SITE PLANS

FOR

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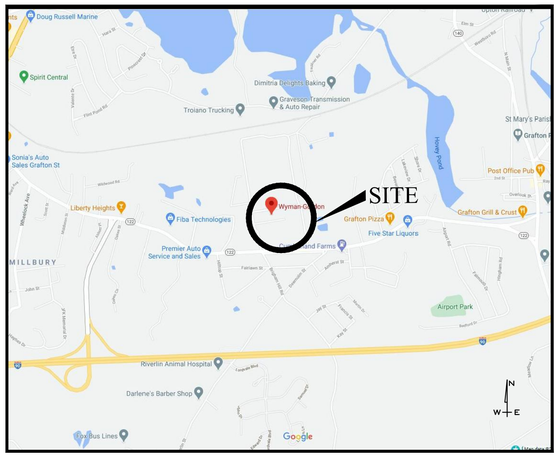
GRAFTON, MA

A.P. 35, LOT 1
244 WORCESTER STREET
GRAFTON, MA



LOCUS MAP
NTS

PREPARED FOR:

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10 GREENE STREET
PROVIDENCE, RI 02903

PREPARED BY:

GAROFALO

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DATED:

JUNE, 2021

(GENERAL REVISION: 08-24-2021)

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REFERENCE PLANS

-	ALTA/NSPS LAND TITLE SURVEY
-	WYMAN-GORDON COMPANY, EXISTING CONDITIONS PLAN

COMMONWEALTH OF MASSACHUSETTS
SAMUEL HEMENWAY
CIVIL
No. 52
REGISTERED PROFESSIONAL ENGINEER
08-24-21

ISSUED FOR PERMIT ONLY

JOB NO.7280-00
1 OF 27 SHEETS

GENERAL CONSTRUCTION NOTES:

1. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE TRAILER AT ALL TIMES. DEVIATIONS OR CHANGES WILL NOT BE ALLOWED UNLESS BY WRITTEN APPROVAL FROM THE ENGINEER.

2. SITEWORK CONSTRUCTION SHALL NOT COMMENCE UNTIL ALL APPROVALS FROM THE TOWN OF GRAFTON HAVE BEEN SECURED. CONTRACTOR SHALL BE RESPONSIBLE FOR PERMITS OBTAINED FOR ALL SITE WORK.

3. ALL IMPROVEMENTS INDICATED HEREON MUST COMPLY WITH THE 'AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINE (ADAAG)'. NOTE THAT THE DETAIL CONTAINED WITHIN THIS PLAN MAY NOT SHOW THE DETAIL NECESSARY TO CONSTRUCT WALKWAYS, RAMPS AND SPACES TO COMPLY WITH THE ADAAG REQUIREMENTS BUT THE CONTRACTOR IS RESPONSIBLE TO PROVIDE THE LEVEL OF CARE NECESSARY TO BE CERTAIN THAT THE CONSTRUCTED PRODUCT MEETS THESE STANDARDS.

4. THE CONTRACTOR MUST RETAIN THE SERVICES OF A REGISTERED LAND SURVEYOR IN THE STATE OF MASSACHUSETTS TO LAYOUT ON THE GROUND ALL NEW ELEMENTS OF WORK. IF ANY WORK IS INSTALLED PRIOR TO THE ABOVE REQUIREMENT AND IF ANY WORK IS NOT SATISFACTORY TO THE ENGINEER, THE CONTRACTOR MUST REPLACE THE WORK AT NO ADDITIONAL COST TO THE OWNER.

5. THE CONTRACTOR SHALL VERIFY THE PROPOSED LAYOUT WITH ITS RELATIONSHIP TO THE EXISTING SITE SURVEY. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, SITE CONDITIONS AND MATERIAL SPECIFICATIONS AND SHALL NOTIFY THE OWNER AND ENGINEER OF ANY ERRORS, OMISSIONS OR DISCREPANCIES BEFORE COMMENCING, INSTALLING OR PROCEEDING WITH WORK.

6. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES AND TO TAKE WHATEVER NECESSARY MEASURES NEEDED TO PROVIDE FOR THEIR PROTECTION. THE ENGINEER HAS DILIGENTLY ATTEMPTED TO LOCATE AND INDICATE ALL EXISTING UNDERGROUND UTILITIES AND FACILITIES ON THE DRAWINGS; HOWEVER, THE INFORMATION SHOWN IS FOR THE CONTRACTORS CONVENIENCE ONLY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS OF UTILITIES SHOWN OR NOT SHOWN. THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE ANY EXISTING UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION, VERIFY ALL DIMENSIONS, SITE CONDITIONS AND MATERIALS. THE CONTRACTOR MUST CONTACT THE LOCAL UTILITY COMPANIES FOR EXACT LOCATION OF UTILITIES PRIOR TO THE START OF ANY CONSTRUCTION AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE START OF ANY WORK. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND REPLACE ANY AND ALL DAMAGE MADE TO UTILITIES BY THE CONTRACTOR.

7. THE CONTRACTOR MUST NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITIES IN THE AREA OF PROPOSED CONSTRUCTION, EXCAVATION OR BLASTING AT LEAST THREE WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS PRIOR TO THE START OF ANY CONSTRUCTION, EXCAVATION OR BLASTING. ALL WATER, SEWER, GAS AND ALL OTHER UTILITIES MUST BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.

8. METHODS AND MATERIALS USED IN THE CONSTRUCTION OF IMPROVEMENTS MUST CONFORM TO THE TOWN OF GRAFTON CURRENT CONSTRUCTION STANDARDS AND SPECIFICATIONS AND THE STATE OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASS HIGHWAY). THE STATE OF MASSACHUSETTS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AS AMENDED, AND THE MASSACHUSETTS STANDARD DETAILS ARE MADE A PART HEREOF, AS IF ATTACHED HERETO.

9. THE CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY PAVEMENT, DRIVEWAYS, SIDEWALKS, WALL, CURBS, ETC. DAMAGED DURING CONSTRUCTION WITH MATCHING MATERIALS.

10. THE CONTRACTOR AGREES THAT HE WILL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE PROJECT SITE CONDITIONS THROUGHOUT CONSTRUCTION INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONJUNCTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.

11. ALL MATERIALS USED FOR CONSTRUCTION MUST BE NEW AND FREE OF DEFECTS. USED OR SALVAGED MATERIAL WILL NOT BE ALLOWED UNLESS WRITTEN APPROVAL FROM THE OWNER IS OBTAINED BY THE CONTRACTOR.

12. AT ALL TIMES THE CONTRACTOR MUST MAINTAIN ACCESS FOR EMERGENCY VEHICLES AROUND AND TO ALL BUILDINGS. (I.E. IN TIMES OF RAIN OR SNOW, ROADS MUST BE ABLE TO CARRY A FIRE TRUCK BY BEING PAVED OR HAVING A CRUSHED STONE BASE, ETC.). WIDTH OF EMERGENCY VEHICLE ACCESS MUST BE A MINIMUM OF 20 FEET WIDE. ACCESS TO BUILDINGS THAT HAVE A FIRE SPRINKLER SYSTEM OR STANDPIPE MUST BE WITHIN 40 FEET OF THE FIRE DEPARTMENT CONNECTION (FDC). NFPA 1141 3–1.

13. NECESSARY BARRICADES, LIGHTS, SIGNS AND OTHER TRAFFIC CONTROL METHODS AS MAY BE NECESSARY FOR THE PROTECTION AND SAFETY OF THE PUBLIC MUST BE PROVIDED AND MAINTAINED THROUGHOUT CONSTRUCTION BY THE CONTRACTOR.

14. HIGH INTENSITY LIGHTING FACILITIES MUST BE SO ARRANGED THAT THE SOURCE OF ANY LIGHT IS CONCEALED FROM PUBLIC VIEW AND FROM ADJACENT RESIDENTIAL PROPERTY AND DOES NOT INTERFERE WITH TRAFFIC.

15. ALL RI HIGHWAY BOUNDS AND PERMANENT SURVEY MARKERS SHALL BE PROTECTED THROUGHOUT CONSTRUCTION.

16. ALL TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 2009 INCLUDING ALL REVISIONS.

17. REFER TO ARCHITECTURAL, STRUCTURAL, AND MECHANICAL PLANS FOR ALL BUILDING INFORMATION, AND FOR SITEWORK WITHIN 5'–0" OF BUILDING. .

18. ALL CURB RADII ARE 3' UNLESS OTHERWISE NOTED ON THE SITE PLAN.

19. PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR IS REQUIRED TO DEVELOP AND IMPLEMENT A PLAN FOR THE TEMPORARY CONTROL OF VEHICULAR AND PEDESTRIAN TRAFFIC FOR WORK WITHIN PUBLIC STREET RIGHT–OF–WAY AT THE SITE EGRESS. CONTRACTOR SHALL OBTAIN APPROVAL OF SAID PLAN FROM APPROPRIATE STATE AND COMMUNITY PUBLIC SAFETY OFFICIALS.

20. WHEN IT IS NECESSARY TO CLOSE OFF A STREET, THE FIRE DEPARTMENT AND POLICE DEPARTMENT SHALL BE NOTIFIED BY THE CONTRACTOR.

21. SHOP DRAWINGS OF PRECAST STRUCTURES SHALL BE REVIEWED BY THE ENGINEER AND APPROVED BEFORE USE.

22. IF ANY EXISTING STRUCTURES AND/OR UTILITIES TO REMAIN ARE DAMAGED DURING CONSTRUCTION, EITHER ON THE PROJECT SITE, ADJACENT PROPERTIES, OR WITHIN STATE RIGHT–OF–WAY, IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.

23. ALL PLANTINGS THAT ARE INSTALLED ON THE WYMAN–GORDON PROPERTY (A.P. 25, LOT 1) AND ALONG THE COMMON PROPERTY LINE BETWEEN THE WYMAN GORDON PROPERTY AND THE DEVELOPMENT PARCEL (PARCEL 2) SHALL HAVE A MINIMUM 2–YEAR PRODUCT WARRANTY.

SURVEY REFERENCE NOTES:

1. EXISTING CONDITIONS SHOWN ARE BASED ON PLAN ENTITLED "ALTA/NSPS LAND TITLE SURVEY" FOR A PORTION OF AP 35 LOT 1. SITUATED ON 244 WORCESTER STREET GRAFTON, MASSACHUSETTS. PREPARED FOR CHURCHILL & BANKS. PREPARED BY GAROFALO & ASSOCIATES, INC. JOB NO. 7280.00, DWG. NO. 7280–ALTA. DATE: NOVEMBER 2020.

2. PORTIONS OF THE EXISTING CONDITIONS SHOWN ARE BASED ON PLAN ENTITLED "WYMAN–GORDON COMPANY, EXISTING CONDITIONS PLAN, AUGUST 13, 2010, 244 WORCESTER STREET GRAFTON, MASSACHUSETTS", PREPARED FOR WYMAN–GORDON BY LEVEL DESIGN GROUP (LDG), 249 SOUTH STREET, UNIT 1, PLAINVILLE, MA, AND PROVIDED FOR USE BY WYMAN–GORDON AND LDG.

GENERAL UTILITY NOTES:

1. THE CONTRACTOR SHALL NOTIFY DIG–SAFE (1–888–344–7233) AND ALL LOCAL AUTHORITIES & UTILITY COMPANIES TO VERIFY LOCATIONS OF UTILITIES WITHIN THE AREA 72 HOURS PRIOR TO BEGINNING ANY EXCAVATION OR DEMOLITION FOR THE PURPOSE OF COORDINATING THE MARKING OF UNDERGROUND UTILITIES. LOCATION AND DEPTHS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY, LOCATE AND PROTECT EXISTING UTILITIES IN THE FIELD WHETHER OR NOT SHOWN ON THE DRAWINGS.

2. ALL WORK SHALL BE IN COMPLETE ACCORDANCE WITH ALL APPLICABLE STATE, FEDERAL AND LOCAL CODES, AND ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT HIS EXPENSE UNLESS PREVIOUSLY OBTAINED BY THE OWNER/DEVELOPER.

3. THE CONTRACTOR SHALL COORDINATE LOCATION AND INSTALLATION OF ALL UNDERGROUND UTILITIES AND APPURTENANCES TO MINIMIZE DISTURBANCE OF CURBING, PAVING AND COMPACTED SUBGRADE. THE CONTRACTOR SHALL NOTIFY THE TOWN ENGINEER & ALL LOCAL UTILITY COMPANIES 48 HOURS BEFORE EACH PHASE OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER OF ANY DISCREPANCIES OR ERRORS DISCOVERED IN THE PLANS.

4. BEDDING REQUIREMENTS SPECIFIED HEREIN ARE TO BE CONSIDERED AS MINIMUMS FOR RELATIVELY DRY, STABLE EARTH CONDITIONS. ADDITIONAL BEDDING SHALL BE REQUIRED FOR ROCK TRENCHES AND WET AREA. CONTRACTOR SHALL HAVE THE RESPONSIBILITY TO PROVIDE SUCH ADDITIONAL BEDDING AS MAY BE REQUIRED TO PROPERLY CONSTRUCT THE WORK.

5. THE CONTRACTOR SHALL REMOVE ANY ABANDONED FOUNDATIONS, UTILITY STRUCTURES, BURIED DEBRIS ETC. WHICH INTERFERE WITH THE INSTALLATION OF THE UTILITY WORK. ALL SUCH STRUCTURES SHALL BE COMPLETELY REMOVED AND THE EXCAVATED AREA SHALL BE BACKFILLED WITH COMPACTED GRAVEL IN 6" LIFTS TO 95% COMPACTION TO 6" BELOW THE BOTTOM OF THE UTILITY AND PIPE.

6. COMPACTION OF THE BACKFILL OF ALL TRENCHES SHALL BE COMPACTED TO THE DENSITY OF 95% OF THE THEORETICAL MAXIMUM DRY DENSITY (ASTM D698). BACKFILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS OR OTHER FOREIGN DEBRIS AND SHALL BE PLACED IN LIFTS NOT TO EXCEED ONE FOOT IN COMPACTED FILL THICKNESS. CORRECTION OF ANY TRENCH SETTLEMENT WITHIN A YEAR FROM THE DATE OF PROJECT APPROVAL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

7. ALL PIPING LAYOUT INDICATED ON THESE PLANS IS DIAGRAMMATIC ONLY AND DOES NOT SHOW ALL THE REQUIRED FITTINGS FOR PROPER ALIGNMENT. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED FITTINGS TO OBTAIN PROPER ALIGNMENT AND FOR EXISTING UTILITY CONNECTIONS BASED UPON FIELD CONDITIONS.

8. IF DURING EXCAVATION THE TRENCH WIDTH EXCEEDS THE SUM OF THE PIPE O.D. PLUS 2'–0", PLACE AND COMPACT THE FILL TO 12" ABOVE THE PIPE AND RE–EXCAVATE TO REQUIRED GRADE.

9. DOMESTIC WATER SERVICE IS PROVIDED TO THE PROPERTY BY THE GRAFTON WATER DISTRICT. THE ONSITE WATER SYSTEM ON THE PROPERTY SHALL BE (AWWA C901) DR9 POLYETHYLENE OR TYPE k COPPER FOR 2" SERVICES OR SMALLER, OR CLASS 52 DOUBLE CEMENT LINED DUCTILE IRON PIPE WITH TYTON JOINTS FOR 4" SERVICES OR LARGER. ALL BENDS, TEES ETC. SHALL BE JOINT RESTRAINED BY THE USE OF CONCRETE THRUST BLOCKS AND "MEG–A–LUG". ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE GRAFTON WATER DISTRICT REGULATIONS, STANDARDS AND SPECIFICATIONS. NOTIFICATION SHALL BE PROVIDED TO SAID AUTHORITIES AT LEAST 72 HOURS PRIOR TO INITIATING CONSTRUCTION.

10. GATE VALVES SHALL BE CAST IRON BODY BRONZE MOUNTED, COMPLETE WITH ROAD BOX AND SHALL CONFORM TO THE CITY OF NEWPORT REGULATIONS, STANDARDS AND SPECIFICATIONS.

11. ALL FIRE AND PLUMBING FIXTURES MUST CONFORM TO LOCAL SPECIFICATIONS AND AS STIPULATED BY THE LOCAL FIRE MARSHALL AND/OR THE BUILDING OFFICIAL.

12. ALL SANITARY SEWER MATERIALS AND WORKMANSHIP ASSOCIATED WITH THE INSTALLATION AND TESTING OF SANITARY SEWERS SHALL CONFORM TO THE GRAFTON UTILITIES/SEWER DEPARTMENT REGULATIONS, STANDARDS AND SPECIFICATIONS. ALL SEWER SYSTEM COMPONENTS MUST BE TESTED, CLEANED AND AS–BUILT INFORMATION MUST BE SUBMITTED TO THE TOWN OF GRAFTON AND APPROVED, PRIOR TO ISSUANCE OF A PERMIT TO DISCHARGE TO A PUBLIC SEWER SYSTEM.

13. SANITARY SEWER MAINS AND SERVICES SHALL BE SDR–35 (ASTM D–3034) PVC SEWER PIPE WITH PUSH ON RUBBER RING JOINTS UNLESS NOTED OTHERWISE. CLEANOUTS SHALL BE INSTALLED AT BUILDING FACE (REFER PLUMBING PLANS FOR ALL WORK WITHIN 5' OF THE BUILDING). NEOPRENE COUPLINGS WITH STAINLESS STEEL BAND AND SHEER RINGS SHALL BE REQUIRED FOR JOINING DIFFERENT TYPES OF SANITARY SEWER PIPES.

14. SEWER LINES SHALL BE INSTALLED AT A MINIMUM 10 FOOT HORIZONTAL SEPARATION FROM ANY PROPOSED OR EXISTING WATER LINE.

15. WHENEVER SEWER LINES MUST CROSS WATER LINES, THE SEWER SHALL BE INSTALLED SO THAT THE TOP OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN. WHERE 18 INCH VERTICAL SEPARATION & 10 FOOT HORIZONTAL SEPARATION CAN NOT BE MET AT WATER AND SEWER CROSSINGS, THE SEWER PIPE SHALL BE ENCASED IN CONCRETE OR BE EITHER DUCTILE IRON OR C900 BLUE BRUTE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF CROSSING.

16. WHENEVER NEW SEWER LINES CONNECT TO EXISTING SEWER MANHOLES THE CONTRACTOR SHALL REBUILD THE EXISTING SEWER MANHOLE CHANNEL TO ACCOMMODATE THE NEW CONNECTION.

17. STORM DRAINS 12" AND OVER SHALL BE SMOOTH INTERIOR WALL AND EXTERIOR CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE CAPABLE OF WITHSTANDING (H–20) LOAD UNLESS NOTED OTHERWISE. PIPE SHALL BE JOINED USING BELL & SPIGOT JOINTS MEETING OR EXCEEDING ASTM F2648. THE JOINT SHALL BE SOIL–TIGHT AND GASKETS SHALL MEET OR EXCEED ASTM F477. HDPE PIPE SHALL BE AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS INC. (ADS), HANCOR PIPE OR LANE PIPE. ALL STORM DRAINAGE PIPING SHALL BE LAID ON A SMOOTH CONTINUOUS GRADE WITH NO VISIBLE BENDS AT THE JOINTS. WHERE INDICATED ON DRAWINGS REINFORCED CONCRETE PIPE (RCP) PIPE SHALL BE CLASS III RCP WITH "O" RING GASKET JOINTS.

18. WHENEVER UTILITIES ARE TO BE INSTALLED WITHIN THE TOWN OF GRAFTON OR STATE OF MASSACHUSETTS PUBLIC OR PRIVATE RIGHT OF WAYS, THE TRENCH MUST BE BACKFILLED WITH FLOWABLE FILL. ALL AREAS OF ROADWAY PAVEMENT & WALKWAYS DISTURBED DURING CONSTRUCTION SHALL BE RE–PAVED PER THE TOWN AND STATE STANDARDS AND SPECIFICATIONS.

GENERAL GRADING NOTES:

1. THE MAXIMUM RUNNING SLOPE ALONG ANY SIDEWALK SHALL BE 5% THE MAXIMUM CROSS SLOPE ACROSS ANY SIDEWALK SHALL BE 2% A MINIMUM 5'x5' LANDING SHALL BE PROVIDED IN FRONT OF ALL BUILDING ENTRANCES.

2. ALL ADAAG PARKING SPACES AND LOADING SPACES SHALL BE 2% MAXIMUM SLOPE IN ANY DIRECTION.

3. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.

4. ALL GRATES AND COVERS IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 3" ABOVE FINISH GRADE.

5. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.

6. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH THE TOWN OF GRAFTON SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.

STORMWATER SYSTEM MAINTENANCE NOTES:

THE DRAINAGE SYSTEMS ARE TO BE MONITORED THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD BY THE CONTRACTOR. UPON COMPLETION OF THE PROJECT THE CONTRACTOR MUST DO A FINAL FULL MAINTENANCE & CLEAN UP OF THE STORMWATER MANAGEMENT SYSTEM AND THE SITE. UPON COMPLETION OF THE CONTRACTOR'S FINAL MAINTENANCE & CLEAN UP OF THE PROJECT, MONITORING OF THE STORMWATER MANAGEMENT SYSTEM SHALL BE THE RESPONSIBILITY OF THE OWNER.

CONSTRUCTION MONITORING/MAINTENANCE PROCEDURES SHALL BE AS FOLLOWS:
(RESPONSIBILITY OF CONTRACTOR)

1. SILT BARRIER:
MONITOR SILT BARRIER ON A WEEKLY BASIS AND AFTER EVERY RAIN STORM EVENT AND REPAIR OR REPLACE ANY DAMAGED AREAS IMMEDIATELY. IMMEDIATELY CLEAN THE SILT BARRIER IF SIX INCHES OR MORE OF SEDIMENT HAS ACCUMULATED ON THE STRAW BALE & SILT BARRIER.

2. PAVED AREAS:
PARKING LOTS, PUBLIC & PRIVATE ROADWAYS AND GUTTERS SHALL BE SWEPT CLEAN OF ALL SEDIMENT & DEBRIS. SWEEPING & REMOVAL OF DEBRIS SHALL BE PERFORMED ON A WEEKLY BASIS AT A MINIMUM.

3. CATCH BASINS:
ALL CATCH BASINS SHALL BE INSTALLED AS DETAILED AND INSPECTED AFTER EVERY RAIN STORM EVENT. IMMEDIATELY CLEAN THE CATCH BASIN SUMP IF TWO FEET OR MORE OF SEDIMENT HAS ACCUMULATED WITHIN THE CATCH BASIN.

4. DRAIN MANHOLES:
DRAIN MANHOLES SHALL BE INSTALLED AS DETAILED AND INSPECTED AFTER EVERY RAIN STORM EVENT. IMMEDIATELY CLEAN THE DRAIN MANHOLE IF ANY OF SEDIMENT HAS ACCUMULATED WITHIN THE DRAIN MANHOLE.

5. STORMWATER BMPS:
NO CONSTRUCTION RUNOFF SHALL BE DIRECTED TO STORMWATER BMPS UNTIL UPGRADIENT AREAS ARE STABILIZED.

POST CONSTRUCTION MONITORING/MAINTENANCE PROCEDURES SHALL BE AS FOLLOWS:
(RESPONSIBILITY OF OWNER)

1. PAVED AREAS:
PARKING LOTS, ROADS AND ALL ACCESS WAYS AND GUTTERS MUST BE SWEPT CLEAN OF ALL SEDIMENT AND DEBRIS ON BI–ANNUAL BASIS IN SPRING AND FALL OF EACH YEAR OR AS NECESSARY.

2. CATCH BASINS:
ALL CATCH BASINS MUST BE INSPECTED AND MAINTAINED ON A TWICE–ANNUAL BASIS IN MARCH AND OCTOBER OF EACH YEAR. CATCH BASINS MUST BE INSPECTED TO ENSURE THEY HAVE ADEQUATE SUMP CAPACITY, FRAMES AND GRATES ARE NOT DAMAGED, AND OIL/WATER SEPARATING DEVICES ARE IN PLACE. CATCH BASIN SUMPS ARE TO BE CLEANED OUT DURING BI–ANNUAL INSPECTIONS IN MARCH AND OCTOBER OF EACH YEAR. IMMEDIATELY CLEAN THE CATCH BASIN SUMP IF TWO FEET OR MORE OF SEDIMENT HAS ACCUMULATED WITHIN THE CATCH BASIN.

3. DRAIN MANHOLES:
ALL DRAIN MANHOLES MUST BE INSPECTED AND MAINTAINED ON A ANNUAL BASIS IN MARCH AND OCTOBER OF EACH YEAR. DRAIN MANHOLES MUST BE INSPECTED TO ENSURE FRAMES AND COVERS ARE NOT DAMAGED AND NO BLOCKAGES HAVE OCCURRED WITHIN THE MANHOLE. DRAIN MANHOLES ARE TO BE CLEANED OUT DURING BI–ANNUAL INSPECTIONS IN MARCH AND OCTOBER OF EACH YEAR. IMMEDIATELY CLEAN THE DRAIN MANHOLE IF ANY SEDIMENT HAS ACCUMULATED.

4. STORMWATER MANAGEMENT FACILITIES – REFER TO OPERATIONS AND MAINTENANCE PLAN UNDER SEPARATE COVER.

INFILTRATION AREA CONSTRUCTION PROTECTION

FOR THE LONG–TERM FUNCTION OF THE INFILTRATING SYSTEMS, CARE MUST BE TAKEN IN THIS AREA DURING CONSTRUCTION. THE CONTRACTOR SHALL EMPLOY THE FOLLOWING MINIMUM BEST MANAGEMENT PRACTICES (BMP'S):

1. THE INFILTRATION AREAS SHALL NOT BE USED AS A CONSTRUCTION SEDIMENTATION SYSTEM.

2. CONSTRUCTION EQUIPMENT, VEHICULAR TRAFFIC, PARKING OF VEHICLES, AND STOCKPILING OF CONSTRUCTION AND EARTH MATERIALS SHALL BE OUTSIDE THE LIMITS OF THE INFILTRATION AREA UNTIL INSTALLATION IS COMPLETED. THE SUBGRADE BENEATH THE SYSTEM SHALL NOT BE COMPACTED.

3. EXCAVATION FOR CONSTRUCTION OF THE INFILTRATION AREAS SHALL BE PERFORMED MANUALLY OR BY HYDRAULIC EXCAVATOR OR SOME OTHER SIMILAR MEANS TO ENSURE THAT THE EQUIPMENT IS NOT IN DIRECT CONTACT WITH THE NATURAL INFILTRATION EARTH MATERIAL AND DOES NOT CAUSE COMPACTION OF THE MATERIAL AND THE ENTIRE AREA IS TO BE SCARIFIED PRIOR TO INSTALLATION.

4. THE CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION FENCING AND EROSION CONTROLS AROUND THE PERIMETER OF THE INFILTRATION AREA TO PREVENT THE USE OF THIS AREA FOR ALL ACTIVITIES THAT MIGHT DAMAGE THE INFILTRATION CAPABILITIES OF THE AREA. THIS FENCING MAY BE REMOVED FOR BACKFILLING AND FINAL CONSTRUCTION.

SITE LEGEND

EXISTING	NEW	DESCRIPTION
℄	℄	CENTERLINE (LAYOUT)
D	D	STORM DRAIN
E	E	ELECTRIC (UNDERGROUND)
F	F	FIRE SERVICE
FD	FD	FOOTING DRAIN
G	G	GAS
OHW	OHW	OVERHEAD WIRE
		PROPERTY LINE
S	S	SANITARY SEWER
SL	SL	SITE LIGHTING SERVICE
T	T	TELEPHONE
W	W	WATER
64	64	CONTOUR
x 64.0	x 64.00	SPOT GRADE
x 64.0(BC)	x 64.00(BC)	SPOT GRADE (BOT. OF CURB)
x 64.5(TC)	x 64.50(TC)	SPOT GRADE (TOP OF CURB)
64.5(BW)	64.50(BW)	SPOT GRADE (BOT. OF WALL)
64.5(TW)	64.50(TW)	SPOT GRADE (TOP OF WALL)
CC	PCC	PRECAST CONC. CURB
		CHAIN LINK FENCE (CLF)
		STOCKADE FENCE (STKF)
		BORING LOCATION
CB	CB#1	CATCH BASIN
CB(DG)	CBDG#1	DOUBLE GRATE CATCH BASIN
CTB	CTB	CONCRETE THRUST BLOCK
DMH	DMH	DRAIN MANHOLE
FES	FES	FLARED END STRUCTURE
SMH	SMH	SEWER MANHOLE
		WATER SERVICE
		UTILITY POLE
HYD		FIRE HYDRANT
GV	GV	GATE VALVE AND CURB BOX
		HANDICAP SYMBOL (PRKG. SPACE)
		SIGN
		WETLAND
SEV	SEV	SOIL EVALUATION LOCATION
TP	TP	TEST PIT LOCATION
FDC	FDC	FIRE DEPARTMENT CONNECTION
PIV	PIV	POST INDICATOR VALVE (PIV)
E	E	ELECTRIC MANHOLE (EMH)
T	T	TELEPHONE MANHOLE (TMH)
T	T	TRANSFORMER PAD
GEN	GEN	GENERATOR PAD
GCO	GCO	GROUND CLEANOUT
LP		SIGHT LIGHT POLE
		TRAFFIC FLOW DIRECTION
	LOD	LIMIT OF DISTURBANCE
		COMPOST SILT SOCKS
		PAVEMENT SAWCUT & MATCH TO EXISTING

ABBREVIATIONS

CI	CAST IRON PIPE
CLDI	CEMENT LINED DUCTILE IRON PIPE
CLF	CHAIN LINK FENCE
D.I.	DUCTILE IRON PIPE
EX.	EXISTING
F&I	FURNISH AND INSTALL
INV.	INVERT ELEVATION
MTE	MATCH TO EXISTING
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
PVC	POLYVINYL CHLORIDE PIPE
PCC	PRECAST CONCRETE CURB
RCP	REINFORCED CONCRETE PIPE
DBYL	DOUBLE YELLOW LINE PAVEMENT PAINT
SYL	SINGLE YELLOW LINE PAVEMENT PAINT
SWL	SINGLE WHITE LINE PAVEMENT PAINT
VGC	VERTICAL GRANITE CURB

GENERAL NOTES & LEGEND

FOR
CB DISTRIBUTION
GRAFTON, MA
SITUATED AT
244 WORCESTER STREET
GRAFTON, MA
PREPARED FOR
CHURCHILL & BANKS COMPANIES, LLC

NO.	REVISION	BY	DATE
1	GENERAL REVISION	RAS	08/24/2021

ISSUED FOR PERMIT ONLY

COMMONWEALTH OF MASSACHUSETTS
SAMUEL HEMENWAY
CIVIL
No. 50746
REGISTERED PROFESSIONAL ENGINEER
08-24-21

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LAND PLANNERS|ENVIRONMENTAL SCIENTISTS

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DWG. NO. 7280–00–Cover.dwg	CHECK BY S.S.H.
SCALE: AS SHOWN	APPROVED S.B.G.
	DATE: JUNE 10, 2021

SHEET

G-1.1

L:\7280-00 Distribution Center (Churchill & Banks) – 244 Worcester Street – North Grafton, MA\dwg\01-Current\7280-00-Cover.dwg 08/24/2021 kyingyang 16:05

SITE CONTEXT PLAN

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

NO.	REVISION	BY	DATE
1	GENERAL REVISION	RAS	08/24/2021

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COMMONWEALTH OF MASSACHUSETTS
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No. 50[illegible]
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08-24-21

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	DATE: JUNE 10, 2021

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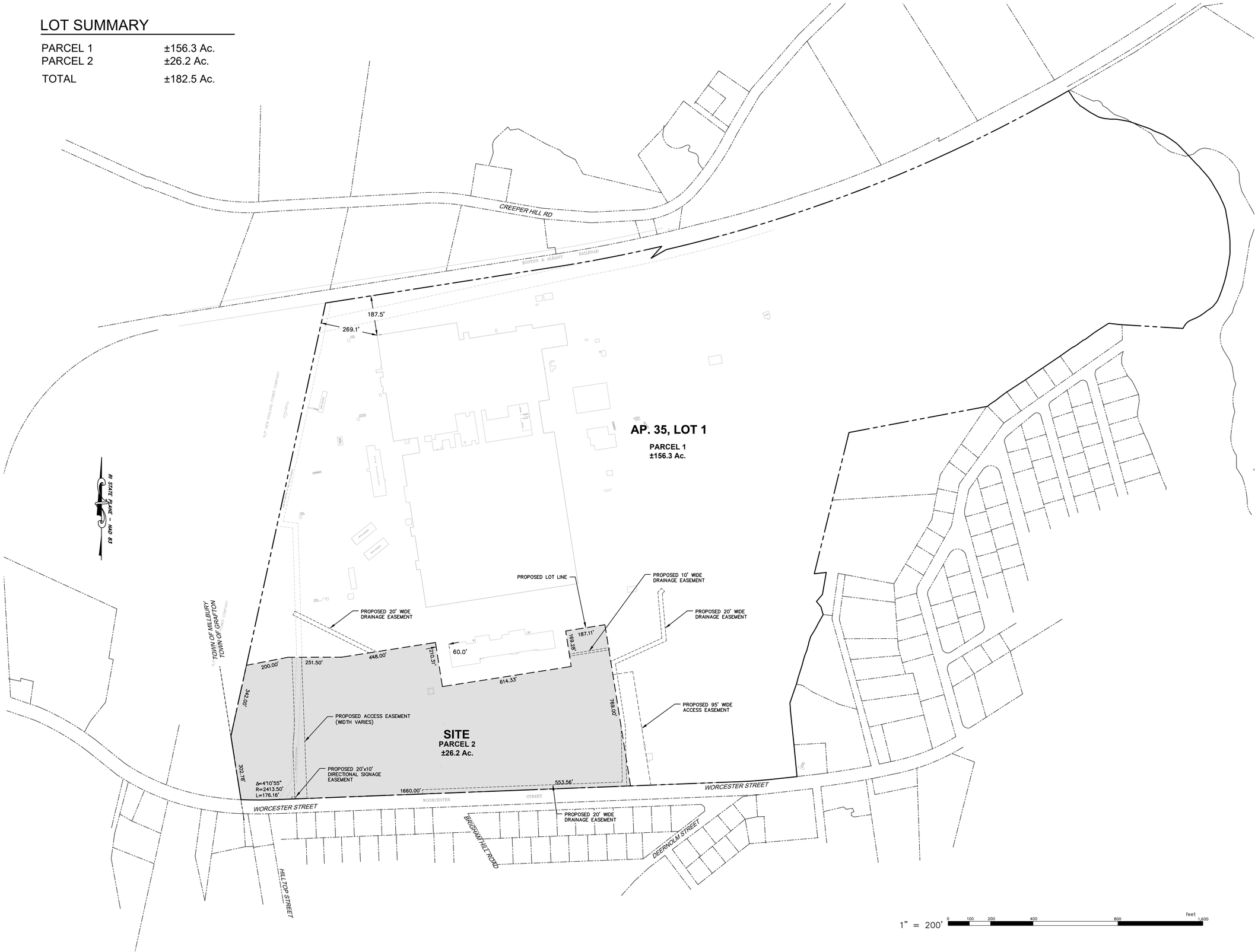
G-2.1

L:\7280-00 Distrubtion Center (Churchill & Banks) – 244 Worcester Street – North Grafton, MA\dwg\01-Current\7280-00-Site Context.dwg 08/24/2021 kyingyong 16:19

LOT SUMMARY

PARCEL 1	±156.3 Ac.
PARCEL 2	±26.2 Ac.
TOTAL	±182.5 Ac.



LOT LAYOUT PLAN

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

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G-2.2

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LOT ZONING SUMMARY

A.P.35; PARCEL 1 (RESIDUAL)

ZONING: INDUSTRIAL ZONE (I)

SITE DATA			
DESCRIPTION	REQUIRED	EXISTING	PROPOSED
LAND USE: GENERAL BUSINESS	N/A	INDUSTRIAL	SAME
MIN. LAND AREA	40,000 S.F.	182.5 Ac.	156.3 Ac.
MIN. LOT FRONTAGE	120'	2,622'	785.8'
MIN. FRONT YARD BUILDING SETBACK	40'	465.0'	984.5'
MIN. SIDE YARD BUILDING SETBACK	35'	269.1'	60.0'
MIN. REAR YARD BUILDING SETBACK	35'	187.5'	SAME
MAX. BLDG HEIGHT	35'	±90'	SAME
LANDSCAPE REQUIREMENT (TOTAL OF DEVELOPMENT)	25%	±65%	±60%

PARKING SUMMARY			
DESCRIPTION	REQUIRED	EXISTING	PROPOSED
INDUSTRIAL USE	176 (1)	1066	386 (2)

TABLE NOTES:

1. ZONING BY LAW–SECTION 4.2.2 OFF–SITE PARKING SCHEDULE: TRANSPORTATION INDUSTRIAL & UTILITY USE: 1 SPACE PER 1.3 EMPLOYEES MAX SHIFT (229 EMPLOYEES MAX SHIFT = 229 EMP/ 1.3 SPACE/EMP= 176 SPACES)
2. PROPOSED PARKING INCLUDES HISTORIC 89 PARKING FIELD AT REAR OF SITE NOT CURRENTLY BEING UTILIZED (TOTAL PARKING = 256 SP. + 41 SPACES + 89 SPACES)

DEVELOPMENT PARCEL ZONING SUMMARY

PARCEL 2

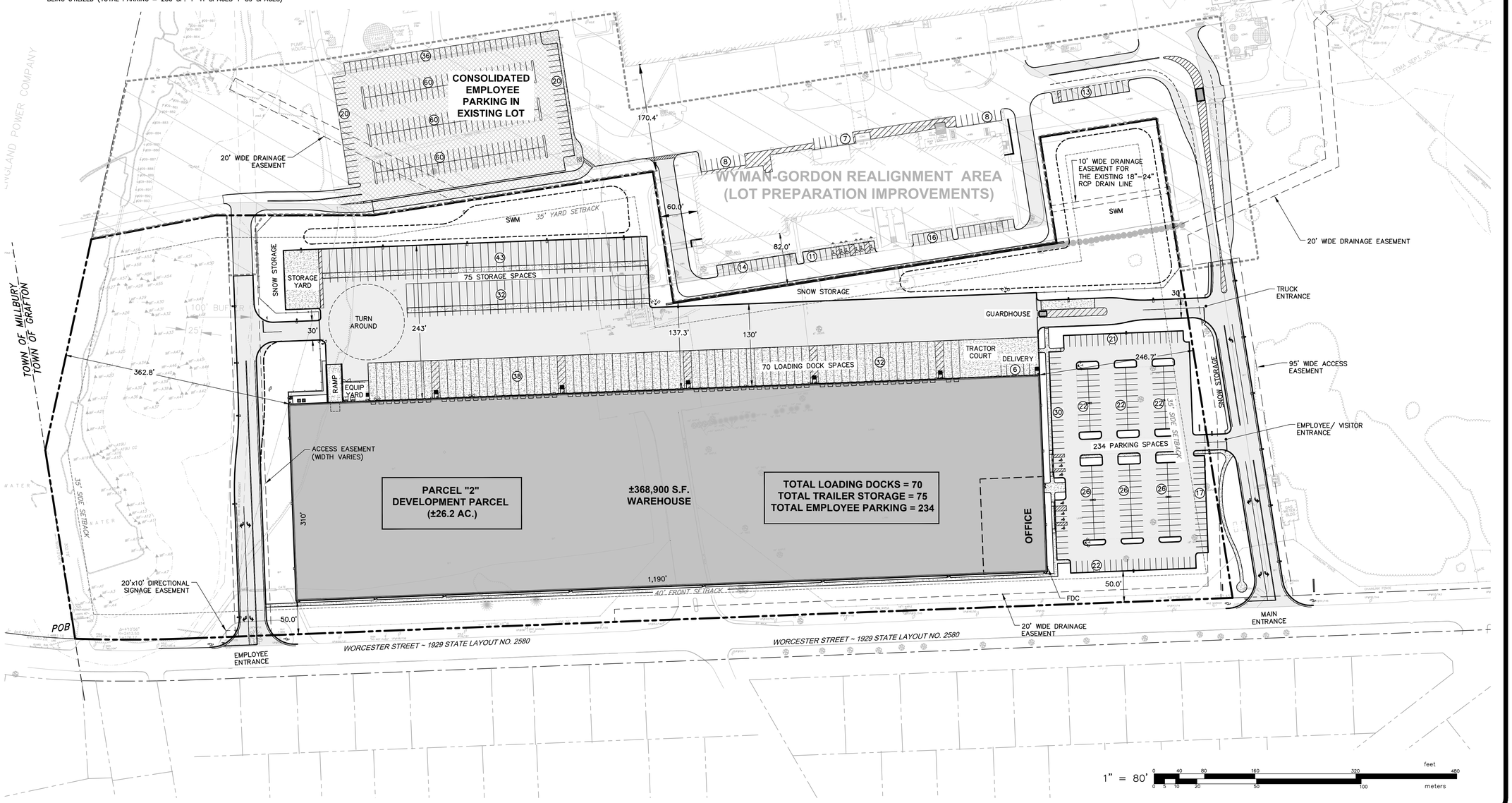
ZONING: INDUSTRIAL ZONE (I)

SITE DATA			
DESCRIPTION	REQUIRED	EXISTING	PROPOSED
LAND USE: GENERAL BUSINESS	N/A	INDUSTRIAL	WAREHOUSE
MIN. LAND AREA	40,000 S.F.	N/A	26.2 Ac.
MIN. LOT FRONTAGE	120'	N/A	2,390'
MIN. FRONT YARD BUILDING SETBACK	40'	N/A	50.0'
MIN. SIDE YARD BUILDING SETBACK	35'	N/A	246.7'
MIN. REAR YARD BUILDING SETBACK	35'	N/A	137.3'
MAX. BLDG HEIGHT	35'	N/A	40'
LANDSCAPE REQUIREMENT (TOTAL OF DEVELOPMENT)	25%	N/A	±35%

PARKING SUMMARY			
DESCRIPTION	REQUIRED	EXISTING	PROPOSED
WAREHOUSE/TRANSPORTATION USE	738 (1)	N/A	240

TABLE NOTES:

1. ZONING BY LAW–SECTION 4.2.2 OFF–SITE PARKING SCHEDULE: INDUSTRIAL AND WAREHOUSE USE: 1 SPACE PER 500 S.F.OF GFA = 368,900 S.F. X $\frac{1}{500}$ SPACE/SF= 738 SPACE



DEVELOPMENT OVERALL PLAN

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

NO.	REVISION	BY	DATE
1	GENERAL REVISION	RAS	08/24/2021

ISSUED FOR PERMIT ONLY

COMMONWEALTH OF MASSACHUSETTS
SAMUEL HEMENWAY
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08-24-21

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	DATE: JUNE 10, 2021

SHEET

G-2.3

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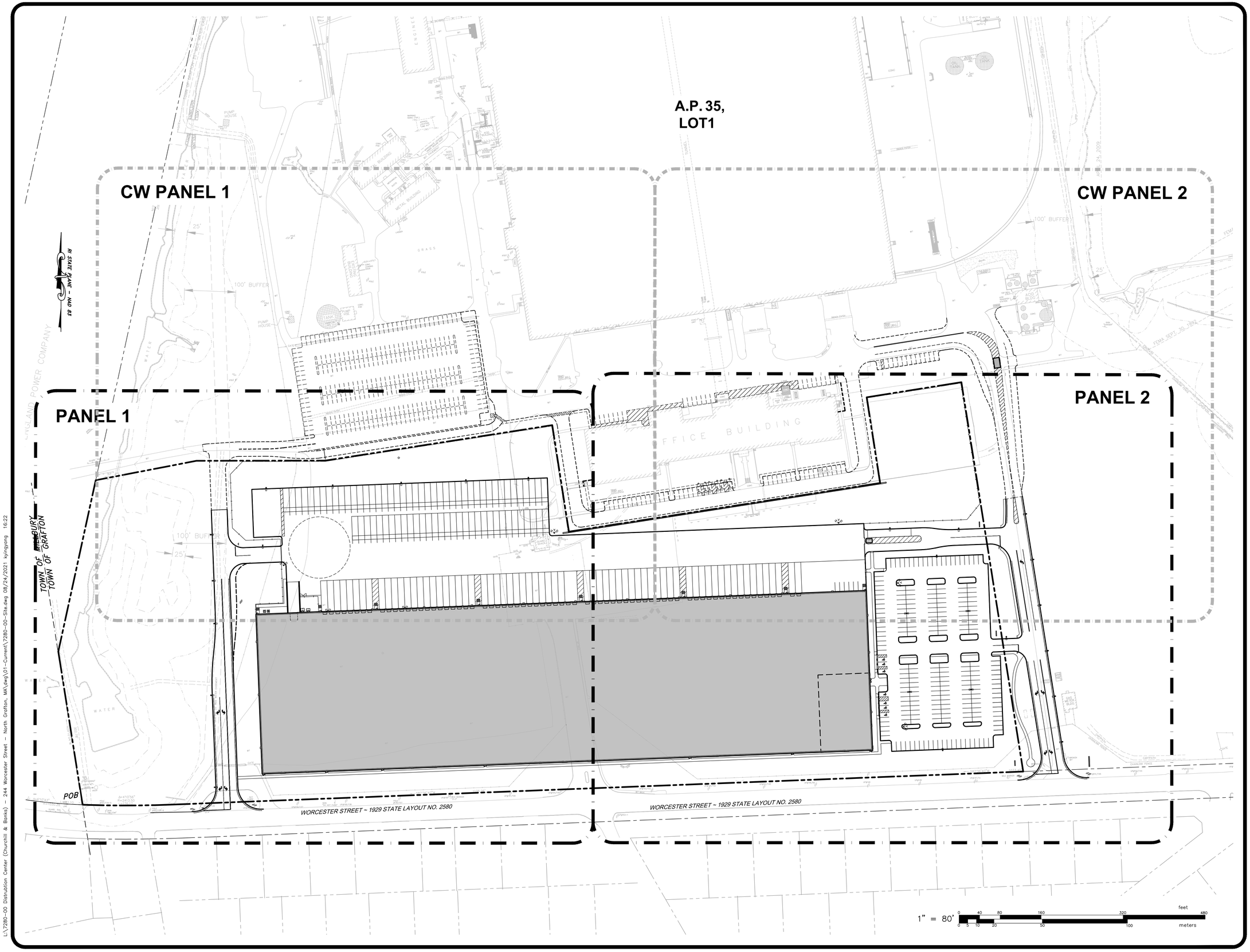

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KEY PLAN
FOR
CB DISTRIBUTION
GRAFTON, MA
SITUATED AT
244 WORCESTER STREET
GRAFTON, MA
PREPARED FOR
CHURCHILL & BANKS COMPANIES, LLC

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SHEET

C-1.0

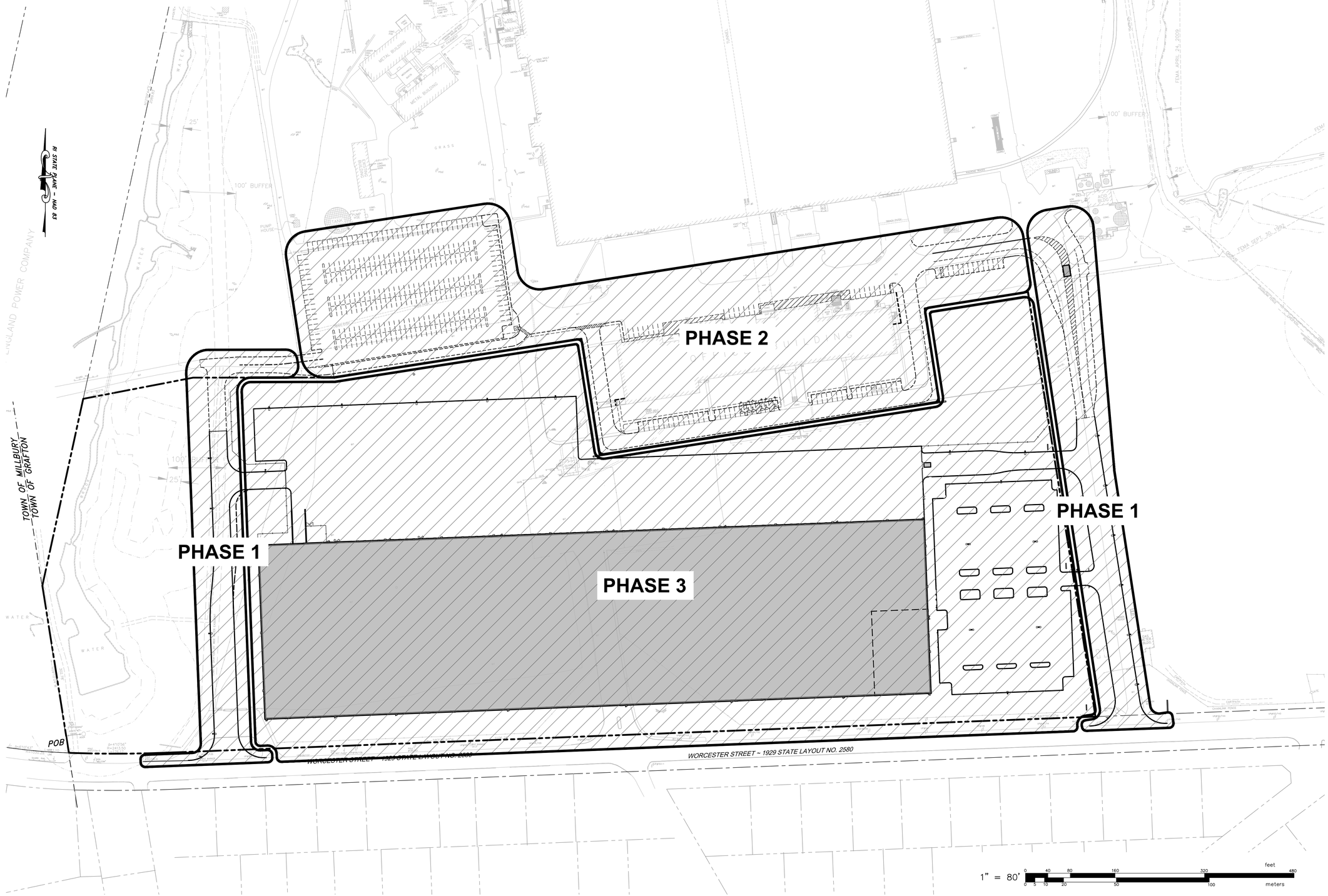
PROJECT PHASING

PROPOSED SITE CONSTRUCTION SHALL FOLLOW THE GENERAL PHASING SEQUENCE BELOW.

PHASE 1
CONSTRUCT EASTERN AND WESTERN ENTRANCES AND ACCESS ROADWAYS.

PHASE 2
CONSTRUCT SITE WORK REQUIRED TO CONSOLIDATE OWNER OPERATIONS AS NECESSARY FOR SALE OF A PORTION OF THE EXISTING LOT (NEW PARCEL 2).

PHASE 3
CONSTRUCT NEW WAREHOUSE BUILDING, PARKING FIELDS AND ALL OTHER ASSOCIATED FEATURES PROPOSED WITHIN THE NEW DEVELOPMENT AREA (PARCEL 2).



CONSTRUCTION PHASING PLAN
FOR
CB DISTRIBUTION
GRAFTON, MA
SITUATED AT
244 WORCESTER STREET
GRAFTON, MA
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SHEET

C-1.1

6A OF 27 SHEETS

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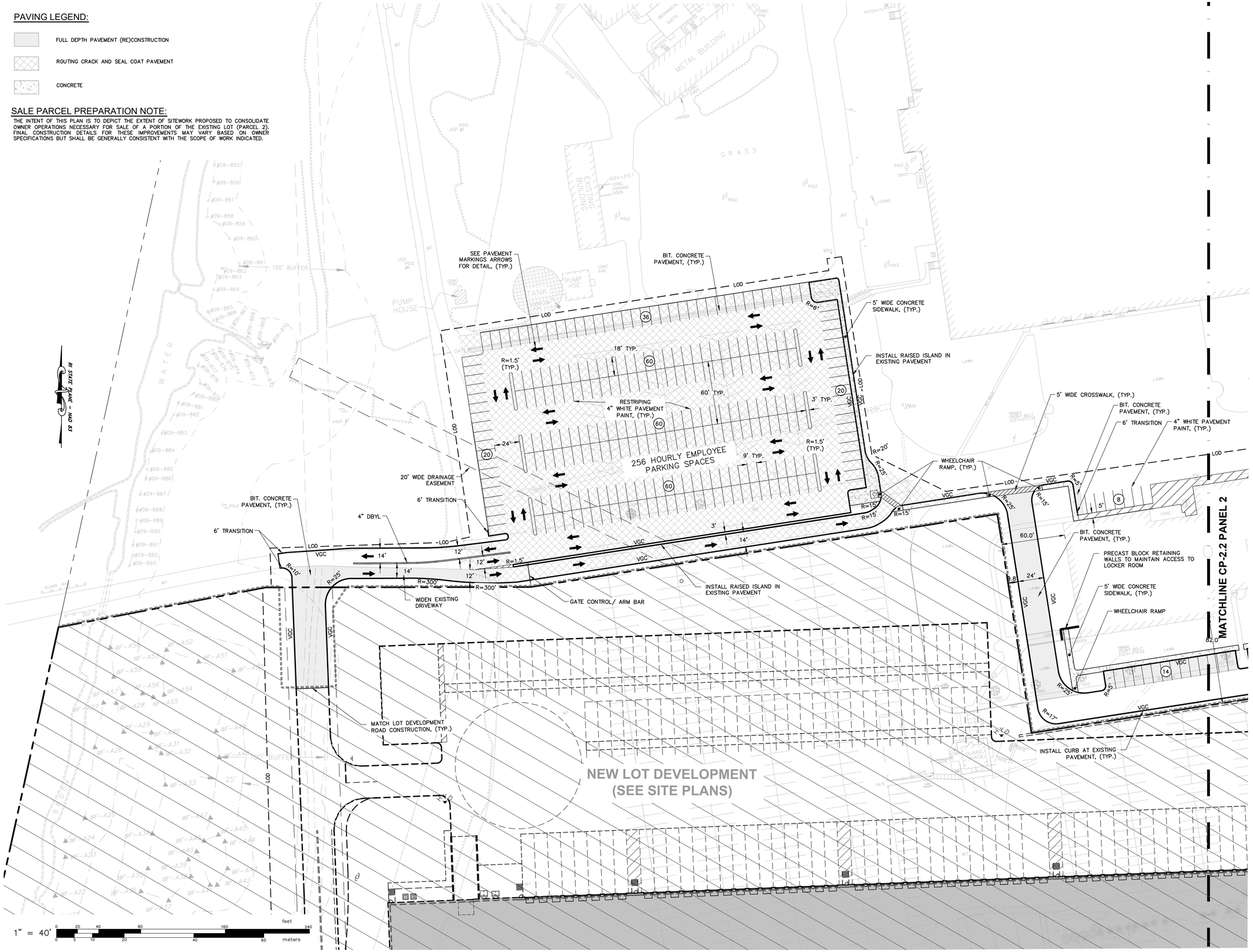
PAVING LEGEND:

- FULL DEPTH PAVEMENT (RE)CONSTRUCTION
- ROUTING CRACK AND SEAL COAT PAVEMENT
- CONCRETE

SALE PARCEL PREPARATION NOTE:

THE INTENT OF THIS PLAN IS TO DEPICT THE EXTENT OF SITEWORK PROPOSED TO CONSOLIDATE OWNER OPERATIONS NECESSARY FOR SALE OF A PORTION OF THE EXISTING LOT (PARCEL 2). FINAL CONSTRUCTION DETAILS FOR THESE IMPROVEMENTS MAY VARY BASED ON OWNER SPECIFICATIONS BUT SHALL BE GENERALLY CONSISTENT WITH THE SCOPE OF WORK INDICATED.



PARCEL PREPARATION WG LAYOUT - PANEL 1

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

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	DATE: JUNE 10, 2021

SHEET

CW-1.1

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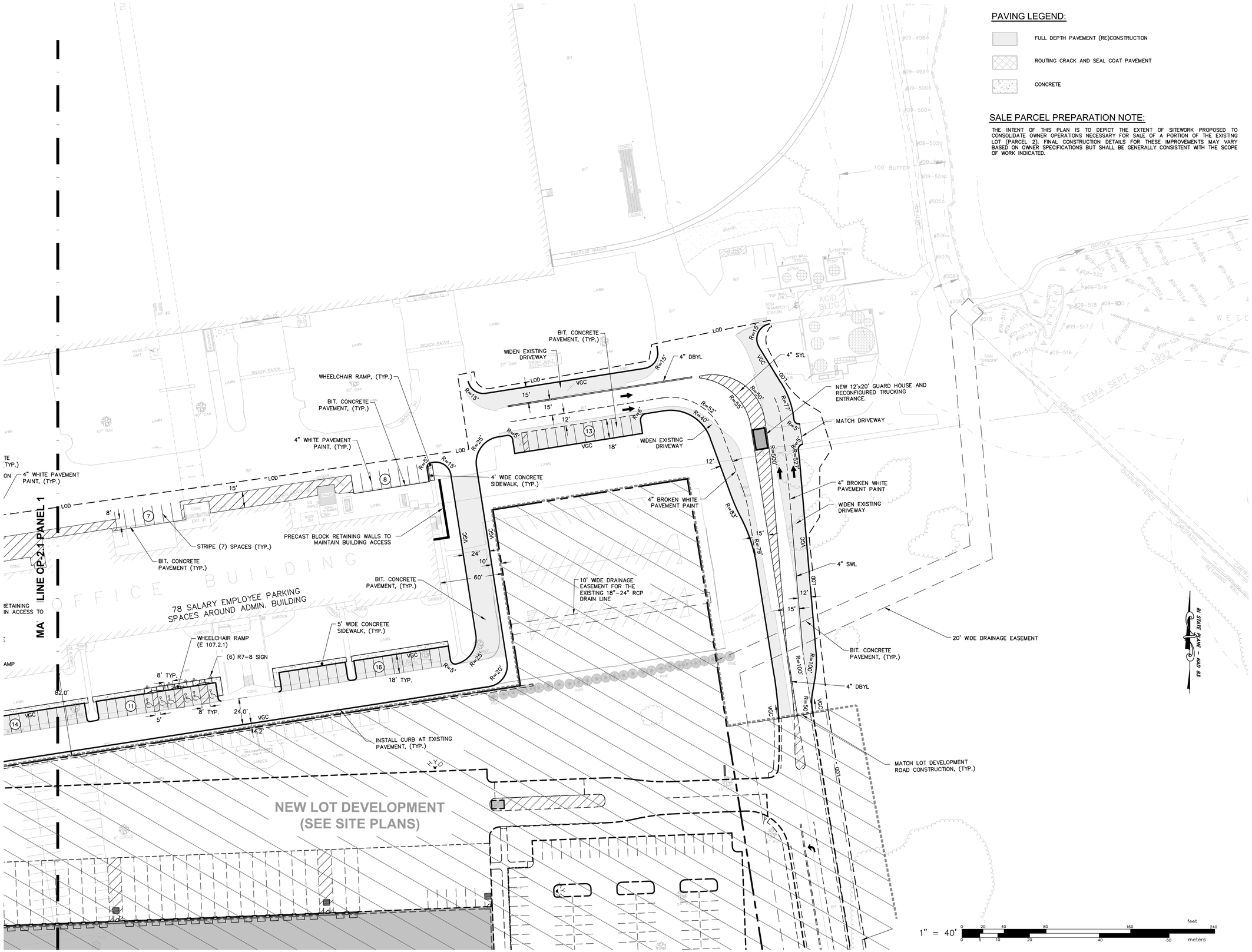
PAVING LEGEND:

- FULL DEPTH PAVEMENT (RE)CONSTRUCTION
- ROUTING CRACK AND SEAL COAT PAVEMENT
- CONCRETE

SALE PARCEL PREPARATION NOTE:

THE INTENT OF THIS PLAN IS TO DEPICT THE EXTENT OF SITEWORK PROPOSED TO CONSOLIDATE OWNER OPERATIONS NECESSARY FOR SALE OF A PORTION OF THE EXISTING LOT (PARCEL 2). FINAL CONSTRUCTION DETAILS FOR THESE IMPROVEMENTS MAY VARY BASED ON OWNER SPECIFICATIONS BUT SHALL BE GENERALLY CONSISTENT WITH THE SCOPE OF WORK INDICATED.



PARCEL PREPARTION
WG LAYOUT - PANEL 2

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

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SHEET

CW-1.2

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SALE PARCEL PREPARATION NOTE:

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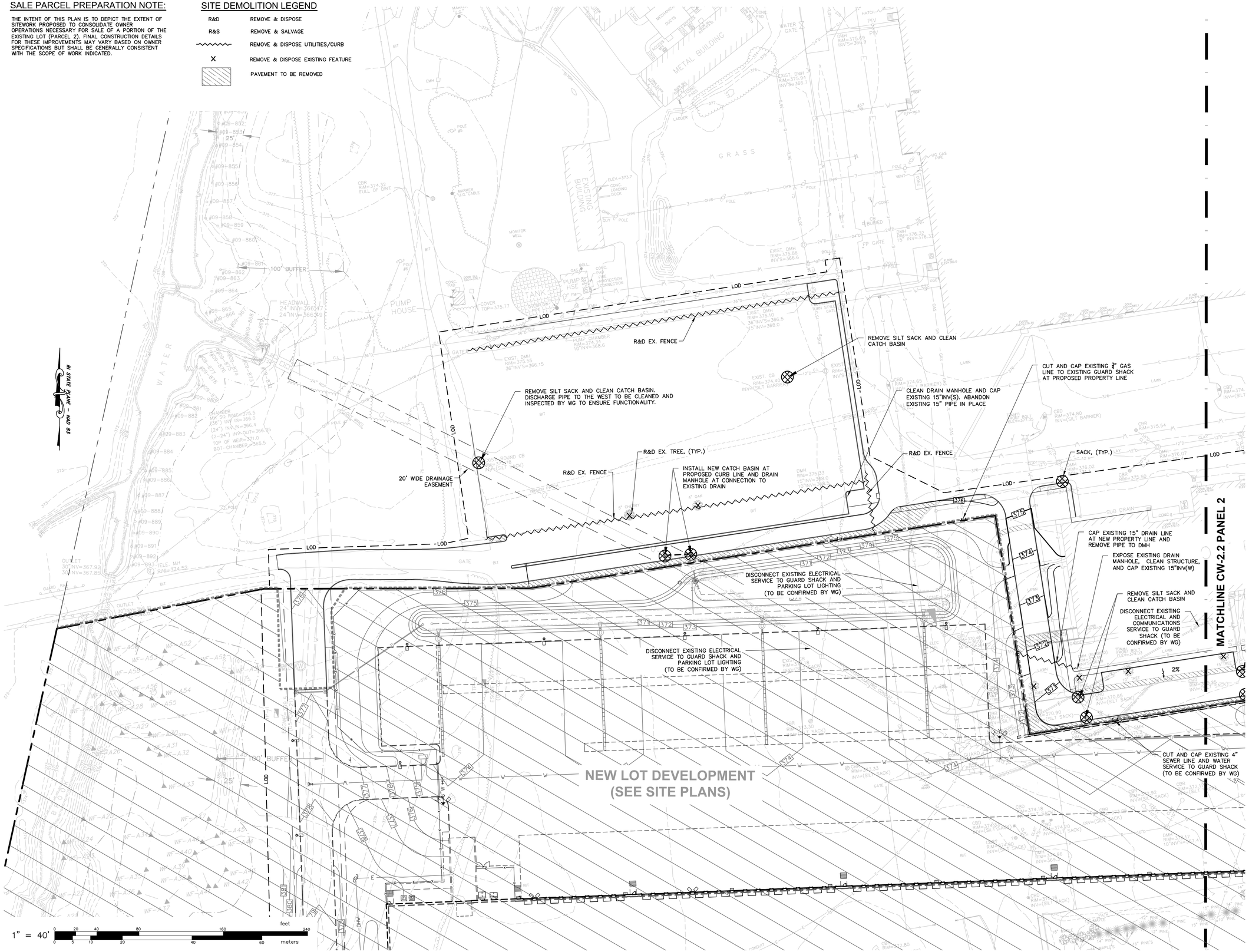
SITE DEMOLITION LEGEND

R&D	REMOVE & DISPOSE
R&S	REMOVE & SALVAGE
	REMOVE & DISPOSE UTILITIES/CURB
X	REMOVE & DISPOSE EXISTING FEATURE
	PAVEMENT TO BE REMOVED



PARCEL PREPARATION
WG SITEWORK - PANEL 1

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

NO.	REVISION	BY	DATE
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SALE PARCEL PREPARATION NOTE:

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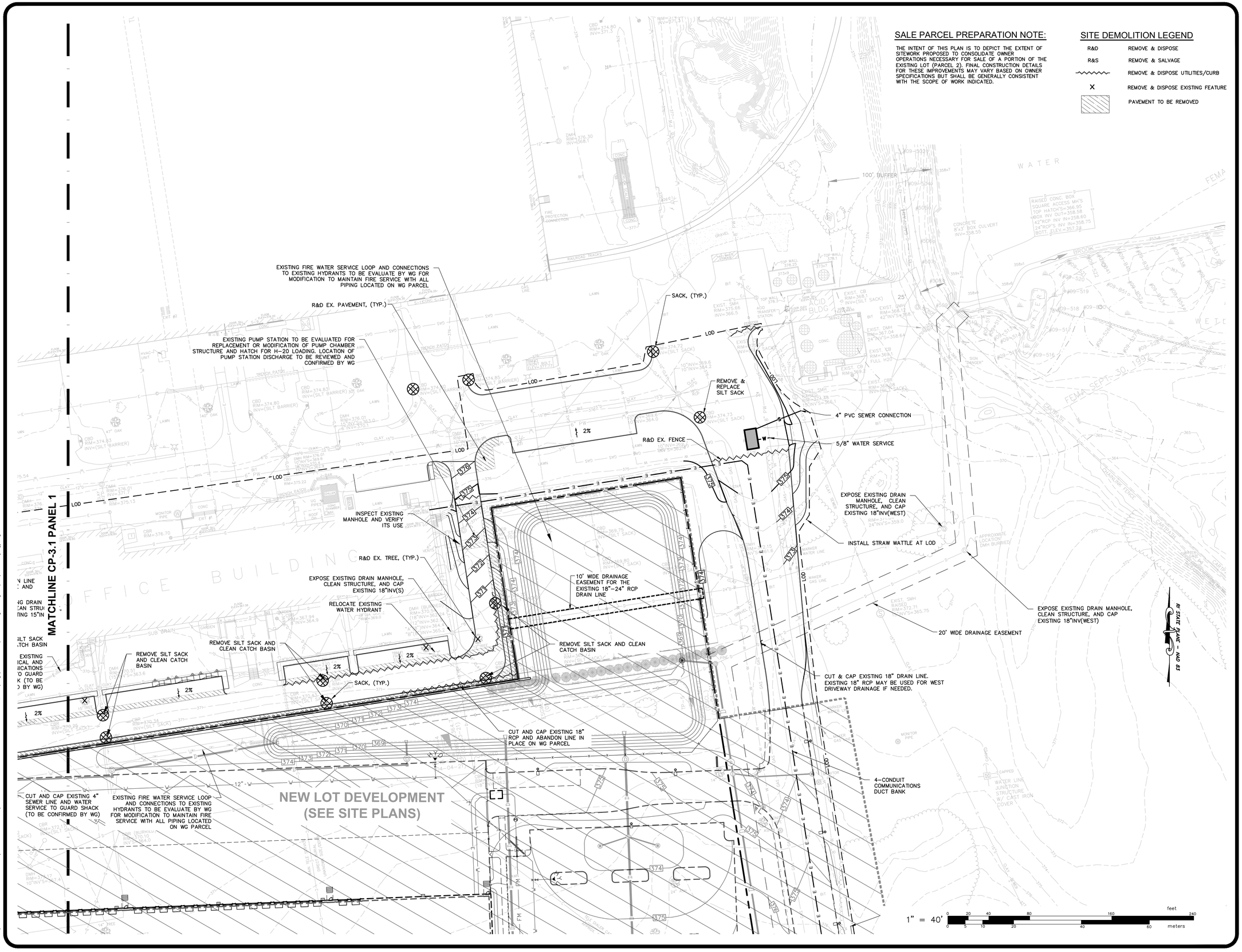
SITE DEMOLITION LEGEND

R&D	REMOVE & DISPOSE
R&S	REMOVE & SALVAGE
	REMOVE & DISPOSE UTILITIES/CURB
X	REMOVE & DISPOSE EXISTING FEATURE
	PAVEMENT TO BE REMOVED



PARCEL PREPARATION
WG SITEWORK - PANEL 2

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

NO.	REVISION	BY	DATE
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COMMONWEALTH OF MASSACHUSETTS
SAMUEL HEMENWAY
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No. 52196
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SHEET

CW-2.2

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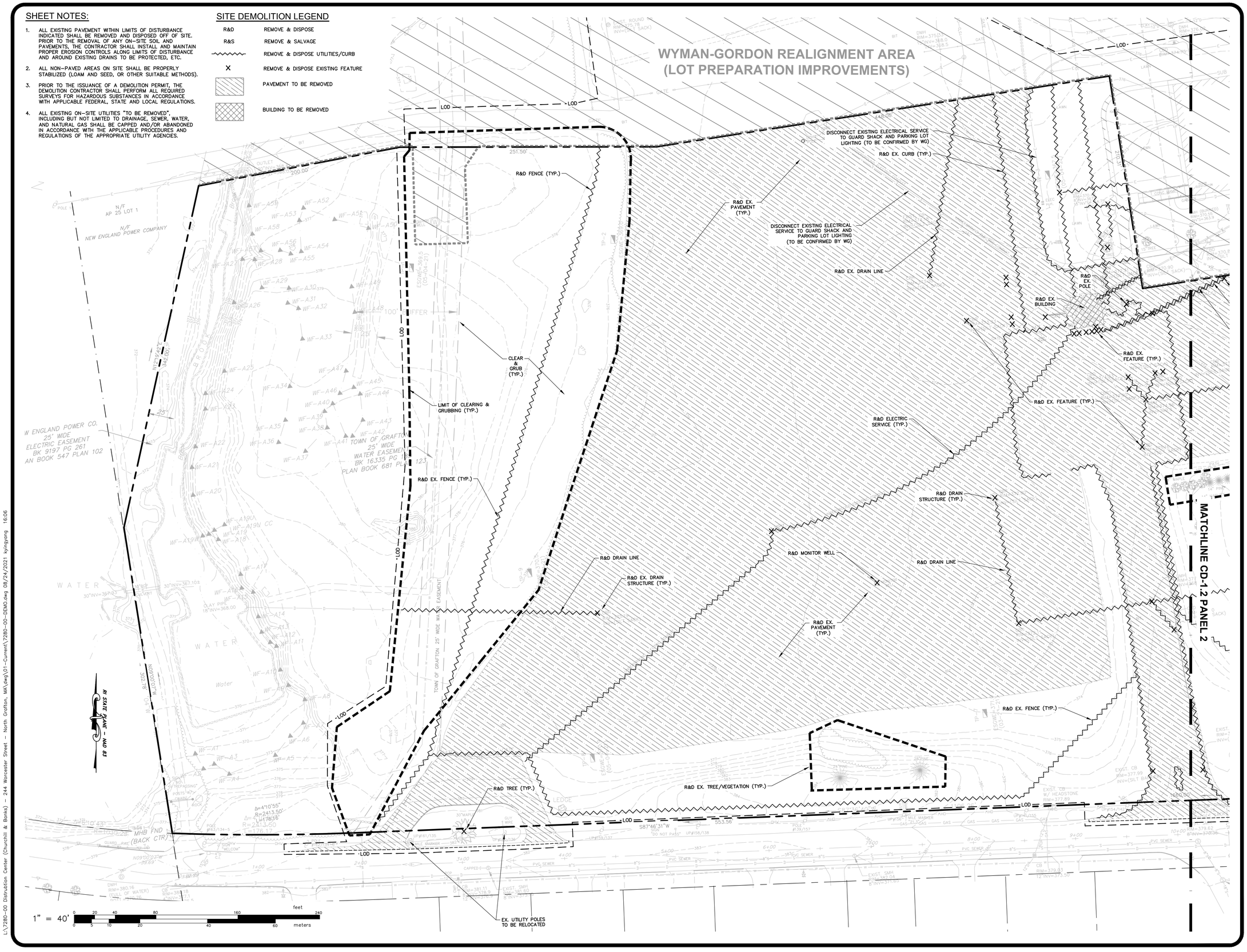
SHEET NOTES:

1. ALL EXISTING PAVEMENT WITHIN LIMITS OF DISTURBANCE INDICATED SHALL BE REMOVED AND DISPOSED OFF OF SITE. PRIOR TO THE REMOVAL OF ANY ON-SITE SOIL AND PAVEMENTS, THE CONTRACTOR SHALL INSTALL AND MAINTAIN PROPER EROSION CONTROLS ALONG LIMITS OF DISTURBANCE AND AROUND EXISTING DRAINS TO BE PROTECTED, ETC.
2. ALL NON-PAVED AREAS ON SITE SHALL BE PROPERLY STABILIZED (LOAM AND SEED, OR OTHER SUITABLE METHODS).
3. PRIOR TO THE ISSUANCE OF A DEMOLITION PERMIT, THE DEMOLITION CONTRACTOR SHALL PERFORM ALL REQUIRED SURVEYS FOR HAZARDOUS SUBSTANCES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
4. ALL EXISTING ON-SITE UTILITIES "TO BE REMOVED", INCLUDING BUT NOT LIMITED TO DRAINAGE, SEWER, WATER, AND NATURAL GAS SHALL BE CAPPED AND/OR ABANDONED IN ACCORDANCE WITH THE APPLICABLE PROCEDURES AND REGULATIONS OF THE APPROPRIATE UTILITY AGENCIES.

SITE DEMOLITION LEGEND

R&D	REMOVE & DISPOSE
R&S	REMOVE & SALVAGE
	REMOVE & DISPOSE UTILITIES/CURB
X	REMOVE & DISPOSE EXISTING FEATURE
	PAVEMENT TO BE REMOVED
	BUILDING TO BE REMOVED



DEMOLITION/ EXISTING CONDITIONS PLAN - PANEL 1

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

NO.	REVISION	BY	DATE
1	GENERAL REVISION	RAS	08/24/2021

ISSUED FOR PERMIT ONLY

COMMONWEALTH OF MASSACHUSETTS
SAMUEL H. GAROFALO
CIVIL
No. 50796
REGISTERED PROFESSIONAL ENGINEER
08-24-21

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LAND PLANNERS/ENVIRONMENTAL SCIENTISTS

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DWG. NO. 7280-00-Demo.dwg	CHECK BY S.S.H.
SCALE: AS SHOWN	APPROVED S.B.G.
	DATE: JUNE 10, 2021

SHEET

CD-1.1

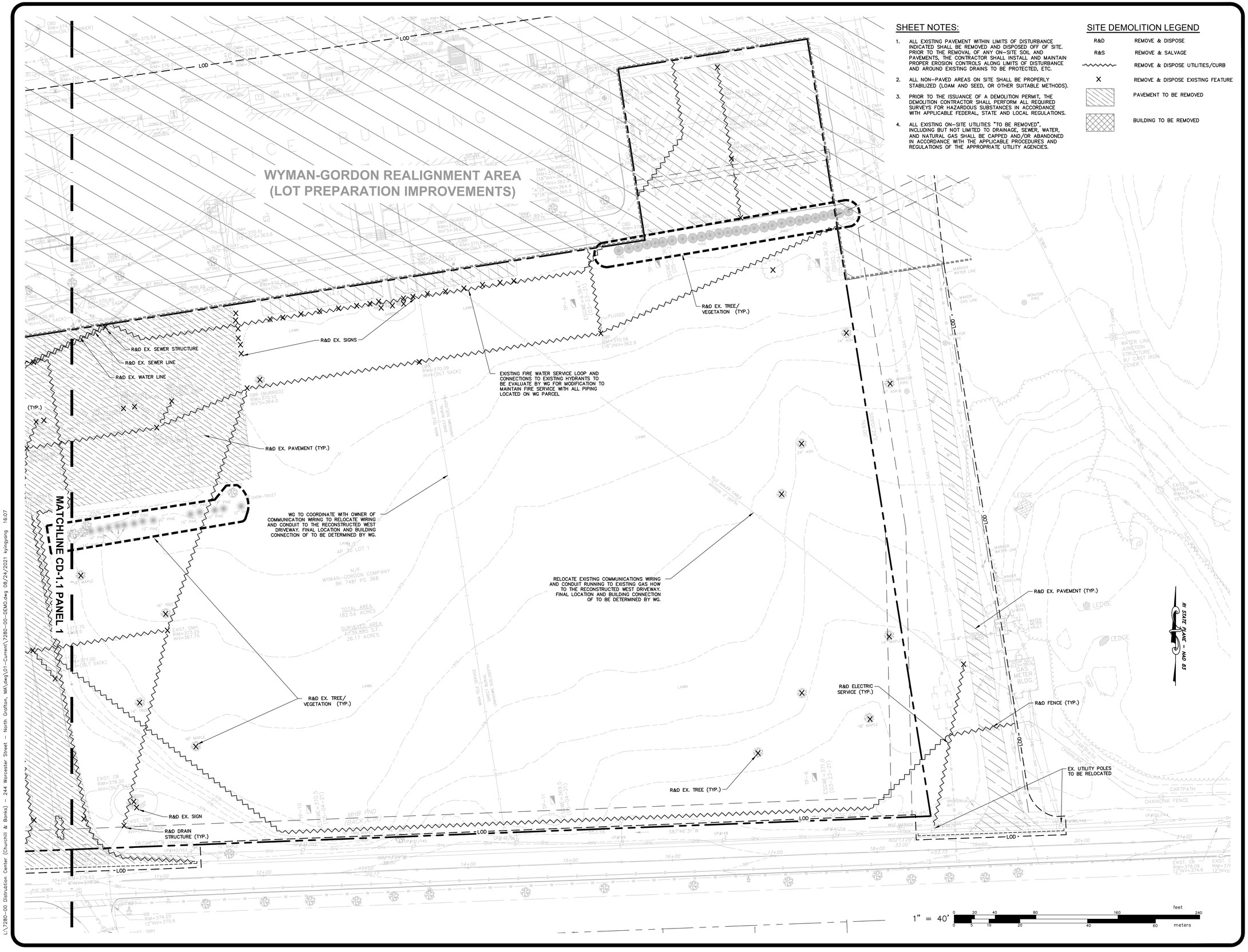
L:\7280-00 Distribution Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-DEMO.dwg 08/24/2021 kyingyang 16:06

SHEET NOTES:

1. ALL EXISTING PAVEMENT WITHIN LIMITS OF DISTURBANCE INDICATED SHALL BE REMOVED AND DISPOSED OFF OF SITE. PRIOR TO THE REMOVAL OF ANY ON-SITE SOIL AND PAVEMENTS, THE CONTRACTOR SHALL INSTALL AND MAINTAIN PROPER EROSION CONTROLS ALONG LIMITS OF DISTURBANCE AND AROUND EXISTING DRAINS TO BE PROTECTED, ETC.
2. ALL NON-PAVED AREAS ON SITE SHALL BE PROPERLY STABILIZED (LOAM AND SEED, OR OTHER SUITABLE METHODS).
3. PRIOR TO THE ISSUANCE OF A DEMOLITION PERMIT, THE DEMOLITION CONTRACTOR SHALL PERFORM ALL REQUIRED SURVEYS FOR HAZARDOUS SUBSTANCES IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
4. ALL EXISTING ON-SITE UTILITIES "TO BE REMOVED", INCLUDING BUT NOT LIMITED TO DRAINAGE, SEWER, WATER, AND NATURAL GAS SHALL BE CAPPED AND/OR ABANDONED IN ACCORDANCE WITH THE APPLICABLE PROCEDURES AND REGULATIONS OF THE APPROPRIATE UTILITY AGENCIES.

SITE DEMOLITION LEGEND

R&D	REMOVE & DISPOSE
R&S	REMOVE & SALVAGE
	REMOVE & DISPOSE UTILITIES/CURB
X	REMOVE & DISPOSE EXISTING FEATURE
	PAVEMENT TO BE REMOVED
	BUILDING TO BE REMOVED



DEMOLITION/ EXISTING CONDITIONS PLAN - PANEL 2

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

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SHEET

CD-1.2

L:\7280-00 Distribution Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-DEMO.dwg 08/24/2021 kyingyang 16:07

PAVING LEGEND:

BITUMINOUS CONCRETE PAVEMENT

CONCRETE

WYMAN-GORDON REALIGNMENT AREA
(LOT PREPARATION IMPROVEMENTS)

20' WIDE DRAINAGE EASEMENT

W-G 8' SECURITY FENCE, (TYP.)

6' CHAIN LINK FENCE, (TYP.)

LOD

PROPOSED LOT LINE, (TYP.)

35' YARD SETBACK

SWM

SNOW STORAGE AREA

PCC

53' TYP.

7' TYP.

75 STORAGE SPACES

8' TYP.

TURN AROUND

BIT. CONCRETE PAVEMENT, (TYP.)

12' TYP.

70' TYP.

LOADING PAD, (TYP.)

12.5' TYP.

4" WHITE PAVEMENT PAINT, (TYP.)

LARGE BLOCK RETAINING WALL

R1-1

4" SYL

30'

12" WHITE PAVEMENT PAINT

UTILITY POLE

24'

RAMP

SERVICE AREA

60' TYP.

38 LOADING SPACES

5' WIDE BIT. CONCRETE SIDEWALK, (TYP.)

DUMPSTERS

ADDITIONAL TURN LANE TO BE CONSTRUCTED AS REQUIRED.

ACCESS EASEMENT (WIDTH VARIES)

±368,900 S.F.
WAREHOUSE

310'

MATCHLINE CL-1.2 PANEL 2

TOWN OF MILLBURY / TOWN OF GRAFTON

100' BUFFER

25'

35' SIDE SETBACK

WATER

SEE PAVEMENT MARKINGS ARROWS FOR DETAIL, (TYP.)

LAWN

42'

12' 12' 14'

2' 4" SWL 4" SWL 4" DBYL 4" SWL 2'

5' WIDE BIT. CONCRETE SIDEWALK, (TYP.)

1,190'

3' TYP.

40' FRONT SETBACK

TO REMAIN

PROP LOAM & SEED

20'x10' DIRECTIONAL SIGNAGE EASEMENT

R1-1

R&R UTILITY POLE

52.7'

POB

WORCESTER STREET ~ 1929 STATE LAYOUT NO. 2580

3' GRAN TRANSITION CURB TYPE VA-4

PROP GRAN CURB TYPE VA-4

12" WHITE PAVEMENT PAINT

SAWCUT

PROP GRAN CURB TYP VA-4

PROP BIT DRIVEWAY

R&D TREE

3' GRAN TRANSITION CURB TYPE VA-4

R&R UTILITY POLE

RI STATE PLANE - NAD 83

1" = 40'

feet

meters

L:\7280-00 Distribution Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-Site.dwg 08/24/2021 kyingyang 16:23

SITE LAYOUT PLAN- PANEL 1

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

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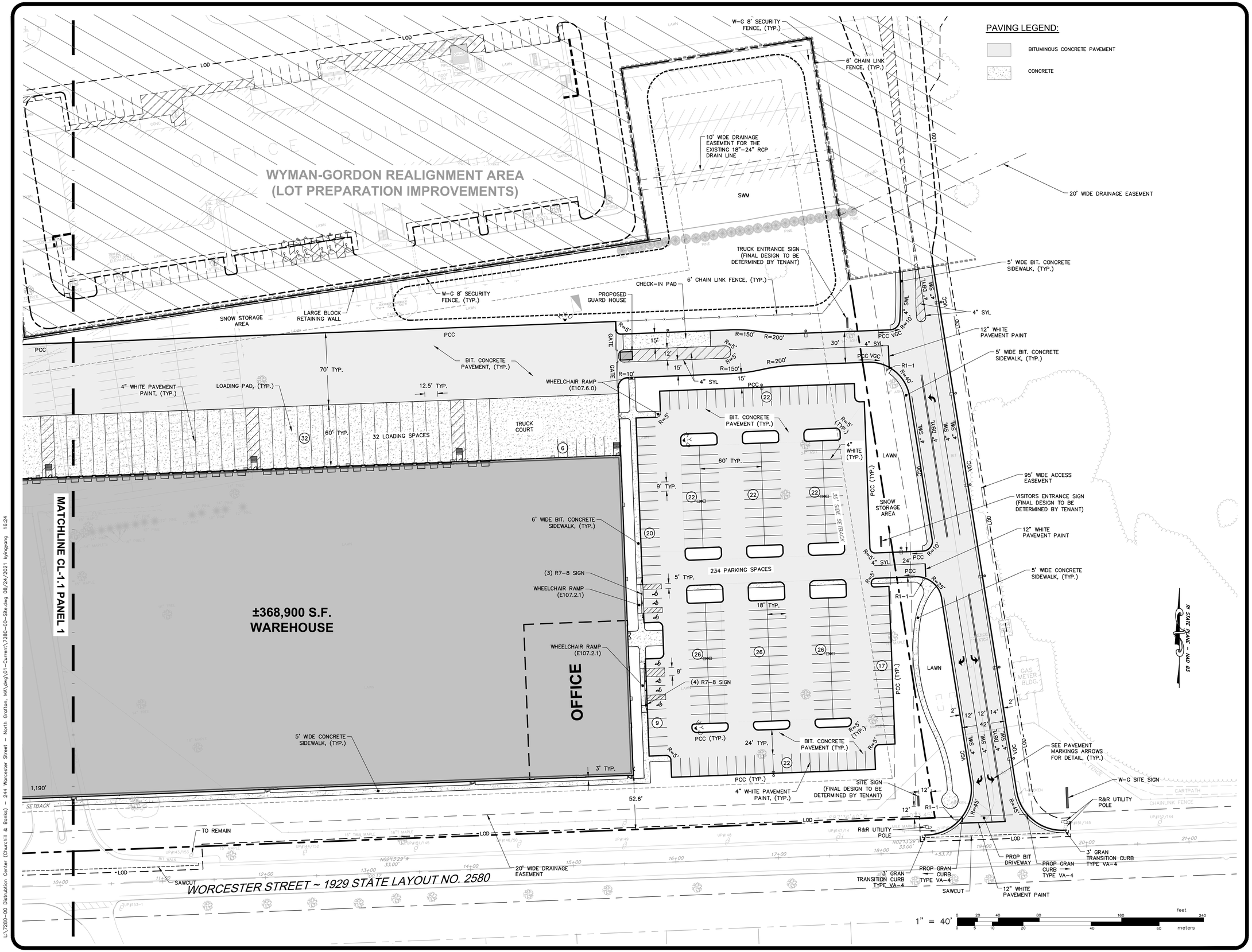
SHEET

CL-1.1



SITE LAYOUT PLAN- PANEL 2

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

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SHEET

CL-1.2

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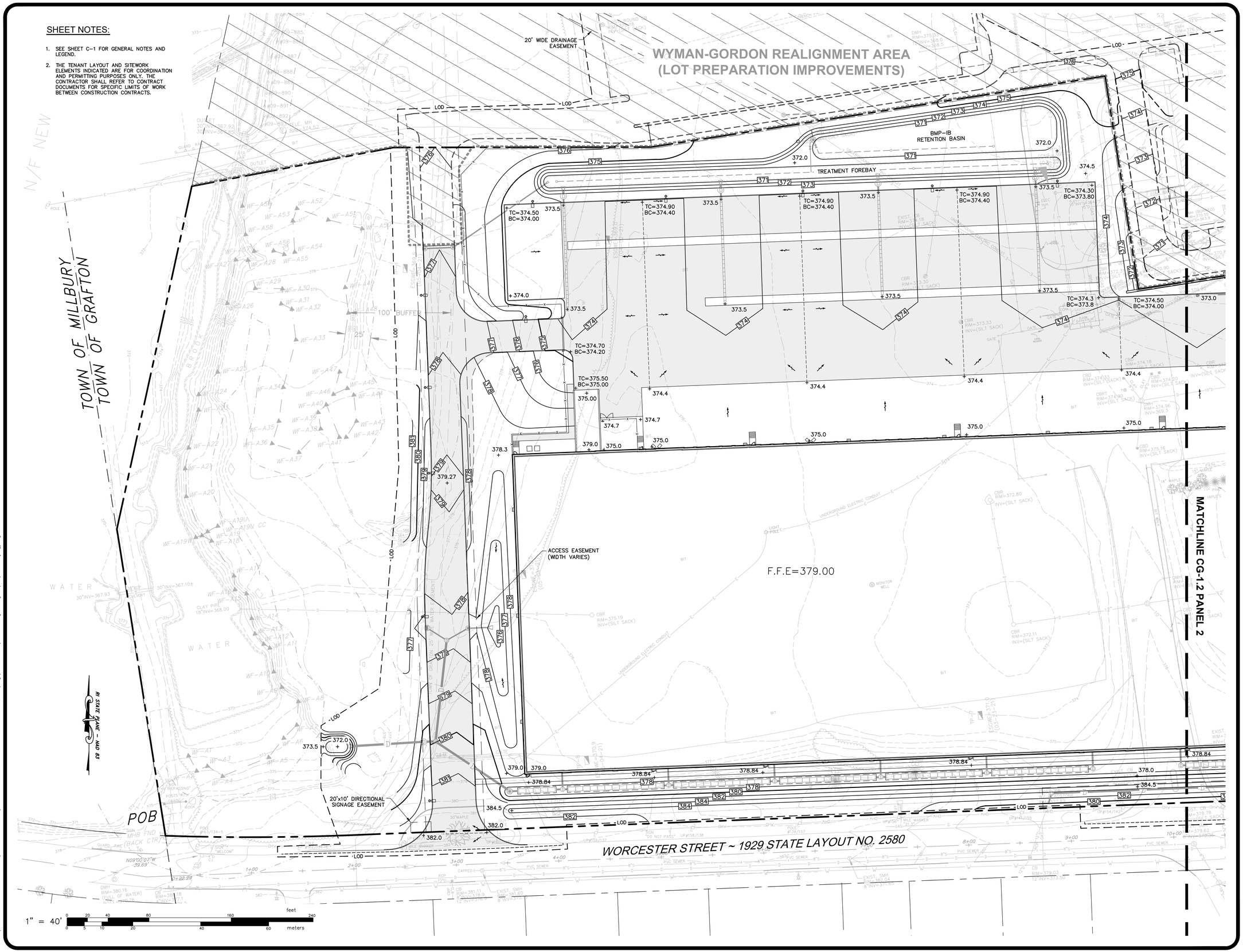
SHEET NOTES:

1. SEE SHEET C-1 FOR GENERAL NOTES AND LEGEND.
2. THE TENANT LAYOUT AND SITEWORK ELEMENTS INDICATED ARE FOR COORDINATION AND PERMITTING PURPOSES ONLY. THE CONTRACTOR SHALL REFER TO CONTRACT DOCUMENTS FOR SPECIFIC LIMITS OF WORK BETWEEN CONSTRUCTION CONTRACTS.



GRADING PLAN - PANEL 1

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
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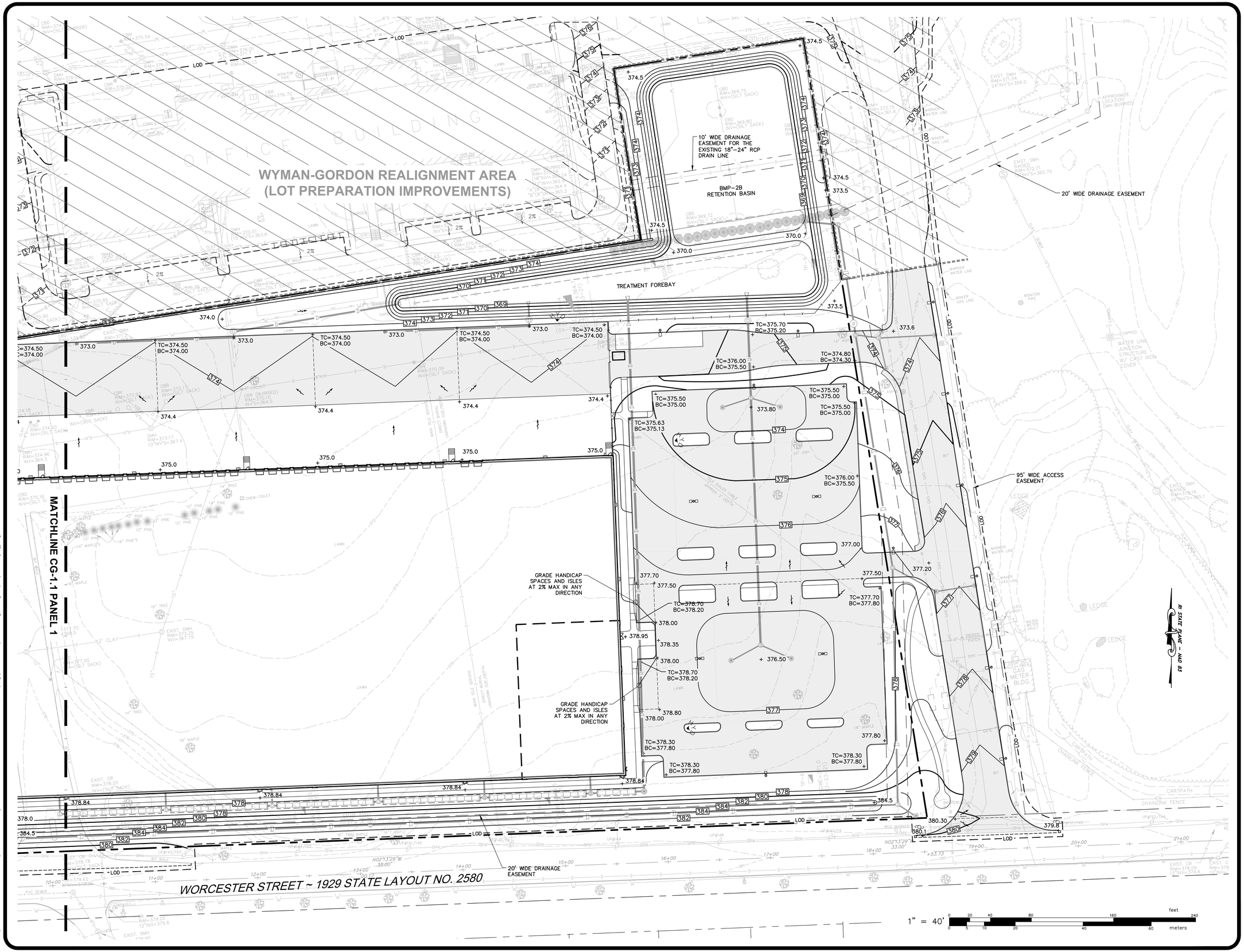
SHEET

CG-1.1

L:\7280-00 Distrubution Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-g&d.dwg 08/24/2021 kyingyang 16:12



GRADING PLAN - PANEL 2

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

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SHEET

CG-1.2

L:\7280-00 Distrubtion Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-g&d.dwg 08/24/2021 kylingyang 16:13

SHEET NOTES:

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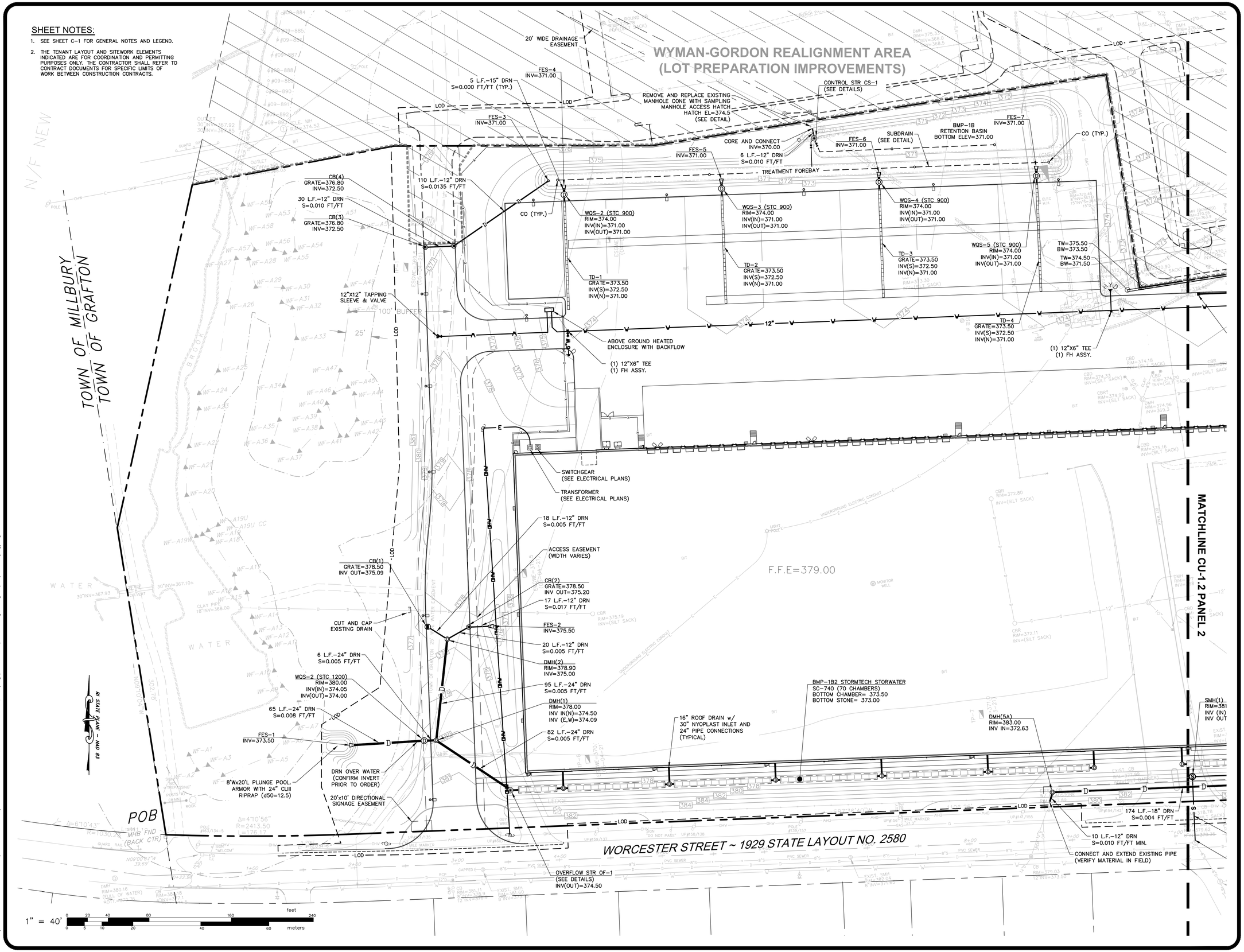

DRAINAGE & UTILITIES PLAN - PANEL 1

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

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DWG. NO. 7280-00-g&d.dwg	CHECK BY S.S.H.
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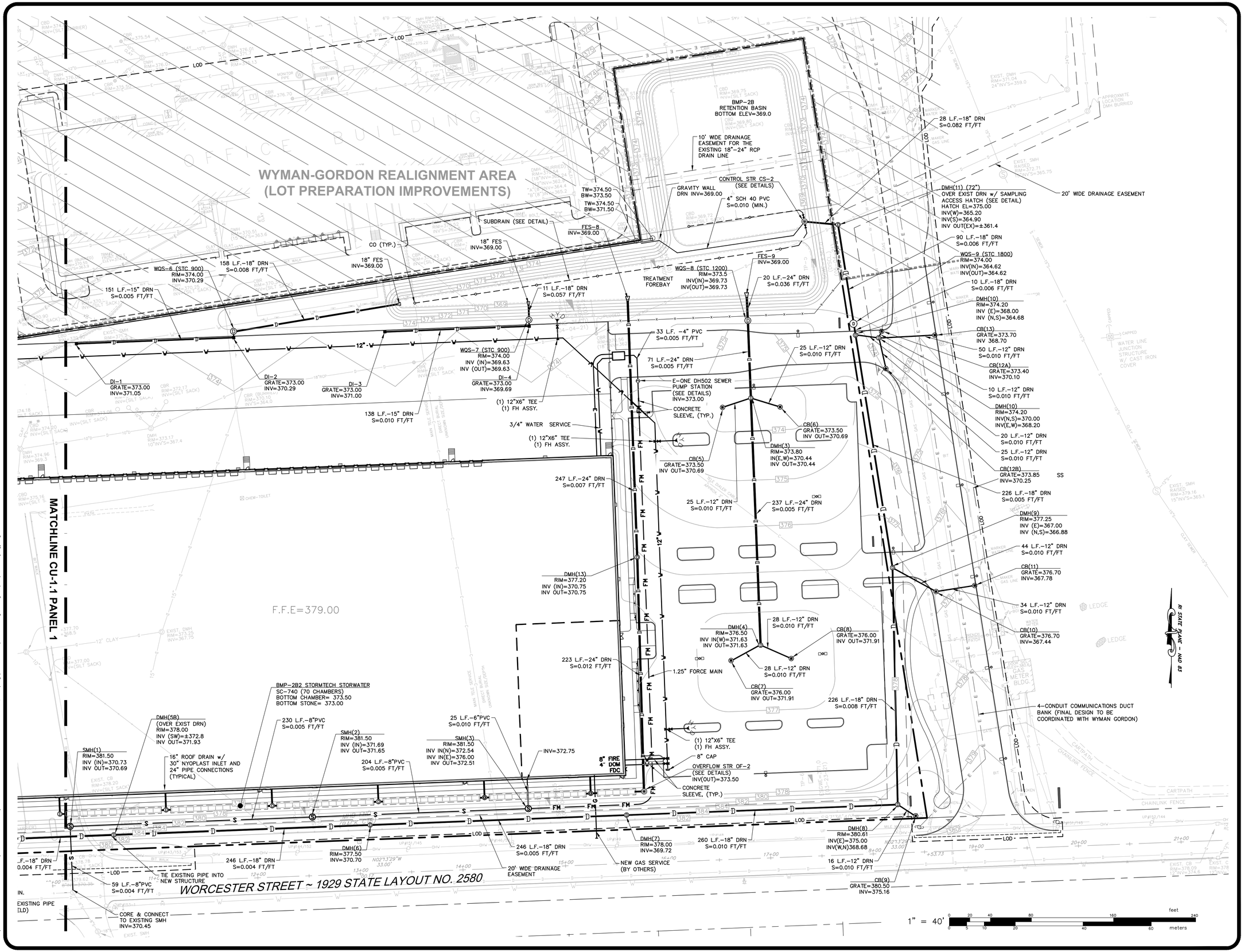
	DATE: JUNE 10, 2021

SHEET

CU-1.1

L:\7280-00 Distrubtion Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-g&d.dwg 08/24/2021 kylingyang 16:13



DRAINAGE & UTILITIES PLAN - PANEL 2

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

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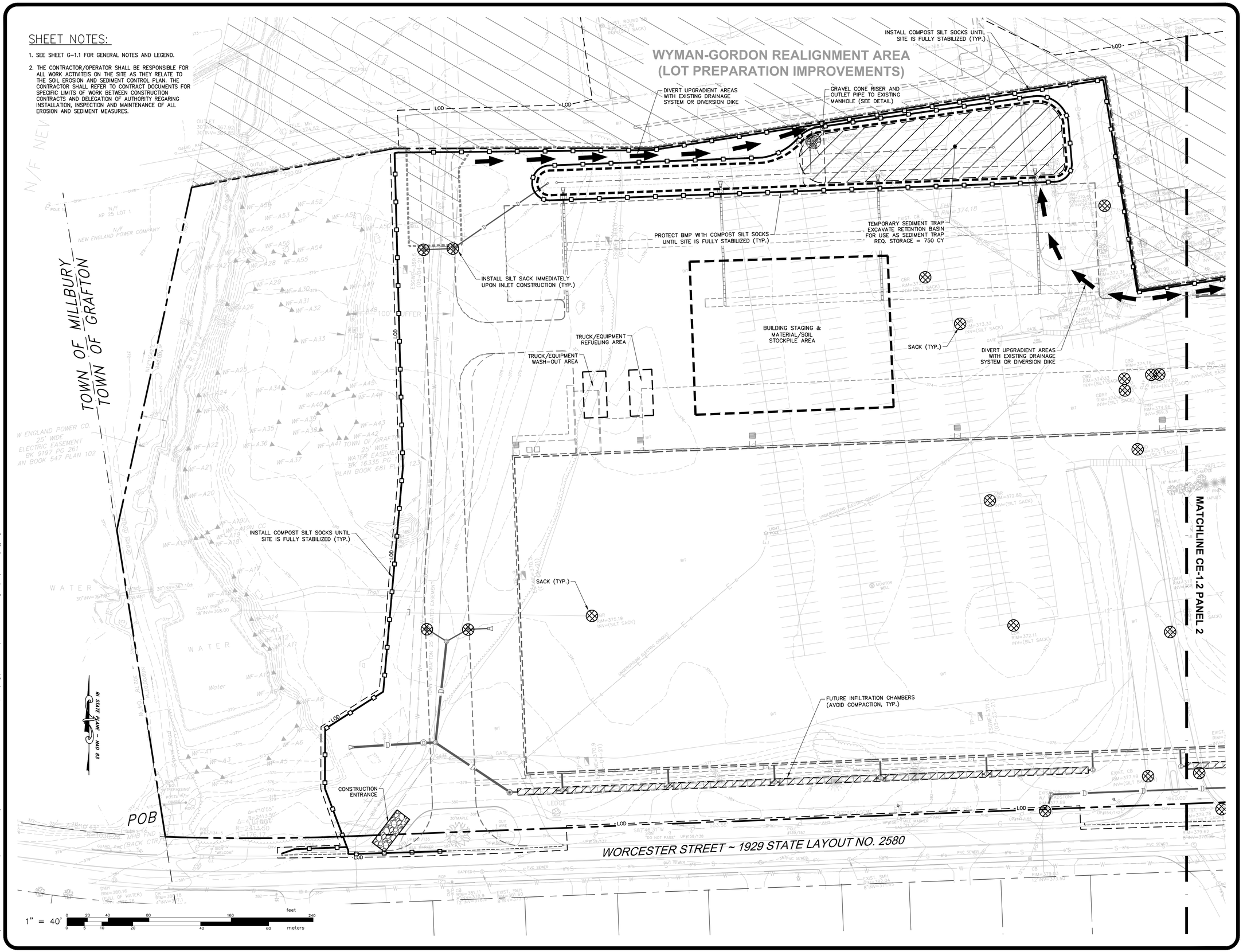
SHEET

CU-1.2

L:\7280-00 Distribution Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-g&d.dwg 08/24/2021 kylnguyang 16:14

SHEET NOTES:

1. SEE SHEET G-1.1 FOR GENERAL NOTES AND LEGEND.
2. THE CONTRACTOR/OPERATOR SHALL BE RESPONSIBLE FOR ALL WORK ACTIVITEIS ON THE SITE AS THEY RELATE TO THE SOIL EROSION AND SEDIMENT CONTROL PLAN. THE CONTRACTOR SHALL REFER TO CONTRACT DOCUMENTS FOR SPECIFIC LIMITS OF WORK BETWEEN CONSTRUCTION CONTRACTS AND DELEGATION OF AUTHORITY REGARING INSTALLATION, INSPECTION AND MAINTENANCE OF ALL EROSION AND SEDIMENT MEASURES.



SOIL EROSION & SEDIMENT CONTROL PLAN - PANEL 1

FOR
CB DISTRIBUTION
GRAFTON, MA
SITUATED AT
244 WORCESTER STREET
GRAFTON, MA
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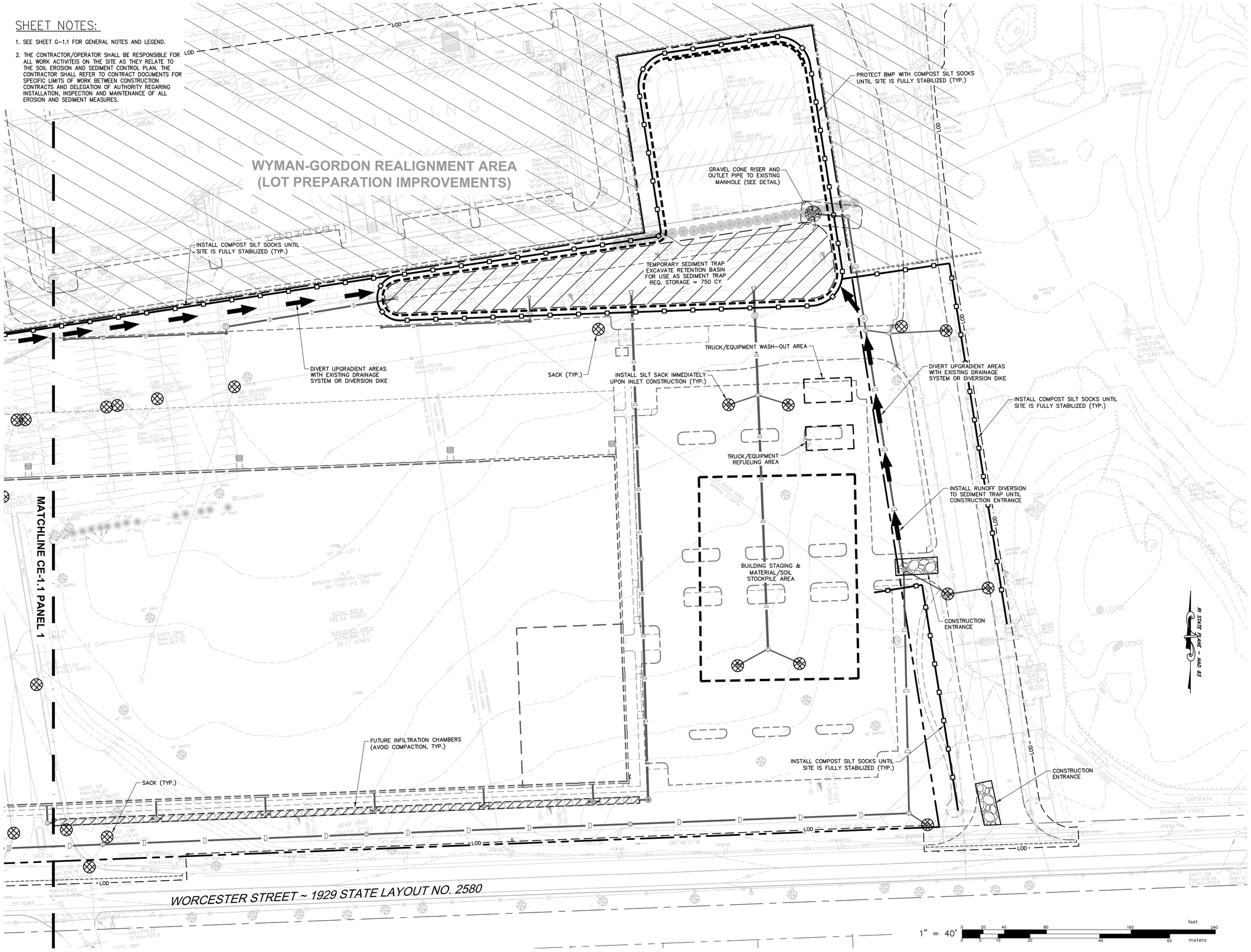
CE-1.1

L:\7280-00 Distrubtion Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-SESC.dwg 08/24/2021 kyingyong 16:18

SHEET NOTES:

1. SEE SHEET G-1.1 FOR GENERAL NOTES AND LEGEND.
2. THE CONTRACTOR/OPERATOR SHALL BE RESPONSIBLE FOR ALL WORK ACTIVITEIS ON THE SITE AS THEY RELATE TO THE SOIL EROSION AND SEDIMENT CONTROL PLAN. THE CONTRACTOR SHALL REFER TO CONTRACT DOCUMENTS FOR SPECIFIC LIMITS OF WORK BETWEEN CONSTRUCTION CONTRACTS AND DELEGATION OF AUTHORITY REGARING INSTALLATION, INSPECTION AND MAINTENANCE OF ALL EROSION AND SEDIMENT MEASURES.



SOIL EROSION & SEDIMENT CONTROL PLAN - PANEL 2

FOR

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GRAFTON, MA

SITUATED AT

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CE-1.2

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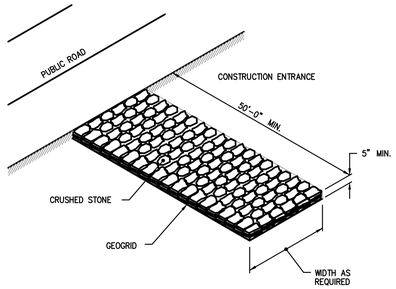
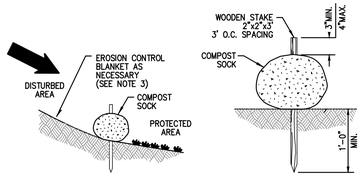


CONSTRUCTION ENTRANCE/ EXIT DETAIL

NOT TO SCALE

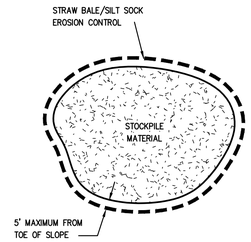


COMPOST SILT SOCK DETAIL

NOT TO SCALE

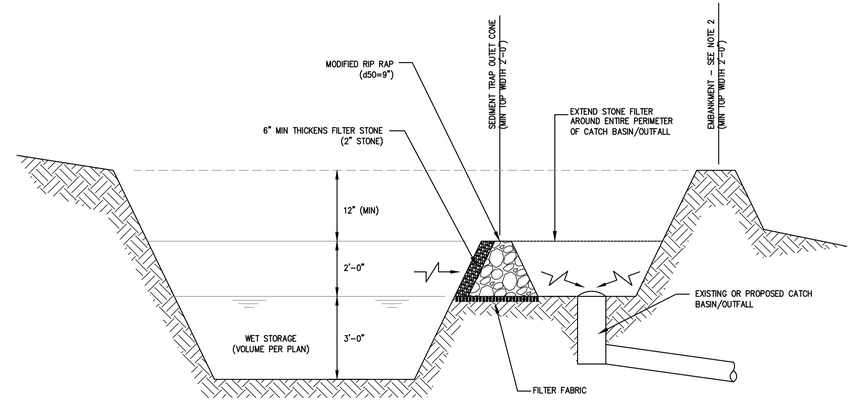
NOTES:

1. COMPOST SOCK SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS. COMPOST SOCK SHALL BE A MINIMUM OF 8" IN DIAMETER.
2. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
3. WHEN PLACING COMPOST SOCK ON SLOPES, USE EROSION CONTROL BLANKET IF SPECIFIED ON PLANS.
4. ALWAYS INSTALL COMPOST SOCK PERPENDICULAR TO SLOPE AND ALONG CONTOUR LINES.
5. REMOVE SEDIMENT FROM THE UP SLOPE SIDE OF THE COMPOST SOCK WHEN ACCUMULATION HAS REACHED 1/2 OF THE EFFECTIVE HEIGHT OF THE COMPOST SOCK.



STOCKPILE DETAIL

NOT TO SCALE



NOTES:

1. SEDIMENTS SHALL BE REMOVED WHEN THEY ACCUMULATE TO ½ THE WET STORAGE DEPTH.
2. WHERE BERMING IS REQUIRED TO PROVIDE FREEBOARD, SEDIMENT TRAP EMBANKMENTS SHALL NOT EXCEED 2'.

TEMPORARY SEDIMENT TRAP WITH GRAVEL CONE RISER

NOT TO SCALE

SEQUENCE AND STAGING OF LAND DISTURBING ACTIVITIES:

1. SURVEY AND STAKE THE DRAINAGE STRUCTURES, LIMIT OF WORK AND SEDIMENTATION BARRIERS.
2. PLACE SEDIMENTATION BARRIERS AS SHOWN ON THE PLANS AND STAKED OUT IN THE FIELD. IN NO CASE IS THE LIMIT OF WORK TO EXTEND BEYOND THE SEDIMENTATION BARRIERS.
3. PERFORM SITEWORK DEMOLITION.
4. BEGIN GRADING AND DRAINAGE WORK (CLEARING AND GRUBBING, EXCAVATING AND GRADING, ETC.). TOP SOIL TO BE STRIPPED AND STOCKPILED IN APPROVED AREAS. THE STOCKPILES ARE TO BE PROTECTED BY A ROW OF SEDIMENTATION BARRIER AND COVERED OR TEMPORARILY SEEDED.
5. INSTALL DRAINAGE SYSTEM. INSTALL SEDIMENT PROTECTION IMMEDIATELY AFTER INSTALLATION.
6. INSTALL BMPS IN ACCORDANCE WITH PLANS. SEDIMENT CONTROLS SHALL BE MAINTAINED AT THE BMP STRUCTURES UNTIL THE BINDER COURSE OF PAVEMENT IS INSTALLED AND DISTURBED AREAS ARE STABILIZED WITH VEGETATION.
7. COMPLETE SITE GRADING.
8. COMPLETE LANDSCAPING AND PERMANENT STABILIZATION. SWEEP THE ROADWAY AREAS TO REMOVE ALL SEDIMENTS.
9. FLUSH AND/OR REPAIR DRAINAGE AREAS AS NEEDED.
10. REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES FOLLOWING VEGETATIVE ESTABLISHMENT OF ALL DISTURBED AREAS.

SEDIMENTATION CONTROL PROGRAM:

1. EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY SEDIMENTS FROM ENTERING THE STATE HIGHWAY OR ADJOINING PROPERTIES.
2. BANKS OR SLOPES OVER 5% SHALL BE SEEDED AS SOON AS POSSIBLE AND SHALL BE PROTECTED WITH A STRAW OR FIBER MULCH.
3. DURING CONSTRUCTION, THE CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL.
4. SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED CLOSELY AND MAINTAINED PROMPTLY AFTER EACH RAINFALL.
5. CARE SHALL BE TAKEN SO AS NOT TO PLACE "REMOVED SEDIMENTS" WITHIN THE PATH OF EXISTING, NEWLY CREATED (BOTH TEMPORARY AND PERMANENT) OR PROPOSED WATERCOURSES OR THOSE AREAS SUBJECTED TO STORM WATER FLOW.
6. ADDITIONAL SEDIMENTATION CONTROL DEVICES SHALL BE LOCATED AS CONDITIONS WARRANT OR AS DIRECTED BY THE ENGINEER.

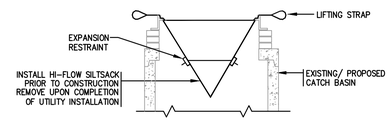
EROSION CONTROL & SOIL STABILIZATION PROGRAM:

1. DENUDED SLOPES SHALL NOT BE LEFT EXPOSED FOR EXCESSIVE PERIODS OF TIME.
2. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR EXPOSED PRIOR TO OCTOBER 15, SHALL BE SEEDED OR PROTECTED BY THAT DATE FOR ANY WORK COMPLETED DURING EACH CONSTRUCTION YEAR.
3. TEMPORARY TREATMENTS SHALL CONSIST OF A STRAW, OR FIBER MULCH OR PROTECTIVE COVERS SUCH AS A MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, EXCELSIOR BLANKETS). THEY SHALL BE INCORPORATED INTO THE WORK AS WARRANTED OR AS ORDERED BY THE ENGINEER.
4. STRAW APPLICATIONS SHOULD BE IN THE AMOUNT OF 2000 LBS/ACRE.
5. ALL TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.
6. THE TOPSOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS.
7. THE SEED MIX SHALL BE INOCULATED WITHIN TWENTY FOUR (24) HOURS, BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCULUM FOR EACH VARIETY.
8. THE DESIGN MIX FOR TEMPORARY EROSION CONTROL AND SOIL STABILIZATION SHALL BE COMPRISED OF THE FOLLOWING:

TYPE	% BY WEIGHT
CREEPING RED FESCUE	70
ASTORIA BENTGRASS	5
BIRDSFOOT TREEFOIL	15
PERENNIAL RYEGRASS	10
APPLICATION RATE	100 LBS/ACRE

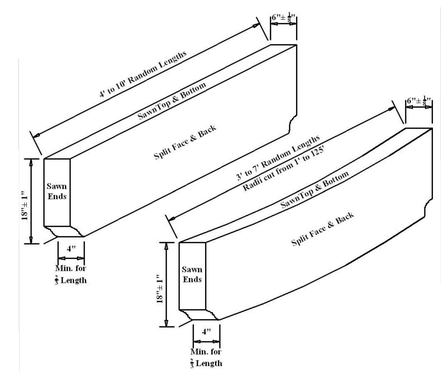
LIMING AND FERTILIZING AS REQUIRED TO COMPLIMENT OR UPGRADE EXISTING CONDITIONS.

9. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE (1) YEAR, AND HE SHALL DO SO AT NO ADDITIONAL EXPENSE.
10. THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE APRIL 1ST THROUGH OCTOBER 15TH.
11. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN FIFTEEN (15) DAYS OF FINAL GRADING.
12. STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAYS OR FLOOD PLAINS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN THIRTY PERCENT (30%) AND STOCKPILES SHALL ALSO BE SEEDED AND/OR STABILIZED AND COMPLETELY ENCIRCLED WITH A CONTINUOUS LINE OF SILT FENCE. (SEE DETAIL)
13. ON BOTH STEEP AND LONG SLOPES, CONSIDERATION SHOULD BE GIVEN TO "CRIMPING" OR "TRACKING" TO TACK DOWN MULCH APPLICATIONS.



SILTSACK® AT CATCH BASIN DETAIL

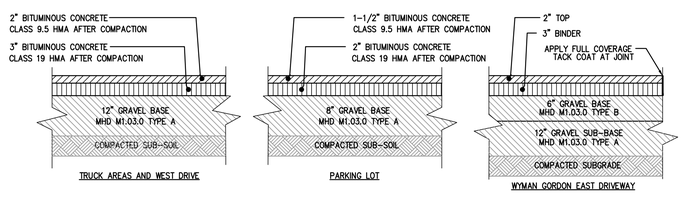
NOT TO SCALE



STRAIGHT & RADIUS
(AS MANUFACTURED BY WILLIAMS STONE CO. INC.)

VA-4/ 6" X18" GRANITE CURBING

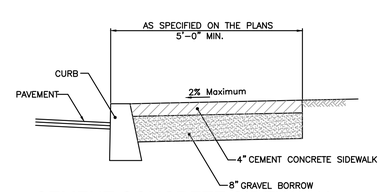
NOT TO SCALE



1. THE SOIL MUST HAVE A MOISTURE CONTENT DRY OF OPTIMUM AS DETERMINED MOISTURE-DENSITY RELATIONSHIP TEST METHOD ASTM D1557.
2. THE SOIL CAN BE COMPACTED TO 98% OF THE MAXIMUM STANDARD PROCTOR DENSITY AS DETERMINED BY THE MOISTURE-DENSITY RELATIONSHIP TEST METHOD ASTM D698.
3. THE SOIL SHALL NOT BE USED IF THE MATERIAL CONTAINS ORGANIC MATTER, RUBBLE, DEBRIS OR ANY OTHER DELETERIOUS MATERIAL.
4. SUBMIT MIX DESIGN TO THE CIVIL ENGINEER OF RECORD AT LEAST 30 DAYS PRIOR TO BEGINNING ASPHALT PAVING OPERATIONS. MIX DESIGNS OVER ONE YEAR OLD WILL NOT BE ACCEPTED. MIX DESIGNS SUBMITTAL SHALL FOLLOW THE LATEST EDITION OF THE MASSDOT HIGHWAY DIVISION STANDARD SPECIFICATIONS.

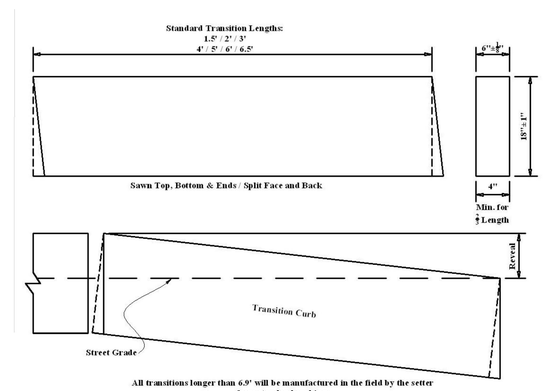
BITUMINOUS CONCRETE PAVEMENT SECTIONS (BCP)

NOT TO SCALE



CEMENT CONCRETE SIDEWALK

NOT TO SCALE



All transitions longer than 6.5' will be manufactured in the field by the setter from standard curbing.

All transitions comprised of a straight and radius section will be manufactured in the field by the setter from standard curbing.

STRAIGHT & RADIUS
(AS MANUFACTURED BY WILLIAMS STONE CO. INC.)

VA-4/ 6" X18" TRANSITION CURBING

NOT TO SCALE

CONSTRUCTION DETAILS - 1

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

NO.	REVISION	BY	DATE
1	GENERAL REVISION	RAS	08/24/2021

ISSUED FOR PERMIT ONLY

COMMONWEALTH OF MASSACHUSETTS
SAMUEL A. HEMENWAY
CIVIL
No. 50796
REGISTERED PROFESSIONAL ENGINEER
08-24-21

GAROFALO
GAROFALO & ASSOCIATES, INC.
CIVIL & STRUCTURAL ENGINEERS|SURVEYORS
LAND PLANNERS|ENVIRONMENTAL SCIENTISTS

85 CORLISS STREET
P.O. BOX 6145
PROVIDENCE, R.I. 02940
TEL. 401-273-6000

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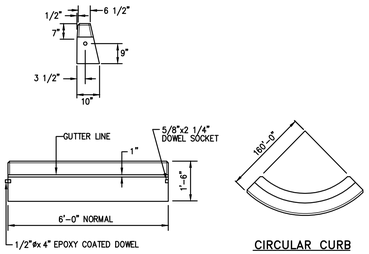
JOB NO. 7280-00	DRAWN BY K.Y.Y
DWG. NO. 7280-00-Det.dwg	CHECK BY S.S.H.
SCALE: AS SHOWN	APPROVED S.B.G.
	DATE: JUNE 10, 2021

SHEET

DT-1.1

L:\7280-00 Distrubution Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-Det.dwg 08/24/2021 kyingyang 16:08



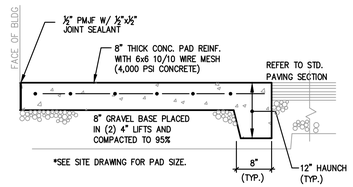
CIRCULAR CURB

NOTES:

1. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR FILLER PIECES TO BE 3'-0".
2. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
3. CIRCULAR CURB IS REQUIRED ON CURVES WITH RADII OF 160'-0" OR LESS. STRAIGHT CURB TO BE USED ON CURVES OF MORE THAN 160'-0" RADIUS.
4. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.

PRECAST CONCRETE CURB

NOT TO SCALE

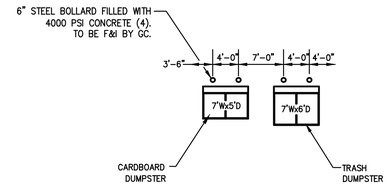


NOTES:

1. CONCRETE WALKS SHALL BE 4" MINIMUM THICKNESS, CONCRETE PADS AND ENTRANCES SHALL BE 6" MINIMUM THICKNESS REINFORCED CONCRETE.
2. CONCRETE WALKS AND PADS SHALL BE INSTALLED WITH CONTRACTION JOINTS AGAINST ALL STRUCTURAL FEATURES AND/OR AT 24" CENTERS. TOOLED JOINTS SHALL BE INSTALLED AT 6' MAXIMUM SPACING EACH WAY.

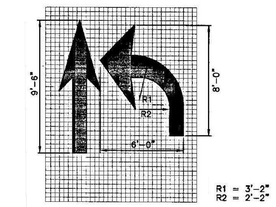
DUMPSTER/ GENERATOR/ LOADING PADS

NOT TO SCALE



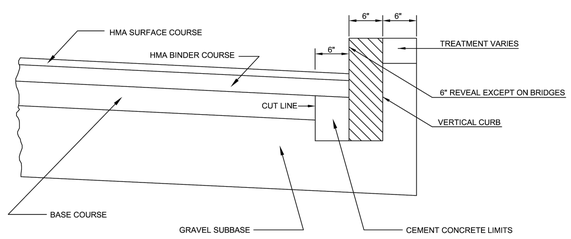
DOUBLE DUMPSTER

NOT TO SCALE



PAVEMENT MARKINGS ARROWS

NOT TO SCALE



NOTES:

1. THIS PROCEDURE IS APPLICABLE ONLY IF CURB IS TO BE SET AFTER BASE COURSE IS IN PLACE PRIOR TO BINDER AND TOP PLACEMENT.

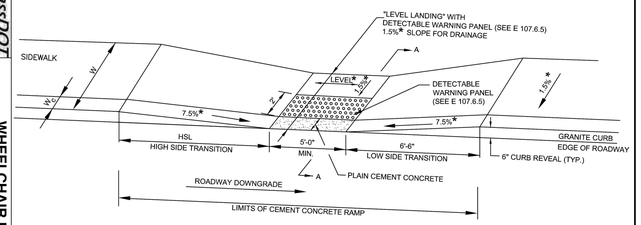
2. CUT NEAT LINE 6" FROM CURB LINE AND REMOVE BASE AND GRAVEL. REPLACE WITH CEMENT CONCRETE.

3. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED; ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT TO BE USED AS A SUBSTITUTE.

massDOT Highway Division — CONSTRUCTION STANDARDS

METHOD OF SETTING VERTICAL CURB

DATE OF ISSUE OCTOBER 2017 — DRAWING NUMBER E 106.3.0

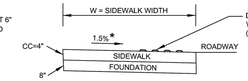


LEGEND

HSL = HIGH SIDE TRANSITION LENGTH (SEE E 107.9.0)
W = SIDEWALK WIDTH
W_C = CURB WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

USABLE SIDEWALK WIDTH PER AAB = W-Wc
USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'0"
SEE E 107.6.5 FOR DETAILS OF DETECTABLE WARNING PANEL

NOTE:
ROADWAY, GUTTER, AND FIRST 6" OF SIDEWALK TO BE ADJUSTED FOR FIELD CONDITIONS

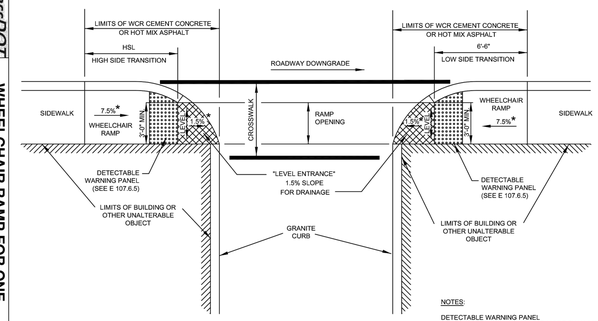


SECTION A-A

massDOT Highway Division — CONSTRUCTION STANDARDS

WHEELCHAIR RAMP ON NARROW SIDEWALK WITH DETECTABLE WARNING PANEL

DATE OF ISSUE OCTOBER 2017 — DRAWING NUMBER E 107.2.1



LEGEND

HSL = HIGH SIDE TRANSITION LENGTH (SEE E 107.9.0)

* = TOLERANCE FOR CONSTRUCTION ±0.5%

NOTES:

DETECTABLE WARNING PANEL LOCATED NOT LESS THAN 6" OR MORE THAN 24" FROM ROADWAY EDGE (GUTTER LINE). TRUNCATED DOMES TO BE ALIGNED WITH DIRECTION OF TRAVEL.

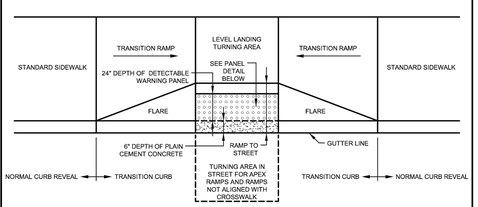
FOR DETAILS OF TRUNCATED DOMES SEE DRAWING E 107.6.5.

ROADWAY, GUTTER, AND FIRST 6" OF SIDEWALK TO BE ADJUSTED FOR FIELD CONDITIONS.

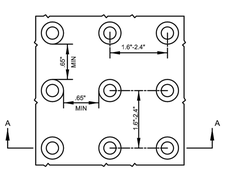
massDOT Highway Division — CONSTRUCTION STANDARDS

WHEELCHAIR RAMP FOR ONE CONTINUOUS DIRECTION OF PEDESTRIAN TRAVEL

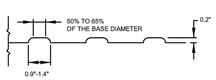
DATE OF ISSUE OCTOBER 2017 — DRAWING NUMBER E 107.6.0



TYPICAL INSTALLATION



DETAIL OF DETECTABLE WARNING PANEL



SECTION A-A

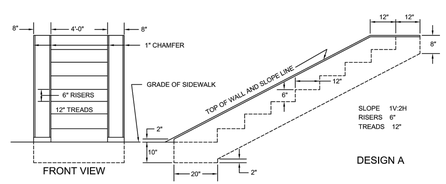
NOTE:

PANELS MAY BE CONCRETE PRECAST OR CAST IN PLACE OR OTHER SUITABLE MATERIAL PERMANENTLY APPLIED TO THE RAMP. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.

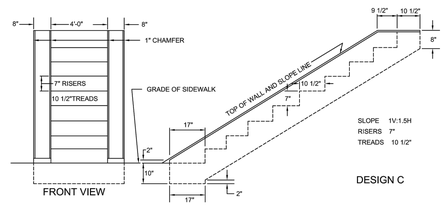
massDOT Highway Division — CONSTRUCTION STANDARDS

DETECTABLE WARNING PANEL FOR WHEELCHAIR RAMPS AND STANDARD RAMP TERMINOLOGY

DATE OF ISSUE OCTOBER 2017 — DRAWING NUMBER E 107.6.5



PLEASE NOTE: DESIGN B HAS BEEN DISCONTINUED



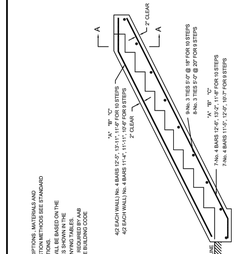
NOTES:

1. ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM EXCEPT RISERS AND TREADS WHICH HAVE 1/4" TOLERANCE.
2. FOR REINFORCING STEEL AND CONCRETE QUANTITIES SEE DRAWING E 304.2.0

massDOT Highway Division — CONSTRUCTION STANDARDS

CEMENT CONCRETE STEPS 1/2

DATE OF ISSUE OCTOBER 2017 — DRAWING NUMBER E 304.1.0



NOTES:
1. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS SEE STANDARD SPECIFICATIONS.
2. PAYMENT WILL BE BASED ON THE ACTUAL QUANTITIES SHOWN IN ACCOMPANYING TABLES.
3. DESIGN IS IN ACCORDANCE WITH AAB AND STATE BUILDING CODE

FOR DESIGNS "A", "B" AND "C" SEE DRAWING E 304.1.0

DESIGN A

STEP NOS.	QUANTITIES - CU. FT. BASE	STEPS	2-WALLS	TOTAL	TOTAL C.Y.	REINF STEEL LBS.
2	5.55	7.33	6.26	19.15	0.71	–
3	5.55	11.00	8.48	25.03	0.93	–
4	5.55	14.66	10.70	30.92	1.15	–
5	5.55	18.33	12.92	36.81	1.36	–
6	5.55	22.00	15.15	42.70	1.58	–
7	5.55	25.66	17.37	48.59	1.80	–
8	5.55	29.33	19.59	54.47	2.02	–
9	5.55	33.00	21.81	60.36	2.24	99
10	5.55	36.66	24.03	66.25	2.45	109

DESIGN C

STEP NOS.	QUANTITIES - CU. FT. BASE	STEPS	2-WALLS	TOTAL	TOTAL C.Y.	REINF STEEL LBS.
2	4.72	6.71	5.65	17.08	0.63	–
3	4.72	10.06	7.89	22.48	0.83	–
4	4.72	13.42	9.73	27.87	1.03	–
5	4.72	16.77	11.78	33.27	1.23	–
6	4.72	20.12	13.82	38.66	1.43	–
7	4.72	23.48	15.86	44.06	1.63	–
8	4.72	26.83	17.90	49.46	1.83	–
9	4.72	30.19	19.94	54.85	2.03	62
10	4.72	33.54	22.00	60.25	2.23	102

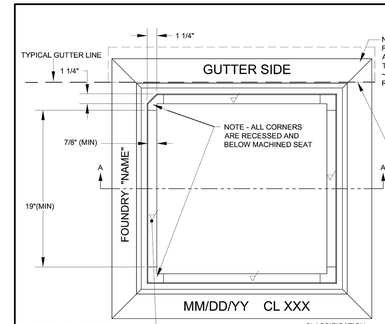
PLEASE NOTE: DESIGN B HAS BEEN DISCONTINUED

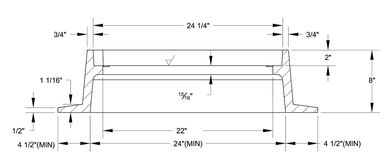
ALL CONCRETE SHALL BE 4,000 PSI (SEE MASSDOT SPECIFICATIONS FOR DESIGN REQUIREMENTS)

massDOT Highway Division — CONSTRUCTION STANDARDS

CEMENT CONCRETE STEPS 2/2

DATE OF ISSUE OCTOBER 2017 — DRAWING NUMBER E 304.2.0





WEIGHTS:
3-FLANGE FRAME 240 LBS. MIN
4-FLANGE FRAME 270 LBS. MIN

AASHTO HS 20 LOAD RATED

CASTING TOLERANCES:
SHALL CONFORM TO AASHTO M306

massDOT Highway Division — CONSTRUCTION STANDARDS

CATCH BASIN FRAME

DATE OF ISSUE OCTOBER 2017 — DRAWING NUMBER E 201.6.0

CONSTRUCTION DETAILS - 2

FOR
CB DISTRIBUTION
GRAFTON, MA
SITUATED AT
244 WORCESTER STREET
GRAFTON, MA
PREPARED FOR
CHURCHILL & BANKS COMPANIES, LLC

NO.	REVISION	BY	DATE
1	GENERAL REVISION	RAS	08/24/2021

ISSUED FOR PERMIT ONLY

COMMONWEALTH OF MASSACHUSETTS — SAMUEL HEMENWAY — CIVIL — No. 50796 — REGISTERED PROFESSIONAL ENGINEER — 08-24-21

GAROFALO & ASSOCIATES, INC.
CIVIL & STRUCTURAL ENGINEERS/SURVEYORS
LAND PLANNERS/ENVIRONMENTAL SCIENTISTS

85 CORLISS STREET
P.O. BOX 6145
PROVIDENCE, R.I. 02940
TEL. 401-273-6000

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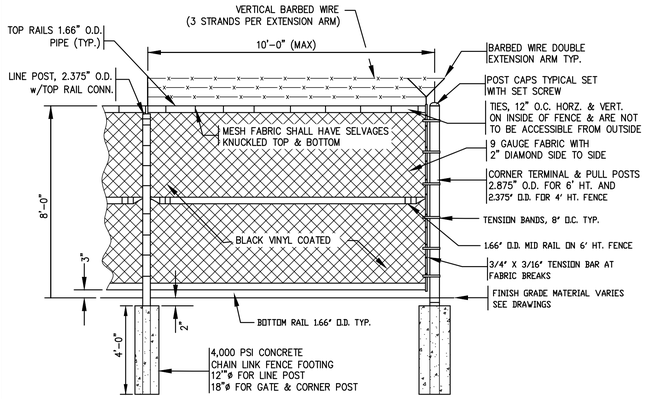
JOB NO. 7280-00	DRAWN BY K.Y.Y
DWG. NO. 7280-00-Det.dwg	CHECK BY S.S.H.
SCALE: AS SHOWN	APPROVED S.B.G.
	DATE: JUNE 10, 2021

SHEET

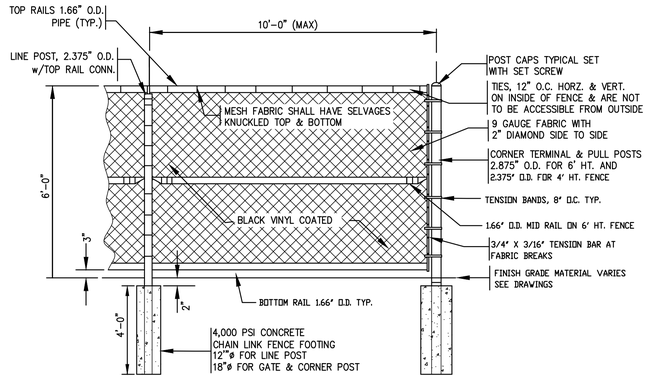
DT-1.2

22 OF 27 SHEETS

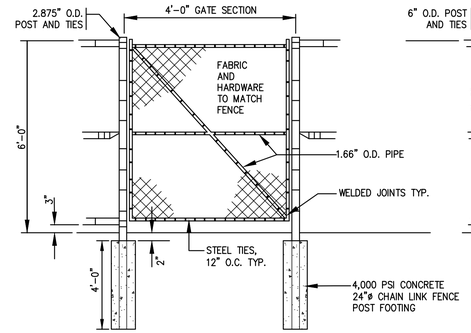
L:\7280-00 Distribution Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-Det.dwg 08/24/2021 kyingyang 16:08



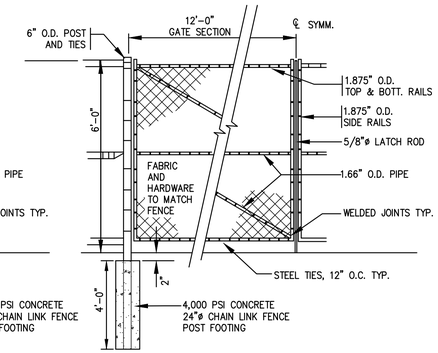
W-G SECURITY FENCE
N.T.S.



CHAIN LINK FENCE
N.T.S.



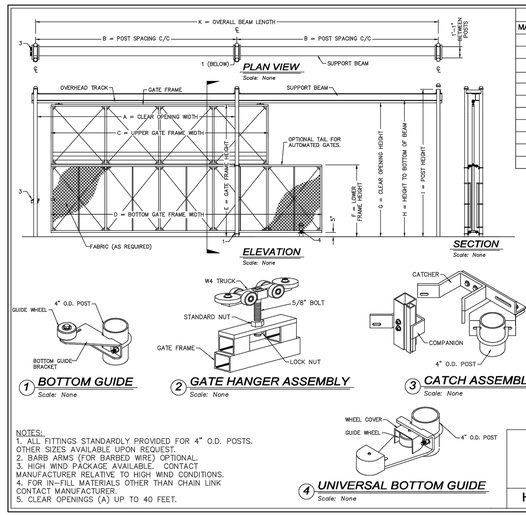
MANWAY GATE DETAIL
N.T.S.



VEHICLE GATE DETAIL
N.T.S.

CHAIN LINK FENCE AND SWING GATES

NOT TO SCALE



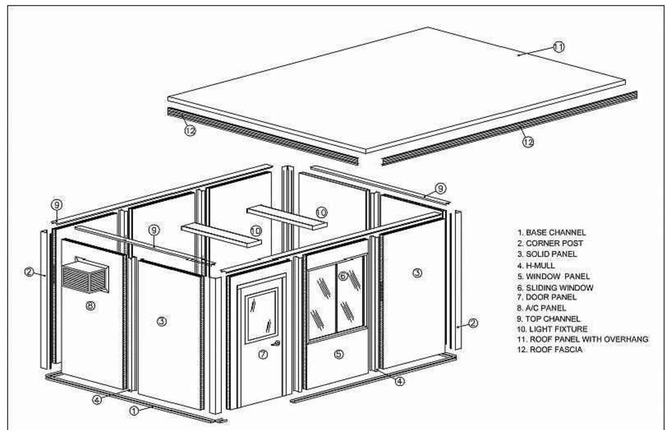
CRITICAL DIMENSION CHART			
MARK	DESCRIPTION	FORMULA	DIMENSION
A	CLEAR OPENING	A	-
B	POST SPACING C/C	B	-
C	UPPER GATE FRAME WIDTH	A + 1'-4"	-
D	BOTTOM GATE FRAME WIDTH	A + 7"	-
E	GATE FRAME HEIGHT	F - 3"	-
F	LOWER FRAME HEIGHT	F	-
G	CLEAR OPENING HEIGHT	G	-
H	HEIGHT TO BOTTOM OF BEAM	H	-
I	POST HEIGHT	I	-
J	FABRIC HEIGHT	E - 1'-0"	-
K	OVERALL BEAM LENGTH	A X 2 + 1'-0"	-

NOTES:

1. DETAIL IS PROVIDED AS BASIS OF DESIGN ONLY. FINAL GATE SELECTION TO BE APPROVED BY TENANT

SLIDE GATE

NOT TO SCALE



NATIONAL PARTITIONS
10300 Gridiron Lane
Knoxville, Tennessee
(800) 996-7269
3/1/01

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NOTES:

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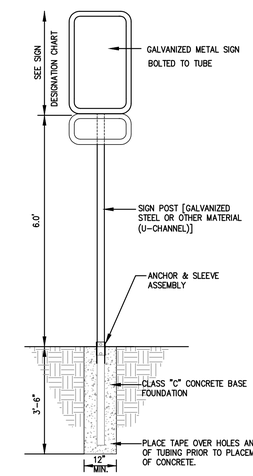
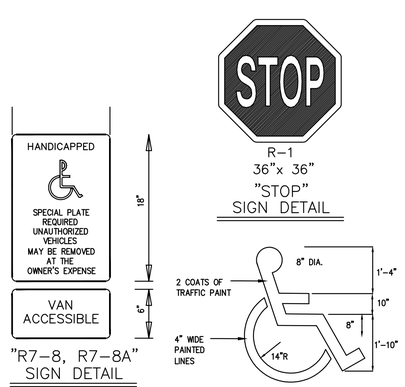
GUARD HOUSE

NOT TO SCALE



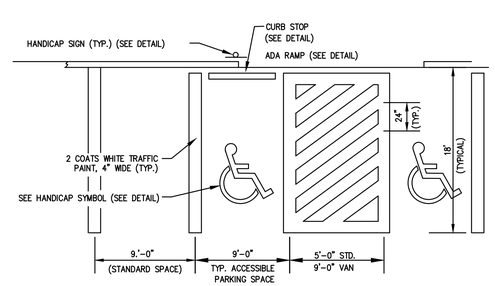
SIGNAGE DETAIL

NOT TO SCALE



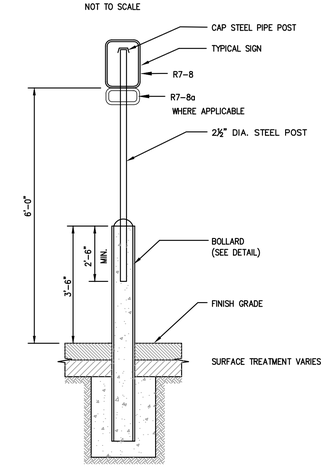
HANDICAP SYMBOL DETAIL

NOT TO SCALE



PAVEMENT STRIPING DETAIL

NOT TO SCALE



BOLLARD MOUNTED SIGN

NOT TO SCALE

CONSTRUCTION DETAILS - 3

FOR

CB DISTRIBUTION
GRAFTON, MA

SITUATED AT

244 WORCESTER STREET
GRAFTON, MA

PREPARED FOR

CHURCHILL & BANKS COMPANIES, LLC

NO.	REVISION	BY	DATE
1	GENERAL REVISION	RAS	08/24/2021

ISSUED FOR PERMIT ONLY

COMMONWEALTH OF MASSACHUSETTS
SAMUEL HEMENWAY
CIVIL
No. 50746
REGISTERED PROFESSIONAL ENGINEER
08-24-21

GAROFALO
GAROFALO & ASSOCIATES, INC.
CIVIL & STRUCTURAL ENGINEERS/SURVEYORS
LAND PLANNERS/ENVIRONMENTAL SCIENTISTS

85 CORLISS STREET
P.O. BOX 6145
PROVIDENCE, R.I. 02940
TEL. 401-273-6000

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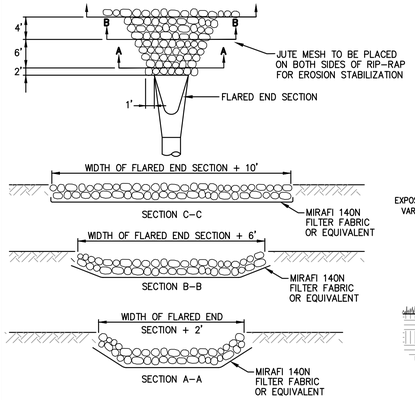
JOB NO. 7280-00	DRAWN BY K.Y.Y
DWG. NO. 7280-00-Det.dwg	CHECK BY S.S.H.
SCALE: AS SHOWN	APPROVED S.B.G.
	DATE: JUNE 10, 2021

SHEET

DT-1.3

L:\7280-00 Distribution Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-Det.dwg 08/24/2021 kyingyang 16:08

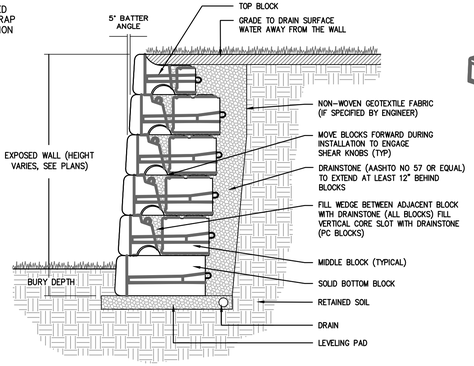


NOTES:

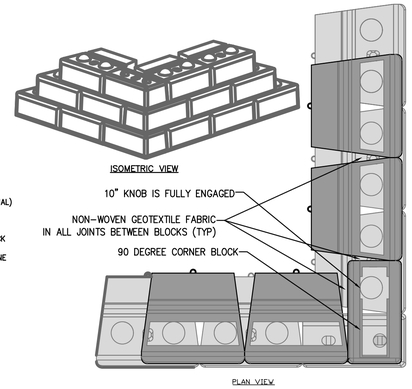
1. UNLESS OTHERWISE SPECIFIED, CLASS "C" RIP-RAP IS TO BE USED FOR ALL FLARED ENDS.
2. DIMENSIONS MAY BE MODIFIED BY ENGINEER TO MEET FIELD CONDITIONS.
3. UNLESS OTHERWISE SPECIFIED, DUMPED RIP-RAP SHALL BE USED.
4. USE ONLY SECTION A-A FOR ROOF DRAINS.

RIP RAP AT FLARED END SECTION

NOT TO SCALE



LARGE BLOCK GRAVITY WALL (SECTION)



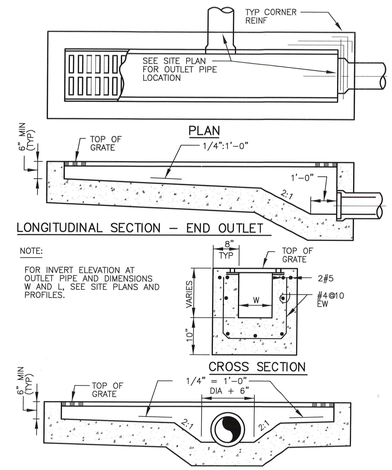
LARGE BLOCK GRAVITY WALL (CORNER)

NOTE:

1. DETAILS INDICATED HEREON ARE FOR TYPICAL MODULAR BLOCK INSTALLATION, THE CONTRACTOR SHALL SUBMIT DETAIL STAMPED SHOP DRAWINGS FOR FINAL WALL CONSTRUCTION.
2. BASIS OF DESIGN: REDI-ROCK POSITIVE CONNECTION (PC) SYSTEM, "LIMESTONE".

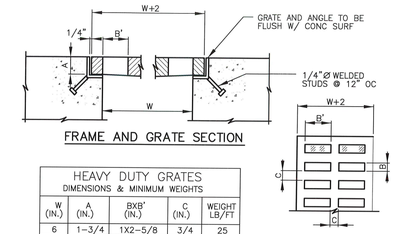
LARGE BLOCK RETAINING WALL

NOT TO SCALE



TRENCH DROP INLET

NO SCALE



HEAVY DUTY GRATES DIMENSIONS & MINIMUM WEIGHTS				
W (IN.)	A (IN.)	BXB' (IN.)	C (IN.)	WEIGHT LB/FT
6	1-3/4	1X2-5/8	3/4	25
8	1-3/4	1X3-1/2	1	32
10	1-3/4	1X4-1/2	1	35
12	2	1X5-1/2	1	47
18	2	1X5	1	75
24	2	1-1/2X5	1-1/4	104
LIGHT DUTY GRATES DIMENSIONS & MINIMUM WEIGHTS				
6	1-1/4	1X2-5/8	3/4	14
8	1-1/4	7/8X3-5/8	3/4	17
10	1-1/4	3/4X4-5/8	3/4	22
12	1-1/4	3/4X5-5/8	3/4	24
18	1-1/4	3/4X8-1/2	3/4	40
24	1-1/2	1X7-1/4	1-1/16	44

GRATE SHALL NOT BE BOLTED TO FRAME UNLESS INDICATED

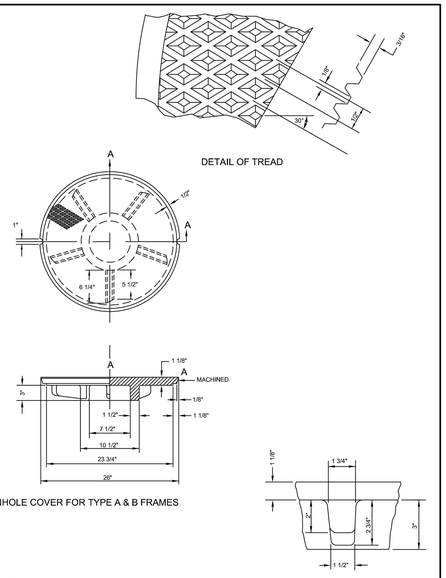
GRATE PLAN

NOTES:

1. ALL GRATES AND FRAMES SHALL BE HEAVY DUTY EXCEPT WHERE LIGHT DUTY GRATES ARE SPECIFICALLY INDICATED.
2. GRATE AND FRAME SHALL BE GRAY CAST IRON OR DUCTILE CAST IRON.

TRENCH DROP INLET

NO SCALE



NOTES:

1. MINIMUM COVER MASS - 200 LBS.
2. MATERIAL - CAST IRON - SEE STANDARD SPECIFICATIONS WITH NO BLACK ASPHALT COATING ALLOWED

massDOT Highway Division	MANHOLE COVER DETAILS	DATE OF ISSUE OCTOBER 2017
CONSTRUCTION STANDARDS		DRAWING NUMBER E 202.8.0

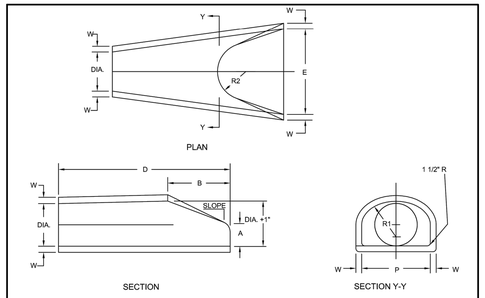


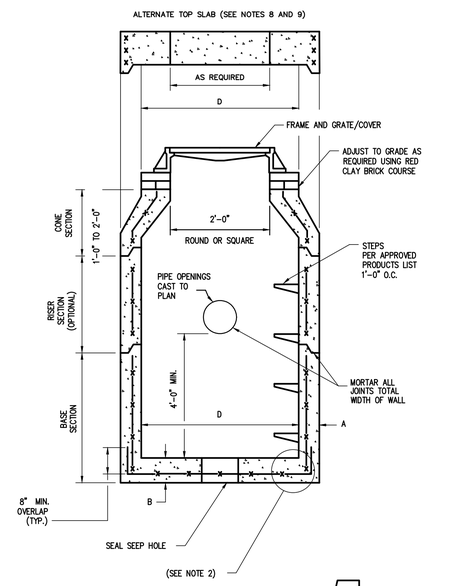
TABLE
[ALL DIMENSIONS ARE inches OR feet]

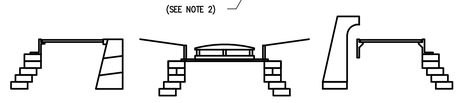
DIAMETER Inch	W	A	B	D	E	P	DIA. +1"	R1	R2	SLOPE
12"	2"	4"	2'-0"	6'-0"	2'-0"	19 15/16"	13"	10 1/8"	9"	1V : 3H
15"	2 1/4"	6"	2'-3"	6'-0"	2'-6"	24 5/16"	16"	12 1/2"	11"	1V : 3H
18"	2 1/2"	9"	2'-3"	6'-0"	3'-0"	29"	19"	15 1/2"	12"	1V : 3H
21"	2 3/4"	9"	2'-11"	6'-0"	3'-6"	31 5/8"	22"	16 1/8"	13"	1V : 3H
24"	3"	9 1/2"	3'-7 1/2"	6'-0"	4'-0"	33 3/16"	25"	16 13/16"	14"	1V : 3H
27"	3 1/4"	10 1/2"	4'-0"	6'-0"	4'-6"	36"	28"	18 9/16"	14 1/2"	1V : 3H
30"	3 1/2"	12"	4'-6"	6'-0"	5'-0"	37"	31"	18 1/2"	15"	1V : 3H
36"	4"	15"	5'-3"	8'-0"	6'-0"	47 13/16"	37"	24 5/16"	20"	1V : 3H
42"	4 1/2"	21"	5'-3"	8'-0"	6'-6"	53 7/8"	43"	27 1/2"	22"	1V : 3H
48"	5"	24"	6'-0"	8'-0"	7'-0"	56 1/2"	49"	28 1/2"	22"	1V : 3H

NOTES:

1. SEE STANDARD SPECIFICATIONS FOR THE TYPE OF PIPE TO BE USED (BELL & SPIGOT OR TONGUE & GROOVE)
2. SEE STANDARD SPECIFICATIONS FOR THE TYPE OF PIPE AND PLACING OF STEEL REINFORCEMENT.
3. THE JOINTS ARE TO BE COMPATIBLE WITH THE MAIN RUN OF PIPE.

massDOT Highway Division	REINFORCED CONCRETE PIPE FLARED ENDS	DATE OF ISSUE OCTOBER 2017
CONSTRUCTION STANDARDS		DRAWING NUMBER E 206.8.0





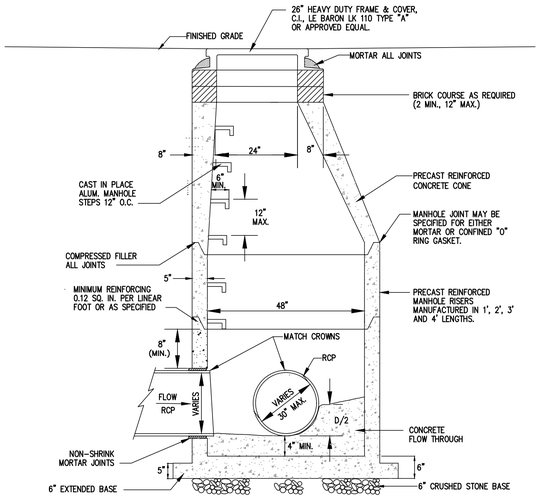
TYPE CATCH BASIN AS REQUIRED

NOTES:

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

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

NOT TO SCALE



PRECAST CONCRETE DRAIN MANHOLE

NOT TO SCALE

NOTE: ALL CATCHBASINS SHALL BE 4'-0" ROUND W/ 4' SUMP UNLESS NOTED DIFFERENTLY. OIL/WATER SHALL BE REQUIRED ON ALL CATCH BASINS.

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

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

CONSTRUCTION DETAILS - 4
FOR
CB DISTRIBUTION
GRAFTON, MA
SITUATED AT
244 WORCESTER STREET
GRAFTON, MA
PREPARED FOR
CHURCHILL & BANKS COMPANIES, LLC

NO.	REVISION	BY	DATE
1	GENERAL REVISION	RAS	08/24/2021

ISSUED FOR PERMIT ONLY

COMMONWEALTH OF MASSACHUSETTS SAMUEL HEMENWAY CIVIL No. 50796 REGISTERED PROFESSIONAL ENGINEER 08-24-21

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CIVIL & STRUCTURAL ENGINEERS|SURVEYORS
LAND PLANNERS|ENVIRONMENTAL SCIENTISTS
85 CORLISS STREET
P.O. BOX 6145
PROVIDENCE, R.I. 02940
TEL. 401-273-6000

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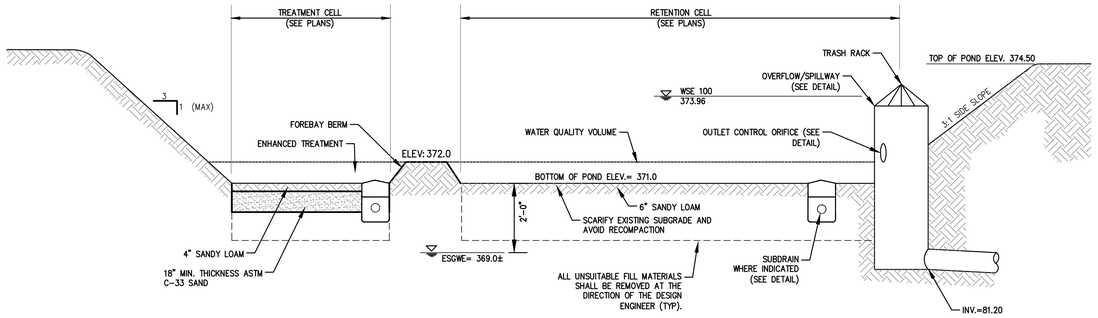
JOB NO. 7280-00	DRAWN BY K.Y.Y
DWG. NO. 7280-00-Det.dwg	CHECK BY S.S.H.
SCALE: AS SHOWN	APPROVED S.B.G.
	DATE: JUNE 10, 2021

SHEET

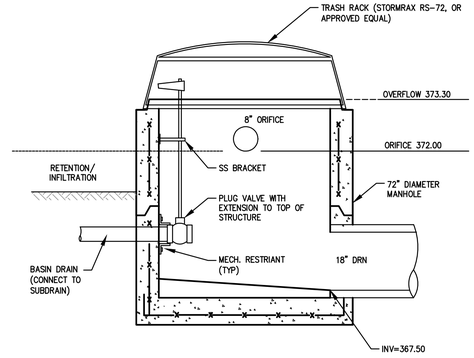
DT-1.4

L:\7280-00 Distribution Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-Det.dwg 08/24/2021 kyingyang 16:09



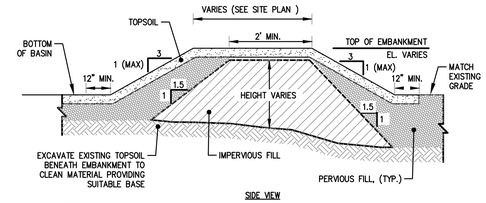
SCHEMATIC SECTION/PROFILE

N.T.S.



CONSTROL STRUCTION (CS-1)

N.T.S.



SIDE VIEW

NOTES:

1. IMPERVIOUS MATERIAL FOR USE IN BASIN EMBANKMENT AREAS AND WHERE SHOWN ON THE PLANS SHALL BE COMPOSED OF CLAYS, SILTY CLAYS, OR CLAYEY SILTS. THE SOIL SHALL BE FREE OF RUBBISH, ICE, VEGETATIVE MATTER, LOAM, OR OTHER DEBRIS AND HAVE THE FOLLOWING GRADATION AS DEFINED BY A STANDARD SIEVE TEST (ASTM D422).

MIN PERCENT PASSING (BY WEIGHT)	SIEVE SIZE
100	3.5"
80–100	3/4"
40–90	NO. 4
30–85	NO. 40
25–75	NO. 200

2. PERVIOUS BACKFILL MATERIAL FOR USE IN FILL AREAS ASSOCIATED WITH BASIN SHALL BE COMPOSED OF SATISFACTORY ON-SITE MATERIAL OR BORROW SOIL MATERIALS WHEN SUFFICIENT SATISFACTORY SOIL MATERIALS ARE NOT AVAILABLE FROM EXCAVATIONS. SATISFACTORY ON-SITE MATERIAL SHALL HAVE SOIL CLASSIFICATION GROUPS OF GW, GP, GM, SW, SP, AND SM ACCORDING TO ASTM D 2487, OR A COMBINATION OF THESE GROUPS' AND SHALL BE FREE OF ROCK OR GRAVEL LARGER THAN 3 INCHES (75MM) IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION, AND OTHER DELETERIOUS MATTER.

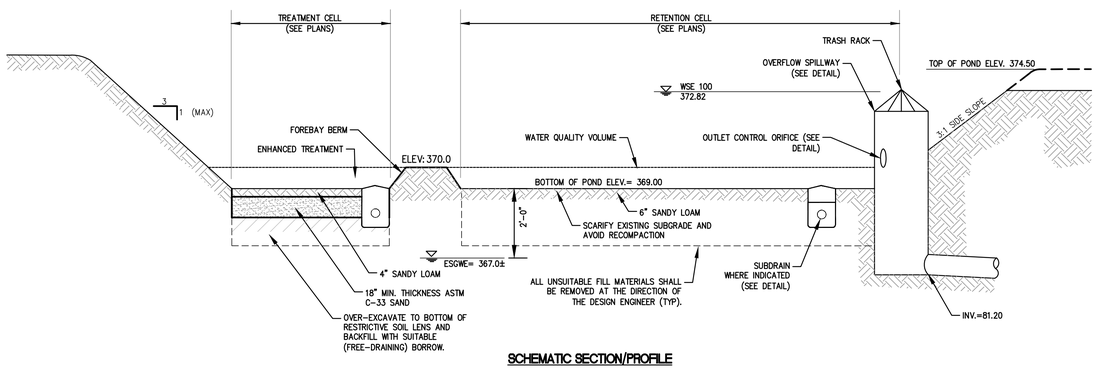
3. PIPE INSTALLED THROUGH EMBANKMENT SHALL INCLUDE WATER-TIGHT JOINTS.

BMP 1B - INFILTRATION BASIN WITH TREATMENT CELL

N.T.S.

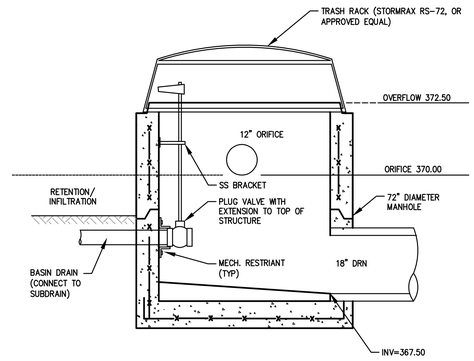
BASIN EMBANKMENTS

N.T.S.



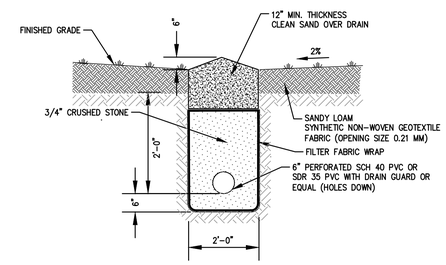
SCHEMATIC SECTION/PROFILE

N.T.S.



CONTROL STRUCTURE (CS-2)

N.T.S.

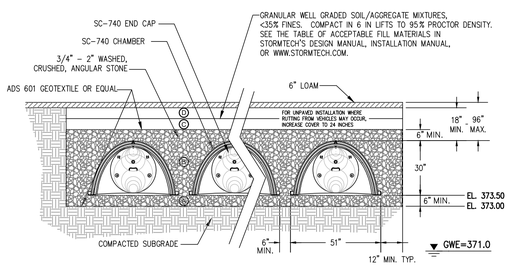


BMP 2B - INFILTRATION BASIN WITH TREATMENT CELL

N.T.S.

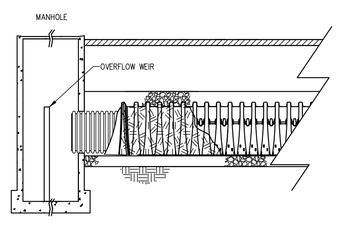
SUBDRAIN

N.T.S.



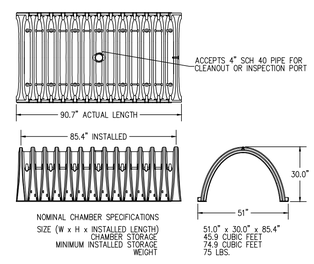
CHAMBER SYSTEM INSTALLATION

N.T.S.



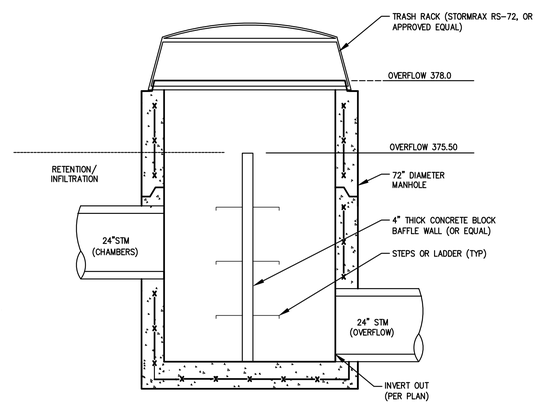
SYSTEM PROFILE

N.T.S.



STORMTECH SC-740 CHAMBER

N.T.S.



OVERFLOW STRUCTURE (OF-1 AND OF-2)

N.T.S.

ROOFTOP RECHARGE SCHEMATIC

N.T.S.

CONSTRUCTION DETAILS - 5

FOR

CB DISTRIBUTION
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COMMONWEALTH OF MASSACHUSETTS
SAMUEL HEMENWAY
CIVIL
No. 50796
REGISTERED PROFESSIONAL ENGINEER
08-24-21

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PROVIDENCE, R.I. 02940
TEL. 401-273-6000

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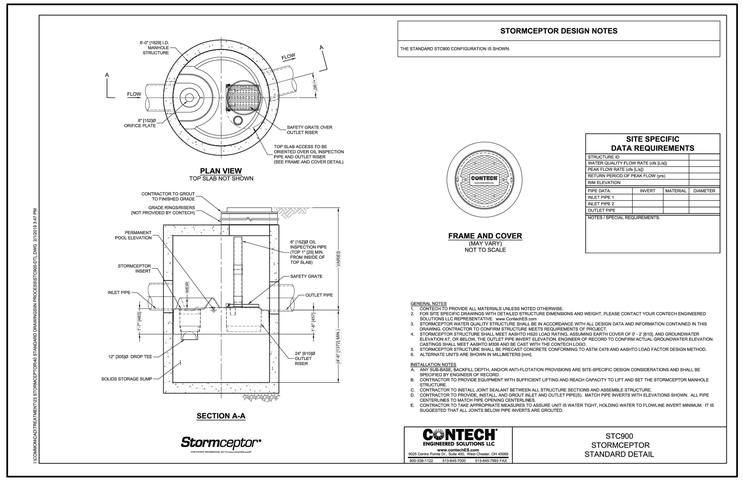
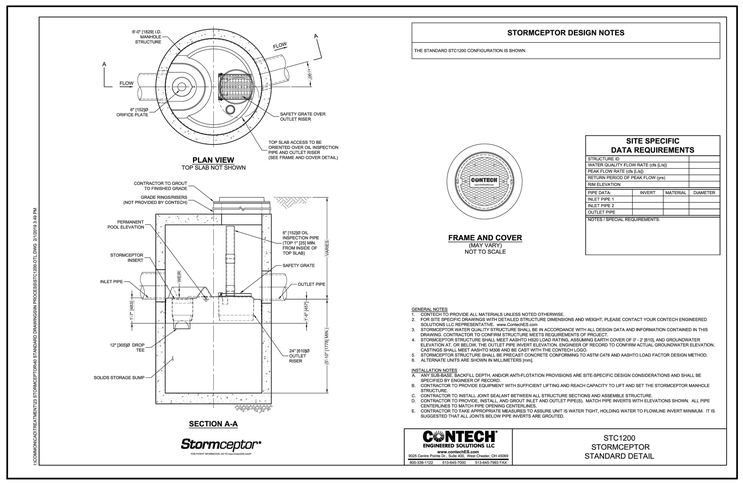
JOB NO. 7280–00	DRAWN BY K.Y.Y.
DWG. NO. 7280–00–Det.dwg	CHECK BY S.S.H.
SCALE: AS SHOWN	APPROVED S.B.G.
	DATE: JUNE 10, 2021

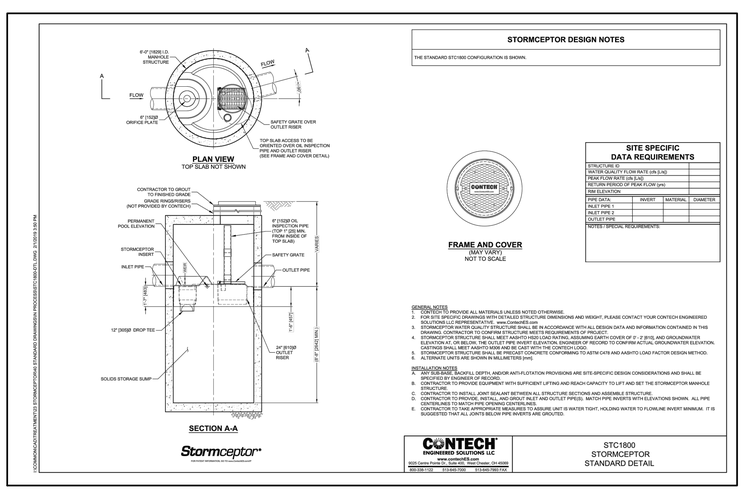
SHEET

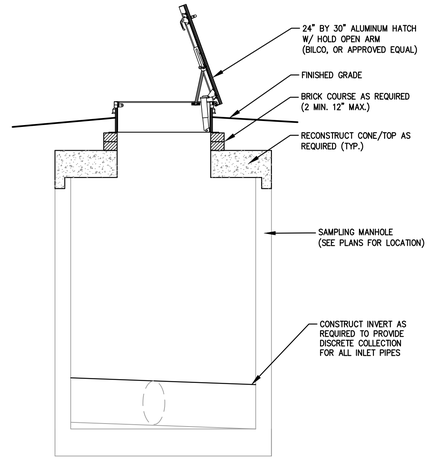
DT-1.5

L:\7280-00 Distrubtion Center (Churchill & Banks) – 244 Worcester Street – North Grafton, MA\dwg\01-Current\7280-00-Det.dwg 08/24/2021 kyingyang 16:09

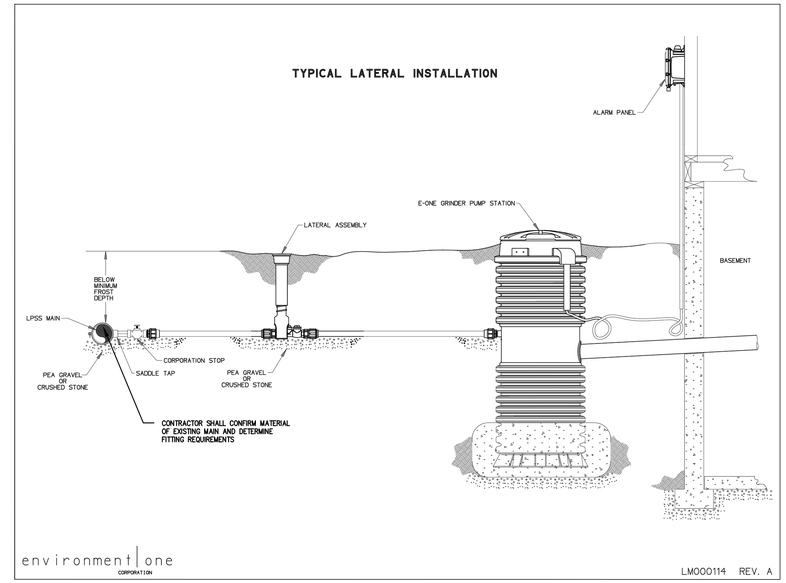


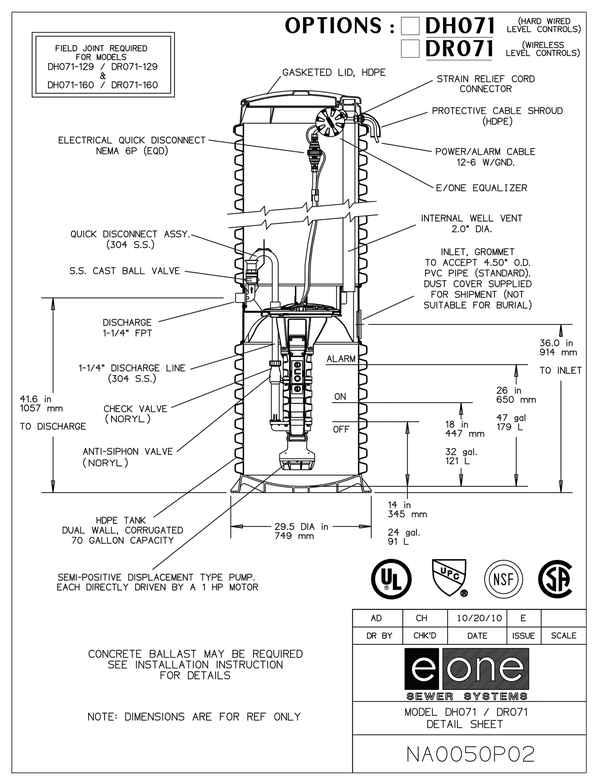


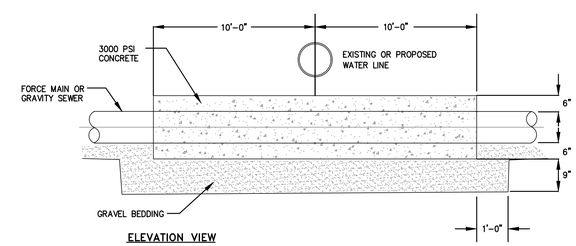


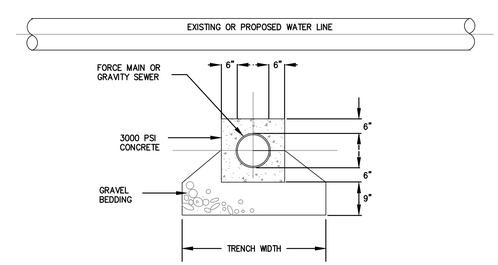


SAMPLING MANHOLE ACCESS HATCH
N.T.S.









CONCRETE SLEEVE
NOT TO SCALE

CONSTRUCTION DETAILS - 6

FOR
CB DISTRIBUTION
GRAFTON, MA
SITUATED AT
244 WORCESTER STREET
GRAFTON, MA
PREPARED FOR
CHURCHILL & BANKS COMPANIES, LLC

NO.	REVISION	BY	DATE
1	GENERAL REVISION	RAS	08/24/2021

ISSUED FOR PERMIT ONLY

COMMONWEALTH OF MASSACHUSETTS
SAMUEL HEMENWAY
CIVIL
No. 50796
REGISTERED PROFESSIONAL ENGINEER
08-24-21

GAROFALO & ASSOCIATES, INC.
CIVIL & STRUCTURAL ENGINEERS/SURVEYORS
LAND PLANNERS/ENVIRONMENTAL SCIENTISTS
85 CORLISS STREET
P.O. BOX 6145
PROVIDENCE, R.I. 02940
TEL. 401-273-6000

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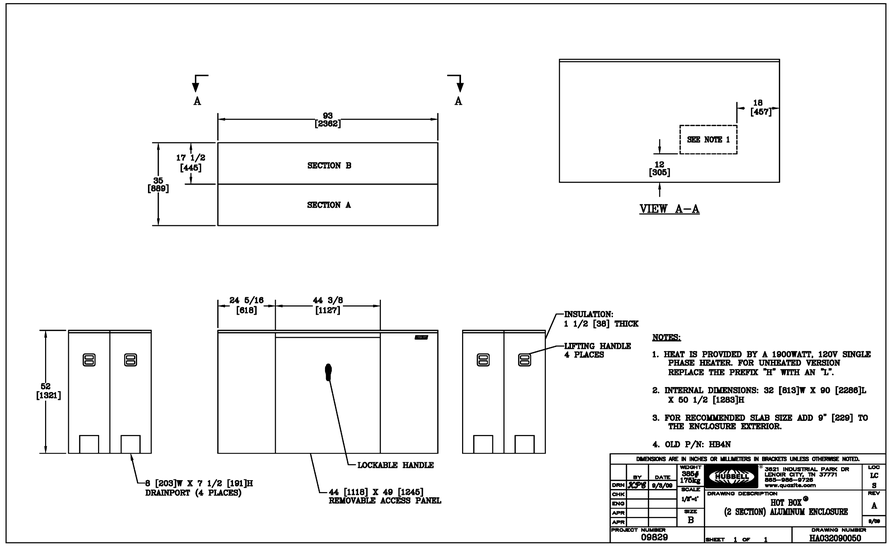
JOB NO. 7280-00	DRAWN BY R.A.S.
DWG. NO. 7280-00-Det.dwg	CHECK BY S.S.H.
SCALE: AS SHOWN	APPROVED S.B.G.
	DATE: JUNE 10, 2021

SHEET

DT-1.6

L:\7280-00 Distruction Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-Det.dwg 08/24/2021 kyingyang 16:09



NOTES:

1. HEAT IS PROVIDED BY A 1500WATT, 120V SINGLE PHASE HEATER. FOR UNHEATED VERSION REPLACE THE PREFIX "H" WITH AN "L".
2. INTERNAL DIMENSIONS: 32 [813]W X 90 [2286]L X 50 1/2 [1283]H
3. FOR RECOMMENDED SLAB SIZE ADD 9" [229] TO THE ENCLOSURE EXTERIOR.
4. OLD P/N: HB4N

DIMENSIONS ARE IN INCHES OR MILLIMETERS IN BRACKETS UNLESS OTHERWISE NOTED.

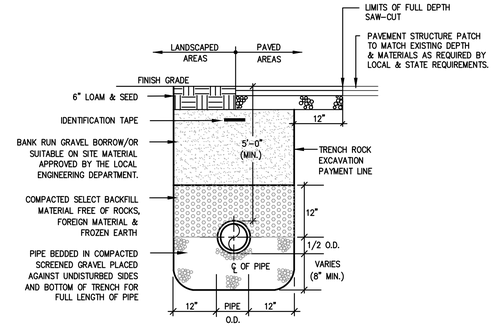
	BY	DATE	WEIGHT 385# 175kg		LOC LC S
DRN	JCP#	8/8/08	SCALE 1/8"="	DRAWING DESCRIPTION: HOT BOX® (2 SECTION) ALUMINUM ENCLOSURE	REV A
CHK					
ENG			SIZE B		8/08
APR					
APR					

HOFFMAN ENCLOSURES
2821 INDUSTRIAL PARK, DR
LEBANON, TN 37771
800-866-9728
www.questrs.com

PROJECT NUMBER 06829 — SHEET 1 OF 1 — DRAWING NUMBER HA032090050

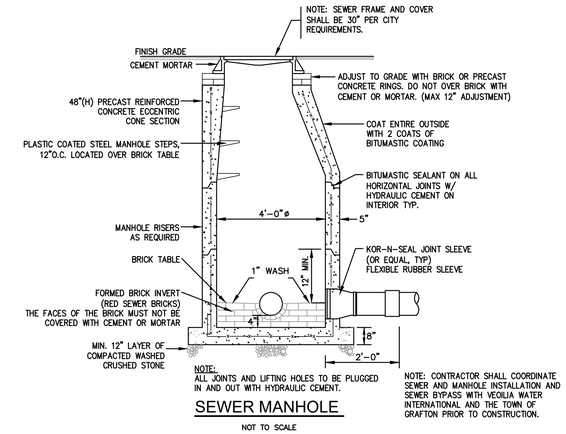
UTILTIY TRENCH SECTION

NOT TO SCALE



NOTES:

1. METALIZED 2" WIDE DETECTABLE IDENTIFICATION TAPE SHALL BE INSTALLED OVER WATER LINES AND SEWER PIPE 12" BELOW FINISH GRADE.
2. EXISTING FOUNDATION SHALL BE REMOVED TO 2' MINIMUM BELOW PROPOSED UTILITIES AND BACKFILLED WITH SELECT BACKFILL TO 95% DENSITY.
3. PROVIDE TRENCH SHEETING & BRACING AS REQUIRED IN ACCORDANCE WITH O.S.H.A. REQUIREMENTS.
4. ELECTRIC/TELEPHONE/CABLE MAINS AND SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY COMPANY STANDARDS AND ALL APPLICABLE CODES.
5. GRAVITY SANITARY SEWER LINES SHALL BE BEDDED ON 3/4-INCH CRUSHED STONE PLACED AGAINST UNDISTURBED SIDES AND BOTTOM OF TRENCH FOR FULL LENGTH PIPE. CRUSHED STONE SHALL ALSO BE PLACED ABOVE THE SEWER PIPE AT A MINIMUM DEPTH OF 12-INCHES FOR FULL LENGTH OF PIPE.

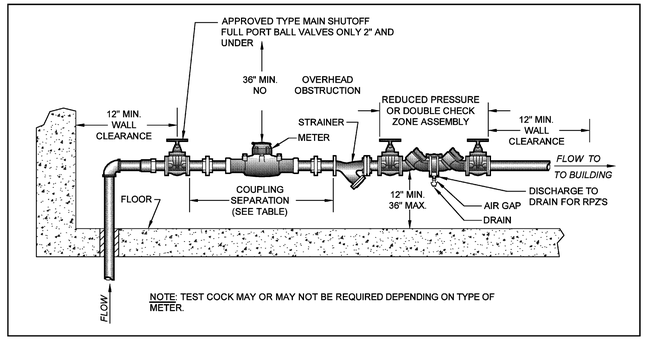


NOTE:
ALL JOINTS AND LIFTING HOLES TO BE PLUGGED IN AND OUT WITH HYDRAULIC CEMENT.

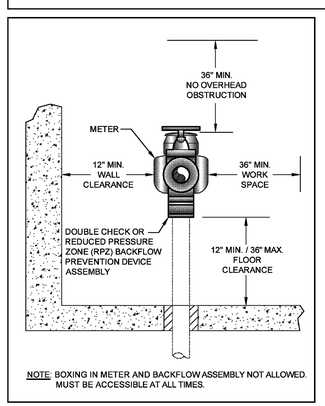
SEWER MANHOLE

NOT TO SCALE

NOTE: CONTRACTOR SHALL COORDINATE SEWER AND MANHOLE INSTALLATION AND SEWER BYPASS WITH VEOLIA WATER INTERNATIONAL AND THE TOWN OF GRAFTON PRIOR TO CONSTRUCTION.



NOTE: TEST COCK MAY OR MAY NOT BE REQUIRED DEPENDING ON TYPE OF METER.

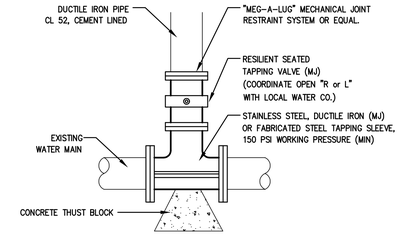


NOTE: BOXING IN METER AND BACKFLOW ASSEMBLY NOT ALLOWED. MUST BE ACCESSIBLE AT ALL TIMES.

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

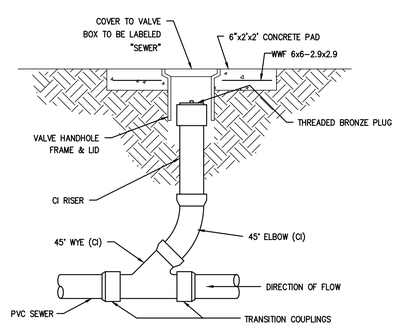
HORIZONTAL INSTALLATION OF REDUCED PRESSURE ZONE AND DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY

NOT TO SCALE



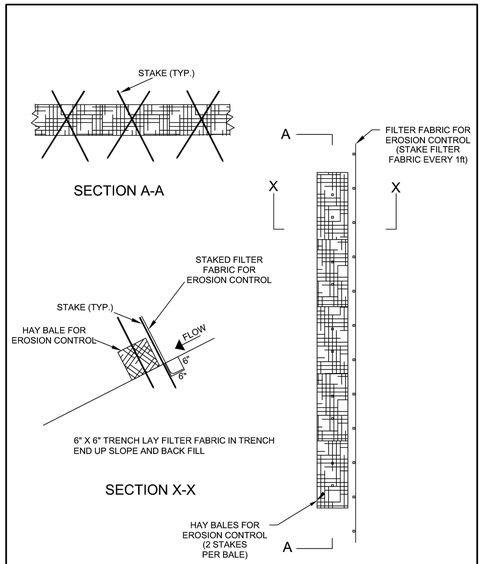
TYPICAL TAPPING SLEEVE & VALVE

NOT TO SCALE



CLEANOUT

NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division
CONSTRUCTION STANDARDS

HAY BALES AND SILT FENCES FOR EROSION CONTROL

DATE OF ISSUE: OCTOBER 2017
DRAWING NUMBER: E 210.3.0

NOTE:
HAY BALES ARE PROHIBITED BY THE GRAFTON CONSERVATION COMMISSION. SILT FENCE MUST BE USED IN ALL APPLICATIONS FOR EROSION CONTROL.

CONSTRUCTION DETAILS - 7

FOR
CB DISTRIBUTION
GRAFTON, MA
SITUATED AT
244 WORCESTER STREET
GRAFTON, MA
PREPARED FOR
CHURCHILL & BANKS COMPANIES, LLC

NO.	REVISION	BY	DATE
1	GENERAL REVISION	RAS	08/24/2021

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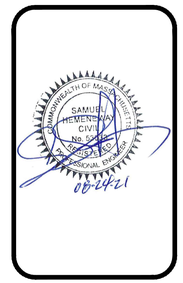

GAROFALO & ASSOCIATES, INC.
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DWG. NO. 7280-00-Det.dwg	CHECK BY S.S.H.
SCALE: AS SHOWN	APPROVED S.B.G.
	DATE: JUNE 10, 2021

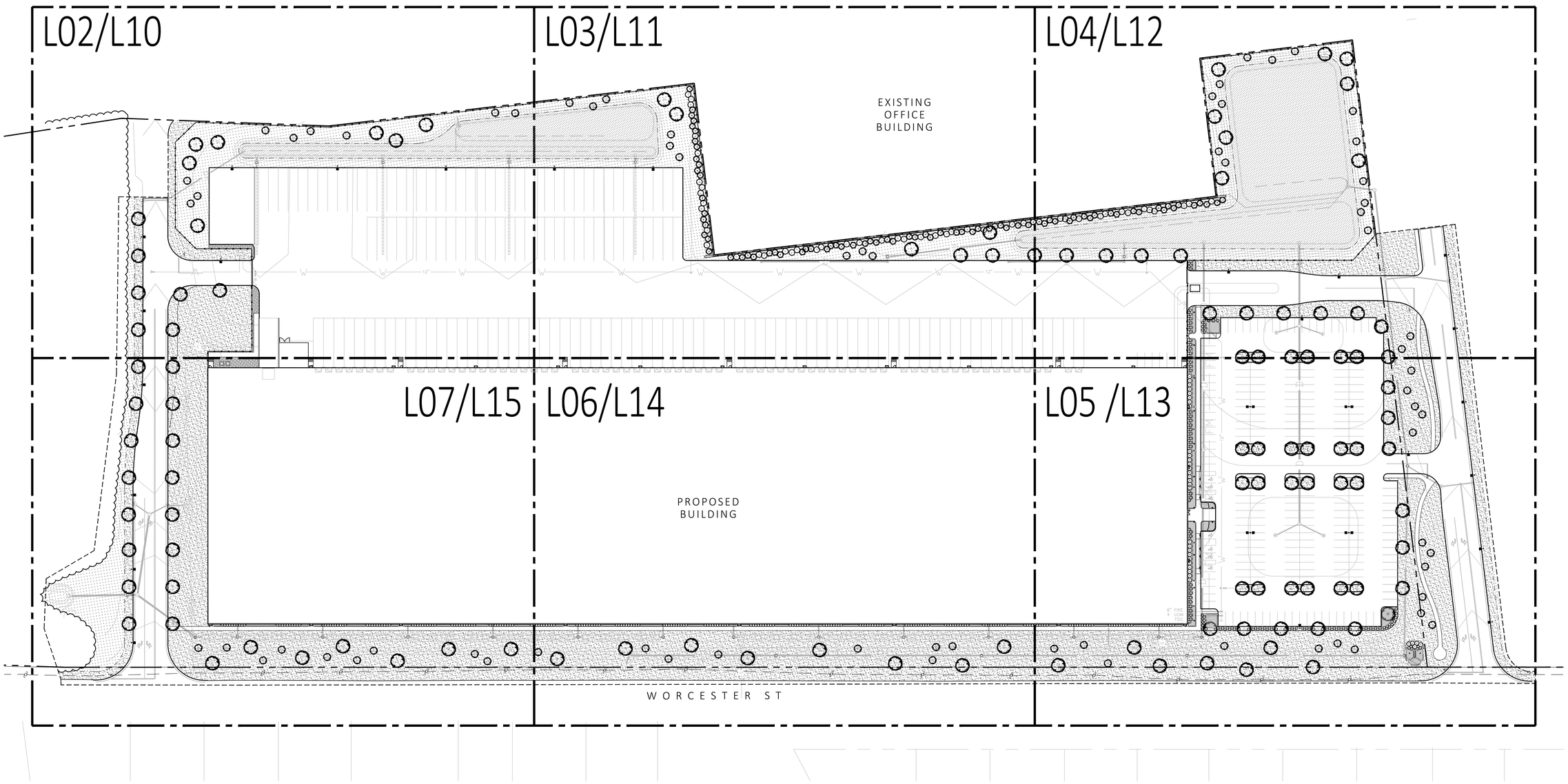
SHEET

DT-1.7

27 OF 27 SHEETS

L:\7280-00 Distrubtion Center (Churchill & Banks) - 244 Worcester Street - North Grafton, MA\dwg\01-Current\7280-00-Det.dwg 08/24/2021 kyingyang 16:09

NOT FOR CONSTRUCTION



1 SHEET LAYOUT KEY PLAN
SCALE: 1" = 60'-0"

SCALE: 1" = 60'-0"
120' 60' 30' 15' 0 60' 120'

MDLA
MICHAEL D'ANGELO landscape architecture

MICHAEL D'ANGELO
LANDSCAPE ARCHITECTURE LLC

732 EAST BROADWAY #3
BOSTON, MA 02127
t. 203.592.4788
www.m-d-l-a.com

244 WORCESTER STREET
GRAFTON, MA

STAMP
MASSACHUSETTS MICHAEL D'ANGELO NO. 4095 REGISTERED LANDSCAPE ARCHITECT

REV. NO.	DATE	DESCRIPTION
	5/1/2021	CB DISTRIBUTION
	6/10/2021	ISSUED FOR PERMIT

FOR PERMIT

KEY PLAN

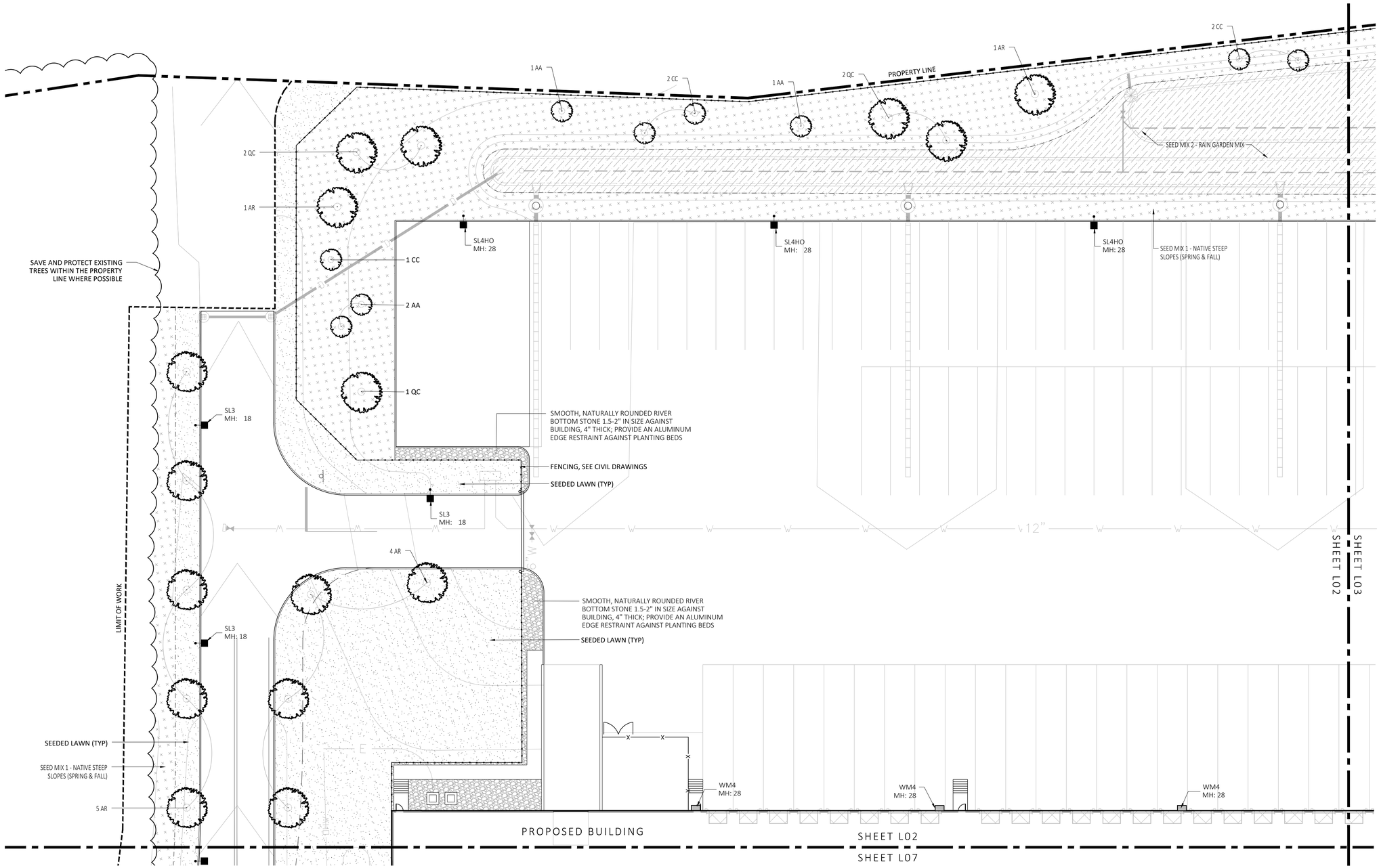
DRAWN	
CHECKED	
SCALE	AS NOTED
DATE	5/1/2021

L01

SHEET 1 OF 15

plot date: 6/9/2021

NOT FOR CONSTRUCTION



SEE L08 FOR THE PLANTING SCHEDULE
SEE L09 FOR LIGHTING SCHEDULE

1 PLANTING & LIGHTING PLAN

SCALE: 1"=20'-0"

SCALE: 1" = 20'-0"

40' 20' 10' 5' 0 20' 40'

PLANTING:

1. DURING CONSTRUCTION, PROTECT ALL EXISTING SITE FEATURES, STRUCTURES AND UTILITIES.
2. PLANTS SHALL BE TRUE TO SPECIES AND VARIETY SPECIFIED AND NURSERY GROWN IN ACCORDANCE WITH THE AMERICAN STANDARD FOR NURSERY STOCK UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT. SUBSTITUTIONS WILL BE PERMITTED ONLY IF APPROVED BY THE LANDSCAPE ARCHITECT.
3. LANDSCAPE ARCHITECT APPROVAL IS REQUIRED BEFORE PLANT MATERIAL IS PURCHASED. LANDSCAPE ARCHITECT RESERVES THE RIGHT TO SEE ALL MATERIAL IN PERSON AT THE NURSERY. IF TRAVEL OUTSIDE OF MA IS REQUIRED, LANDSCAPE ARCHITECT'S TRAVEL COSTS SHALL BE PAID FOR BY THE CONTRACTOR.
4. ALL EXPOSED BURLAP, WIRE BASKETS AND OTHER MATERIALS ATTACHED TO PLANTS SHALL BE REMOVED PRIOR TO PLANTING. CARE SHALL BE TAKEN NOT TO DISTURB THE ROOT BALL OF PLANTS.
5. THOROUGHLY WATER ALL PLANTS IMMEDIATELY AFTER PLANTING.
6. WHERE DISCREPANCIES IN QUANTITIES OCCUR, DRAWINGS SUPERCEDE PLANT NOTES AND SCHEDULE.
7. TRANSPLANTING SHALL BE DONE IN ACCORDANCE WITH THE AMERICAN STANDARD FOR NURSERY STOCK.
8. LOAM USED IN PLANT BEDS SHALL BE UNIFORM IN COMPOSITION, FREE FROM SUBSOIL, STONES LARGER THAN 1", NOXIOUS SEEDS AND SUITABLE FOR THE SUPPORT OF VEGETATIVE GROWTH. THE pH VALUE SHALL BE BETWEEN 5.5 AND 6.5.
9. MULCH IN TREE AND SHRUB BEDS SHALL BE NATURAL, NATIVE HEMLOCK MULCH FREE OF GROWTH OR GERMINATION INHIBITING INGREDIENTS. SUBMIT SAMPLES FOR APPROVAL.
10. LOCATIONS FOR PLANTS AND/OR OUTLINE OF AREAS TO BE PLANTED ARE TO BE STAKED OUT AT THE SITE FOR APPROVAL BY THE LANDSCAPE ARCHITECT.
11. SOIL DEPTHS: a.) SHRUBS AND PERENNIAL BEDS: 18" MIN.; b.) GROUNDCOVER: 6" MIN.; c.) TREES: SEE DETAIL; d.) SOD/SEED: 6"MIN.
12. PROVIDE A SUBSURFACE ROOTBALL ANCHOR BY PLATIPUS EARTH ANCHORS, SIZE FOR CALIPER

GENERAL IRRIGATION NOTES:

1. THE DESIGN/BUILD IRRIGATION SUB-CONTRACTOR SHALL PROVIDE A COMPLETE SYSTEM FOR THE IRRIGATION AREAS SHOWN ON THE PLAN, WHICH INCLUDES NEW AND EXISTING TRANSPLANTED PLANT MATERIALS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR FINAL LAYOUT OF IRRIGATION SHOWING LOCATIONS AND SIZES OF MAIN LINES AND LATERAL LINES, ZONES, RAIN AND SOIL SENSORS, AND CUT SHEETS FOR CONTROLLER SYSTEM AND COMPONENTS. INCLUDE ANY NECESSARY SLEEVING ON A DIAGRAM.
2. IRRIGATION TO BE COORDINATED WITH GENERAL CONTRACTOR TO LOCATE THE NECESSARY PVC SLEEVING TO COMPLETE IRRIGATION PROGRAM.
3. IRRIGATION CONTRACTOR SHALL VERIFY PSI/GPM REQUIREMENTS AT THE SITE BEFORE STARTING CONSTRUCTION.
4. TREES SHOULD BE ON A SEPARATE ZONE.
5. ALL TREES, SHRUBS, PERENNIALS, ORNAMENTAL GRASSES, AND GROUNDCOVER SHALL BE DRIP IRRIGATED. CONTRACTOR SHALL BE AWARE THAT THE IRRIGATION SYSTEM SHALL BE ROUTED TO THE PYLON SIGN PLANTER AND PLANTERS AT THE BUILDING.
6. ALL LAWN AREAS SHALL BE SPRAY HEAD IRRIGATED. THE HEADS SHALL BE LOCATED FOR HEAD TO HEAD COVERAGE WITH ABSOLUTELY NO OVER SPRAY ONTO THE PAVEMENT.
7. INSTALL DRIP TUBING, .6GPH, 12" CENTERS, STAKED EVERY TURN OR EVERY 4'
8. THE CONTRACTOR SHALL BE EXTREMELY CAREFUL DURING THE INSTALLATION PROCESS NOT TO DISTURB NEW OR EXISTING PLANT MATERIALS. THE CONTRACTOR IS TO COORDINATE HIS WORK WITH OTHER SUB-CONTRACTORS.
9. THE IRRIGATION CONTRACTOR SHALL CONFORM TO ANY LOCAL CODES OR ORDINANCES THAT MAY BE REQUIRED TO COMPLETE THE WORK.
10. WATER SUPPLY AND CONTROLLER: COORDINATE CONNECTION TO WATER SUPPLY WITH GENERAL CONTRACTOR. COORDINATE CONTROLLER LOCATION WITH GENERAL CONTRACTOR.
11. MEP CONTRACTOR TO PROVIDE BACK FLOW PREVENTION.
12. THE IRRIGATION CONTRACTOR SHALL TEST WATER SOURCE FOR WATER QUALITY INCLUDING MINERALS THAT MAY CAUSE STAINING OF CONCRETE AND PAVING SURFACES.
13. INSTALLER SHALL INSTALL MOISTURE SENSORS. CONTRACTOR SHALL INSTALL PER MANUFACTURERS'S SPECIFICATIONS AND SHALL BE RESPONSIBLE TO PROGRAM RELATED HYDROZONES TO RESPECTIVE SOIL MOISTURE SENSORS. PROVIDE ONE FOR EACH IRRIGATION ZONE WITH AUTOMATIC SHUT-OFF ONCE MOISTURE REQUIREMENTS ARE MET.

MDLA
MICHAEL D'ANGELO landscape architecture

MICHAEL D'ANGELO
LANDSCAPE ARCHITECTURE LLC

732 EAST BROADWAY #3
BOSTON, MA 02127
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www.m-d-l-a.com

244 WORCESTER STREET
GRAFTON, MA

STAMP

MASSACHUSETTS MICHAEL D'ANGELO NO. 4009 REGISTERED LANDSCAPE ARCHITECT

REV. NO.	DATE	DESCRIPTION
	5/1/2021	CB DISTRIBUTION
	6/10/2021	ISSUED FOR PERMIT

FOR PERMIT

PLANTING & LIGHTING PLAN

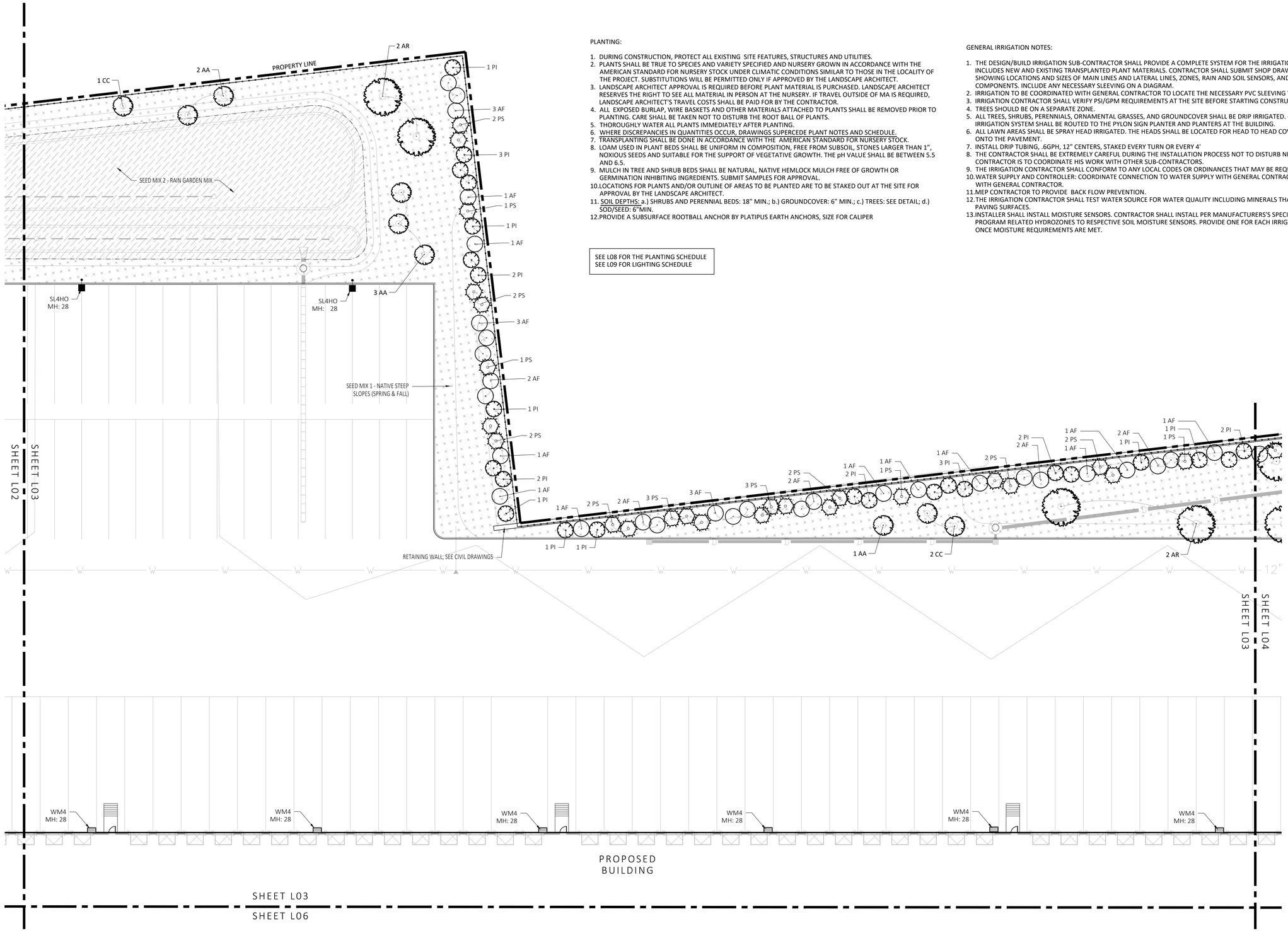
DRAWN
CHECKED
SCALE AS NOTED
DATE 5/1/2021

L02

SHEET 2 OF 15

plot date 6/9/2021

NOT FOR CONSTRUCTION



1 PLANTING & LIGHTING PLAN
SCALE: 1"=20'-0"

PLANTING:

1. DURING CONSTRUCTION, PROTECT ALL EXISTING SITE FEATURES, STRUCTURES AND UTILITIES.
2. PLANTS SHALL BE TRUE TO SPECIES AND VARIETY SPECIFIED AND NURSERY GROWN IN ACCORDANCE WITH THE AMERICAN STANDARD FOR NURSERY STOCK UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT. SUBSTITUTIONS WILL BE PERMITTED ONLY IF APPROVED BY THE LANDSCAPE ARCHITECT.
3. LANDSCAPE ARCHITECT APPROVAL IS REQUIRED BEFORE PLANT MATERIAL IS PURCHASED. LANDSCAPE ARCHITECT RESERVES THE RIGHT TO SEE ALL MATERIAL IN PERSON AT THE NURSERY. IF TRAVEL OUTSIDE OF MA IS REQUIRED, LANDSCAPE ARCHITECT'S TRAVEL COSTS SHALL BE PAID FOR BY THE CONTRACTOR.
4. ALL EXPOSED BURLAP, WIRE BASKETS AND OTHER MATERIALS ATTACHED TO PLANTS SHALL BE REMOVED PRIOR TO PLANTING. CARE SHALL BE TAKEN NOT TO DISTURB THE ROOT BALL OF PLANTS.
5. THOROUGHLY WATER ALL PLANTS IMMEDIATELY AFTER PLANTING.
6. WHERE DISCREPANCIES IN QUANTITIES OCCUR, DRAWINGS SUPERCEDE PLANT NOTES AND SCHEDULE.
7. TRANSPLANTING SHALL BE DONE IN ACCORDANCE WITH THE AMERICAN STANDARD FOR NURSERY STOCK.
8. LOAM USED IN PLANT BEDS SHALL BE UNIFORM IN COMPOSITION, FREE FROM SUBSOIL, STONES LARGER THAN 1", NOXIOUS SEEDS AND SUITABLE FOR THE SUPPORT OF VEGETATIVE GROWTH. THE pH VALUE SHALL BE BETWEEN 5.5 AND 6.5.
9. MULCH IN TREE AND SHRUB BEDS SHALL BE NATURAL, NATIVE HEMLOCK MULCH FREE OF GROWTH OR GERMINATION INHIBITING INGREDIENTS. SUBMIT SAMPLES FOR APPROVAL.
10. LOCATIONS FOR PLANTS AND/OR OUTLINE OF AREAS TO BE PLANTED ARE TO BE STAKED OUT AT THE SITE FOR APPROVAL BY THE LANDSCAPE ARCHITECT.
11. SOIL DEPTHS: a.) SHRUBS AND PERENNIAL BEDS: 18" MIN.; b.) GROUNDCOVER: 6" MIN.; c.) TREES: SEE DETAIL; d.) SOD/SEED: 6"MIN.
12. PROVIDE A SUBSURFACE ROOTBALL ANCHOR BY PLATIPUS EARTH ANCHORS, SIZE FOR CALIPER

SEE L08 FOR THE PLANTING SCHEDULE
SEE L09 FOR LIGHTING SCHEDULE

GENERAL IRRIGATION NOTES:

1. THE DESIGN/BUILD IRRIGATION SUB-CONTRACTOR SHALL PROVIDE A COMPLETE SYSTEM FOR THE IRRIGATION AREAS SHOWN ON THE PLAN, WHICH INCLUDES NEW AND EXISTING TRANSPLANTED PLANT MATERIALS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR FINAL LAYOUT OF IRRIGATION SHOWING LOCATIONS AND SIZES OF MAIN LINES AND LATERAL LINES, ZONES, RAIN AND SOIL SENSORS, AND CUT SHEETS FOR CONTROLLER SYSTEM AND COMPONENTS. INCLUDE ANY NECESSARY SLEEVING ON A DIAGRAM.
2. IRRIGATION TO BE COORDINATED WITH GENERAL CONTRACTOR TO LOCATE THE NECESSARY PVC SLEEVING TO COMPLETE IRRIGATION PROGRAM.
3. IRRIGATION CONTRACTOR SHALL VERIFY PSI/GPM REQUIREMENTS AT THE SITE BEFORE STARTING CONSTRUCTION.
4. TREES SHOULD BE ON A SEPARATE ZONE.
5. ALL TREES, SHRUBS, PERENNIALS, ORNAMENTAL GRASSES, AND GROUNDCOVER SHALL BE DRIP IRRIGATED. CONTRACTOR SHALL BE AWARE THAT THE IRRIGATION SYSTEM SHALL BE ROUTED TO THE PYLON SIGN PLANTER AND PLANTERS AT THE BUILDING.
6. ALL LAWN AREAS SHALL BE SPRAY HEAD IRRIGATED. THE HEADS SHALL BE LOCATED FOR HEAD TO HEAD COVERAGE WITH ABSOLUTELY NO OVER SPRAY ONTO THE PAVEMENT.
7. INSTALL DRIP TUBING, .6GPH, 12" CENTERS, STAKED EVERY TURN OR EVERY 4'
8. THE CONTRACTOR SHALL BE EXTREMELY CAREFUL DURING THE INSTALLATION PROCESS NOT TO DISTURB NEW OR EXISTING PLANT MATERIALS. THE CONTRACTOR IS TO COORDINATE HIS WORK WITH OTHER SUB-CONTRACTORS.
9. THE IRRIGATION CONTRACTOR SHALL CONFORM TO ANY LOCAL CODES OR ORDINANCES THAT MAY BE REQUIRED TO COMPLETE THE WORK.
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SCALE: 1" = 20'-0"
40' 20' 10' 5' 0 20' 40'

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MICHAEL D'ANGELO landscape architecture

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LANDSCAPE ARCHITECTURE LLC

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244 WORCESTER STREET
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MASSACHUSETTS MICHAEL D'ANGELO NO. 4995 REGISTERED LANDSCAPE ARCHITECT

REV. NO.	DATE	DESCRIPTION
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FOR PERMIT

PLANTING & LIGHTING PLAN

DRAWN
CHECKED
SCALE AS NOTED
DATE 5/1/2021

L03

SHEET 3 OF 15

plot date: 6/9/2021

PLANTING:

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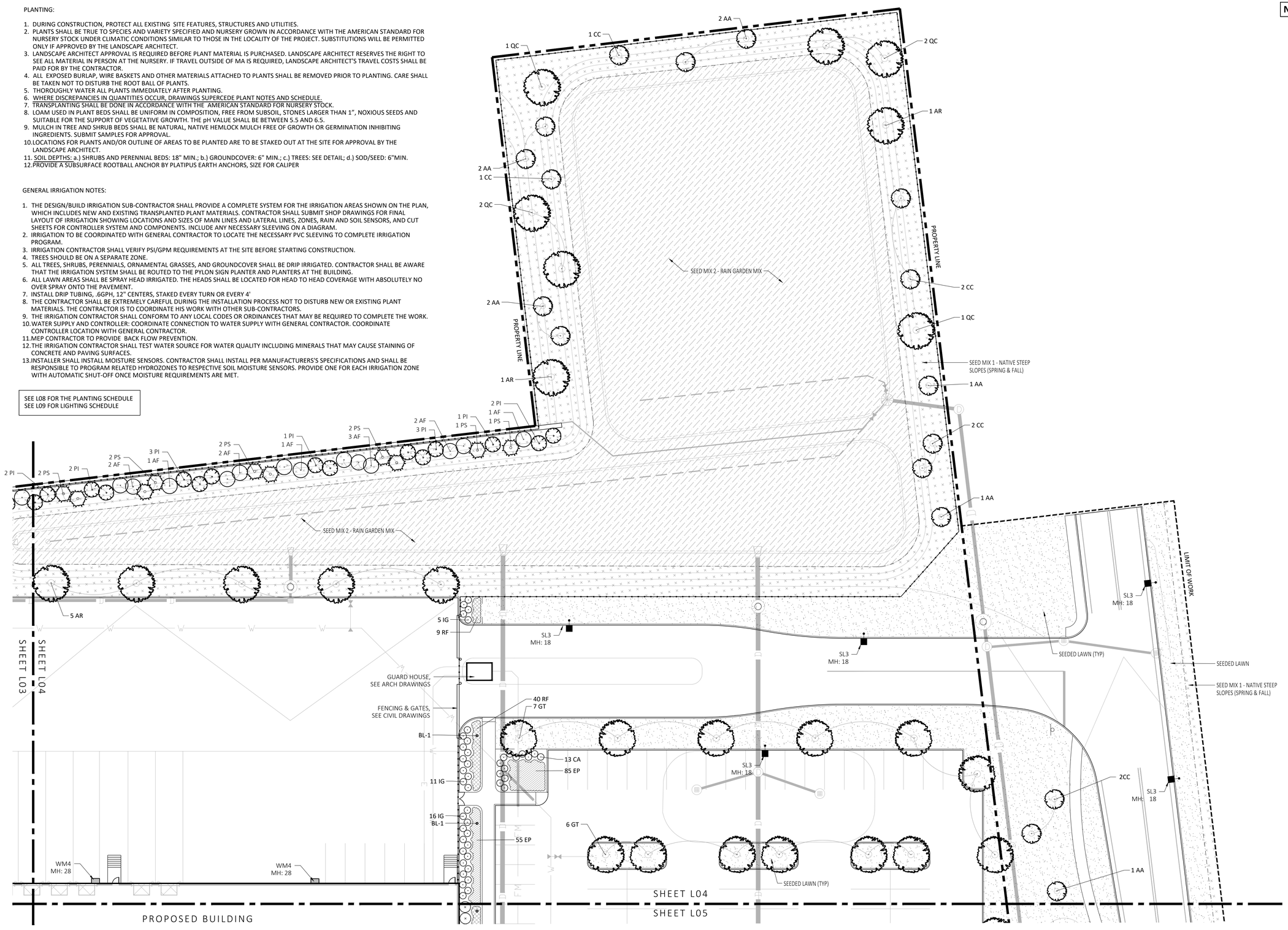
SEE L09 FOR LIGHTING SCHEDULE



1 PLANTING & LIGHTING PLAN
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L04

SHEET 4 OF 15

plot date: 6/9/2021

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SEE L08 FOR THE PLANTING SCHEDULE
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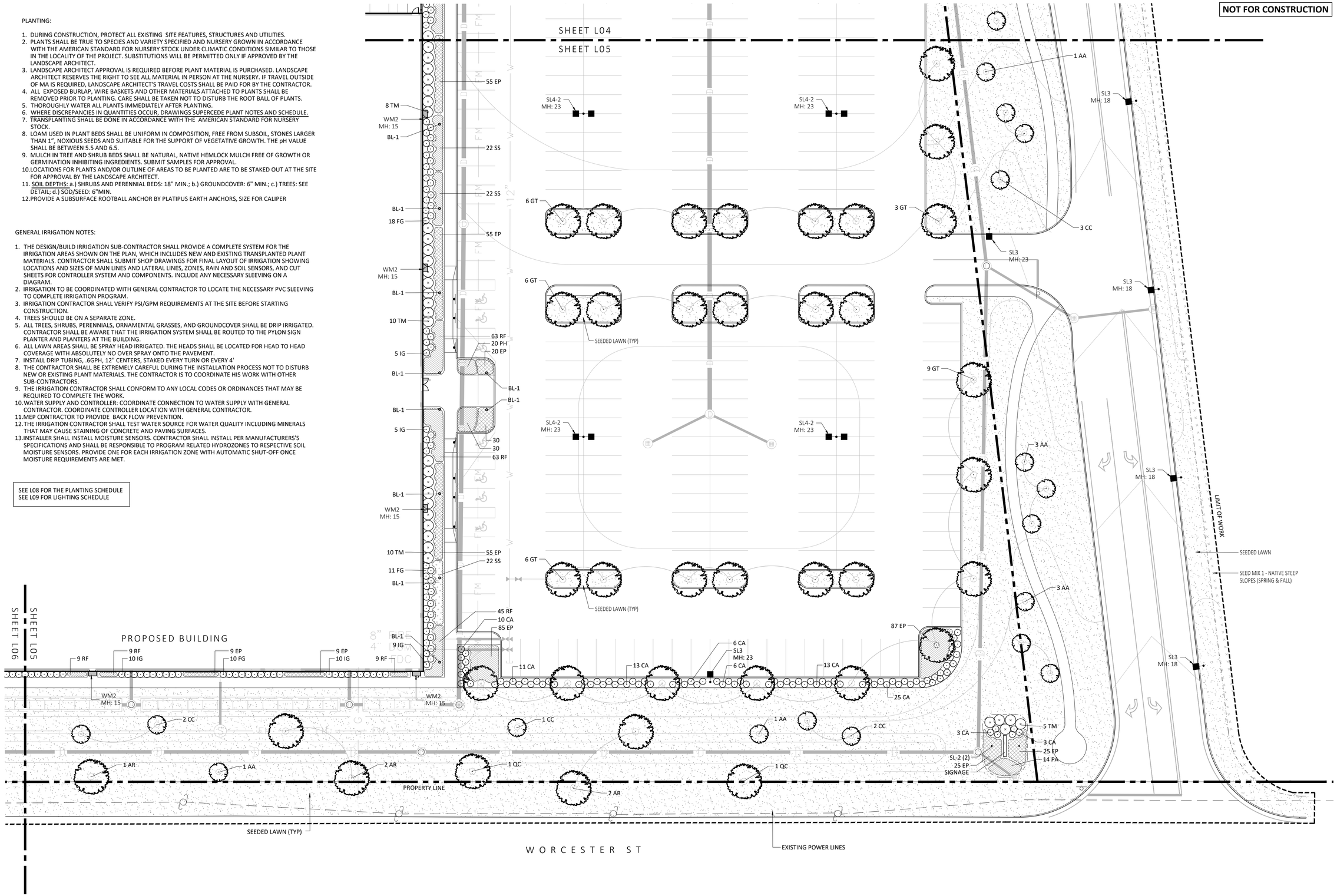

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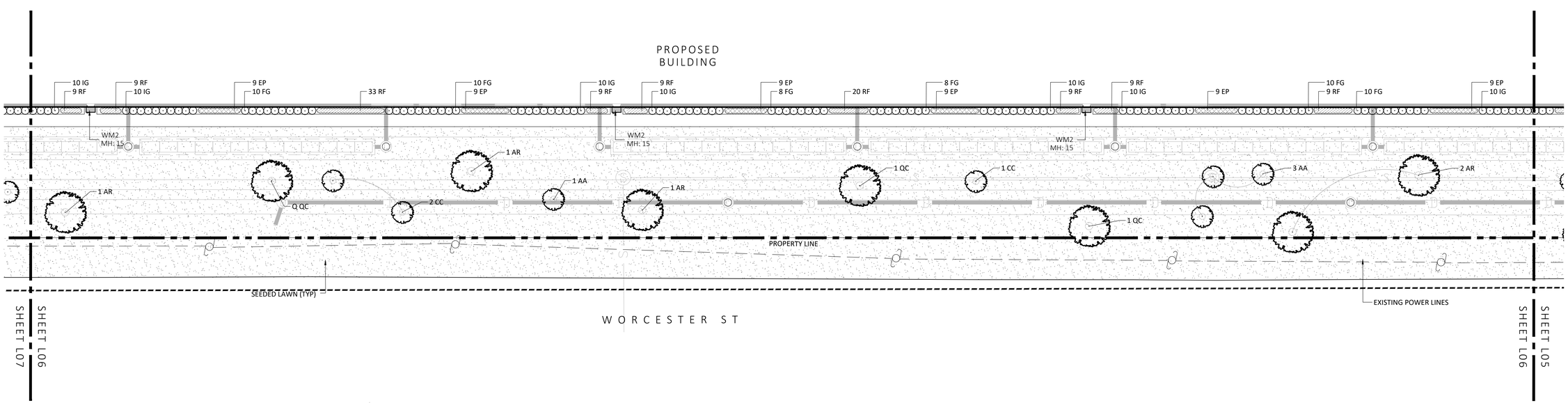

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SHEET 6 OF 15

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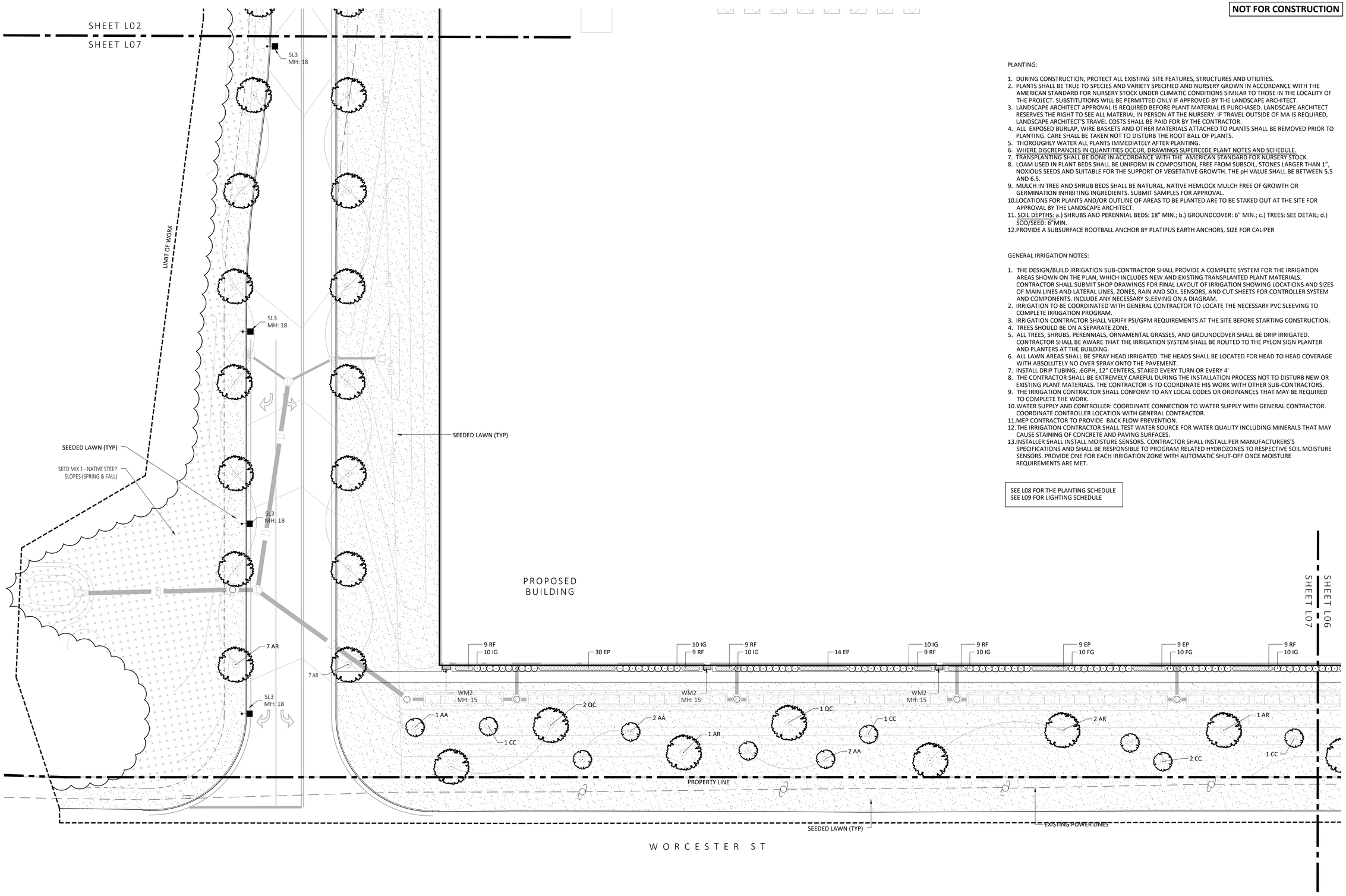

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SHEET 7 OF 15

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PLANT SCHEDULE					
SYMBOL	QTY.	LATIN NAME	COMMON NAME	SIZE	NOTES
TREES					
AR	42	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	3-3.5" CAL.	B&B, 6' CLEAR BRANCHING
AA	37	AMELANCHIER X. 'AUTUMN BRILLIANCE'	SERVICEBERRY	8' HT.	B&B, MULTI-STEM, SPECIMEN
AF	42	ABIES FRASERI	FRASIER FIR	6-8' HT.	B&B
CC	28	CERCIS CANADENSIS	EASTERN RED BUD	7'-8' HT.	B&B, MULTI-STEM, SPECIMEN
GT	39	GLEDITSEA TRICANTHOS 'SKYLINE'	SKYLINE HONEYLOCUST	3.5"-4" CAL.	B&B, 6' CLEAR BRANCHING
PI	35	PICEA ABIES	NORWAY SPRUCE	6-8' HT.	B&B
PS	34	PINUS STROBUS	EASTERN WHITE PINE	6-8' HT.	B&B
QC	21	QUERCUS COCCINEA	SCARLET OAK	3-3.5" CAL.	B&B, 6' CLEAR BRANCHING
SHRUBS AND GROUNDCOVER					
CA	103	CORNUS S. 'ARCTIC FIRE'	ARCTIC FIRE DOGWOOD	3' TALL	36" O.C.
FG	66	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	5 GAL	36" O.C. B&B
IG	201	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	3 GAL	36" O.C. B&B
TM	43	TAXUS X M. DENSIFORMIS'	YEW	3' TALL	36" O.C. B&B
PERENNIALS AND ORNAMENTAL GRASSES					
EP	656	ECHINACEA PURPUREA	PURPLE CONEFLOWER	1 GAL	24" O.C. CONTAINER
PH	50	PENNISETUM A. 'HAMELN'	HAMELN FOUNTAIN GRASS	1 GAL	24" O.C. CONTAINER
PA	14	PEROVSKIA A.'LITTLE SPIRE'	LITTLE SPIRE RUSSIAN SAGE	1 GAL	18" O.C. CONTAINER
RF	258	RUDBECKIA FULGIDA 'GOLDSTURM'	BLACK EYE SUSAN	1 GAL	18" O.C. CONTAINER
SS	44	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GAL	36" O.C. CONTAINER
SEED MIX					
		ERNST SEEDS 800-873-3321	ERNST MIX (ERNMX-181-1 & 181-2) NATIVE STEEP SLOPE MIX	75 LB/ACRE	APPLY COVER CROP; FALL: GRAIN RYE, SPRING: OAT; SEE SPEC SHEET
		ERNST SEEDS 800-873-3321	ERNST MIX (ERNMX-180) RAIN GARDEN MIX	20 LB/ACRE	APPLY COVER CROP OF GRAIN RYE; SEE SPEC SHEET

Ernst Conservation Seeds
8884 Mercer Pike
Meadville, PA 16335
(800) 873-3321 Fax (814) 336-5191
www.ernstseed.com

Spring

Date: August 28, 2018

Native Steep Slope Mix w/Grain Oats - ERNMX-181-1

	Botanical Name	Common Name	Price/lb
40.00 %	*Avena sativa, Variety Not Stated*	Oats, Variety Not Stated	0.22
20.40 %	*Sorghastrum nutans, NY4 Ecotype*	Indiangrass, NY4 Ecotype	12.90
8.10 %	*Andropogon gerardii, 'Niagara'*	Big Bluestem, 'Niagara'	13.06
7.50 %	*Elymus virginicus, PA Ecotype*	Virginia Wildrye, PA Ecotype	7.72
5.20 %	*Elymus canadensis*	Canada Wildrye	12.87
4.50 %	*Schizachyrium scoparium, Fort Indiantown Gap-PA Ecotype*	Little Bluestem, Fort Indiantown Gap-PA Ecotype	12.00
3.70 %	*Tridens flavus, Fort Indiantown Gap-PA Ecotype*	Purpletop, Fort Indiantown Gap-PA Ecotype	18.78
3.00 %	*Agrostis perennans, Albany Pine Bush-NY Ecotype*	Autumn Bentgrass, Albany Pine Bush-NY Ecotype	14.00
2.30 %	*Panicum virgatum, 'Shawnee'*	Switchgrass, 'Shawnee'	7.51
1.10 %	*Chamaecrista fasciculata, PA Ecotype*	Partridge Pea, PA Ecotype	10.00
1.00 %	*Echinacea purpurea*	Purple Coneflower	36.00
0.80 %	*Gaillardia aristata*	Perennial Gaillardia (Blanketflower)	32.00
0.80 %	*Rudbeckia hirta*	Blackeyed Susan	20.00
0.70 %	*Helianthus helianthoides, PA Ecotype*	Oxeye Sunflower, PA Ecotype	42.00
0.40 %	*Aster novae-angliae, PA Ecotype*	New England Aster, PA Ecotype	360.00
0.20 %	*Asclepias syriaca, PA Ecotype*	Common Milkweed, PA Ecotype	196.00
0.20 %	*Liatris spicata*	Marsh (Dense) Blazing Star (Spiked Gayfeather)	210.00
0.10 %	*Penstemon digitalis*	Tall White Beardtongue	160.00
100.00 %		**Mix Price/lb Bulk:**	**$10.45**

Seeding Rate: 75 lb per acre

Erosion Control & Revegetation

Use this formula with grain oats as a cover crop in the spring and summer (until September 1st). Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Price quotes guaranteed for 30 days.
All prices are FOB Meadville, PA.
Please check our web site at www.ernstseed.com
for current pricing when placing orders.

1 SEED MIX 1 - NATIVE STEEP SLOPES (SPRING)
SCALE: N.T.S.

Ernst Conservation Seeds
8884 Mercer Pike
Meadville, PA 16335
(800) 873-3321 Fax (814) 336-5191
www.ernstseed.com

Fall

Date: August 28, 2018

Native Steep Slope Mix w/Grain Rye - ERNMX-181-2

	Botanical Name	Common Name	Price/lb
40.00 %	*Secale cereale, Variety Not Stated*	Grain Rye, Variety Not Stated	0.21
20.40 %	*Sorghastrum nutans, PA Ecotype*	Indiangrass, PA Ecotype	10.60
8.10 %	*Andropogon gerardii, 'Niagara'*	Big Bluestem, 'Niagara'	13.06
7.50 %	*Elymus virginicus, PA Ecotype*	Virginia Wildrye, PA Ecotype	7.72
5.20 %	*Elymus canadensis*	Canada Wildrye	12.87
4.50 %	*Schizachyrium scoparium, 'Camper'*	Little Bluestem, 'Camper'	12.59
3.70 %	*Tridens flavus*	Purpletop	18.56
3.00 %	*Agrostis perennans, Albany Pine Bush-NY Ecotype*	Autumn Bentgrass, Albany Pine Bush-NY Ecotype	14.00
2.30 %	*Panicum virgatum, 'Shawnee'*	Switchgrass, 'Shawnee'	7.51
1.10 %	*Chamaecrista fasciculata, PA Ecotype*	Partridge Pea, PA Ecotype	10.00
1.00 %	*Echinacea purpurea*	Purple Coneflower	36.00
0.80 %	*Gaillardia aristata*	Perennial Gaillardia (Blanketflower)	32.00
0.80 %	*Rudbeckia hirta*	Blackeyed Susan	20.00
0.70 %	*Helianthus helianthoides, PA Ecotype*	Oxeye Sunflower, PA Ecotype	42.00
0.40 %	*Aster tenerifolius*	Calico Aster	320.00
0.30 %	*Liatris spicata*	Marsh (Dense) Blazing Star (Spiked Gayfeather)	210.00
0.20 %	*Asclepias syriaca, PA Ecotype*	Common Milkweed, PA Ecotype	196.00
100.00 %		**Mix Price/lb Bulk:**	**$9.88**

Seeding Rate: 75 lb per acre

Erosion Control & Revegetation

Use this formula with grain rye as a cover crop (from August 1st-February 15th). Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Price quotes guaranteed for 30 days.
All prices are FOB Meadville, PA.
Please check our web site at www.ernstseed.com
for current pricing when placing orders.

2 SEED MIX 1 - NATIVE STEEP SLOPES (FALL)
SCALE: N.T.S.

Ernst Conservation Seeds
8884 Mercer Pike
Meadville, PA 16335
(800) 873-3321 Fax (814) 336-5191
www.ernstseed.com

Date: August 28, 2018

Rain Garden Mix - ERNMX-180

	Botanical Name	Common Name	Price/lb
31.50 %	*Schizachyrium scoparium, Albany Pine Bush-NY Ecotype*	Little Bluestem, Albany Pine Bush-NY Ecotype	12.02
20.00 %	*Elymus virginicus, PA Ecotype*	Virginia Wildrye, PA Ecotype	7.72
10.00 %	*Carex vulpinoidea, PA Ecotype*	Fox Sedge, PA Ecotype	24.00
10.00 %	*Panicum rigidulum, Coastal Plain NC Ecotype*	Redtop Panicgrass, Coastal Plain NC Ecotype	48.00
5.00 %	*Echinacea purpurea*	Purple Coneflower	36.00
3.00 %	*Coreopsis lanceolata*	Lanceleaf Coreopsis	24.00
3.00 %	*Rudbeckia hirta*	Blackeyed Susan	20.00
2.00 %	*Carex scoparia, PA Ecotype*	Blunt Broom Sedge, PA Ecotype	72.00
2.00 %	*Chamaecrista fasciculata, PA Ecotype*	Partridge Pea, PA Ecotype	10.00
2.00 %	*Eupatorium coelestinum, VA Ecotype*	Mistflower, VA Ecotype	128.00
2.00 %	*Helianthus helianthoides, PA Ecotype*	Oxeye Sunflower, PA Ecotype	42.00
2.00 %	*Penstemon digitalis, PA Ecotype*	Tall White Beardtongue, PA Ecotype	160.00
1.00 %	*Asclepias incarnata, PA Ecotype*	Swamp Milkweed, PA Ecotype	160.00
1.00 %	*Juncus effusus*	Soft Rush	40.00
1.00 %	*Juncus tenuis, PA Ecotype*	Path Rush, PA Ecotype	66.00
1.00 %	*Liatris spicata*	Marsh (Dense) Blazing Star (Spiked Gayfeather)	210.00
0.80 %	*Aster novae-angliae, PA Ecotype*	New England Aster, PA Ecotype	360.00
0.70 %	*Aster lenelis, NY Ecotype*	Smooth Blue Aster, NY Ecotype	320.00
0.50 %	*Rudbeckia fulgida var. fulgida, Northern VA Ecotype*	Orange Coneflower, Northern VA Ecotype	300.00
0.50 %	*Senna hebecarpa, VA & WV Ecotype*	Wild Senna, VA & WV Ecotype	24.00
0.40 %	*Monarda fistulosa, Fort Indiantown Gap-PA Ecotype*	Wild Bergamot, Fort Indiantown Gap-PA Ecotype	160.00
0.30 %	*Pycnanthemum tenuifolium*	Narrowleaf Mountainmint	140.00
0.30 %	*Solidago juncea, PA Ecotype*	Early Goldenrod, PA Ecotype	280.00
100.00 %		**Mix Price/lb Bulk:**	**$37.29**

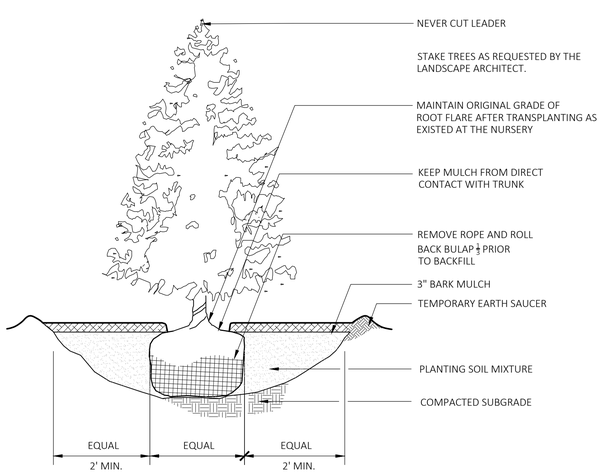
Seeding Rate: 20 lb per acre with a cover crop of grain rye at 30 lb per acre

Uplands & Meadows

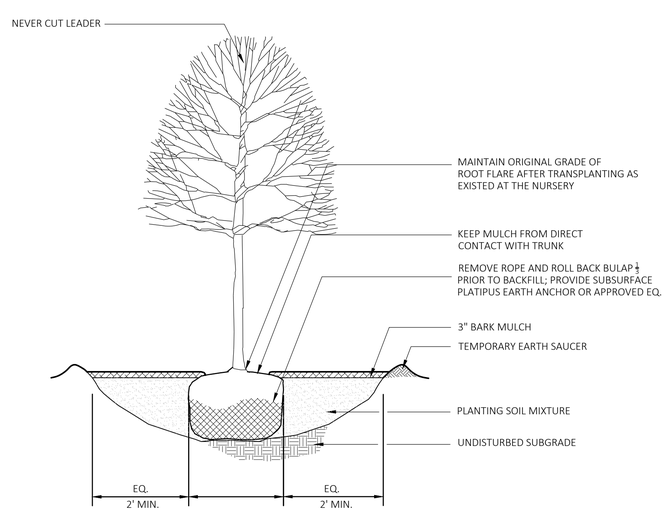
The native perennial forbs and grasses provide food and cover for rain garden biodiversity. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Price quotes guaranteed for 30 days.
All prices are FOB Meadville, PA.
Please check our web site at www.ernstseed.com
for current pricing when placing orders.

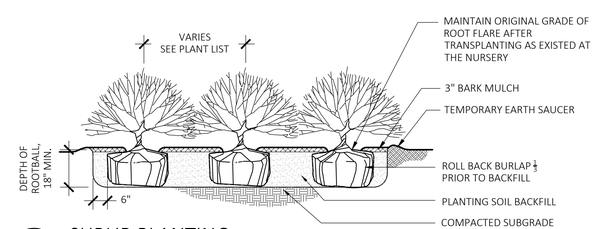
3 SEED MIX 2 - RAIN GARDEN MIX
SCALE: N.T.S.



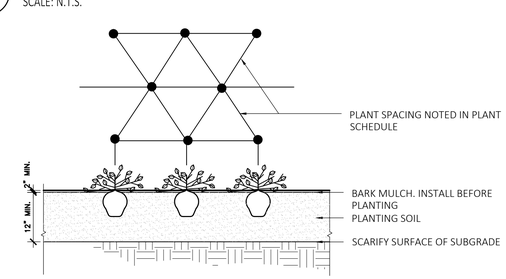
4 EVERGREEN TREE PLANTING
SCALE: N.T.S.



5 DECIDUOUS TREE PLANTING
SCALE: N.T.S.



6 SHRUB PLANTING
SCALE: N.T.S.



7 GROUNDCOVER PLANTING
SCALE: N.T.S.

MDLA
MICHAEL D'ANGELO landscape architecture

MICHAEL D'ANGELO
LANDSCAPE ARCHITECTURE LLC

732 EAST BROADWAY #3
BOSTON, MA 02127
t. 203.592.4788
www.m-d-l-a.com

244 WORCESTER STREET
GRAFTON, MA

STAMP

MASSACHUSETTS MICHAEL D'ANGELO NO. 4095 REGISTERED LANDSCAPE ARCHITECT

REV. NO.	DATE	DESCRIPTION
	5/1/2021	CB DISTRIBUTION
	6/10/2021	ISSUED FOR PERMIT

FOR PERMIT

PLANTING SCHEDULE & DETAILS

DRAWN
CHECKED
SCALE AS NOTED
DATE 5/1/2021

L08

SHEET 8 OF 15

plot date: 6/9/2021

NOT FOR CONSTRUCTION

HUBBELL Outdoor Lighting

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

RATIO Series
AREA/SITE LIGHTER

FEATURES
- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as retail, commercial and campus parking lots
- Featuring Micro Strike Optics which maximizes target zone illumination with minimal losses at the house-side, reducing light trespass issues
- Visual comfort standard
- Compact and lightweight design with low EPA
- 3G rated for high vibration applications including bridges and overpasses
- Control options including photo control, occupancy sensing, NX Distributed Intelligence™ and 7-Pin with networked controls
- Best in class surge protection available

RELATED PRODUCTS
Alro | Cimeron LED | Ratio Family

IP66

CONTROL TECHNOLOGY
SiteSync | NX DISTRIBUTED INTELLIGENCE | wiSCAPE

SPECIFICATIONS
CONSTRUCTION
- Rectilinear form mimics the traditional shoebox form factor keeping a similar but updated style and appearance, ideal for retrofit applications
- Die-cast housing with hidden vertical heat fins that are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with powder coat paint finish

OPTICS
- Entire optical aperture illuminates to create a larger luminous surface area resulting in a low glare appearance without sacrificing optical performance
- 80, 160, 320 or 480 midpower LEDs
- 3000K, 4000K or 5000K (70 CRI) CCT
- Zero uplight at 0 degrees of tilt
- Field rotatable optics

INSTALLATION
- Standard square arm mount, compatible with B3 drill pattern
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option or accessory for square and round poles.
- Knuckle arm fitter option available for 2-3/8" OD tenon. Max tilt of 60 degrees with 4 degree adjustable increments. (Restrictions apply for 7-pin options)

ELECTRICAL
- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40°C to 40°C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3. Automatically takes fixture off-line for protection when device is compromised

CONTROLS
- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0-10V dimming leads available for use with control devices (provided by others, must specify lead length)
- SiteSync™ wireless control system is available via 7-pin See ordering information and details at: www.hubbelllighting.com/sitesync
- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor

CONTROLS (CONT'D)
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor via 7-pin

CERTIFICATIONS
- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Please refer to the DLC website for specific product qualifications at www.designlights.org
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40°C ambient temperatures
- 3G rated for ANSI C136.31 high vibration applications
- Fixture is IP66 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt

WARRANTY
- 5 year limited warranty
- See HLI Standard Warranty for additional information

KEY DATA	
Lumen Range	3,000–48,000
Wattage Range	25–340
Efficacy Range (LPW)	118–155
Fixture Projected Life (Hours)	L70>60K
Weights lbs. (kg)	13.5–24 (6.1–10.9)

Page **1/8** Rev. **04/15/20**
RARLED-SPEC

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HUBBELL Lighting

1 SL3, SL4-2, SL4HO LIGHT
SCALE: N.T.S.

HUBBELL Outdoor Lighting

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

LNC4
LARGE LED LITEPAK

FEATURES
- Litepak LNC4 features four different lumen packages and multiple distributions and CCT for maximum light level and mounting height flexibility
- Capable of replacing up to 400w HID solutions at over 70% energy savings
- Easy to install and retrofit existing HID luminaires with same footprint
- Zero uplight Compact LED Architectural Wallpack
- Inverted "up" mounting capable
- Control capabilities offer additional energy savings options
- Ideal applications include: perimeter illumination, schools, factories, hospitals, warehouses and retail applications

RELATED PRODUCTS
LNC | INC2 | LNC3

CONTROL TECHNOLOGY
SiteSync | NX DISTRIBUTED INTELLIGENCE | wiSCAPE

SPECIFICATIONS
CONSTRUCTION
- Die-cast aluminum housing protects components and provides an architectural appearance.
- Casting thermally conducts LED heat to optimize performance and long life
- Powder paint finish provides durability in outdoor environments
- Four 1/2" conduit entries (top, bottom, and sides) provided for surface conduit
- Zero uplight distributions using individual acrylic LED optics provide IES type II, III and IV distributions
- CS - Frosted acrylic diffuser option for reduced glare
- CSU - Frosted acrylic diffuser for inverted "up" mounting applications (lens required

OPTICS
- 3000K, 4000K and 5000K CCT nominal with 70 CRI
- 36 and 44 LED configurations available

INSTALLATION
- Quick-mount adapter with gasket seal provides easy installation to wall or to recessed junction box (4" square junction box)
- Fixture attaches by two Allen-head hidden fasteners for tamper resistance
- Designed for direct j-box mount or conduit feed on all four sides in single SKU

ELECTRICAL
- 120-277, 347 and 480 voltage, 50/60Hz, 0-10V dimming drivers.
- L96 at 25,000 hrs (Projected per IESNA TM-21-11), see table on page 2 for all values
- Electronic driver. 10 kA surge protection.
- Ambient operating temperature -40°C to 40°C

CONTROLS
- Button photocontrol for dusk to dawn energy savings
- 7-pin photo-receptacle available for twist lock photocontrol and controls by others
- Occupancy sensor options available for complete on/off and dimming control
- Integral Battery Backup provides emergency path of egress lighting for the required 90 minutes
- SiteSync pre-commissioned wireless controls (with or without sensor)
- In addition, the LNC4 can be specified with SiteSync™ wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7
- See ordering information or visit www.hubbelllighting.com/sitesync for more details.

CERTIFICATIONS
- DesignLights Consortium® (DLC) qualified. Please refer to the DLC website for specific product qualifications at www.designlights.org
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations
- IP65 Assembly
- IDA Approved (3000K configurations)

WARRANTY
- 5 year limited warranty
- See HLI Standard Warranty for additional information

KEY DATA	
Lumen Range	4,269–14,793
Wattage Range	40.3–170
Efficacy Range (LPW)	75.2–117
Fixture Projected Life (Hours)	L96>25K
Weights lbs. (kg)	27.0 (12.2)

Page **1/6** Rev. **11/28/19**
LNC4LED-SPEC

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HUBBELL Lighting

2 WM4 LIGHT
SCALE: N.T.S.

HUBBELL Outdoor Lighting

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

LNC4
LARGE LED LITEPAK

FEATURES
- Litepak LNC4 features four different lumen packages and multiple distributions and CCT for maximum light level and mounting height flexibility
- Capable of replacing up to 400w HID solutions at over 70% energy savings
- Easy to install and retrofit existing HID luminaires with same footprint
- Zero uplight Compact LED Architectural Wallpack
- Inverted "up" mounting capable
- Control capabilities offer additional energy savings options
- Ideal applications include: perimeter illumination, schools, factories, hospitals, warehouses and retail applications

RELATED PRODUCTS
LNC | INC2 | LNC3

CONTROL TECHNOLOGY
SiteSync | NX DISTRIBUTED INTELLIGENCE | wiSCAPE

SPECIFICATIONS
CONSTRUCTION
- Die-cast aluminum housing protects components and provides an architectural appearance.
- Casting thermally conducts LED heat to optimize performance and long life
- Powder paint finish provides durability in outdoor environments
- Four 1/2" conduit entries (top, bottom, and sides) provided for surface conduit
- Zero uplight distributions using individual acrylic LED optics provide IES type II, III and IV distributions
- CS - Frosted acrylic diffuser option for reduced glare
- CSU - Frosted acrylic diffuser for inverted "up" mounting applications (lens required
- Integral Battery Backup provides emergency path of egress lighting for the required 90 minutes
- SiteSync pre-commissioned wireless controls (with or without sensor)
- In addition, the LNC4 can be specified with SiteSync™ wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7
- See ordering information or visit www.hubbelllighting.com/sitesync for more details.

ELECTRICAL
- 120-277, 347 and 480 voltage, 50/60Hz, 0-10V dimming drivers.
- L96 at 25,000 hrs (Projected per IESNA TM-21-11), see table on page 2 for all values
- Electronic driver. 10 kA surge protection.
- Ambient operating temperature -40°C to 40°C

CONTROLS
- Button photocontrol for dusk to dawn energy savings
- 7-pin photo-receptacle available for twist lock photocontrol and controls by others
- Occupancy sensor options available for complete on/off and dimming control
- Integral Battery Backup provides emergency path of egress lighting for the required 90 minutes
- SiteSync pre-commissioned wireless controls (with or without sensor)
- In addition, the LNC4 can be specified with SiteSync™ wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7
- See ordering information or visit www.hubbelllighting.com/sitesync for more details.

CERTIFICATIONS
- DesignLights Consortium® (DLC) qualified. Please refer to the DLC website for specific product qualifications at www.designlights.org
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations
- IP65 Assembly
- IDA Approved (3000K configurations)

WARRANTY
- 5 year limited warranty
- See HLI Standard Warranty for additional information

KEY DATA	
Lumen Range	4,269–14,793
Wattage Range	40.3–170
Efficacy Range (LPW)	75.2–117
Fixture Projected Life (Hours)	L96>25K
Weights lbs. (kg)	27.0 (12.2)

Page **1/6** Rev. **11/28/19**
LNC4LED-SPEC

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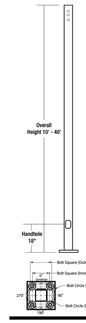
HUBBELL Lighting

3 WM2 LIGHT
SCALE: N.T.S.

SSS-H SERIES POLES SQUARE STRAIGHT STEEL	Cat.#		HUBBELL Outdoor Lighting
	Job	Type	Approvals

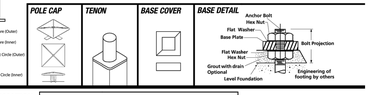


APPLICATIONS
- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION
- SHAFT: One-piece straight steel with square cross section, flat sides and minimum 0.23" radius on all corners; Minimum yield of 46,000 psi (ASTM-A500, Grade B); Longitudinal weld seam to appear flush with shaft side wall; Steel base plate with axial bolt circle slots welded to pole shaft having minimum yield of 36,000 psi (ASTM A36)
- BASE COVER: Two-piece square aluminum base cover included standard
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HAND HOLE: Rectangular 3x5 steel hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- ANCHOR BOLTS: Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling
  Anchor bolt part numbers: 3/4 x 30 x 3 — TAB-30-M38
  1 x 36 x 4 — TAB-36-M38

FINISH
- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint prime applied over "white metal" steel substrate cleaned via mechanical shot blast method
- Decorative finish coat available in seven standard colors; Custom colors available; RAL number preferable; Internal protective coating available

WAREHOUSE 'STOCKED' POLES:
- SSBH20-40A-4-HV-DB-RDC, SSSH25-40A-4-HV-DB-RDC and SSSH30-50B-4-HV-DB-RDC
- The HV designation in the above catalog numbers is a combination of the S2 pattern and the B3 pattern



ORDERING INFORMATION Reference page 2 for available configurations

ORDERING EXAMPLE: **SSS - H - 25 - 40 - A/B/C - 2L - S2 - DBT - UL**

SERIES	HEIGHT	SHAFT	THICKNESS	MOUNTING
SSS-H Square Straight Steel Pole Hubbell Outdoor	Reference page 2 Ordering matrix	Reference page 2 Ordering matrix	Reference page 2 Ordering matrix	**1** Single arm mount **2** Two fixtures at 180° **2L** Two fixtures at 90° **3T** Three fixtures at 90° **4** Four fixtures at 90° **TA** Tenon (2.38" OD x 4" Tall) **TB** Tenon (2.88" OD x 4" Tall) **TC** Tenon (3.5" OD x 6" Tall) **TN*** Removable Tenon (2.38" x 4") **OT** Open Top (includes pole cap)

MOUNTING ORIENTATION Denotes handhole location
1 2 2L 3T 4

1 Removable tenon used in conjunction with side arm mounting. First specify desired arm configuration followed by the "**TN**" notation. Example: **SSS-H-25-40-A-1-S2-TN-DB**
2 Specify option location using logic found on page 2 **(Bolton Orientation)**
3 VM1 recommended on poles 25' and taller with EPA of less than 1.

ACCESSORIES: **Order Separately**

Catalog Number	Description
VM1*	1st mode vibration damper
VM2SXX	2nd mode vibration damper

FINISH		OPTIONS	
BLT	Black Mattte Textured	**GFI***	20 Amp GFCI Receptacle and Cover
BLS	Black Gloss Smooth	**EHW***	Extra Handhole
DBT	Dark Bronze Mattte Textured	**C05***	.5" Coupling
DBS	Dark Bronze Gloss Smooth	**C07***	.75" Coupling
GTT	Graphite Mattte Textured	**C10***	1" Coupling
LGS	Light Gray Gloss Smooth	**MPB***	Mid-pole Luminaire Bracket
PSS	Platinum Silver Smooth	**VBZ**	2nd mode vibration damper
WHT	White Mattte Textured	**LAB**	Less Anchor Bolts
WHS	White Gloss Smooth	**UL**	UL Certified
VGT	Verde Green Textured		
Color Option			
CC	Custom Color		

DRILL PATTERN	
B1	Cruise; "AM" arm
B3	3 bolt (2-3/ " spacing), Viper "A" arm
S2	2 bolt (5-1/ " spacing), Viper "AD" arm

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Due to our continued efforts to improve our products, product specifications are subject to change without notice.
© 2020 HUBBELL OUTDOOR LIGHTING. All Rights Reserved • For more information visit our website: **www.hubbelloutdoor.com** • Printed in USA **SSS-H POLES-SPEC 03/20/20**

4 SL3, SL4-2, SL4HO POLE
SCALE: N.T.S.

Bollard lights — Generated on: 03-23-2021 6:59 pm — Arcluce

KLOU180 (Model)

TECHNICAL INFORMATION — IES Files

Watt	20W
Luminaire	Up to 1600lm
CCT	3000K – 4000K
CRI	>80
Wiring	120-277V 60Hz / 0-10V
LED life time	> 60000h - L80 - B20 (Ta 25°C)
Color	Aluminium - 21 / Black - 12 / Grey - 16

DESCRIPTION
Construction
- Die-cast aluminium body (EN 47100).
- Extruded aluminium pole.
- Double layer polyester powder paint resistant to corrosion and salt spray fog.
- Silicone rubber gaskets.
- AISI 316 stainless steel external screws.

Electrical & Optics
- Universal input voltage: 120-277V 50/60Hz.
- 0-10V dimming available.
- Wiring on removable galvanized steel tray.
- High-efficacy LEDs with standard 3000K, 4000K (2700K or other CCTs available on request).
- Reflector made of anodized aluminium with non-iridescent specular finishing.
- UV rays stabilized, 850°C glow wire test resistant, V2 self-extinguishing clear polycarbonate screen.

Listings
- UL certified to U.S. and Canadian standards, suitable for wet locations (cULus mark).
- Suitable for mounting within 1.2 m (4 ft) of ground.
- Rated IP66 per EN60598.
- Luminaire rated for -40°C minimum ambient temperature on selected model variants.
- High quality LED sources characterized according to IES TM-30, with high color consistency <3SDCM and long useful life >60000 hours at L80.

Installation
- Surface installation.
- Die-cast aluminium base (EN 47100) for anchoring with rawlplugs.
- Supplied with steel base plate and j-shaped anchor bolts.
- Available on request zinc-plated steel pillar for reinforced anchoring.
- Supplied with power cord (18AWG conductors).

IP66 | IK09 | 2.15 ft²

VERSIONS *(Click on below link to configure your product)*

small — Size: Ø 7" 1/4, 19" 11/16

large — Size: Ø 7" 1/4, 39" 3/8

OPTICS

See accessories in the next page

Arcluce North America Inc. 333 Bush Street - San Francisco, CA 94104 - Ph. +1 (408) 655-6275 - export4@arcluce.it — **arcluce-us.com**

5 BL1
SCALE: N.T.S.

Job: Approval: Type:

VISION·3 LIGHTING

Rear Mount MR16 Flood **MODEL FL1**
12V 50W Max., MR16 Halogen
12V 7.5W, 12/24V 6W, or 12V 10W LED

Specifications
Body
Machined 6061-T6 aluminum, C36000 brass, or 304 stainless steel body with 18-8 stainless steel hardware.

Knuckle
Machined 6061-T6 aluminum, C36000 brass, or 304 stainless steel mounting knuckle with a 1/2" NPS threaded male fitting allows a full range of mounting positions. Double taper design (U.S. Patent #6,966,679) allows fixture to hold position during aiming and ensures a solid lock when tightened. Integral high temperature silicone O-ring prevents leaking between housing and knuckle. Integral LED models have a molded silicone wire seal to prevent water entry at knuckle. Available Rotate and Lock option (U.S. Patent #7,108,405 & #7,458,552) allows for full 360° horizontal aiming and locking.

Cap
Machined cap locks in place with one 18-8 stainless steel set screw, and is sealed to the body with a high temperature silicone O-ring. Round C2 & C4 caps have drain holes for water drainage from top of lens. Square caps feature removable and field interchangeable cutoffs with "flow-through" design for 360° drainage with no light leak. "Flush Lens" cap styles incorporate a stepped lens to reduce the collection of water and debris on the lens.

Finish
TGIC thermo set polyester powder coat paint available in 14 standard colors. On aluminum model, finish is applied over a corrosion resistant, hexavalent chromium free, RoHS compliant coating. Aluminum model available in one additional metal finish: Clear Anodized. Brass model available in three additional metal finishes: Natural, Polished, and Aged. Stainless steel model available in three additional metal finishes: Natural, Polished, and Brushed.

Socket
GY-6.35 porcelain socket with 600V, 250°C, PTFE coated 18 ga leads.

Lens
Tempered, clear lens, secured to cap with a high temperature, UV curing, silicone adhesive.

Lamps
MR16 Halogen: 12V bi-pin up to 50W (maximum allowable wattage depends on model and application. See **Certification** heading).

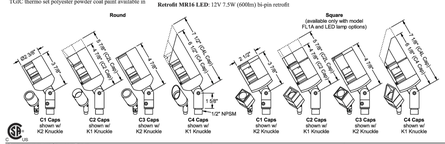
Integral LED: 12-24V AC/DC 6W (400lm) or 12V AC/DC 10W (700lm) LED options include integral driver with HIgh/Low switch for 35W/20W (6W) or 50W/35W (10W) halogen equivalent outputs. LED Modules are field replaceable and feature replaceable lenses, an L70 > 60,000 hrs., dynamic transformer recognition, phase dimming (see Transformer and Dimmer Compatibility List), and patented LEDSense® thermal management.

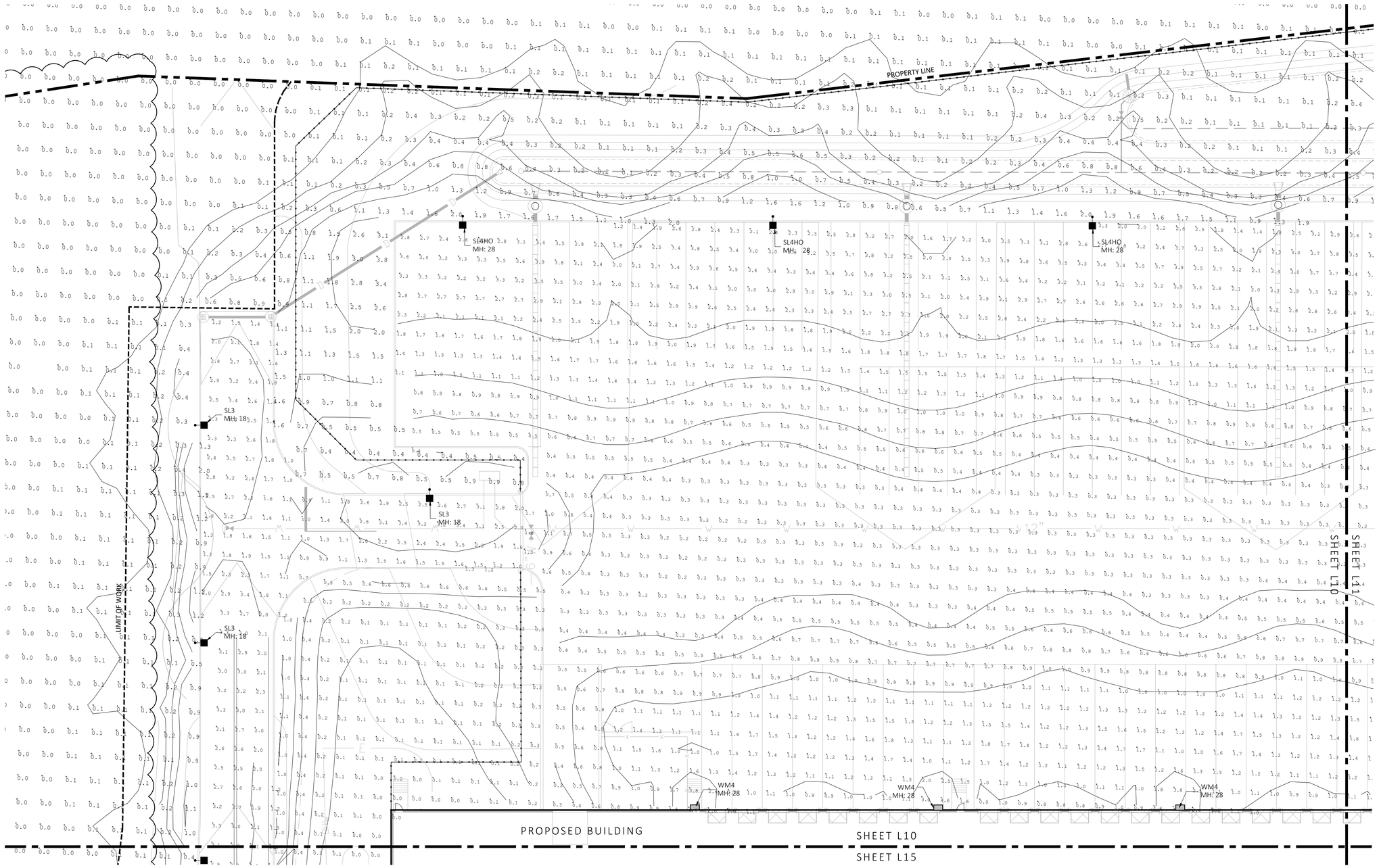
Retrofit MR16 LED: 12V 7.5W (600lm) bi-pin retrofit Sorna™ MR16 LED lamp with specially engineered heat sink mount to ensure proper heat transfer to body. Note: Retrofit LED will overheat without supplied heat sink mount.

Certification
CSA tested & certified to US and Canadian safety standards for the following applications:
Wet location landscape use (UL1838):
FL1A - 50W Max. MR16 Halogen lamp.
FL1B - 35W Max. MR16 Halogen lamp.
FL1S - 20W Max. MR16 Halogen lamp.
Wet location wall mount use (UL1598):
FL1A - 50W Max. MR16 Halogen lamp.
FL1B - 20W Max. MR16 Halogen lamp.
FL1S - 20W Max. MR16 Halogen lamp.
Wet location ceiling mount use (UL1598):
FL1A - 20W Max. MR16 Halogen lamp.
FL1B - 20W Max. MR16 Halogen lamp.
FL1S - 20W Max. MR16 Halogen lamp.

LED options can be used in all models and applications.

All ratings subject to change without notice. See website or contact V3 for most current info.


Round
Square
(available only with model FL1A and LED lamp options)
1.62" DIA
1.75"
1.75" DIA. Open
1.75" DIA. Cutoff
1.75" DIA. Open
1.75" DIA. Cutoff
1.75"
1.75"
1.75"



1 PHOTOMETRIC PLAN

SCALE: 1"=20'-0"

SCALE: 1" = 20'-0"

40' 20' 10' 5' 0 20' 40'

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Lumens
	11	WM2	SINGLE	0.850	LNC4-44L-3K-065-2-U-FINISH	9221
	11	WM4	SINGLE	0.850	LNC4-44L-3K-105-4-U-FINISH	14118
	5	SL4HO	SINGLE	0.900	RAR2-480L-240-4K7-4W-U	31576
	19	SL3	SINGLE	0.900	RAR1-160L-70-4K7-3	9563
	4	SL4-2	BACK-BACK	0.900	RAR1-160L-115-4K7-4W-U	15232
	13	BL1	SINGLE	0.900	S-KK0204US-12A-0870006A-740-12US	1346

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SEE L09 FOR LIGHTING SCHEDULE

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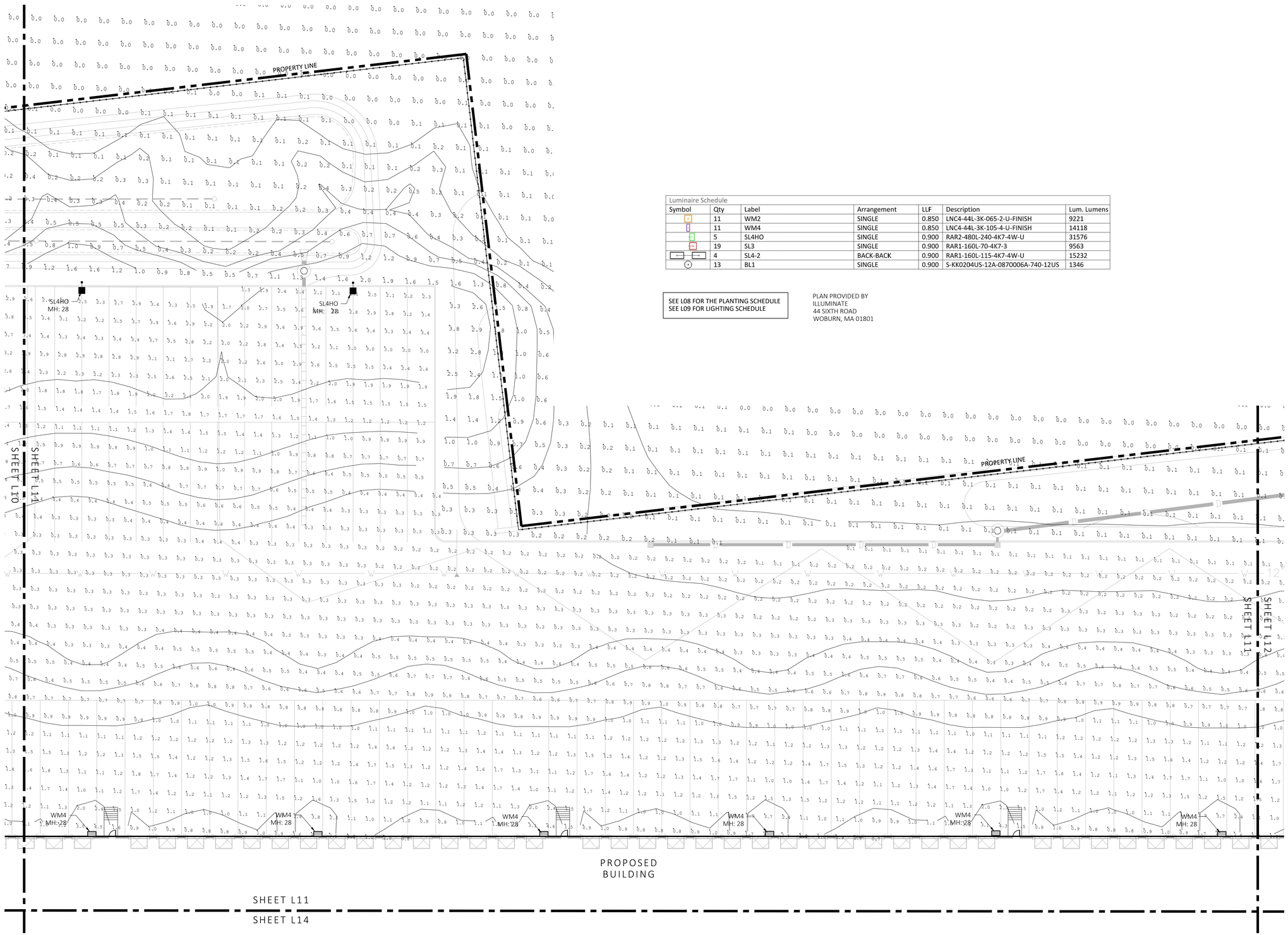

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1 PHOTOMETRIC PLAN
SCALE: 1"=20'-0"

SCALE: 1" = 20'-0"
40' 20' 10' 5' 0 20' 40'

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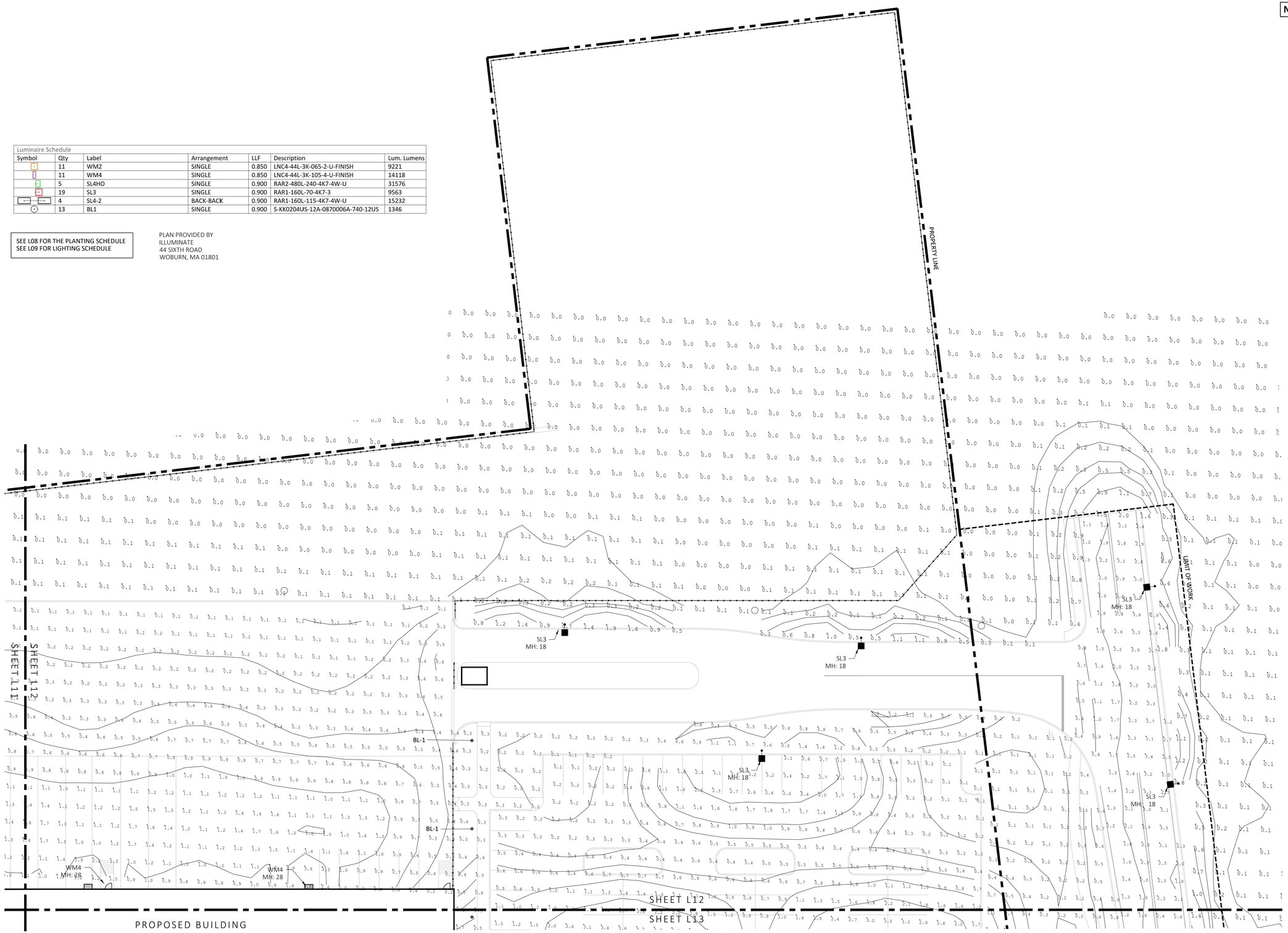

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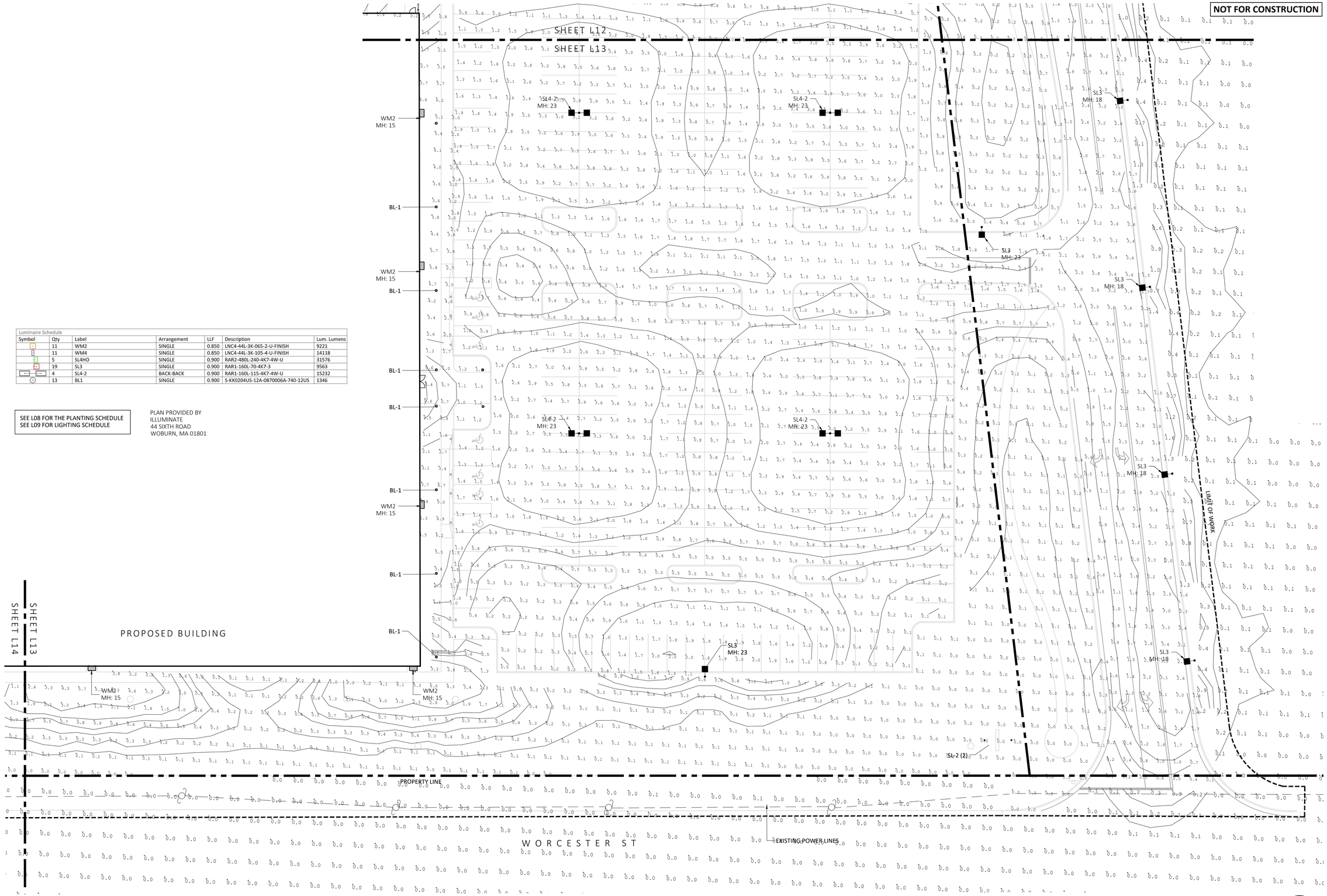

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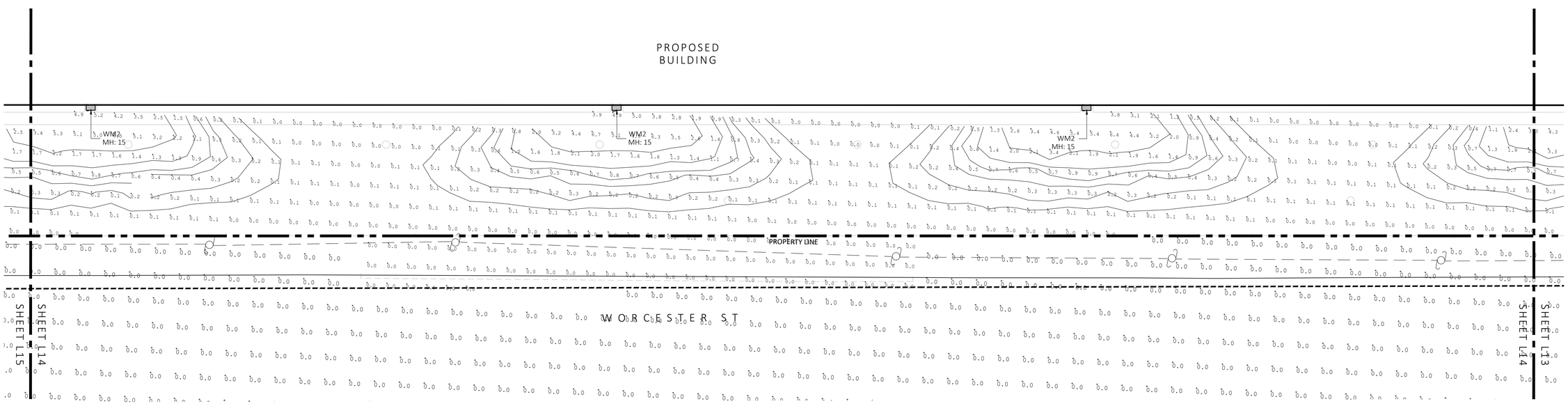

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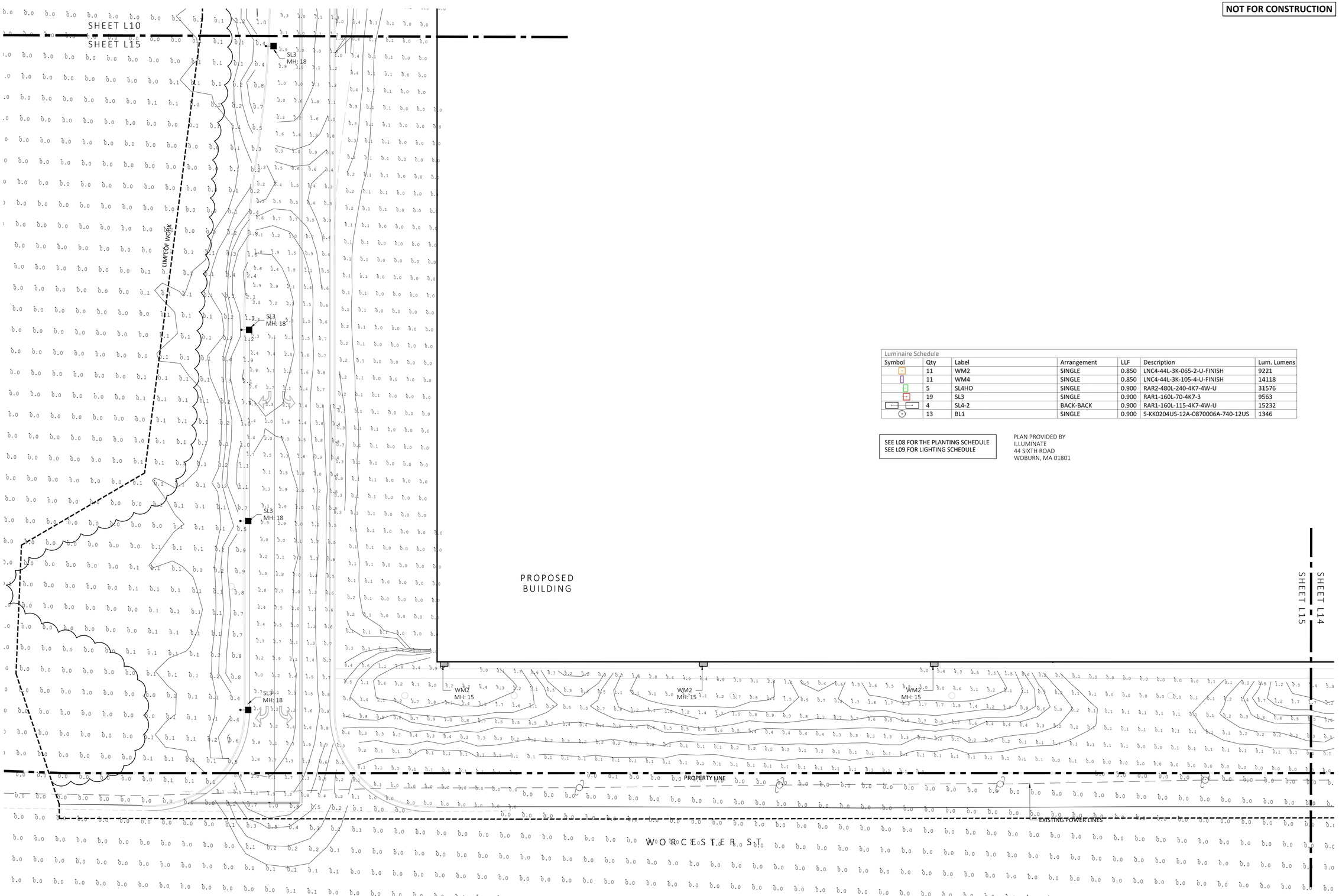

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