DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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DRAWING TITLE:
GRADING & DRAINAGE PLAN

SHEET No.
C-103C

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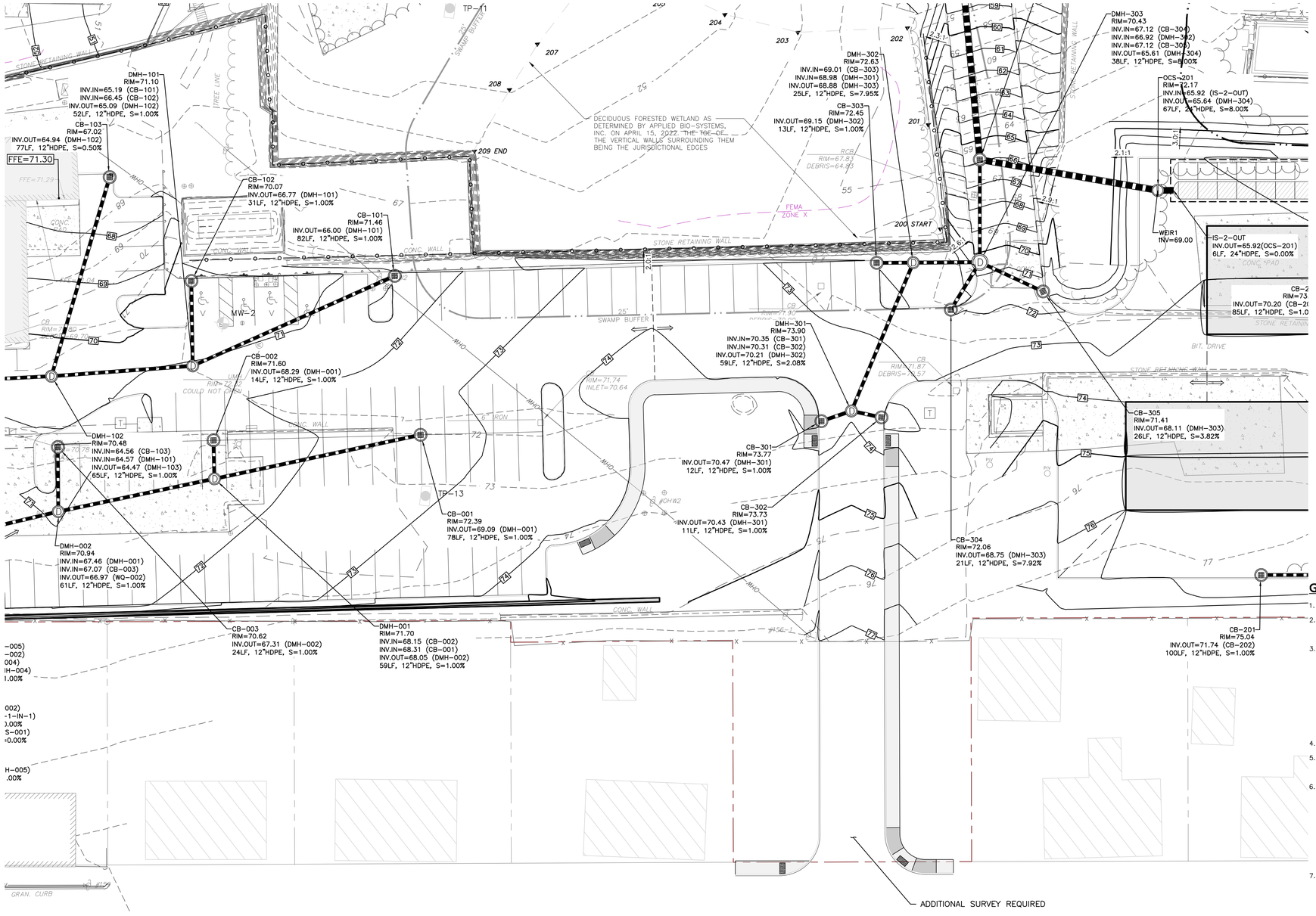

LEGEND

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- CATCH BASIN – DOUBLE GRATE
- WATER QUALITY UNIT
- AREA DRAIN
- DRAIN LINE
- 5' CONTOUR
- 1' CONTOUR
- SPOT GRADE
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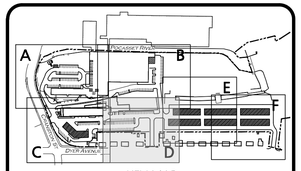

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RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR
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GRADING & DRAINAGE PLAN

SHEET No.

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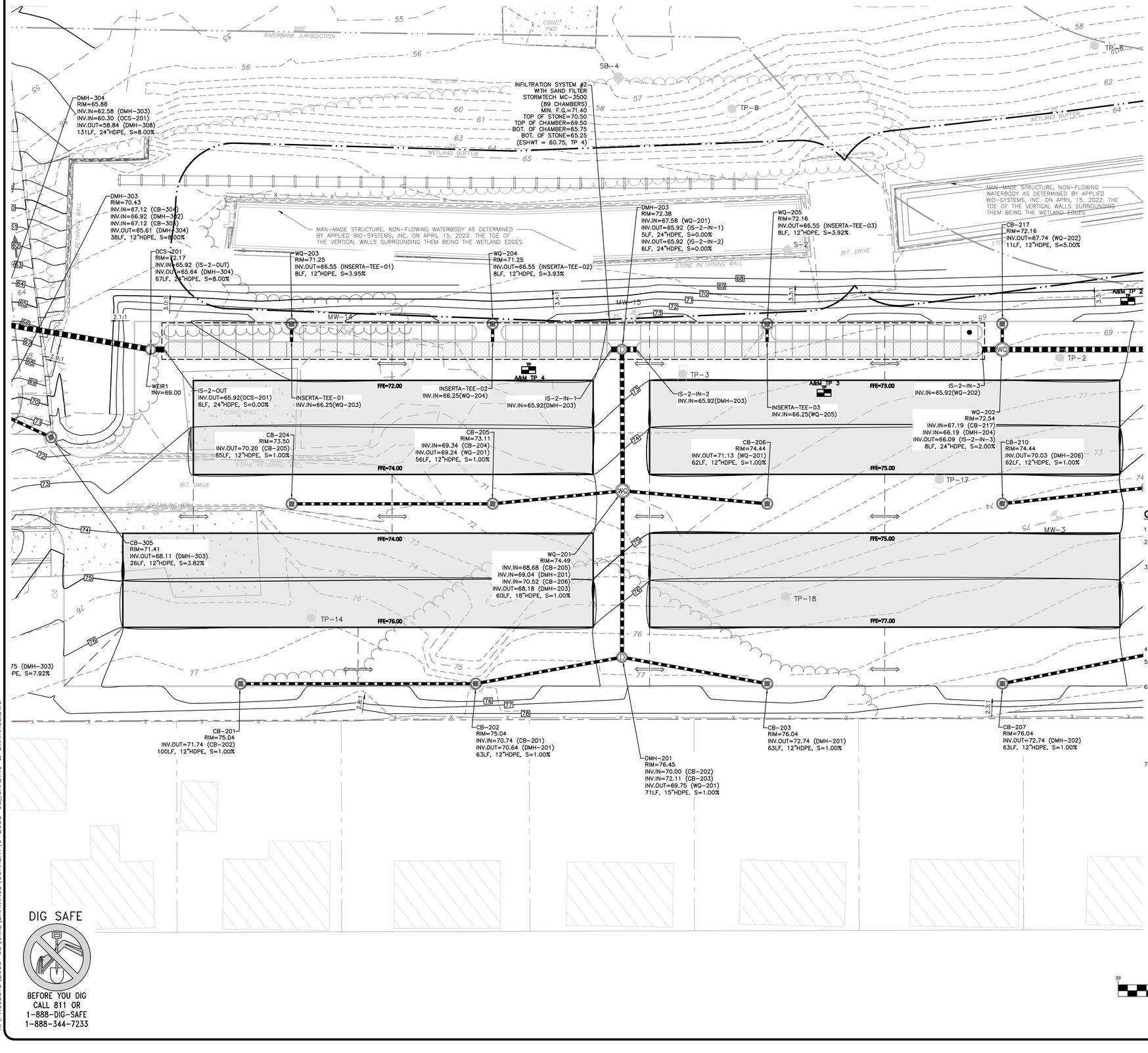

LEGEND

DRAIN MANHOLE	D
CATCH BASIN	
CATCH BASIN – DOUBLE GRATE	
WATER QUALITY UNIT	WQ
AREA DRAIN	
DRAIN LINE	
5' CONTOUR	70
1' CONTOUR	63
SPOT GRADE	×—71.50
INFILTRATION SYSTEM	
INFILTRATION CHAMBER	
ISOLATOR ROW	
FLOW DIRECTION	⟹

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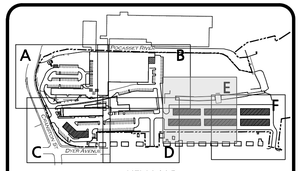

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1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 20'	DWG.:	C2038-08_GRADING & DRAINAGE
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
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environmental consulting ♦ landscape architecture
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DRAWING TITLE:
GRADING & DRAINAGE PLAN

SHEET No.
C-103E

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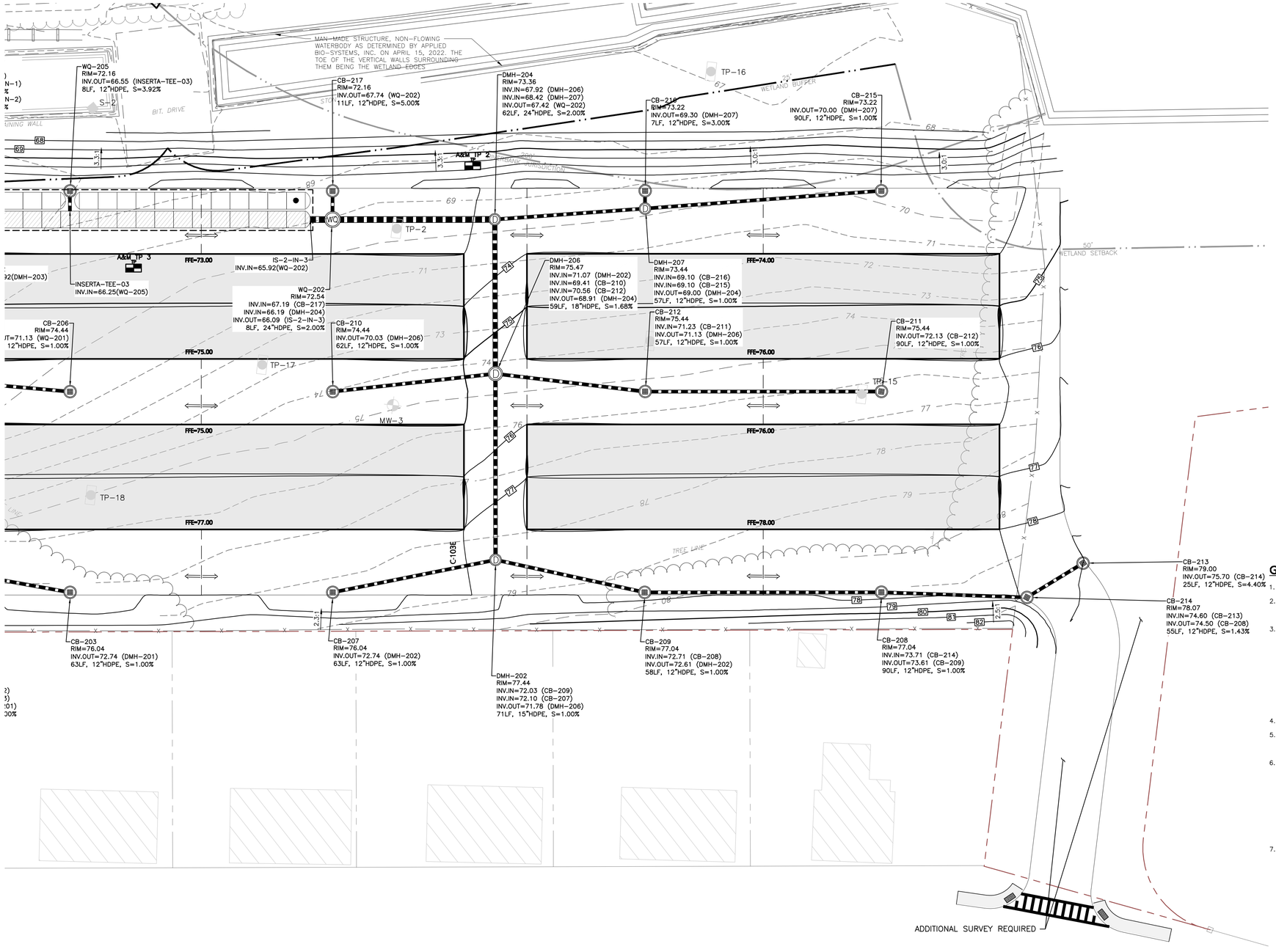

LEGEND

DRAIN MANHOLE	D
CATCH BASIN	
CATCH BASIN – DOUBLE GRATE	
WATER QUALITY UNIT	WQ
AREA DRAIN	
DRAIN LINE	
5' CONTOUR	70
1' CONTOUR	63
SPOT GRADE	×—71.50
INFILTRATION SYSTEM	
INFILTRATION CHAMBER	
ISOLATOR ROW	
FLOW DIRECTION	⟹

GRADING & DRAINAGE NOTES:

1. REFER TO SHEET C-103 FOR ADDITIONAL COMPLIANCE INFORMATION.
2. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS INCLUDING THE CITY OF CRANSTON, RIDOT, RIDEM, MUTCD, AND AASHTO.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY ALLEN & MAJOR ASSOCIATES DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK, OR THE OWNER'S EMPLOYEES, CUSTOMERS, OR THE GENERAL PUBLIC. THE SEAL OF THE ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PROVIDE THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE
4. ALL ELEVATIONS REFER TO NAVD 88.
5. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
6. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS, SPECIFICATIONS, OR RELATIVE CODES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT PRIOR TO START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AND/OR DESIGN INTENT OF THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
7. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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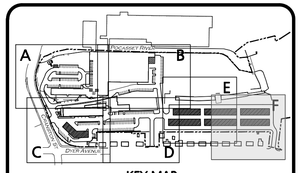
R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\C-2038-08_GRADING & DRAINAGE.DWG



KEY MAP
NOT TO SCALE

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
7	01-23-25	ISSUED FOR DEVELOPMENT PLAN REVIEW
6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
5	05-28-24	MISC. REVS. PER SEWER DEPT COMMENTS
4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS

APPLICANT/OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

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C-103F

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UTILITY NOTES:

1. THE MOST CURRENT EDITION OF THE STATE OF RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE RHODE ISLAND STANDARD DETAILS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO THE CURRENT VERSION OF THE STANDARD SPECIFICATIONS MAY BE OBTAINED AT THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS IN ADDITION, THE CITY OF CRANSTON STANDARD SPECIFICATIONS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO
2. THE CONTRACTOR SHALL REFER TO ARCHITECTS PLANS AND SPECIFICATIONS FOR ACTUAL LOCATION OF ALL ROOF DRAIN LATERALS AND UTILITY ENTRANCES TO INCLUDE SANITARY SEWER LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRIC, TELEPHONE, AND GAS SERVICE. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND COORDINATE WITH THE PROPER AGENCY THE LOCATION AND SCHEDULING OF CONNECTIONS WITH THEIR FACILITIES.
3. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION. THE ENGINEER WILL THEN PROVIDE RESOLUTION TO UTILITY CONFLICTS WITHOUT DELAY.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS OF THE SITE. THESE PLANS PREPARED BY ALLEN & MAJOR ASSOCIATES, INC., DO NOT EXTEND TO, NOR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THE EMPLOYEES, AGENTS OF REPRESENTATIVES IN PERFORMANCE OF THE WORK. THE SEAL OF THE ARCHITECT OR ENGINEER HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE OF OBTAIN THE APPROPRIATE SAFETY SYSTEMS THAT MAY BE REQUIRED BY THE US OCCUPATIONAL SAFETY AND HEATH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
5. PIPE DIMENSIONS ARE MEASURED FROM THE INSIDE FACE OF THE STRUCTURE.
6. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE. UTILITIES ARE TO BE REMOVED TO THE RIGHT-OF-WAY.
7. LOCATION OF PROPOSED ELECTRICAL/COMMUNICATION SERVICE IS SCHEMATIC IN NATURE AND FOR COORDINATION PURPOSES ONLY. SPECIFIC ALIGNMENTS ARE TO BE DESIGNED BY OTHERS AND REVIEWED BY THE UTILITY PROVIDING SERVICE. PROPOSED ELECTRICAL SERVICE TO BE BURIED IN ACCORDANCE WITH THE CITY OF CRANSTON REGULATIONS AND ELECTRIC COMPANY.
8. LOCATION OF PROPOSED GAS MAIN IS SCHEMATIC IN NATURE AND FOR COORDINATION PURPOSES ONLY. SPECIFIC ALIGNMENTS ARE TO BE DESIGNED BY OTHERS AND REVIEWED BY THE UTILITY PROVIDING SERVICE. THIS WORK TO BE INCLUDED AS PART OF BASE BID FOR SITE WORK.
9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS, SPECIFICATIONS, OR RELATIVE CODES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT PRIOR TO START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AND/OR DESIGN INTENT OF THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
10. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.
11. WORK SHOWN ON THE PLANS FOR WHICH THERE ARE NO PARTICULAR DETAILS OR SPECIFICATIONS DOES NOT RELIEVE THE CONTRACTOR FROM FINISHING AND INSTALLING THE WORK. THE CONTRACTOR SHALL THOROUGHLY EXAMINE THE CONTRACT DOCUMENTS AND PLANS AND INSPECT THE SITE, AND THE BID PRICE SHALL INCLUDE ALL SERVICES AND MATERIALS AS NECESSARY TO COMPLETE THE PROJECT. ANY CHANGES TO THE PROJECT OR THE INSTALLATION OF AN ITEM FOR WHICH NO PARTICULAR DETAIL OR SPECIFICATION WAS PROVIDED MUST BE REVIEWED BY AND ACCEPTABLE TO THE ENGINEER.
12. CONTRACTOR SHALL RECORD AND PROVIDE AS-BUILT DRAWINGS IN ACCORDANCE WITH LOCAL UTILITY REQUIREMENTS FOR ALL NEW INFRASTRUCTURE AND PROVIDE THE CITY OF CRANSTON WITH AS-BUILTS OF THE STORMWATER MANAGEMENT SYSTEM, SEWER SYSTEM, AND WATER SYSTEM.
13. ALL SEWER PUMP STATION COMPONENTS SHALL BE PRIVATELY OWNED, OPERATED, & MAINTAINED.

RIDEM (OWR) SEWER/WATER LINE SEPARATION POLICY

A. LATERAL PLACEMENT OF SEWERS AND WATER LINES

SEWERS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER LINE. THE DISTANCE SHALL BE MEASURED EDGE-TO-EDGE. THERE IS NO MINIMUM VERTICAL SEPARATION REQUIRED PROVIDED THE 10 FOOT HORIZONTAL SEPARATION IS MAINTAINED. STRUCTURES, OTHER THAN PIPELINES OR CONDUITS, THROUGH WHICH SANITARY WASTEWATER FLOWS SUCH AS, BUT NOT LIMITED TO, MANHOLES, VALVE VAULTS, METER PITS AND PUMP STATION WET WELLS SHALL ALSO BE CONSTRUCTED AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER LINE, MEASURED EDGE-TO-EDGE.

IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10 FOOT HORIZONTAL SEPARATION, THE OWR MAY ALLOW DEVIATION ON A CASE-BY-CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER PIPELINES AND/OR STRUCTURES CLOSER TO A WATER LINE, PROVIDED THAT:

1. THE SEWER PIPELINE AND/OR STRUCTURES AND WATER LINE ARE LAID IN SEPARATE TRENCHES, OR
2. THE SEWER PIPELINE AND/OR STRUCTURES AND WATER LINE MAY BE INSTALLED IN THE SAME TRENCH WITH THE WATER LINE PLACED ON A BENCH OF UNDISTURBED EARTH, AND
3. IN EITHER CASE, THE CROWN OF THE SEWER PIPELINE SHALL BE AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER LINE.

IN SITUATIONS WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, THE FOLLOWING PROTECTION SHALL BE PROVIDED:

1. ENCASEMENT OF THE SEWER PIPELINE IN CONCRETE (MIN. 6 INCH THICKNESS) OR A CARRIER PIPE FOR AT LEAST 10 FEET EITHER SIDE OF THE AREA NOT COMPLYING WITH THE MINIMUM HORIZONTAL AND VERTICAL SEPARATION, OR
2. THE DESIGN AND CONSTRUCTION OF THE SEWER PIPELINE MUST MEET THE REQUIREMENTS APPLICABLE TO WATER LINES (ANY AWWA-APPROVED MATERIAL FOR POTABLE WATER CONVEYANCE), AND PRESSURE TESTED IN ACCORDANCE WITH AWWA SPECIFICATIONS, OR
3. IN INSTANCES OF CONFLICT WITH SANITARY WASTEWATER STRUCTURES MENTIONED ABOVE, RELOCATE THE WATER LINE TO ACHIEVE EITHER A 10 FOOT HORIZONTAL OR 18 INCH VERTICAL SEPARATION.

B. SEWERS CROSSING WATER LINES

SEWERS CROSSING OVER WATER LINES SHOULD BE AVOIDED, BUT IF CONDITIONS WARRANT THIS SITUATION, THEN ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO MAINTAIN LINE AND GRADE. SEWERS CROSSING UNDER WATER LINES SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL SEPARATION OF 18 INCHES BETWEEN THE INVERT OF THE WATER LINE AND THE CROWN OF THE SEWER. RELOCATION OF AN EXISTING WATER LINE MAY BE NECESSARY TO ACHIEVE THIS VERTICAL SEPARATION. RELOCATED WATER LINES SHALL BE CONSTRUCTED OF AN AWWA-APPROVED MATERIAL FOR POTABLE WATER CONVEYANCE AND DESIGNED FOR THE REQUIRED WATER SERVICE PRESSURE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER LINE JOINTS.
WHERE CONDITIONS PREVENT AN 18 INCH VERTICAL SEPARATION FROM BEING MAINTAINED, THE FOLLOWING METHODS SHALL BE SPECIFIED:

1. THE DESIGN AND CONSTRUCTION OF THE SEWER MUST MEET THE REQUIREMENTS APPLICABLE TO WATER LINES (ANY AWWA-APPROVED MATERIAL FOR POTABLE WATER CONVEYANCE) FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER LINE AND PRESSURE TESTED IN ACCORDANCE WITH AWWA SPECIFICATIONS, OR
2. EITHER THE WATER LINE OR THE SEWER MAY BE ENCASED IN CONCRETE (MIN. 6 INCH THICKNESS) OR A CARRIER PIPE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER LINE. THE CARRIER PIPE SHALL BE DESIGNED AND CONSTRUCTED OF MATERIALS WHICH ARE SATISFACTORY TO THE OWR, OR
3. ANY OTHER METHODS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER, WHICH ENSURE ADEQUATE WATERTIGHTNESS AND ARE SATISFACTORY TO THE OWR.

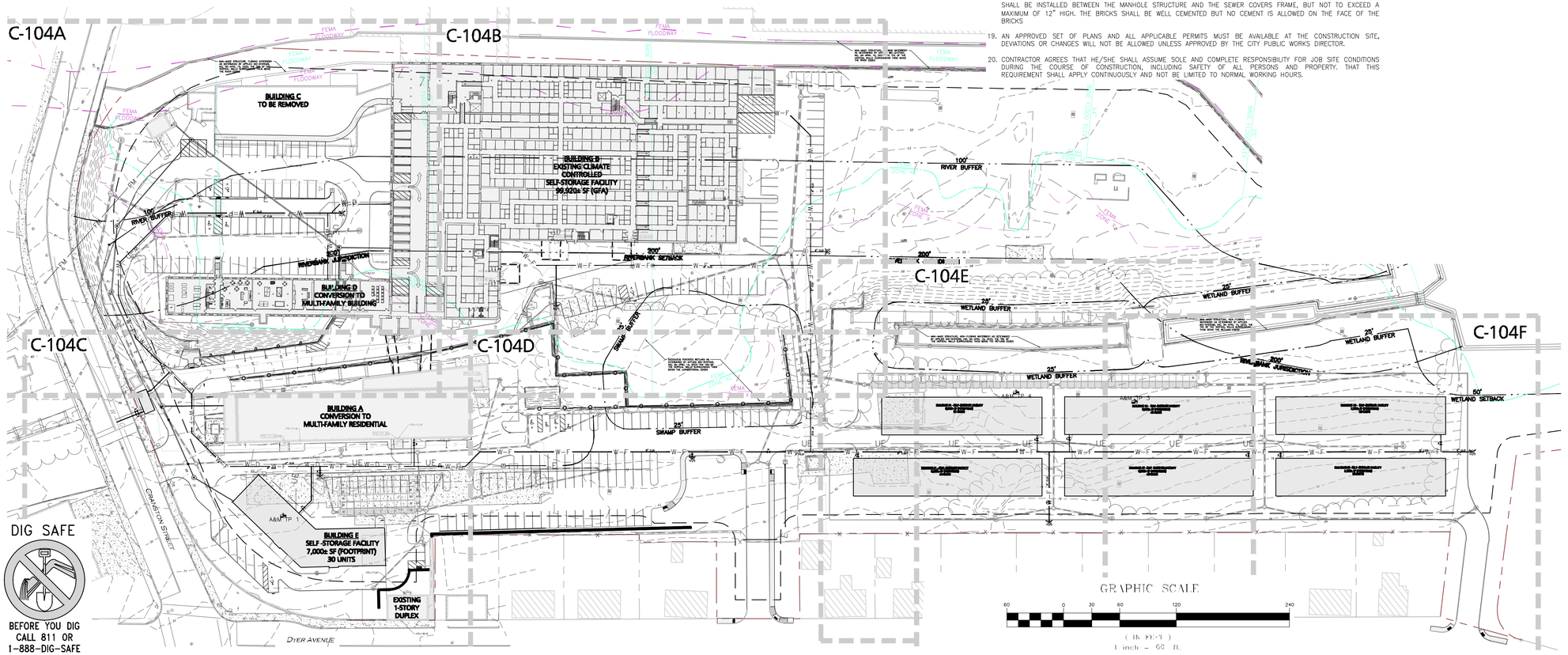
CRANSTON SEWER MAIN ORDER OF PROCEDURE:

1. THE OWNER OR THE DEVELOPER SHALL SUBMIT TO THE CITY OF CRANSTON'S DIRECTOR OF PUBLIC WORKS THE NAME OF THE QUALIFIED SEWER CONTRACTOR THAT WILL BE RESPONSIBLE FOR THE INSTALLATION OF THE SANITARY SEWER SYSTEM, TOGETHER WITH A BREAKDOWN OF ITEMS, QUANTITIES AND UNIT PRICES FOR THE PROJECT
2. NO WORK CAN COMMENCE OF ANY SEWER INSTALLATION WITHOUT THE DIRECTOR'S APPROVAL OF THE PLANS AND CONTRACTOR
3. THE CONTRACTOR THAT WAS APPROVED SHALL NOTIFY VEOLIA WATER OF NORTH AMERICA COLLECTIONS SYSTEM DEPARTMENT AND THE DIRECTOR OF PUBLIC WORKS FIVE (5) WORKING DAYS PRIOR TO COMMENCING ANY SEWER RELATED EXCAVATION THE CONTRACTOR SHALL PROVIDE THE FOLLOWING INFORMATION: COMPANY NAME, PHONE NUMBER AND ADDRESS OF BOTH THE DEVELOPER AND CONTRACTOR ALONG WITH THE NAME AND PHONE NUMBER OF THE SEWER CONTRACTORS FOREMAN THE CONTRACTOR SHALL PROVIDE TO VEOLIA WATER AND THE CITY A SPECIFIC BY-PASS PUMPING PLAN FOR APPROVAL PRIOR TO CONSTRUCTION
4. VEOLIA WATER SHALL INSPECT THE NEW PLAT CONSTRUCTION CONSISTING OF EXCAVATION, LYING OF SEWER MAINS AND STREET LATERALS, INSTALLATION OF MANHOLES, AND BACKFILLING TO THE ELEVATION OF THE EXISTING GROUND, CAMERA INSPECTION, AND PRESSURE TESTING: AND SHALL PERFORM THE FLOW TEST THE CONTRACTOR AT HIS CHOICE AND EXPENSE HAS THE OPTION OF USING A PRIVATE CONTRACTOR OR HIRING VEOLIA WATER TO CAMERA AND VIDEO TAPE THE SEWER IF THE CONTRACTOR CHOOSES TO USE A PRIVATE CAMERA CONTRACTOR TO VIDEOTAPE THE SEWER SYSTEM AN INSPECTOR FROM VEOLIA WATER SHALL BE PRESENT FOR THE VIDEOTAPING
5. AFTER THE SEWER SYSTEM HAS BEEN INSTALLED THE CONTRACTOR SHALL HAVE THE ENTIRE MANHOLES VACUUM TESTED: (TEN (10) INCHES OF VACUUM FOR SIXTY (60) SECONDS AND THEN THE GRAVITY SEWER PIPES SHALL BE TESTED FOR: FIVE (5) LBS OF PRESSURE FOR TEN (10) MINUTES VEOLIAS INSPECTOR SHALL BE PRESENT FOR ALL TESTING OF MANHOLES AND PIPES
6. AFTER THE TESTING OF THE MANHOLES AND PIPES THE CONTRACTOR SHALL HAVE THE ENTIRE SEWER SYSTEM FLUSHED AND CLEANED
7. NEXT THE SYSTEM SHALL BE CAMERA INSPECTED AND VIDEOTAPED
8. VEOLIA WATER SHALL REVIEW THE VIDEOTAPES AND WHITE A PUNCH LIST OF ALL OR ANY ITEMS THAT REQUIRE ATTENTION
9. AS A CONDITION OF THE FINAL ACCEPTANCE OF THE SANITARY SEWER SYSTEM, THE CONTRACTOR SHALL FORMALLY REQUEST, THROUGH THE CITY ENGINEERING DIVISION, A FINAL INSPECTION BY VEOLIA
10. BEFORE FINAL APPROVAL OF THE SEWER SYSTEM CAN BE GRANTED AND CERTIFICATES OF OCCUPANCY ARE ISSUED, THE CONTRACTOR SHALL SUBMIT TO VEOLIA TWO (2) SETS OF SEWER AS-BUILT PLANS WITH GIS COORDINATES FOR EACH MANHOLE. THE AS-BUILTS SHALL BE ON COPY-TUFF MEDIA AND IN COMPUTER DXF OR AUTOCAD R14 OR AUTOCAD LT 2002 VERSION FILE FORMAT AND MEET THE FOLLOWING CRITERIA
    A. ALL RECORD PLANS ARE REQUIRED TO BE THE UNIFORM SIZE OF 20 X 40
    B. SCALE FOR THE PLANS: HORIZONTAL 1 = 40 AND VERTICAL 1 = 10
    C. STATION FIGURES ARE TO BE SHOWN ON ALL MANHOLES
    D. DISTANCES OF LATERALS ARE TO BE SHOWN WITH DEPTHS OF THE END OF THE PIPE AT THE STREET LINE
    E. TIES TO THE "Y's", MANHOLES, AND ENDS OF LATERALS ARE TO BE SHOWN FROM PERMANENT STRUCTURES
    F. LEDGE AND SELECT MATERIALS ARE TO BE SHOWN ON THE PROFILE
    G. SLOPE, SIZE, LENGTH, AND TYPE OF PIPE ARE TO BE SHOWN ON THE PROFILE
    H. ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION ARE TO BE SHOWN ON THE PROFILE
    I. SEWER RECORD AND STORM DRAIN PLANS ARE TO BE DRAWN SEPARATELY
    J. THE RECORD PLAN SHALL BE DRAWN SO THAT THE NORTH DESIGNATION IS POINTING IN THE UPPER QUADRANT AN ID TABLE NEEDS TO BE PROVIDED ON THE PLANS
    K. THE X AND Y COORDINATE SHALL BE THE NAD 83 RI STATE PLANE FEET COORDINATES
    L. ELEVATIONS SHALL BE BASED ON THE CITY OF CRANSTONS MEAN HIGH WATER (MHW) DATA FOR THE VERTICAL COORDINATES
    M. FINAL APPROVAL AND ISSUANCE OF THE CERTIFICATES OF OCCUPANCY ARE CONTINGENT UPON THE OWNER/DEVELOPERS SUBMISSION OF AN ACCEPTABLE, PERPETUAL OPERATION AND MAINTENANCE PLAN TO THE CITY AND VEOLIA FOR THE PRIVATE SEWAGE SYSTEM

SEWER MAIN CONSTRUCTION NOTES

(PROVIDED BY VEOLIA WATER NORTH AMERICA, 140 PETTACONSETT AVENUE, CRANSTON, RHODE ISLAND 02920; TELEPHONE: 401-467-7210)

1. FOR GENERAL SPECIFICATIONS REGARDING SANITARY SEWERS, THE CONTRACTOR SHALL REFERENCE THE CITY OF CRANSTON'S BOOK, "THE CODE OF THE CITY OF CRANSTON RHODE ISLAND", CHAPTER 26, SEWERS, SPECIFICATIONS, AND THE DEPARTMENT OF PUBLIC WORKS ANNEX A-DESIGN OF SEWERS (PROMULGATED 8/15/02) FOR HIGHWAYS COVERING RESIDENTIAL AND INDUSTRIAL PLAT DEVELOPMENTS, CHAPTER 27.
2. PRIVATE SEWERS AND SEWER EXTENSION INTO ADJACENT COMMUNITIES, WHICH CONNECT TO THE CITY SEWER SYSTEM, SHALL BE INSTALLED IN CONFORMANCE WITH THE CITY SEWER USE ORDINANCE AND THESE REGULATIONS UNLESS OTHER WISE APPROVED BY THE CITY PUBLIC WORKS DIRECTOR.
3. ALL SANITARY SEWER CONSTRUCTION SHALL BE INSPECTED BY THE VEOLIA WATER NORTH AMERICA COLLECTIONS SYSTEM DEPARTMENT (VEOLIA-CRANSTON WPCF).
4. NO PERSON SHALL MAKE A CONNECTION OF ROOF DOWNSPOUTS, FLOOR DRAINS, SUMP PUMPS, EXTERIOR FOUNDATION DRAINS, AREA WAY DRAINS, OR OTHER SOURCES OF SURFACE RUNOFF OR GROUNDWATER TO ANY COMPONENT OF THE SANITARY SEWER SYSTEM.
5. NO GRAVITY SEWER MAIN SHALL BE LESS THEN EIGHT (8) INCHES (20.3 CM) DIAMETER.
6. GRAVITY SEWER PIPE SHALL BE ASTM RIGID SDR-35 PVC OR HEAVIER PVC PIPE FOR SEWER USE CONFORMING TO ASTM SPECIFICATIONS D-3034 OR CEMENT LINED DUCTILE IRON MANUFACTURED IN ACCORDANCE WITH ANSI / AWWA C151/A21.51, C111/A21 11, AND C150/A21.50, OR AS APPROVED BY THE CITY PUBLIC WORKS DIRECTOR. ALL PIPES SHALL HAVE COMPRESSION JOINTS WITH AN ELASTOMERIC GASKET TYPE CONFORMING TO ASTM D-3212 OR AS APPROVED BY THE CITY PUBLIC WORKS DIRECTOR.
7. MAIN GRAVITY SEWER PIPE SHALL BE INSTALLED BY USING A LASER INVERT THAT SETS UP IN AN INVERT IN THE DOWNSTREAM MANHOLE. A TARGET WILL BE PLACED AT THE END OF EACH PIPE THAT IS INSTALLED TO ENSURE PROPER ALIGNMENT AND SLOPE.
8. ALL SANITARY SEWER CONNECTIONS SHALL BE GASKETED TIGHT.
9. THE MINIMUM COVER SHALL BE FOUR (4) FEET OVER THE CROWN OF THE PIPE FOR ALL MAINS AND LATERALS EXCEPT THAT INSULATION MAY BE PROVIDED FOR SEWERS THAT CANNOT BE PLACED AT A DEPTH SUFFICIENT TO PREVENT FREEZING UPON THE APPROVAL OF THE PUBLIC WORKS DIRECTOR.
10. SEWER LATERALS SHALL BE 6" SDR-35 PVC AND BE INSTALLED AT THE MINIMUM SLOPE OF AT LEAST ONE-QUARTER INCH PER FOOT (2.1 CM/M) ALL PIPES SHALL HAVE COMPRESSION JOINTS
11. WHERE PRACTICAL, SEWER LATERALS SHALL BE TIED INTO A MANHOLE. A BORING MACHINE SHALL BE USED TO MAKE A HOLE THROUGH ANY MANHOLE STRUCTURE A FLEXIBLE WATERTIGHT GASKET SHALL BE USED TO CONNECT THE STRUCTURE TO THE PIPE OR AN APPROVED WATERTIGHT FLEXIBLE SLEEVE. THE PIPE SHALL BE PARGED ON THE INSIDE OF THE MANHOLE TO MAKE THE INVERT CLEAN.
12. WHERE SEWER LATERALS CONNECT TO A SEWER MAIN, AN 8"X8"X6" WYE SHALL BE INSTALLED IN THE MAIN TO MAKE THE CONNECTION. A 6" SDR-35 ANGLE, NOT GREATER THAN 45°, IS TO BE USED TO PROVIDE THE PROPER FLOW ALIGNMENT.
13. NO LATERAL MAY SERVICE MORE THAN ONE BUILDING OR PRIVATELY OWNED BUILDING UNIT.
14. MINIMUM BEDDING MATERIAL REQUIREMENTS FOR SEWER PIPE INSTALLATION SHALL BE CLASS "B" AS DESCRIBED IN ASTM C-12 WITH A MINIMUM DEPTH OF SIX (6) INCHES.
15. BEDDING MATERIAL SHALL BE COMPACTED EVENLY UNDER AND ON BOTH SIDES OF THE PIPE SO THAT THE PIPE REMAINS ALIGNED AND TRUE.
16. BACKFILL SHALL BE INSTALLED IN LAYERS NO MORE THAN 8" THICK AFTER COMPACTION AND SHALL BE COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DRY DENSITY ACCORDING TO AASHTO T180.
17. BACKFILL MATERIAL SHALL NOT CONTAIN FROZEN MATERIAL, LARGE DIRT CLODS, STONES, ORGANIC MATTER, OR UNSUITABLE MATERIALS. ADDITIONAL BACKFILL DETAILS, FOR CITY STANDARDS CR-10/S-1, WHICH ARE AVAILABLE IN THE DIVISION OF ENGINEERING.
18. MANHOLES SHALL BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE, ASTM DESIGNATION C-478, LATEST EDITION OR AS APPROVED BY THE DIRECTOR, AND SHALL HAVE O-RINGS OR BITUMINOUS BASED GASKETED JOINTS. A TWELVE-INCH (12") BEDDING OF COMPACTED 3/4" WASHED STONE SHALL BE PLACED UNDERNEATH ALL MANHOLE STRUCTURES. THE MINIMUM INTERNAL DIAMETER SHALL BE FORTY-EIGHT INCHES (48") (12M). ALL MANHOLE JOINTS AND PINHOLES SHALL BE PARGED FROM THE OUTSIDE AND INSIDE TO PREVENT INFILTRATION. FOLLOWING WHICH, A BITUMINOUS COATING SHALL BE INSTALLED ON THE ENTIRE EXTERIOR. INLET AND OUTLET PIPES SHALL BE JOINED TO THE MANHOLE WITH A GASKETED, FLEXIBLE WATERTIGHT CONNECTION OR WITH ANOTHER WATERTIGHT CONNECTION ARRANGEMENT THAT ALLOWS FOR DIFFERENTIAL SETTLEMENT OF THE PIPE AND THE MANHOLE. ALL INVERTS AND TABLES SHALL BE CONSTRUCTED WITH SMOOTH RED SEWER BRICKS. AT LEAST ONE ROW OF RED SEWER BRICKS SHALL BE INSTALLED BETWEEN THE MANHOLE STRUCTURE AND THE SEWER COVERS FRAME, BUT NOT TO EXCEED A MAXIMUM OF 12" HIGH. THE BRICKS SHALL BE WELL CEMENTED BUT NO CEMENT IS ALLOWED ON THE FACE OF THE BRICKS
19. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE, DEVIATIONS OR CHANGES WILL NOT BE ALLOWED UNLESS APPROVED BY THE CITY PUBLIC WORKS DIRECTOR.
20. CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.



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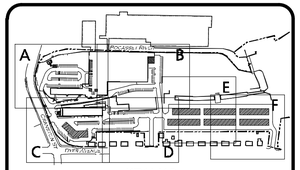

KEY MAP
NOT TO SCALE

LEGEND

SEWER MANHOLE	S
SEWER CLEANOUT	C
SEWER VENT	V
SEWER LINE	
SEWER FORCEMAIN	FM
WATER LINE	W-D
WATER (FIRE SERVICE)	W-F
WATER VALVE	WV
HYDRANT	
WATER LINE REDUCER	
GAS LINE	G
GAS VALVE	GV
OVER HEAD WIRE	OHW
UTILITY POLE	
ELECTRIC MANHOLE/SPLICE BOX	E
SWITCHING STATION	SS
HAND HOLE	HH
ELECTRICAL CONDUIT	E E
TELE/CABLE CONDUIT	T-C T-C

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 60'	DWG.:	C-2038-08_UTILITIES
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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civil engineering ♦ land surveying
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DRAWING TITLE:
UTILITIES PLAN

SHEET No.
C-104

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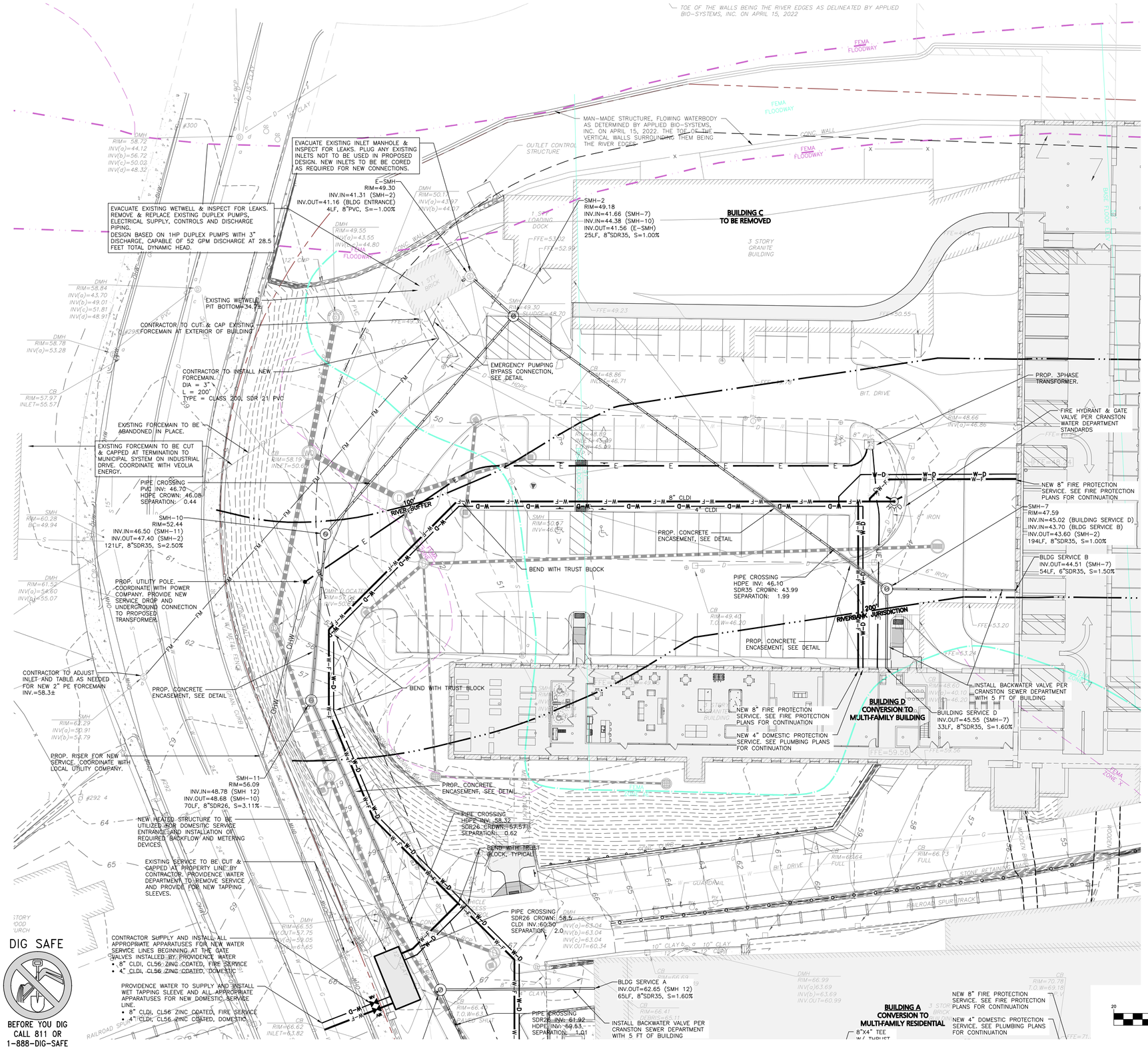

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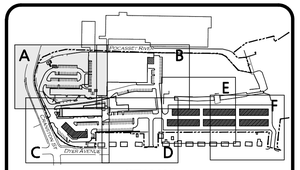

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RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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SHEET No. C-104A
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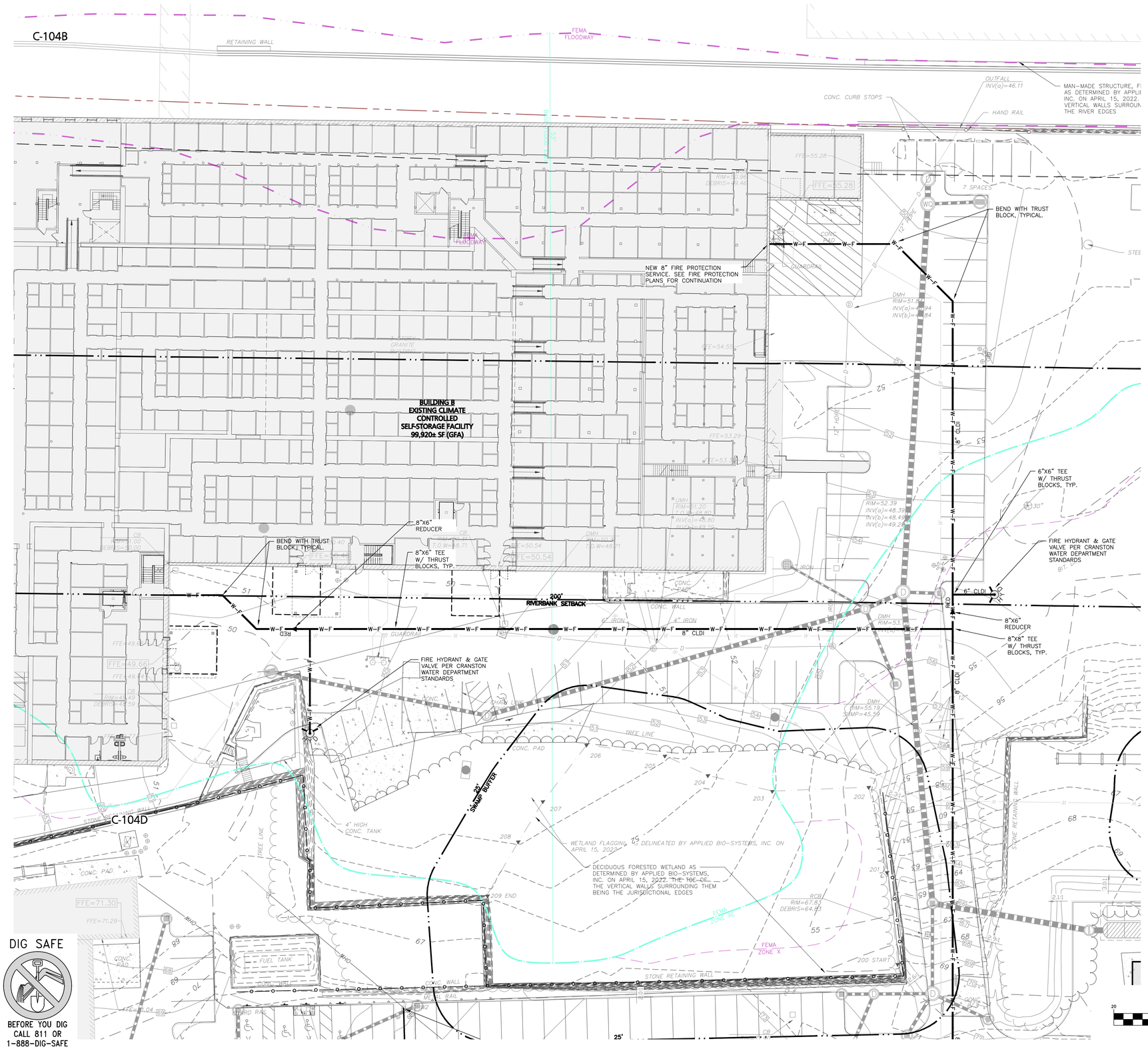

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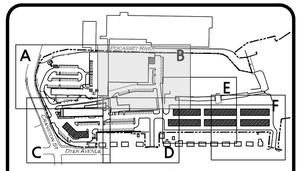

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RIDEM GROUNDWATER DISCHARGE NO. 002195

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JANUARY 23, 2025

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No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025
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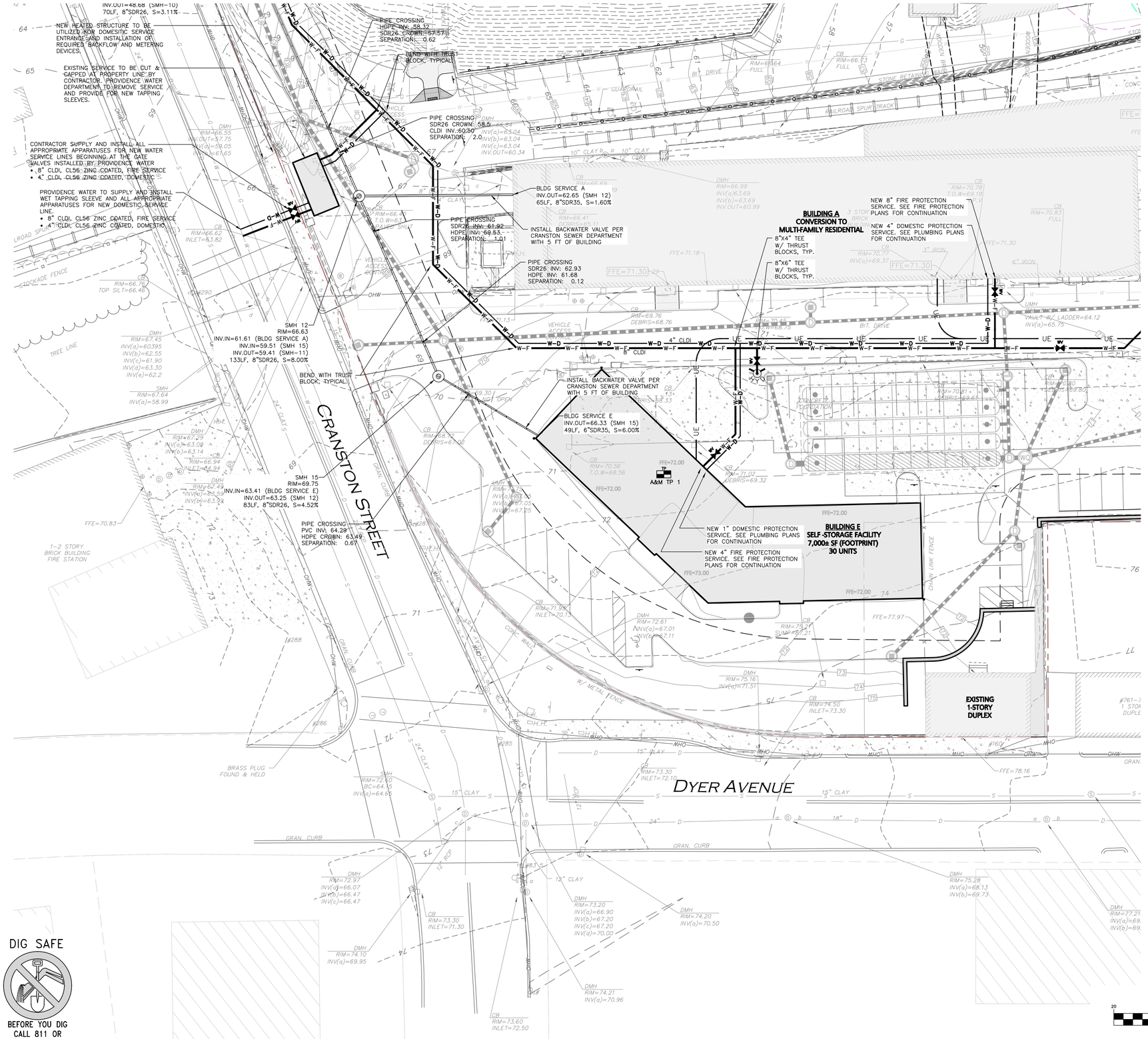

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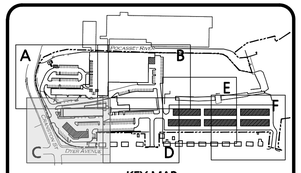

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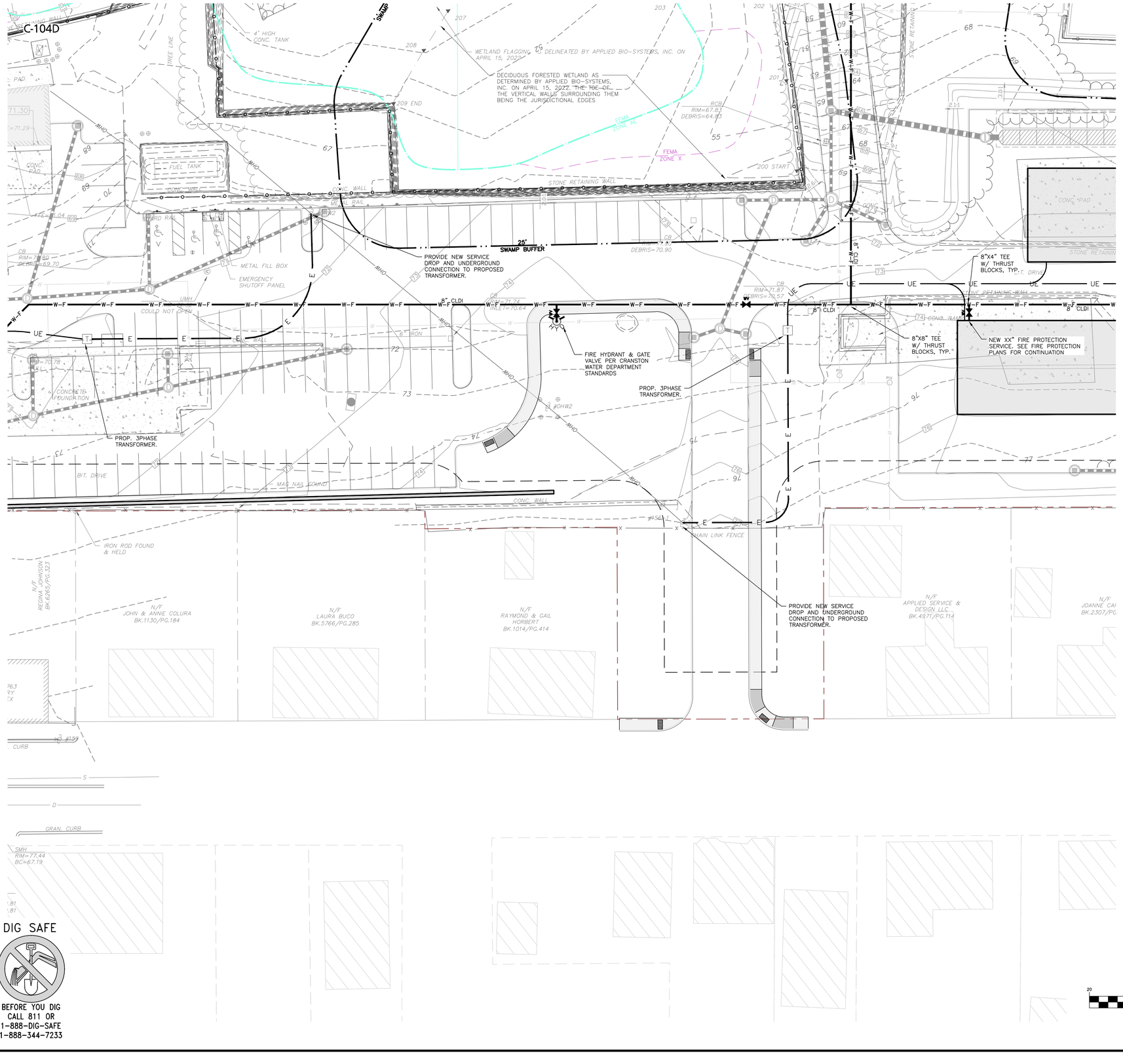

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WATER LINE	W-D
WATER (FIRE SERVICE)	W-F
WATER VALVE	WV
HYDRANT	
WATER LINE REDUCER	
GAS LINE	G
GAS VALVE	GV
OVER HEAD WIRE	OHW
UTILITY POLE	
ELECTRIC MANHOLE/SPLICE BOX	E
SWITCHING STATION	S
HAND HOLE	HH
ELECTRICAL CONDUIT	E E
TELE/CABLE CONDUIT	T-C T-C

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GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

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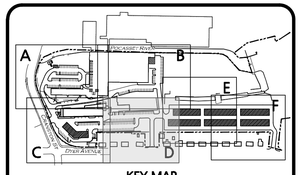

KEY MAP
NOT TO SCALE

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS

APPLICANT\OWNER:
CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:
SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 20'	DWG.:C-2038-08_UTILITIES	
DESIGNED BY:	JRG	CHECKED BY:	MAM

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
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

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DRAWING TITLE:
UTILITIES PLAN

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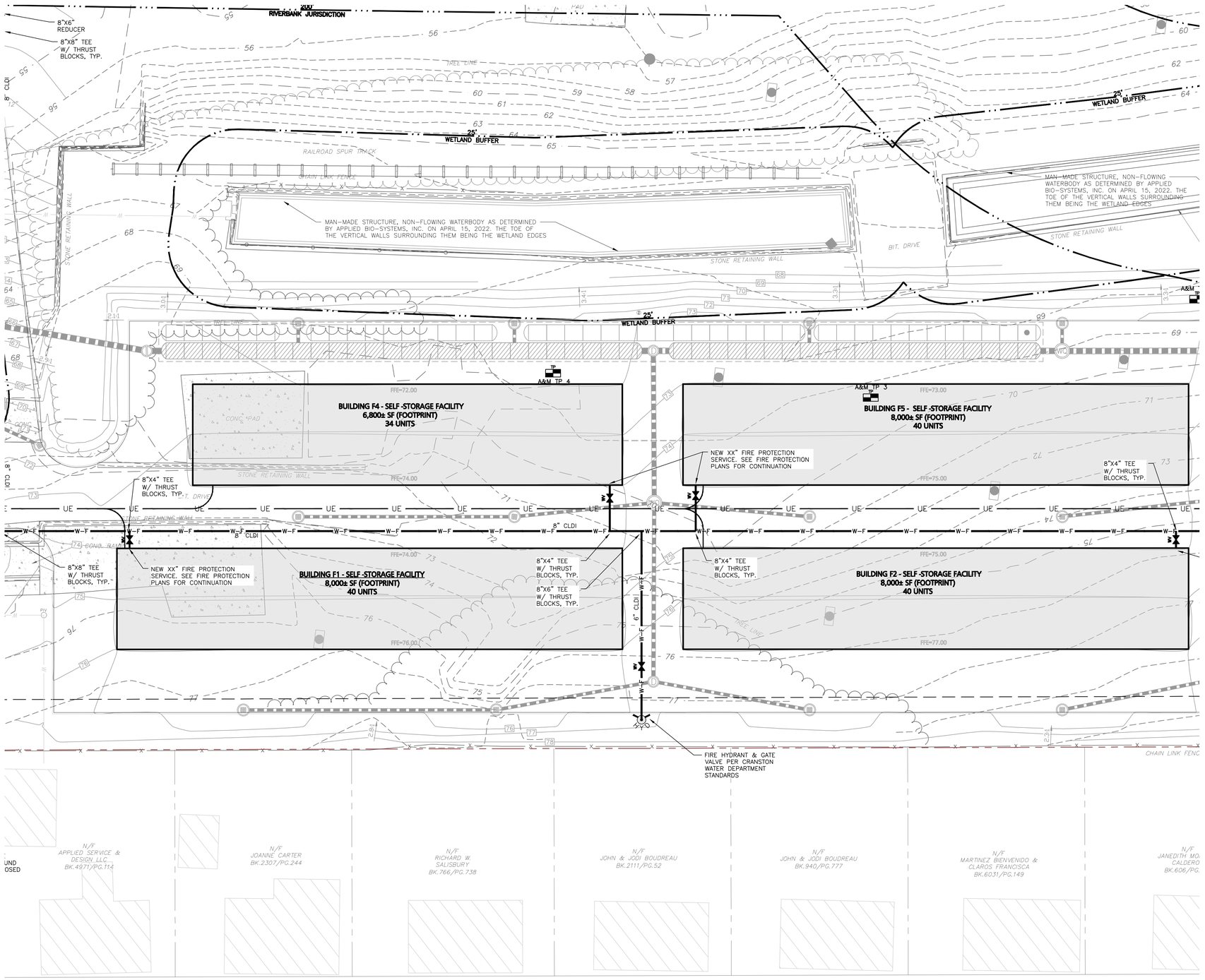

LEGEND

SEWER MANHOLE	S
SEWER CLEANOUT	C
SEWER VENT	V
SEWER LINE	
SEWER FORCEMAIN	FM
WATER LINE	W-D
WATER (FIRE SERVICE)	W-F
WATER VALVE	WV
HYDRANT	
WATER LINE REDUCER	
GAS LINE	G
GAS VALVE	GV
OVER HEAD WIRE	OHW
UTILITY POLE	
ELECTRIC MANHOLE/SPLICE BOX	E
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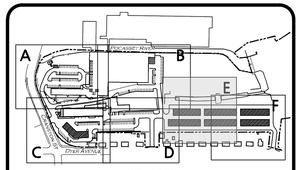

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RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
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No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
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DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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DRAWING TITLE:

UTILITIES PLAN

SHEET No.
C-104E
30 OF 51

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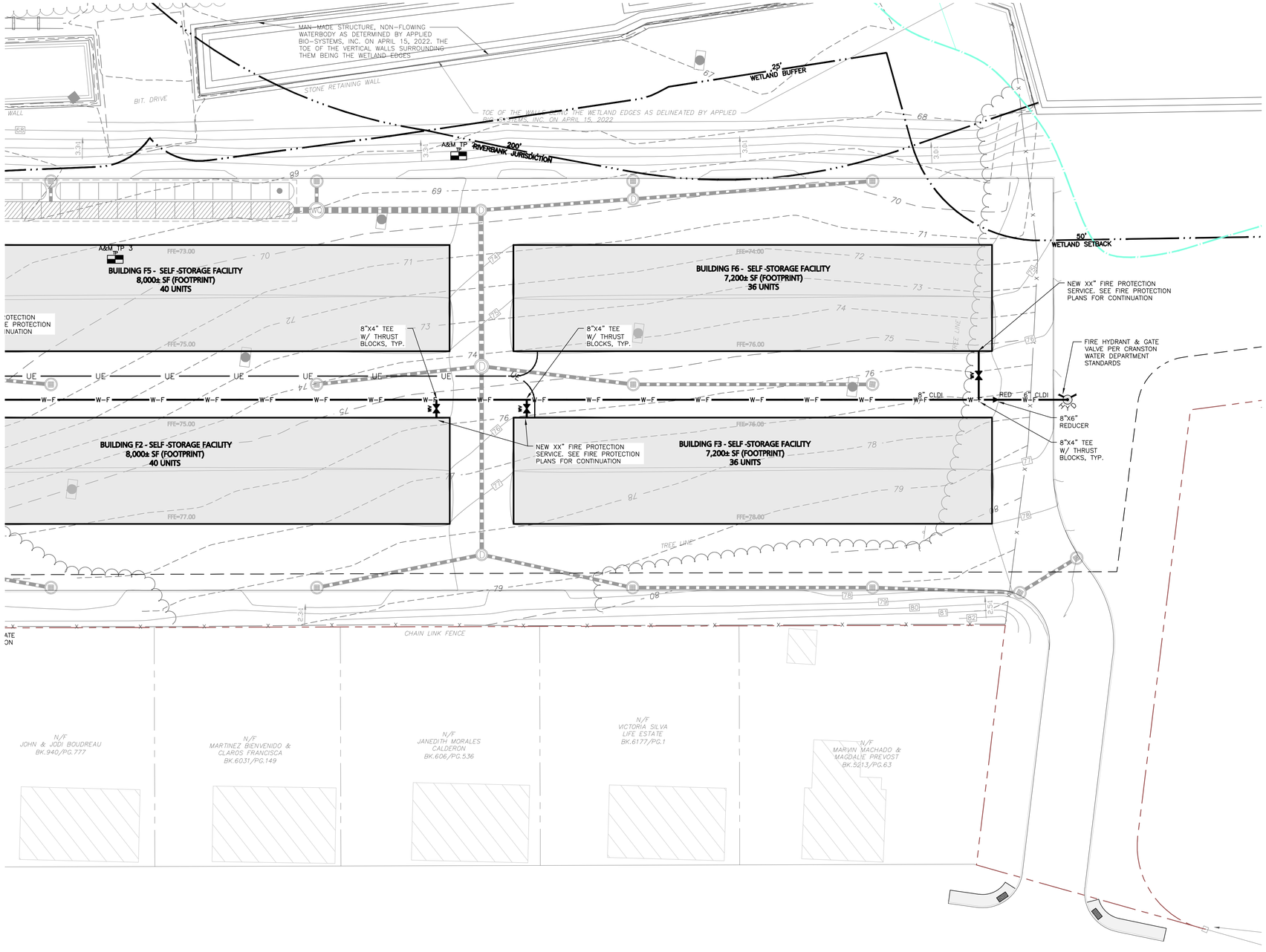

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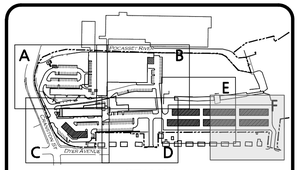

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RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

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No. 14779
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CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 20'	DWG.:C-2038-08_UTILITIES	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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DRAWING TITLE:

UTILITIES PLAN

SHEET No.
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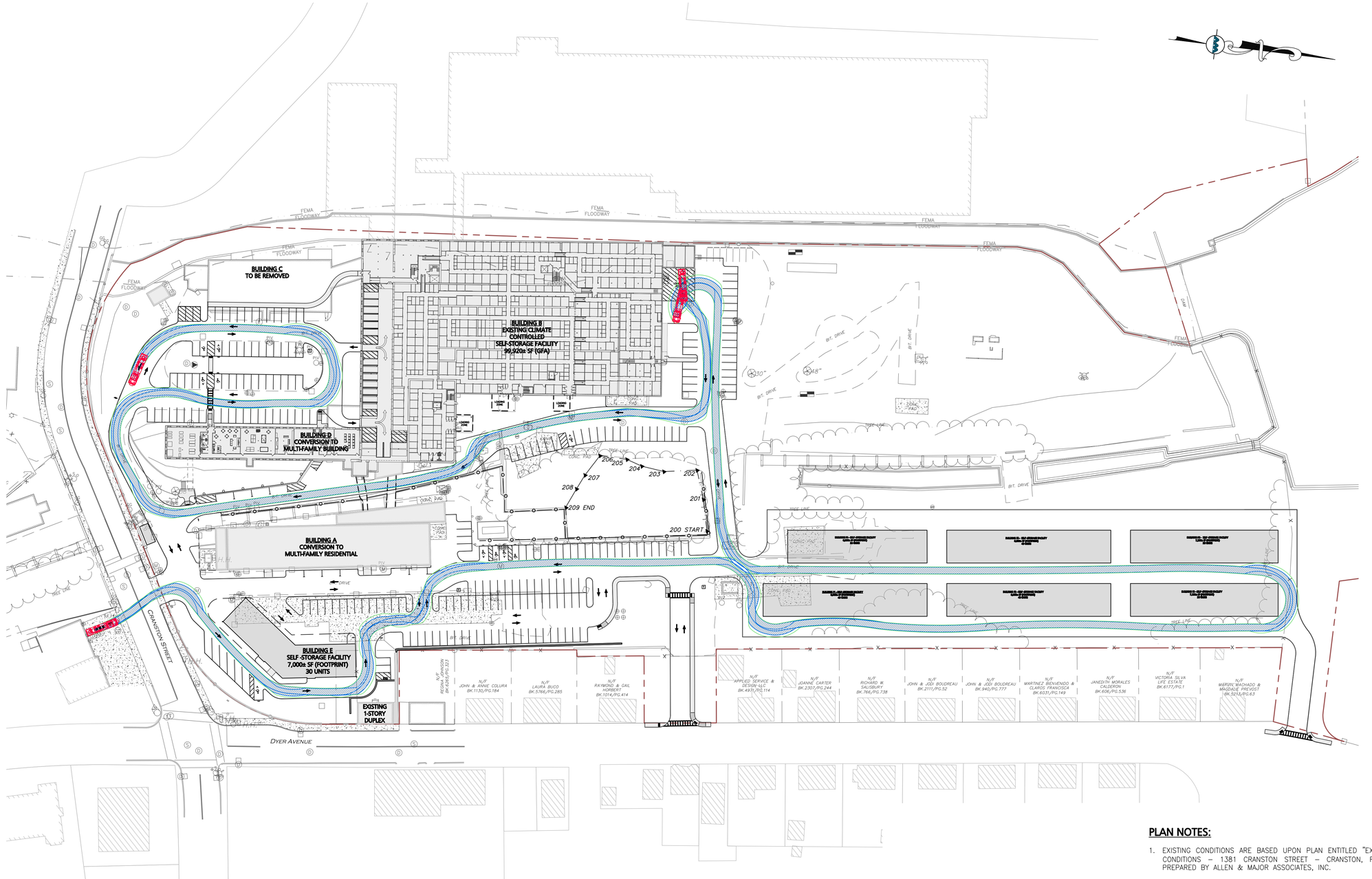

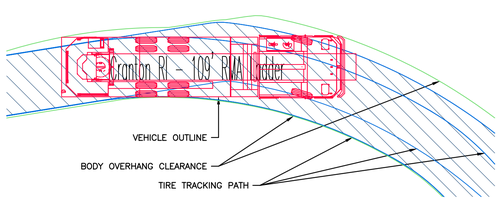

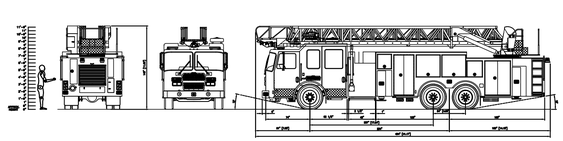

Cranton RI – 109' RMA Ladder	
Overall Length	41.177ft
Overall Width	8.965ft
Overall Body Height	9.851ft
Min Body Ground Clearance	0.920ft
Max Track Width	8.333ft
Lock-to-lock time	8.00s
Max Wheel Angle	45.00°

PLAN NOTES:

1. EXISTING CONDITIONS ARE BASED UPON PLAN ENTITLED "EXISTING CONDITIONS – 1381 CRANSTON STREET – CRANSTON, RI" AS PREPARED BY ALLEN & MAJOR ASSOCIATES, INC.

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
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R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\C-2038-08_TRUCK TURNING PLAN.DWG

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

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PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
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PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 60'	DWG.:C2038-08_TRUCK TURNING PLAN	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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DRAWING TITLE:

TRUCK TURNING PLAN
FIRE TRUCK

SHEET No.
C-106A

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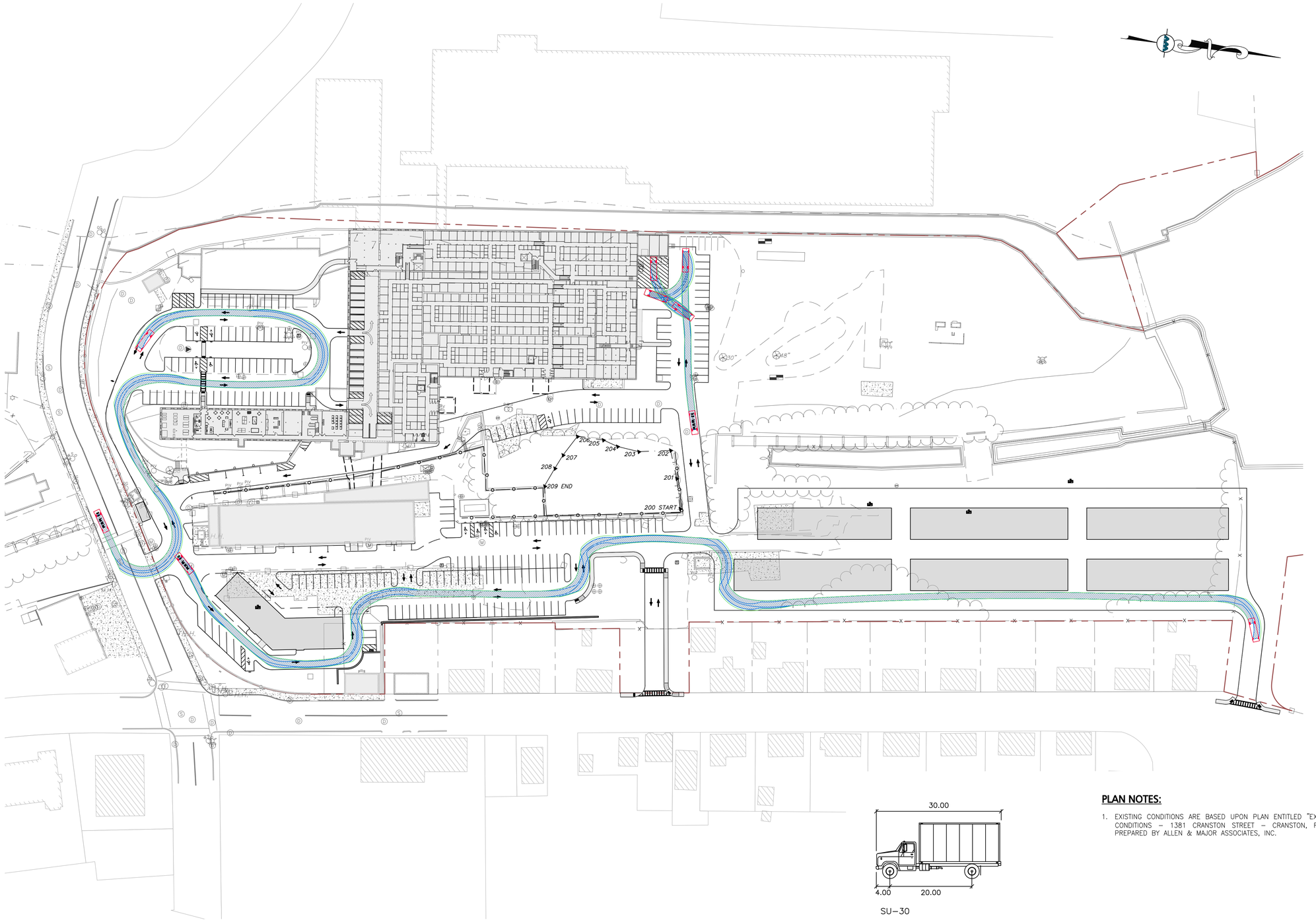
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205
204
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202
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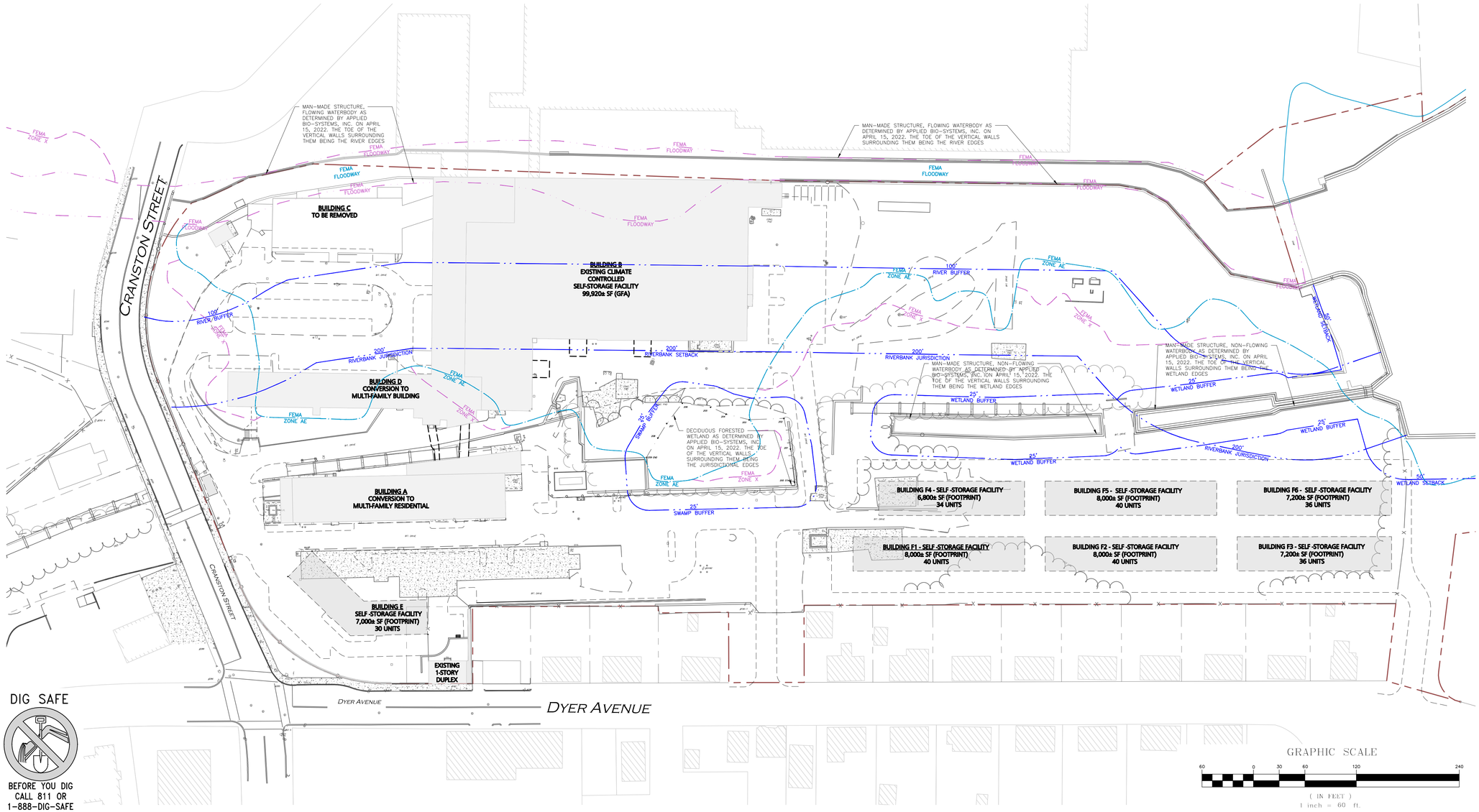
208
207
209 END
200 START
3.8 MW
3.8 MW
30"
18"
PV
PV
PV

LEGEND

200' RIVERBANK JURISDICTION	
100' RIVER BUFFER	
FEMA FLOODWAY	
FEMA ZONE AE	
FEMA ZONE X	
JURISDICTIONAL LINE	



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DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
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environmental consulting ♦ landscape architecture
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DRAWING TITLE:

WETLAND PLAN

SHEET No.
C-107
34 OF 51

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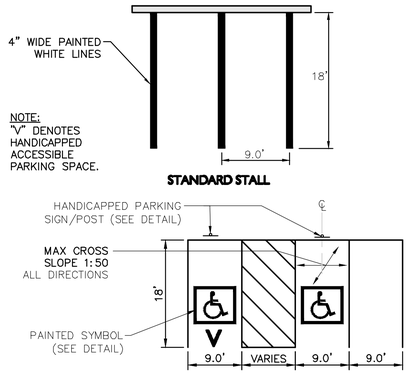
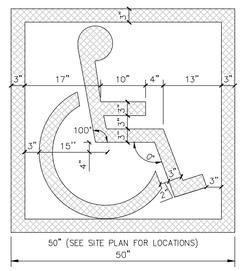
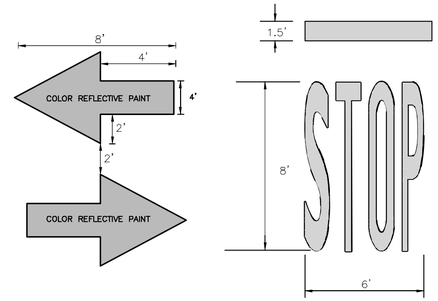


HANDICAP & STANDARD PARKING STRIPING (1)
NOT TO SCALE



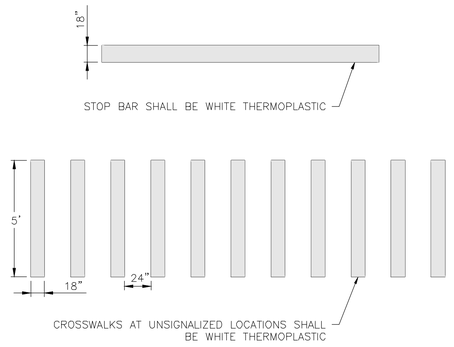
SYMBOL TO BE CENTERED ON WIDTH OF PARKING STALL. SYMBOL IS REQUIRED TO CONTRAST WITH BACKGROUND. USE WHITE ON BLUE (COLOR #105090 IN FEDERAL STANDARD 5952) DOUBLE COAT.

PAVEMENT MARKING - ADA SYMBOL (2)
NOT TO SCALE

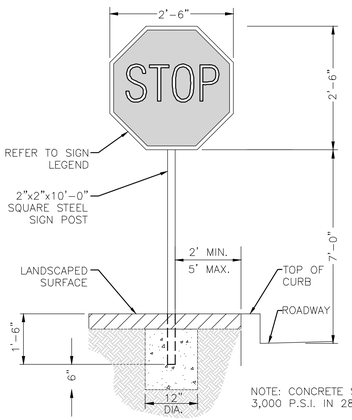


NOTES:
1. USE WHITE REFLECTIVE PAVEMENT MARKING PAINT, TWO COATS MINIMUM
2. ALL PAVEMENT MARKING AND SIGNAGE SHALL CONFORM TO THE MOST CURRENT EDITION OF MASSDOT' S MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

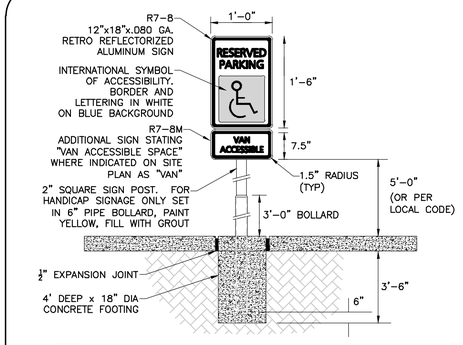
PAVEMENT LETTERING (3)
NOT TO SCALE



PAVEMENT MARKINGS DETAIL (4)
NOT TO SCALE

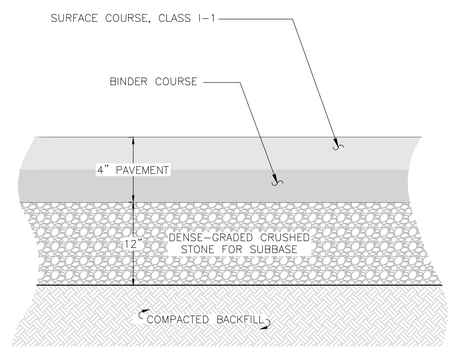


STOP SIGN DETAIL (R1-1) (5)
NOT TO SCALE



NOTES:
1. SPECIFIC CODE SHALL BE REFERENCED FOR LOCAL AND STATE REQUIREMENTS.
2. PROVIDE (1) SIGN PER HANDICAP SPACE. SEE SITE PLAN FOR EXACT LOCATION.
3. EXPANSION JOINT MATERIAL NOT REQUIRED WITH FLEXIBLE PAVEMENT.

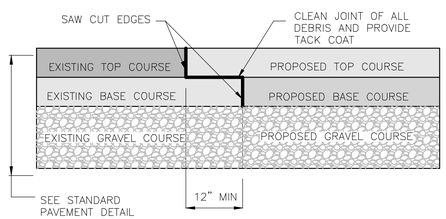
ADA ACCESSIBLE PARKING SIGNAGE (R7-8 & R7-8M) (6)
NOT TO SCALE



NOTES:
1. CLEANLY SAW CUT EXISTING PAVEMENT AND ENSURE A SMOOTH TRANSITION BETWEEN EXISTING AND PROPOSED PAVEMENT.

FULL DEPTH PAVEMENT SECTION (7)
NOT TO SCALE

NOTE:
TACK COAT – PROVIDE EMULSIFIED ASPHALT WHICH CONFORMS TO THE REQUIREMENTS OF THE STATE SPECIFICATIONS, DILUTED WITH ONE PART WATER TO ONE ONE PART ASPHALT FOLLOWING AASHTO M140/ASTM D997, OR AASHTO M208/ASTM D2397, SS-1H, CSS-1, OR CSS-1H.

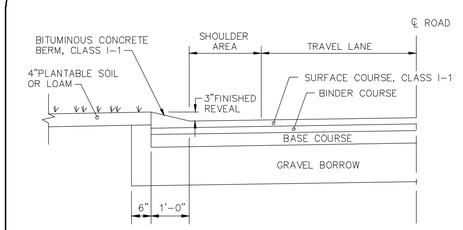


PAVEMENT KEY-CUT DETAIL (8)
NOT TO SCALE

MUTCD NUMBER	SIGN	SIZE (MIN)	MOUNTING HEIGHT	DESCRIPTION	RETRO-FLECTIVE
R7-8(M) (MODIFIED)		12"x24"	7' – 0"	RED ON WHITE	YES
R7-8		12"x18"	7' – 0"	GREEN & BLUE ON WHITE	YES
R1-1	STOP	30"x30"	7' – 0"	WHITE ON RED	YES
R5-1		30"x30"	7' – 0"	RED ON WHITE	YES

NOTES:
1. TRAFFIC AND SAFETY SIGNAGE SHALL COMPLY WITH MUTCD STANDARDS.
2. WHERE APPLICABLE THE SIGN SUPPORT SHALL COMPLY WITH THE BREAKAWAY REQUIREMENTS OF THE LATEST EDITION OF AASHTO'S "SPECIFICATION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRIES, AND TRAFFIC SIGNALS".

SIGN TABLE (9)
NOT TO SCALE



CONSTRUCTION METHOD A

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. BITUMINOUS BERM CAN BE PLACED AT THE SAME TIME THAT THE SURFACE COURSE LAYER IS PLACED ON THE PROJECT ROADWAY, OR IT CAN BE INSTALLED IN A SEPARATE OPERATION.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS		
NO.	BY	DATE
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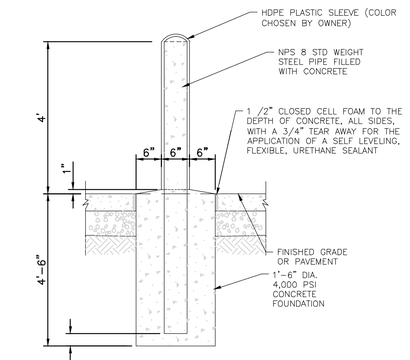
BITUMINOUS BERM

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 7.5.1

CAPE COD BERM (10)
NOT TO SCALE



NOTE:
STEEL PIPE FOR PIPE GUARDS SHALL CONFORM TO ASTM A53, TYPE E OR S, GRADE B GALVANIZED, MINIMUM WALL THICKNESS 0.322 INCHES.

TYPICAL BOLLARD DETAIL (11)
NOT TO SCALE

NOT USED (12)
NOT TO SCALE

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
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4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS

APPLICANT\OWNER:
CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:
SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	AS SHOWN	DWG.:C-2038-08_DETAILS	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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DRAWING TITLE: DETAILS
SHEET No. C-501
35 OF 51

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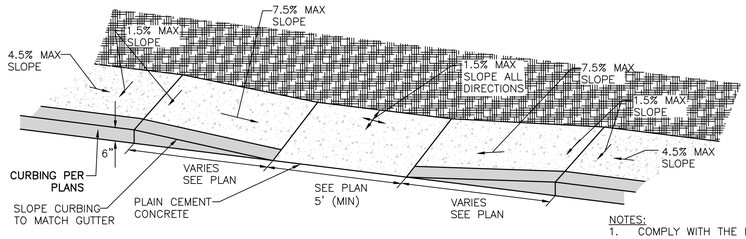
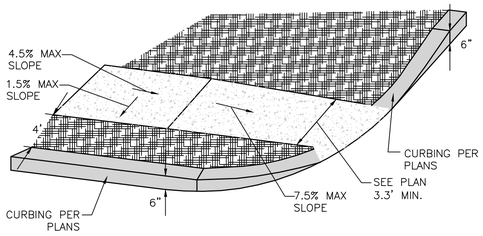
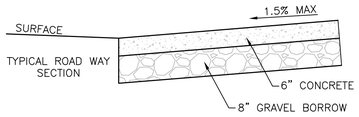
R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\C-2038-08_DETAILS.DWG





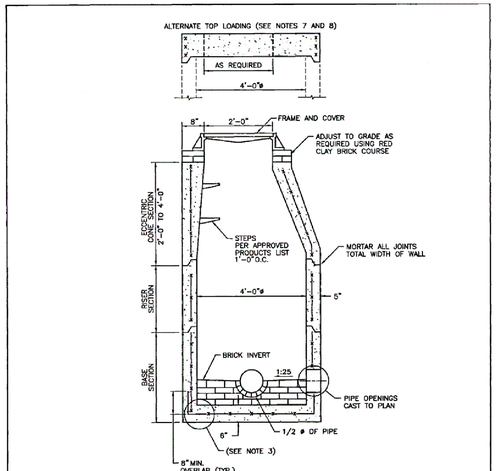


SECTION VIEW

NOTES:

1. COMPLY WITH THE LATEST ADA AND MASS DOT CONSTRUCTION STANDARD DRAWINGS E107.1.0 TO E107.6.9 AND E107.9.0
2. THE DIMENSIONS SHOWN AT ROADWAY EDGE ARE FIXED DISTANCES.
3. RAMP CROSS SECTION TO BE THE SAME AS ADJACENT SIDEWALK; I.E. DEPTH OF SURFACE AND FOUNDATION.
4. PORTLAND CEMENT CONCRETE RAMPS ARE TO BE TEXTURED BY BROOMING IN A DIRECTION PARALLEL TO THE LENGTH OF THE RAMP.
5. IN NO CASE ARE THE RAMPS TO BE PLACED BEHIND THE STOP LINE.
6. THE DIMENSIONS ARE SUBJECT TO CHANGE IN THE FIELD IF EXISTING APPURTENANCES OR CONDITIONS WILL MAKE THE RAMP LOCATIONS IMPRACTICAL OR UNSAFE. CONSULT CIVIL ENGINEER PRIOR TO MAKING ANY MODIFICATIONS.

ACCESSIBLE RAMP & CURB TRANSITION 1
NOT TO SCALE



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.12 SQ. IN. / LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN/LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.
5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
6. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
9. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

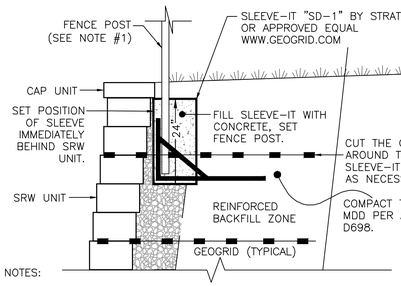
5

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS NO.	BY	DATE

PRECAST 4'-0" ROUND MANHOLE

JUNE 15, 1998 — R.I. STANDARD 4.2.0



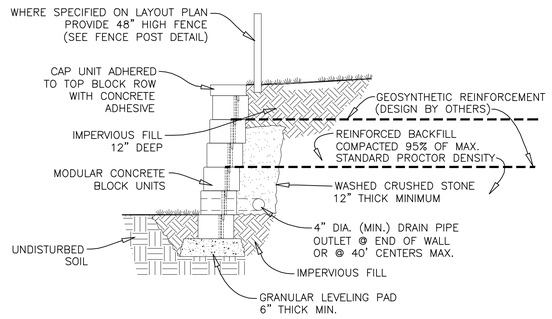
NOTES:

1. FENCE POSTS SHALL BE FOR A 48" HIGH, BLACK VINYL COATED CHAIN LINK FENCE.
2. INSTALL SLEEVE-IT DURING THE CONSTRUCTION OF THE SEGMENTAL BLOCK RETAINING WALL.
3. GEO-GRID SHALL ONLY BE CUT AS ALLOWED BY THE STRUCTURAL ENGINEER FOR THE SEGMENTAL BLOCK RETAINING WALL.
4. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

FENCE POST AT TOP OF BLOCK RETAINING WALL 2
NOT TO SCALE

NOTES:

1. THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE STRUCTURAL DESIGN OF THE MODULAR BLOCK RETAINING WALLS.
2. WALLS THREE FEET OR GREATER IN HEIGHT SHALL BE DESIGNED BY A RHODE ISLAND REGISTERED PROFESSIONAL STRUCTURAL ENGINEER.
3. WALL DESIGNS AND CALCULATIONS SHALL BE PROVIDED TO THE PROJECT CIVIL ENGINEER TO CONFIRM ELEVATIONS AND ALIGNMENT HAVE BEEN PROPERLY INCLUDED.
4. SMALL BLOCK UNITS SHALL BE BY DIAMOND PRO OR APPROVED EQUAL.
5. WALL HEIGHT WITHOUT REINFORCEMENT SHALL BE LIMITED TO 3' EXPOSED FACE.
6. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. REFER TO GEOTECHNICAL ENGINEER'S REPORT FOR SUBGRADE PREPARATION CRITERIA.
8. SEAL ALL RETAINING WALLS WITH CONCRETE SEALANT.



SYSTEMS & DETAILS SHOWN ON THESE PLANS ARE PROTOTYPICAL IN NATURE. FULL SHOP DRAWINGS STAMPED BY A RHODE ISLAND PROFESSIONAL ENGINEER WILL BE REQUIRED FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF WORK.

SEGMENTAL BLOCK RETAINING WALL - WITH GEO GRID 3
NOT TO SCALE

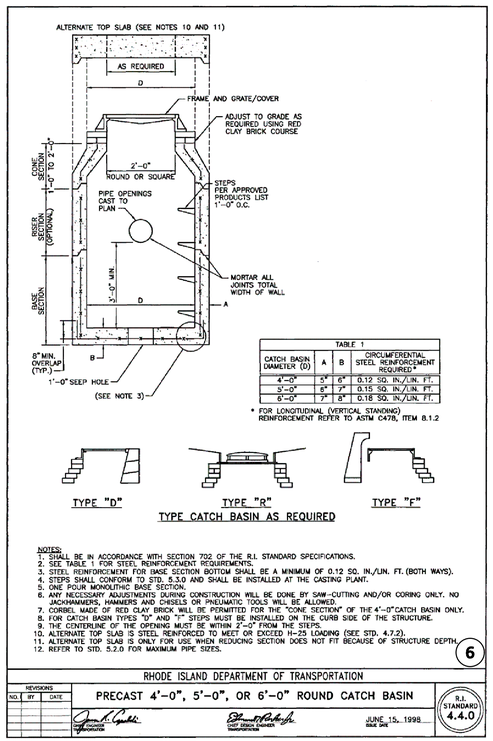


TABLE 1			
CATCH BASIN DIAMETER (D)	A	B	CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED *
4'-0"	5"	6"	0.12 SQ. IN./LIN. FT.
5'-0"	6"	7"	0.15 SQ. IN./LIN. FT.
6'-0"	7"	8"	0.18 SQ. IN./LIN. FT.

* FOR LONGITUDINAL (VERTICAL STANDING) REINFORCEMENT REFER TO ASTM C478, ITEM 8.1.2

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. SEE TABLE 1 FOR STEEL REINFORCEMENT REQUIREMENTS.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
4. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
5. ONE POUR MONOLITHIC BASE SECTION.
6. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
7. CORBEL MADE OF RED CLAY BRICK WILL BE PERMITTED FOR THE "CONE SECTION" OF THE 4'-0" CATCH BASIN ONLY.
8. FOR CATCH BASIN TYPES "D" AND "F" STEPS MUST BE INSTALLED ON THE CURB SIDE OF THE STRUCTURE.
9. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
10. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
11. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
12. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

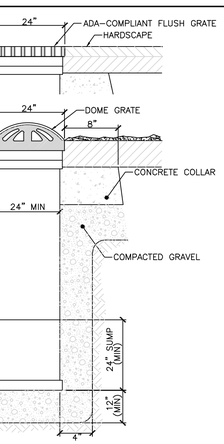
6

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

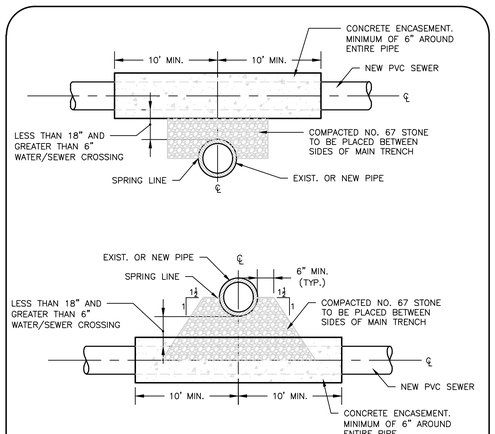
REVISIONS NO.	BY	DATE

PRECAST 4'-0", 5'-0", OR 6'-0" ROUND CATCH BASIN

JUNE 15, 1998 — R.I. STANDARD 4.4.0



NYLOPLAST AREA DRAIN 4
NOT TO SCALE



CONCRETE ENCASEMENT & CROSSING DETAIL 5
NOT TO SCALE

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RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW JANUARY 23, 2025

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No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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APPLICANT\OWNER:
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670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:
SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

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DRAWING TITLE: DETAILS

SHEET No. C-502

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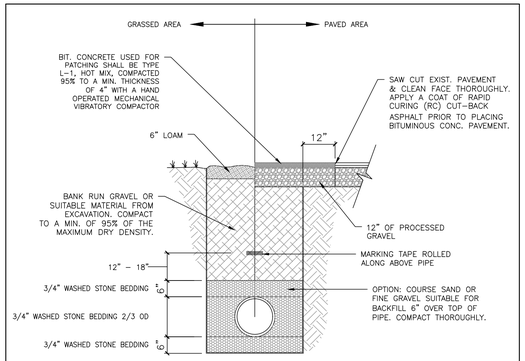
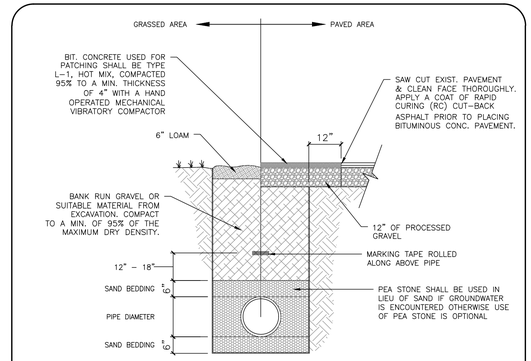


NOTES:

1) WIDTH (W) OF TRENCH IS EQUAL TO THE INSIDE DIAMETER OF THE PIPE PLUS 12" ON EITHER SIDE.
2) SOIL UNDER CRUSHED STONE FOUNDATION SHALL BE UNDISTURBED AMD COMPACTED MATERIAL WITH SEVERAL PASSES OF A VIBRATORY PLATE COMPACTOR.
3) CRUSHED STONE FOUNDATION 3/4" MAXIMUM SIZE, SHALL BE PLACED 6" UNDER THE PIPE AND UP TO THE PIPE LAID THEREON, CRUSHED STONE PULLED AGAINST THE PIPE SIDES TO FIRMLY HOLD THE PIPE IN PLACE.
4) CRUSHED STONE HAUNCHING 3/4" MAXIMUM SIZE SHALL BE BROUGHT LEVEL TO THE TOP OF THE PIPE AND OUT TO THE TRENCH WALL AT THIS EVEVATION FOR ALL PIPE.
5) SEWER TAPE IS TO BE ROLLED 12" – 18" ABOVE THE PIPE INSTALLATION, WHICH IS THE FIRST LAYER TO BE COMPACTED.

1

VEOLIA WATER 140 PETTACONSETT AVENUE CRANSTON, RI 02920 OFFICE (401) 942-2121 FAX (401) 781-5260	TITLE SEWER LINE TRENCH DETAIL	DRAWN BY: PJC DATE: MAY 8, 2006 SCALE: N.T.S. REVISION: REVISION: REVISION:



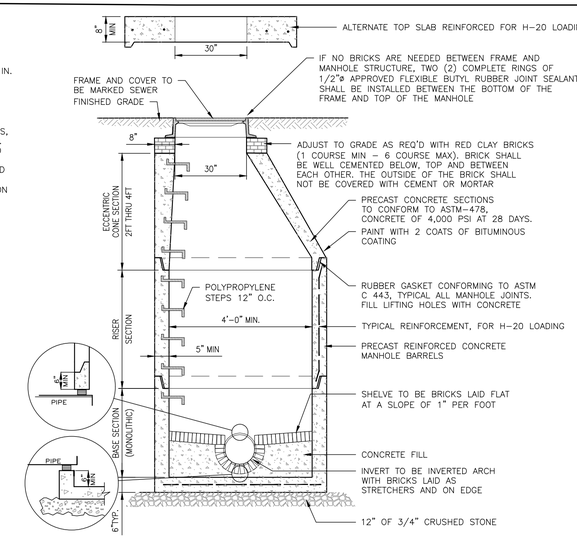
NOTES:

1) WIDTH (W) OF TRENCH IS EQUAL TO THE INSIDE DIAMETER OF THE PIPE PLUS 12" ON EITHER SIDE.
2) SOIL UNDER CRUSHED STONE FOUNDATION SHALL BE UNDISTURBED AMD COMPACTED MATERIAL WITH SEVERAL PASSES OF A VIBRATORY PLATE COMPACTOR.
3) CRUSHED STONE FOUNDATION 3/4" MAXIMUM SIZE, SHALL BE PLACED 6" UNDER THE PIPE AND UP TO THE PIPE LAID THEREON, CRUSHED STONE PULLED AGAINST THE PIPE SIDES TO FIRMLY HOLD THE PIPE IN PLACE.
4) CRUSHED STONE HAUNCHING 3/4" MAXIMUM SIZE SHALL BE BROUGHT LEVEL TO THE TOP OF THE PIPE AND OUT TO THE TRENCH WALL AT THIS EVEVATION FOR ALL PIPE.
5) SEWER TAPE IS TO BE ROLLED 12" – 18" ABOVE THE PIPE INSTALLATION, WHICH IS THE FIRST LAYER TO BE COMPACTED.

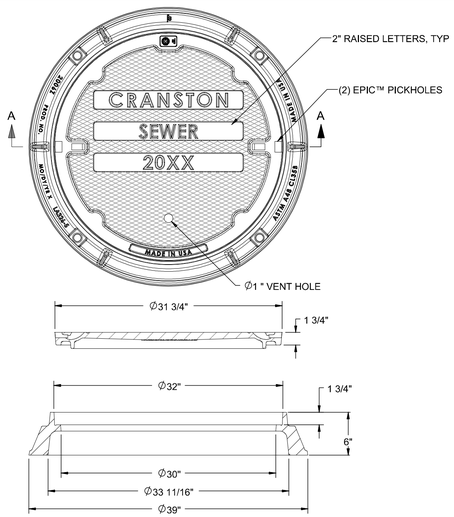
FORCEMAIN TRENCH DETAIL 2
NOT TO SCALE

NOTES;

1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.12 SQ. IN. / LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN/LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.
5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
6. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
9. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.



PRECAST CONCRETE SEWER MANHOLE (SMH) 3
NOT TO SCALE



SECTION A-A

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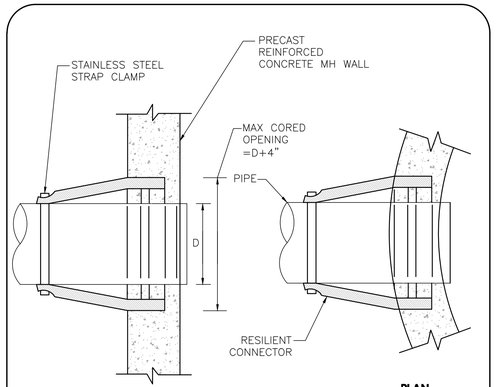
EJIW EAST JORDAN IRON WORKS EST.1883	
800-626-4653	
www.ejiw.com	
MADE IN USA	
PRODUCT NUMBER	00200655C01
CATALOG NUMBER	2006A 2006Z
ASSEMBLY	
LOAD RATING	HEAVY DUTY
COATING	Undipped
SPECIFICATION	COVER - GRAY IRON ASTM A48 CL35B FRAME - GRAY IRON ASTM A48 CL35B
OPEN AREA	N/A
√ DESIGNATES MACHINED SURFACE	
DRAWN SBB	DATE 04/13/09
LAST REVISED	DATE
REFERENCE INFORMATION	

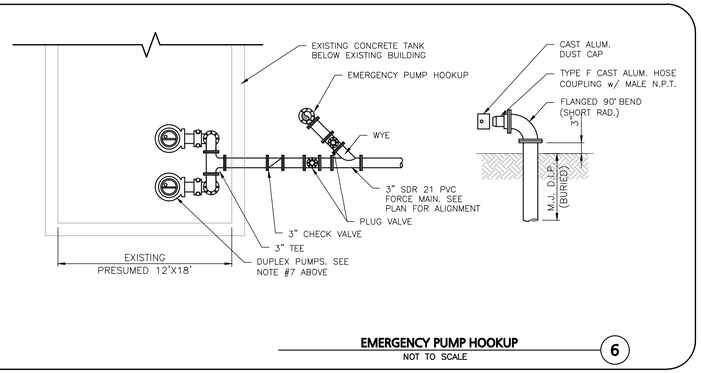
4



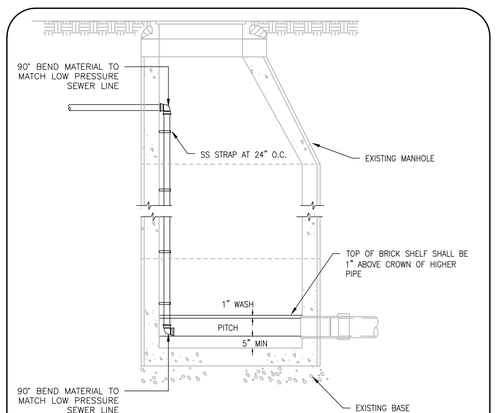
SECTION

PLAN

WATERTIGHT RESILIENT CONNECTION TO SEWER MANHOLES 5
NOT TO SCALE



EMERGENCY PUMP HOOKUP 6
NOT TO SCALE



FORCE MAIN TO EXISTING STRUCTURE 7
NOT TO SCALE

NOTES:

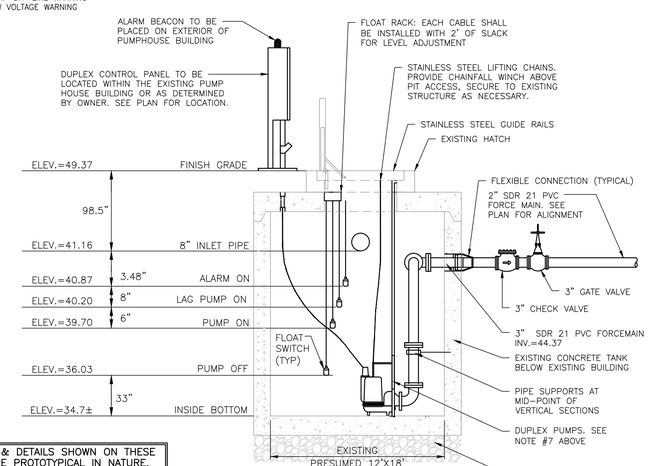
1. SEWER FLOW CALCULATION BASED *RI RULES ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION AND MAINTENANCE OF ONSITE WASTEWATER TREATMENT SYSTEMS SECTION 250-RICR-150-10-6.22 – WASTEWATER FLOW VOLUMES.*

SEWER FLOW SUMMARY

BUILDING A:	= 6440	GPD
BUILDING B:	= 10755	GPD
BUILDING C:	= 0	GPD *(BLDG TO BE REMOVED)*
BUILDING D:	= 3335	GPD
BUILDING E:	= 30	GPD
TOTAL	= 20560	GPD

2. A PEAKING FACTOR OF 4.0 HAS BEEN APPLIED TO ACCOUNT FOR SURGES DURING TIMES OF PEAK USE. MINIMUM REQUIRED INFLOW FLOW RATE IS 15 GALLONS PER MINUTE (GPM). THE DESIGN INFLOW FLOW RATE SHALL BE 60 GPM.
3. THE LIFT STATION IS AN EXISTING CAST IN PLACE CONCRETE VAULT WITH A ONE-STORY BLOCK BUILDING ATOP IT.
4. THE LIFT STATION SHALL BE SUPPLIED WITH A PUMP CONTROL PANEL WITH THE FOLLOWING SPECIFICATIONS:
   A. DUPLEX TIME DOSED PUMP PANEL
   B. PANEL SHALL BE ABLE TO PROGRAM TO ALTERNATE
   C. PANEL SHALL BE ABLE TO PERFORM THE FOLLOWING:
   - ACTIVATE HIGHWATER ALARM
   - START LAG PUMP
   - DOSE ALERT WARNING (WHEN DOSES EXCEED 7 TO 12 IN A 24 HOUR PERIOD, RESET EACH DAY AT 8:00AM)
   - PUMP OFF LINE WARNING
   - LOW VOLTAGE WARNING
   D. PROVIDE WIRELESS CELLULAR MONITORING TO ALERT OWNERS FOR:
   - ACTIVATE HIGHWATER ALARM
   - START LAG PUMP
   - DOSE ALERT WARNING (WHEN DOSES EXCEED LIMIT SET FOR A 24 HOUR PERIOD, RESET EACH DAY AT 8:00AM)
   - PUMP OFF LINE WARNING
   - LOW VOLTAGE WARNING
   E. PROVIDE HOOKUP FOR BACKUP GENERATOR TO MANUAL RUN PUMP
   F. INTERIOR PANEL HEATER
   G. NEMA 4X ENCLOSURE
   H. PUMP DISCONNECT BREAKERS IN PANEL
   I. ALARM –TEST/NORMAL/SILENCE SWITCH
   J. EXTERIOR ALARM LIGHT
6. LAG PUMP AND HIGH LEVEL ALARM FLOATS MAY BE COMBINED INTO ONE FLOAT.
7. PUMP DESIGN:
   a) FRICTION HEADLOSS = 6.23 FT
      STATIC HEADLOSS = 22.27 FT
      TOTAL HEADLOSS = 28.5 FT
   b) PUMP MODEL: ZOELLER PUMP, MODEL 284
   c) PUMP DESIGN FLOW RATE: 52 GPM
   d) PUMPS SHALL ALTERNATE EACH CYCLE.
   e) CYCLE FREQUENCY = APPROXIMATELY 26 CYCLES PER DAY
   f) CYCLE VOLUME = 790.77 GALLONS
   g) CYCLE DEPTH = 5.87"
   h) CYCLE RUN TIME = 15.21 MINUTES AT 52 GPM
8. ALL PIPING WITHIN THE LIFT STATION SHALL BE SCHEDULE 80 PVC. THE FORCE MAIN PIPING FROM THE VALVE BOX TO THE DISCHARGE CONNECTION SHALL BE 3" SDR21 PVC.
9. THE COMPLETED LIFT STATION SHALL BE FIELD TESTED IN THE PRESENCE OF THE ENGINEER AND ACTUAL PUMP RATES VERIFIED. ANY MODIFICATION REQUIRED SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.

SYSTEMS & DETAILS SHOWN ON THESE PLANS ARE PROTOTYPICAL IN NATURE. FULL SHOP DRAWINGS STAMPED BY A RHODE ISLAND PROFESSIONAL ENGINEER WILL BE REQUIRED FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF WORK.



LIFT STATION

SEWER LIFT STATION WITH DUPLEX PUMP 8
NOT TO SCALE

SEWER / WATER NOTES:

1. REFER TO THE GENERAL NOTES AND THE SEWER LINE/ WATER MAIN SEPARATION POLICY FOR DESIGN OF SANITARY SEWERS, LISTED ON THIS SHEET. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF CRANSTON SEWER ORDINANCE AND THE PROVIDENCE WATER COMMISSION GENERAL STANDARDS FOR INSTALLATION OF WATER MAINS AND APPURTENANCES IN PLATS, DEVELOPMENTS AND FOR WATER MAIN EXTENSIONS.
2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ANY EXISTING SANITARY SEWER SERVICES / WATER SERVICES WITHIN THE PROPOSED WORK AREA FROM THE APPROPRIATE AUTHORITY PRIOR TO THE START OF CONSTRUCTION.

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
7	01-23-25	ISSUED FOR DEVELOPMENT PLAN REVIEW
6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
5	05-28-24	MISC. REVS. PER SEWER DEPT COMMENTS
4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS

APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	AS SHOWN	DWG.:C-2038-08_DETAILS	
DESIGNED BY:	JRG	CHECKED BY:	MAM

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
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

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DRAWING TITLE:	SHEET No.
DETAILS	C-503
	37 OF 51

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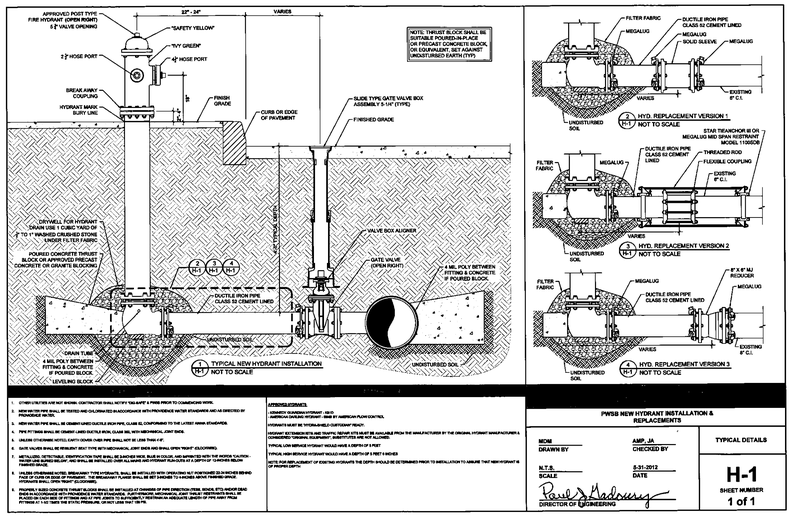


1. OTHER LISTINGS ARE NOT SHOWN. CONTRACTOR SHALL NOTIFY "DIG-SAFE" 4 THREE PRIOR TO COMMENCING WORK.
2. NEW HYDRANTS SHALL BE TESTED AND CALIBRATED IN ACCORDANCE WITH PROVIDENCE WATER STANDARDS AND AS DIRECTED BY PROVIDENCE WATER.
3. NEW HYDRANTS SHALL BE USMARK GUARD DUCTILE IRON PIPE, CLASS 52, CONFORMING TO THE LATEST ANSI STANDARDS.
4. PIPE FITTINGS SHALL BE USMARK LINED DUCTILE IRON, CLASS 350, WITH MECHANICAL JOINT ENDS.
5. VALVES (OTHER THAN HYDRANT VALVES) SHALL BE RESILIENT WEDGE GATE VALVES, AWWA C509, OR C515 (4" AND SMALLER) WITH NON-RISING STEM, OPENING LEFT (COUNTERCLOCKWISE) AND CONFORMING TO THE LATEST AWWA STANDARDS.
6. GATE VALVES SHALL BE RESILIENT SEAT TYPE WITH MECHANICAL JOINT ENDS AND SHALL OPEN "RIGHT" (CLOCKWISE).
7. METAL LOCATING IDENTIFICATION TAPE SHALL BE 3 INCHES WIDE, BLUE IN COLOR, AND IMPRINTED WITH THE WORDS "CAUTION - WATER LINE BURIED BELOW", AND SHALL BE INSTALLED OVER ALL MAINS AND HYDRANT RUN LEADS AT A DEPTH OF 12 INCHES BELOW FINISHED GRADE.
8. VALVES, OTHERWISE NOTED, EMERGENCY TYPE HYDRANTS, SHALL BE INSTALLED WITH OPERATING NUT PERPENDICULAR TO MAIN AND NOT MORE THAN 48 INCHES FROM THE FINISHED GRADE. ALL HYDRANTS SHALL BE SET 3 INCHES TO 6 INCHES ABOVE FINISHED GRADE. HYDRANTS SHALL OPEN "RIGHT" (CLOCKWISE).
9. PROPER 3 POURED CONCRETE THRUST BLOCKS SHALL BE INSTALLED AT CHANGES OF PIPE DIRECTION (TEE, BENDS, ETC.) AND/OR DEAD ENDS AS SHOWN ON THE DRAWINGS AND AS DIRECTED BY PROVIDENCE WATER. THE CONCRETE SHALL BE PLACED SO AS TO PROVIDE A MINIMUM BEARING AREA AS FOLLOWS: (BASED UPON PSI AND 2 FOOT PIPE COVER)

PIPE SIZE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	TEE OR PLUG
6"	3.0 SQ. FT.	1.7 SQ. FT.	0.8 SQ. FT.	0.4 SQ. FT.	3.0 SQ. FT.
8"	5.3 SQ. FT.	3.0 SQ. FT.	1.5 SQ. FT.	0.7 SQ. FT.	5.3 SQ. FT.
12"	11.9 SQ. FT.	6.7 SQ. FT.	3.4 SQ. FT.	1.7 SQ. FT.	11.9 SQ. FT.

10. ALL BOLTS AND NUTS SHALL BE USMARK GUARD STAINLESS STEEL TYPE 304.
11. ALL HYDRANTS SHALL BE PAINTED WITH TWO COATS OF RUST-OLEUM #7748 "SAFETY YELLOW" EQUIVALENT.

ATTENTION ESTIMATORS:
- ASSUMED GUARANTEED HYDRANT FLOW @ 20 PSI RESIDUAL = 1500 GPM
- ASSUMED DAVENS HYDRANT - 8366 BY AMERICAN FLOW CONTROL
- HYDRANTS MUST BE "HYDRA-SHIELD CUSTOMARY" READY.

HYDRANT EXTENSIONS AND TRAPPED REPAIR KITS MUST BE AVAILABLE FROM THE MANUFACTURER BY THE ORIGINAL HYDRANT MANUFACTURER'S CONNECTED TRAINING EQUIPMENT. (INSERTS/TOOLS ARE NOT ALLOWED)

TYPICAL LOW SERVICE HYDRANT SHOULD HAVE A DEPTH OF 5 FEET

TYPICAL HIGH SERVICE HYDRANT SHOULD HAVE A DEPTH OF 6 FEET 6 INCHES

NOTE: FOR REPLACEMENT OF EXISTING HYDRANTS THE DEPTH SHOULD BE DETERMINED PRIOR TO INSTALLATION TO ASSURE THAT NEW HYDRANT IS OF PROPER DEPTH

PWSB NEW HYDRANT INSTALLATION & REPLACEMENTS

MDM DRAWN BY	AMP, JA CHECKED BY
N.T.S. SCALE	5-31-2012 DATE
DIRECTOR OF ENGINEERING	

TYPICAL DETAILS

H-1

SHEET NUMBER 1 of 1

Ductile Iron Pipe Restraint Guide

Bends

Pipe Size	11.25	22.5	45	90
	Restraint Length			
4"	2'	3'	6'	14'
6"	2'	4'	9'	20'
8"	3'	6'	11'	26'
10"	3'	6'	13'	31'
12"	4'	8'	15'	36'
16"	5'	10'	19'	46'
20"	6'	11'	23'	55'
24"	7'	13'	27'	64'
30"	8'	16'	32'	77'
36"	9'	18'	37'	89'
42"	10'	20'	41'	99'
48"	11'	22'	46'	110'

End Caps

Pipe Size	Restraint L
4"	25'
6"	35'
8"	46'
10"	55'
12"	65'
16"	83'
20"	101'
24"	119'
30"	143'
36"	167'
42"	188'
48"	210'

Reducers

Pipe Size	Restraint L
6"X4"	18'
8"X4"	33'
8"X6"	19'
10"X4"	45'
10"X6"	34'
10"X8"	19'
12"X4"	56'
12"X6"	47'
12"X8"	35'
16"X6"	70'
16"X8"	61'
16"X12"	36'

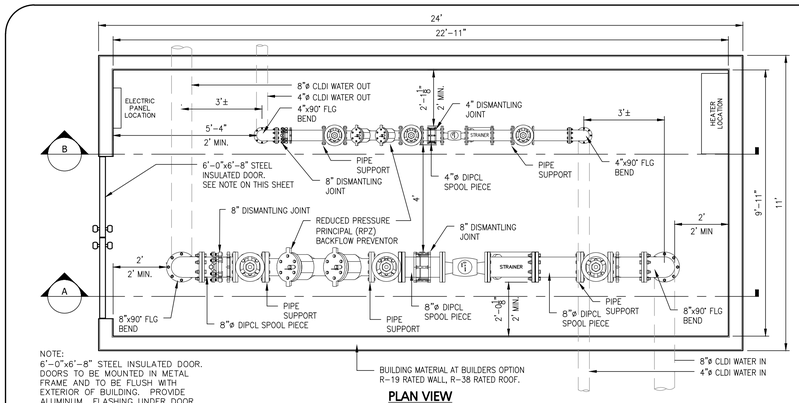
Tees w/ 3' of DI on each side

Pipe Size	Restraint L
4"X4"	3'
6"X4"	11'
6"X6"	25'
8"X4"	7'
8"X6"	22'
8"X8"	36'
10"X4"	2'
10"X6"	19'
16"X6"	9'
16"X8"	26'
10"X8"	34'
10"X10"	45'
12"X4"	1'
12"X6"	16'
12"X8"	31'
12"X10"	43'
12"X12"	55'
16"X12"	51'
16"X16"	73'

Notes:
Restraint length's are calculated in feet from face of fitting to closest bell or mechanical joint.

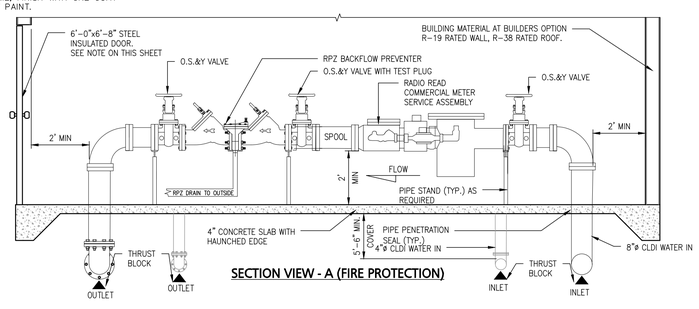
All calculations are based on the pipe bedded in a 4" minimum of loose soil backfill, lightly consolidated to top of pipe and then backfilled to a depth of 4.0'.

Also the piping will have a maximum pressure of 150psi.

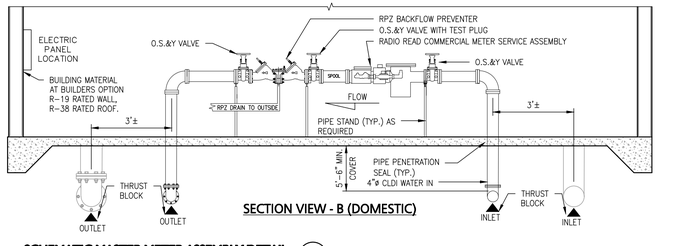


NOTE:
6'-0"x6'-8" STEEL INSULATED DOOR. DOORS TO BE MOUNTED IN METAL FRAME AND TO BE FLUSH WITH EXTERIOR OF BUILDING. PROVIDE ALUMINUM FLASHING UNDER DOOR FRAME AND EXTEND 2" BELOW FRAME. DOORS AND FRAME DELIVERED WITH SHOP PRIME, FINISH WITH ONE COAT OF EPOXY PAINT.

PLAN VIEW



SECTION VIEW - A (FIRE PROTECTION)



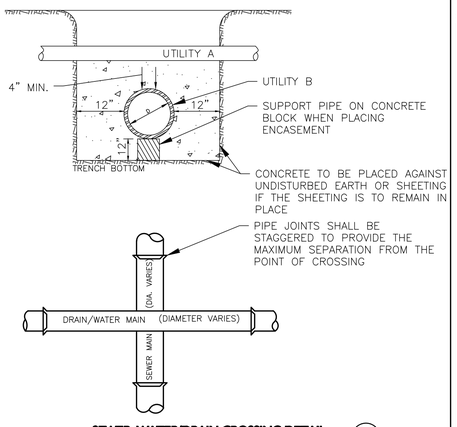
SECTION VIEW - B (DOMESTIC)

SCHEMATIC MASTER METER ASSEMBLY DETAIL 1
SCALE: 3/8" = 1'-0"

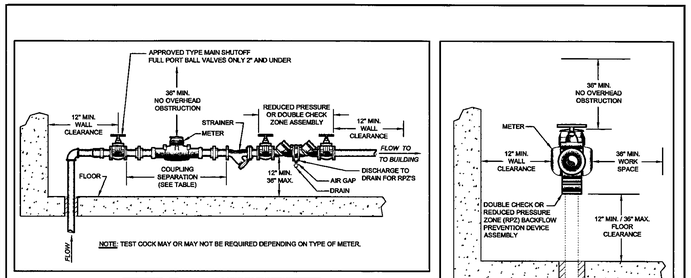
NOTES:

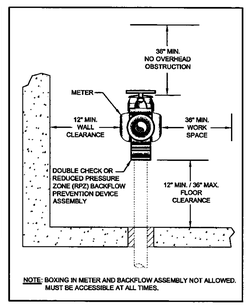
WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET BETWEEN A SEWER MAIN AND A WATER/DRAIN MAIN:

1. THE WATER/DRAIN MAIN SHALL BE LAID IN A SEPARATE TRENCH AND THE DIFFERENCE IN ELEVATION BETWEEN THE WATER/DRAIN MAIN AND THE SEWER MAIN SHALL BE AT LEAST 18 INCHES.
2. THE PIPE CROSSING SHALL OCCUR AS CLOSE TO 90° AS PRACTICABLE.
3. THE PIPE JOINTS SHALL BE STAGGERED TO PROVIDE THE MAXIMUM SEPARATION FROM THE POINT OF CROSSING.
4. THE CROSSING SHALL BE ENCASED IN CONCRETE FOR THE ENTIRE WIDTH OF THE TRENCH AND FOR A DISTANCE OF 10 LINEAR FEET CENTERED ON THE CROSSING.
5. UTILITIES A AND B CAN BE EITHER NEW OR EXISTING.
6. WHEN ONE UTILITY IS A SANITARY SEWER, IT IS PREFERABLE TO BE POSITIONED AS SHOWN FOR UTILITY B.
7. ENCASEMENT EXTENDS 10'-0" ON EACH SIDE OF THE CENTERLINE OF UTILITY A.
8. PIPE MUST BE BRACED VERTICALLY AND HORIZONTALLY TO PREVENT FLOATATION DURING PLACEMENT OF CONCRETE.



SEWER, WATER/DRAIN CROSSING DETAIL 2
NOT TO SCALE



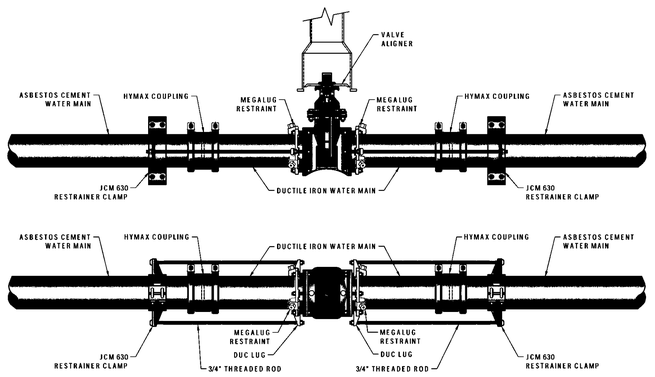


WATER METER SIZE (INCHES)	COUPLING SEPARATION (FEMALE PIPE THREAD TO FEMALE PIPE THREAD) (INCHES)
5/8	12
3/4	13-5/8
1	16-1/4
1-1/2	22-1/4
2	26-1/4

HORIZONTAL INSTALLATION OF
REDUCED PRESSURE ZONE AND DOUBLE CHECK VALVE
BACKFLOW PREVENTION ASSEMBLY
NOT TO SCALE

Senior Manager of Engineering 9-28-12 Date

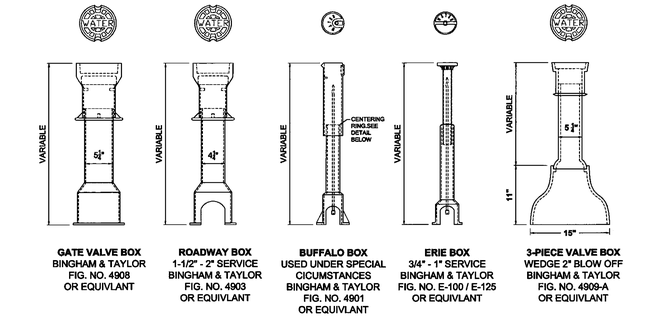
PROVIDENCE WATER



TYPICAL 4" TO 8" GATE VALVE INSTALLATION WITH HYMAX COUPLINGS
(ON EXISTING AC PIPE)
NOT TO SCALE

Senior Manager of Engineering 3-11-13 Date

Providence Water



VALVE & CURBSTOP BOXES
NOT TO SCALE

Senior Manager of Engineering 2/5/13 Date

Providence Water

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
7	01-23-25	ISSUED FOR DEVELOPMENT PLAN REVIEW
6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
5	05-28-24	MISC. REVS. PER SEWER DEPT COMMENTS
4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS

APPLICANT\OWNER:
CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:
SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	AS SHOWN	DWG.:	C-2038-08_DETAILS
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
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environmental consulting ♦ landscape architecture
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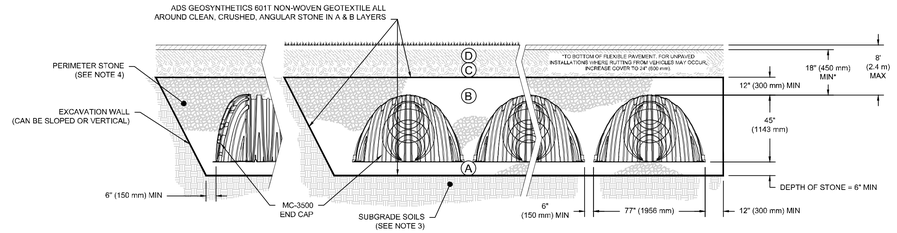
ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE[2,3]

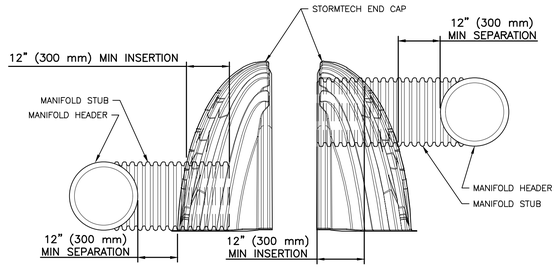
PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:
1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3 .
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/% AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

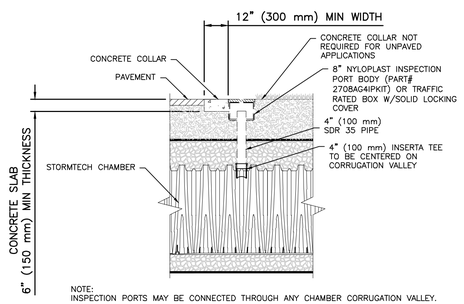
SYSTEMS & DETAILS SHOWN ON THESE PLANS ARE PROTOTYPICAL IN NATURE. FULL SHOP DRAWINGS STAMPED BY A RHODE ISLAND PROFESSIONAL ENGINEER WILL BE REQUIRED FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF WORK.

MC-3500 CROSS SECTION
NOT TO SCALE



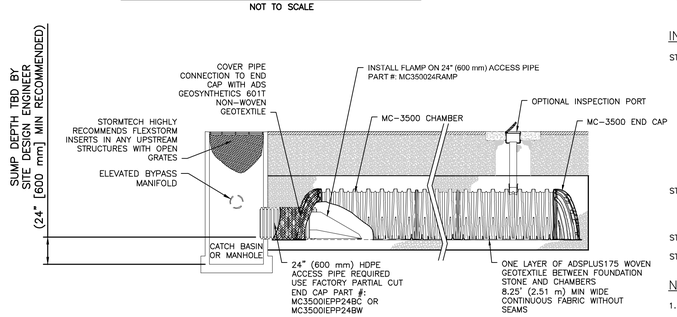
NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

MC-3500 END CAP
NOT TO SCALE



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

4" PVC INSPECTION PORT
NOT TO SCALE



ISOLATOR ROW PLUS DETAIL
NOT TO SCALE

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

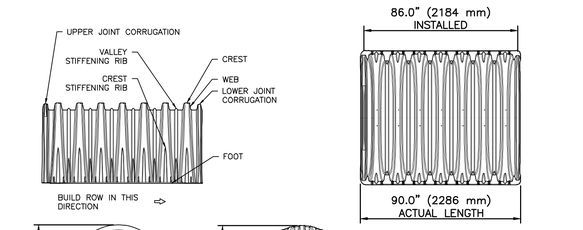
STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" (152 mm) STONE BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

TECHNICAL SPECIFICATIONS
NOT TO SCALE

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3 I.
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

MC-3500 STANDARD DETAIL (1)
NOT TO SCALE

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Advanced Drainage Systems, Inc.

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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SCALE: AS SHOWN	DWG.:C-2038-08_DETAILS
DESIGNED BY: JRG	CHECKED BY: MAM

PREPARED BY:
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environmental consulting ♦ landscape architecture
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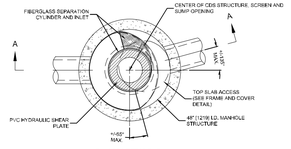
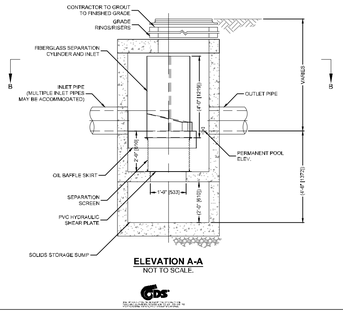


PLAN VIEW B-B
NOT TO SCALE.



ELEVATION A-A
NOT TO SCALE.

FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			
PEAK FLOW RATE (CFS OR L/s)			
RETURN PERIOD OF PEAK FLOW (YRS)			
SCREEN APERTURE (3400 OR 4700)			
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
RIM ELEVATION			
ANTI-FLOTATION BALLAST	WIDTH		HEIGHT
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

CDS2015-4-C DESIGN NOTES

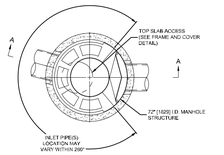
CDS2015-4-C STANDARD CONFIGURATION IS SHOWN.
FOR NJDEP PROJECTS, PLEASE CONTACT YOUR LOCAL CONTECH REPRESENTATIVE FOR APPROVED CONFIGURATIONS.

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CDS HYDRAULIC AND TSS REMOVAL PERFORMANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
4. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' (610), AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUBBASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS2015-4-C
ONLINE CDS
STANDARD DETAIL



PLAN VIEW B-B
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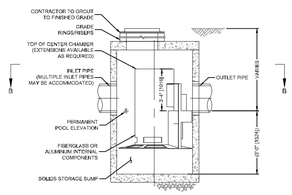
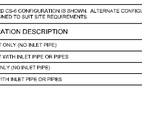


ELEVATION A-A
NOT TO SCALE

CASCADE
separator™



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			
PEAK FLOW RATE (cfs [L/s])			
RETURN PERIOD OF PEAK FLOW (yrs)			
RIM ELEVATION			
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
NOTES / SPECIAL REQUIREMENTS:			

CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-4 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

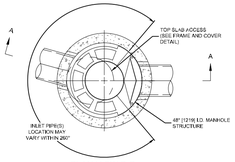
CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' (610), AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

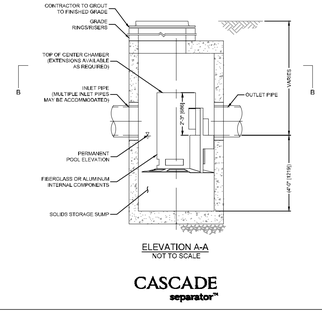
INSTALLATION NOTES
A. ANY SUBBASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CS-4
CASCADE SEPARATOR
STANDARD DETAIL



PLAN VIEW B-B
NOT TO SCALE



ELEVATION A-A
NOT TO SCALE

CASCADE
separator™

FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			
PEAK FLOW RATE (cfs [L/s])			
RETURN PERIOD OF PEAK FLOW (yrs)			
RIM ELEVATION			
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
NOTES / SPECIAL REQUIREMENTS:			

CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-8 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

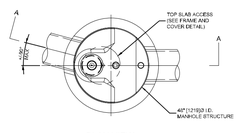
CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' (610), AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

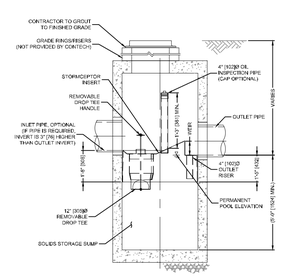
INSTALLATION NOTES
A. ANY SUBBASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CS-8
CASCADE SEPARATOR
STANDARD DETAIL



PLAN VIEW
TOP SLAB NOT SHOWN



SECTION A-A

Stormceptor®

FRAME AND COVER
(MAY VARY)
NOT TO SCALE

FRAME AND GRATE
(MAY VARY)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			
PEAK FLOW RATE (cfs [L/s])			
RETURN PERIOD OF PEAK FLOW (yrs)			
RIM ELEVATION			
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
NOTES / SPECIAL REQUIREMENTS:			

STORMCEPTOR DESIGN NOTES

THE STANDARD STC450i CONFIGURATION WITH ROUND, SOLID FRAME AND COVER, AND INLET PIPE IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. STORMCEPTOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STORMCEPTOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' (610), AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. STORMCEPTOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES
A. ANY SUBBASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMCEPTOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

STC450i
STORMCEPTOR
STANDARD DETAIL

CONTECH® ENGINEERED SOLUTIONS

Cranston Print Works, Cranston, RI
Design Summary

WQU	Area Imp (ac)	Tc (min)	Calculated WQ Flow (cfs)	Q Peak (cfs)	RIM (ft)	Outlet INV (ft)	RIM to INVout (ft)	Cover	# of inlet Pipes	Inlet Pipe Diam (inches)	Outlet Pipe Diam (inches)	Model	Units Treatment Capacity / RIDEM	Comments
WQ 001	0.08	5	0.09		71.02	67.83	3.19	Grate	0		12	STC 450i	0.28	
WQ 002	1.33	5	0.80		71.07	65.87	5.20	Solid	3	12	18	CDS 2015-4	0.93	Multi inlets
WQ 101	4.90	10	3.79		51.43	44.13	7.30	Solid	2	18 24	24	Cascade CS-6	4.05	
WQ 201	1.50	5	1.06		74.49	68.18	6.31	Solid	3	12 15	18	Cascade CS-4	1.80	
WQ 202	2.07	5	1.55		72.54	66.09	6.45	Solid	2	12 24	24	Cascade CS-4	1.80	
WQ 203	0.24	5	0.23		71.25	66.55	4.70	Grate	0		12	STC 450i	0.28	
WQ 204	0.11	5	0.13		71.25	66.55	4.70	Grate	0		12	STC 450i	0.28	
WQ 205	0.10	5	0.12		71.25	66.55	4.70	Grate	0		12	STC 450i	0.28	
WQ 301	9.33	5	6.73		50.06	46.97	3.09	Solid	2	12	24	Cascade CS-8	7.20	

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CONTECH®
ENGINEERED SOLUTIONS LLC
200 Enterprise Drive, Scarborough, ME 04074
877-907-8676 207-885-9830 207-885-9825 FAX

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
7	01-23-25	ISSUED FOR DEVELOPMENT PLAN REVIEW
6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
5	05-28-24	MISC. REVS. PER SEWER DEPT COMMENTS
4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS

APPLICANT\OWNER:
CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:
SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	AS SHOWN	DWG.:C-2038-08_DETAILS	
DESIGNED BY:	JRG	CHECKED BY:	MAM

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
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

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DRAWING TITLE:
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SHEET No.
C-506

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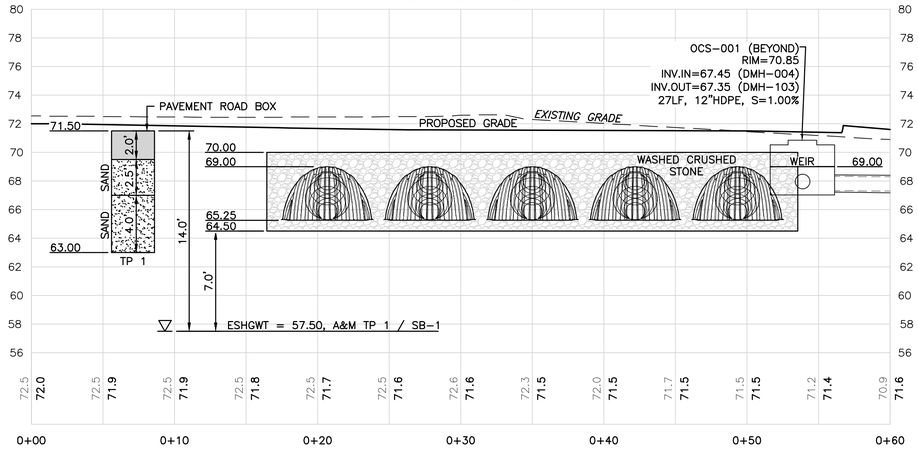
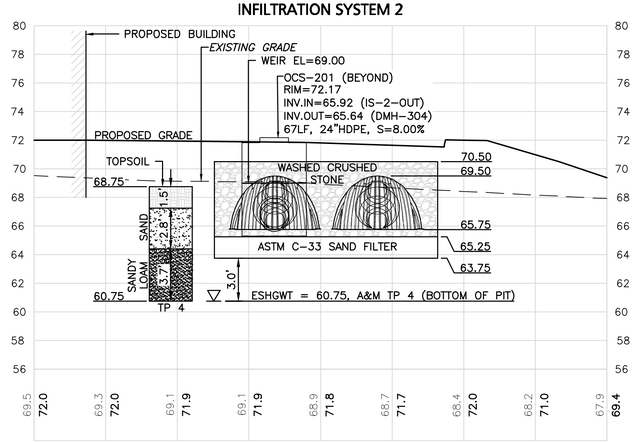
INFILTRATION SYSTEM 1



SCALE: 1" = 5'-0"

INFILTRATION SYSTEM 2



SCALE: 1" = 5'-0"

A&M TP-1 Date: 9/29/2023 Witnessed by M. Malynowski, PE

-	0 - 24	Pavement road box		
B	24 - 54	Sand - Med to Course	10YR 4/6	
C	54 - 102	Sand - Med to Course	10YR 5/4	Fine cobbles

Pit Bottom: 102" Mottles: n/a
Observed Water: n/a Some glaying: n/a
Restrictive Layer: n/a Pit elevation: 71.5
Seepage: n/a ESHWT / Restrictive Layer: 63.0

A&M TP-2 Date: 9/29/2023 Witnessed by M. Malynowski, PE

	0 - 15	Top Soil & Fill		
B	15 - 33	Sand - Fine to Med	10YR 3/2	some pebbles
C	33 - 50	Fine Sandy Loam	5Y 5/2	

Pit Bottom: 50" Mottles: n/a
Observed Water: n/a Some glaying: n/a
Restrictive Layer: n/a Pit elevation: 68.2
Seepage: 50" ESHWT / Restrictive Layer: 64.0

A&M TP-3 Date: 9/29/2023 Witnessed by M. Malynowski, PE

	0 - 15	Top Soil & Fill		
B	15 - 33	Sand - Fine to Med	10YR 3/2	some pebbles
C1	33 - 53	Fine Sandy Loam	2.5Y 5/2	
C2	53 - 89	Fine Sandy Loam	5Y 5/2	

Pit Bottom: 89" Mottles: n/a
Observed Water: n/a Some glaying: n/a
Restrictive Layer: n/a Pit elevation: 69.4
Seepage: n/a ESHWT / Restrictive Layer: 62.0

A&M TP-4 Date: 9/29/2023 Witnessed by M. Malynowski, PE

	0 - 18	Top Soil & Fill		
B	18 - 52	Sand - Fine to Med	10YR 3/2	some pebbles
C1	52 - 96	Fine Sandy Loam	2.5Y 5/2	

Pit Bottom: 96" Mottles: n/a
Observed Water: n/a Some glaying: n/a
Restrictive Layer: n/a Pit elevation: 68.75
Seepage: n/a ESHWT / Restrictive Layer: 60.75

SOIL BORING SB-1

PAGE 1 OF 1

Fuss & O'Neill, Inc.
317 Iron Horse Way, Suite 204
Providence, RI
Telephone: 401.861.3070

PROJECT NUMBER 2001696.M40 **DATE STARTED** 6/14/21
PROJECT NAME Cranston Print Works **DATE COMPLETED** 6/14/21
LOCATION 1381 Cranston Street, Cranston, RI **CASING TYPE/DIAMETER** ----
DRILLING METHOD Geologic/Geoprobe **SCREEN TYPE/SLOT/INTERVAL** ----
HAMMER WEIGHT/FALL -- **GRAVEL PACK TYPE** ----
ELEVATION (FT) --- **GROUT TYPE/QUANTITY** ----
TOP OF CASING ---- **DEPTH TO WATER (FT)** 14.0
LOGGED BY Madelyn Sampson **GROUND WATER ELEVATION** ---
REMARKS No refusal encountered.

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH
0.0		39	GB 0614-01	36"	0	FILL		3" ASPHALT SAND, fine to medium; little silt; trace fine gravel; trace brick; trace ash; light brown; dry. No odor.	
0.0		46			5	FILL		SAND, fine to medium; little gravel; trace silt; trace brick; trace concrete; light brown; dry. No odor.	
0.0		46			10	SP		SAND, fine to coarse; little fine gravel; trace silt; brown; dry. No odor.	
						SP		SAND, fine to medium, some silt, wet at 14 feet. No odor.	▼
0.0		60			15	SP		SAND, fine to coarse; some silt; wet. No odor.	

Bottom of borehole at 20.0 feet.

LOGA EWNER - ESEAT_LOG1 GDT - 7/2/21 08:09 - P:\2001696\MASFIELD NOTES\BORING LOGS\MISC_CPW_BORING LOGS_20210623.GPJ

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RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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APPLICANT\OWNER:
CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:
SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	10-16-2023
SCALE:	AS SHOWN	DWG.:C-2038-08_DETAILS	
DESIGNED BY:	JRG	CHECKED BY:	MAM

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
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

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DRAWING TITLE: DETAILS

SHEET No. C-507

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LANDSCAPE NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF CRANSTON, RI.
2. PLANTING PLAN IS DIAGRAMMATIC IN NATURE. FINAL PLACEMENT OF PLANTS TO BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES, ANY PERMITTING AGENCIES, AND "DIG-SAFE" (1-888-344-7233) AT LEAST 72 HOURS IN ADVANCE OF ANY WORK THAT WILL REQUIRE EXCAVATION. CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE OF NAY CONFLICTS IN WRITING.
4. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
5. ANY TREES NOTED AS "SEAL OR SELECTED SPECIMEN" SHALL BE TAGGED AND SEALED BY THE LANDSCAPE ARCHITECT.
6. ALL TREES SHALL BE BALLED AND BURLAPPED (B&B) UNLESS OTHERWISE NOTED OR APPROVED BY THE OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
7. CONTRACTOR SHALL VERIFY QUANTITIES SHOWN ON PLANT LIST. QUANTITIES SHOWN ON PLANS SHALL GOVERN OVER PLANT LIST.
8. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
9. ALL PLANT MATERIALS INSTALLED SHALL MEET THE GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY AMERICANHORT (LATEST EDITION).
10. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF ACCEPTANCE. ANY PLANT MATERIALS WHICH DIE WITHIN THE ONE YEAR PLANT GUARANTEE PERIOD WILL BE REPLACED BY THE LANDSCAPE CONTRACTOR. OWNERS TO COORDINATE DIRECTLY WITH THE LANDSCAPE CONTRACTOR FOR REPLACEMENT PLANTINGS.
11. ALL DISTURBED AREAS NOT OTHERWISE NOTED SHALL RECEIVE 6" OF SUITABLE LOAM & SEED.
12. LAWNS WITH 3:1 OR GREATER SLOPES SHALL BE PROTECTED WITH AN EROSION CONTROL BLANKET.
13. ANY FALL TRANSPLANTING HAZARD PLANTS SHALL BE DUG IN THE SPRING AND STORED FOR FALL PLANTING.
14. TREES SHALL HAVE A MINIMUM CALIPER AS INDICATED ON THE PLANTING SCHEDULE TAKEN ONE FOOT ABOVE THE ROOT CROWN.
15. ALL PLANT BEDS AND TREE SAUCERS TO RECEIVE 3" OF PINE BARK MULCH. GROUNDCOVER AREAS SHALL RECEIVE 1" OF PINE BARK MULCH.
16. ALL DECIDUOUS TREES ADJACENT TO WALKWAYS AND ROADWAYS SHALL HAVE A BRANCHING PATTERN TO ALLOW FOR A MINIMUM OF 7' OF CLEARANCE BETWEEN THE GROUND AND THE LOWEST BRANCH.
17. ALL TREE STAKES SHALL BE STAINED DARK BROWN.
18. CONTRACTOR RESPONSIBLE FOR WATERING AND RESEEDING OF BARE SPOTS UNTIL A UNIFORM STAND OF VEGETATION IS ESTABLISHED AND ACCEPTED.
19. ALL PARKING ISLANDS PLANTED WITH SHRUBS SHALL HAVE 24" OF TOP SOIL. FINISH GRADE SHALL BE SLOPED TO SIX INCHES (6") ABOVE THE TOP OF CURB.
20. SOIL SAMPLES, TESTS, AND SHOP DRAWINGS SHALL BE PROVIDED TO THE LANDSCAPE ARCHITECT OR THE OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.
21. SLOPES AT 2:1 SHOULD HAVE 6" LOAM & SEED. SEEDING OF 2:1 SLOPES SHALL OCCUR IN THE DRY & AFTER SLOPES ARE COMPACTED.
22. ALL LANDSCAPED AREAS WITH SHRUBS, TREES, AND PERENNIALS TO HAVE 2 FEET MINIMUM DEPTH OF TOPSOIL. TWO FEET OF TOPSOIL AROUND TREES AND SHRUBS DOES NOT INCLUDE AMENDED PLANTING SOIL WITHIN TREE / SHRUB PIT FOR FULL DEPTH OF ROOTBALLS. SEE PLANTING DETAILS FOR PLANTING DEPTH AT SHRUBS AND TREES. ALL AREAS OF LOAM AND SEED TO HAVE 6" MINIMUM DEPTH OF TOPSOIL. TOPSOIL TO BE TESTED BY CONTRACTOR, AND APPROVED BY A&M PRIOR TO PURCHASE AND OR PLACEMENT. GENERAL, DEMOLITION, AND LANDSCAPE CONTRACTORS TO COORDINATE PROPER DEPTH OF EXISTING MATERIAL REMOVAL ACROSS SITE SO THAT 2 FEET MINIMUM AND 6" MINIMUM DEPTHS OF PROPOSED TOPSOIL NOTED ABOVE ARE MET. SEE TOPSOIL DETAIL.
23. PRIOR TO LAYING TOPSOIL, ALL SUBSOIL (BELOW PROPOSED TOPSOIL) TO BE TILLED TO A DEPTH OF AT LEAST 18" TO REMOVE CONSTRUCTION COMPACTION AND ALLOW FOR PROPER DRAINAGE OF TOPSOILS.
24. ALL SEEDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RE-SEEDING OF BARE SPOTS. AT ALL SLOPED AREAS CONTRACTOR TO INSTALL COCONUT FIBER JUTE MESH NETTING ON ALL SLOPES 3:1 AND GREATER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER "FLEXTERRA HP-FGM" AS MANUFACTURED BY "PROFILE" TO HYDROSEED (AT RATE OF 3,000 LBS PER ACRE). CONTRACTOR TO ALSO BE RESPONSIBLE FOR RE-GRADING AND RE-SEEDING ALL DISTURBED, ERODED, OR BARE SPOTS & UNTIL SLOPES ARE FULLY STABLE. CONTRACTOR RESPONSIBLE FOR ALL MAINTENANCE UNTIL FINAL ACCEPTANCE OF LAWN AREAS INCLUDING: WATERING, ADDING FERTILIZERS AND LIME AND MOWING.
25. AFTER SEEDING, ALL AREAS TO BE LIGHTLY MULCHED WITH WEED FREE STRAW & CONTINUALLY WATERED EVERY DAY SO THAT SEED IS KEPT MOIST UNTIL SEED IS ESTABLISHED & APPROVED BY A&M LANDSCAPE ARCHITECT (USE NO HAY).
26. IF THERE IS NO PROPOSED IRRIGATION SYSTEM AFTER PLANTINGS & LAWNS & SEEDED AREAS HAVE BEEN INSTALLED, LANDSCAPE CONTRACTOR RESPONSIBLE TO TEMPORARILY WATER ALL INSTALLED PLANTINGS, SEEDED AREAS, & LAWN AREAS MIN. 4 TIMES A WEEK DURING INITIAL ESTABLISHMENT PERIOD OF 6 MONTHS AFTER ALL LANDSCAPING IS INSTALLED.
27. PLANTINGS HAVE BEEN SELECTED ASSUMING IRRIGATION. IF IRRIGATION IS NOT PROVIDED, PLANT SPECIES, QUANTITY OR SIZE SUBSTITUTIONS MAY BE REQUIRED FOR INCREASED DROUGHT TOLERANT SPECIES AND SHOULD BE REVIEWED WITH THE LANDSCAPE ARCHITECT.

NOTE: SEE SHEET L-502 FOR PLANTING SCHEDULE AND ZONING SUMMARY

LEGEND

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- FLOWERING TREES
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- WILDFLOWER SEED MIX
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- 5' LANDSCAPE BUFFER
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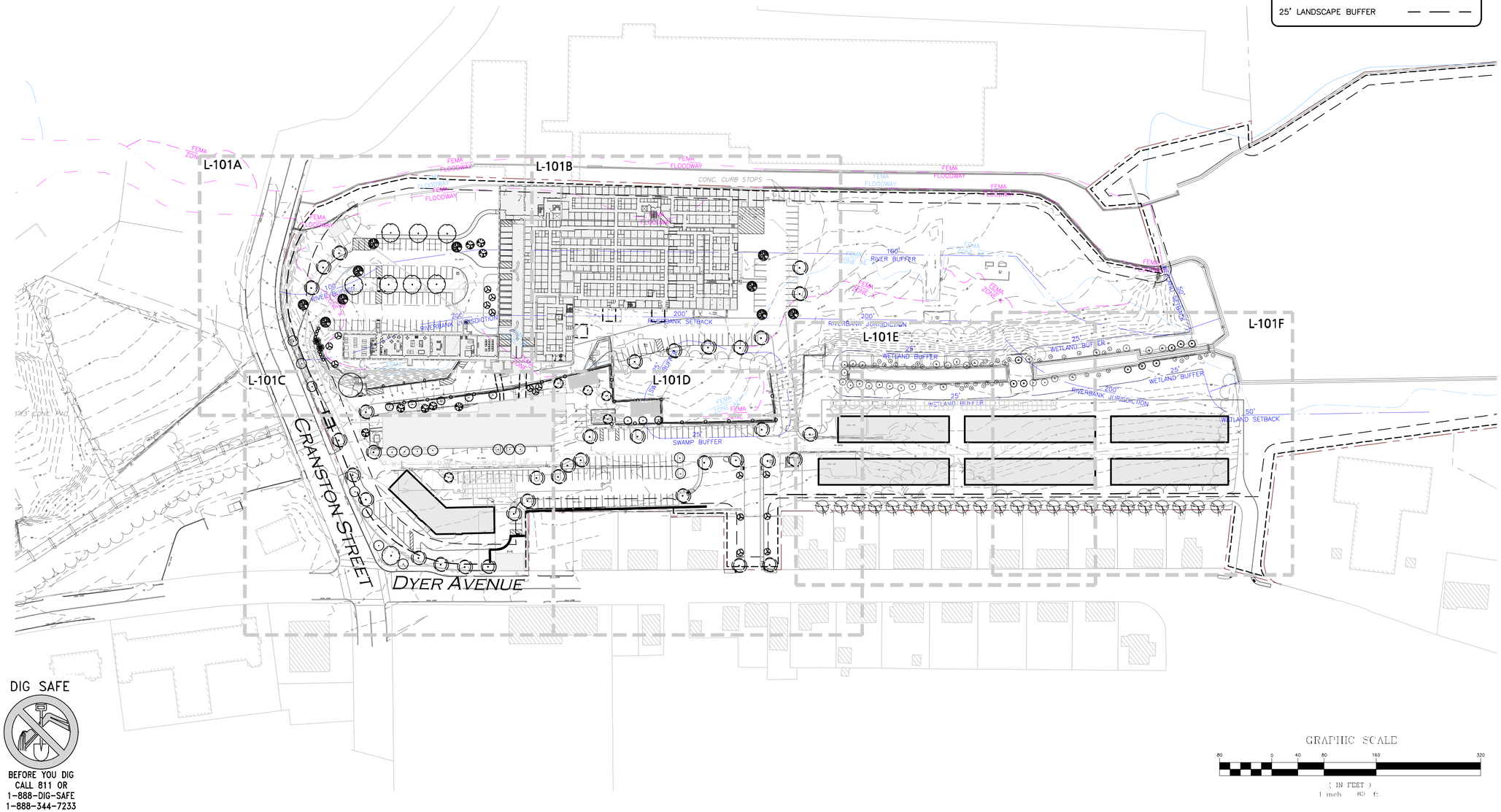

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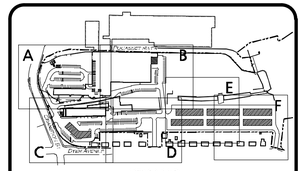

KEY MAP
NOT TO SCALE

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 80'	DWG.:	L-2038-08
DESIGNED BY:	JBT	CHECKED BY:	MAM

PREPARED BY:
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DRAWING TITLE: LANDSCAPE PLAN

SHEET No. L-101

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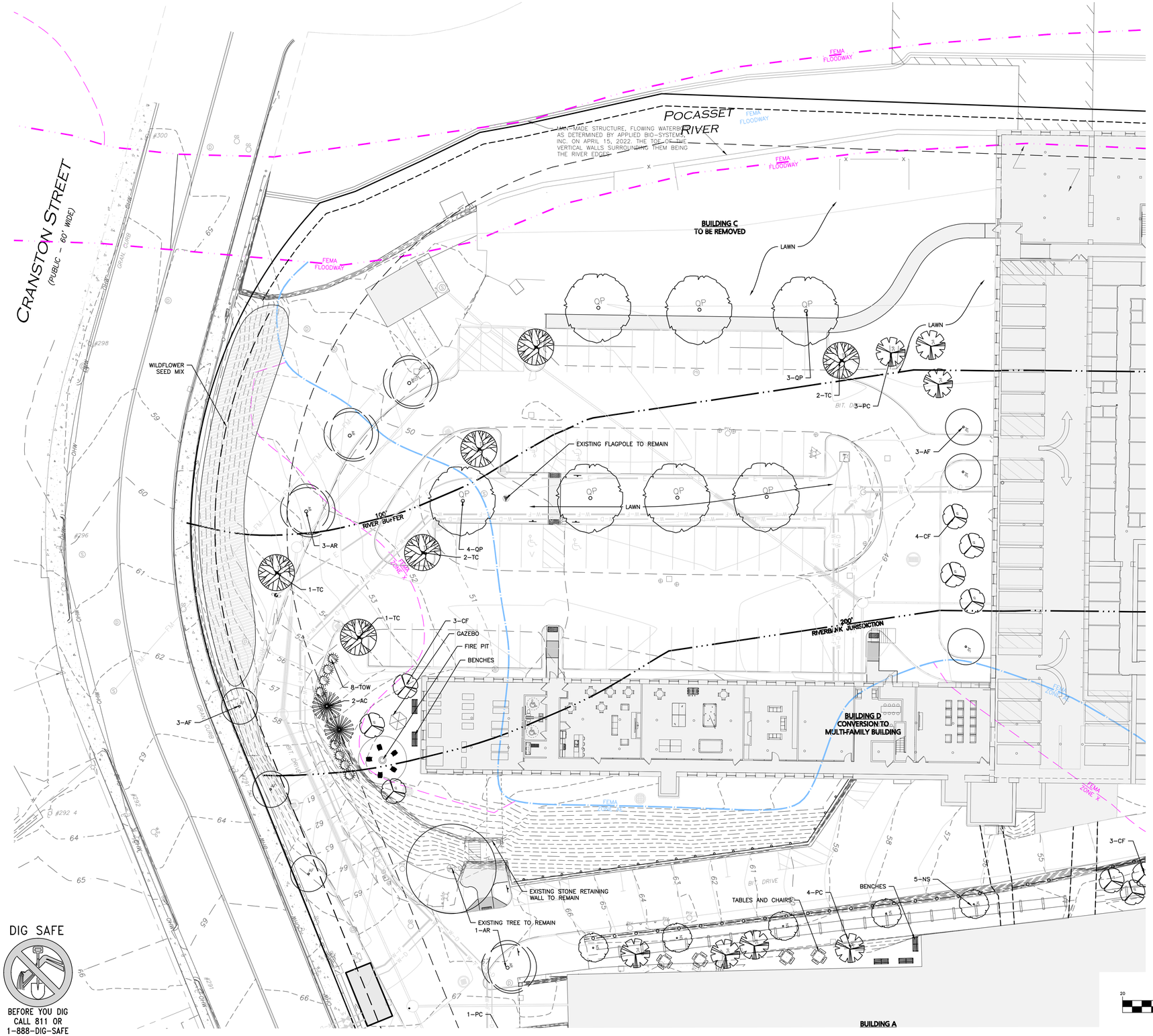

NOTE: SEE SHEET L–502 FOR PLANTING SCHEDULE AND ZONING SUMMARY

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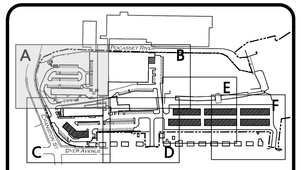

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LANDSCAPE PLAN

SHEET No.

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20 0 10 20 40 80

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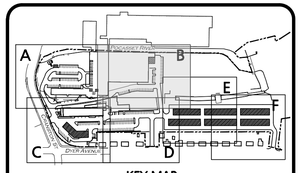

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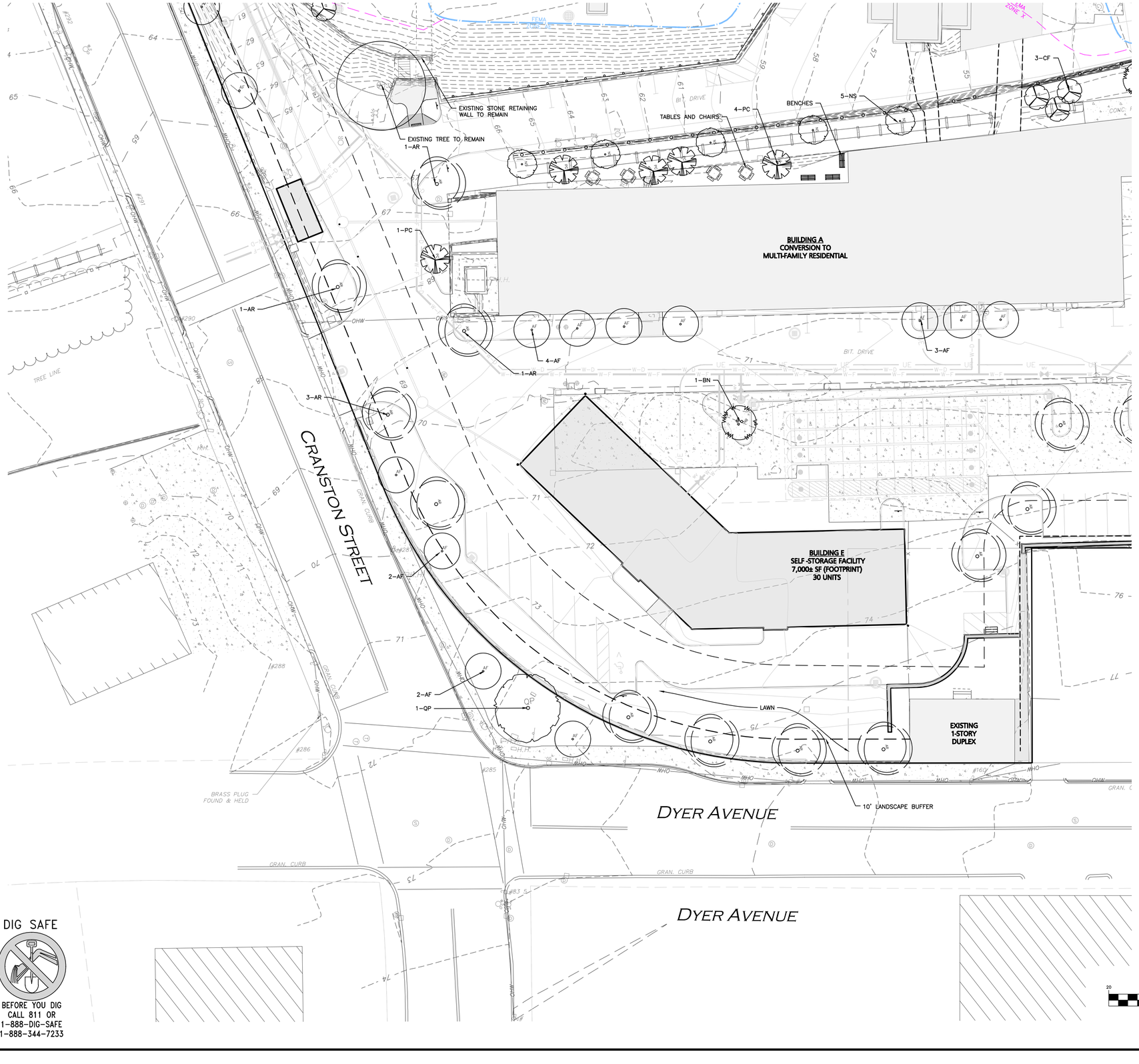

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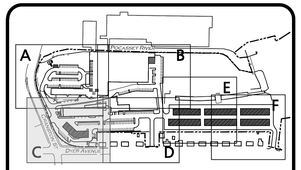

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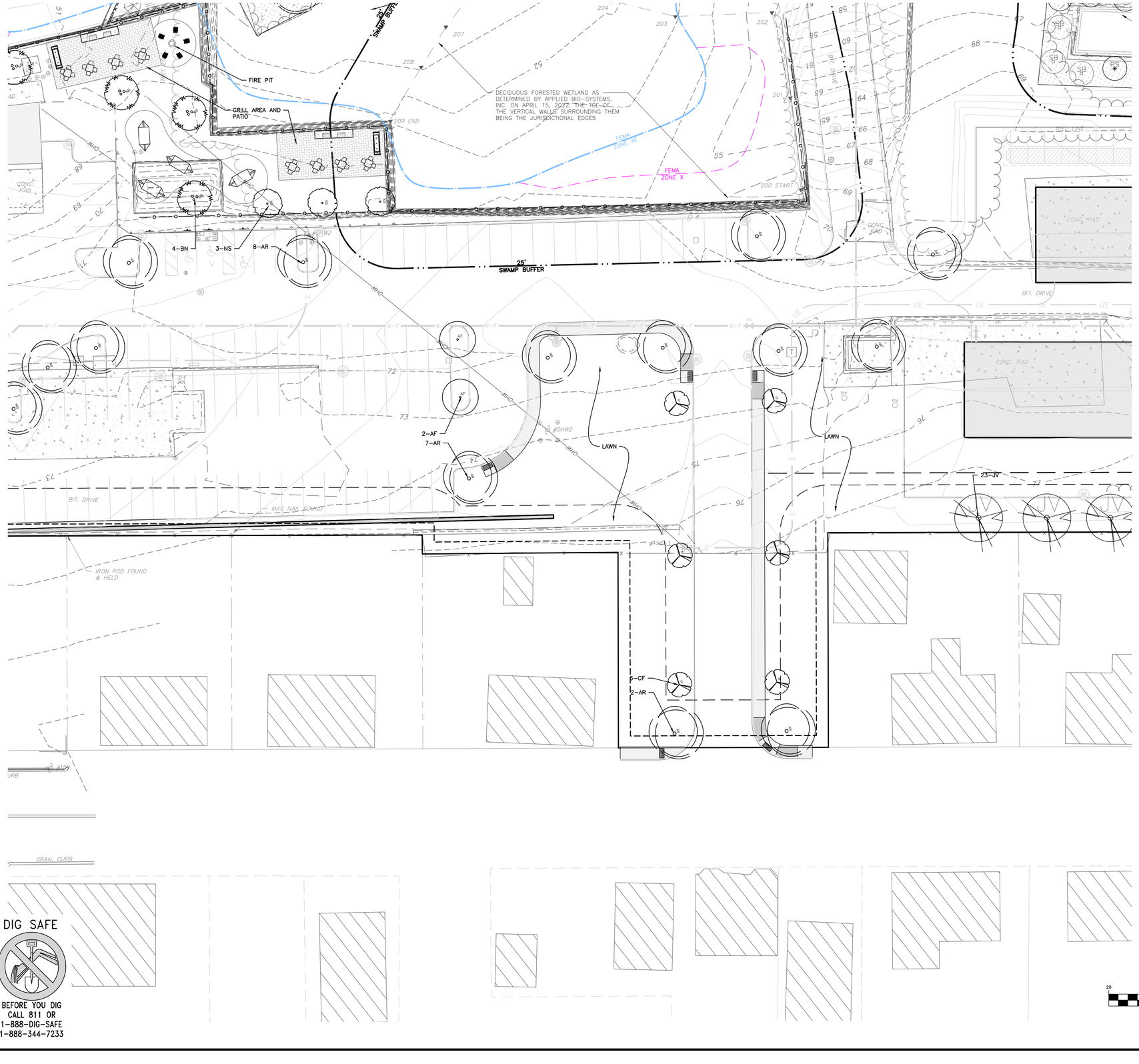

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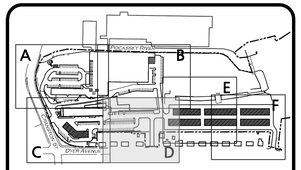

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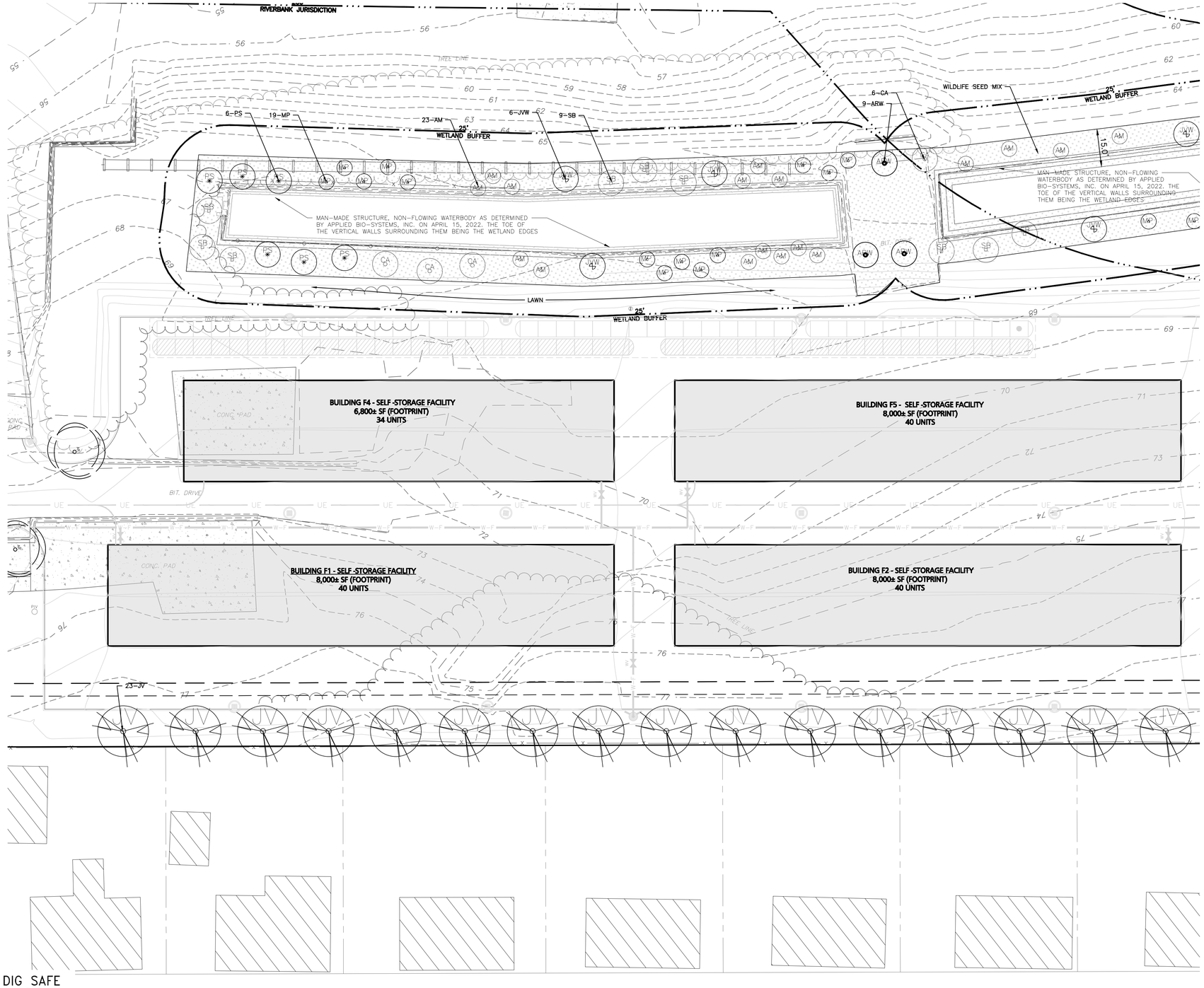

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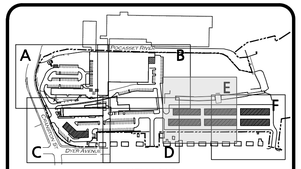

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DRAWING TITLE:

LANDSCAPE PLAN

SHEET No.

L-101E

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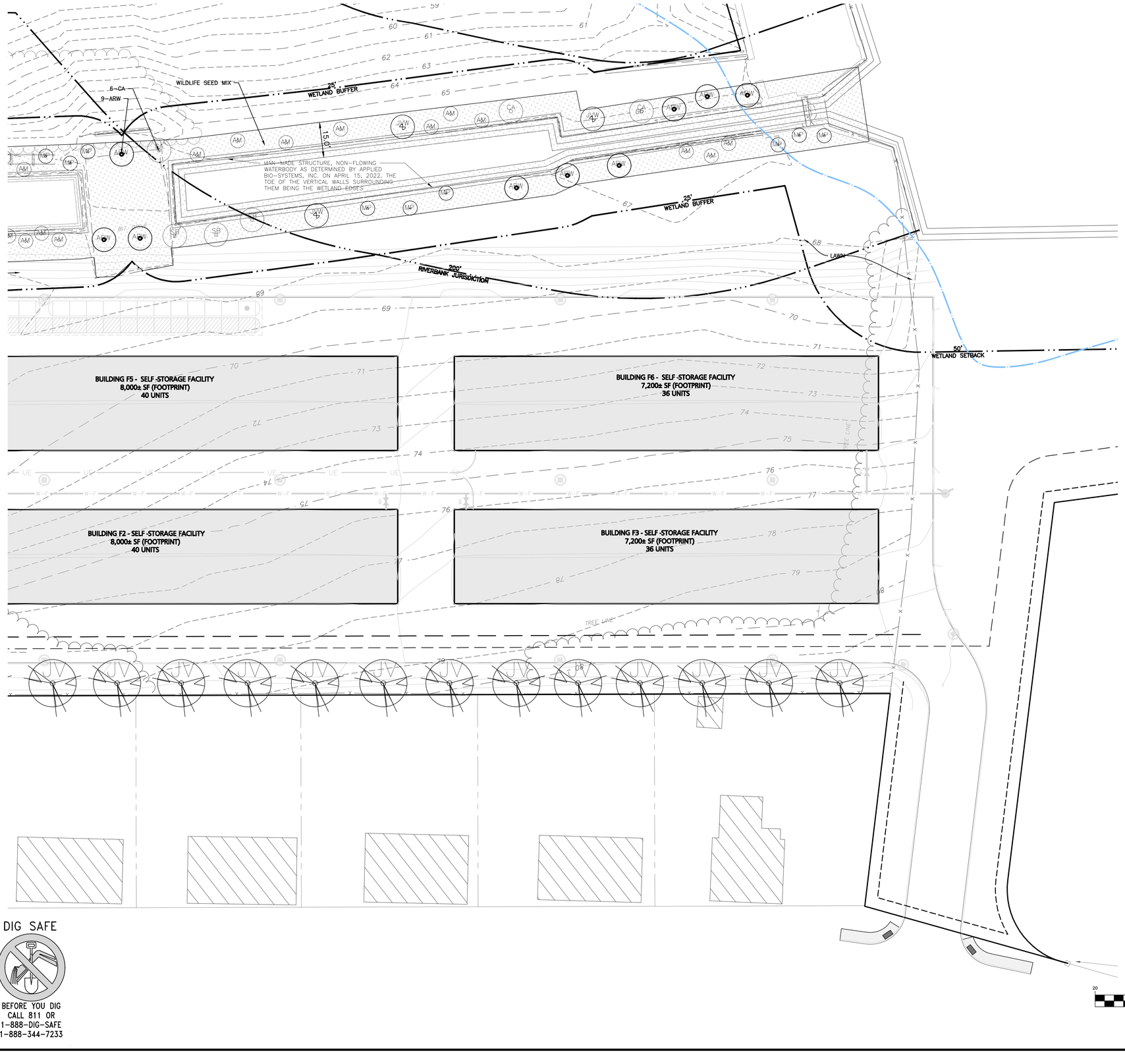

NOTE: SEE SHEET L–502 FOR PLANTING SCHEDULE AND ZONING SUMMARY

LEGEND

- PROPERTY LINE
- PROP. BUILDING
- WETLAND PLANTS
- DECIDUOUS TREES
- FLOWERING TREES
- EVERGREEN TREES
- SHRUBS
- MULCH BED
- WILDFLOWER SEED MIX
- WILDLIFE SEED MIX
- 5' LANDSCAPE BUFFER
- 10' LANDSCAPE BUFFER
- 25' LANDSCAPE BUFFER

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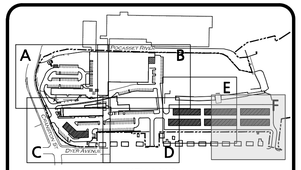

KEY MAP
NOT TO SCALE

RIDEM WETLANDS PERMIT NO. 23-0147
RIPDES PERMIT NO. RIR102539
RIDEM GROUNDWATER DISCHARGE NO. 002195

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
7	01-23-25	ISSUED FOR DEVELOPMENT PLAN REVIEW
6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
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APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 20'	DWG.:	L-2038-08
DESIGNED BY:	JBT	CHECKED BY:	MAM

PREPARED BY:
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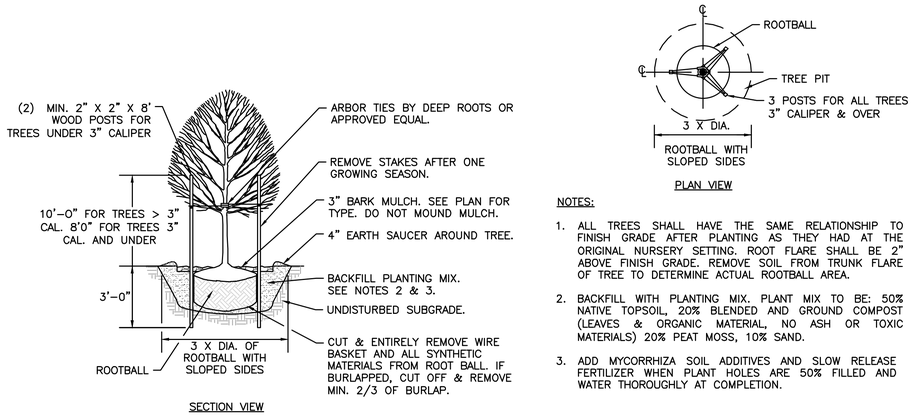
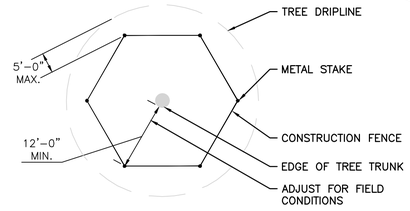


NOTES:

1. ALL TREES SHALL HAVE THE SAME RELATIONSHIP TO FINISH GRADE AFTER PLANTING AS THEY HAD AT THE ORIGINAL NURSERY SETTING. ROOT FLARE SHALL BE 2" ABOVE FINISH GRADE. REMOVE SOIL FROM TRUNK FLARE OF TREE TO DETERMINE ACTUAL ROOTBALL AREA.
2. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% BLENDED AND GROUND COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH OR TOXIC MATERIALS) 20% PEAT MOSS, 10% SAND.
3. ADD MYCORRHIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.

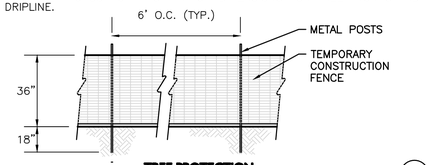
DECIDUOUS TREE
NOT TO SCALE

6



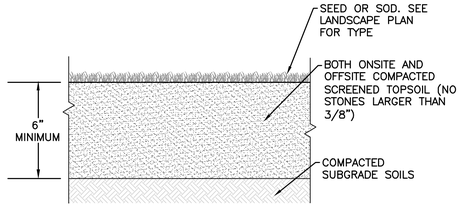
NOTE:

1. CONSTRUCTION FENCE TO BE "VISUAL BARRIER FENCE" AS MANUFACTURED BY TENAX FENCE OR APPROVED EQUAL.
2. IF GROUPS OF TREES ARE TO BE PROTECTED, EXTEND FENCE AROUND PERIMETER TO CONFORM TO MINIMUM DIMENSIONS FOR TREE TRUNKS AND DRIPLINE.



TREE PROTECTION
NOT TO SCALE

5



TEXTURE CLASS	% OF TOTAL WEIGHT
SAND	45% – 65%
SILT	15% – 35%
CLAY	5% – 20%

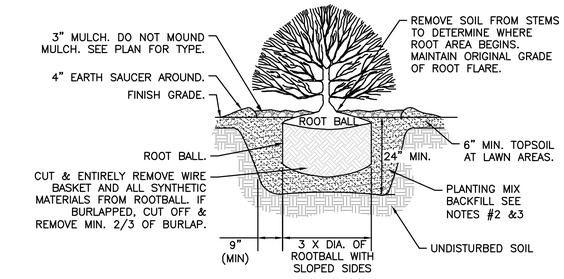
SIEVE	% PASSING
3/8"	100
NO. 4	85–100
NO. 40	60–85
NO. 100	38–60
NO. 200	28–40

NOTES:

1. TOP OF LOAM (TOPSOIL) IS FINISH GRADE.
2. ALL TOPSOIL (BOTH ONSITE AND OFFSITE SOURCES) SHALL BE COMPOSED OF A NATURAL, FERTILE, FRIABLE SOIL TYPICAL OF CULTIVATED TOPSOILS OF THE LOCALITY. SOIL SHALL BE SUITABLE FOR THE GERMINATION OF SEEDS AND SUPPORT OF VEGETATIVE GROWTH, WITH ADDITIVES, IF REQUIRED, TO ACHIEVE PARTICLE DISTRIBUTION AND ORGANIC CONTENT BELOW. TOPSOIL SHALL BE TAKEN FROM A WELL–DRAINED, ARIABLE SITE, FREE OF SUBSOIL, LARGE STONES, EARTH CLODS, STICKS, TRASH, STUMPS, CLAY LUMPS, ROOTS, OTHER OBJECTIONABLE, EXTRANEOUS MATTER OR DEBRIS NOR CONTAIN TOXIC SUBSTANCES.
3. THE CONTRACTOR SHALL PROVIDE THE OWNER / LANDSCAPE ARCHITECT WITH TOPSOIL TEST RESULTS (RECOMMEND UMASS AMHERST SOIL TESTING LAB) FOR APPROVAL PRIOR TO OBTAINING AND PLACING THE SOIL. IF THE PLANTING SOIL (BOTH ONSITE AND OFFSITE SOURCES) DOES NOT FALL WITHIN THE REQUIRED SIEVE ANALYSIS, TEXTURAL CLASS, ORGANIC CONTENT, OR PH RANGE, IT SHALL BE ADJUSTED TO MEET THE SPECIFICATIONS THROUGH THE ADDITION OF SAND, COMPOST, LIMESTONE, OR ALUMINUM SULFATE TO BRING IT WITHIN THE SPECIFIED LIMITS.
4. TOPSOIL SHALL HAVE A PH VALUE BETWEEN 5.5 AND 6.5. TOPSOIL SHALL CONTAIN BETWEEN 4% AND 8% ORGANIC MATTER OF TOTAL DRY WEIGHT AND SHALL CONFORM TO THE FOLLOWING GRADATION AND TEXTURE CLASS ABOVE.

TOPSOIL FOR LAWN, TREES, SHRUBS, & PERENNIALS
NOT TO SCALE

2

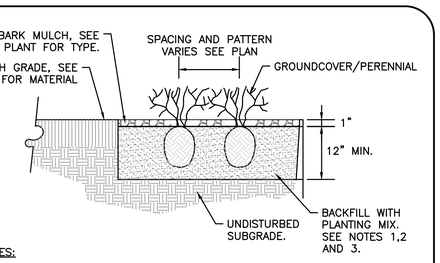


NOTES:

1. ALL SHRUBS ROOT FLARE SHALL HAVE THE SAME RELATIONSHIP TO FINISH GRADE AFTER PLANTING AS THEY HAD AT THE ORIGINAL NURSERY SETTING.
2. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
3. ADD MYCORRHIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED. WATER THOROUGHLY AT COMPLETION.
4. SHRUB BEDS TO HAVE 24" MIN. OF CONTINUOUS PLANTING SOIL.

SHRUB
NOT TO SCALE

4

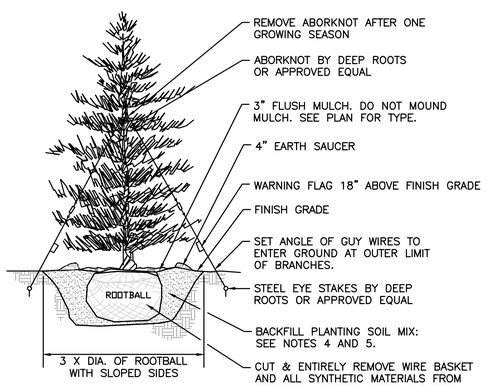


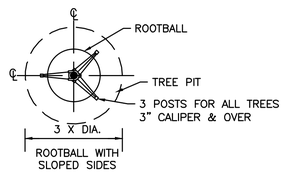
NOTES:

1. ALL GROUNDCOVER/PERENNIALS SHALL HAVE THE SAME RELATIONSHIP TO FINISH GRADE AFTER PLANTING AS THEY HAD AT THE ORIGINAL NURSERY SETTING. ROOT FLARE SHALL BE 2" ABOVE FINISH GRADE. REMOVE SOIL FROM STEM OF GROUND COVER/ PERENNIAL TO DETERMINE ACTUAL ROOTBALL AREA.
2. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% BLENDED AND GROUND COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH OR TOXIC MATERIALS) 20% PEAT MOSS, 10% SAND.
3. ADD MYCORRHIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.

GROUNDCOVER/PERENNIAL PLANTING
NOT TO SCALE

3





NOTES

1. TREES SHALL BEAR SAME RELATIONSHIP TO FINISH GRADE AS IT BORE TO NURSERY OR FIELD GRADE. ROOT FLARE SHALL BE 2" ABOVE FINISH GRADE. REMOVE SOIL FROM TRUNK FLARE OF TREE TO DETERMINE ACTUAL TOP OF ROOTBALL AREA.
2. ATTACH GUY WIRES AT 2/3 HEIGHT OF TREE.
3. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% BLENDED AND GROUND COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH OR TOXIC MATERIALS) 20% PEAT MOSS, 10% SAND.
4. ADD MYCORRHIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.

EVERGREEN TREE
NOT TO SCALE

1

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JANUARY 23, 2025

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DRAWING TITLE:

LANDSCAPE DETAILS

SHEET No.

L-501

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49 OF 51

PLANTING SCHEDULE -TREES, SHRUBS, GROUNDCOVERS & PERENNIALS

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT @ PLANTING	SPACING	COMMENTS
DECIDUOUS/SHADE AND FLOWERING TREES							
AF	19	ACER FREEMANII 'ARMSTRONG'	ARMSTRONG MAPLE	2.5–3" CAL	10–12' HT.	AS SHOWN	B&B
AR	36	ACER RUBRUM	RED MAPLE	2.5–3" CAL	10–12' HT.	AS SHOWN	B&B
ARW	18	ACER RUBRUM	RED MAPLE	1–2" CAL	8–10' HT	10' O.C.	B&B
BN	5	BETULA NIGRA 'DURA HEAT'	DURA HEAT RIVER BIRCH	–	12–14' HT.	AS SHOWN	B&B, MULTISTEM
NS	8	NYSSA SYLVATICA 'WILDFIRE'	WILDFIRE TUPELO	2.5–3" CAL	10–12' HT.	AS SHOWN	B&B
QP	8	QUERCUS PALUSTRIS	PIN OAK	2.5–3" CAL	10–12' HT.	AS SHOWN	B&B
TC	10	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LINDEN	2.5–3" CAL	10–12' HT.	AS SHOWN	B&B
FLOWERING TREES							
CF	16	CORNUS FLORIDA 'APPALACHIAN SPRING'	APPALACHIAN SPRING DOGWOOD	2.5–3" CAL	10–12' HT.	AS SHOWN	B&B
PC	8	PRUNUS SARGENTII 'COLUMNARIS'	SARGENT CHERRY	2.5–3" CAL	10–12' HT.	AS SHOWN	B&B
EVERGREEN TREES							
AC	2	ABIES CONCOLOR	WHITE FIR	–	10–12' HT.	AS SHOWN	B&B
JV	23	JUNIPERUS VIGINIANA	EASTERN RED CEDAR	–	10–12' HT.	AS SHOWN	B&B
JVW	12	JUNIPERUS VIGINIANA	EASTERN RED CEDAR	–	2'–4' HT.	10' O.C.	B&B
PS	12	PINUS STROBUS	EASTERN WHITE PINE	–	2'–4' HT.	10' O.C.	B&B
TOW	8	THUJA OCCIDENTALIS 'HETZ WINTERGREEN'	HETZ WINTERGREEN ARBORVITAE	–	6–7' HT.	AS SHOWN	B&B
SHRUBS							
SB	18	AMELANCHIER CANADENSIS	SERVICEBERRY	#3	2'–4' HT.	10' O.C.	POT
AM	46	ARONIA MELANOCARPA	BLACK CHOKECHERRY	#3	2'–4' HT.	6' O.C.	POT
CA	12	CORNUS ALTERNIFOLIA	ALTERNATE–LEAVED DOGWOOD	#3	2'–4' HT.	10' O.C.	POT
CS	TBD	CORNUS SERICEA 'FARROW' ARTIC FIRE'	ARTIC FIRE REDOSIER DOGWOOD	#3	2'–4' HT.	36" O.C.	POT
HY	TBD	HYDRANGEA PANICULATA 'RENHY' TREE FORM	TREE FORM VANILLA STRAWBERRY HYDRANGEA	–	5'–6' HT.	6' O.C.	B&B
IG	TBD	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	–	2–2.5' HT.	36" O.C.	B&B
MD	TBD	MICROBIOTA DECUSSATA	RUSSIAN CYPRESS	#3	2'–4' HT.	36" O.C.	POT
MP	38	MYRICA PENSYLVANICA	BAYBERRY	#5	4–5' HT.	6' O.C.	POT
RN	TBD	RHODODENDRON 'NOVA ZEMBLA'	NOVA ZEMBLA RHODODENDRON	–	2.5–3' HT.	5' O.C.	B&B
GROUNDCOVERS							
JC	TBD	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR JUNIPER	#3	2.5–3' HT.	36" O.C.	POT
PERENNIALS/GRASSES							
CK	TBD	CALAMAGROSTIS 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	#3	2.5–3' HT.	24" O.C	STAGGERED
FG	TBD	FESTUCA GLAUCA 'ELIJAH BLUE'	ELIJAH BLUE FESCUE	#1	1–2' HT.	12" O.C.	STAGGERED
EP	TBD	ECHINACEA PURPUREA 'POW WOW WILDBERRY'	PURPLE CONEFLOWER	#1	1–2' HT.	18" O.C.	STAGGERED
HR	TBD	HEMEROCALLIS 'HAPPY RETURNS'	HAPPY RETURNS DAYLILY	#1	1–2' HT.	18" O.C.	STAGGERED
HK	TBD	HOSTA 'KROSSA REGAL'	KROSSA REGAL HOSTA	#2	1–2' HT.	5' O.C.	STAGGERED
LA	TBD	LAVANDULA X INTERMEDIA 'PHENOMENAL	PHENOMENAL LAVENDER	#2	1–2' HT.	24" O.C.	STAGGERED
LB	TBD	LEUCANTHEMUM SUPERBUM 'BECKY'	BECKY SHASTA DAISY	#2	1–2' HT.	30" O.C.	STAGGERED
PV	TBD	PANICUM VIRGATUM	SWITCHGRASS	#2	1–2' HT.	36" O.C.	STAGGERED
RF	TBD	RUDBECKIA FULGIDA 'GOLDSTURM'	BLACK EYED SUSAN	#2	1–2' HT.	24" O.C.	STAGGERED

CITY OF CRANSTON, RI ZONING SUMMARY - LANDSCAPE

REGULATION	ITEM	REQUIRED / ALLOWED	PROPOSED
17.84.140.C.1.b.	A MINIMUM OF FIFTEEN (15) PERCENT OF A DEVELOPMENT'S PARCEL SHALL BE LANDSCAPED.	SEE LAYOUT AND MATERIALS PLAN	SEE LAYOUT AND MATERIALS PLAN
17.84.140.C.4.	TREES. B. ONE STREET TREE SHALL BE PLANTED FOR EVERY THIRTY–FIVE (35) FEET OF FRONTAGE. GENERALLY, STREET TREES SHALL BE OF THE SAME SPECIES EXCEPT TO ACHIEVE SPECIAL EFFECTS. TREES MAY BE SPACED ALONG THE STREET AT EVERY THIRTY–FIVE (35) FEET AT THE REAR OF SIDEWALK OR MAY BE GROUPED IN ACCORDANCE WITH A LANDSCAPE PLAN. C. WITH THE EXCEPTION OF ORNAMENTAL TREES, DECIDUOUS TREES SHALL HAVE AT LEAST A TWO AND ONE–HALF–INCH CALIPER AT PLANTING AND A CALIPER OF AT LEAST TWELVE (12) INCHES WHEN FULLY MATURE.	APPROX. 540' FRONTAGE =15 STREET TREES	15 STREET TREES 2–1/2" CALIPER PROVIDED
17.84.140.C.6.b.	BUFFER AREA DIMENSIONS. I. A MINIMUM TEN (10) FEET WIDE LANDSCAPED STRIP SHALL BE PROVIDED ALONG PROPERTY LINES PARALLEL TO A STREET WHERE PARKING OR CIRCULATION AREAS ABUTS SAID STREET. II. A MINIMUM FIVE FEET LANDSCAPE STRIP SHALL BE PROVIDED ALONG SIDE AND REAR PROPERTY LINES WHERE PARKING AND CIRCULATION AREAS ARE ADJACENT TO ABUTTING PROPERTIES. III. WHERE A MORE INTENSIVE USE ABUTS A LESS INTENSIVE USE, A 25–FOOT WIDE BUFFER STRIP MAY BE REQUIRED. THE WIDTH OF SAID STRIP TO BE DETERMINED BY THE DESIGN AND DENSITY OF THE BUFFER PROPOSED.	10' STRIP AT STREET 5' STRIP AT SIDE & REAR 25' STRIP AT INTENSIVE USE	PROVIDED WHERE PRACTICABLE
17.84.140.C.7.	PARKING AREA LANDSCAPING REQUIREMENTS. A. IN ADDITION TO ANY REQUIRED BUFFER STRIP, A MINIMUM OF TEN (10) SQUARE FEET OF LANDSCAPED AREA SHALL BE PROVIDED WITHIN A PARKING AREA FOR EACH PARKING SPACE IN SAID AREA. B. A MINIMUM OF TWENTY (20) PERCENT OF A PARKING AREA SHALL BE SHADED BY DECIDUOUS TREES THAT SHALL HAVE A CROWN (CANOPY) OF THIRTY (30) FEET AT MATURITY. SAID TREES SHALL BE SURROUNDED BY AT LEAST ONE HUNDRED (100) SQUARE FEET OF UNPAVED AREA TO PROVIDE FOR GROWTH AND PROTECTION FROM VEHICLES.	10 SF PER EACH PARKING SPACE 20% OF PARKING AREA TO BE SHADED 100SF UNPAVED AREA PER TREE	PROVIDED WHERE PRACTICABLE

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DRAWING TITLE:
LANDSCAPE SCHEDULES

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LANDSCAPE NOTES

1. SLOPES AT 2:1 SHOULD HAVE 6" LOAM & SEED. SEEDING OF 2:1 SLOPES SHALL OCCUR IN THE DRY & AFTER SLOPES ARE COMPACTED.
2. ALL LANDSCAPED AREAS WITH SHRUBS, TREES, AND PERENNIALS TO HAVE 2 FEET MINIMUM DEPTH OF TOPSOIL. TWO FEET OF TOPSOIL AROUND TREES AND SHRUBS DOES NOT INCLUDE AMENDED PLANTING SOIL WITHIN TREE / SHRUB PIT FOR FULL DEPTH OF ROOTBALLS. SEE PLANTING DETAILS FOR PLANTING DEPTH AT SHRUBS AND TREES. ALL AREAS OF LOAM AND SEED TO HAVE 6" MINIMUM DEPTH OF TOPSOIL. TOPSOIL TO BE TESTED BY CONTRACTOR, AND APPROVED BY A&M PRIOR TO PURCHASE AND OR PLACEMENT. GENERAL, DEMOLITION, AND LANDSCAPE CONTRACTORS TO COORDINATE PROPER DEPTH OF EXISTING MATERIAL REMOVAL ACROSS SITE SO THAT 2 FEET MINIMUM AND 6" MINIMUM DEPTHS OF PROPOSED TOPSOIL NOTED ABOVE ARE MET. SEE TOPSOIL DETAIL.
3. PRIOR TO LAYING TOPSOIL, ALL SUBSOIL (BELOW PROPOSED TOPSOIL) TO BE TILLED TO A DEPTH OF AT LEAST 18" TO REMOVE CONSTRUCTION COMPACTION AND ALLOW FOR PROPER DRAINAGE OF TOPSOILS.
4. ALL SEEDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RE-SEEDING OF BARE SPOTS. AT ALL SLOPED AREAS CONTRACTOR TO INSTALL COCONUT FIBER JUTE MESH NETTING ON ALL SLOPES 3:1 AND GREATER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER "FLEXTERRA HP-FGM" AS MANUFACTURED BY "PROFILE" TO HYDROSEED (AT RATE OF 3,000 LBS PER ACRE). CONTRACTOR TO ALSO BE RESPONSIBLE FOR RE-GRADING AND RE-SEEDING ALL DISTURBED, ERODED, OR BARE SPOTS & UNTIL SLOPES ARE FULLY STABLE. CONTRACTOR RESPONSIBLE FOR ALL MAINTENANCE UNTIL FINAL ACCEPTANCE OF LAWN AREAS INCLUDING: WATERING, ADDING FERTILIZERS AND LIME AND MOWING.
5. AFTER SEEDING, ALL AREAS TO BE LIGHTLY MULCHED WITH WEED FREE STRAW & CONTINUALLY WATERED EVERY DAY SO THAT SEED IS KEPT MOIST UNTIL SEED IS ESTABLISHED & APPROVED BY A&M LANDSCAPE ARCHITECT (USE NO HAY).
6. IF THERE IS NO PROPOSED IRRIGATION SYSTEM AFTER PLANTINGS & LAWNS & SEEDED AREAS HAVE BEEN INSTALLED, LANDSCAPE CONTRACTOR RESPONSIBLE TO TEMPORARILY WATER ALL INSTALLED PLANTINGS, SEEDED AREAS, & LAWN AREAS MIN. 4 TIMES A WEEK DURING INITIAL ESTABLISHMENT PERIOD OF 6 MONTHS AFTER ALL LANDSCAPING IS INSTALLED.

EROSION CONTROL/RESTORATION WET SEED MIX:

NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES
(BY NEW ENGLAND WETLAND PLANTS INC. – NEWP.COM)
APPLICATION RATE: 35 LBS/ACRE | 1250 SQ FT/LB

ITEM	BOTANICAL NAME	COMMON NAME	INDICATOR
1.	ELYMUS RIPARIUS	RIVERBANK WILD RYE	FACW
2.	FESTUCA RUBRA	RED FESCUE	FACU
3.	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	FACU
4.	PANICUM VIRGATUM	SWITCH GRASS	FAC
5.	ANDROPOGON GERARDII	BIG BLUESTEM	FAC
6.	VERBENA HASTATA	BLUE VERVAIN	FACW
7.	AGROSTIS PERENNANS	UPLAND BENTGRASS	FACU
8.	BIDENS CERNUA	NODDING BUR MARIGOLD	OBL
9.	EUPATORIUM FISTULOSUM	HOLLOW-STEM JOE PYE WEED	FACW
10.	EUPATORIUM PERFOLIATUM	BONESET	FACW
11.	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	FACW
12.	SCIRPUS CYPERINUS	WOOL GRASS	FACW
13.	JUNCUS EFFUSUS	SOFT RUSH	FACW+

THE NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES CONTAINS A SELECTION OF NATIVE GRASSES AND WILDFLOWERS DESIGNED TO COLONIZE GENERALLY MOIST, RECENTLY DISTURBED SITES WHERE QUICK GROWTH OF VEGETATION IS DESIRED TO STABILIZE THE SOIL SURFACE. IT IS AN APPROPRIATE SEED MIX FOR ECOLOGICALLY SENSITIVE RESTORATIONS THAT REQUIRE STABILIZATION AS WELL AS LONG-TERM ESTABLISHMENT OF NATIVE VEGETATION. THIS MIX IS PARTICULARLY APPROPRIATE FOR DETENTION BASINS THAT DO NOT HOLD STANDING WATER. MANY OF THE PLANTS IN THIS MIX CAN TOLERATE INFREQUENT INUNDATION, BUT NOT CONSTANT FLOODING. THE MIX MAY BE APPLIED BY HAND, BY MECHANICAL SPREADER, OR BY HYDROSEEDER. AFTER SOWING, LIGHTLY RAKE, ROLL OR CULTIPACK TO INSURE GOOD SEED-TO-SOIL CONTACT. BEST RESULTS ARE OBTAINED WITH A SPRING OR LATE SUMMER SEEDING. LATE FALL AND WINTER DORMANT SEEDING REQUIRES AN INCREASE IN THE APPLICATION RATE. A LIGHT MULCHING OF CLEAN, WEED-FREE STRAW IS RECOMMENDED.

WILDFLOWER SEED MIX:

NEW ENGLAND WILDFLOWER MIX
(BY NEW ENGLAND WETLAND PLANTS INC. – NEWP.COM)
APPLICATION RATE: 23 LBS/ACRE | 1900 SQ FT/LB

ITEM	BOTANICAL NAME	COMMON NAME	INDICATOR
1.	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	FACU
2.	FESTUCA RUBRA	RED FESCUE	FACU
3.	SORGHASTRUM NUTANS	INDIAN GRASS	UPL
4.	CHAMAECRISTA FASCICULATA	PARTRIDGE PEA	FACU
5.	ELYMUS VIRGINICUS	VIRGINIA WILD RYE	FACW
6.	ELYMUS CANADENSIS	CANADA WILD RYE	FACU+
7.	VERBENA HASTATA	BLUE VERVAIN	FACW
8.	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	NI
9.	SISYRINCHIUM ANGUSTIFOLIUM	NARROWLEAFED BLUE EYED GRASS	FACW
10.	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	FACW
11.	RUDBECKIA HIRTA	BLACK EYED SUSAN	FACU
12.	LIATRIS SPICATA	SPIKED GAYFEATHER	FAC+
13.	ASTER LATERIFLORUS	STARVED/CALICO ASTER	FACW
14.	SOLIDAGO JUNCEA	EARLY GOLDENROD	
15.	EUPATORIUM FISTULOSUM	HOLLOW-STEM JOE PYE WEED	FACW

THE NEW ENGLAND WILDFLOWER MIX PROVIDES A SELECTION OF NATIVE WILDFLOWERS AND GRASSES TO INSURE THAT A VARIETY OF SPECIES WILL SURVIVE IN CONDITIONS FROM DRY TO MOIST. IT IS AN APPROPRIATE SEED MIX FOR ROADSIDES, COMMERCIAL LANDSCAPING, PARKS, GOLF COURSES, INDUSTRIAL SITES AND AREAS UNDERGOING ECOLOGICAL RESTORATION. THE MIX CAN BE APPLIED BY HYDRO-SEEDING (NO TACKIFIERS), BY MECHANICAL SPREADER, OR BY HAND. LIGHTLY RAKE OR ROLL AFTER SOWING TO INCREASE SEED TO SOIL CONTACT. APPLY ON A CLEAN, WEED FREE SEED BED. BEST RESULTS ARE OBTAINED WITH A SPRING OR LATE FALL DORMANT SEEDING.

CONSERVATION WILDLIFE SEED MIX:

NEW ENGLAND CONSERVATION / WILDLIFE MIX
(BY NEW ENGLAND WETLAND PLANTS INC. – NEWP.COM)
APPLICATION RATE: 25 LBS/ACRE | 1750 SQ FT/LB

ITEM	BOTANICAL NAME	COMMON NAME	INDICATOR
1.	ELYMUS VIRGINICUS	VIRGINIA WILD RYE	FACW
2.	CHAMAECRISTA FASCICULATA	PARTRIDGE PEA	FACU
3.	FESTUCA RUBRA	RED FESCUE	FACU
4.	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	FACU
5.	ANDROPOGON GERARDII	BIG BLUESTEM	FACU
6.	PANICUM VIRGATUM	SWITCH GRASS	FAC
7.	DESMODIUM PANICULATUM	PANICLEDLEAF TICK TREFOIL	FACU
8.	SORGHASTRUM NUTANS	INDIAN GRASS	FACU
9.	VERBENA HASTATA	BLUE VERVAIN	FACW
10.	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	
11.	RUDBECKIA HIRTA	BLACK EYED SUSAN	FACU
12.	HELENIUM AUTUMNALE	FALL SNEEZEWEED	FACW
13.	ASTERPILOSUS/SYMPHYOTRICHUM PILOSUM	HEATH ASTER	FACU
14.	SOLIDAGO JUNCEA	EARLY GOLDENROD	
15.	AGROSTIS PERENNANS	UPLAND BENTGRASS	FACU

THE NEW ENGLAND CONSERVATION/WILDLIFE MIX PROVIDES A PERMANENT COVER OF GRASSES, WILDFLOWERS, AND LEGUMES. FOR BOTH GOOD EROSION CONTROL AND WILDLIFE HABITAT VALUE. THE MIX IS DESIGNED TO BE A NO MAINTENANCE SEEDING, AND IS APPROPRIATE FOR CUT AND FILL SLOPES, DETENTION BASIN SIDE SLOPES, AND DISTURBED AREAS ADJACENT TO COMMERCIAL AND RESIDENTIAL PROJECTS.

LOAM AND SEEDING NOTES:

CONTRACTOR SHALL SEED ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER MATERIALS, AND AT AREAS SHOWN ON THE PLAN PER SPECIFICATIONS BELOW

SCIENTIFIC NAME	COMMON NAME	PROPORTION BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
FESTUCA RUBRA "RUBRA"	CREEPING RED FESCUE	37%	95%	90%
PAO PRAENTENSIS "BARON"	BARON KENTUCKY BLUEGRASS	40%	85%	90%
LOLIUM PERENNE "PALMER"	PALMER PERENNIAL RYEGRASS	15%	95%	90%
FESTUCA RUBRA COMMUTATA WILMA	WILMA CHEWINGS	8%	95%	80%

1. SEED TO BE SPREAD AT MINIMUM RATE OF 5 LBS. PER 1000 SQ. FT.
2. SEEDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RESEEDING OF BARE SPOTS. IF UNABLE TO SEED WITHIN THESE TIMEFRAMES, CONTRACTOR TO INSTALL EROSION CONTROL MATS ON ALL SLOPES 3:1 AND OVER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER "FLUX TERRA HP-FGM SOIL STABILIZER" AS MANUFACTURED BY "PROFILE" TO HYDROSEED (AT RATE OF 3,000 LBS PER ACRE), AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR TO COMPLETE ALL ABOVE "OUT OF SEASON" REQUIREMENTS AND THEN ALSO BE RESPONSIBLE FOR RE-GRADING AND RE-SEEDING ALL DISTURBED, ERODED, OR BARE SPOTS WITHIN NEXT CLOSEST PLANTING SEASON IN FALL OR SPRING AT NO ADDITIONAL COST TO OWNER. CONTRACTOR RESPONSIBLE FOR ALL MAINTENANCE UNTIL FINAL ACCEPTANCE OF LAWN AREAS INCLUDING: WATERING, ADDING FERTILIZERS AND LIME AND MOWING AT NO ADDITIONAL COST TO OWNER.
3. COMMERCIAL FERTILIZER SHALL BE APPLIED AT THE RATE OF 25 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. LIME TO BE SPREAD AT THE RATE OF 100 POUNDS PER 1000 SQ. FT OR AS RECOMMENDED BY THE TESTING AGENCY. COMMERCIAL FERTILIZER SHALL BE A COMPLETE FERTILIZER CONTAINING AT LEAST 50% OF THE NITROGEN OF WHICH IS DERIVED FROM NATURAL ORGANIZE SOURCES OF UREAFORM. IT SHALL CONTAIN THE FOLLOWING PERCENTAGES BY WEIGHT: NITROGEN (N) 10%, PHOSPHORUS (P) 6%, POTASH (K) 4%. LIME SHALL BE AN APPROVED AGRICULTURAL LIMESTONE CONTAINING NOT LESS THAN 85% OF TOTAL CARBONATES. LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT 50% WILL PASS A 100 MESH SIEVE AND 90% WILL PASS THROUGH A 20 MESH SIEVE.
4. LAWN AREAS TO BE SEEDED BY SOWING EVENLY WITH AN APPROVED MECHANICAL SEEDER AT THE RATE OF TEN POUNDS PER 1000 SQUARE FEET.
5. CONTRACTOR RESPONSIBLE FOR WATERING, MOWING, AND RESEEDING OF LAWN BARE SPOTS UNTIL A UNIFORM, HEALTHY STAND OF GRASS IS ESTABLISHED AND ACCEPTED.

R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\L-2038-08_LANDSCAPE.DWG

ISSUED FOR PERMITTING REVIEW
JANUARY 23, 2025

MICHAEL A. MALYNOWSKI
No. 14779
REGISTERED PROFESSIONAL ENGINEER
CIVIL
01-22-2025
PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
7	01-23-25	ISSUED FOR DEVELOPMENT PLAN REVIEW
6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
5	05-28-24	MISC. REVS. PER SEWER DEPT COMMENTS
4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS

APPLICANT\OWNER:
CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:
SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	AS SHOWN	DWG.:	L-2038-08
DESIGNED BY:	JBT	CHECKED BY:	MAM

PREPARED BY:
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DRAWING TITLE: LANDSCAPE NOTES

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