TOWN OF NEEDHAM
MASSACHUSETTS

500 Dedham Avenue
Needham, MA 02492
781-455-7550

PLANNING BOARD

APPLICATION FOR SITE PLAN REVIEW

Project Determination: (circle one) (Major Project) Minor Project

This application must be completed, signed, and submitted with the filing fee by the applicant or his representative in accordance with the Planning Board's Rules as adopted under its jurisdiction as a Special Permit Granting Authority. Section 7.4 of the By-Laws.

Location of Property 9B Street, Needham
Name of Applicant Coca Cola Beverages Northeast, Inc.
Applicant's Address 1 Executive Park Drive, Bedford, NH 03110
Phone Number 603-413-7623

Applicant is: Owner X Tenant _____
Agent/Attorney _____ Purchaser _____

Property Owner's Name See above
Property Owner's Address See above
Telephone Number see above

Characteristics of Property: Lot Area 1,031,086sf Present Use warehouse/office
Map # 300 Parcel # 14 Zoning District NEBC

Description of Project for Site Plan Review under Section 7.4 of the Zoning By-Law:
Demolition of a portion of the existing structures, some new construction, and site improvements as more fully described in Exhibit A attached hereto.

Signature of Applicant (or representative) _____ 9/1/22
Address if not applicant _____
Telephone #
Owner's permission if other than applicant _____

SUMMARY OF PLANNING BOARD ACTION

Received by Planning Board _____ Date _____
Hearing Date _____ Parties of Interest Notified of Public Hearing _____
Decision Required by _____ Decision/Notices of Decision sent _____
Granted _____
Denied _____ Fee Paid _____ Fee Waived _____
Withdrawn _____
NOTE: Reports on Minor Projects must be issues within 35 days of filing date.

EXHIBIT A

The applicant is proposing to renovate the existing building by removing the existing 14,500 s.f. office wing and incorporating those functions with the building, removal of 44,985 s.f. of the existing Fleet Services wing, associated storage and former railroad bay to be replaced by 14,610 s.f attached new single story Fleet Services wing and addition of 14 loading docks. Interior renovations will include incorporation of a new automated product retrieval system and interior office fit up. Exterior façade improvement will incorporate a combination of reskinning of the building with an architectural metal panel system, painting and new signage.

Site improvements will provide for new parking lots at the west end of the site with new site lighting, landscaping, decorative fencing and hardscaping. Existing paved areas will be repaired, overlayed and improved as required. Existing outbuildings previously used for production wastewater processing will be removed.

FRIEZE CRAMER ROSEN & HUBER LLP
COUNSELLORS AT LAW

60 WALNUT STREET, WELLESLEY, MASSACHUSETTS 02481
781-943-4000 • FAX 781-943-4040

EVANS HUBER
781-943-4043
EH@128LAW.COM

September 1, 2022

Members of the
Needham Planning Board

And

Lee Newman
Director of Planning and Community Development
Public Services Administration Building
500 Dedham Ave
Needham, MA 02492

Re: 9 B Street, Needham

Dear Planning Board Members and Ms. Newman:

Pursuant to Chapter 40A of the Massachusetts General Laws, the Needham Zoning By-Law, the Needham Planning Board Rules, and Section 4.2 of Site Plan Special Permit No. 94-5 dated August 9, 1994 (as amended by Site Plan Special Permit Amendment No. 1 dated May 1, 1996), I hereby submit an application for further Amendment to Site Plan Special Permit 94-5, on behalf of Coca Cola Beverages Northeast, Inc. ("Coca Cola NE"), of which this letter is a part. The applicant is also the owner of the property.

The property is a 23.67 acre parcel (1,031,086 square feet) with an address of 9 B Street and having frontage on B Street, Kendrick Street, and Third Avenue. The property is located in the New England Business Center (NEBC) zoning district, and is currently improved by a warehouse/office building of 398,374 s.f., and several small ancillary buildings bringing the total square footage of buildings on site to approximately 403,000 s.f.

The applicant is proposing to renovate the existing building by removing the existing 14,500 s.f. office wing and incorporating those functions with the building, removal of 44,985 s.f. of the existing Fleet Services wing, associated storage and former railroad bay to be replaced by 14,610 s.f attached new single-story Fleet Services wing and addition of 14 loading docks. Interior renovations will include incorporation of a new automated product retrieval system and interior office fit up. Exterior façade improvement will incorporate a combination of reskinning of the building with an architectural metal panel system, painting and new signage.

Site improvements will provide for new parking lots at the west end of the site with new site lighting, landscaping, decorative fencing and hardscaping. Existing paved areas will be repaired, overlayed and improved as required. Existing outbuildings previously used for production wastewater processing will be removed.

The site has lawful pre-existing non-conformities with respect to certain requirements imposed by Section 4.8.1 of the Bylaw, including surface parking lot setbacks (Bylaw Section 4.8.1 (1)); landscaping in the 20-foot buffer area (Bylaw section 4.8.1 (2)); open space (Bylaw section 4.8.1(4)); and building façade length (Bylaw Section 4.8.1 (6)). Even though no special permit or waiver is required with respect to these provisions of the bylaw (because the non-conformities pre-date the bylaw), the Board should be aware that the project will significantly increase the amount of landscaped and pervious space in the parking areas, and the amount of "open space" on the site (which under section 4.8.1 (4) of the bylaw *excludes* parking areas) will be increased from the current 9.5% to 12.7%. The extent of the other non-conformities will also be reduced by the proposed project.

The site is also non-conforming with respect to the number of parking spaces. Site Plan Special Permit No. 94-5 dated August 9, 1994, and Site Plan Special Permit Amendment No. 1 dated May 1, 1996, granted waivers from strict adherence with the number of parking spaces required by the Bylaw. Moreover, this proposal will both decrease the square footage of the building, and increase the number of parking spaces on site, both of which will have the effect of reducing the extent of the non-conformity with respect to parking spaces. Pursuant to Section 5.1.1.1 of the Bylaw, for this reason the proposed changes do not trigger the thresholds set forth in that section for requiring compliance with, or waivers of, the requirements of Sections 5.1.2 and 5.1.3 of the Bylaw, and, therefore, no special permit or waiver is needed or requested with respect to those sections of the Bylaw.

The only exception to the foregoing is that the site does not comply with the requirements of section 5.1.3 (n) of the Bylaw regarding bicycle racks. Compliance with or a waiver of this requirement is required even if the proposed project does not result in an increase in parking demand. As indicated below, a waiver from this requirement is requested.

The Applicant certifies pursuant to the Zoning By-Law, Section 7.4 that the project can be constructed and/or that the proposed uses thereof can be commenced without need for the issuance of any variance from any provisions of the Zoning By-Law by the Zoning Board of Appeals.

The zoning relief required for the Project is the following:

1. A Special Permit for Site Plan Review of a Major Project, pursuant to Zoning By-Law Section 7.4, Article 2 of the Planning Board Rules;

2. Pursuant to Section 4.2 thereof, further amendment to Site Plan Special Permit No. 94-5 dated August 9, 1994, as amended by Site Plan Special Permit Amendment No. 1 dated May 1, 1996; and

3. Special Permit pursuant to Sections 5.1.1.5 and 5.1.1.7 of the Zoning By-Law to waive strict adherence to the off-street parking requirements of Section 5.1.3 of the Zoning By-Law, with respect to subsection (n) (bicycle racks).

This Application for Site Plan Review and Special Permits is being filed with the following documents:

1. Application form signed by counsel for the applicant and owner on September 1, 2022.

2. Traffic Evaluation, prepared by VHB, 101 Walnut Street, Watertown, MA 02471, dated August 30, 2022.

3. Stormwater Management Narrative prepared by VHB, 101 Walnut Street, Watertown, MA 02471, dated August 24, 2022.

4. Site Plans, including layout and materials plans, zoning and parking tables, grading and drainage plans, utility plans, erosion and settlement control plans, site details, and planting plans, prepared by VHB, 101 Walnut Street, Watertown, MA 02471, dated August 29, 2022.

5. Separately bound reference drawings, including existing conditions plan prepared by VHB dated August 26, 2022; and phasing plan, elevations, renderings, and photometric plan, prepared by Design Group Facility Solutions, Inc., 5 Chenell Drive, Concord, NH, 03301, dated August 24 and 29, 2022.

6. Color Site Plan prepared by VHB, 101 Walnut Street, Watertown, MA 02471, dated August 29, 2022.

7. Filing fee to the Town of Needham in the amount of $ 35,316.40.

Pursuant to the Board's Covid-19 procedures, these documents are being submitted electronically; additionally two (2) hard copies of the application (1 with original signatures) and two (2) hard copies of all supporting materials listed above, including full-sized wet-stamped plans, are being delivered to the Planning Department along with the application fee; and, lastly, one hard copy of this letter and the materials listed in items 1 through 6, above (with all the plans no smaller than 11 x 17), is being mailed to each Board member, and to Lee Newman.

The Applicant hereby requests, pursuant to Zoning By-Law Section 7.4.4, that the Planning Board waive the submission by Applicant of any of the required information not submitted herewith.

The Applicant will be submitting a copy of the architectural plans and renderings, and the landscaping plan, to the Design Review Board ("DRB"). The Applicant anticipates meeting with the Design Review Board prior to meeting with the Planning Board.

It is our understanding that this matter can be scheduled for hearing at the Board's October 3, 2022 meeting. Please confirm.

Thank you for your cooperation.

Sincerely,

Evans Huber

Site Plans

Issued for	**Site Plan Review**
Date Issued	**August 29, 2022**
Latest Issue	**August 29, 2022**

Coca-Cola Site

9 B Street
Needham, Massachusetts
02494

Owner/Applicant

Coca-Cola Beverages Northeast, Inc.
1 Executive Park Drive
Suite 330
Bedford, NH 03110

Needham Parcel ID: 1993000001400000

Sheet Index

No.	Drawing Title	Latest Issue
C1.0	Legend and General Notes	August 29, 2022
C2.0	Overall Layout and Materials Plan	August 29, 2022
C2.1	Layout and Materials Plan	August 29, 2022
C2.2	Layout and Materials Plan	August 29, 2022
C3.1	Grading and Drainage Plan	August 29, 2022
C3.2	Grading and Drainage Plan	August 29, 2022
C4.1	Utility Plan	August 29, 2022
C4.2	Utility Plan	August 29, 2022
C5.1	Erosion and Sediment Control Plan	August 29, 2022
C5.2	Erosion and Sediment Control Plan	August 29, 2022
C6.1	Site Details	August 29, 2022
C6.2	Site Details	August 29, 2022
L1.1	Planting Plan	August 29, 2022
L1.2	Planting Plan	August 29, 2022
L2.1	Planting Details	August 29, 2022

Reference Drawings (Bound Separately)

No.	Drawing Title	Latest Issue
Sv-1	Existing Conditions Plan of Land	August 26, 2022
GA0.1	Overall Phasing Plan	August 24, 2022
GA3.1	Proposed Exterior Elevations	August 24, 2022
GA4.1	Proposed Rendering from Rt 128	August 24, 2022
E1.02	Front Parking Photometric Plan	August 26, 2022

vhb.com

101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

Survey
VHB, Inc.
101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

Architect
Design Group Facility Solutions, Inc.
5 Chenell Drive
Box 3
Concord, NH 03301
603.225.0010

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER NOWAK
CIVIL
No. 41843
REGISTERED PROFESSIONAL ENGINEER

VHB Project : 15571.02 Coca-Cola Site
Issued for :

\\VHBGBL\PROJ\WAT-LDV\15571.02 COCACOLA-SITECIVIL\CAD\LD\PLANSET\15571O2-COV 30 August 2022

Legend

Exist.	Prop.	
		PROPERTY LINE
		PROJECT LIMIT LINE
		RIGHT-OF-WAY/PROPERTY LINE
		EASEMENT
		BUILDING SETBACK
		PARKING SETBACK
10+00	10+00	BASELINE
		CONSTRUCTION LAYOUT
		ZONING LINE
		TOWN LINE
		LIMIT OF DISTURBANCE
		WETLAND LINE WITH FLAG
		FLOODPLAIN
BLSF		BORDERING LAND SUBJECT TO FLOODING
BZ		WETLAND BUFFER ZONE
NDZ		NO DISTURB ZONE
200'RA		200' RIVERFRONT AREA
		GRAVEL ROAD
EOP	EOP	EDGE OF PAVEMENT
BB	BB	BITUMINOUS BERM
BC	BC	BITUMINOUS CURB
CC	CC	CONCRETE CURB
CG	CG	CURB AND GUTTER
CC	ECC	EXTRUDED CONCRETE CURB
CC	MCC	MONOLITHIC CONCRETE CURB
CC	PCC	PRECAST CONC. CURB
SGE	SGE	SLOPED GRAN. EDGING
VGC	VGC	VERT. GRAN. CURB
		LIMIT OF CURB TYPE
		SAWCUT
		BUILDING
	EN	BUILDING ENTRANCE
	LD	LOADING DOCK
		BOLLARD
D	D	DUMPSTER PAD
		SIGN
		DOUBLE SIGN
		STEEL GUARDRAIL
		WOOD GUARDRAIL
		PATH
		TREE LINE
		WIRE FENCE
		FENCE
		STOCKADE FENCE
		STONE WALL
		RETAINING WALL
		STREAM / POND / WATER COURSE
		DETENTION BASIN
		HAY BALES
		SILT FENCE
		SILT SOCK / STRAW WATTLE
4	4	MINOR CONTOUR
20	20	MAJOR CONTOUR
10	10	PARKING COUNT
	C10	COMPACT PARKING STALLS
DYL	DYL	DOUBLE YELLOW LINE
SL	SL	STOP LINE
		CROSSWALK
		ACCESSIBLE CURB RAMP
		ACCESSIBLE PARKING
VAN	VAN	VAN-ACCESSIBLE PARKING

Exist.	Prop.	
		CONCRETE
		HEAVY DUTY PAVEMENT
		BUILDINGS
		RIPRAP
		CONSTRUCTION EXIT
27.35 TC×	27.35 TC×	TOP OF CURB ELEVATION
26.85 BC×	26.85 BC×	BOTTOM OF CURB ELEVATION
132.75 ×	132.75 ×	SPOT ELEVATION
45.0 TW× 38.5 BW	45.0 TW× 38.5 BW	TOP & BOTTOM OF WALL ELEVATION
		BORING LOCATION
		TEST PIT LOCATION
MW	MW	MONITORING WELL
UD	UD	UNDERDRAIN
12"D	12"D	DRAIN
6"RD	6"RD	ROOF DRAIN
12"S	12"S	SEWER
FM	FM	FORCE MAIN
OHW	OHW	OVERHEAD WIRE
6"W	6"W	WATER
4"FP	4"FP	FIRE PROTECTION
	2"DW	DOMESTIC WATER
3"G	G	GAS
E	E	ELECTRIC
STM	STM	STEAM
T	T	TELEPHONE
FA	FA	FIRE ALARM
CATV	CATV	CABLE TV
		CATCH BASIN CONCENTRIC
		CATCH BASIN ECCENTRIC
		DOUBLE CATCH BASIN CONCENTRIC
		DOUBLE CATCH BASIN ECCENTRIC
		GUTTER INLET
		DRAIN MANHOLE CONCENTRIC
		DRAIN MANHOLE ECCENTRIC
TD		TRENCH DRAIN
E	E	PLUG OR CAP
CO	CO	CLEANOUT
		FLARED END SECTION
		HEADWALL
S	S	SEWER MANHOLE CONCENTRIC
S	S	SEWER MANHOLE ECCENTRIC
CS	CS	CURB STOP & BOX
WV	WV	WATER VALVE & BOX
TSV	TSV	TAPPING SLEEVE, VALVE & BOX
		FIRE DEPARTMENT CONNECTION
HYD	HYD	FIRE HYDRANT
WM	WM	WATER METER
PIV	PIV	POST INDICATOR VALVE
W	W	WATER WELL
GC	GC	GAS GATE
GM	GM	GAS METER
E	EMH	ELECTRIC MANHOLE
EM	EM	ELECTRIC METER
		LIGHT POLE
T	TMH	TELEPHONE MANHOLE
T	T	TRANSFORMER PAD
		UTILITY POLE
		GUY POLE
		GUY WIRE & ANCHOR
HH	HH	HAND HOLE
PB	PB	PULL BOX
		MATCHLINE

Abbreviations

General

ABAN	ABANDON
ACR	ACCESSIBLE CURB RAMP
ADJ	ADJUST
APPROX	APPROXIMATE
BIT	BITUMINOUS
BS	BOTTOM OF SLOPE
BWLL	BROKEN WHITE LANE LINE
CONC	CONCRETE
DYCL	DOUBLE YELLOW CENTER LINE
EL	ELEVATION
ELEV	ELEVATION
EX	EXISTING
FDN	FOUNDATION
FFE	FIRST FLOOR ELEVATION
GRAN	GRANITE
GTD	GRADE TO DRAIN
LA	LANDSCAPE AREA
LOD	LIMIT OF DISTURBANCE
MAX	MAXIMUM
MIN	MINIMUM
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
PERF	PERFORATED
PROP	PROPOSED
REM	REMOVE
RET	RETAIN
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND RESET
SWEL	SOLID WHITE EDGE LINE
SWLL	SOLID WHITE LANE LINE
TS	TOP OF SLOPE
TYP	TYPICAL

Utility

CB	CATCH BASIN
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
DCB	DOUBLE CATCH BASIN
DMH	DRAIN MANHOLE
CIP	CAST IRON PIPE
COND	CONDUIT
DIP	DUCTILE IRON PIPE
FES	FLARED END SECTION
FM	FORCE MAIN
F&G	FRAME AND GRATE
F&C	FRAME AND COVER
GI	GUTTER INLET
GT	GREASE TRAP
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HH	HANDHOLE
HW	HEADWALL
HYD	HYDRANT
INV	INVERT ELEVATION
I=	INVERT ELEVATION
LP	LIGHT POLE
MES	METAL END SECTION
PIV	POST INDICATOR VALVE
PWW	PAVED WATER WAY
PVC	POLYVINYLCHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
R=	RIM ELEVATION
RIM=	RIM ELEVATION
SMH	SEWER MANHOLE
TSV	TAPPING SLEEVE, VALVE AND BOX
UG	UNDERGROUND
UP	UTILITY POLE

Notes

General

1. CONTRACTOR SHALL NOTIFY "DIG-SAFE" (1-888-344-7233) AT LEAST 72 HOURS BEFORE EXCAVATING.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
3. ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS AND WALKWAYS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE FEDERAL AMERICANS WITH DISABILITIES ACT AND WITH STATE AND LOCAL LAWS AND REGULATIONS (WHICHEVER ARE MORE STRINGENT).
4. AREAS DISTURBED DURING CONSTRUCTION AND NOT RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) SHALL RECEIVE 6 INCHES LOAM AND SEED.
5. WITHIN THE LIMITS OF THE BUILDING FOOTPRINT, THE SITE CONTRACTOR SHALL PERFORM EARTHWORK OPERATIONS REQUIRED UP TO SUBGRADE ELEVATIONS.
6. WORK WITHIN THE LOCAL RIGHTS-OF-WAY SHALL CONFORM TO LOCAL MUNICIPAL STANDARDS. WORK WITHIN STATE RIGHTS-OF-WAY SHALL CONFORM TO THE LATEST EDITION OF THE STATE HIGHWAY DEPARTMENTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
7. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALKS, AND FIRE HYDRANTS, WITHOUT APPROPRIATE PERMITS.
8. TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
9. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
10. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
11. CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS.
12. DAMAGE RESULTING FROM CONSTRUCTION LOADS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
13. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO OWNER.
14. THIS PROJECT DISTURBS MORE THAN ONE ACRE OF LAND AND FALLS WITHIN THE NPDES CONSTRUCTION GENERAL PERMIT (CGP) PROGRAM AND EPA JURISDICTION. PRIOR TO THE START OF CONSTRUCTION CONTRACTOR IS TO FILE A CGP NOTICE OF INTENT WITH THE EPA AND PREPARE A STORMWATER POLLUTION PREVENTION PLAN IN ACCORDANCE WITH THE NPDES REGULATIONS. CONTRACTOR SHALL CONFIRM THE OWNER HAS ALSO FILED A NOTICE OF INTENT WITH THE EPA.

Utilities

1. THE LOCATIONS, SIZES, AND TYPES OF EXISTING UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE OWNER OR ITS REPRESENTATIVE(S) HAVE NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND DETERMINE THE EXACT LOCATIONS, SIZES, AND ELEVATIONS OF THE POINTS OF CONNECTIONS TO EXISTING UTILITIES AND, SHALL CONFIRM THAT THERE ARE NO INTERFERENCES WITH EXISTING UTILITIES AND THE PROPOSED UTILITY ROUTES, INCLUDING ROUTES WITHIN THE PUBLIC RIGHTS OF WAY.
2. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, OR EXISTING CONDITIONS DIFFER FROM THOSE SHOWN SUCH THAT THE WORK CANNOT BE COMPLETED AS INTENDED, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE CONFLICT AND CONTRACTOR'S FAILURE TO NOTIFY PRIOR TO PERFORMING ADDITIONAL WORK RELEASES OWNER FROM OBLIGATIONS FOR ADDITIONAL PAYMENTS WHICH OTHERWISE MAY BE WARRANTED TO RESOLVE THE CONFLICT.
3. SET CATCH BASIN RIMS, AND INVERTS OF SEWERS, DRAINS, AND DITCHES IN ACCORDANCE WITH ELEVATIONS ON THE GRADING AND UTILITY PLANS.
4. RIM ELEVATIONS FOR DRAIN AND SEWER MANHOLES, WATER VALVE COVERS, GAS GATES, ELECTRIC AND TELEPHONE PULL BOXES, AND MANHOLES, AND OTHER SUCH ITEMS, ARE APPROXIMATE AND SHALL BE SET/RESET AS FOLLOWS:
   A. PAVEMENTS AND CONCRETE SURFACES: FLUSH
   B. ALL SURFACES ALONG ACCESSIBLE ROUTES: FLUSH
   C. LANDSCAPE, LOAM AND SEED, AND OTHER EARTH SURFACE AREAS: ONE INCH ABOVE SURROUNDING AREA AND TAPER EARTH TO THE RIM ELEVATION.
5. THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY, THE RESPECTIVE UTILITY COMPANY (GAS, TELEPHONE, ELECTRIC, FIRE ALARM, ETC.). FINAL DESIGN LOADS AND LOCATIONS TO BE COORDINATED WITH OWNER AND ARCHITECT.
6. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR AND SHALL BE RESPONSIBLE FOR PAYING FEES FOR POLE RELOCATION AND FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, FIRE ALARM, AND ANY OTHER PRIVATE UTILITIES, WHETHER WORK IS PERFORMED BY CONTRACTOR OR BY THE UTILITIES COMPANY.
7. UTILITY PIPE MATERIALS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED ON THE PLAN:
   A. WATER PIPES SHALL BE DUCTILE IRON (DI) THICKNESS CLASS 52
   B. SANITARY SEWER PIPES SHALL BE POLYVINYL CHLORIDE (PVC) SEWER PIPE
   C. STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HDPE)
   D. PIPE INSTALLATION AND MATERIALS SHALL COMPLY WITH THE STATE PLUMBING CODE WHERE APPLICABLE. CONTRACTOR SHALL COORDINATE WITH LOCAL PLUMBING INSPECTOR PRIOR TO BEGINNING WORK.
8. CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR AND SHALL FURNISH EXCAVATION, INSTALLATION, AND BACKFILL OF ELECTRICAL FURNISHED SITEWORK RELATED ITEMS SUCH AS PULL BOXES, CONDUITS, DUCT BANKS, LIGHT POLE BASES, AND CONCRETE PADS. SITE CONTRACTOR SHALL FURNISH CONCRETE ENCASEMENT OF DUCT BANKS IF REQUIRED BY THE UTILITY COMPANY AND AS INDICATED ON THE DRAWINGS.
9. CONTRACTOR SHALL EXCAVATE AND BACKFILL TRENCHES FOR GAS IN ACCORDANCE WITH GAS COMPANY'S REQUIREMENTS.
10. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN.) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS AND LOCAL MUNICIPAL STANDARDS. FOR MANHOLES THAT ARE 20 FEET IN DEPTH AND GREATER, THE MINIMUM DIAMETER SHALL BE 5 FEET.

Layout and Materials

1. DIMENSIONS ARE FROM THE FACE OF CURB, FACE OF BUILDING, FACE OF WALL, AND CENTER LINE OF PAVEMENT MARKINGS, UNLESS OTHERWISE NOTED.
2. CURB RADII ARE 3 FEET UNLESS OTHERWISE NOTED.
3. CURBING SHALL BE VERTICAL GRANITE CURB (VGC) WITHIN THE SITE UNLESS OTHERWISE INDICATED ON THE PLANS.
4. SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND DETAILS CONTIGUOUS TO THE BUILDING, INCLUDING SIDEWALKS, RAMPS, BUILDING ENTRANCES, STAIRWAYS, UTILITY PENETRATIONS, CONCRETE DOOR PADS, COMPACTOR PAD, LOADING DOCKS, BOLLARDS, ETC.
5. PROPOSED BOUNDS AND ANY EXISTING PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A PROFESSIONAL LAND SURVEYOR.
6. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL VERIFY EXISTING PAVEMENT ELEVATIONS AT INTERFACE WITH PROPOSED PAVEMENTS, AND EXISTING GROUND ELEVATIONS ADJACENT TO DRAINAGE OUTLETS TO ASSURE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED FACILITIES.

Demolition

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMIT OF WORK INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS. REMOVE AND DISPOSE OF EXISTING UTILITIES. FOUNDATIONS AND UNSUITABLE MATERIAL BENEATH AND FOR A DISTANCE OF 10 FEET BEYOND THE PROPOSED BUILDING FOOTPRINT INCLUDING EXTERIOR COLUMNS.
2. EXISTING UTILITIES SHALL BE TERMINATED, UNLESS OTHERWISE NOTED, IN CONFORMANCE WITH LOCAL, STATE AND INDIVIDUAL UTILITY COMPANY STANDARD SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES.
3. CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
4 THE DEMOLITION LIMITS DEPICTED IN THE PLANS IS INTENDED TO AID THE CONTRACTOR DURING THE BIDDING AND CONSTRUCTION PROCESS AND IS NOT INTENDED TO DEPICT EACH AND EVERY ELEMENT OF DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE DETAILED SCOPE OF DEMOLITION BEFORE SUBMITTING ITS BID/PROPOSAL TO PERFORM THE WORK AND SHALL MAKE NO CLAIMS AND SEEK NO ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORESEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING EXECUTION OF THE WORK.
5. UNLESS OTHERWISE SPECIFICALLY PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBILITY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTES OR POLLUTANTS AT THE PROJECT SITE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS OF LOSS, DAMAGE, EXPENSE, DELAY, INJURY OR DEATH ARISING FROM THE PRESENCE OF HAZARDOUS MATERIAL AND CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY CLAIMS MADE IN CONNECTION THEREWITH. MOREOVER, THE ENGINEER SHALL HAVE NO ADMINISTRATIVE OBLIGATIONS OF ANY TYPE WITH REGARD TO ANY CONTRACTOR AMENDMENT INVOLVING THE ISSUES OF PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS.

Erosion Control

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES ON A WEEKLY BASIS (MINIMUM) OR AS REQUIRED PER THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). THE CONTRACTOR SHALL ADDRESS DEFICIENCIES AND MAINTENANCE ITEMS WITHIN TWENTY-FOUR HOURS OF INSPECTION. CONTRACTOR SHALL PROPERLY DISPOSE OF SEDIMENT SUCH THAT IT DOES NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
4. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.

Existing Conditions Information

1. BASE PLAN: THE PROPERTY LINES SHOWN WERE DETERMINED BY AN ACTUAL FIELD SURVEY CONDUCTED BY VHB, INC. BETWEEN JANUARY & FEBRUARY 2022 AND FROM DEEDS AND PLANS OF RECORD. THE TOPOGRAPHY AND PHYSICAL FEATURES ARE BASED ON AN ACTUAL ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY VHB, INC. BETWEEN JANUARY AND MAY 2022.
2. TOPOGRAPHY: ELEVATIONS ARE BASED ON NAVD OF 1988.
3. GEOTECHNICAL DATA INCLUDING TEST PIT AND BORING LOCATIONS AND ELEVATIONS WERE OBTAINED FROM GZA.
4. PAVEMENT, BASE, SUBBASE, AND SUBGRADE MATERIAL SAMPLING DATA INCLUDING TEST PIT LOCATIONS WERE DETERMINED BY VHB, INC.

Document Use

1. THESE PLANS AND CORRESPONDING CADD DOCUMENTS ARE INSTRUMENTS OF PROFESSIONAL SERVICE, AND SHALL NOT BE USED, IN WHOLE OR IN PART, FOR ANY PURPOSE OTHER THAN FOR WHICH IT WAS CREATED WITHOUT THE EXPRESSED, WRITTEN CONSENT OF VHB. ANY UNAUTHORIZED USE, REUSE, MODIFICATION OR ALTERATION, INCLUDING AUTOMATED CONVERSION OF THIS DOCUMENT SHALL BE AT THE USER'S SOLE RISK WITHOUT LIABILITY OR LEGAL EXPOSURE TO VHB.
2. CONTRACTOR SHALL NOT RELY SOLELY ON ELECTRONIC VERSIONS OF PLANS, SPECIFICATIONS, AND DATA FILES THAT ARE OBTAINED FROM THE DESIGNERS, BUT SHALL VERIFY LOCATION OF PROJECT FEATURES IN ACCORDANCE WITH THE PAPER COPIES OF THE PLANS AND SPECIFICATIONS THAT ARE SUPPLIED AS PART OF THE CONTRACT DOCUMENTS.
3. SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SCALED TO THEIR ACTUAL DIMENSIONS OR LOCATIONS ON THE DRAWINGS. THE CONTRACTOR SHALL REFER TO THE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.

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Issued for: **Site Plan Review** | Date: **August 29, 2022**

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Drawing Title

Legend and General Notes

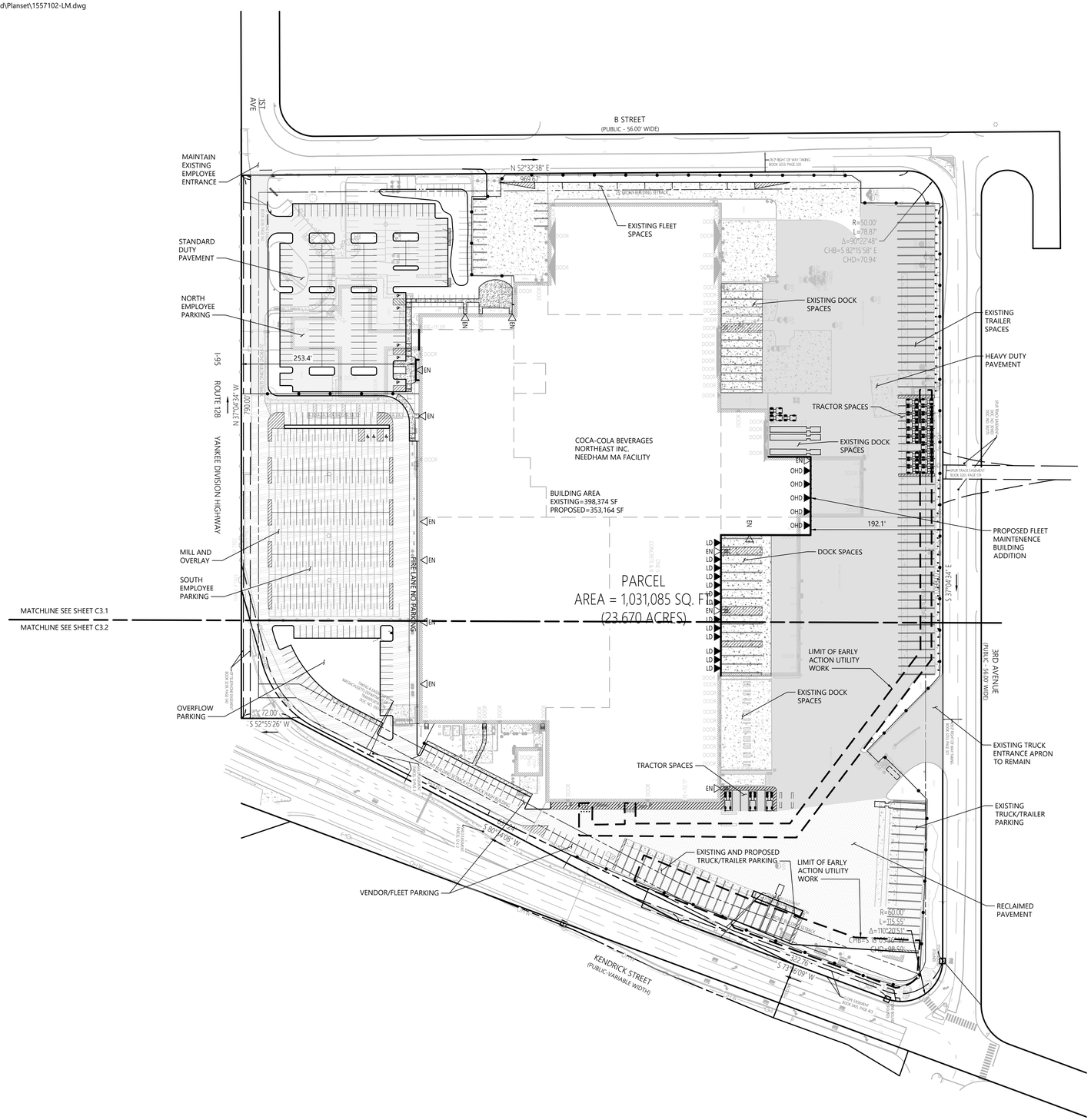
Drawing Number

C1.0

Sheet 1 of 15

Project Number
15571.02

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER NOWAK
CIVIL
No. 41843
REGISTERED PROFESSIONAL ENGINEER



Zoning Summary Chart

Zoning District(s):	New England Business Center		
Overlay District(s):	Wireless Communications Facilities Towers		
Zoning Regulation Requirements	**Existing**	**Required***	**Provided**
MINIMUM LOT AREA	23.7 Acres	0.92 Acres	23.7 Acres
FRONTAGE	3,294± Feet	100 Feet	3,294± Feet
FRONT YARD SETBACK (B ST)	43 Feet	15 Feet	43 Feet
FRONT YARD SETBACK (3RD AVE)	116 Feet	15 Feet	192 Feet
FRONT YARD SETBACK (KENDRICK ST)	64 Feet	15 Feet	64 Feet
REAR YARD SETBACK	72 Feet	20 Feet	253 Feet (5)
MINIMUM LOT WIDTH	790 Feet	100 Feet	790 Feet
MAXIMUM BUILDING HEIGHT	33 Feet	72 Feet	33 Feet
MAXIMUM FLOOR AREA RATIO	0.4	1.0 (1)	0.3
MAXIMUM BUILDING COVERAGE	38.6 %	65.0 %	34.3 %
MINIMUM OPEN SPACE (3)	9.5 %	25.0 %	12.7 % (2)

* Zoning regulation requirements as specified in ZONING BY-LAW OF THE TOWN OF NEEDHAM, MASSACHUSETTS, AMENDED JUNE 2020
1. A floor area ratio of up to 1.75 may be allowed by special permit. A floor area ratio of up ot 2.0 may be allowed by special permit if the Applicant demonstrates that the proposed use will not generate peak hour trips in excess of 0.6 trips per 1,000 square feet of total development area.
2. The site is existing non-conforming and will be improved in the proposed condition.
3. The open space area shall be landscaped and may not be covered with buildings or structures of any kind, access streets, ways, parking areas, driveways, aisles, walkways, or other constructed approaches or service areas. Notwithstanding the preceding sentence, open space shall include pervious surfaces used for ways, access streets, parking areas, driveways, aisles, walkways, or other constructed approaches or service areas.
4. Maximum uninterrupted facade length shall be 300 feet.
5. Existing building setback to remain.

Parking Summary Chart

	EXISTING		PROPOSED	
Description	**Required (1)**	**Provided**	**Required (1)**	**Provided**
CAR SPACES (INCLUDES ADA SPACES)	1,033	285	898	380
TRUCK SPACES (2)	---	186	---	206
TOTAL SPACES	1,033	471	898	586 (3)
STANDARD ACCESSIBLE SPACES	7	15	8	8
VAN ACCESSIBLE SPACES	1	2	1	2
BICYCLE RACKS	52	0	45	0

1. See parking requirements table below.
2. Includes fleet/vendor spaces, loading dock spaces, tractor spaces, and trailer spaces.
3. The site is existing non-conforming and will be improved in the proposed condition.

Parking Requirements:

EXISTING							
OFFICE	30,000 SF	x	1 SPACES	/	300 SF	=	100 SPACES
WAREHOUSE	373,026 SF	x	1 SPACES	/	400 SF	=	933 SPACES
TOTAL						=	1033 SPACES
PROPOSED							
OFFICE	20,000 SF	x	1 SPACES	/	300 SF	=	67 SPACES
WAREHOUSE	332,304 SF	x	1 SPACES	/	400 SF	=	831 SPACES
TOTAL						=	898 SPACES

Bicycle Rack Requirements

EXISTING						
1,033 REQUIRED SPACES	x	1 BIKE RACK	/	20 SPACES	=	52 SPACES
PROPOSED						
898 REQUIRED SPACES	x	1 BIKE RACK	/	20 SPACES	=	45 SPACES

Legend

- STANDARD DUTY PAVEMENT
- HEAVY DUTY PAVEMENT
- MILL AND OVERLAY
- RECLAIMED PAVEMENT

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0 40 80 160Feet

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Drawing Title: Overall Layout and Materials

Drawing Number: C2.0

Sheet 2 of 15

Project Number: 15571.02

COMMONWEALTH OF MASSACHUSETTS
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CIVIL
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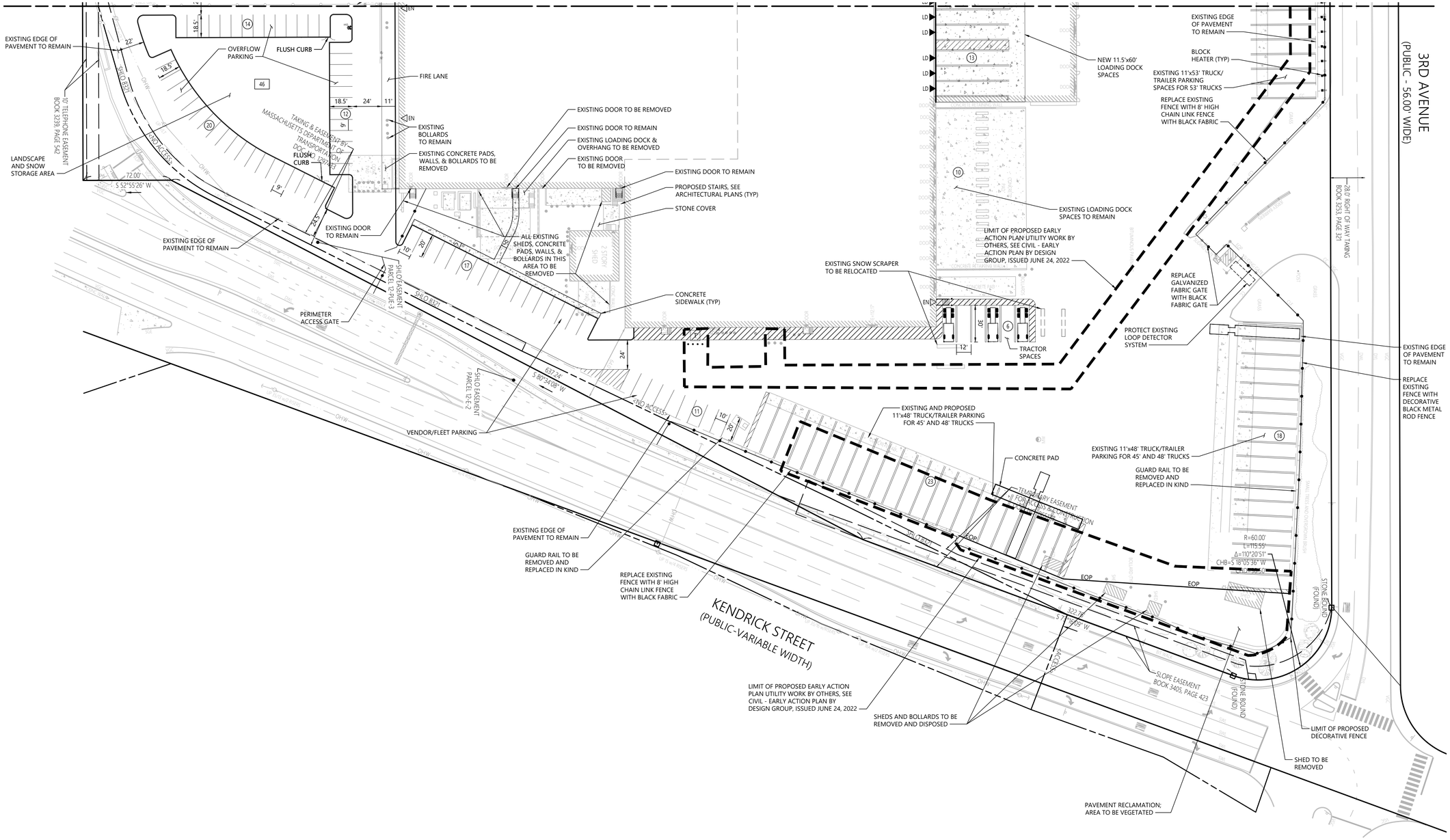
Match Line See Sheet C2.2



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0 20 40 80 Feet

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Layout and Materials Plan

Drawing Number

C2.1

Sheet 3 of 15

Project Number **15571.00**

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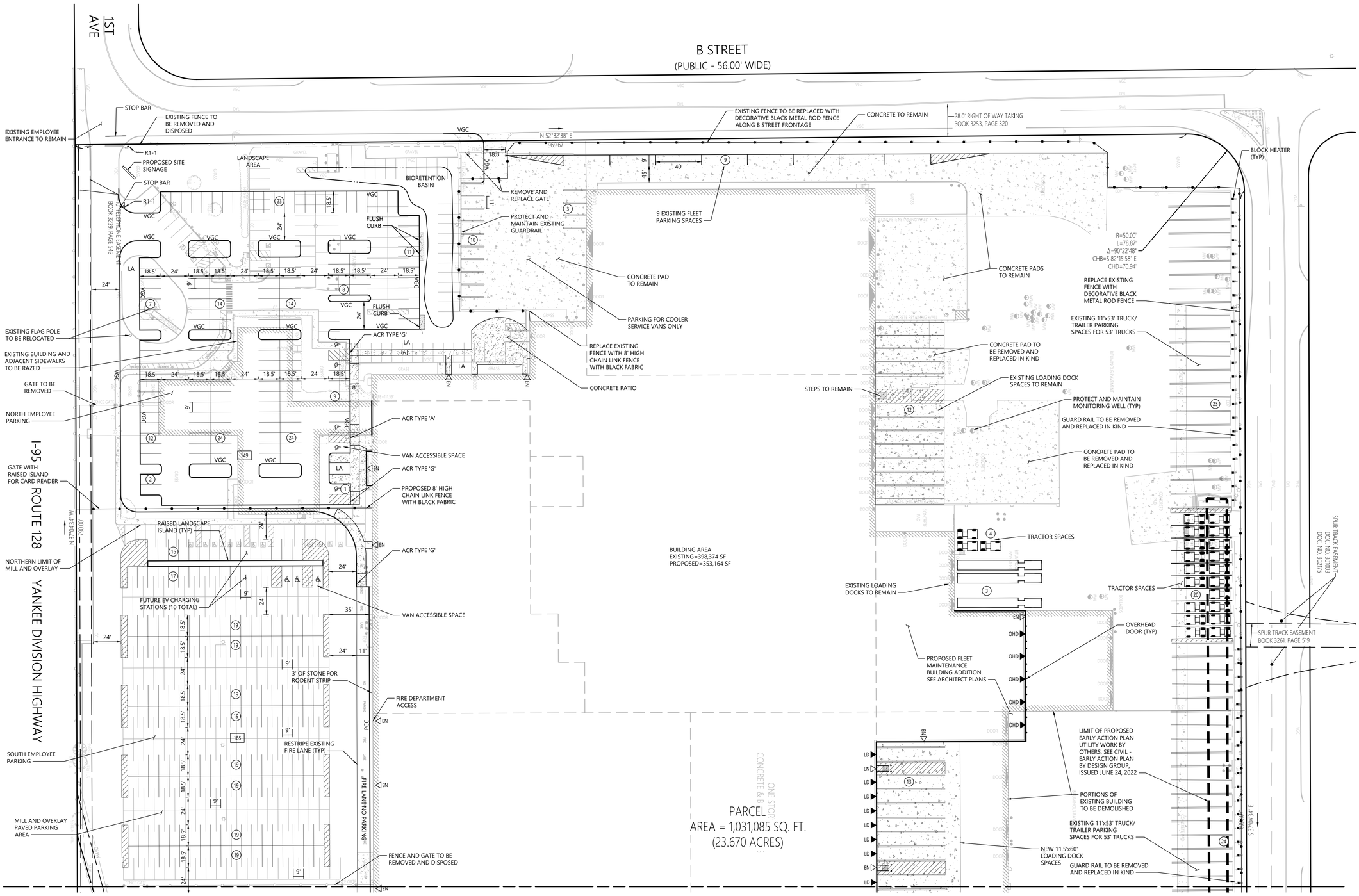

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0 20 40 80 Feet

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Drawing Title
Layout and Materials Plan

Drawing Number
C2.2

Sheet 4 of 15

Project Number
15571.02

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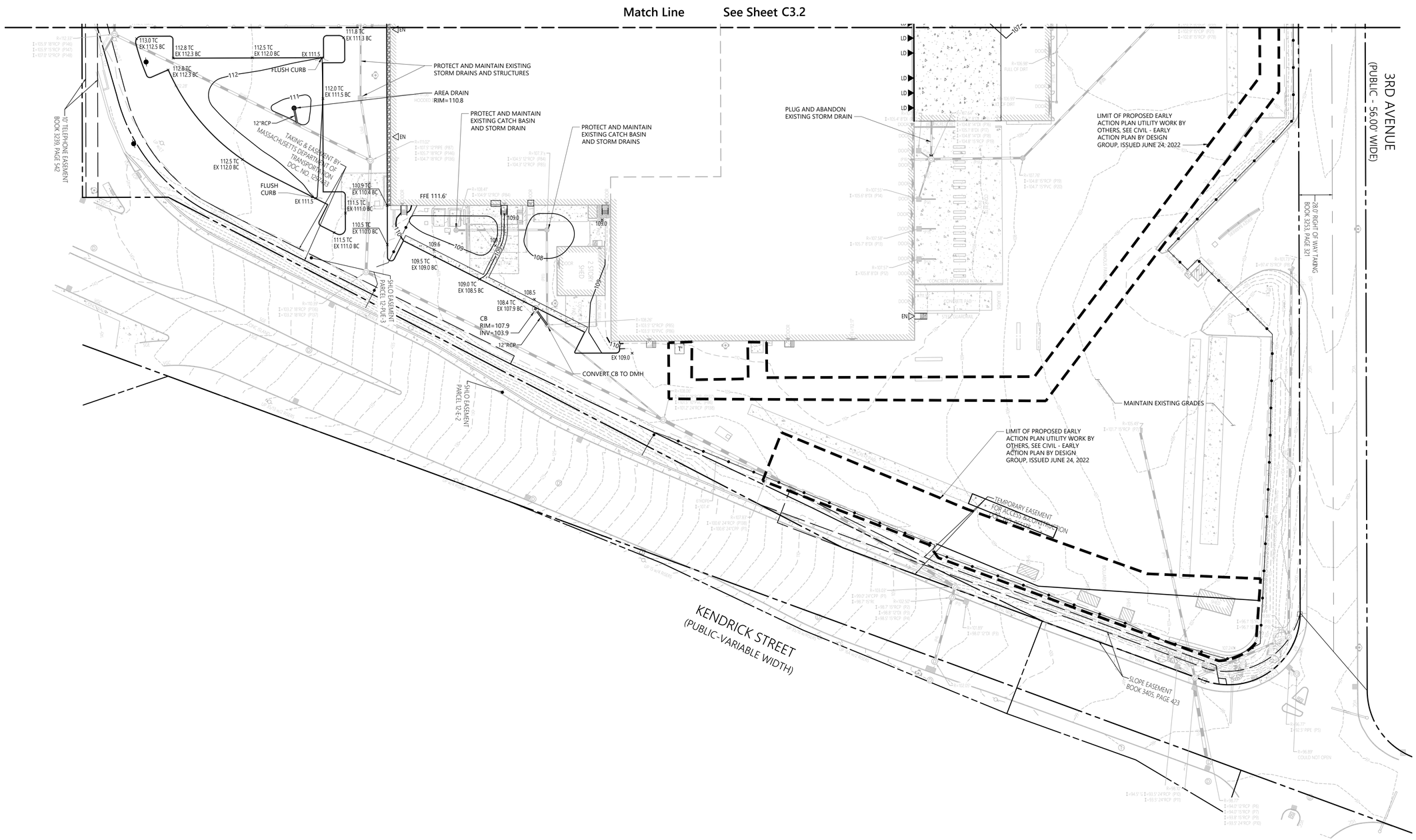

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Drawing Title
Grading and Drainage Plan

Drawing Number
C3.1

Sheet 5 of 15

Project Number
15571.02

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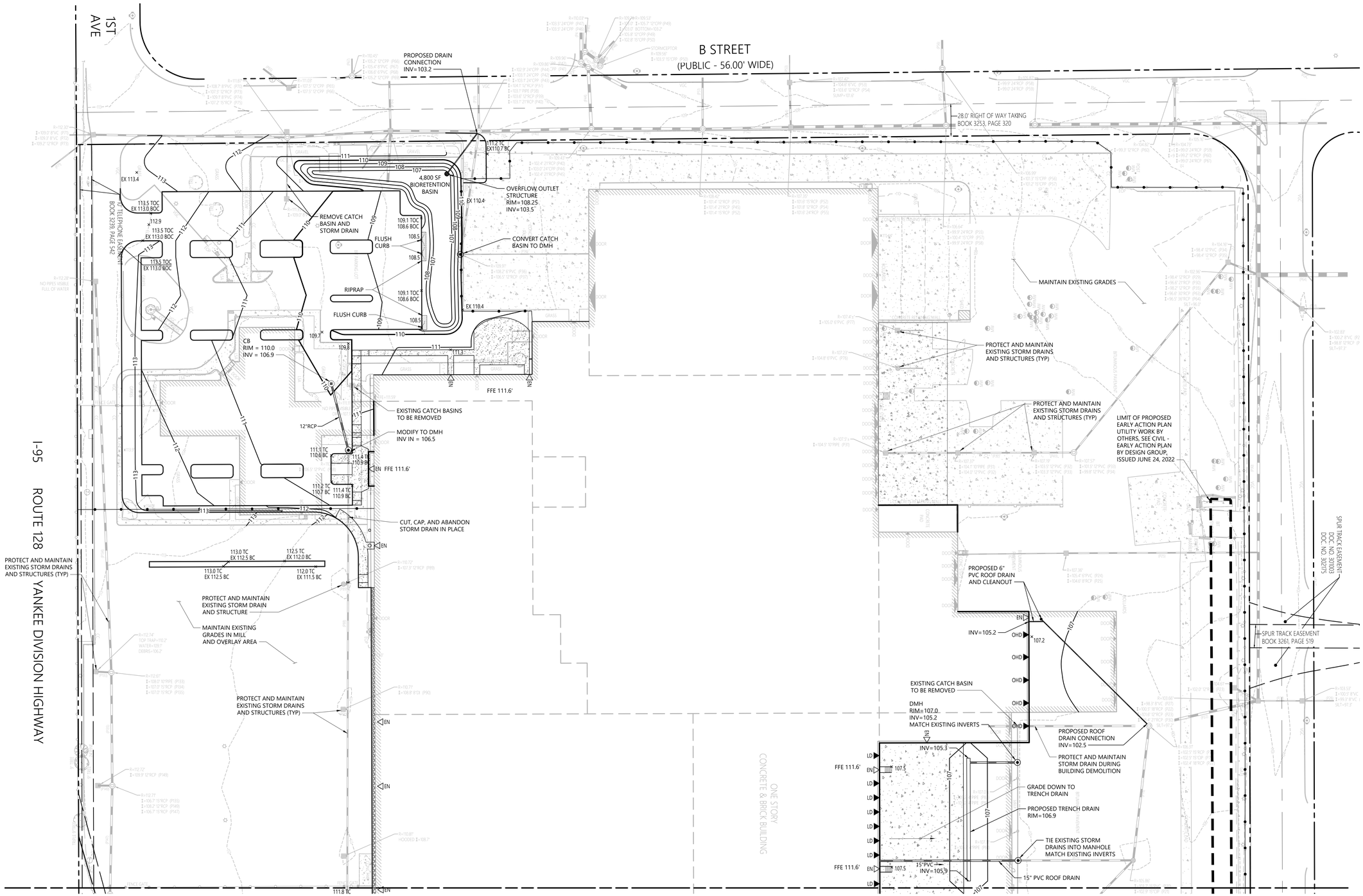

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Drawing Title: Grading and Drainage Plan

Drawing Number: C3.2

Sheet 6 of 15

Project Number: 15571.02

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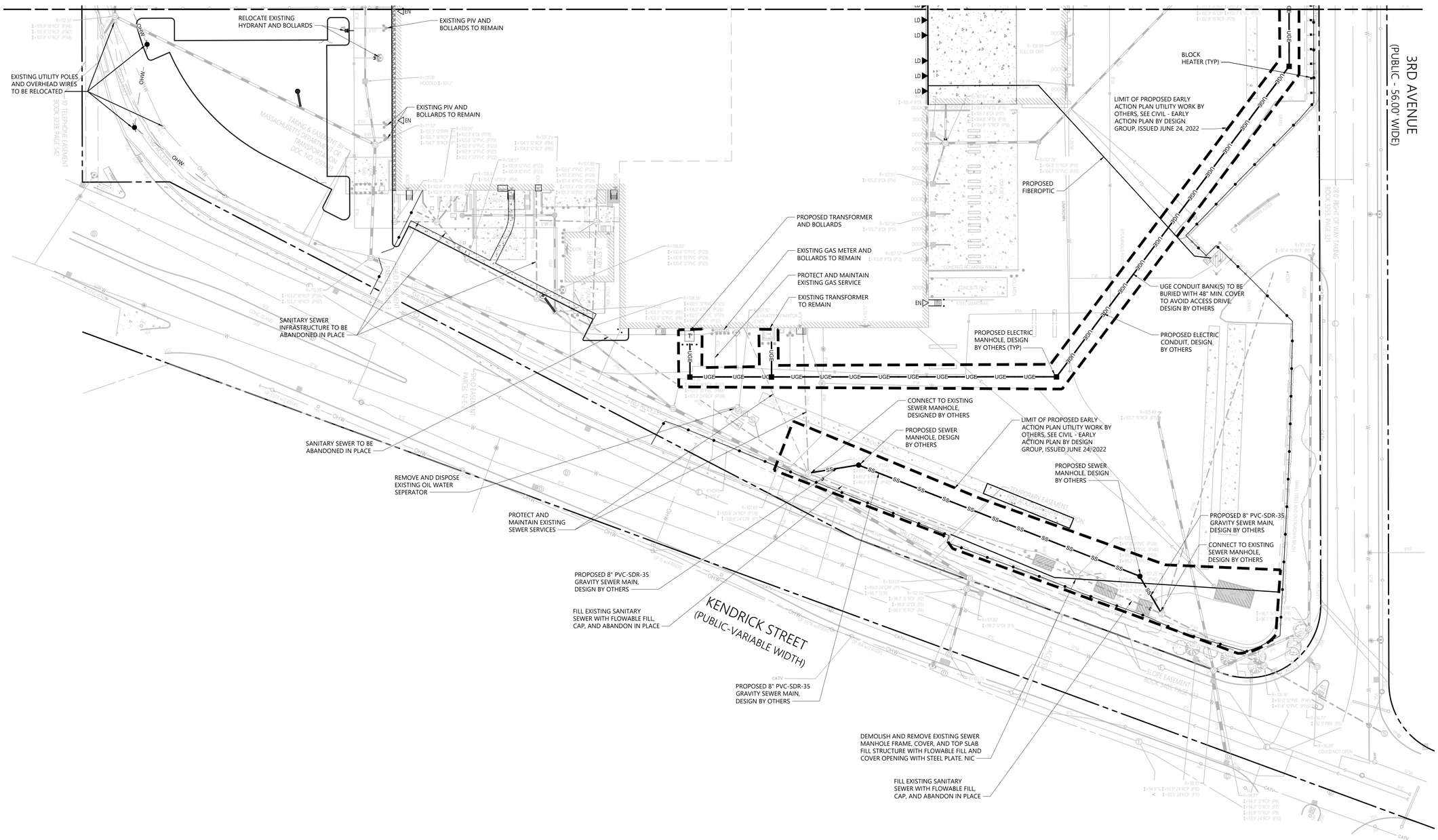

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Drawing Title
Utility Plan

Drawing Number
C4.1

Sheet 7 of 15

Project Number
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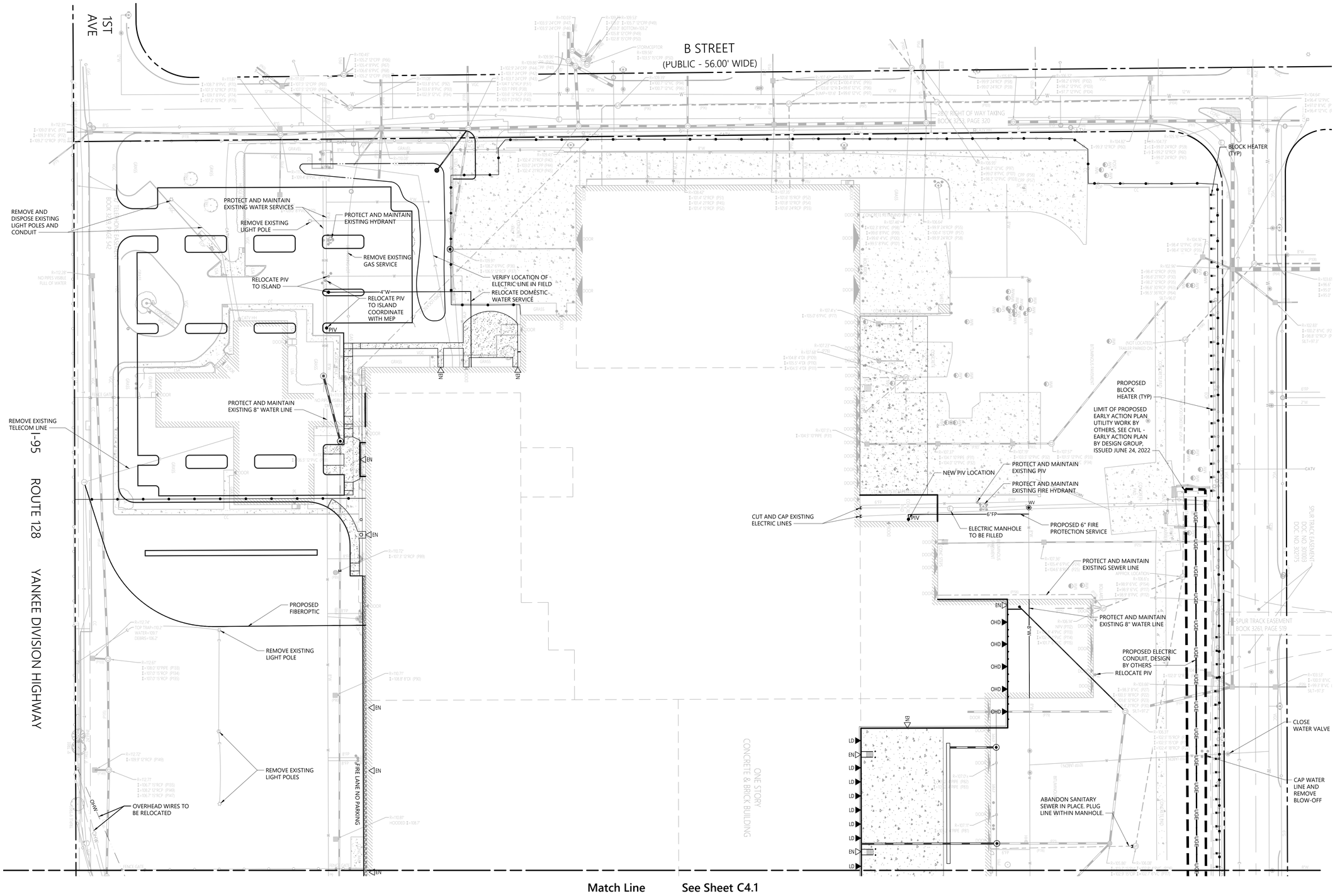

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Drawing Title

Utility Plan

Drawing Number

C4.2

Sheet 8 of 15

Project Number 15571.02

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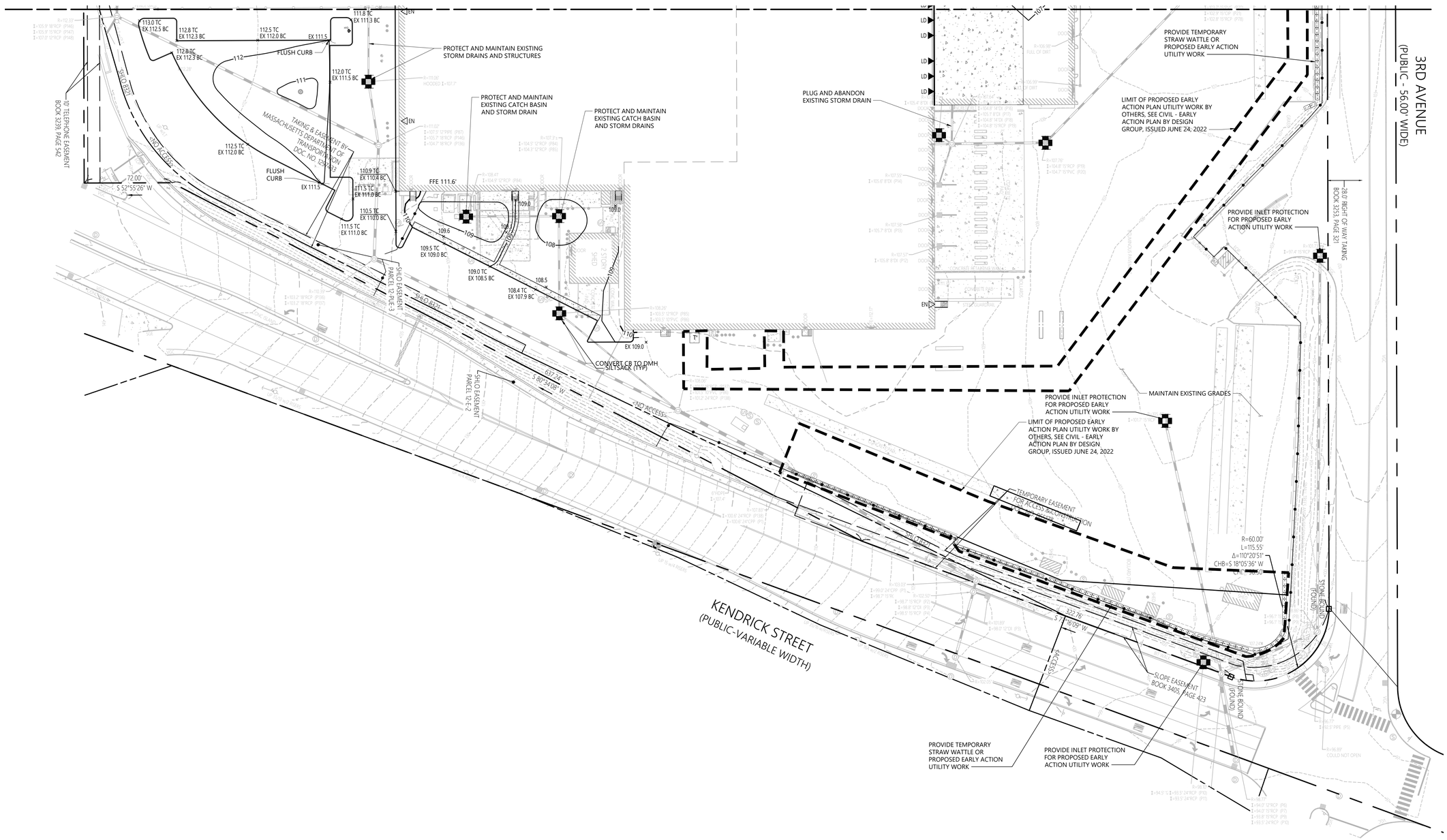

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Drawing Title
Erosion and Sediment Control Plan

Drawing Number
C5.1

Sheet 9 of 15

Project Number
15571.02

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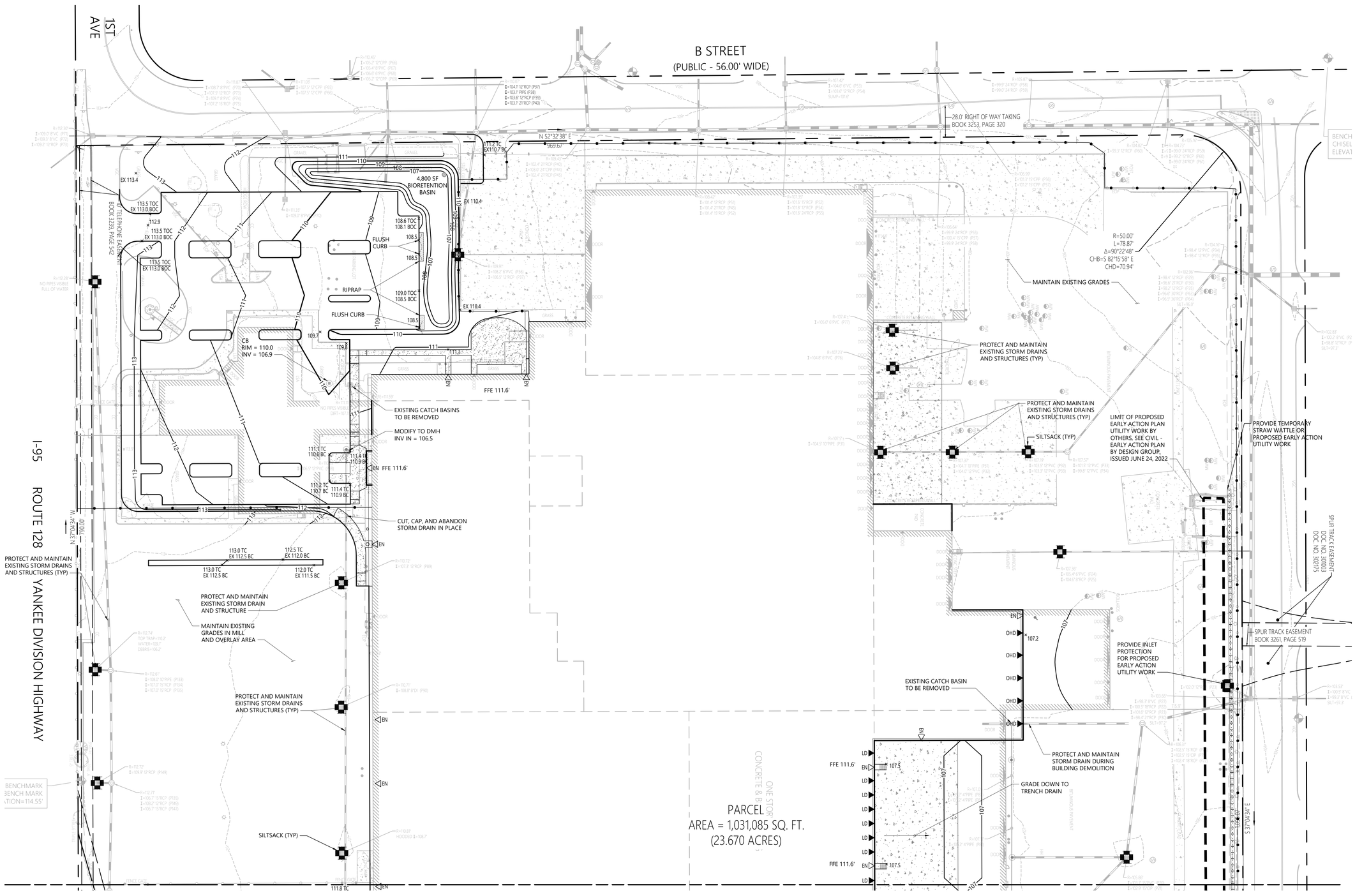

0 20 40 80 Feet

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Erosion and Sediment Control Plan

Drawing Number
C5.2

Sheet 10 of 15

Project Number
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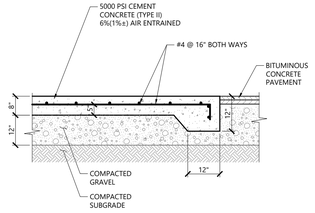


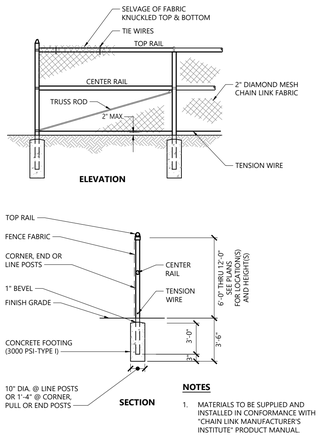
NOTES

1. SIZE OF PAD TO BE AS INDICATED ON PLANS.
2. CONSTRUCTION JOINTS SHALL BE SPACED NO MORE THAN 30 FEET ON CENTER AND SHALL BE EQUALLY SPACED OVER THE LENGTH AND WIDTH OF THE PAD.

Loading Dock Pad / Compactor Pad

1/20

N.T.S. Source: VHB LD_711



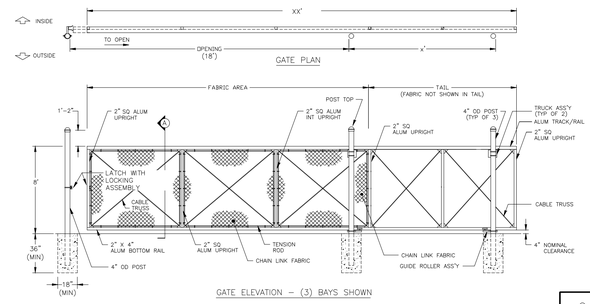
NOTES

1. MATERIALS TO BE SUPPLIED AND INSTALLED IN CONFORMANCE WITH "CHAIN LINK MANUFACTURER'S INSTITUTE" PRODUCT MANUAL.

6' to 12' Chain Link Fence

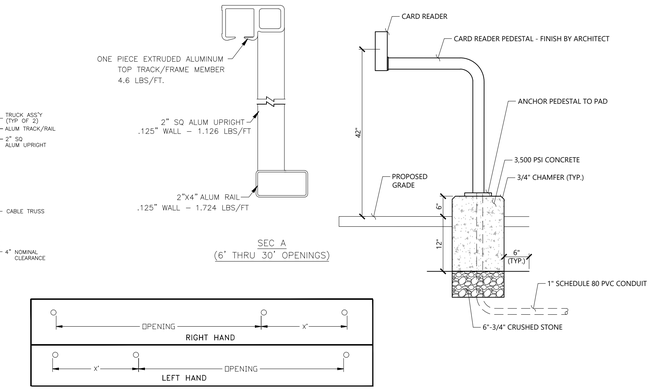
10/20

N.T.S. Source: VHB LD_480



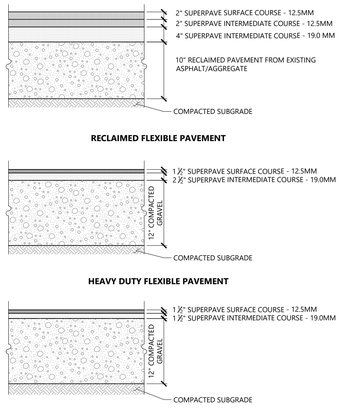
Notes:

1. GATE MOTOR AND CARD ACCESS CONTROL SYSTEM TO BE COMPATIBLE WITH COCA-COLA ACCESS CONTROL SYSTEM.
2. CONTRACTOR TO PROVIDE ALL MATERIALS AND HARDWARE NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.
3. GATE SHALL BE 16' SURTRAC ALUMINUM SLIDE GATE AS MANUFACTURED BY MASTER-HALCO, OR APPROVED EQUAL.



16' Motorized Slide Gate with Card Reader

N.T.S. Source: Master Haldo Inc.



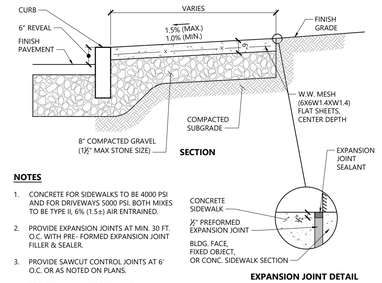
NOTES

PAVEMENT SECTIONS ARE SUBJECT TO CHANGE AND WILL BE BASED ON THE RESULTS OF FURTHER GEOTECHNICAL INVESTIGATIONS.

Bituminous Concrete Pavement Sections

11/19

N.T.S. Source: VHB LD_430



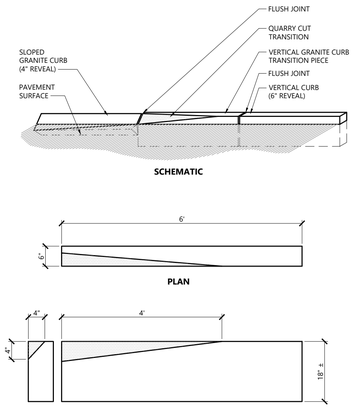
NOTES

1. CONCRETE FOR SIDEWALKS TO BE 4000 PSI AND FOR DRIVEWAYS 5000 PSI. BOTH MIXES TO BE TYPE II, 6% (1.5±) AIR ENTRAINED.
2. PROVIDE EXPANSION JOINTS AT MIN. 30 FT. O.C. WITH PRE- FORMED EXPANSION JOINT FILLER & SEALER.
3. PROVIDE SAWCUT CONTROL JOINTS AT 6' O.C. OR AS NOTED ON PLANS.
4. PROVIDE MEDIUM BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.
5. ALL EXPOSED CONCRETE SURFACES SHALL BE SEALED WITH A SILANE-SILOXANE PRODUCT.

Concrete Sidewalk

3/20

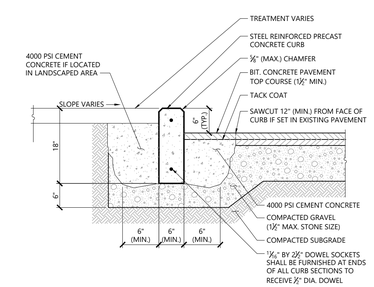
N.T.S. Source: VHB LD_420



Vertical Granite Curb (VGC) Transition

1/16

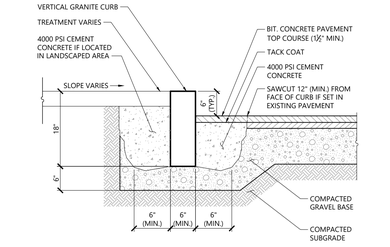
N.T.S. Source: VHB LD_415



Precast Concrete Curb (PCC)

3/20

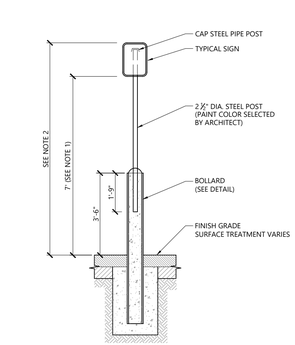
N.T.S. Source: VHB LD_404



Vertical Granite Curb (VGC)

3/20

N.T.S. Source: VHB LD_402

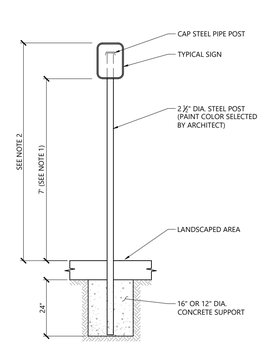


1. THIS DIMENSION SHALL BE A MINIMUM OF 5' FOR ACCESSIBLE SIGNAGE.
2. THIS DIMENSION SHALL BE A MAXIMUM OF 8' FOR ACCESSIBLE SIGNAGE

Bollard Mounted Sign

2/20

N.T.S. Source: VHB LD_703

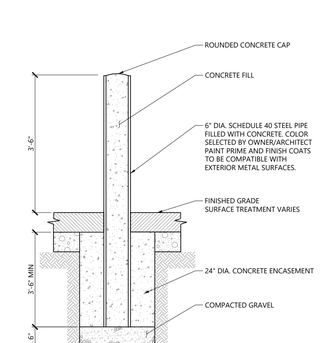


1. THIS DIMENSION SHALL BE A MINIMUM OF 5' FOR ACCESSIBLE SIGNAGE.
2. THIS DIMENSION SHALL BE A MAXIMUM OF 8' FOR ACCESSIBLE SIGNAGE

Sign Post - Type 'A'

3/19

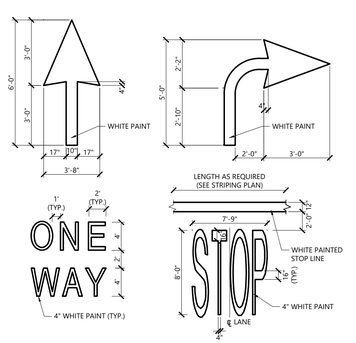
N.T.S. Source: VHB LD_701



Bollard

12/19

N.T.S. Source: VHB LD_700



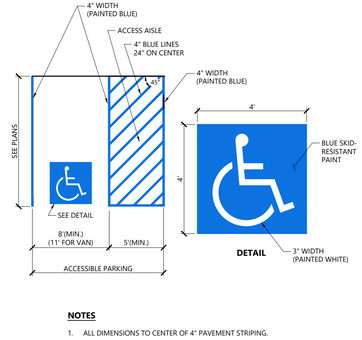
NOTES

1. PAVEMENT MARKINGS TO BE INSTALLED FOR ON SITE WORK IN LOCATIONS SHOWN.

Painted Pavement Markings - On Site

1/16

N.T.S. Source: VHB LD_554



NOTES

1. ALL DIMENSIONS TO CENTER OF 4" PAVEMENT STRIPING.
2. ALL SLOPES THROUGHOUT THE ACCESSIBLE PARKING AND AISLE AREAS SHALL NOT EXCEED 1.5%.

Accessible Parking Space

12/19

N.T.S. Source: VHB LD_552A

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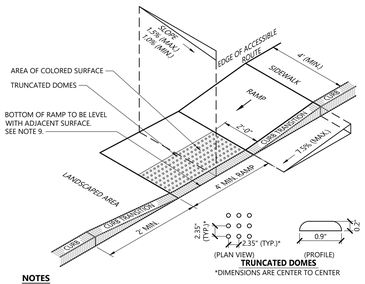
Sheet 11 of 15

Project Number

15571.02

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER NOWAK
CIVIL
No. 41843
REGISTERED PROFESSIONAL ENGINEER

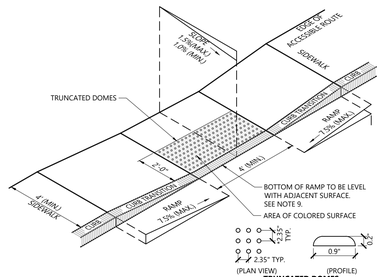


NOTES

1. THE MAXIMUM ALLOWABLE SIDEWALK AND CURB RAMP CROSS SLOPES SHALL BE 1.5 (1% MIN.).
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE AT CURB RAMPS SHALL BE 7.5%.
4. A MINIMUM OF 3 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. RAMP, CURB AND ADJACENT PAVEMENTS SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SIDEWALK SECTION FOR RAMP CONSTRUCTION.
8. WHERE ACCESSIBLE ROUTES ARE LESS THAN 5' IN WIDTH (EXCLUDING CURBING) A 5' x 5' PASSING AREA SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 200 FEET.
9. ELIMINATE CURBING AT RAMP WHERE IT ABUTS ROADWAY, EXCEPT WHERE VERTICAL CURBING IS INDICATED ON THE DRAWINGS TO BE INSTALLED AND SET FLUSH.
10. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES.
11. DETECTABLE WARNINGS SHALL BE INSTALLED PERPENDICULAR TO THE ACCESSIBLE ROUTE.
12. CONTRACTOR TO SUBMIT R.F.I. FOR THIS TYPE OF ACCESSIBLE CURB RAMP FOR APEX ROADWAY CROSSINGS.

Accessible Curb Ramp (ACR) Type 'G-D' 12/20

N.T.S. Source: VHB LD_506

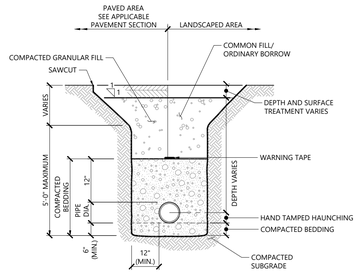


NOTES

1. THE MAXIMUM ALLOWABLE SIDEWALK AND CURB RAMP CROSS SLOPES SHALL BE 1.5 (1% MIN.).
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE AT CURB RAMPS SHALL BE 7.5%.
4. A MINIMUM OF 3 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. RAMP, CURB, AND ADJACENT PAVEMENTS SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SIDEWALK SECTION FOR RAMP CONSTRUCTION.
8. WHERE ACCESSIBLE ROUTES ARE LESS THAN 5' IN WIDTH (EXCLUDING CURBING) A 5' x 5' PASSING AREA SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 200 FEET.
9. ELIMINATE CURBING AT RAMP (OTHER THAN VERTICAL CURBING, WHICH SHALL BE SET FLUSH) WHERE IT ABUTS ROADWAY
10. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES.
11. DETECTABLE WARNINGS SHALL BE INSTALLED PERPENDICULAR TO ACCESSIBLE ROUTE.

Accessible Curb Ramp (ACR) Type 'A-D' 12/20

N.T.S. Source: VHB LD_500

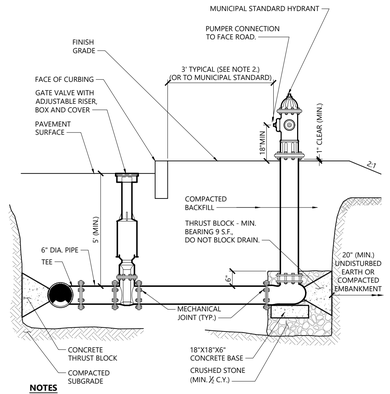


NOTES

1. WHERE UTILITY TRENCHES ARE CONSTRUCTED THROUGH DETENTION BASIN BERMS OR OTHER SUCH SPECIAL SECTIONS, PLACE TRENCH BACKFILL WITH MATERIALS SIMILAR TO THE SPECIAL SECTION REQUIREMENTS.
2. USE METALLIC TRACING/WARNING TAPE OVER ALL PIPES.
3. COMPACTED GRANULAR FILL MAY CONSIST OF GRAVEL, CRUSHED STONE, SAND, OR OTHER MATERIAL AS APPROVED BY ENGINEER.

Utility Trench 11/19

N.T.S. Source: VHB LD_300

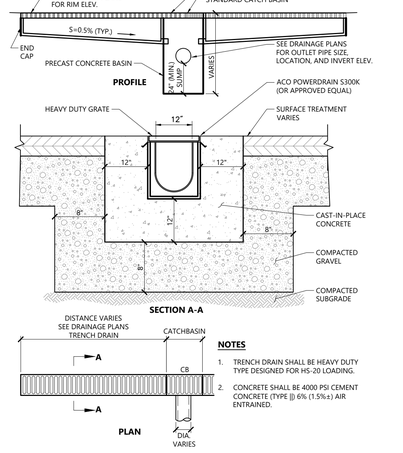


NOTES

1. CONCRETE THRUST BLOCKS TO BE USED ONLY WHERE THEY CAN BEAR ON UNDISTURBED EARTH AS SHOWN. USE CLAMPS AND TIE RODS OR OTHER ACCEPTABLE METHOD OF JOINT RESTRAINT WHERE SOIL CONDITIONS PROHIBIT THE USE OF THRUST BLOCKS.
2. HYDRANT IN SIDEWALK AREAS TO BE LOCATED TO PROVIDE MINIMUM CLEAR SIDEWALK PASSAGE WIDTH OF 3 FEET AT HYDRANT.
3. A 36-INCH CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE HYDRANT UNLESS OTHERWISE APPROVED BY AUTHORITY HAVING JURISDICTION.

Hydrant Construction 12/19

N.T.S. Source: VHB LD_250

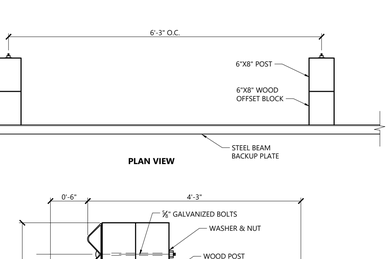


NOTES

1. TRENCH DRAIN SHALL BE HEAVY DUTY TYPE DESIGNED FOR HS-20 LOADING.
2. CONCRETE SHALL BE 4000 PSI CEMENT CONCRETE (TYPE ||) 6% (1.5%±) AIR ENTRAINED.

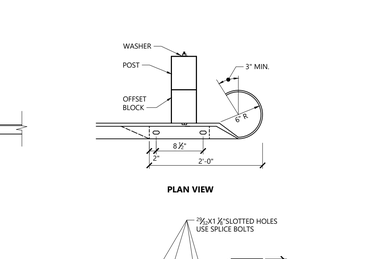
Trench Drain (Heavy Duty) 12/19

N.T.S. Source: VHB LD_190-B



Cleanout (CO) 12/19

N.T.S. Source: VHB LD_303

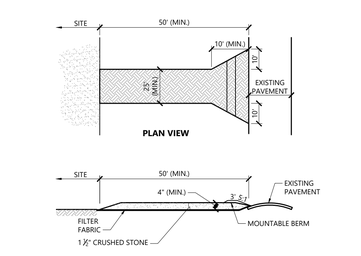


NOTES

1. INSTALL UNDERDRAINS AT 10 FEET ON CENTER. CONNECT TO DRAINS PER PLAN.
2. SIDE SLOPES SHALL BE 3:1 MAX. 2% MIN.

Bioretention Basin 3/20

N.T.S. Source: VHB LD_199

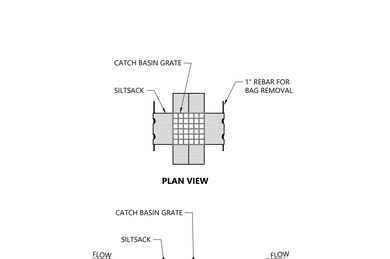


NOTES:

1. AREA DRAINS SHALL BE NYLOPLAST 12" DIAMETER DRAIN BASIN, OR APPROVED EQUAL.
2. GRATES SHALL BE NYLOPLAST 12" PEDESTRIAN MODEL 1299CGP OR 12" DOME GRATE MODEL 1299CGD (OR APPROVED EQUAL).

Area Drain (AD) Type 1 12/19

N.T.S. Source: VHB LD_193

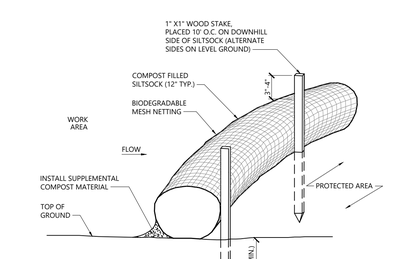


NOTES

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING. DIAMETER OF STRUCTURES SHALL BE COORDINATED WITH PIPE CONFIGURATIONS.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. FOR HDPE, PVC, AND DI PIPE, PROVIDE FLEXIBLE BOOT CONNECTION INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. FOR RCP, PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE AND MORTAR CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
5. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)

Drain Manhole (DMH) 11/19

N.T.S. Source: VHB LD_115

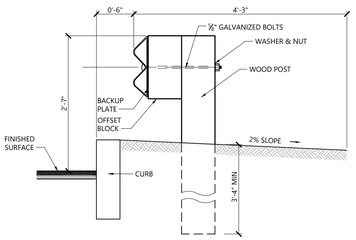


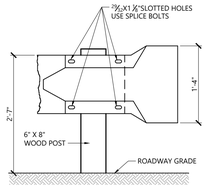
NOTES

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. FOR HDPE, PVC, AND DI PIPE, PROVIDE FLEXIBLE BOOT CONNECTION INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. FOR RCP, PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE AND MORTAR CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).

Catch Basin (CB) With Oil/Debris Trap 3/21

N.T.S. Source: VHB LD_101





Steel Beam Guardrail with Wood Post 10/20

N.T.S. Source: VHB LD_455

NOTES

1. EXIT WIDTH SHALL BE A TWENTY-FIVE (25) FOOT MINIMUM. BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
2. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.
3. STABILIZED CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO FINAL FINISH MATERIALS BEING INSTALLED.

Stabilized Construction Exit 1/16

N.T.S. Source: VHB LD_682

NOTES

1. INSTALL SILTSACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND HAY BALES HAVE BEEN REMOVED.
2. GRATE TO BE PLACED OVER SILTSACK.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED

Siltsack Sediment Trap 1/20

N.T.S. Source: VHB LD_674

NOTES

1. SILTSOCK SHALL BE FILTREXX SILTSOXX, OR APPROVED EQUAL.
2. SILTSOCKS SHALL OVERLAP A MINIMUM OF 12 INCHES.
3. SILTSOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
4. UPON SITE STABILIZATION, COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
5. IF NON BIODEGRADABLE NETTING IS USED THE NETTING SHALL BE COLLECTED AND DISPOSED OF OFFSITE.

Siltsock - Erosion Control Barrier 10/20

N.T.S. Source: VHB LD_658

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Drawing Title

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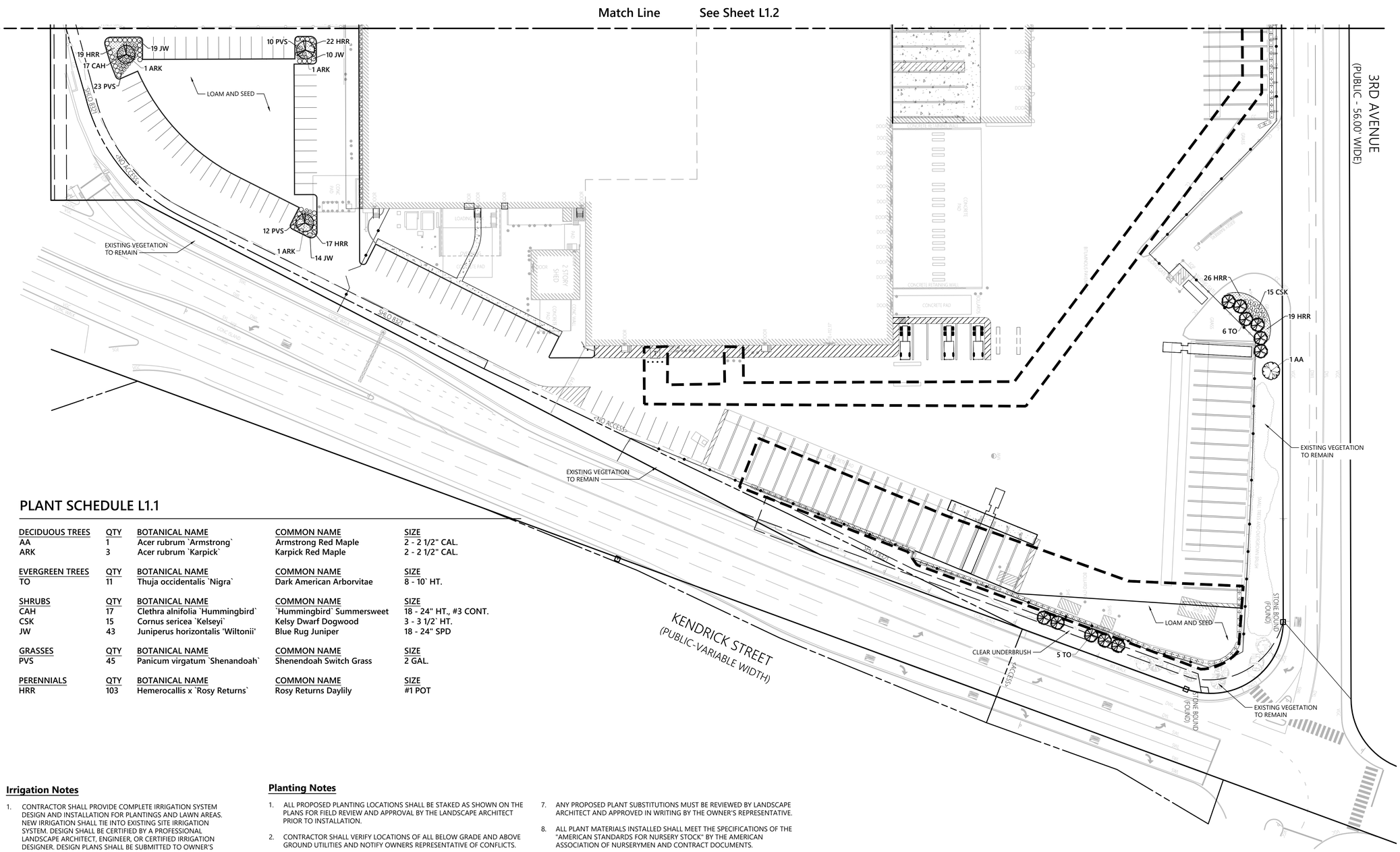
Drawing Number

C6.2

Sheet 12 of 15

Project Number 15571.02

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER NOWAK
CIVIL
No. 41843
REGISTERED PROFESSIONAL ENGINEER



PLANT SCHEDULE L1.1

DECIDUOUS TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE
AA	1	Acer rubrum `Armstrong`	Armstrong Red Maple	2 - 2 1/2" CAL.
ARK	3	Acer rubrum `Karpick`	Karpick Red Maple	2 - 2 1/2" CAL.

EVERGREEN TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE
TO	11	Thuja occidentalis `Nigra`	Dark American Arborvitae	8 - 10` HT.

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE
CAH	17	Clethra alnifolia `Hummingbird`	`Hummingbird` Summersweet	18 - 24" HT., #3 CONT.
CSK	15	Cornus sericea `Kelseyi`	Kelsy Dwarf Dogwood	3 - 3 1/2` HT.
JW	43	Juniperus horizontalis 'Wiltonii'	Blue Rug Juniper	18 - 24" SPD

GRASSES	QTY	BOTANICAL NAME	COMMON NAME	SIZE
PVS	45	Panicum virgatum `Shenandoah`	Shenendoah Switch Grass	2 GAL.

PERENNIALS	QTY	BOTANICAL NAME	COMMON NAME	SIZE
HRR	103	Hemerocallis x `Rosy Returns`	Rosy Returns Daylily	#1 POT

Irrigation Notes

1. CONTRACTOR SHALL PROVIDE COMPLETE IRRIGATION SYSTEM DESIGN AND INSTALLATION FOR PLANTINGS AND LAWN AREAS. NEW IRRIGATION SHALL TIE INTO EXISTING SITE IRRIGATION SYSTEM. DESIGN SHALL BE CERTIFIED BY A PROFESSIONAL LANDSCAPE ARCHITECT, ENGINEER, OR CERTIFIED IRRIGATION DESIGNER. DESIGN PLANS SHALL BE SUBMITTED TO OWNER'S REPRESENTATIVE FOR APPROVAL.
2. CONTRACTOR AND IRRIGATION DESIGNER SHALL MEET WITH OWNER TO REVIEW EXISTING IRRIGATION HEAD MODELS, EXISTING CONTROLLER AND WATER SUPPLY, AND SHALL INCLUDE CONTROLLER EXPANSION MODULES OR OTHER ADJUSTMENTS TO EXISTING SYSTEM, IF REQUIRED, IN HIS BID.
3. CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR THE COMPLETE INSTALLATION OF THE IRRIGATION SYSTEM.
4. CONTRACTOR SHALL PROVIDE DRAWINGS, MATERIAL SPECIFICATIONS, SCHEMATICS, AND OTHER LITERATURE AS MAY BE REQUIRED, FOR ALL CONDUIT, CONTROLS,TIMERS, VALVES, SPRINKLER HEADS, CONNECTORS, WIRING, RAIN GAUGE, ETC. TO THE OWNER'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO INSTALLATION.
5. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE GENERAL CONTRACTOR AND SUB CONTRACTORS.
6. SITE CONTRACTOR SHALL PROVIDE 4" SCHEDULE 40 PVC SLEEVES UNDER PAVEMENT TO PROVIDE ACCESS FOR IRRIGATION LINES TO ALL IRRIGATED AREAS.

Planting Notes

1. ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED AS SHOWN ON THE PLANS FOR FIELD REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL BELOW GRADE AND ABOVE GROUND UTILITIES AND NOTIFY OWNERS REPRESENTATIVE OF CONFLICTS.
3. NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE OF ANY CONFLICT.
4. A 3-INCH DEEP MULCH PER SPECIFICATION SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS, AND IN ALL PLANTING BEDS, UNLESS OTHERWISE INDICATED ON THE PLANS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
5. ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED IN THE DRAWINGS OR SPECIFICATION, OR APPROVED BY THE OWNER'S REPRESENTATIVE.
6. FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS GRAPHICALLY SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLANT LIST AND PLANT LABELS PRIOR TO BIDDING.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE REVIEWED BY LANDSCAPE ARCHITECT AND APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE.
8. ALL PLANT MATERIALS INSTALLED SHALL MEET THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN AND CONTRACT DOCUMENTS.
9. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.
10. AREAS DESIGNATED "LOAM & SEED" SHALL RECEIVE MINIMUM 6" OF LOAM AND SPECIFIED SEED MIX. LAWNS OVER 2:1 SLOPE SHALL BE PROTECTED WITH EROSION CONTROL FABRIC.
11. ALL DISTURBED AREAS NOT OTHERWISE NOTED ON CONTRACT DOCUMENTS SHALL BE LOAM AND SEEDED OR MULCHED AS DIRECTED BY OWNER'S REPRESENTATIVE.
12. THIS PLAN IS INTENDED FOR PLANTING PURPOSES. REFER TO SITE / CIVIL DRAWINGS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.
13. AREAS DESIGNATED "WETMIX" SHALL RECEIVE A LIGHT MULCH OF CLEAN, WEED FREE STRAW

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Checked by EB
Issued for
Date

Site Plan Review August 29, 2022

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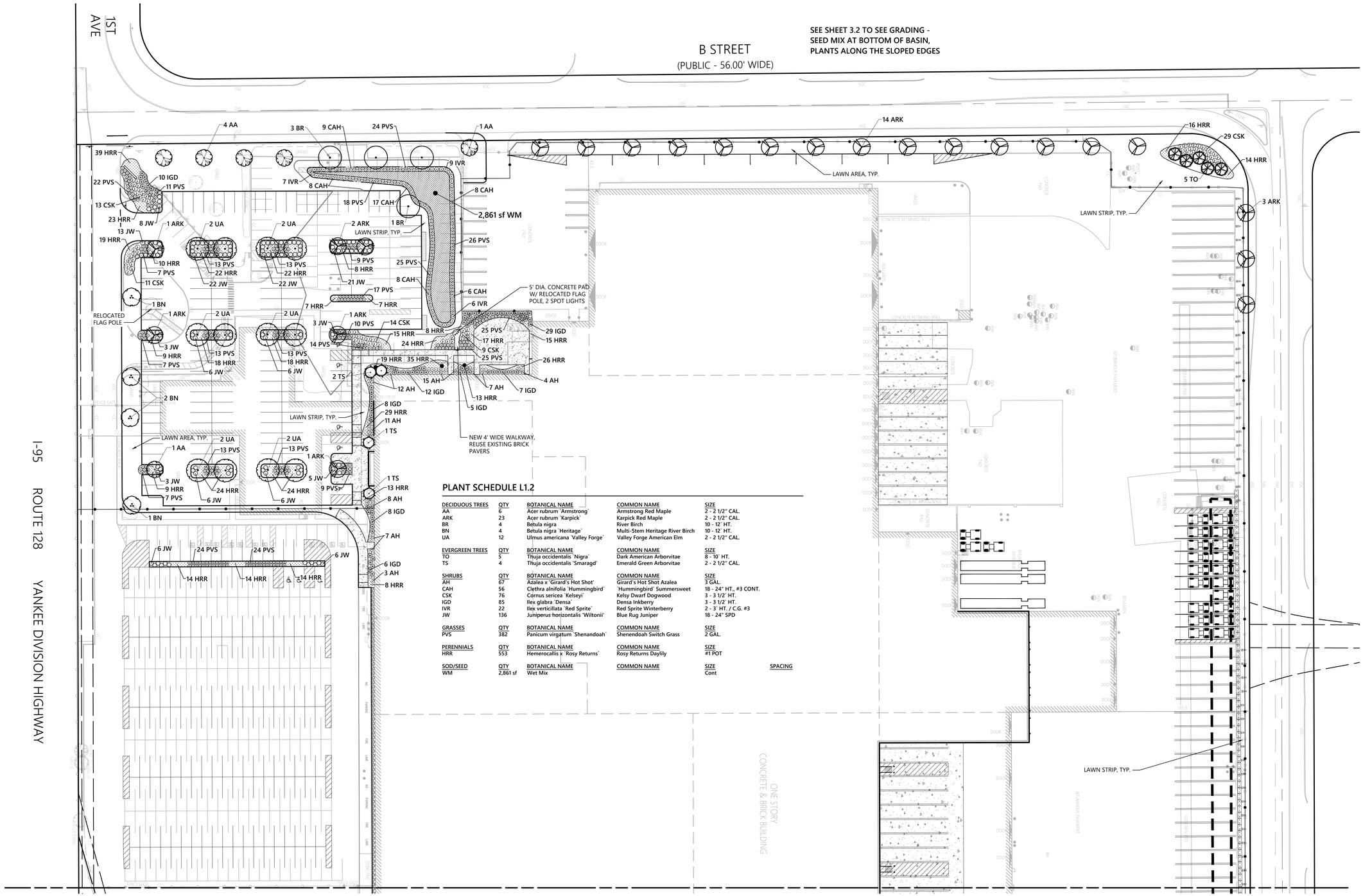
Drawing Title
Planting Plan

Drawing Number
L1.1

Sheet 13 of 15

Project Number
15571.00

COMMONWEALTH OF MASSACHUSETTS
ERIK BEDNARCZYK
REGISTERED LANDSCAPE ARCHITECT
NO. 1508
2022.08.29



PLANT SCHEDULE L1.2

DECIDUOUS TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE
AA	6	Acer rubrum `Armstrong`	Armstrong Red Maple	2 - 2 1/2" CAL.
ARK	23	Acer rubrum `Karpick`	Karpick Red Maple	2 - 2 1/2" CAL.
BR	4	Betula nigra	River Birch	10 - 12` HT.
BN	4	Betula nigra `Heritage`	Multi-Stem Heritage River Birch	10 - 12` HT.
UA	12	Ulmus americana `Valley Forge`	Valley Forge American Elm	2 - 2 1/2" CAL.
EVERGREEN TREES	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**
TO	5	Thuja occidentalis `Nigra`	Dark American Arborvitae	8 - 10` HT.
TS	4	Thuja occidentalis `Smaragd`	Emerald Green Arborvitae	2 - 2 1/2" CAL.
SHRUBS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**
AH	67	Azalea x `Girard's Hot Shot`	Girard's Hot Shot Azalea	3 GAL.
CAH	56	Clethra alnifolia `Hummingbird`	`Hummingbird` Summersweet	18 - 24" HT., #3 CONT.
CSK	76	Cornus sericea `Kelseyi`	Kelsy Dwarf Dogwood	3 - 3 1/2' HT.
IGD	85	Ilex glabra `Densa`	Densa Inkberry	3 - 3 1/2' HT.
IVR	22	Ilex verticillata `Red Sprite`	Red Sprite Winterberry	2 - 3` HT. / C.G. #3
JW	136	Juniperus horizontalis `Wiltonii`	Blue Rug Juniper	18 - 24" SPD
GRASSES	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**
PVS	382	Panicum virgatum `Shenandoah`	Shenendoah Switch Grass	2 GAL.
PERENNIALS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**
HRR	553	Hemerocallis x `Rosy Returns`	Rosy Returns Daylily	#1 POT
SOD/SEED	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE** **SPACING**
WM	2,861 sf	Wet Mix		Cont

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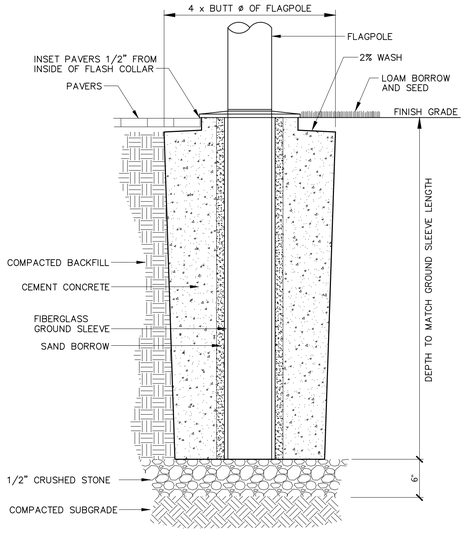
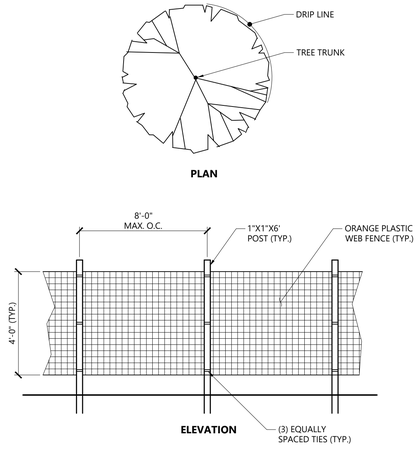
Project Number
15571.02



Flagpole Footing

9/21

N.T.S. Source: VHB LD_



NOTES

1. INSTALL TREE PROTECTION FENCE AT THE DRIP LINE OF EXISTING TREES TO REMAIN.

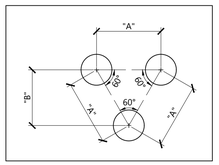
Tree Protection Fence

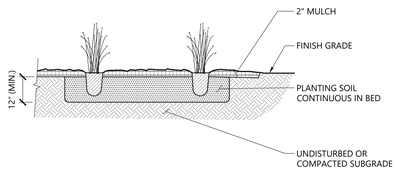
1/16

N.T.S. Source: VHB LD_610

PLANT SPACING

PLANT SPACING("A")	ROW SPACING ("B")
6 IN. O.C.	5 IN. O.C.
8 IN. O.C.	7 IN. O.C.
10 IN. O.C.	8 ½ IN. O.C.
12 IN. O.C.	10 ½ IN. O.C.
15 IN. O.C.	13 IN. O.C.
18 IN. O.C.	16 IN. O.C.
24 IN. O.C.	21 IN. O.C.
30 IN. O.C.	26 IN. O.C.
36 IN. O.C.	30 IN. O.C.
48 IN. O.C.	42 IN. O.C.
54 IN. O.C.	48 IN. O.C.
60 IN. O.C.	54 IN. O.C.

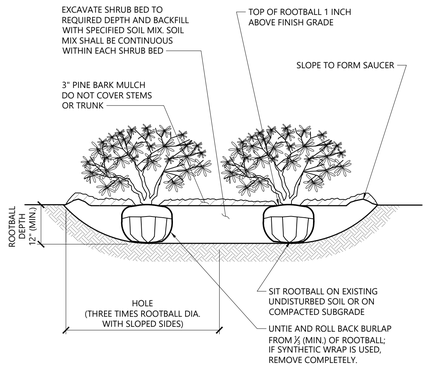




Perennial and Ornamental Grass Planting

1/16

N.T.S. Source: VHB LD_618



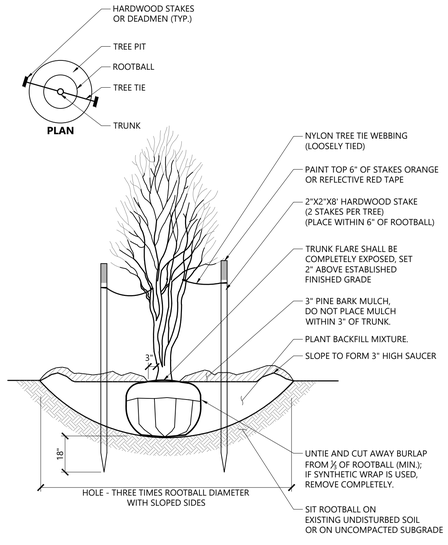
NOTES

1. LOOSEN ROOTS AT THE OUTER EDGE OF ROOTBALL OF CONTAINER GROWN SHRUBS.

Shrub Bed Planting

1/16

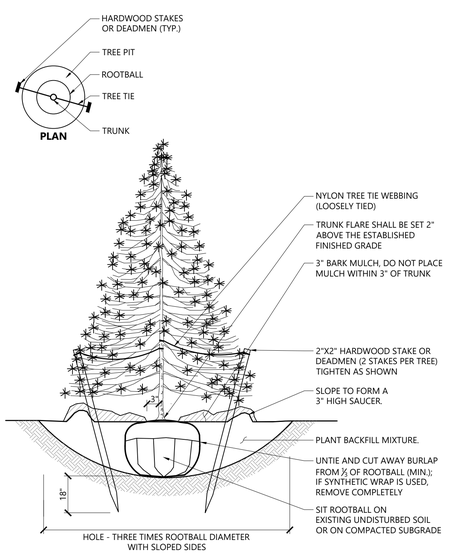
N.T.S. Source: VHB LD_601



Multistem Tree Planting

9/21

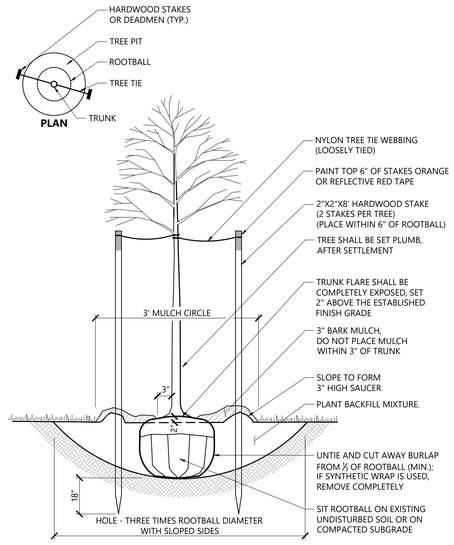
N.T.S. Source: VHB LD_606



Evergreen Tree Planting

9/21

N.T.S. Source: VHB LD_604



Tree Planting (For Trees Under 4" Caliper)

9/21

N.T.S. Source: VHB LD_602

vhb.com
vhb
101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

Coca-Cola Site

9 B Street
Needham, Massachusetts 02494

No.	Revision	Date	Appvd.

Designed by | Checked by: FD

Issued for | Date

Site Plan Review — August 29, 2022

Not Approved for Construction

Drawing Title

Planting Details

Drawing Number

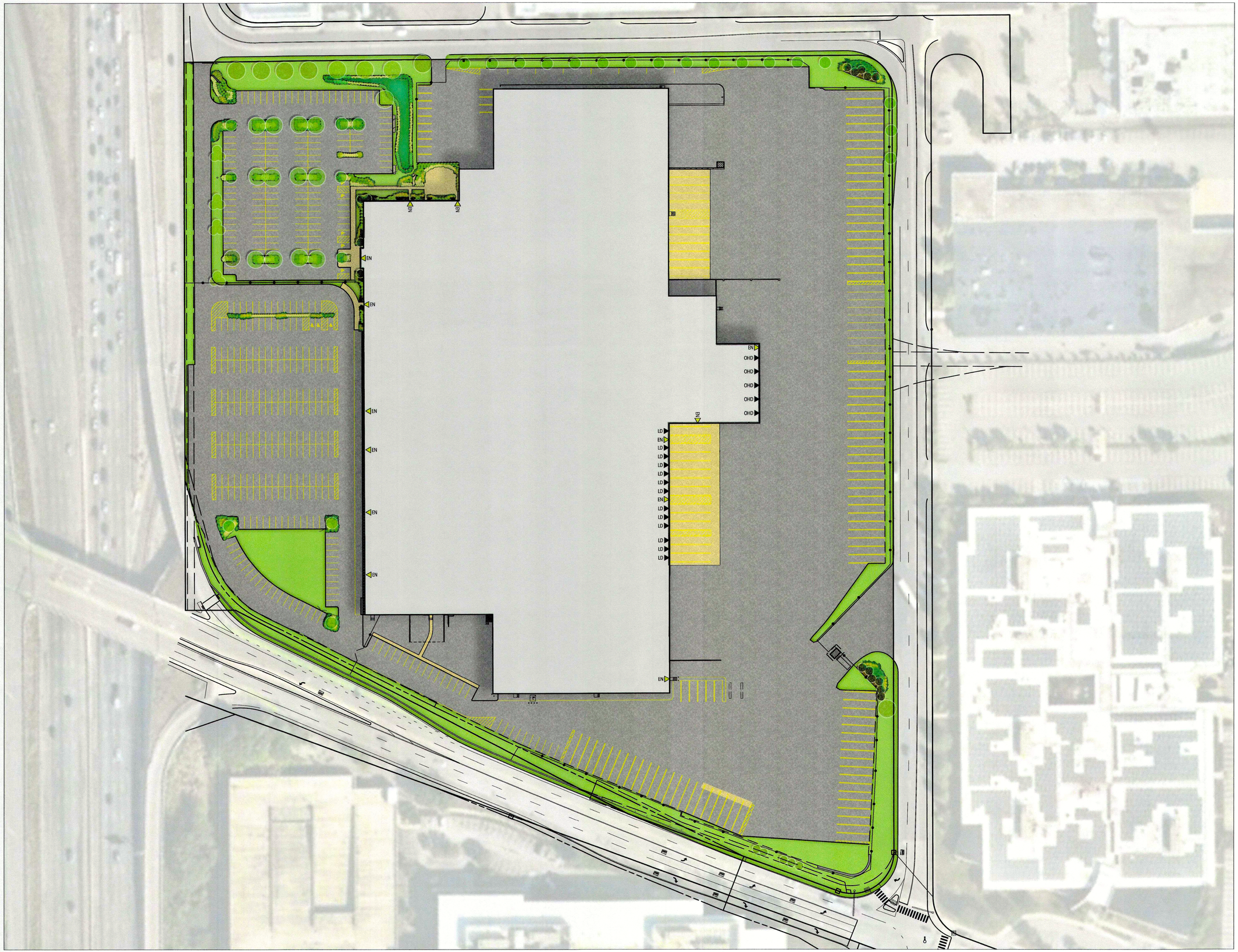
L-2.1

Sheet 15 of 15

Project Number

15571.02

2022.08.29



vhb.com
vhb
101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

Drawing Title

Color Site Plan

Drawing Number

COMMONWEALTH OF MASSACHUSETTS
ERIK BEDNARZ
NO. 1508
REGISTERED LANDSCAPE ARCHITECT

2022.08.29

Memorandum

To: Thomas Ryder
Public Services Administration Building
500 Dedham Avenue, Suite 118
Needham, MA 02492

Date: August 24, 2022

Project #: 15571.02

From: VHB

Re: Coca Cola Site
Needham, MA

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER
NOWAK
CIVIL
No. 41843
REGISTERED
PROFESSIONAL ENGINEER

Stormwater Management Narrative

Project Description

The Applicant, Coca-Cola Beverages Northeast, is proposing to construct site improvements and renovations (the Project) for a bottling facility located at 9 B Street in Needham, MA (the Site). As proposed, the Project consists of loading dock modifications, partial demolition of building structures, site vehicular and pedestrian circulation and parking area modifications associated with the building changes, landscape improvements, stormwater treatment upgrades and utility improvements.

The Project will largely maintain existing drainage patterns and will result in a significant decrease of impervious area. There are no Wetland Resource Areas or associated buffer zones located on the Site and as such, the Project is not subject to strict compliance with the Massachusetts Stormwater Management Standards as required by the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00). For the purpose of this design, the Project is considered a redevelopment and has been designed to comply with Stormwater Management Standards 2 through 6 to the maximum extent practicable.

The Project does not propose new building construction and will not add an addition greater than 25%. The Project will undergo Site Plan Approval and therefore is subject to applicable sections of the Town of Needham Stormwater By-law.

Existing Drainage Conditions

The Project Site is a 24-acre parcel of land located at 9 B Street in Needham, MA (see Figure 1). The Site lies within the surface watershed of the Charles River and is bounded by B Street to the northwest, 3rd Avenue to the northeast, Kendrick Street to the southeast, and Yankee Division Highway (Interstate 95) to the southwest.

According to the National Resources Conservation Service (NRCS), surface soils on the Site consist of Urban Land.

Under existing conditions, the Site is developed with approximately 932,800 square feet of impervious area consisting of surface parking lots, buildings, loading docks, and walkways. The topography gently slopes across the Site, pitching down from the westerly lot line to the easterly lot line. Existing onsite drainage infrastructure is limited to a closed catch basin and pipe system. Runoff is collected and discharged into the municipal drainage network at four design points (see the attached Existing Drainage Area Plan).

Existing connections to the municipal drainage system within the adjacent rights-of-way include the following (note: pipe labels are as shown on the Existing Conditions Plan of Land drawing Sv-1 prepared by VHB):

- Design Point 1 – B Street
    - 8″ PVC (P70) connection to existing drain manhole (removed in proposed condition)
    - Two pipes (P152, P150) of unknown size connecting to existing catch basin (no change in proposed condition)
    - 12″ RCP (P37) connection to existing drain manhole (no change in proposed condition)
- Design Point 2 – 3rd Avenue
    - 18″ RCP (P22) connection to existing catch basin (no change in proposed condition)
    - 12″ RCP (P23) connection to existing catch basin (no change in proposed condition)
    - 8″ RCP (P25) connection to existing 21″ RCP (no change in proposed condition)
    - 12″ RCP (P35) connection to existing catch basin (no change in proposed condition)
- Design Point 3 – Kendrick Street
    - 15″ RCP (P7) connection to existing drain manhole (no change in proposed condition)
    - 12″ RCP (P6) connection to existing drain manhole (no change in proposed condition)
    - 15″ RCP (P9) connection to existing drain manhole (no change in proposed condition)
- Design Point 4 – Kendrick Street
    - 15″ RCP (P2) connection to existing drain manhole (no change in proposed condition)

Proposed Drainage Conditions

The Project will largely maintain existing drainage patterns. Existing connections to the municipal infrastructure will be maintained, except for one connection on B Street that is being removed, and one connection on B Street that is being proposed. Under proposed conditions, the Site will realize an approximate 33,000 square foot decrease in impervious area as well as enhanced water quality treatment due to the implementation of Low Impact Development (LID) stormwater management practices (BMPs).

Existing and proposed impervious and pervious areas at each design point are summarized in Table 1. As shown in the table, the weighted CN value at all design points is improved in the proposed condition as a result of the increased pervious area.

Table 1 Existing and Proposed Drainage Areas

Design Point	Pervious Area (SF)	Pervious Area CN Value	Impervious Area (SF)	Impervious Area CN Value	Weighted CN Value
Existing					
DP1	26,652	74	158,382	98	94.5
DP2	15,595	74	363,020	98	97.0
DP3	19,886	74	112,448	98	94.4
DP4	36,190	74	298,912	98	95.4
Proposed					
DP1	39,655	74	145,463	98	92.9
DP2	15,595	74	363,020	98	97.0
DP3	25,438	74	106,896	98	93.4
DP4	50,782	74	284,236	98	94.4

The redevelopment of site access and parking areas at the northwest corner of the site (the proposed North Employee Parking area) will include proposed grading and drainage improvements. Stormwater runoff from the North Employee Parking area and existing adjacent concrete pad to the east will be directed to a bioretention basin that has been designed to treat the one-inch Water Quality Volume (WQV) for this contributary area (approximately 61,200 SF). Stormwater runoff from the concrete pad is currently collected by a catch basin and discharged to the municipal system. The basin will include an overflow structure that will hydraulically connect to the municipal drainage system. A large landscape island is proposed within the southwest corner of the site which will function as a vegetated filter strip to provide TSS removal and provide peak flow attenuation for the proposed overflow parking area. Water quality computations are provided as an attachment to this memo.

Storm drainage structures remaining from the existing development which are part of the redevelopment area will be removed or will be incorporated into the updated stormwater system. The updated stormwater system has been designed so that proposed stormwater system components are in full compliance with current Massachusetts Stormwater Handbook standards. As shown on the design plans, modifications to the existing storm drain system are limited to the redevelopment project area. The existing onsite stormwater system components to remain will be cleaned and maintained as part of the Project.

List of Attachments

- Figure 1 – Locus Figure
- Figure 2 – Existing Drainage Area Plan
- Figure 3 – Proposed Drainage Area Plan
- Water Quality Volume Calculations
- HydroCAD Analysis
- Site Plans

\\vhb\gbl\proj\Wat-LD\15571.02 CocaCola-SiteCivil\cad\ld\Planmisc\Locus Map\Locus Figure.dwg

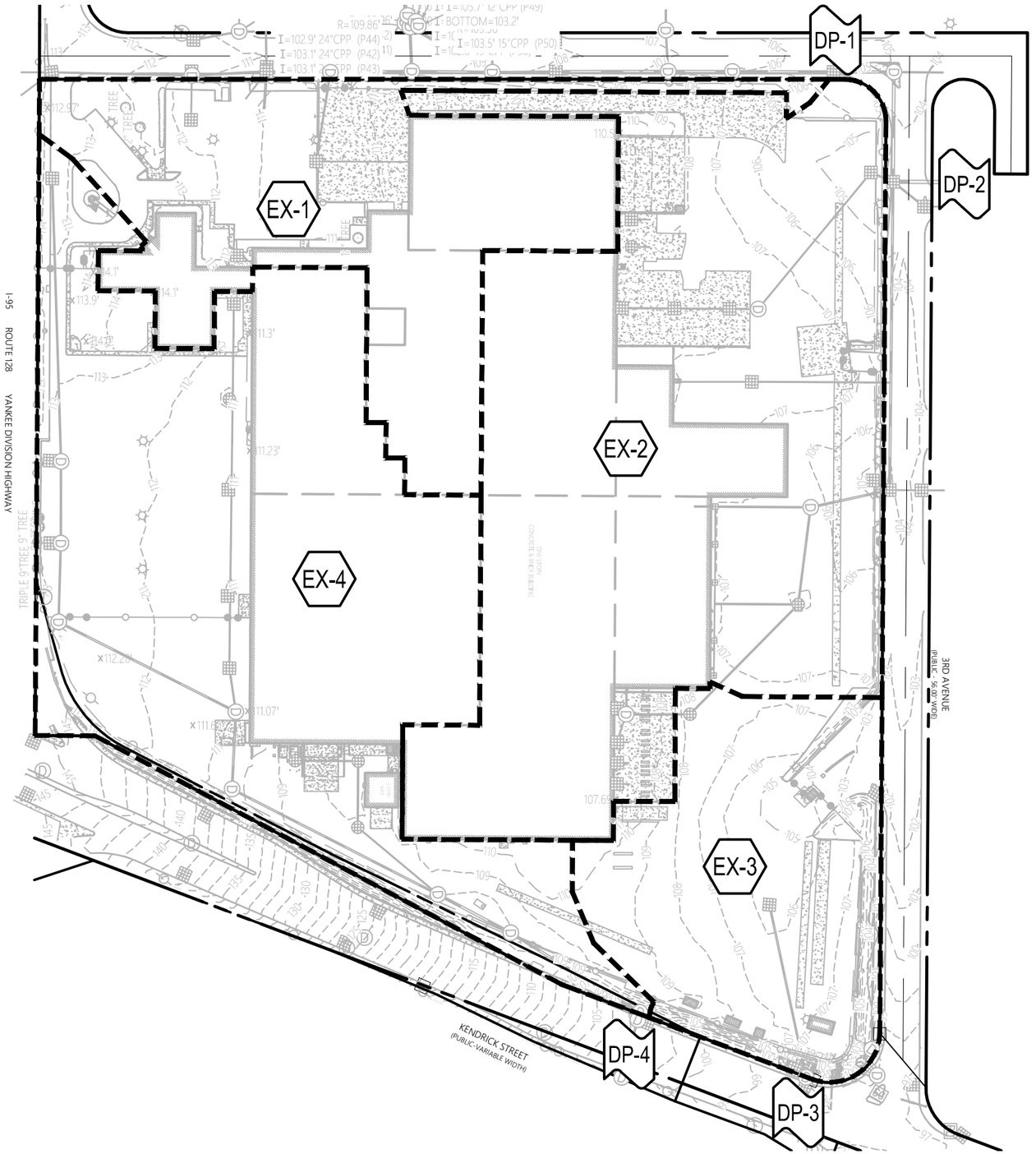
0 500 1000Feet

Locus Figure

9 B Street
Needham, Massachusetts

Figure 1

August 2022



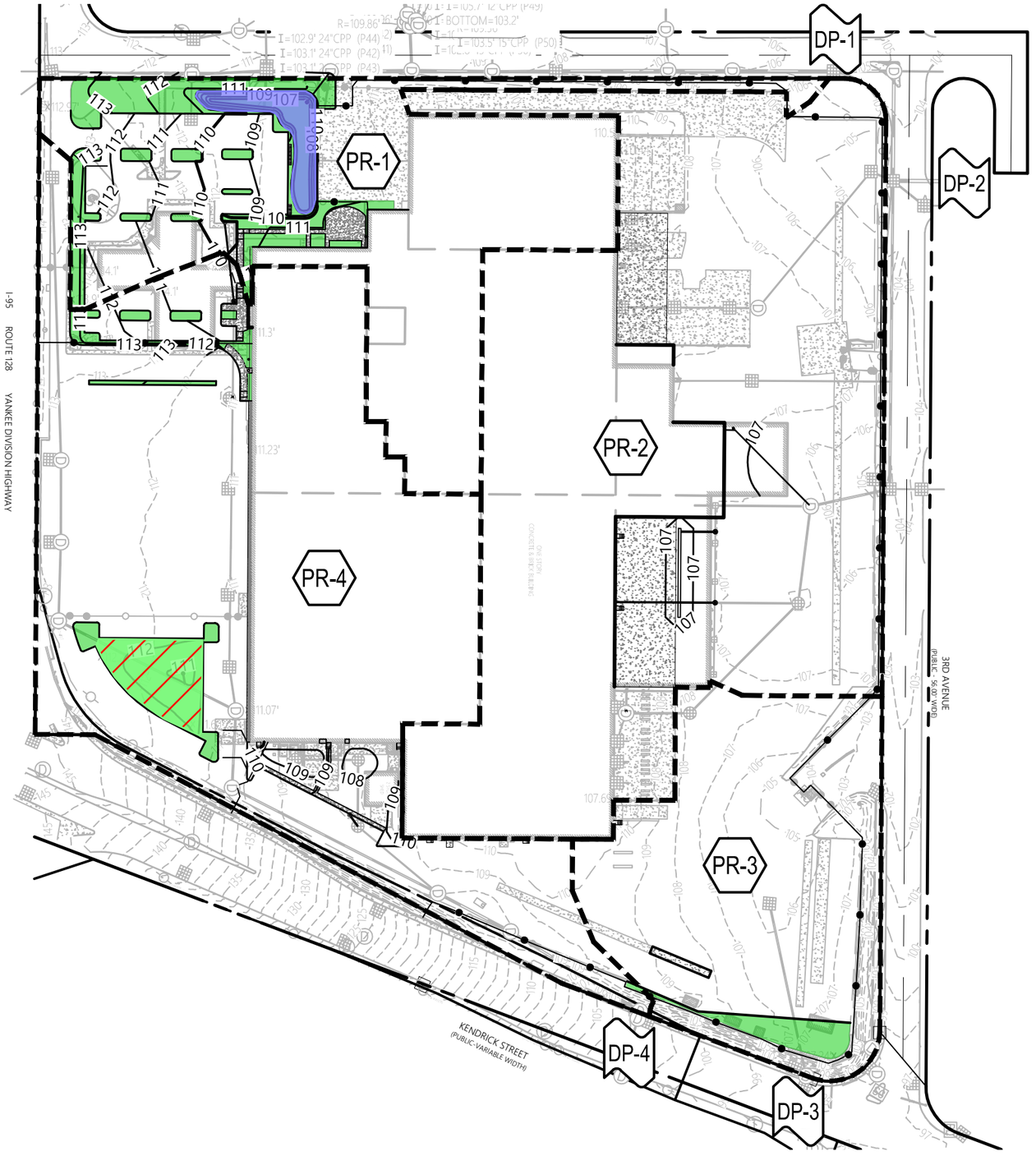
Legend

- X — **DESIGN POINT**
- X — **DRAINAGE AREA DESIGNATION**
- **DRAINAGE AREA BOUNDARY**

0 75 150 Feet

Figure 2
Existing Drainage Area Plan

9 B Street
Needham, MA



Legend

- DESIGN POINT
- DRAINAGE AREA DESIGNATION
- DRAINAGE AREA BOUNDARY
- PROPOSED LANDSCAPE AREA
- PROPOSED BIORETENTION BASIN
- PROPOSED VEGETATED FILTER STRIP

0 75 150 Feet

Figure 3
Proposed Drainage Area Plan

9 B Street
Needham, MA

Water Quality Volume Calculations

Project	Coca Cola Needham	**Project #**	15571.02
Calculated by	SM	**Date**	8/11/2022
Checked by	FDD	**Date**	8/17/2022

BASIN #1

Runoff from redeveloped area

Water Quality Storm Runoff Depth	(in)	1.0
Total Impervious Area	(ft^2)	61,156

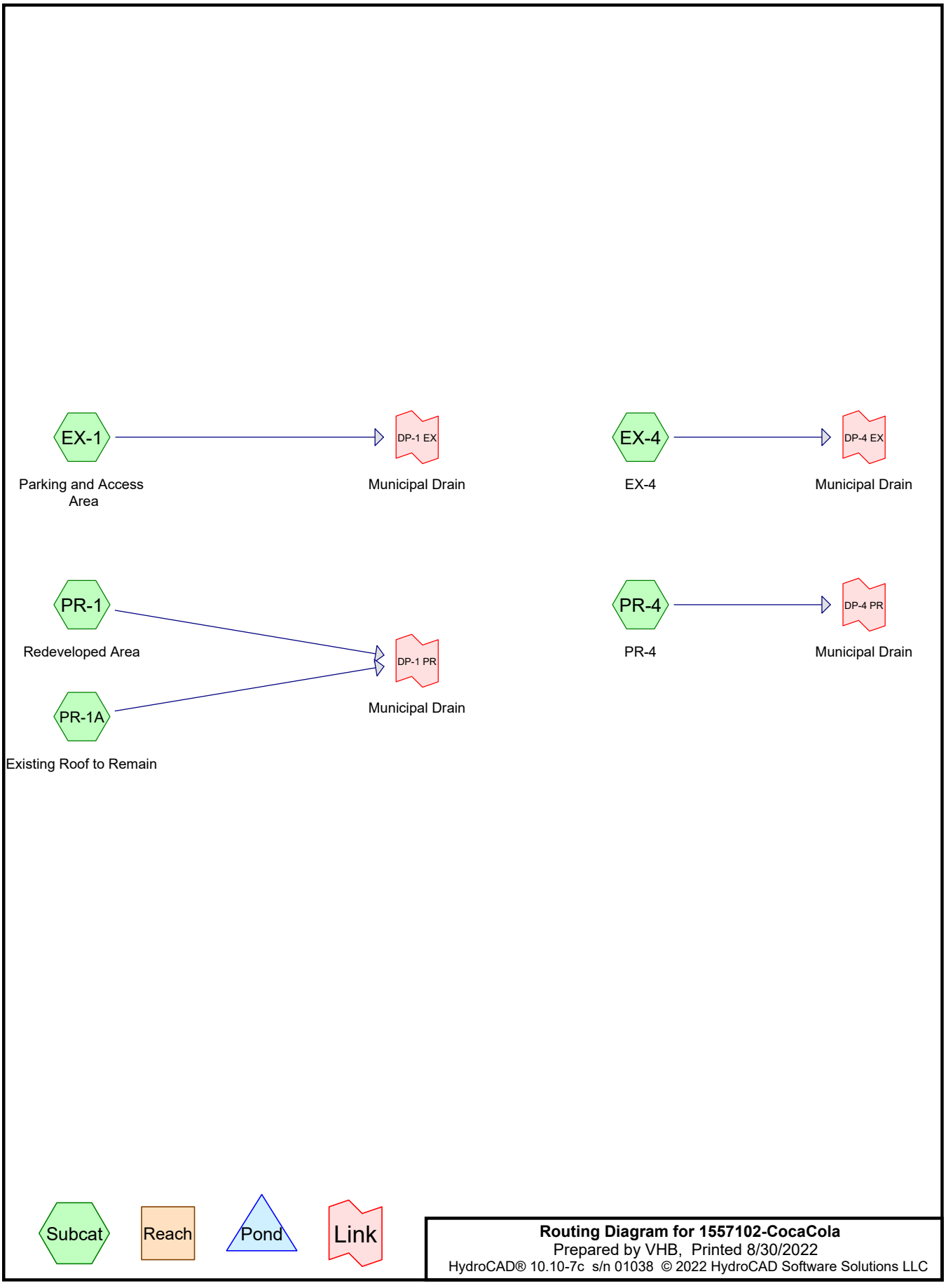
BASIN WQV:

Required Volume:

Runoff Depth to be Treated (in)	Required Volume (ft^3)
1.0	**5,096**

Provided Volume:

Elevation	Area (ft^2)	Cumulative Volume (ft^3)
107.0	3,335	0
108.0	4,802	4,069
108.5	5,776	**6,713**



Routing Diagram for 1557102-CocaCola
Prepared by VHB, Printed 8/30/2022

Summary for Subcatchment EX-1: Parking and Access Area

Runoff = 11.2 cfs @ 12.14 hrs, Volume= 42,294 cf, Depth= 2.74"
Routed to Link DP-1 EX : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.30"

	Area (sf)	CN	Description
*	158,382	98	Impervious
	26,652	74	>75% Grass cover, Good, HSG C
	185,034	95	Weighted Average
	26,652		14.40% Pervious Area
	158,382		85.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0100	0.11		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.0	45	0.0110	0.73		**Shallow Concentrated Flow, Grass2** Short Grass Pasture Kv= 7.0 fps
1.8	225	0.0100	2.03		**Shallow Concentrated Flow, Pave** Paved Kv= 20.3 fps
0.2	108	0.0220	7.29	5.72	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.3	428	Total			

Summary for Subcatchment EX-4: EX-4

Runoff = 18.6 cfs @ 12.17 hrs, Volume= 76,595 cf, Depth= 2.74"
Routed to Link DP-4 EX : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.30"

	Area (sf)	CN	Description
*	298,912	98	Impervious
	36,190	74	>75% Grass cover, Good, HSG C
	335,102	95	Weighted Average
	36,190		10.80% Pervious Area
	298,912		89.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.31"
0.1	10	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	24	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	339	0.0100	5.70	7.00	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.5	99	0.0033	3.28	4.02	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	95	0.0077	5.00	6.14	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
2.1	240	0.0009	1.93	3.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.2	93	0.0153	7.97	14.08	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.9	279	0.0064	5.15	9.10	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	99	0.0053	5.68	17.84	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
0.4	183	0.0088	7.32	22.99	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
13.2	1,511	Total			

Summary for Subcatchment PR-1: Redeveloped Area

Runoff = 4.9 cfs @ 12.15 hrs, Volume= 18,256 cf, Depth= 2.17"
Routed to Link DP-1 PR : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.30"

	Area (sf)	CN	Description
*	61,156	98	Impervious
	39,655	74	>75% Grass cover, Good, HSG C
	100,811	89	Weighted Average
	39,655		39.34% Pervious Area
	61,156		60.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0160	0.14		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.3	77	0.0200	0.99		**Shallow Concentrated Flow, Grass2** Short Grass Pasture Kv= 7.0 fps
0.1	32	0.3300	4.02		**Shallow Concentrated Flow, Bio1** Short Grass Pasture Kv= 7.0 fps
3.9	117	0.0050	0.49		**Shallow Concentrated Flow, Bio2** Short Grass Pasture Kv= 7.0 fps
0.1	45	0.0070	6.53	20.50	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
11.4	321	Total			

Summary for Subcatchment PR-1A: Existing Roof to Remain

Runoff = 6.4 cfs @ 12.07 hrs, Volume= 21,548 cf, Depth= 3.07"
Routed to Link DP-1 PR : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.30"

	Area (sf)	CN	Description
*	84,307	98	Impervious
	84,307		100.00% Impervious Area

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

Summary for Subcatchment PR-4: PR-4

Runoff = 17.3 cfs @ 12.20 hrs, Volume= 73,731 cf, Depth= 2.64"
Routed to Link DP-4 PR : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.30"

	Area (sf)	CN	Description
*	284,236	98	Impervious
	50,782	74	>75% Grass cover, Good, HSG C
	335,018	94	Weighted Average
	50,782		15.16% Pervious Area
	284,236		84.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	35	0.0310	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.31"
0.2	21	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	62	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	90	0.0110	2.13		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	61	0.0065	3.96	3.11	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.4	225	0.0001	0.59	0.46	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
1.3	127	0.0008	1.67	1.31	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.3	87	0.0115	5.27	4.14	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.3	53	0.0038	3.03	2.38	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	93	0.0153	7.97	14.08	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.9	279	0.0064	5.15	9.10	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	99	0.0053	5.68	17.84	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
0.4	183	0.0088	7.32	22.99	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'

n= 0.012 Concrete pipe, finished

15.2	1,415	Total

Summary for Link DP-1 EX: Municipal Drain

Inflow Area = 185,034 sf, 85.60% Impervious, Inflow Depth = 2.74" for 2-Year event
Inflow = 11.2 cfs @ 12.14 hrs, Volume= 42,294 cf
Primary = 11.2 cfs @ 12.14 hrs, Volume= 42,294 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Link DP-1 PR: Municipal Drain

Inflow Area = 185,118 sf, 78.58% Impervious, Inflow Depth = 2.58" for 2-Year event
Inflow = 10.3 cfs @ 12.09 hrs, Volume= 39,804 cf
Primary = 10.3 cfs @ 12.09 hrs, Volume= 39,804 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Link DP-4 EX: Municipal Drain

Inflow Area = 335,102 sf, 89.20% Impervious, Inflow Depth = 2.74" for 2-Year event
Inflow = 18.6 cfs @ 12.17 hrs, Volume= 76,595 cf
Primary = 18.6 cfs @ 12.17 hrs, Volume= 76,595 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Link DP-4 PR: Municipal Drain

Inflow Area = 335,018 sf, 84.84% Impervious, Inflow Depth = 2.64" for 2-Year event
Inflow = 17.3 cfs @ 12.20 hrs, Volume= 73,731 cf
Primary = 17.3 cfs @ 12.20 hrs, Volume= 73,731 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Subcatchment EX-1: Parking and Access Area

Runoff = 18.3 cfs @ 12.14 hrs, Volume= 71,050 cf, Depth= 4.61"
Routed to Link DP-1 EX : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.19"

	Area (sf)	CN	Description
*	158,382	98	Impervious
	26,652	74	>75% Grass cover, Good, HSG C
	185,034	95	Weighted Average
	26,652		14.40% Pervious Area
	158,382		85.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0100	0.11		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.0	45	0.0110	0.73		**Shallow Concentrated Flow, Grass2** Short Grass Pasture Kv= 7.0 fps
1.8	225	0.0100	2.03		**Shallow Concentrated Flow, Pave** Paved Kv= 20.3 fps
0.2	108	0.0220	7.29	5.72	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.3	428	Total			

Summary for Subcatchment EX-4: EX-4

Runoff = 30.4 cfs @ 12.17 hrs, Volume= 128,673 cf, Depth= 4.61"
Routed to Link DP-4 EX : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.19"

	Area (sf)	CN	Description
*	298,912	98	Impervious
	36,190	74	>75% Grass cover, Good, HSG C
	335,102	95	Weighted Average
	36,190		10.80% Pervious Area
	298,912		89.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.31"
0.1	10	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	24	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	339	0.0100	5.70	7.00	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.5	99	0.0033	3.28	4.02	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	95	0.0077	5.00	6.14	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
2.1	240	0.0009	1.93	3.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.2	93	0.0153	7.97	14.08	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.9	279	0.0064	5.15	9.10	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	99	0.0053	5.68	17.84	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
0.4	183	0.0088	7.32	22.99	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
13.2	1,511	Total			

Summary for Subcatchment PR-1: Redeveloped Area

Runoff = 8.7 cfs @ 12.15 hrs, Volume= 33,218 cf, Depth= 3.95"
Routed to Link DP-1 PR : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.19"

	Area (sf)	CN	Description
*	61,156	98	Impervious
	39,655	74	>75% Grass cover, Good, HSG C
	100,811	89	Weighted Average
	39,655		39.34% Pervious Area
	61,156		60.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0160	0.14		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.3	77	0.0200	0.99		**Shallow Concentrated Flow, Grass2** Short Grass Pasture Kv= 7.0 fps
0.1	32	0.3300	4.02		**Shallow Concentrated Flow, Bio1** Short Grass Pasture Kv= 7.0 fps
3.9	117	0.0050	0.49		**Shallow Concentrated Flow, Bio2** Short Grass Pasture Kv= 7.0 fps
0.1	45	0.0070	6.53	20.50	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
11.4	321	Total			

Summary for Subcatchment PR-1A: Existing Roof to Remain

Runoff = 10.2 cfs @ 12.07 hrs, Volume= 34,797 cf, Depth= 4.95"
Routed to Link DP-1 PR : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.19"

	Area (sf)	CN	Description
*	84,307	98	Impervious
	84,307		100.00% Impervious Area

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

Summary for Subcatchment PR-4: PR-4

Runoff = 28.5 cfs @ 12.20 hrs, Volume= 125,506 cf, Depth= 4.50"
Routed to Link DP-4 PR : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.19"

	Area (sf)	CN	Description
*	284,236	98	Impervious
	50,782	74	>75% Grass cover, Good, HSG C
	335,018	94	Weighted Average
	50,782		15.16% Pervious Area
	284,236		84.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	35	0.0310	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.31"
0.2	21	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	62	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	90	0.0110	2.13		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	61	0.0065	3.96	3.11	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.4	225	0.0001	0.59	0.46	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
1.3	127	0.0008	1.67	1.31	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.3	87	0.0115	5.27	4.14	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.3	53	0.0038	3.03	2.38	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	93	0.0153	7.97	14.08	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.9	279	0.0064	5.15	9.10	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	99	0.0053	5.68	17.84	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
0.4	183	0.0088	7.32	22.99	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'

n= 0.012 Concrete pipe, finished

15.2	1,415	Total

Summary for Link DP-1 EX: Municipal Drain

Inflow Area = 185,034 sf, 85.60% Impervious, Inflow Depth = 4.61" for 10-Year event
Inflow = 18.3 cfs @ 12.14 hrs, Volume= 71,050 cf
Primary = 18.3 cfs @ 12.14 hrs, Volume= 71,050 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Link DP-1 PR: Municipal Drain

Inflow Area = 185,118 sf, 78.58% Impervious, Inflow Depth = 4.41" for 10-Year event
Inflow = 17.2 cfs @ 12.09 hrs, Volume= 68,015 cf
Primary = 17.2 cfs @ 12.09 hrs, Volume= 68,015 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Link DP-4 EX: Municipal Drain

Inflow Area = 335,102 sf, 89.20% Impervious, Inflow Depth = 4.61" for 10-Year event
Inflow = 30.4 cfs @ 12.17 hrs, Volume= 128,673 cf
Primary = 30.4 cfs @ 12.17 hrs, Volume= 128,673 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Link DP-4 PR: Municipal Drain

Inflow Area = 335,018 sf, 84.84% Impervious, Inflow Depth = 4.50" for 10-Year event
Inflow = 28.5 cfs @ 12.20 hrs, Volume= 125,506 cf
Primary = 28.5 cfs @ 12.20 hrs, Volume= 125,506 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Subcatchment EX-1: Parking and Access Area

Runoff = 22.6 cfs @ 12.14 hrs, Volume= 88,959 cf, Depth= 5.77"
Routed to Link DP-1 EX : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.36"

	Area (sf)	CN	Description
*	158,382	98	Impervious
	26,652	74	>75% Grass cover, Good, HSG C
	185,034	95	Weighted Average
	26,652		14.40% Pervious Area
	158,382		85.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0100	0.11		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.0	45	0.0110	0.73		**Shallow Concentrated Flow, Grass2** Short Grass Pasture Kv= 7.0 fps
1.8	225	0.0100	2.03		**Shallow Concentrated Flow, Pave** Paved Kv= 20.3 fps
0.2	108	0.0220	7.29	5.72	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.3	428	Total			

Summary for Subcatchment EX-4: EX-4

Runoff = 37.7 cfs @ 12.17 hrs, Volume= 161,108 cf, Depth= 5.77"
Routed to Link DP-4 EX : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.36"

	Area (sf)	CN	Description
*	298,912	98	Impervious
	36,190	74	>75% Grass cover, Good, HSG C
	335,102	95	Weighted Average
	36,190		10.80% Pervious Area
	298,912		89.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.31"
0.1	10	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	24	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	339	0.0100	5.70	7.00	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.5	99	0.0033	3.28	4.02	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	95	0.0077	5.00	6.14	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
2.1	240	0.0009	1.93	3.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.2	93	0.0153	7.97	14.08	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.9	279	0.0064	5.15	9.10	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	99	0.0053	5.68	17.84	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
0.4	183	0.0088	7.32	22.99	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
13.2	1,511	Total			

Summary for Subcatchment PR-1: Redeveloped Area

Runoff = 11.1 cfs @ 12.15 hrs, Volume= 42,716 cf, Depth= 5.08"
Routed to Link DP-1 PR : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.36"

	Area (sf)	CN	Description
*	61,156	98	Impervious
	39,655	74	>75% Grass cover, Good, HSG C
	100,811	89	Weighted Average
	39,655		39.34% Pervious Area
	61,156		60.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0160	0.14		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.3	77	0.0200	0.99		**Shallow Concentrated Flow, Grass2** Short Grass Pasture Kv= 7.0 fps
0.1	32	0.3300	4.02		**Shallow Concentrated Flow, Bio1** Short Grass Pasture Kv= 7.0 fps
3.9	117	0.0050	0.49		**Shallow Concentrated Flow, Bio2** Short Grass Pasture Kv= 7.0 fps
0.1	45	0.0070	6.53	20.50	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
11.4	321	Total			

Summary for Subcatchment PR-1A: Existing Roof to Remain

Runoff = 12.5 cfs @ 12.07 hrs, Volume= 43,007 cf, Depth= 6.12"
Routed to Link DP-1 PR : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.36"

	Area (sf)	CN	Description
*	84,307	98	Impervious
	84,307		100.00% Impervious Area

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

Summary for Subcatchment PR-4: PR-4

Runoff = 35.4 cfs @ 12.20 hrs, Volume= 157,831 cf, Depth= 5.65"
Routed to Link DP-4 PR : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.36"

	Area (sf)	CN	Description
*	284,236	98	Impervious
	50,782	74	>75% Grass cover, Good, HSG C
	335,018	94	Weighted Average
	50,782		15.16% Pervious Area
	284,236		84.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	35	0.0310	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.31"
0.2	21	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	62	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	90	0.0110	2.13		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	61	0.0065	3.96	3.11	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.4	225	0.0001	0.59	0.46	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
1.3	127	0.0008	1.67	1.31	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.3	87	0.0115	5.27	4.14	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.3	53	0.0038	3.03	2.38	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	93	0.0153	7.97	14.08	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.9	279	0.0064	5.15	9.10	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	99	0.0053	5.68	17.84	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
0.4	183	0.0088	7.32	22.99	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'

n= 0.012 Concrete pipe, finished

15.2 1,415 Total

Summary for Link DP-1 EX: Municipal Drain

Inflow Area = 185,034 sf, 85.60% Impervious, Inflow Depth = 5.77" for 25-Year event
Inflow = 22.6 cfs @ 12.14 hrs, Volume= 88,959 cf
Primary = 22.6 cfs @ 12.14 hrs, Volume= 88,959 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Link DP-1 PR: Municipal Drain

Inflow Area = 185,118 sf, 78.58% Impervious, Inflow Depth = 5.56" for 25-Year event
Inflow = 21.5 cfs @ 12.09 hrs, Volume= 85,723 cf
Primary = 21.5 cfs @ 12.09 hrs, Volume= 85,723 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Link DP-4 EX: Municipal Drain

Inflow Area = 335,102 sf, 89.20% Impervious, Inflow Depth = 5.77" for 25-Year event
Inflow = 37.7 cfs @ 12.17 hrs, Volume= 161,108 cf
Primary = 37.7 cfs @ 12.17 hrs, Volume= 161,108 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Link DP-4 PR: Municipal Drain

Inflow Area = 335,018 sf, 84.84% Impervious, Inflow Depth = 5.65" for 25-Year event
Inflow = 35.4 cfs @ 12.20 hrs, Volume= 157,831 cf
Primary = 35.4 cfs @ 12.20 hrs, Volume= 157,831 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Subcatchment EX-1: Parking and Access Area

Runoff = 29.3 cfs @ 12.14 hrs, Volume= 116,736 cf, Depth= 7.57"
Routed to Link DP-1 EX : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.17"

	Area (sf)	CN	Description
*	158,382	98	Impervious
	26,652	74	>75% Grass cover, Good, HSG C
	185,034	95	Weighted Average
	26,652		14.40% Pervious Area
	158,382		85.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0100	0.11		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.0	45	0.0110	0.73		**Shallow Concentrated Flow, Grass2** Short Grass Pasture Kv= 7.0 fps
1.8	225	0.0100	2.03		**Shallow Concentrated Flow, Pave** Paved Kv= 20.3 fps
0.2	108	0.0220	7.29	5.72	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.3	428	Total			

Summary for Subcatchment EX-4: EX-4

Runoff = 48.8 cfs @ 12.17 hrs, Volume= 211,412 cf, Depth= 7.57"
Routed to Link DP-4 EX : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.17"

	Area (sf)	CN	Description
*	298,912	98	Impervious
	36,190	74	>75% Grass cover, Good, HSG C
	335,102	95	Weighted Average
	36,190		10.80% Pervious Area
	298,912		89.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.31"
0.1	10	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	24	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	339	0.0100	5.70	7.00	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.5	99	0.0033	3.28	4.02	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	95	0.0077	5.00	6.14	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
2.1	240	0.0009	1.93	3.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.2	93	0.0153	7.97	14.08	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.9	279	0.0064	5.15	9.10	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	99	0.0053	5.68	17.84	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
0.4	183	0.0088	7.32	22.99	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
13.2	1,511	Total			

Summary for Subcatchment PR-1: Redeveloped Area

Runoff = 14.7 cfs @ 12.15 hrs, Volume= 57,577 cf, Depth= 6.85"
Routed to Link DP-1 PR : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.17"

	Area (sf)	CN	Description
*	61,156	98	Impervious
	39,655	74	>75% Grass cover, Good, HSG C
	100,811	89	Weighted Average
	39,655		39.34% Pervious Area
	61,156		60.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0160	0.14		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.3	77	0.0200	0.99		**Shallow Concentrated Flow, Grass2** Short Grass Pasture Kv= 7.0 fps
0.1	32	0.3300	4.02		**Shallow Concentrated Flow, Bio1** Short Grass Pasture Kv= 7.0 fps
3.9	117	0.0050	0.49		**Shallow Concentrated Flow, Bio2** Short Grass Pasture Kv= 7.0 fps
0.1	45	0.0070	6.53	20.50	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
11.4	321	Total			

Summary for Subcatchment PR-1A: Existing Roof to Remain

Runoff = 16.1 cfs @ 12.07 hrs, Volume= 55,714 cf, Depth= 7.93"
Routed to Link DP-1 PR : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.17"

	Area (sf)	CN	Description
*	84,307	98	Impervious
	84,307		100.00% Impervious Area

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

Summary for Subcatchment PR-4: PR-4

Runoff = 46.1 cfs @ 12.20 hrs, Volume= 208,018 cf, Depth= 7.45"
Routed to Link DP-4 PR : Municipal Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.17"

	Area (sf)	CN	Description
*	284,236	98	Impervious
	50,782	74	>75% Grass cover, Good, HSG C
	335,018	94	Weighted Average
	50,782		15.16% Pervious Area
	284,236		84.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	35	0.0310	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.31"
0.2	21	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	62	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	90	0.0110	2.13		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	61	0.0065	3.96	3.11	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.4	225	0.0001	0.59	0.46	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
1.3	127	0.0008	1.67	1.31	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.3	87	0.0115	5.27	4.14	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.3	53	0.0038	3.03	2.38	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	93	0.0153	7.97	14.08	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.9	279	0.0064	5.15	9.10	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	99	0.0053	5.68	17.84	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
0.4	183	0.0088	7.32	22.99	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'

n= 0.012 Concrete pipe, finished

15.2	1,415	Total

Summary for Link DP-1 EX: Municipal Drain

Inflow Area = 185,034 sf, 85.60% Impervious, Inflow Depth = 7.57" for 100-Year event
Inflow = 29.3 cfs @ 12.14 hrs, Volume= 116,736 cf
Primary = 29.3 cfs @ 12.14 hrs, Volume= 116,736 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Link DP-1 PR: Municipal Drain

Inflow Area = 185,118 sf, 78.58% Impervious, Inflow Depth = 7.34" for 100-Year event
Inflow = 28.1 cfs @ 12.09 hrs, Volume= 113,290 cf
Primary = 28.1 cfs @ 12.09 hrs, Volume= 113,290 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Link DP-4 EX: Municipal Drain

Inflow Area = 335,102 sf, 89.20% Impervious, Inflow Depth = 7.57" for 100-Year event
Inflow = 48.8 cfs @ 12.17 hrs, Volume= 211,412 cf
Primary = 48.8 cfs @ 12.17 hrs, Volume= 211,412 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Link DP-4 PR: Municipal Drain

Inflow Area = 335,018 sf, 84.84% Impervious, Inflow Depth = 7.45" for 100-Year event
Inflow = 46.1 cfs @ 12.20 hrs, Volume= 208,018 cf
Primary = 46.1 cfs @ 12.20 hrs, Volume= 208,018 cf, Atten= 0%, Lag= 0.0 min

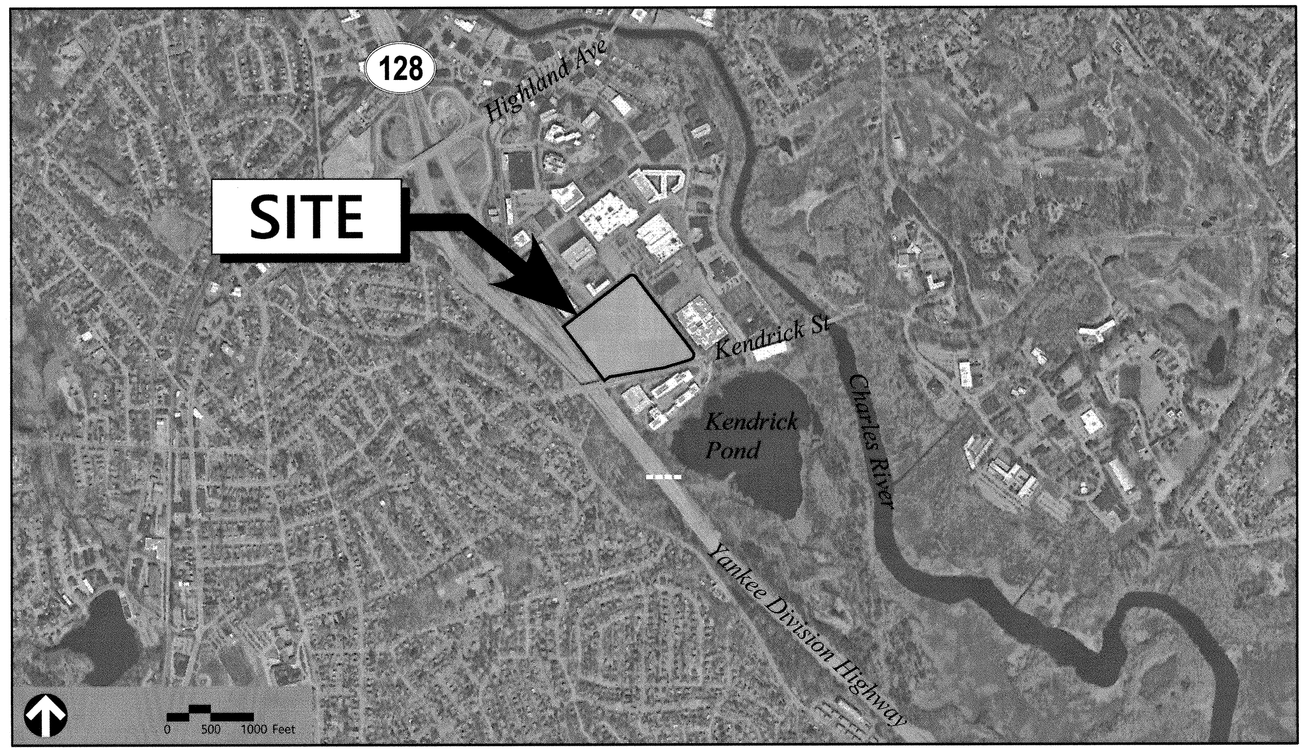
Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Site Plans

Issued for	Site Plan Review
Date Issued	August 29, 2022
Latest Issue	August 29, 2022

Coca-Cola Site

9 B Street
Needham, Massachusetts
02494



Reference Drawings

No.	Drawing Title	Latest Issue
Sv-1	Existing Conditions Plan of Land	August 26, 2022
GA0.1	Overall Phasing Plan	August 24, 2022
GA3.1	Proposed Exterior Elevations	August 24, 2022
GA4.1	Proposed Rendering from Rt 128	August 24, 2022
E1.02	Front Parking Photometric Plan	August 26, 2022

Owner/Applicant
Coca-Cola Beverages Northeast, Inc.
1 Executive Park Drive
Suite 330
Bedford, NH 03110

Needham Parcel ID: 1993000001400000

vhb.com

101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

Survey
VHB, Inc.
101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

Architect
Design Group Facility Solutions, Inc.
5 Chenell Drive
Box 3
Concord, NH 03301
603.225.0010

BENCHMARK
CHISELED SQUARE CONC LP BASE
ELEVATION=106.02'

BENCHMARK
X-CUT HYDRANT BOLT
ELEVATION=105.86'

BENCHMARK
CHISELED SQUARE CONC MAST ARM BASE
ELEVATION=97.36'

3RD AVENUE
(PUBLIC - 56.00' WIDE)

SPUR TRACK EASEMENT
DOC. NO. 301003
DOC. NO. 302175

SPUR TRACK EASEMENT
BOOK 3261, PAGE 379

28.0' RIGHT OF WAY TAKING
BOOK 3253, PAGE 321

S 37°04'34" E
1,098.07'

25' FRONT BUILDING SETBACK

R=50.00'
L=115.55'
Δ=110°20'51"
CHB=S 18°05'36" W
CHD=98.50'

R=50.00'
L=78.87'
Δ=90°22'48"
CHB=S 82°15'58" E
CHD=70.94'

B STREET
(PUBLIC - 56.00' WIDE)

25' FRONT BUILDING SETBACK

25' RIGHT OF WAY TAKING
BOOK 3253, PAGE 321

KENDRICK STREET
(PUBLIC-VARIABLE WIDTH)

50' FRONT BUILDING SETBACK

TEMPORARY EASEMENT
FOR ACCESS & CONSTRUCTION
DOC. NO. 385178

SLOPE EASEMENT
BOOK 3261, PAGE 383

ONE STORY
CONCRETE & BRICK BUILDING

PARCEL
AREA = 1,031,085 SQ. FT.
(23.670 ACRES)

Drain/Sewer Invert Detail
1"=40'

SEE
INVERT
DETAIL

BENCHMARK
X-CUT ON BOLT
ELEVATION=111.48'

BENCHMARK
NW CORNER SBDH
ELEVATION=118.18'

1ST
AVE

10' TELEPHONE EASEMENT
BOOK 3239, PAGE 542

25' FRONT BUILDING SETBACK

10' TELEPHONE EASEMENT
BOOK 3239, PAGE 542

N 37°04'34" W
790.00'

BENCHMARK
BMBENCH MARK
ELEVATION=114.55'

I-95 ROUTE 128 YANKEE DIVISION HIGHWAY

30' FRONT BUILDING SETBACK FOR TRUCK WASH BUILDING

TAKING & EASEMENT BY
MASSACHUSETTS DEPARTMENT OF
TRANSPORTATION
DOC. NO. 429168

SHLO EASEMENT
PARCEL 12-PLE-3

SHLO EASEMENT
PARCEL 12-E-2

Legend

- DRAIN MANHOLE
- CATCH BASIN
- SEWER MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- MANHOLE
- HH□ HANDHOLE
- WATER GATE
- FIRE HYDRANT
- GAS GATE
- BOLLARD w/LIGHT
- TRAFFIC SIGNAL BOX
- TRAFFIC SIGNAL LIGHT
- PEDESTRIAN SIGNAL LIGHT
- STREET SIGN
- LIGHT POLE
- UTILITY POLE
- GUY POLE
- GUY WIRE
- MONITORING WELL
- FLOOD LIGHT
- WELL
- MARSH
- DOOR/ENTRANCE
- FFE FINISHED FLOOR ELEVATION
- CNO COULD NOT OPEN
- NPV NO PIPES VISIBLE
- DYL DOUBLE YELLOW LINE
- DWL DASHED WHITE LINE
- SYL SINGLE WHITE LINE
- LSA LANDSCAPED AREA
- EOP EDGE OF PAVEMENT
- CC CONCRETE CURB
- VGC VERTICAL GRANITE CURB
- SGE SLOPED GRANITE EDGE
- BB BITUMINOUS BERM
- BC BITUMINOUS CURB
- METAL GUARDRAIL
- WOOD GUARDRAIL
- WOOD FENCE
- CHAIN LINK FENCE
- DRAINAGE LINE
- SEWER LINE
- OHW OVERHEAD WIRE
- E UNDERGROUND ELECTRIC
- T TELEPHONE LINE
- G GAS LINE
- W WATER LINE
- STONE WALL
- TREE LINE

40 0 40 80
SCALE IN FEET

Record Owner

COCA-COLA REFRESHMENTS USA, INC.
9 B STREET
NEEDHAM, MASS.
ASSESSORS PARCEL1993000001400000
CERT#196708

Plan References

REGISTRY
168 OF 1954

LAND COURT
24606A
25152A
29185A
29360A

SHLO
4062
8321

COUNTY
KENDRICK STREET 1955

General Notes

1) THE PROPERTY LINES SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL FIELD SURVEY CONDUCTED BY VHB, INC. BETWEEN JANUARY & FEBRUARY, 2022 AND FROM DEEDS AND PLANS OF RECORD.

2) THE EXISTING CONDITIONS SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY VHB, INC. BETWEEN JANUARY & MAY, 2022.

3) THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON FIELD OBSERVATIONS AND INFORMATION OF RECORD. THEY ARE NOT WARRANTED TO BE EXACTLY LOCATED NOR IS IT WARRANTED THAT ALL UNDERGROUND UTILITIES OR OTHER STRUCTURES ARE SHOWN ON THIS PLAN.

4) HORIZONTAL DATUM IS BASED ON MASS. GRID SYSTEM, NAD 1983. ELEVATIONS SHOWN ON THIS PLAN REFER TO NAVD OF 1988.

5) THE LOT LIES ENTIRELY WITHIN ZONE X (UNSHADED) (AREAS TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR NORFOLK COUNTY, MASSACHUSETTS, MAP NUMBER 25021C0037E , EFFECTIVE DATE JULY 17, 2012.

6) THE LOT LIES ENTIRELY WITHIN THE NEW ENGLAND BUSINESS CENTER DISTRICT (NEBC), WITH A WIRELESS COMMUNICATIONS FACILITIES TOWERS OVERLAY DISTRICT AS SHOWN ON THE "TOWN OF NEEDHAM, MASSACHUSETTS, ZONING MAP", DATED MARCH 1, 2020. SEE ZONING COMPLIANCE REPORT PREPARED BY MILLMAN NATIONAL LAND SERVICES, LAST REVISED JULY 10, 2017.

7) THE TREE SYMBOL OUTLINE SHOWN ON THIS PLAN DOES NOT REPRESENT THE ACTUAL TREE CANOPY.

vhb.com
vhb
101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

MASSACHUSETTS STATE PLANE
NAD 1983

Coca-Cola Site

9 B Street
Needham, Massachusetts 02494

No.	Revision	Date	Appvd.
1	PLAN SET SUBMISSION	8/26/22	CDKR

Designed by | Checked by

Issued for
March 1, 2022

Drawing Title
Existing Conditions Plan of Land

Drawing Number
Sv-1

Sheet 1 of 1

Project Number
15571.00

RUSSELL J. BOUSQUET NO. 35389 REGISTERED LAND SURVEYOR COMMONWEALTH OF MASSACHUSETTS
8/12/2022

PHASE 1 - VERTIQUE AREA - INTERIOR RENOVATIONS

PHASE 3 - PROPOSED EXISTING OFFICE WING TO BE DEMOLISHED - 14,500 SF

PHASE 3 - PROPOSED EXISTING OFFICE RENOVATION

AREA NOT IN SCOPE

PHASE 2 - PROPOSED FLEET SERVICES ADDITION - 14,610 SF

PHASE 2 - PROPOSED AREA TO BE DEMOLISHED - 44,985 SF

OVERALL PHASING FLOOR PLAN

1/32"=1'-0"

0 10 20 40

KEY PLAN

AREA OF WORK

PROJECT NORTH

Design Group
DESIGN GROUP FACILITY SOLUTIONS, INC.
5 CHENELL DRIVE, BOX 3, CONCORD, NEW HAMPSHIRE 03301
PHONE: (603) 225-0010 FAX: (603) 225-0761

#	DATE	BY	REVISION
A	04/14/2022	CN	BASIS OF DESIGN – GENERAL ARRANGEMENT
B	08/24/2022	CN	ISSUED TO PLANNING BOARD

Coca-Cola BEVERAGES NORTHEAST

CLIENT: COCA-COLA BEVERAGES NORTHEAST, INC.
ONE EXECUTIVE PARK DR., SUITE 330 BEDFORD, NH

PROJECT: SALES CENTER RENOVATIONS
NEEDHAM HEIGHTS, MA

DRAWING TITLE: OVERALL PHASING PLAN

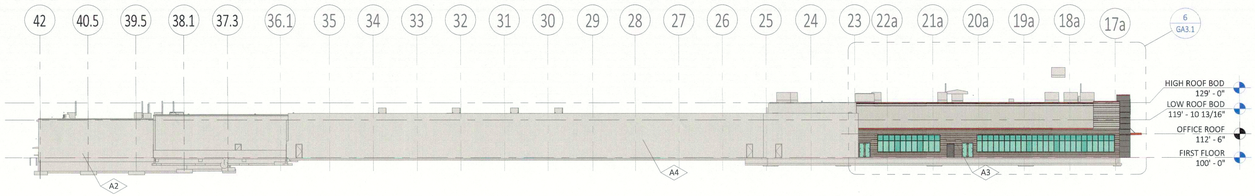
REGISTERED ARCHITECT
LESLIE J. THOME
NO. 052735
CONCORD, NH
COMMONWEALTH OF MASSACHUSETTS
8/24/22

PROJECT NO.	2103141
ISSUED	00/00/00
SCALE	AS NOTED
DRAWN BY	CN

DRAWING NO.

GA0.1

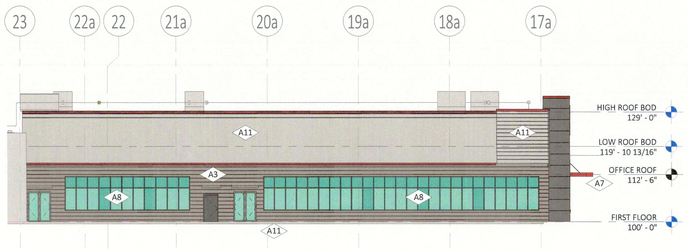
DATE PLOTTED:8/24/2022 11:39:09 AM



NORTH ELEVATION

1/32"=1'-0"

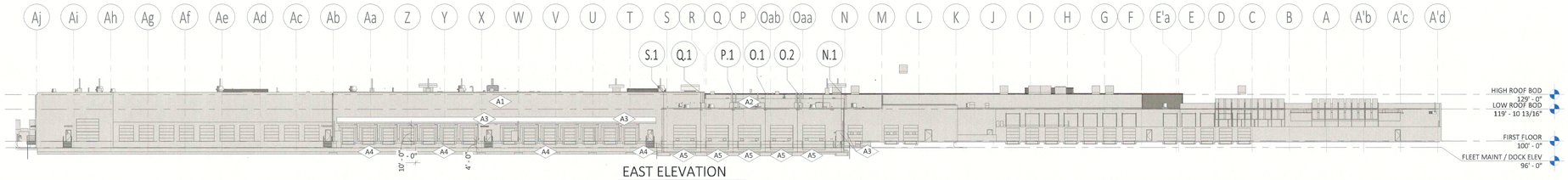
0 10 20 40



NORTH ELEVATION - ENLARGED OFFICE AREA

1/16"=1'-0"

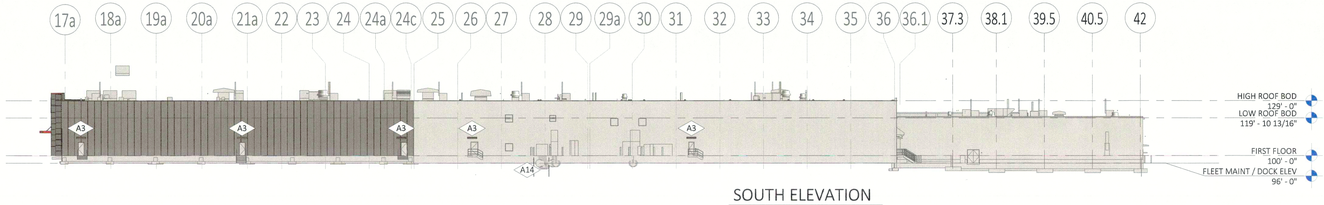
0 10 20



EAST ELEVATION

1/32"=1'-0"

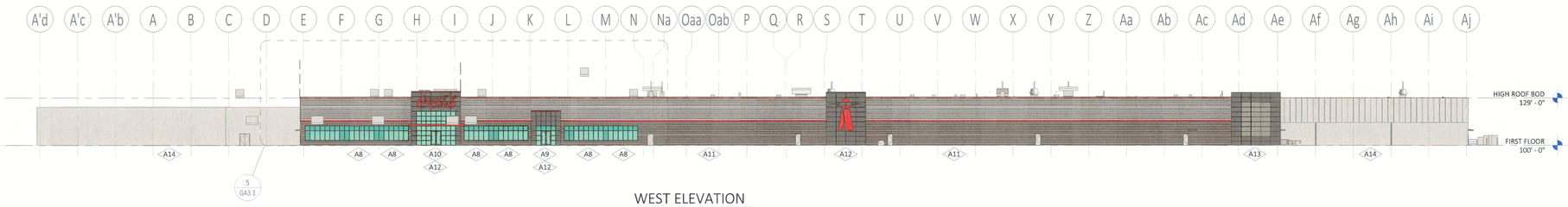
0 10 20 40



SOUTH ELEVATION

1/32"=1'-0"

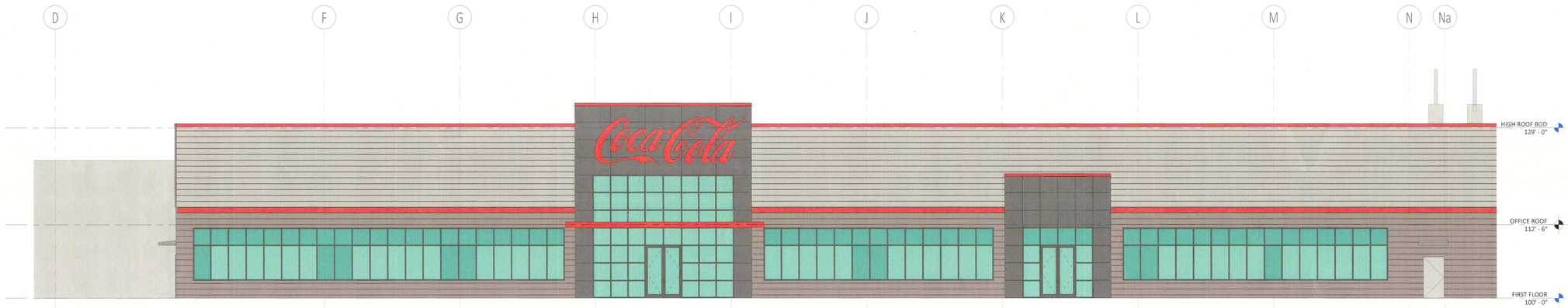
0 10 20 40



WEST ELEVATION

1/32"=1'-0"

0 10 20 40



WEST ELEVATION - ENLARGED OFFICE AREA

1/8"=1'-0"

0 2 4 6 8 10

KEYNOTES - ARCHITECTURAL A#

1. 3" INSULATED METAL PANEL WALL SYSTEM
2. 4" INSULATED METAL PANEL WALL SYSTEM
3. 5' WIDE BY 3 FOOT DEEP DOOR CANOPY MOUNTED AT 9FT AFF
4. 9'x10' VERTICAL LIFT DOOR WITH VISION PANELS, 3" TRACK, 100,000 CYCLE SPRINGS, DOCK SIGNAL / CONTROL LIGHTS, 7'x8' HYDRAULIC LEVELER, 50,000 LB CAPACITY, 30" DEEP SHELTER, LED DOCK ARM LIGHT, TIRE CHOCKS ON 18' CHAINS, EXTERIOR 110V BLOCK HEATER PLUG AND (2) INTERIOR 110V PALLET JACK PLUGS (TYPICAL AT EACH DOCK POSITION)
5. 14' X 14' VERTICAL LIFT POWERED WAYNE DALTON THERMOSAN DOOR WITH VISION PANELS
6. STRIP WINDOW TO MATCH ADJACENT WINDOWS
7. ENTRY CANOPY
8. 9' TALL STOREFRONT GLAZING SYSTEM
9. 12' TALL STOREFRONT GLAZING SYSTEM
10. 21' TALL CURTAINWALL GLAZING SYSTEM
11. MORIN SINGLE SKIN WALL PANEL ON 2" Z FURRNIG AND 2" RIGID INSULATION
12. 4" KINGSPAN DESIGNWALL INSULATED PANEL
13. 4" KINGSPAN DESIGNWALL INSULATED PANEL WITH ACCENT COLOR INFILL
14. PAINT EXTERIOR BRICK FACADE

DATE PLOTTED:8/24/2022 11:04:47 AM

Design Group
DESIGN GROUP FACILITY SOLUTIONS, INC.
5 CHENELL DRIVE, BOX 3, CONCORD, NEW HAMPSHIRE 03301
PHONE: (603) 225-0010 FAX: (603) 225-0761

#	DATE	BY	REVISION
A	04/14/2022	CN	BASIS OF DESIGN – GENERAL ARRANGEMENT
B	08/24/2022	CN	ISSUED TO PLANNING BOARD

Coca-Cola BEVERAGES NORTHEAST

CLIENT: COCA-COLA BEVERAGES NORTHEAST, INC.
ONE EXECUTIVE PARK DR., SUITE 330 BEDFORD, NH

PROJECT: SALES CENTER RENOVATIONS
NEEDHAM HEIGHTS, MA

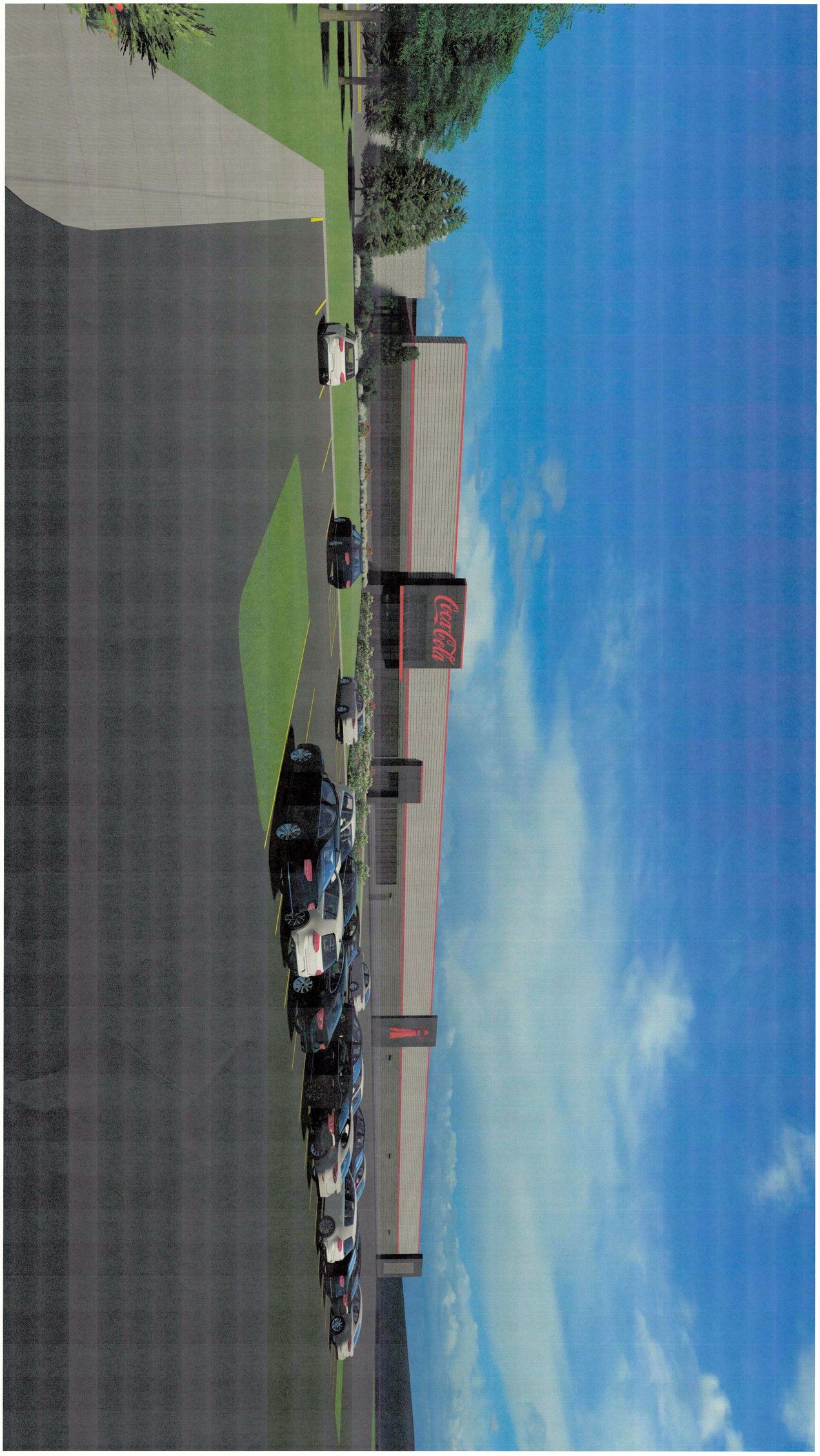
DRAWING TITLE: PROPOSED EXTERIOR ELEVATIONS

8/24/22
REGISTERED ARCHITECT
LESLIE A. THOMAS
NO. 052738
CONCORD, NH
COMMONWEALTH OF MASSACHUSETTS

PROJECT NO.	2103141
ISSUED	00/00/00
SCALE	AS NOTED
DRAWN BY	CN

DRAWING NO.

GA3.1



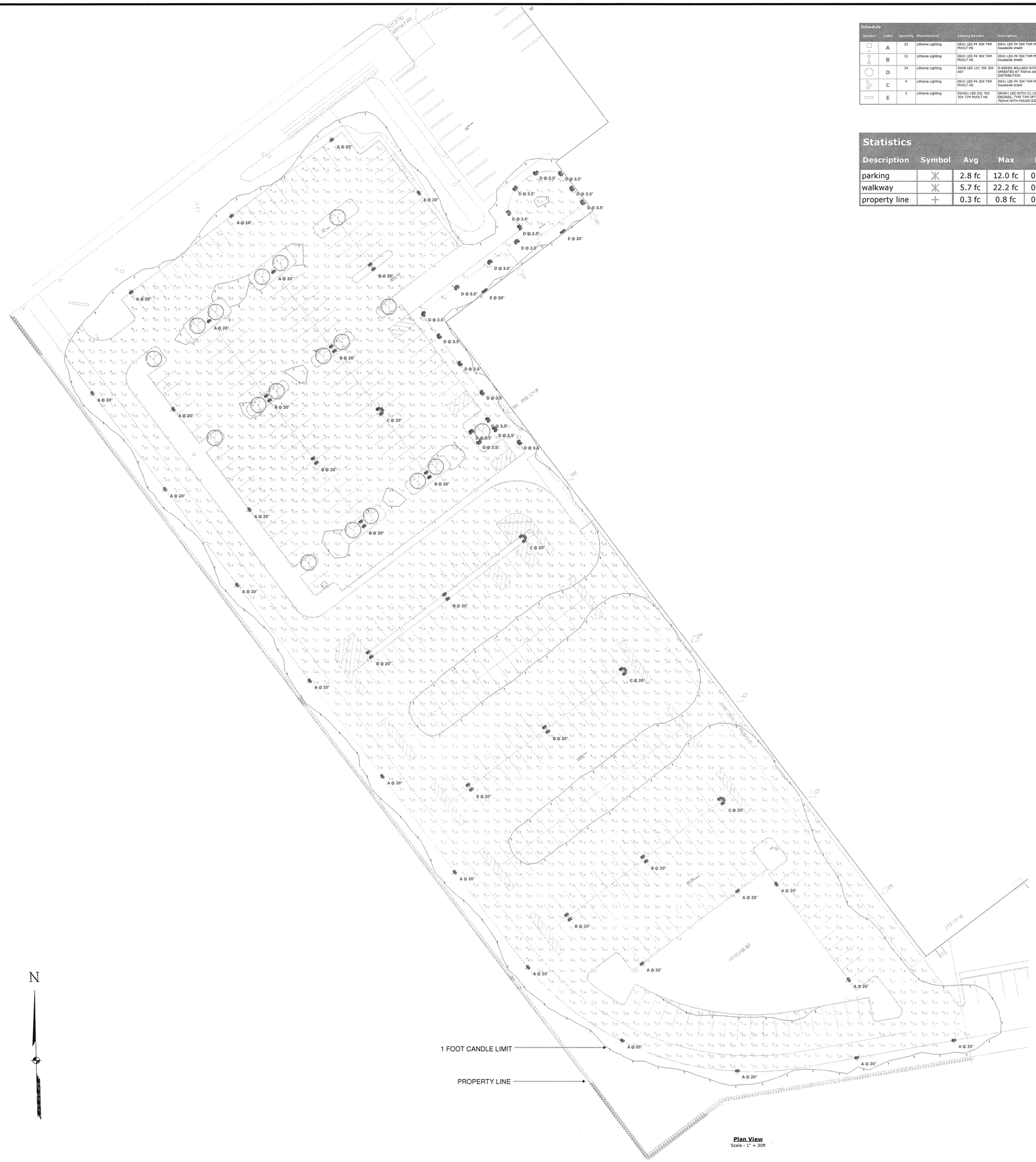
CLIENT	COCA-COLA BEVERAGES NORTHEAST, INC. ONE EXECUTIVE PARK DR., SUITE 330 BEDFORD, NH
PROJECT	SALES CENTER RENOVATIONS NEEDHAM HEIGHTS, MA
DRAWING TITLE	PROPOSED RENDERING FROM RT 128

#	DATE	BY	REVISION
A	08/24/2022	CN	ISSUED TO PLANNING BOARD

REGISTERED ARCHITECT — COMMONWEALTH OF MASSACHUSETTS — LESLIE-ANN THOMAS — 181 KEITH CONCORD MA 01742 — 8/24/22

PROJECT NO. 2103141
ISSUED 00/00/00
SCALE AS NOTED
DRAWN BY CN
DRAWING NO. GA4.1

Design Group
DESIGN GROUP FACILITY SOLUTIONS, INC.
5 CHENELL DRIVE, BOX 3, CONCORD, NEW HAMPSHIRE 03301
PHONE: (603) 225-0010 FAX: (603) 225-0761



Plan View
Scale - 1" = 30ft

Schedule								
Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage
	A	23	Lithonia Lighting	DSX1 LED P4 30K T4M MVOLT HS	DSX1 LED P4 30K T4M MVOLT with houseside shield	1	10217	0.9	125
	B	12	Lithonia Lighting	DSX1 LED P4 30K T4M MVOLT HS	DSX1 LED P4 30K T4M MVOLT with houseside shield	1	10217	0.9	250
	D	19	Lithonia Lighting	DSXW1 LED 11C 700 30K ASY	D-SERIES ROLLARD WITH 12 3000K LEDS OPERATED AT 700mA AND ASYMMETRIC DISTRIBUTION	1	2173	0.8	31
	C	4	Lithonia Lighting	DSX1 LED P4 30K T4M MVOLT HS	DSX1 LED P4 30K T4M MVOLT with houseside shield	1	10217	0.9	375
	E	2	Lithonia Lighting	DSXW1 LED 20C 700 30K T3M MVOLT HS	DSXW1 LED WITH (2) 10 LED LIGHT ENGINES, TYPE T3M OPTIC, 3000K, @ 700mA WITH HOUSE-SIDE SHIELDS.	1	4071	0.9	45.7

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
parking	+	2.8 fc	12.0 fc	0.3 fc	40.0:1	9.3:1
walkway	+	5.7 fc	22.2 fc	0.8 fc	27.8:1	7.1:1
property line	+	0.3 fc	0.8 fc	0.0 fc	N/A	N/A

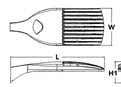
D-Series Size 1
LED Area Luminaire

d-series

Buy American

Specifications

EPA: 1 (.09 m²)
Length: 33" (838 mm)
Width: 13" (330 mm)
Height H1: 7-1/2" (191 mm)
Height H2: 3-1/2"
Weight (max): 27 lbs (12.2 kg)



Catalog Number
Notes
Type A,B,C

Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 750W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Ordering Information EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	Forward optics	Drive current	Color temperature	Distribution	Voltage	Mounting
DSX1 LED	Forward optics: P1 P4 P7 P2 P5 P8 P3 P6 P9 Rotated optics: P10 P12 P11 P13	30K 3000 K 40K 4000 K 50K 5000 K	T1S Type I short (Submersible) T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T4VS Type IV very short T5S Type V short T5M Type V medium T5W Type V wide BLC Backlight control LCCO Left corner cutoff RCCO Right corner cutoff	MVOLT 120 208 240 277 347 480	Shipped included SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor RPUMBA Round pole universal mounting adaptor Shipped separately KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)

Options								
Shipped installed: NLTAIR2 nLight AIR generation 2 enabled; PIRHN Network, high/low motion/ambient sensor; PER NEMA twist-lock receptacle only (controls ordered separately); PERS Five-pin receptacle only (controls ordered separately); PE7Q Seven-pin receptacle only (controls ordered separately); DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately); DS Dual switching	PIR High/low, motion/ambient sensor, 8–15' mounting height, ambient sensor enabled at 5fc; PIRH High/low, motion/ambient sensor, 15–30' mounting height, ambient sensor enabled at 5fc; PIRTCFC0 High/low, motion/ambient sensor, 8–15' mounting height, ambient sensor enabled at 5fc; PIRHTCFC0 Bi-level, motion/ambient sensor, 15–30' mounting height, ambient sensor enabled at 5fc; FAO Field adjustable output	Shipped installed: HS House-side shield; SF Single fuse (120, 277, 347V); DF Double fuse (208, 240, 480V); L90 Left rotated optics; R90 Right rotated optics; HA 50°C ambient operation; BAA Buy American Act Compliant. Shipped separately: BS Bird spikes; EGS External glare shield	DDBXD Dark bronze; DBLXD Black; DNAXD Natural aluminum; DWHXD White; DBLBXD Textured black; DNATXD Textured natural aluminum; DMHXD Textured white; DSSTXD Textured sandstone

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DSX1-LED Rev. 01/19/21 Page 1 of 9

D-Series Size 1
LED Wall Luminaire

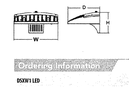
d-series

Buy American

Specifications

Luminaire
Width: 13-3/4" (34.9 cm)
Weight: 12 lbs (5.4 kg)
Depth: 10" (25.4 cm)
Height: 6-3/8" (16.2 cm)

Back Box (BBW, E20WC)
Width: 13-3/4" (34.9 cm)
BBW Weight: 5 lbs (2.2 kg)
Depth: 4" (10.2 cm)
E20WC Weight: 10 lbs (4.5 kg)
Height: 6-3/8" (16.2 cm)



Catalog Number
Notes
Type E

Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 74% in energy savings over comparable 250W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information EXAMPLE: DSXW1 LED 20C 1000 40K T3M MVOLT DDBTXD

DSXW1 LED

Series	Drive current	Color temperature	Distribution	Voltage	Mounting
DSXW1 LED 1C 1 LED 700 mA engine; 2C 2 LEDs 1000 mA engine[1]	350 350 mA 530 530 mA 700 700 mA 1000 1000 mA (1 A)[2]	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted	T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium	MVOLT[3] 120 208 240 277 347[4] 480[4,5]	Shipped included (blank) Surface mounting bracket BBW Surface-mount back box (for conduit entry)[6]

Options								
Shipped included: SF Single fuse (120, 277 or 347V)[7,8]; DF Double fuse (208, 240 or 480V)[7,8]; HS House-side shield[9]; SPD Separate surge protection[10]	Shipped separately[11]: BSW Bird-deterrent spikes; VG Vandal guard; DDL Diffused drop lens	DDBXD Dark bronze; DBLXD Black; DNAXD Natural aluminum; DWHXD White; DSSTXD Sandstone; DDBTXD Textured dark bronze; DBLBXD Textured black; DNATXD Textured natural aluminum; DWHGXD Textured white; DSSTXD Textured sandstone	Shipped installed: PE Photoelectric cell, button type[9]; DMG 0–10v dimming wires pulled outside fixture (for use with an external control, ordered separately); PIR 180° motion/ambient light sensor, <15' mtg ht[12]; PIRH 360° motion/ambient light sensor, 15–30' mtg ht[12]; PIRTCFC0 Motion/ambient sensor, 8–15' mounting height, ambient sensor enabled at 5fc[12]; PIRHTCFC0 Motion/ambient sensor, 15–30' mounting height, ambient sensor enabled at 5fc[12]; E20WC Emergency battery backup (includes external component enclosure), CA Title 20 compliant[13]		

Accessories
Ordered and shipped separately.
DSXW1-U Knuckle slip fitter (for use on light engine)
DSXW1BSW Bird deterrent spikes
DSXW1VG Vandal guard accessory

NOTES
1 2EC 1000 is not available with PIR, PIRH, PIRTCFC0 or PIRHTCFC0.
2 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
3 Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
4 Only available with 2EC, 700mA or 1000mA. Not available with PIR or PIRH.
5 480V is only available in the 2EC 1000 configuration. Not available with PE. Cannot be ordered as an accessory.
6 Photocontrol (PE) receptacle 120, 208, 240, 277 or 347 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
7 Reference Motion Sensor table on page 3.
8 Specify 347 or 480 for 347/480V wye systems. Not available with BSW mounting option. Not available with fusing. Not available with 347 or 480 voltage options. Emergency components located in back box housing. Emergency mode IES files located on product page at www.lithonia.com.
9 Not available with SPD.
10 Not available with 2EC1000.
11 Not available as separate accessory; see Accessories information.
12 Not available with E20WC.

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DSXW1-LED Rev. 3/07/22

D-Series
LED Bollard

d-series

Buy American

Specifications

Diameter: 8" Round (20.3 cm)
Height: 42" (106.7 cm)
Weight (max): 27 lbs (12.25 kg)

Catalog Number
Notes
Type D

Introduction

The D-Series LED Bollard is a stylish, energy-saving, long-life solution designed to perform the way a bollard should—with zero uplight. An optical leap forward, this full cut-off luminaire will meet the most stringent of lighting codes. The D-Series LED Bollard's rugged construction, durable finish and long-lasting LEDs will provide years of maintenance-free service.

Ordering Information EXAMPLE: DSXB LED 16C 700 40K SYM MVOLT DDBXD

DSXB LED

Series	Drive current	Color temperature	Distribution	Voltage	Mounting
DSXB LED Asymmetric 12C 12 LEDs 1200 mA; Symmetric 16C 16 LEDs 1200 mA	350 350 mA 450 450 mA[1] 530 530 mA 700 700 mA	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted AMBLW Amber limited wavelength[1,2]	ASY Asymmetric[3] SYM Symmetric[3]	MVOLT[4] 120[5] 208[5] 240[5] 277[5] 347[5] ELCW Emergency battery backup[6]	Shipped included SF Single fuse (120, 277, 347V)[4,7] DF Double fuse (208, 240 or 480V)[4,7] DMG 0–10v dimming wires pulled outside fixture (for use with an external control, ordered separately) Shipped installed H24 24" overall height H30 30" overall height H36 36" overall height PG Ground-fault finish-to-earth L/AB Without anchor bolts L/AB4 4-bolt retrofit base without anchor bolts[8]

Options								
							DWHXD White; DNAXD Natural aluminum; DDBXD Dark bronze; DBLXD Black; DNATXD Textured dark bronze; DBLBXD Textured black; DNATXD Textured natural aluminum; DWHGXD Textured white	

Accessories
Ordered and shipped separately.
MAB4-U Anchor bolts for DSXB[1]

NOTES
1 Only available in the 12C, ASY version.
2 Only available in the 16C, SYM version.
3 Only available with ASY AMBLW version.
4 Specify voltage.
5 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE) options.
6 Not available with 347V. Not available with fusing. Not available with PE.
7 Single fuse (SF) requires 120, 277, or 347 voltage option. Double fuse (DF) requires 208 or 240 voltage option.
8 MAB4-U not available with L/AB4 option.

LITHONIA LIGHTING.

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Design Group
DESIGN GROUP FACILITY SOLUTIONS, INC.
5 CHENELL DRIVE, BOX 3, CONCORD, NEW HAMPSHIRE 03301
PHONE: (603) 225-0010 FAX: (603) 225-0761

NO	DATE	BY	REVISION
1	08/29/22	REM	ISSUED TO PLANNING BOARD

Coca-Cola BEVERAGES NORTHEAST

CLIENT: COCA-COLA BEVERAGES NORTHEAST, INC.
ONE EXECUTIVE PARK DR., SUITE 330 BEDFORD, NH

PROJECT: SALES CENTER RENOVATIONS
NEEDHAM HEIGHTS, MA

DRAWING TITLE: FRONT PARKING PHOTOMETRIC PLAN

08/29/22

PROJECT NO. 2103141
ISSUED 08/29/22
SCALE AS NOTED
DRAWN BY REM
DRAWING NO. E1.02

DATE PLOTTED:29/2022 3:15:30 PM

Memorandum

To: Thomas Ryder
Public Services Administration Building
500 Dedham Avenue, Suite 118
Needham, MA 02492

Date: August 30, 2022

Project #: 15571.00

From: Matt Kealey, PE, PTOE
Ashley Domogala, EIT

Re: Traffic Evaluation - Coca-Cola Building Renovation
9 B Street, Needham, MA

Introduction

VHB has conducted a traffic evaluation on behalf of Coca-Cola Beverages Northeast, Inc. (Coke Northeast) for proposed site improvements and renovations (the Project) at the existing facility located at 9 B Street in Needham, MA (the Site). The facility was operated as a Coca-Cola bottling and distribution facility from the 1970's to 2018. In 2018, Coke Northeast ceased all beverage production at the facility and now operates the facility as a sales and distribution warehouse. As proposed, the Project consists of loading dock modifications, partial demolition of building structures, site vehicular and pedestrian circulation and parking area modifications associated with the building changes, landscape improvements, stormwater treatment upgrades and utility improvements. The Project results in an overall reduction in building area on the Site. This memorandum has been prepared to summarize trip generation and transportation project research.

Transportation Projects

To get an understanding of potential future transportation conditions in the vicinity of the site, VHB researched recent projects and planned projects in the area. Two notable projects that resulted from this research are the Route 128 Add-A-Lane project, which was recently completed near the Site, and the nearby development of Founders Park, which is proposing additional improvements at the intersection of Kendrick Street at Third Avenue, just south of the Site driveway on Third Avenue.

Route 128 Add-A-Lane

As part of the Route 128 Add-A-Lane project completed by MassDOT, a new interchange was added at Kendrick Street. It included a Route 128 northbound off-ramp and Route 128 southbound on-ramp that opened in August 2016, as well as a Route 128 northbound on-ramp and Route 128 southbound off-ramp that opened in December 2017. In addition, traffic signal timing adjustments were implemented at the intersection of Kendrick Street at Third Avenue. The full Add-A-Lane project was completed in late 2018.

Based on a post-construction traffic study[1] completed by McMahon Associates, the traffic volumes on Kendrick Street east of Route 128 increased by approximately 15 percent eastbound and 42 percent westbound in the weekday morning peak hour and by approximately 44 percent eastbound and 17 percent westbound in the weekday evening peak hour.

[1] Route 128 Add-a-Lane Post Construction Study; McMahon Associates (Boston, MA); November 25, 2019.

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Boston Children's Hospital at Founders Park: Kendrick Street at Third Avenue Improvements

A Notice of Project Change (NPC) for Boston Children's Hospital at Founders Park[2] was submitted in January 2021. It found that the intersection of Kendrick Street at Third Avenue currently operates at an acceptable LOS C under 2019 baseline conditions, but would be anticipated to degrade to LOS E/F under 2026 Build conditions without mitigation.

As described in the NPC and confirmed in the SEIR Certificate for Founders Park[3], the following improvements were proposed by Children's Hospital Corporation at the intersection of Kendrick Street at Third Avenue:

- Adjust signal timing and phasing to improve peak operations (requiring approval from MassDOT)
- Adjust signal heads to improve visibility and safety
- Increase the storage capacity of the southbound right-turn lane

With the proposed mitigation, the intersection would operate at LOS C and E in the weekday morning and evening peak hours, respectively.

Trip Generation

Existing Trip Generation

To quantify existing trip generation at the Site, twenty-four hour automatic traffic record (ATR) counts were conducted at the Site driveways on Thursday, April 7, 2022. The ATR data is included in the Attachments.

The existing daily and peak hour trip generation are summarized in Table 1. The Site currently generates approximately 731 vehicle trips on a typical weekday, 23 of which occur in the weekday morning peak hour and 36 of which occur in the weekday evening peak hour.

[2] Notice of Project Change: Boston Children's Hospital at Founders Park; Epsilon Associates, Inc. (Maynard, MA); January 15, 2021.
[3] Certificate of the Secretary of Energy and Environmental Affairs on the Single Environmental Impact Report: Founders Park (Previously Reviewed as Center 128); Executive Office of Energy and Environmental Affairs (Boston, MA); April 30, 2021.

Memorandum

Table 1 Existing Trip Generation

Time Period	Cars	Single-Unit Heavy Vehicles	Multi-Unit Heavy Vehicles	Total
Daily				
Enter	252	18	89	359
Exit	265	17	90	372
Total	**517**	**35**	**179**	**731**
Morning Peak Hour (7:15-8:15 AM)				
Enter	11	1	2	14
Exit	3	3	3	9
Total	**14**	**4**	**5**	**23**
Evening Peak Hour (4:00-5:00 PM)				
Enter	7	0	3	10
Exit	24	0	2	26
Total	**31**	**0**	**5**	**36**

Source: ATR counts conducted on Thursday, April 7, 2022.

Figures 1 and 2 show the entering and exiting volumes by 15-minute time period.

Figure 1: Site Entering Volumes by 15-Minute Time Period

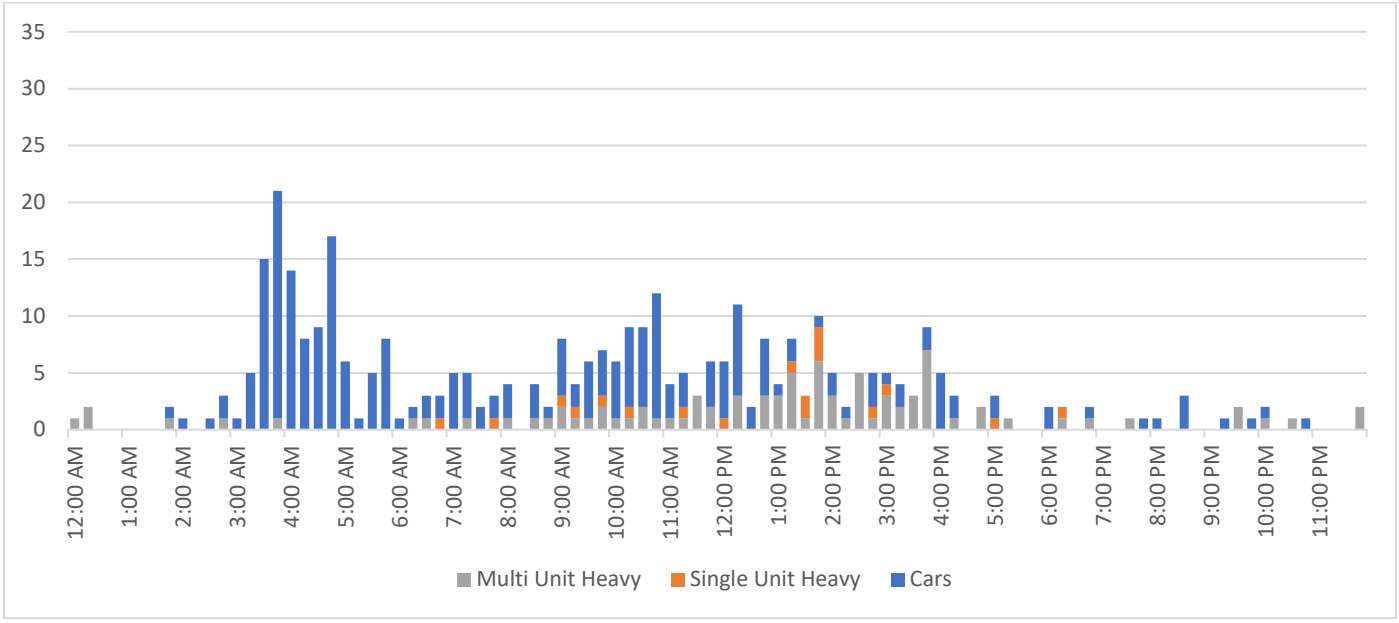
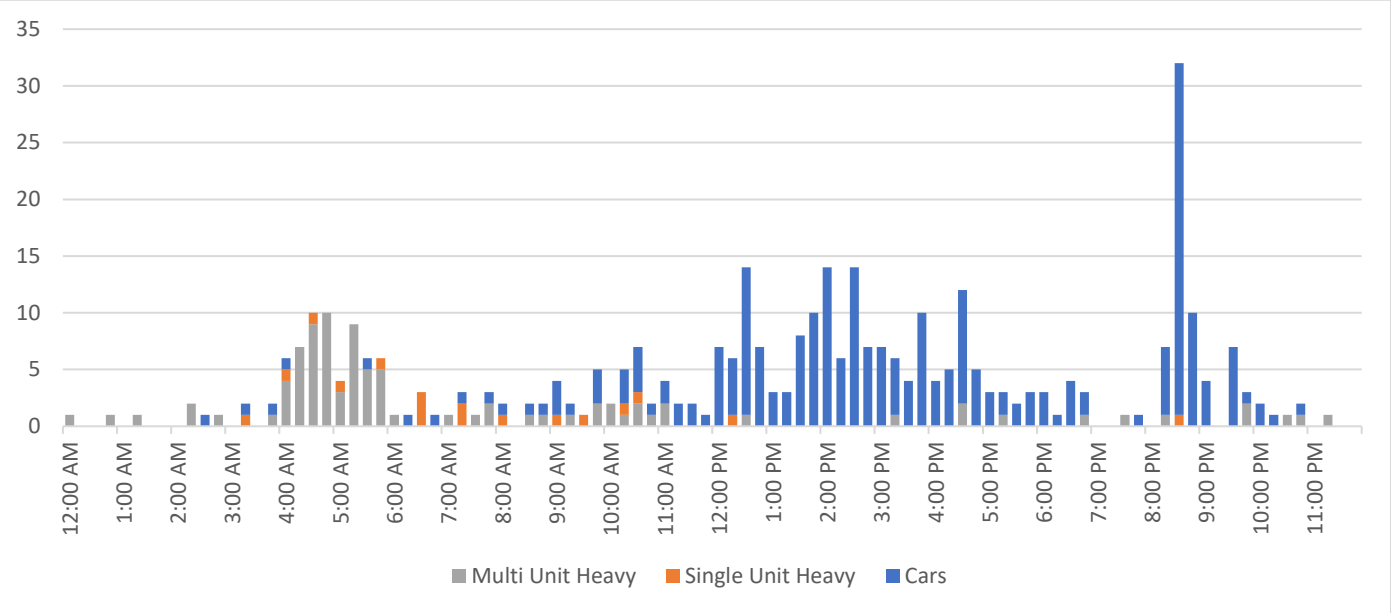


Figure 2: Site Exiting Volumes by 15-Minute Time Period



The data summarized in Figures 1 and 2 indicates the following:

- Peak truck activity occurs between 4:00-6:00 AM and 1:00-4:00 PM, outside of peak commuting periods
- Vehicular activity at the site is low during the typical weekday peak commuting periods of 7:00-9:00 AM and 4:00-6:00 PM

Future Trip Generation

As mentioned previously, the proposed renovations include loading dock modifications, partial demolition of building structures, site vehicular and pedestrian circulation and parking area modifications associated with the building changes, landscape improvements, stormwater treatment upgrades and utility improvements. The Project reduces the overall building area. Based on discussions with the Applicant, the employee count will remain the same or will slightly decrease for typical day to day operations. In addition, the level of truck activity is not expected to increase at the facility. As such, the future Site trip generation is expected to be similar to or lower than the existing Site trip generation.

Conclusion

As discussed in this memorandum, the proposed Coca-Cola building renovation is expected to result in trip generation that is similar to, or lower than the existing facility. Therefore, no significant traffic impact is expected as a result of the Project. In addition, the nearby Founders Park development is proposing further modifications at the intersection of Kendrick Street at Third Avenue, which should improve operations in the vicinity of the site.

Attachments

Coca-Cola Driveway
west of 3rd Avenue
City, State: Needham, MA
Client: VHB/A. Domogala
Site Code: 15571

Count Date: **Thursday, April 7, 2022**
Direction: **EB**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File # **228541 ATR A**

AM	Cars	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	1	1
12:15 AM	0	0	0	0
12:30 AM	0	0	0	0
12:45 AM	0	0	1	1
1:00 AM	0	0	0	0
1:15 AM	0	0	1	1
1:30 AM	0	0	0	0
1:45 AM	0	0	0	0
2:00 AM	0	0	0	0
2:15 AM	0	0	2	2
2:30 AM	0	0	0	0
2:45 AM	0	0	1	1
3:00 AM	0	0	0	0
3:15 AM	0	1	0	1
3:30 AM	0	0	0	0
3:45 AM	1	0	1	2
4:00 AM	0	1	4	5
4:15 AM	0	0	7	7
4:30 AM	0	1	9	10
4:45 AM	0	0	10	10
5:00 AM	0	1	3	4
5:15 AM	0	0	9	9
5:30 AM	0	0	5	5
5:45 AM	0	1	5	6
6:00 AM	0	0	1	1
6:15 AM	1	0	0	1
6:30 AM	0	3	0	3
6:45 AM	0	0	0	0
7:00 AM	0	0	1	1
7:15 AM	1	2	0	3
7:30 AM	0	0	1	1
7:45 AM	0	0	2	2
8:00 AM	0	1	0	1
8:15 AM	0	0	0	0
8:30 AM	0	0	1	1
8:45 AM	0	0	1	1
9:00 AM	2	1	0	3
9:15 AM	1	0	1	2
9:30 AM	0	1	0	1
9:45 AM	2	0	2	4
10:00 AM	0	0	2	2
10:15 AM	0	1	1	2
10:30 AM	1	1	2	4
10:45 AM	0	0	1	1
11:00 AM	0	0	2	2
11:15 AM	0	0	0	0
11:30 AM	1	0	0	1
11:45 AM	1	0	0	1
AM Total	**11**	**15**	**77**	**103**
Percentage	**10.68%**	**14.56%**	**74.76%**	
AM Peak	**9:00 AM**	**6:30 AM**	**4:30 AM**	**4:30 AM**
Volume	**5**	**5**	**31**	**33**

PM	Cars	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	1	0	0	1
12:15 PM	0	1	0	1
12:30 PM	0	0	1	1
12:45 PM	0	0	0	0
1:00 PM	2	0	0	2
1:15 PM	1	0	0	1
1:30 PM	0	0	0	0
1:45 PM	0	0	0	0
2:00 PM	1	0	0	1
2:15 PM	2	0	0	2
2:30 PM	1	0	0	1
2:45 PM	0	0	0	0
3:00 PM	0	0	0	0
3:15 PM	1	0	1	2
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	2	2
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	1	1
5:30 PM	1	0	0	1
5:45 PM	0	0	0	0
6:00 PM	1	0	0	1
6:15 PM	0	0	0	0
6:30 PM	0	0	0	0
6:45 PM	1	0	1	2
7:00 PM	0	0	0	0
7:15 PM	0	0	0	0
7:30 PM	0	0	1	1
7:45 PM	0	0	0	0
8:00 PM	0	0	0	0
8:15 PM	0	0	1	1
8:30 PM	0	1	0	1
8:45 PM	0	0	0	0
9:00 PM	0	0	0	0
9:15 PM	0	0	0	0
9:30 PM	0	0	0	0
9:45 PM	0	0	2	2
10:00 PM	0	0	0	0
10:15 PM	0	0	0	0
10:30 PM	0	0	1	1
10:45 PM	0	0	1	1
11:00 PM	0	0	0	0
11:15 PM	0	0	1	1
11:30 PM	0	0	0	0
11:45 PM	0	0	0	0
PM Total	**12**	**2**	**13**	**27**
Percentage	**44.44%**	**7.41%**	**48.15%**	
PM Peak	**1:45 PM**	**12:00 PM**	**4:30 PM**	**12:15 PM**
Volume	**4**	**1**	**3**	**4**
Day Total	**23**	**17**	**90**	**130**
Percentage	**17.69%**	**13.08%**	**69.23%**	

Coca-Cola Driveway
west of 3rd Avenue
City, State: Needham, MA
Client: VHB/A. Domogala
Site Code: 15571

Count Date: **Thursday, April 7, 2022**
Direction: **WB**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File # **228541 ATR A**

AM	Cars	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	1	1
12:15 AM	0	0	2	2
12:30 AM	0	0	0	0
12:45 AM	0	0	0	0
1:00 AM	0	0	0	0
1:15 AM	0	0	0	0
1:30 AM	0	0	0	0
1:45 AM	0	0	1	1
2:00 AM	0	0	0	0
2:15 AM	0	0	0	0
2:30 AM	0	0	0	0
2:45 AM	0	0	1	1
3:00 AM	0	0	0	0
3:15 AM	0	0	0	0
3:30 AM	0	0	0	0
3:45 AM	0	0	1	1
4:00 AM	1	0	0	1
4:15 AM	0	0	0	0
4:30 AM	0	0	0	0
4:45 AM	0	0	0	0
5:00 AM	0	0	0	0
5:15 AM	0	0	0	0
5:30 AM	0	0	0	0
5:45 AM	1	0	0	1
6:00 AM	0	0	0	0
6:15 AM	0	0	1	1
6:30 AM	1	0	1	2
6:45 AM	0	1	0	1
7:00 AM	1	0	0	1
7:15 AM	0	0	1	1
7:30 AM	0	0	0	0
7:45 AM	0	1	0	1
8:00 AM	1	0	1	2
8:15 AM	0	0	0	0
8:30 AM	3	0	1	4
8:45 AM	0	0	1	1
9:00 AM	0	1	2	3
9:15 AM	0	1	1	2
9:30 AM	0	0	1	1
9:45 AM	1	1	2	4
10:00 AM	0	0	1	1
10:15 AM	0	1	1	2
10:30 AM	0	0	2	2
10:45 AM	0	0	1	1
11:00 AM	0	0	1	1
11:15 AM	1	1	1	3
11:30 AM	0	0	3	3
11:45 AM	1	0	2	3
AM Total	**11**	**7**	**30**	**48**
Percentage	**22.92%**	**14.58%**	**62.50%**	
AM Peak	**7:45 AM**	**9:00 AM**	**11:00 AM**	**8:30 AM**
Volume	**4**	**3**	**7**	**10**

PM	Cars	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	1	1	0	2
12:15 PM	1	0	3	4
12:30 PM	0	0	0	0
12:45 PM	2	0	3	5
1:00 PM	0	0	3	3
1:15 PM	2	1	5	8
1:30 PM	0	2	1	3
1:45 PM	0	3	6	9
2:00 PM	0	0	3	3
2:15 PM	0	0	1	1
2:30 PM	0	0	5	5
2:45 PM	0	1	1	2
3:00 PM	1	1	3	5
3:15 PM	0	0	2	2
3:30 PM	0	0	3	3
3:45 PM	0	0	7	7
4:00 PM	0	0	0	0
4:15 PM	1	0	1	2
4:30 PM	0	0	0	0
4:45 PM	0	0	2	2
5:00 PM	1	1	0	2
5:15 PM	0	0	1	1
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	1	0	0	1
6:15 PM	0	1	1	2
6:30 PM	0	0	0	0
6:45 PM	0	0	1	1
7:00 PM	0	0	0	0
7:15 PM	0	0	0	0
7:30 PM	0	0	1	1
7:45 PM	0	0	0	0
8:00 PM	0	0	0	0
8:15 PM	0	0	0	0
8:30 PM	0	0	0	0
8:45 PM	0	0	0	0
9:00 PM	0	0	0	0
9:15 PM	1	0	0	1
9:30 PM	0	0	2	2
9:45 PM	0	0	0	0
10:00 PM	0	0	1	1
10:15 PM	0	0	0	0
10:30 PM	0	0	1	1
10:45 PM	0	0	0	0
11:00 PM	0	0	0	0
11:15 PM	0	0	0	0
11:30 PM	0	0	0	0
11:45 PM	0	0	2	2
PM Total	**11**	**11**	**59**	**81**
Percentage	**13.58%**	**13.58%**	**72.84%**	
PM Peak	**12:00 PM**	**1:00 PM**	**1:00 PM**	**1:00 PM**
Volume	**4**	**6**	**15**	**23**
Day Total	**22**	**18**	**89**	**129**
Percentage	**17.05%**	**13.95%**	**68.99%**	

Coca-Cola Driveway
south of 1st Avenue
City, State: Needham, MA
Client: VHB/A. Domogala
Site Code: 15571

PRECISION D A T A INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File # **228541 ATR B**

Count Date: **Thursday, April 7, 2022**
Direction: **NB**

AM	Cars	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	0	0
12:15 AM	0	0	0	0
12:30 AM	0	0	0	0
12:45 AM	0	0	0	0
1:00 AM	0	0	0	0
1:15 AM	0	0	0	0
1:30 AM	0	0	0	0
1:45 AM	0	0	0	0
2:00 AM	0	0	0	0
2:15 AM	0	0	0	0
2:30 AM	1	0	0	1
2:45 AM	0	0	0	0
3:00 AM	0	0	0	0
3:15 AM	1	0	0	1
3:30 AM	0	0	0	0
3:45 AM	0	0	0	0
4:00 AM	1	0	0	1
4:15 AM	0	0	0	0
4:30 AM	0	0	0	0
4:45 AM	0	0	0	0
5:00 AM	0	0	0	0
5:15 AM	0	0	0	0
5:30 AM	1	0	0	1
5:45 AM	0	0	0	0
6:00 AM	0	0	0	0
6:15 AM	0	0	0	0
6:30 AM	0	0	0	0
6:45 AM	1	0	0	1
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	1	0	0	1
8:00 AM	1	0	0	1
8:15 AM	0	0	0	0
8:30 AM	1	0	0	1
8:45 AM	1	0	0	1
9:00 AM	1	0	0	1
9:15 AM	0	0	0	0
9:30 AM	0	0	0	0
9:45 AM	1	0	0	1
10:00 AM	0	0	0	0
10:15 AM	3	0	0	3
10:30 AM	3	0	0	3
10:45 AM	1	0	0	1
11:00 AM	2	0	0	2
11:15 AM	2	0	0	2
11:30 AM	1	0	0	1
11:45 AM	0	0	0	0
AM Total	**23**	**0**	**0**	**23**
Percentage	**100.00%**	**0.00%**	**0.00%**	
AM Peak	**10:15 AM**	**12:00 AM**	**12:00 AM**	**10:15 AM**
Volume	**9**	**0**	**0**	**9**

PM	Cars	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	6	0	0	6
12:15 PM	5	0	0	5
12:30 PM	13	0	0	13
12:45 PM	7	0	0	7
1:00 PM	1	0	0	1
1:15 PM	2	0	0	2
1:30 PM	8	0	0	8
1:45 PM	10	0	0	10
2:00 PM	13	0	0	13
2:15 PM	4	0	0	4
2:30 PM	13	0	0	13
2:45 PM	7	0	0	7
3:00 PM	7	0	0	7
3:15 PM	4	0	0	4
3:30 PM	4	0	0	4
3:45 PM	10	0	0	10
4:00 PM	4	0	0	4
4:15 PM	5	0	0	5
4:30 PM	10	0	0	10
4:45 PM	5	0	0	5
5:00 PM	3	0	0	3
5:15 PM	2	0	0	2
5:30 PM	1	0	0	1
5:45 PM	3	0	0	3
6:00 PM	2	0	0	2
6:15 PM	1	0	0	1
6:30 PM	4	0	0	4
6:45 PM	1	0	0	1
7:00 PM	0	0	0	0
7:15 PM	0	0	0	0
7:30 PM	0	0	0	0
7:45 PM	1	0	0	1
8:00 PM	0	0	0	0
8:15 PM	6	0	0	6
8:30 PM	31	0	0	31
8:45 PM	10	0	0	10
9:00 PM	4	0	0	4
9:15 PM	0	0	0	0
9:30 PM	7	0	0	7
9:45 PM	1	0	0	1
10:00 PM	2	0	0	2
10:15 PM	1	0	0	1
10:30 PM	0	0	0	0
10:45 PM	1	0	0	1
11:00 PM	0	0	0	0
11:15 PM	0	0	0	0
11:30 PM	0	0	0	0
11:45 PM	0	0	0	0
PM Total	**219**	**0**	**0**	**219**
Percentage	**100.00%**	**0.00%**	**0.00%**	
PM Peak	**8:15 PM**	**12:00 PM**	**12:00 PM**	**8:15 PM**
Volume	**51**	**0**	**0**	**51**
Day Total	**242**	**0**	**0**	**242**
Percentage	**100.00%**	**0.00%**	**0.00%**	

Coca-Cola Driveway
south of 1st Avenue
City, State: Needham, MA
Client: VHB/A. Domogala
Site Code: 15571

PRECISION
D A T A
INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File # **228541 ATR B**

Count Date: **Thursday, April 7, 2022**
Direction: **SB**

AM	Cars	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	0	0
12:15 AM	0	0	0	0
12:30 AM	0	0	0	0
12:45 AM	0	0	0	0
1:00 AM	0	0	0	0
1:15 AM	0	0	0	0
1:30 AM	0	0	0	0
1:45 AM	1	0	0	1
2:00 AM	1	0	0	1
2:15 AM	0	0	0	0
2:30 AM	1	0	0	1
2:45 AM	2	0	0	2
3:00 AM	1	0	0	1
3:15 AM	5	0	0	5
3:30 AM	15	0	0	15
3:45 AM	20	0	0	20
4:00 AM	13	0	0	13
4:15 AM	8	0	0	8
4:30 AM	9	0	0	9
4:45 AM	17	0	0	17
5:00 AM	6	0	0	6
5:15 AM	1	0	0	1
5:30 AM	5	0	0	5
5:45 AM	7	0	0	7
6:00 AM	1	0	0	1
6:15 AM	1	0	0	1
6:30 AM	1	0	0	1
6:45 AM	2	0	0	2
7:00 AM	4	0	0	4
7:15 AM	4	0	0	4
7:30 AM	2	0	0	2
7:45 AM	2	0	0	2
8:00 AM	2	0	0	2
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	1	0	0	1
9:00 AM	5	0	0	5
9:15 AM	2	0	0	2
9:30 AM	5	0	0	5
9:45 AM	3	0	0	3
10:00 AM	5	0	0	5
10:15 AM	7	0	0	7
10:30 AM	7	0	0	7
10:45 AM	11	0	0	11
11:00 AM	3	0	0	3
11:15 AM	2	0	0	2
11:30 AM	0	0	0	0
11:45 AM	3	0	0	3
AM Total	**185**	**0**	**0**	**185**
Percentage	**100.00%**	**0.00%**	**0.00%**	
AM Peak	**3:30 AM**	**12:00 AM**	**12:00 AM**	**3:30 AM**
Volume	**56**	**0**	**0**	**56**

PM	Cars	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	4	0	0	4
12:15 PM	7	0	0	7
12:30 PM	2	0	0	2
12:45 PM	3	0	0	3
1:00 PM	1	0	0	1
1:15 PM	0	0	0	0
1:30 PM	0	0	0	0
1:45 PM	1	0	0	1
2:00 PM	2	0	0	2
2:15 PM	1	0	0	1
2:30 PM	0	0	0	0
2:45 PM	3	0	0	3
3:00 PM	0	0	0	0
3:15 PM	2	0	0	2
3:30 PM	0	0	0	0
3:45 PM	2	0	0	2
4:00 PM	5	0	0	5
4:15 PM	1	0	0	1
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	1	0	0	1
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	1	0	0	1
6:15 PM	0	0	0	0
6:30 PM	0	0	0	0
6:45 PM	1	0	0	1
7:00 PM	0	0	0	0
7:15 PM	0	0	0	0
7:30 PM	0	0	0	0
7:45 PM	1	0	0	1
8:00 PM	1	0	0	1
8:15 PM	0	0	0	0
8:30 PM	3	0	0	3
8:45 PM	0	0	0	0
9:00 PM	0	0	0	0
9:15 PM	0	0	0	0
9:30 PM	0	0	0	0
9:45 PM	1	0	0	1
10:00 PM	1	0	0	1
10:15 PM	0	0	0	0
10:30 PM	0	0	0	0
10:45 PM	1	0	0	1
11:00 PM	0	0	0	0
11:15 PM	0	0	0	0
11:30 PM	0	0	0	0
11:45 PM	0	0	0	0
PM Total	**45**	**0**	**0**	**45**
Percentage	**100.00%**	**0.00%**	**0.00%**	
PM Peak	**12:00 PM**	**12:00 PM**	**12:00 PM**	**12:00 PM**
Volume	**16**	**0**	**0**	**16**
Day Total	**230**	**0**	**0**	**230**
Percentage	**100.00%**	**0.00%**	**0.00%**	