

# TOWN OF BOXFORD

# BOXFORD PUBLIC SCHOOLS SITE RENOVATION PROJECT HARRY LEE COLE SCHOOL



STEVE CLIFFORD, DIRECTOR OF FACILITIES BOXFORD PUBLIC SCHOOLS 28 MIDDLETON ROAD BOXFORD, MA 01921 978-887-0771 ext. 225

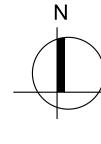


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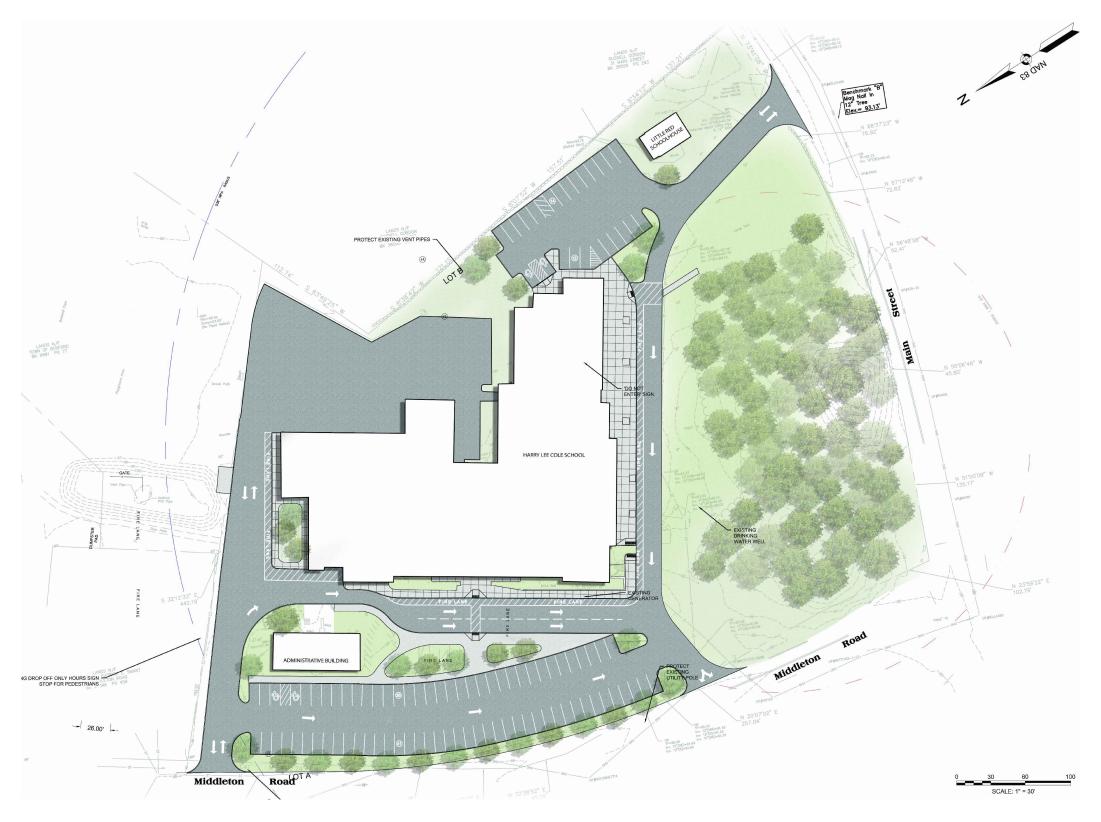
## **Locus Map**





HARRY LEE COLE SCHOOL

26 MIDDLETON ROAD, BOXFORD, MA 01921



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**FEBRUARY 3, 2021** 

LANDSCAPE ARCHITECTURAL, CIVIL, ENVIRONMENTAL, ELECTRICAL AND UTILITY DESIGN: 55 Walkers Brook Drive, Suite 100 Reading, MA 018667 (978) 532 1900 www.westonandsampson.com

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#### **GENERAL NOTES**

- 1. TOPOGRAPHIC AND EXISTING CONDITIONS INFORMATION COMPILED BY WESTON & SAMPSON, OCTOBER 2020.
- 2. REFER TO EXISTING CONDITIONS LEGEND. ANY QUANTITIES SHOWN ON THE PLANS ARE FOR BIDDING PURPOSES ONLY. ALL BIDDERS ARE REQUIRED TO INSPECT THE PROJECT SITE IN ITS ENTIRETY PRIOR TO SUBMITTING THEIR BID, AND BECOME FAMILIAR WITH ALL CONDITIONS AS THEY MAY AFFECT THEIR BID. CONTRACTOR AND SUB-CONTRACTOR SHALL BE FAMILIAR WITH ALL DRAWINGS AND SPECIFICATIONS PRIOR TO COMMENCING THE CONSTRUCTION.
- 3. LOCATIONS OF ANY UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF SUCH UTILITIES, PROTECTING ALL EXISTING UTILITIES AND REPAIRING ANY DAMAGE DONE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE COORDINATION WITH UTILITY COMPANIES AND PUBLIC AGENCIES AND FOR OBTAINING ALL REQUIRED PERMITS AND PAYING ALL REQUIRED FEES. IN ACCORDANCE WITH M.G.L. CHAPTER 82, SECTION 40, INCLUDING AMENDMENTS, CONTRACTORS SHALL NOTIFY ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES IN WRITING PRIOR TO EXCAVATION. CONTRACTOR SHALL ALSO CALL "DIG SAFE" AT (888) 344-7233 NO LESS THAN 72 HOURS, (EXCLUSIVE OF WEEKENDS AND HOLIDAYS), PRIOR TO SUCH EXCAVATION. DOCUMENTATION OF REQUESTS SHALL BE PROVIDED TO PROJECT REPRESENTATIVE PRIOR TO EXCAVATION WORK.
- ANY DISCREPANCIES OR CONFLICTS BETWEEN THE DRAWINGS AND EXISTING CONDITIONS, EXISTING CONDITIONS TO REMAIN, TEMPORARY CONSTRUCTION, PERMANENT CONSTRUCTION AND WORK OF ADJACENT CONTRACTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE BEFORE PROCEEDING. ITEMS ENCOUNTERED IN AREAS OF EXCAVATION THAT ARE NOT INDICATED ON THE DRAWINGS, BUT ARE VISIBLE ON SURFACE, SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE REMOVED AT NO ADDITIONAL COST TO
- 5. ANY ALTERATIONS TO THESE DRAWINGS MADE IN THE FIELD DURING CONSTRUCTION SHALL BE RECORDED BY THE GENERAL CONTRACTOR ON "AS-BUILT" DRAWINGS.
- 6. ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS OUTSIDE THE PROJECT LIMITS, SHALL BE RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR AT NO ADDITIONAL COST AND TO THE SATISFACTION OF THE
- 7. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS NEEDED TO PROTECT HIS EMPLOYEES, AS WELL AS PUBLIC USERS FROM INJURY DURING THE ENTIRE CONSTRUCTION PERIOD AT NO EXPENSE TO THE OWNER USING ALL NECESSARY SAFEGUARDS, INCLUDING BUT NOT LIMITED TO, THE ERECTION OF TEMPORARY WALKS, STRUCTURES, PROTECTIVE BARRIERS, COVERING, OR FENCES AS NEEDED.
- 8. THE CONTRACTOR SHALL SUPPLY THE OWNER WITH THE NAME OF THE OSHA "COMPETENT PERSON" PRIOR TO
- 9. FILLING OF EXCAVATED AREAS SHALL NOT TAKE PLACE WITHOUT THE PRESENCE OR PERMISSION OF THE OWNER'S
- 10. ALL EXISTING DRAINAGE FACILITIES TO REMAIN SHALL BE MAINTAINED FREE OF DEBRIS, SOIL, SEDIMENT, AND FOREIGN MATERIAL AND OPERATIONAL THROUGHOUT THE LIFE OF THE CONTRACT. REMOVE ALL SOIL, SEDIMENT, DEBRIS AND FOREIGN MATERIAL FROM ALL DRAINAGE STRUCTURES.
- 11. CONTRACTOR'S STAGING AREA MUST BE WITHIN THE CONTRACT LIMIT LINE AND/OR IN AREAS APPROVED BY OWNER. ANY OTHER AREAS THAT THE CONTRACTOR MAY WISH TO USE FOR STAGING MUST BE COORDINATED WITH THE OWNER.
- 12. THE CONTRACTOR SHALL KEEP ALL STREETS AND WALKS THAT ARE NOT RESTRICTED FROM PUBLIC USE DURING CONSTRUCTION BROOM CLEAN AT ALL TIMES. THE CONTRACTOR SHALL USE ACCEPTABLE METHODS AND MATERIALS TO MAINTAIN ADEQUATE DUST CONTROL THROUGHOUT CONSTRUCTION.
- 13. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH TOWN OF BOXFORD ORDINANCES.

#### **EROSION AND SEDIMENT CONTROL NOTES**

- ALL SEDIMENTAND EROSION CONTROL DEVICES SHALL BE PUT INTO PLACE PRIOR TO BEGINNING ANY CONSTRUCTION OR DEMOLITION. INCLUDING BUT NOT LIMITED TO, DRAINAGE INLETS, MANHOLES AND CATCH BASINS WITHIN THE LIMIT OF WORK AND DRAINAGE STRUCTURES OUTSIDE THE LIMIT OF WORK THAT ARE IMPACTED BY THE WORK FOR THE ENTIRE DURATION OF CONSTRUCTION. REFER TO SPECIFICATIONS AND DETAILS FOR TYPE OF EROSION AND SEDIMENT CONTROL.
- 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUAL MAINTENANCE OF ALL CONTROL DEVICES THROUGHOUT THE DURATION OF THE PROJECT.
- 3. CONTRACTOR SHALL MEET ALL OF THE STATE OF MASSACHUSETTS D.E.P. REGULATIONS FOR SEDIMENT AND EROSION CONTROL AT NO ADDITIONAL COST TO THE OWNER.
- 4. EXCAVATED MATERIAL STOCKPILED ON THE SITE SHALL BE SURROUNDED BY A RING OF UNBROKEN SEDIMENT AND EROSION CONTROL FENCE. THE LIMITS OF ALL GRADING AND DISTURBANCE SHALL BE KEPT TO A MINIMUM WITHIN THE APPROVED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE OF THE LIMIT OF CONTRACT SHALL REMAIN TOTALLY UNDISTURBED UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.
- 5. EROSION CONTROL BARRIERS TO BE INSTALLED AT THE TOE OF SLOPES. SEE SITE PLAN, NOTES, DETAILS AND SPECIFICATIONS.

#### DEMOLITION & SITE PREPARATION NOTES

- 1. THE CONTRACTOR SHALL INCLUDE IN THE BID THE COST OF REMOVING ANY EXISTING SITE FEATURES AND APPURTENANCES NECESSARY TO ACCOMPLISH THE CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS. THE CONTRACTOR SHALL ALSO INCLUDE IN THE BID THE COST NECESSARY TO RESTORE SUCH ITEMS IF THEY ARE SCHEDULED TO REMAIN AS PART OF THE FINAL SITE IMPROVEMENTS. REFER TO PLANS TO DETERMINE EXCAVATION, DEMOLITION AND TO DETERMINE THE LOCATION OF THE PROPOSED SITE IMPROVEMENTS.
- 2. THE OWNER RESERVES THE RIGHT TO REVIEW ALL MATERIALS DESIGNATED FOR REMOVAL AND TO RETAIN OWNERSHIP OF SUCH MATERIALS.
- 3. UNLESS SPECIFICALLY NOTED TO BE REMOVED AND STOCKPILED (R&S) OR REUSED AND RELOCATED (R&R), ALL SITE FEATURES CALLED TO BE REMOVED AND DEMOLISHED (R&D) SHALL BE REMOVED WITH THEIR FOOTINGS. ATTACHMENTS, BASE MATERIAL, ETC. TRANSPORTED FROM THE SITE TO BE DISPOSED OF IN A LAWFUL MANNER AT AN ACCEPTABLE DISPOSAL SITE AND AT NO ADDITIONAL COST TO THE OWNER.
- 4. ALL EXISTING SITE FEATURES TO REMAIN SHALL BE PROTECTED THROUGHOUT THE CONSTRUCTION PERIOD. ANY FEATURES DAMAGED DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.
- 5. DURING EARTHWORK OPERATIONS, CONTRACTOR SHALL TAKE CARE TO NOT DISTURB EXISTING MATERIALS TO REMAIN, OUTSIDE THE LIMITS OF EXCAVATION AND BACKFILL AND SHALL TAKE WHATEVER MEASURES NECESSARY, AT THE CONTRACTOR'S EXPENSE, TO PREVENT ANY EXCAVATED MATERIAL FROM COLLAPSING. ALL BACKFILL MATERIALS SHALL BE PLACED AND COMPACTED AS SPECIFIED TO THE SUBGRADE REQUIRED FOR THE INSTALLATION OF THE REMAINDER OF THE CONTRACT WORK.
- 6. IT SHALL BE THE CONTRACTOR'S OPTION, WITH CONCURRENCE OF THE OWNER'S REPRESENTATIVE, TO REUSE EXISTING GRAVEL PAVEMENT BASE COURSE IF IT MEETS THE REQUIREMENTS OF THE SPECIFICATIONS FOR

#### LAYOUT & MATERIALS NOTES

- COORDINATE ALL LAYOUT ACTIVITIES WITH THE SCOPE OF WORK CALLED FOR BY DEMOLITION, MATERIALS, GRADING AND UTILITIES OPERATIONS ENCOMPASSED BY THIS CONTRACT. SET, PROTECT AND REPLACE REFERENCE STAKES AS NECESSARY OR AS REQUIRED BY THE OWNER'S REPRESENTATIVE.
- 2. THE LAYOUT OF SITE AMENITIES MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
- 3. ALL PROPOSED SITE FEATURES SHALL BE LAID OUT AND STAKED FOR REVIEW AND APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF INSTALLATION. ANY REQUIRED ADJUSTMENTS TO THE LAYOUT SHALL BE UNDERTAKEN AS DIRECTED, AT NO ADDITIONAL COST TO THE OWNER.
- 4. ALL PROPOSED PAVEMENTS SHALL MEET THE LINE AND GRADE OF EXISTING ADJACENT PAVEMENT SURFACES AND SHALL BE TREATED WITH AN RS-1 TACK COAT AT POINT OF CONNECTION. ALL PATHWAY WIDTHS SHALL BE AS NOTED ON THE LAYOUT AND MATERIALS PLAN.
- 5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD MEASUREMENTS OF ALL PROPOSED GATES.
- 7. ALL LAYOUT LINES, OFFSETS, OR REFERENCES TO LOCATING OBJECTS ARE EITHER PARALLEL OR PERPENDICULAR UNLESS OTHERWISE DESIGNATED WITH ANGLE OFFSETS NOTED.
- 8. REFER TO DETAIL DRAWINGS FOR CONSTRUCTION DETAILS.
- 9. ONLY CLEAN FILL SHALL BE USED. CLEAN FILL SHALL BE CLEAR FROM TRASH, DEBRIS, ASPHALT, BRICK, CONCRETE, METAL, WOOD, RECYCLED CONSTRUCTION MATERIALS, OR OTHER DELETERIOUS MATERIALS.
- 10. TO FACILITATE LAYOUT OF PROPOSED SITE FEATURES AND FACILITIES, LAYOUT INFORMATION FOR CERTAIN FUTURE WORK, WHICH IS NOT INCLUDED WITHIN THE SCOPE OF THIS CONTRACT HAS BEEN PROVIDED ON THE LAYOUT AND MATERIALS PLAN FOR INFORMATION ONLY.

#### **GRADING & DRAINAGE NOTES**

- 1. ALL WORK RELATING TO INSTALLATION, RENOVATION OR MODIFICATION OF WATER, UTILITY STORMWATER DRAINAGE AND/OR SEPTIC UTILITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS OF THE TOWN, AND STATE OF MASSACHUSETTS.
- 2. THE CONTRACTOR SHALL VERIFY ALL GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER'S REPRESENTATIVE.
- 3. ALL GRADING IS TO BE SMOOTH AND CONTINUOUS WHERE PROPOSED SURFACE MEETS EXISTING SURFACE, BLEND THE TWO PAVEMENTS AND ELIMINATE ROUGH SPOTS AND ABRUPT GRADE CHANGES AND MEET LINE AND GRADE OF EXISTING CONDITIONS WITH NEW IMPROVEMENTS.
- 4. CONTRACTOR SHALL ENSURE ALL AREAS ARE PROPERLY PITCH TO DRAIN, WITH NO SURFACE WATER PONDING OR PUDDLING.
- 5. ALL NEW WALKWAYS MUST CONFORM TO CURRENT AMERICANS WITH DISABILITIES ACT (ADA), AND MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (MAAB) REGULATIONS: WALKWAYS SHALL MAINTAIN A CROSS PITCH OF NOT MORE THAN ONE AND A HALF (1.5%) PERCENT AND THE RUNNING SLOPE (PARALLEL TO THE DIRECTION OF TRAVEL) BETWEEN 1% MIN. AND 4.5% MAX. ANY DISCREPANCIES NOT ALLOWING THIS TO OCCUR SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE PRIOR TO CONTINUING WORK.
- 6. ALL UTILITY GRATES, COVERS OR OTHER SURFACE ELEMENTS INTENDED TO BE EXPOSED AT GRADE SHALL BE FLUSH WITH THE ADJACENT FINISHED GRADE AND ADJUSTED TO PROVIDE A SMOOTH TRANSITION AT ALL EDGES.
- 7. THE CONTRACTOR SHALL CONFIRM AND/OR SET SUBGRADE ELEVATIONS TO ALLOW FOR POSITIVE DRAINAGE AND PROVIDE EROSION CONTROL DEVICES, STRUCTURES, MATERIALS AND CONSTRUCTION METHODS TO DIRECT SILT MIGRATION AWAY FROM DRAINAGE AND OTHER UTILITY SYSTEMS, PUBLIC/PRIVATE STREETS AND WORK AREAS. CLEAN BASINS REGULARLY AND AT THE END OF THE PROJECT.
- 8. EXCAVATION REQUIRED WITHIN PROXIMITY OF KNOWN EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO ADDITIONAL COST TO THE OWNER.
- 9. WHERE NEW EARTHWORK MEETS EXISTING EARTHWORK, CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY INTO EXISTING, PROVIDING VERTICAL CURVES OR ROUNDS AT ALL TOP AND BOTTOM OF SLOPES.
- 10. WHERE A SPECIFIC LIMIT OF WORK LINE IS NOT OBVIOUS OR IMPLIED, BLEND GRADES TO EXISTING CONDITIONS WITHIN 5 FEET OF PROPOSED CONTOURS.
- 11. RESTORE ALL DISTURBED AREAS AND LIMITS OF ALL REMOVALS TO LOAM AND SEED (L&S) UNLESS OTHERWISE NOTED.
- 12. SEE EARTHWORK SECTION OF SPECIFICATIONS FOR EXCAVATION AND FILLING PROCEDURES.

#### PLANTING NOTES

- 1. THE DEPTH OF THE TOPSOIL LOAM FOR ALL PROPOSED LAWN AREAS SHALL BE 6" MINIMUM. ALL DISTURBED AREAS SHALL BE RESTORED WITH LOAM AND SEED UNLESS OTHERWISE NOTED.
- 2. ALL REFERENCES TO LOAM AND SEED REFER TO HYDROMULCH SEEDED LAWN.
- 3. ANY DISCREPANCIES BETWEEN THE PLANS AND THE PLANTING SCHEDULE, CONTRACTOR SHALL OWN THE LARGER QUANTITY AND SIZE AT NO ADDITIONAL COST TO THE OWNER.

#### **ABBREVIATIONS**

<u>(</u>	<u>GENERAL</u>	UTILI
PROP	PROPOSED	GICI
ADJ	ADJUST	CBCI
BIT. CONC.	BITUMINOUS CONCRETE	СВ
CEM. CONC.	CEMENT CONCRETE	C.I.T.
В	BASELINE	F&G
N.T.S.	NOT TO SCALE	F&C
B.M.	BENCH MARK	CI
ABAN	ABANDON	CIP
GRAN. CURB	GRANITE CURB	CMP
EXIST. (OR EX.)	EXISTING	DI
FDN	FOUNDATION	Gl
F.L. (OR F)	FLOW LINE	HYD
Р	PROPERTY LINE	INV.
PVMT	PAVEMENT	UP
RC	REINFORCED CONCRETE	SMH
REM	REMOVE	WG
RET	RETAIN	DS
R.O.W.	RIGHT-OF-WAY	HDPE
R&R	REMOVE AND RELOCATE	PVC
R,R&R	REMOVE, RELOCATED AND RESET	RCP
R&S	REMOVE AND SALVAGE	DMH
R&D	REMOVE AND DISPOSE	LB
P&P	PRESERVE AND PROTECT	CI
SB	STONE BOUND	OCS

NOT IN CONTRACT

WHEELCHAIR RAMP

GENERAL CONTRACTOR

PLUMBING CONTRACTOR

ELECTRICAL CONTRACTOR

HOT MIX ASPHALT

HANDICAP

WCR

HMA

P.C.

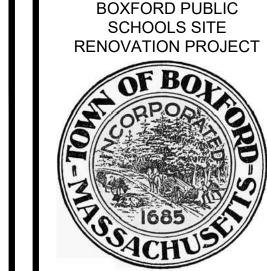
<u>ITIES</u>

OGT

SWTU

CATCH BASIN W/ CURB INLET CATCH BASIN CHANGE IN TYPE FRAME AND GRATE FRAME AND COVER **CURB INLET** CAST IRON PIPE CORRUGATED METAL PIPE DUCTILE IRON PIPE **GUTTER INLET** HYDRANT INVERT ELEVATION UTILITY POLE SEWER MANHOLE WATER GATE DOWN SPOUT HIGH DENSITY POLYETHYLENE PIPE POLYVINYL CHLORIDE REINFORCED CONCRETE PIPE DRAIN MANHOLE LEACHING BASIN CAST IRON OUTLET CONTROL STRUCTURE OIL AND GRIT TRAP VITRIFIED CLAY PIPE LIGHT POLE STORM WATER TREATMENT UNIT HANDHOLE

**GUTTER INLET W/ CURB INLET** 



HARRY LEE COLE SCHOOL 26 MIDDLETON ROAD BOXFORD, MA 01921

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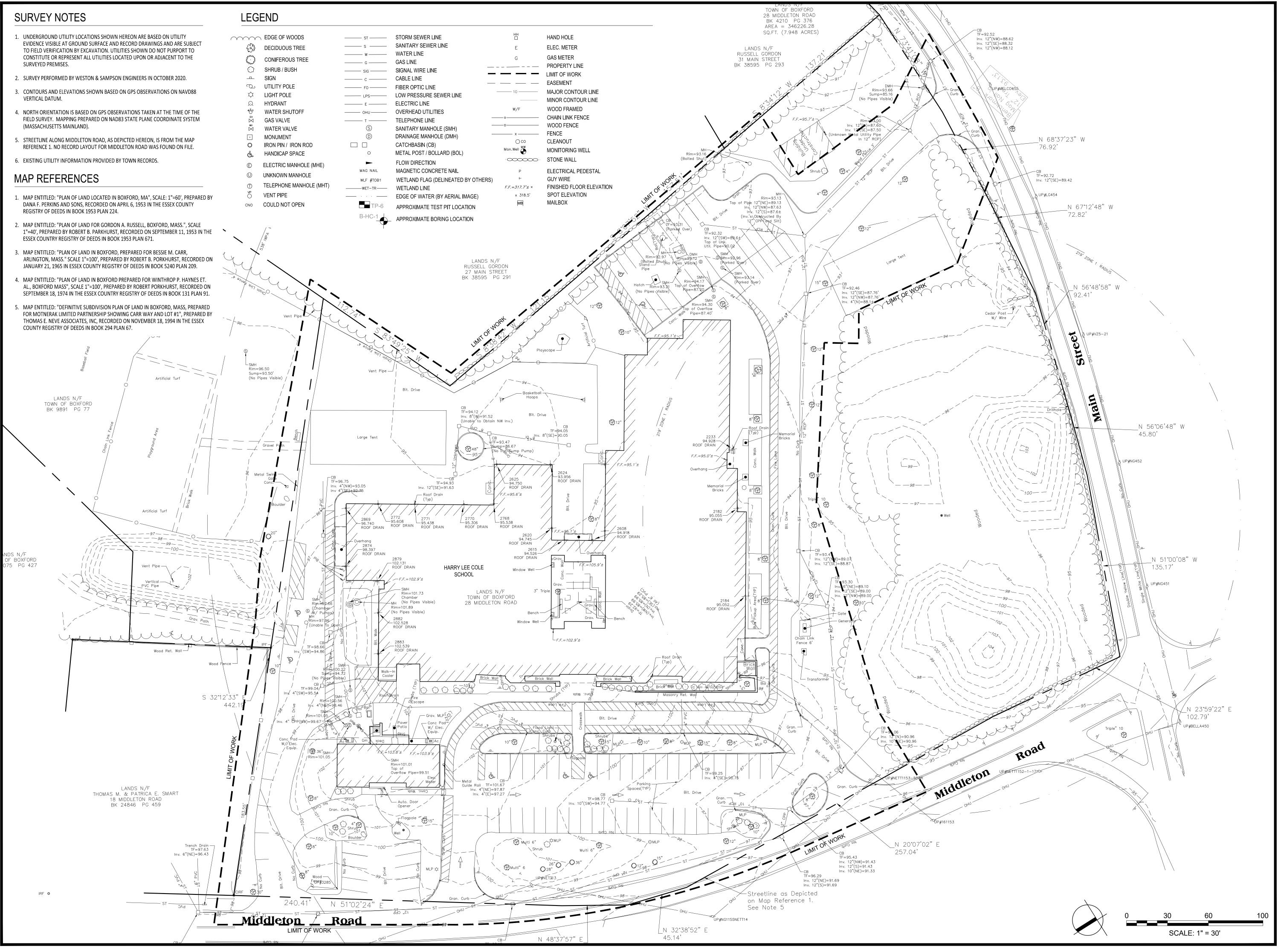
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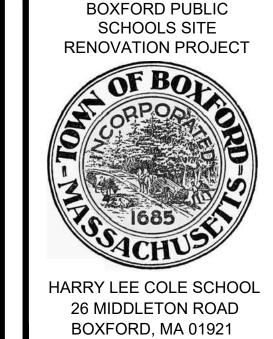
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LEGEND, **GENERAL NOTES** & SYMBOLS





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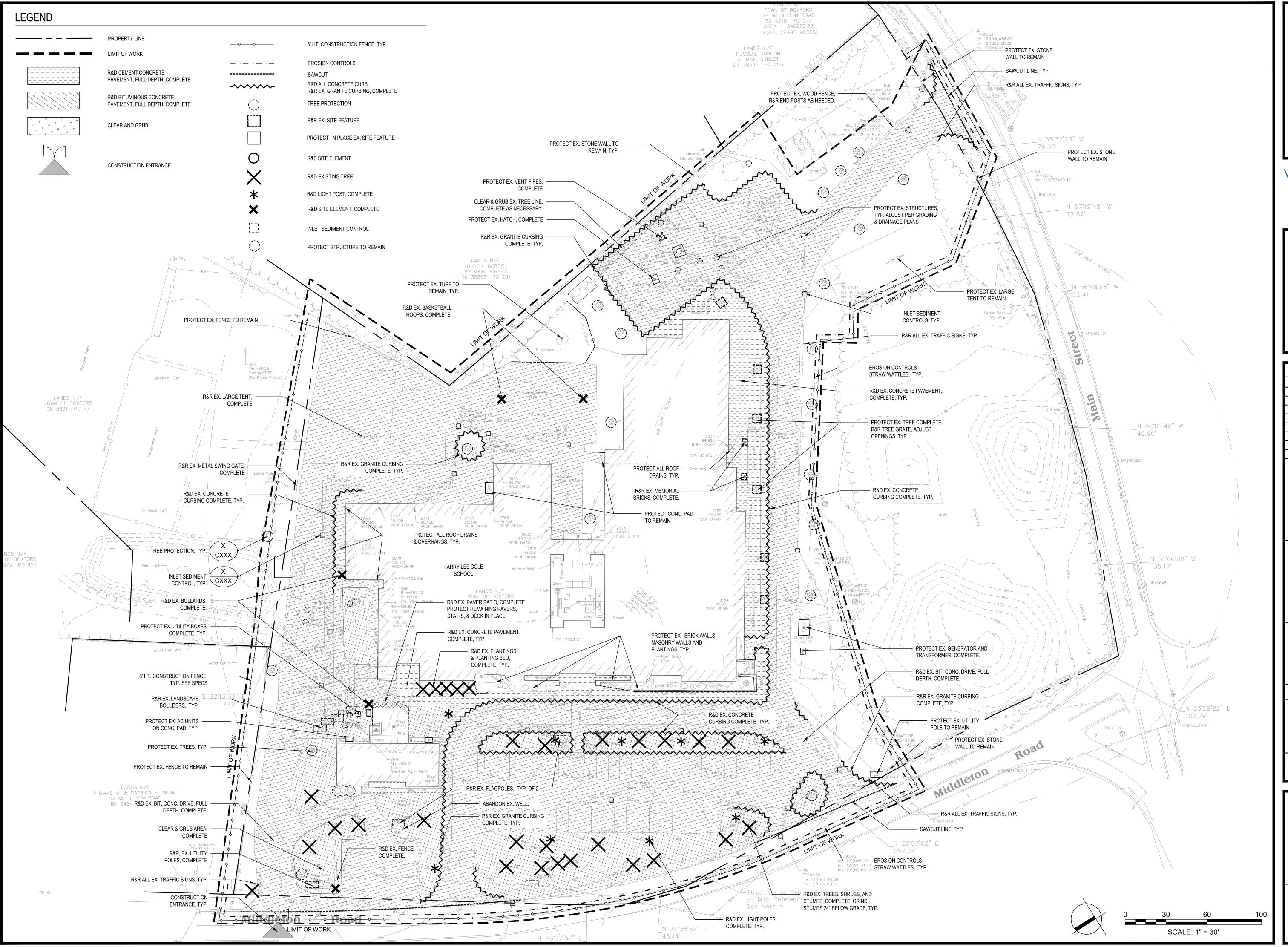
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EXISTING CONDITIONS PLAN

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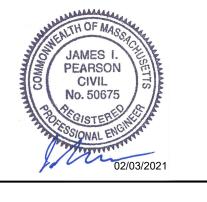
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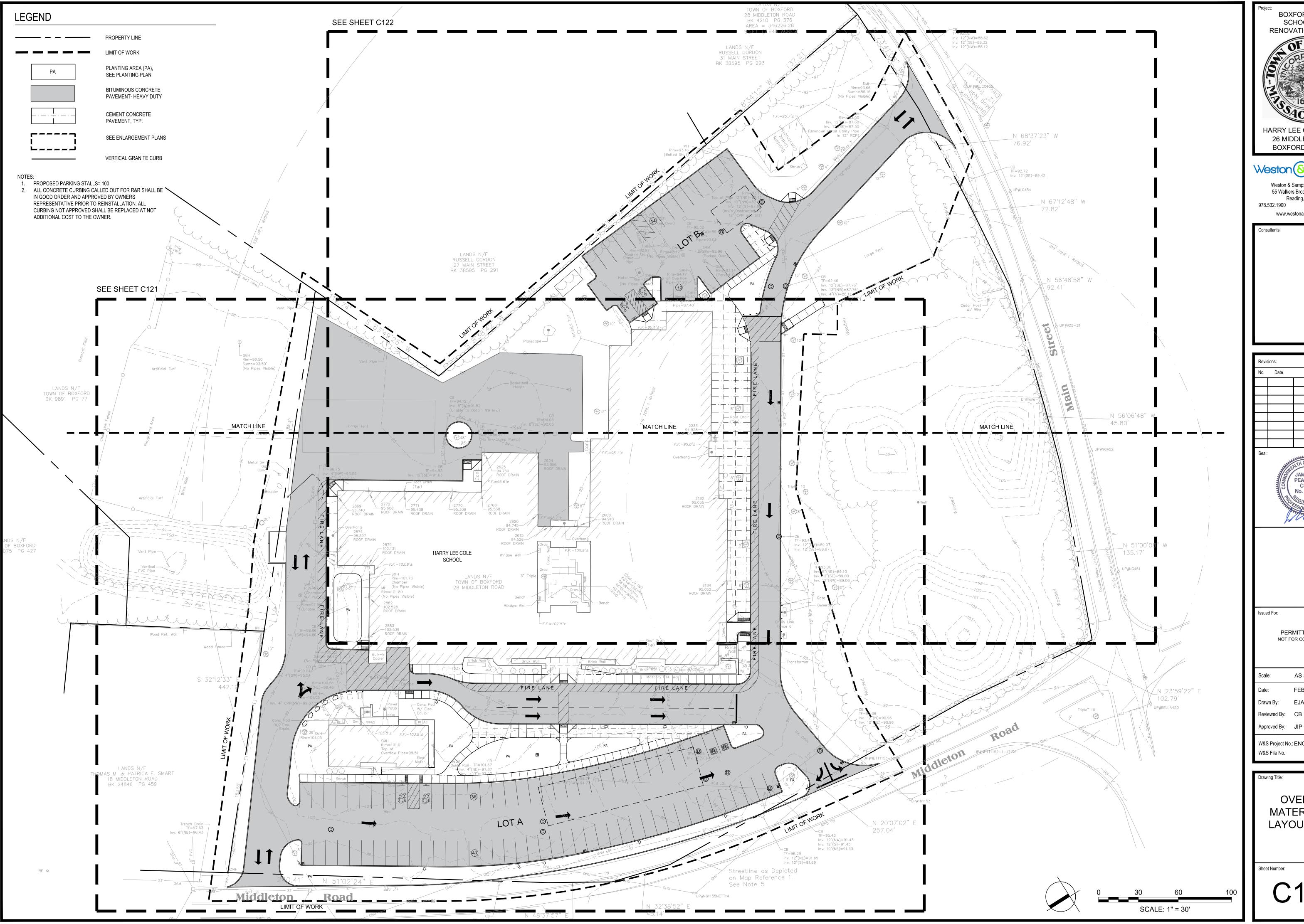
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EROSION &
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CONTROL PLAN

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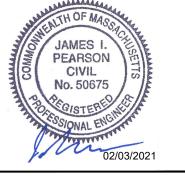
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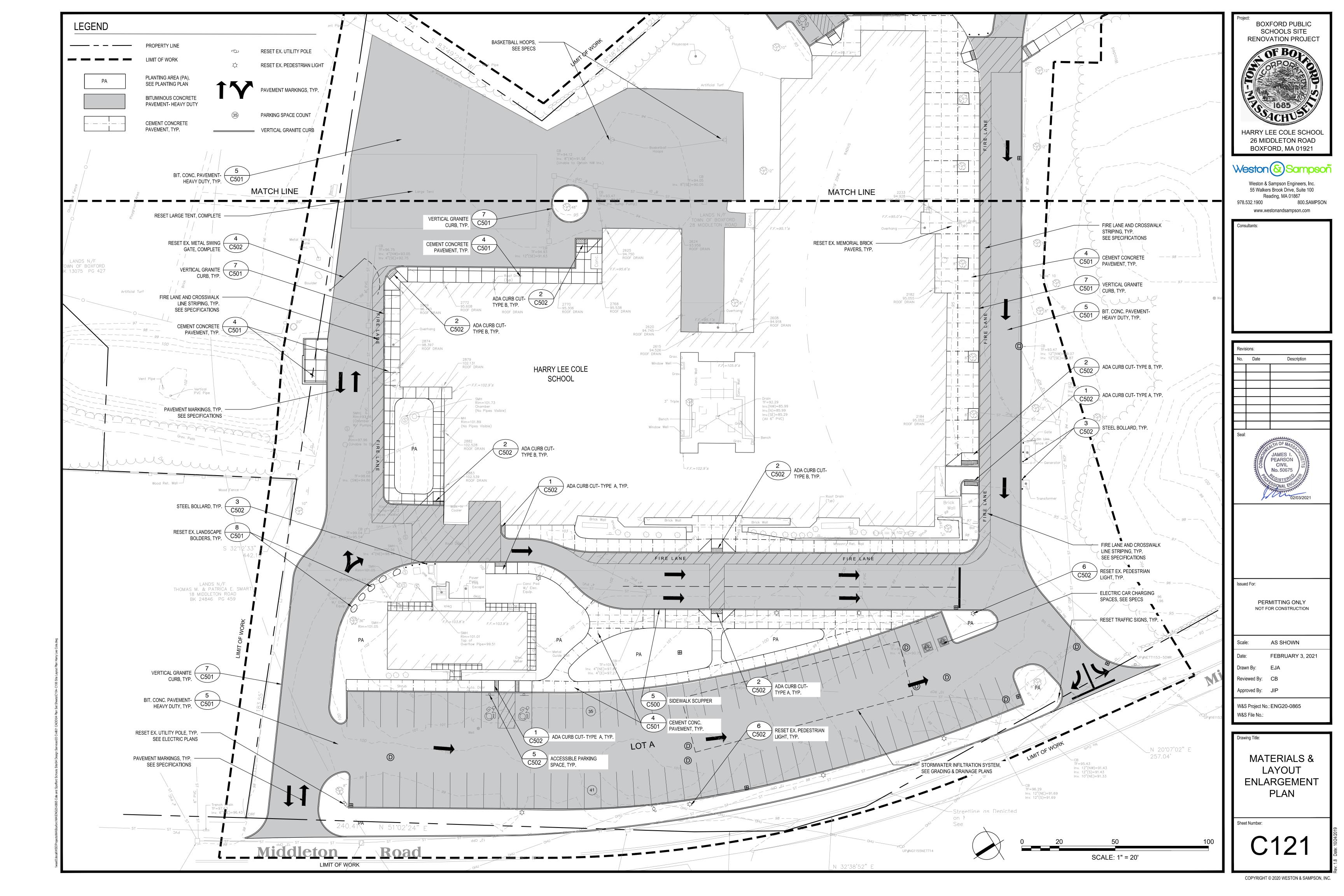


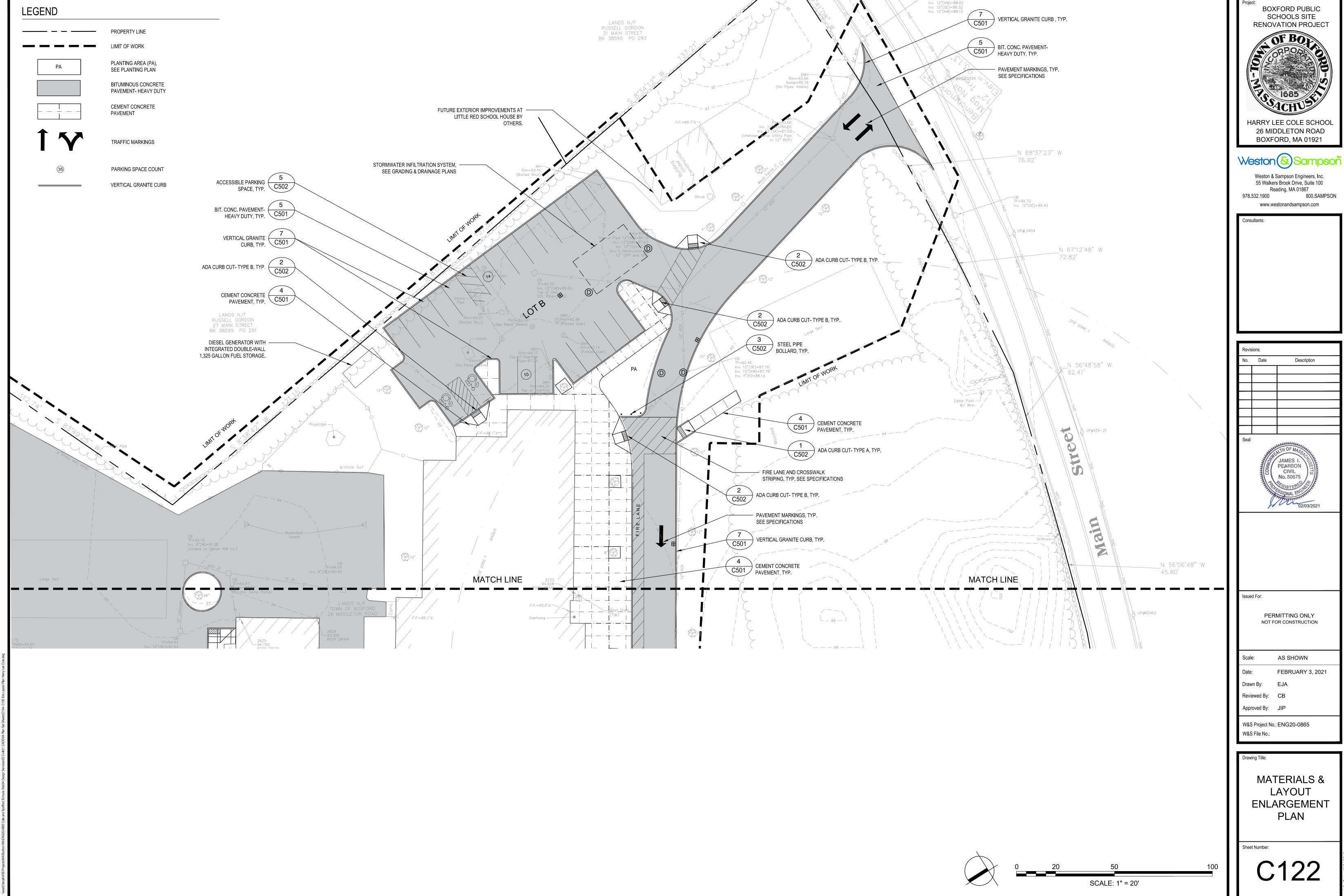
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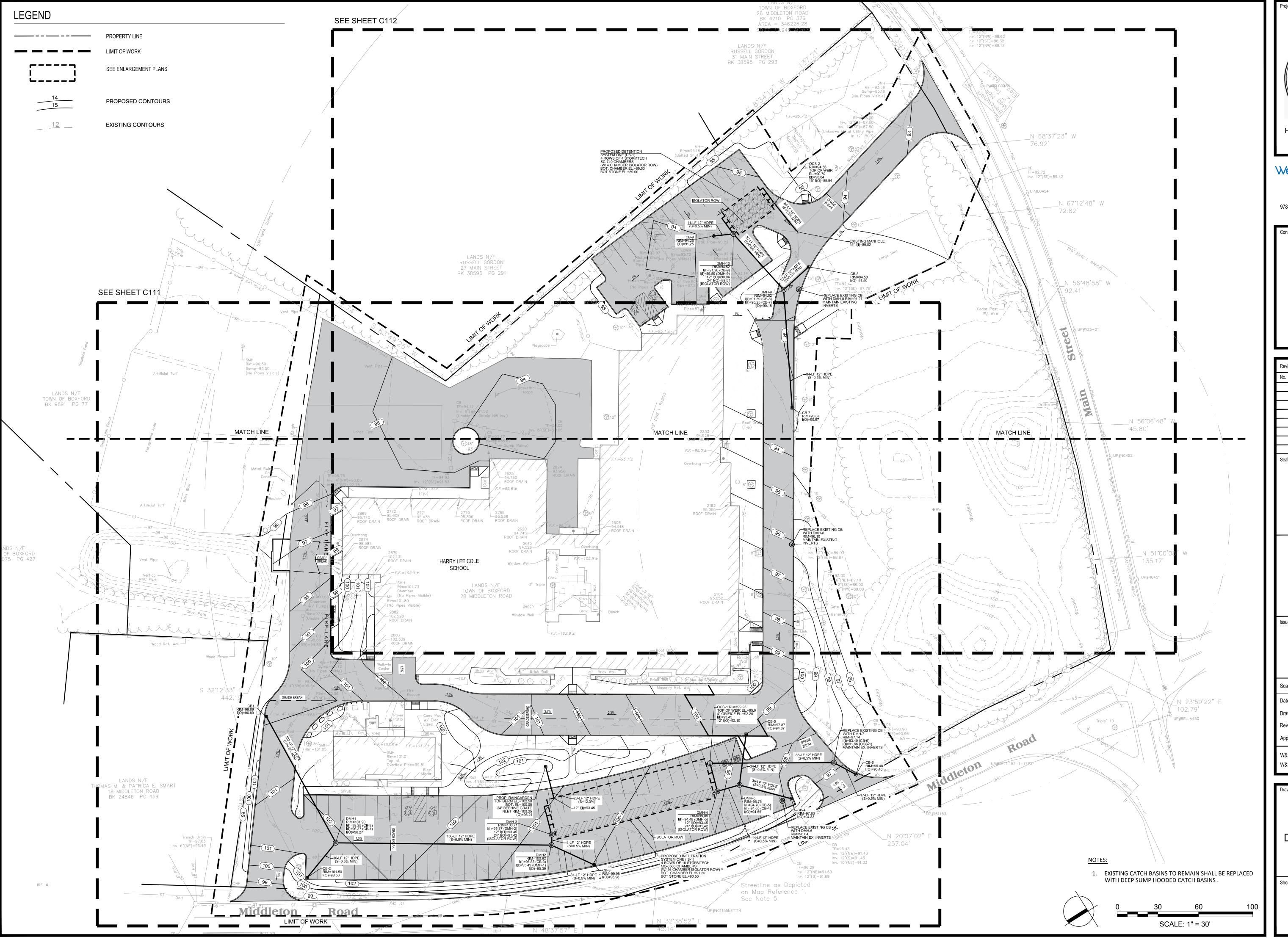
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OVERALL MATERIALS & LAYOUT PLAN







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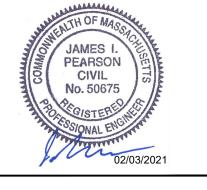
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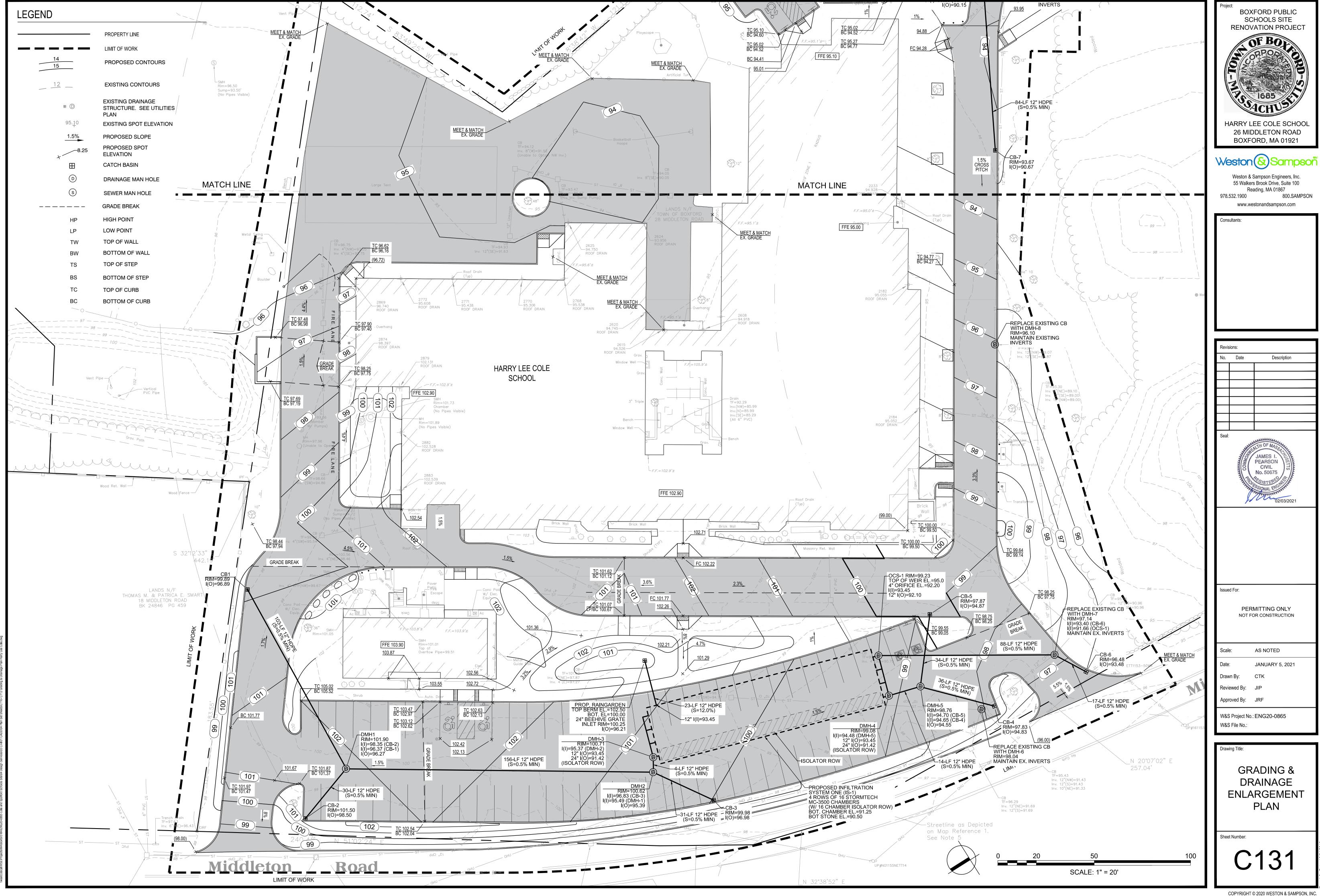
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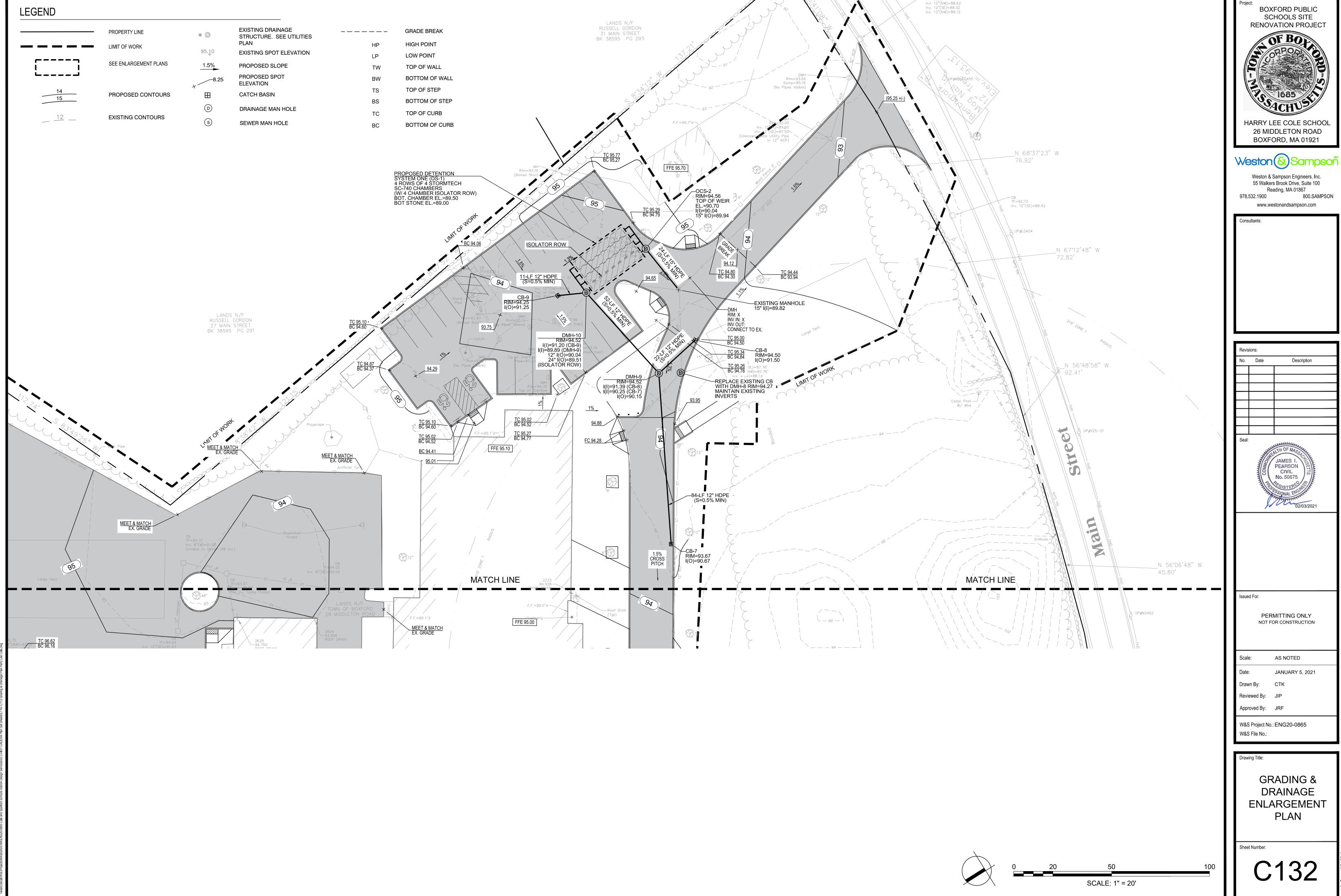
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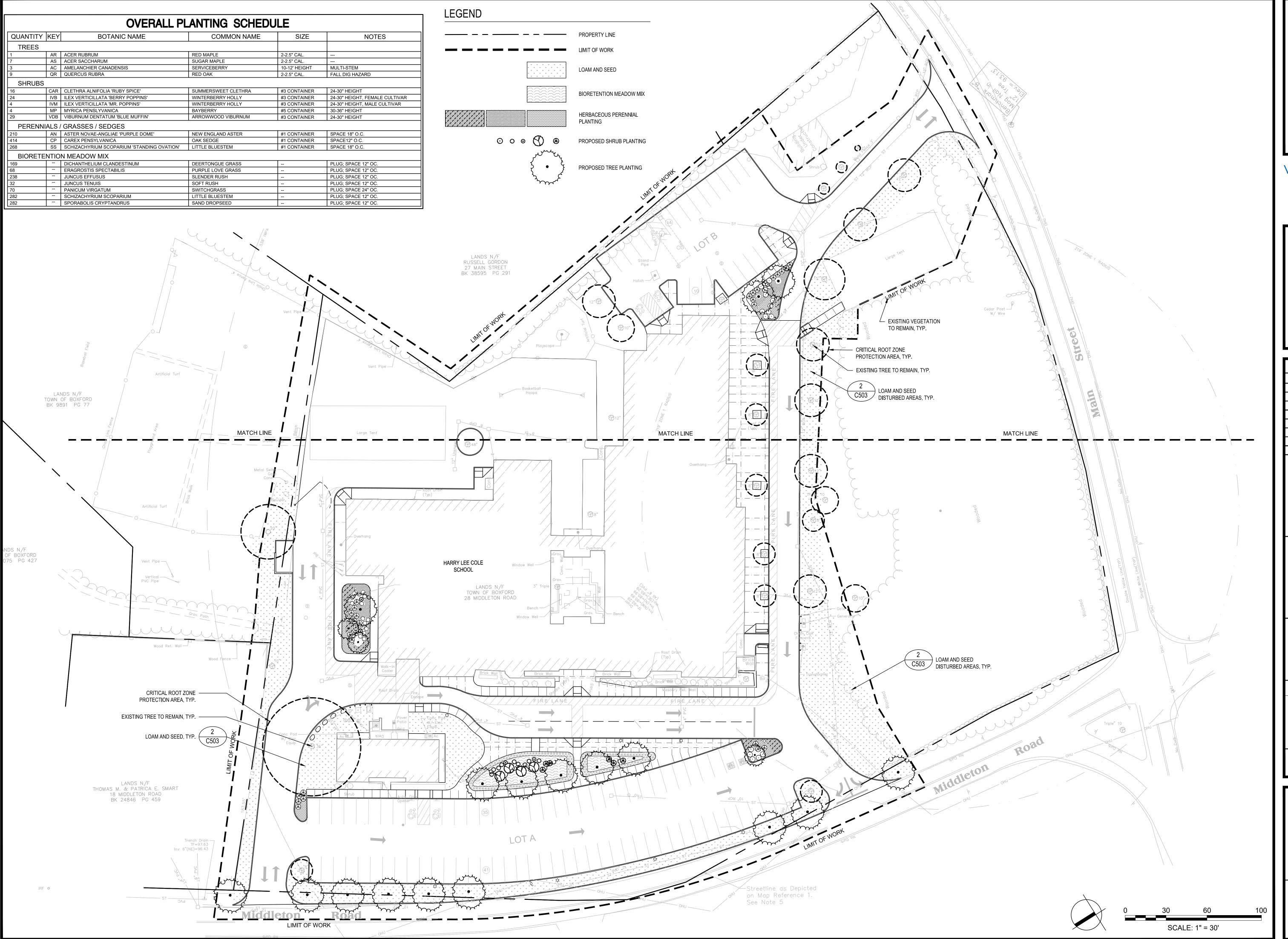
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OVERALL GRADING & DRAINAGE PLAN

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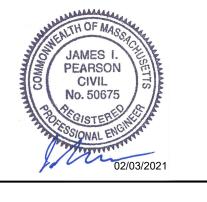
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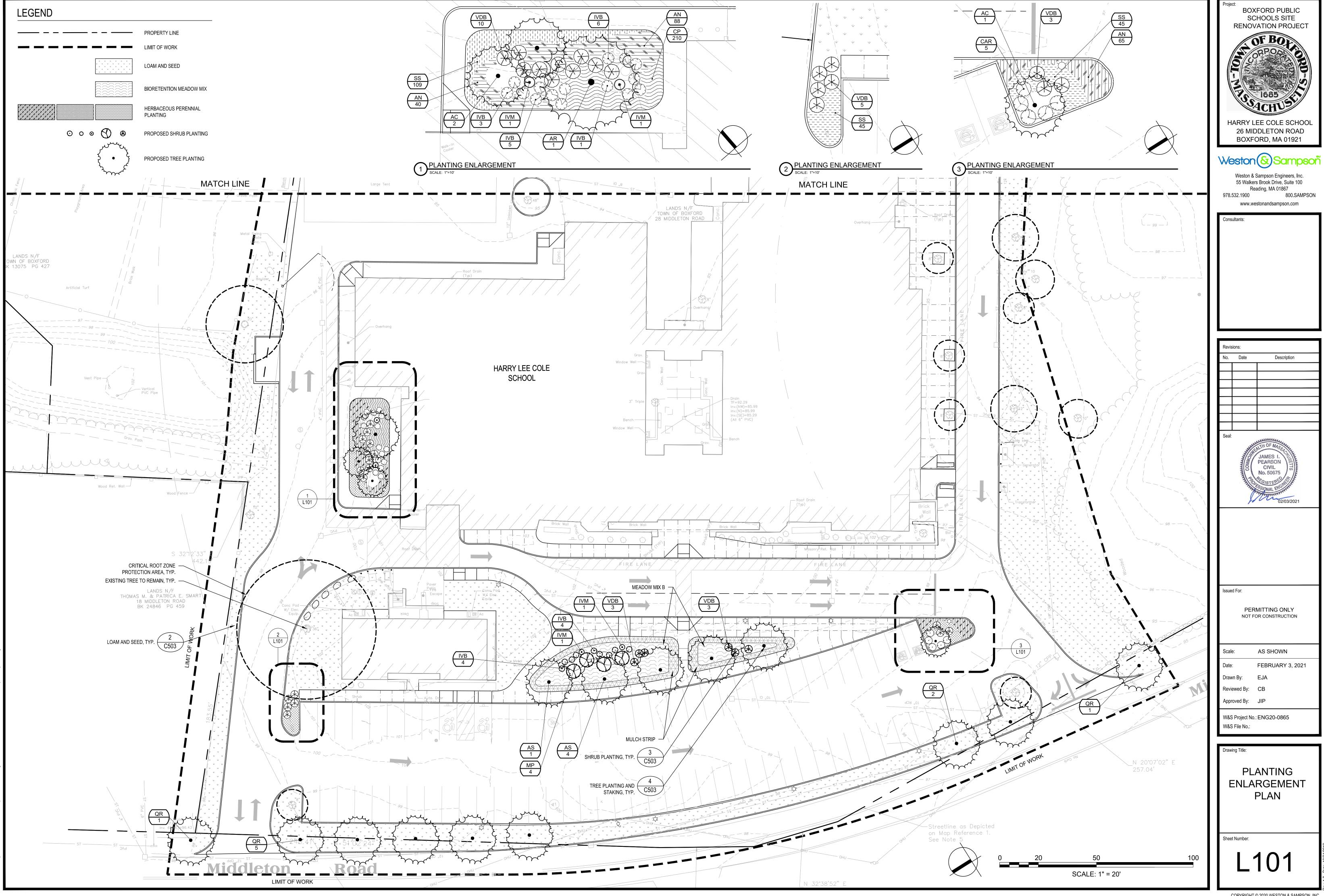
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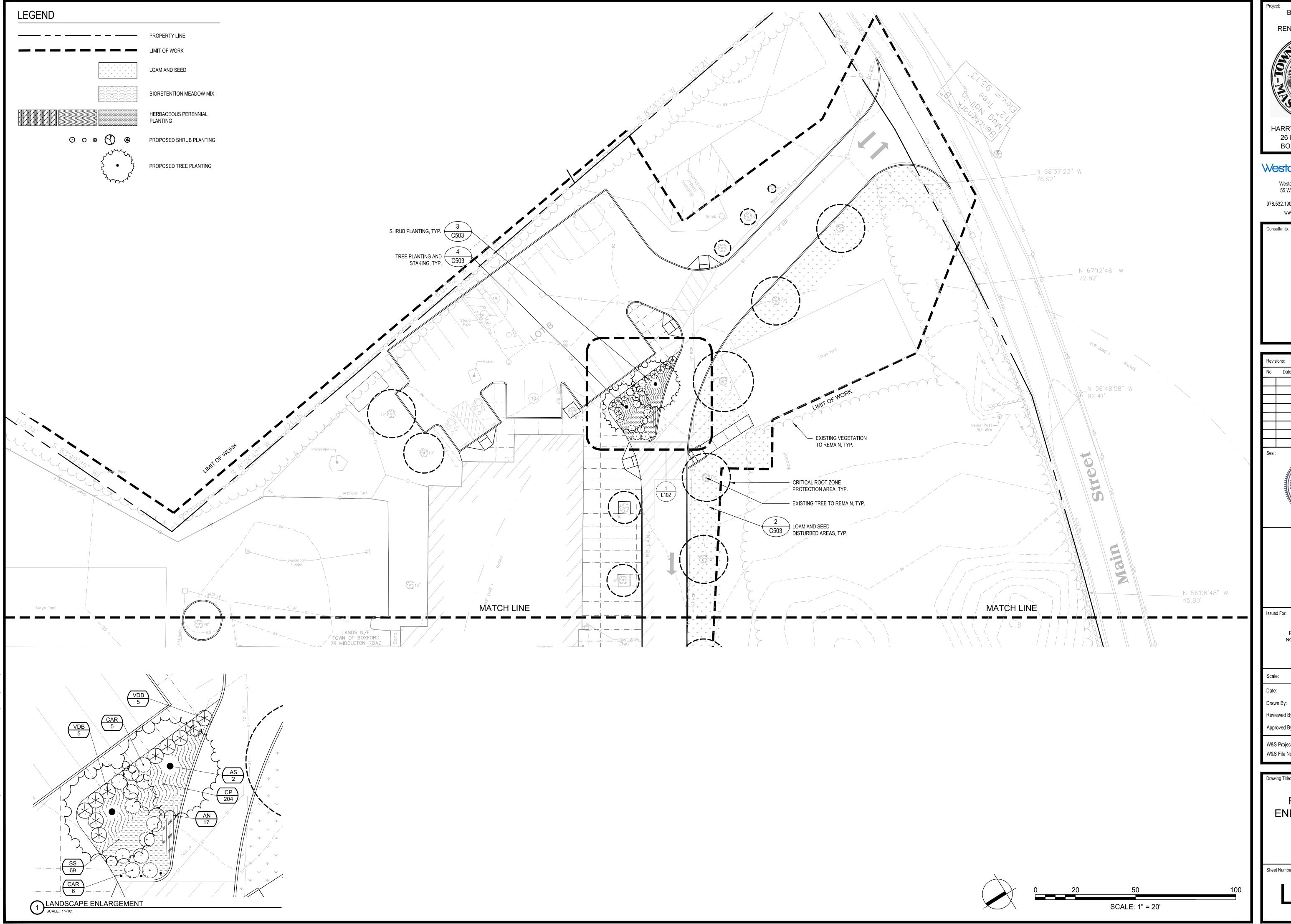
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OVERALL PLANTING PLAN

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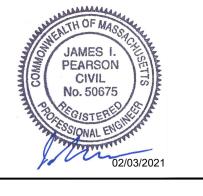


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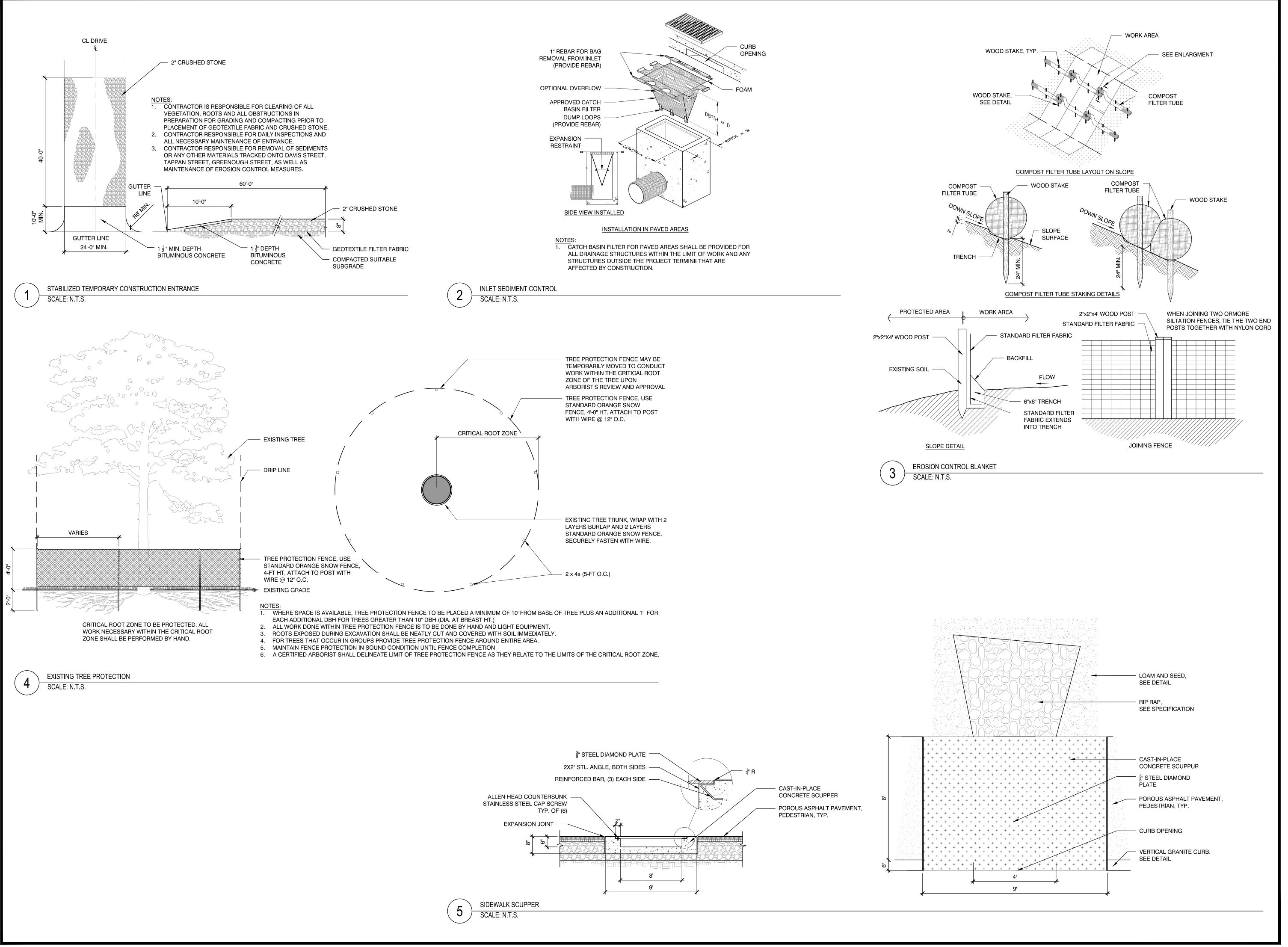
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**PLANTING** ENLARGEMENT PLAN



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Drawn By: EJA

Reviewed By: CB

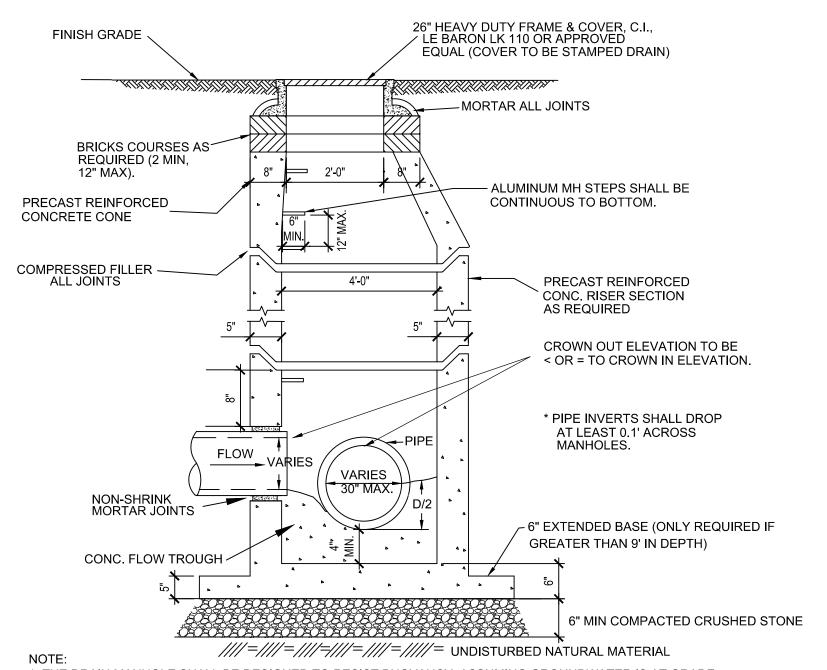
Approved By: JIP

W&S Project No.: ENG20-0865 W&S File No.:

Drawing Title:

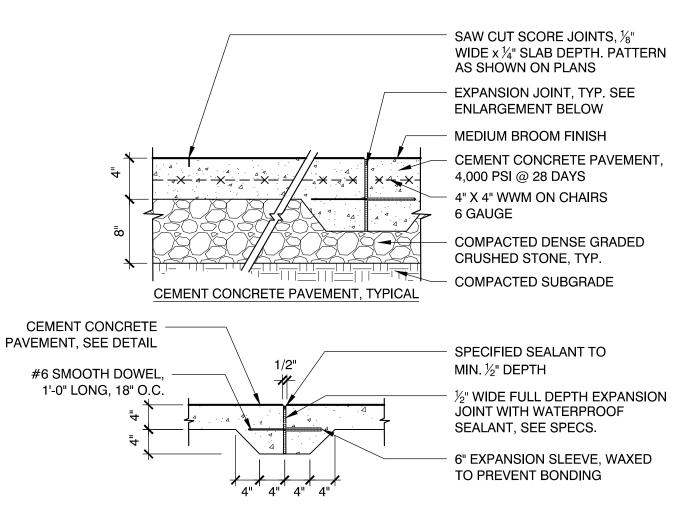
DETAILS I

Sheet Number:



- 1. THE DRAIN MANHOLE SHALL BE DESIGNED TO RESIST BUOYANCY. ASSUMING GROUNDWATER IS AT GRADE, MANUFACTURER SHALL PROVIDE BUOYANCY CALCULATIONS, STAMPED BY A MASSACHUSETTS P.E.
- 2. MANHOLE FRAME AND COVER SHALL BE H-20 WHEEL LOAD RATED.

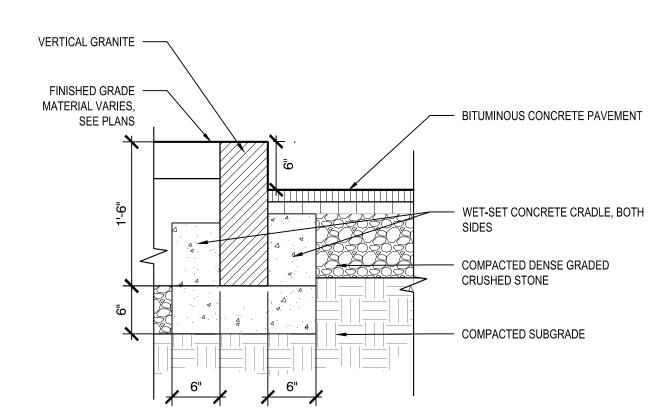
#### TYPICAL PRECAST CONCRETE MANHOLE SCALE: N.T.S.



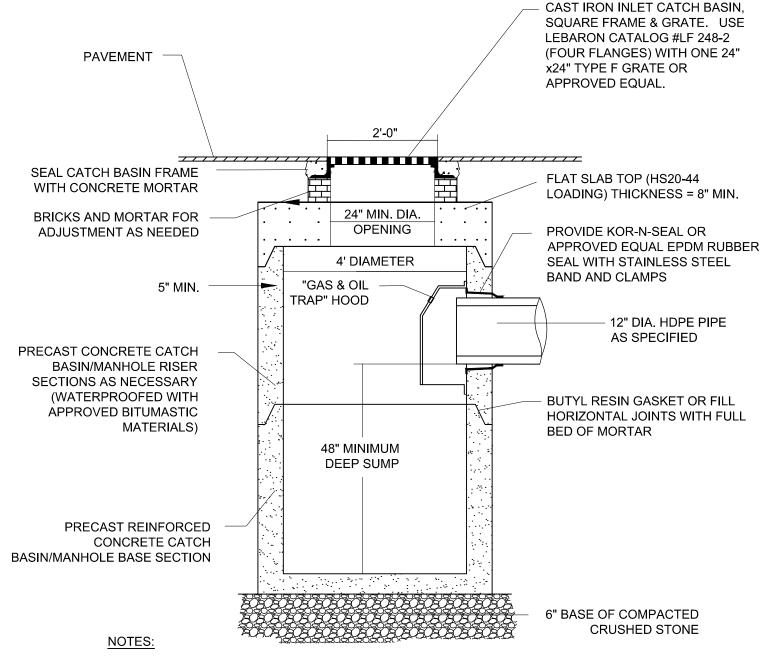
#### **EXPANSION JOINT INSTALLATION NOTES:**

- 1. DOWEL IS TYPICAL AT ALL EXPANSION JOINTS (18" O.C.) WITHIN CONCRETE PAVING AND BETWEEN NEW CONCRETE PAVING AND EXISTING CONCRETE PAVING TO REMAIN.
- 1. DELETE EXPANSION SLEEVE AND DOWEL WHERE JOINT ABUTS WALL, CURBS, OR OTHER
- VERTICAL SURFACES, UNLESS OTHERWISE NOTED. 2. EXPANSION JOINTS MAX. 25'-0" O.C. UNLESS SHOWN OTHERWISE.
- 3. EXPANSIONS JOINTS SHALL BE PLACED WHERE NEW CEMENT CONCRETE PAVEMENT MEETS
- EXISTING PAVEMENT OR WALLS TO REMAIN.

#### **CEMENT CONCRETE PAVEMENT** SCALE: N.T.S.

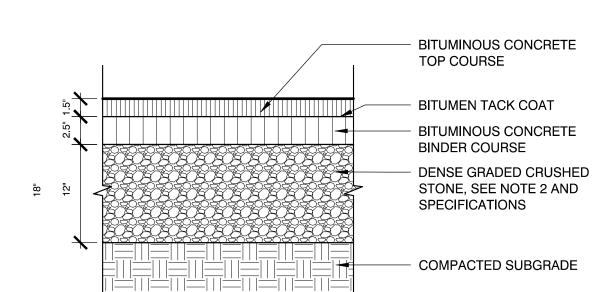


**VERTICAL GRANITE CURB** SCALE: N.T.S.



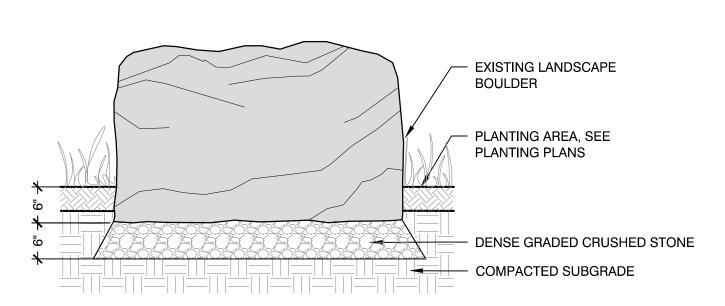
- FOR DOUBLE CATCH BASINS, STRUCTURE SHALL BE 6' IN DIAMETER. THE CATCH BASIN SHALL BE DESIGNED TO RESIST BUOYANCY. ASSUMING GROUNDWATER IS AT GRADE, MANUFACTURER SHALL PROVIDE BUOYANCY CALCULATIONS, STAMPED BY A MASSACHUSETTS P.E.
- 3. MANHOLE FRAME AND COVER SHALL BE H-20 WHEEL LOAD RATED.

#### STANDARD CATCH BASIN SCALE: N.T.S.

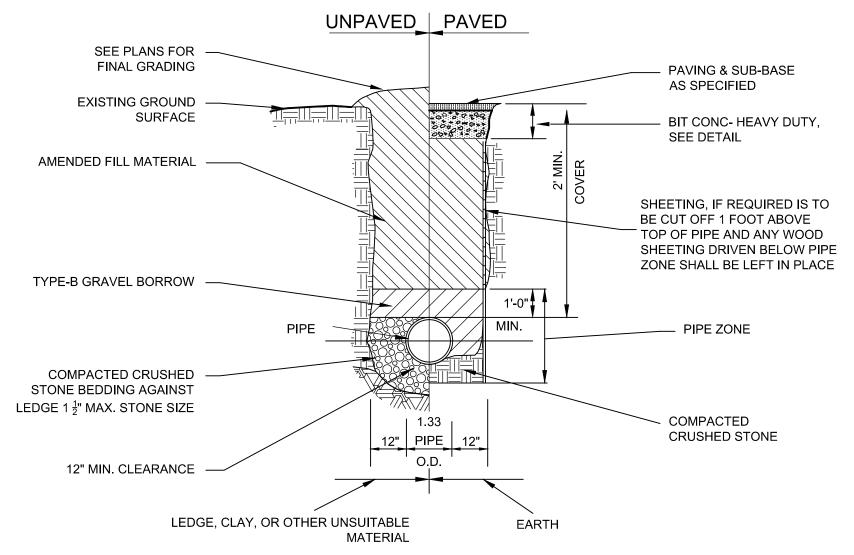


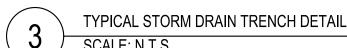
- 1. CONTRACTOR TO PROVIDE SMOOTH TRANSITION WHERE NEW PAVEMENT ABUTS EXISTING PAVEMENT. TYP.
- 2. DENSE GRADED CRUSHED STONE TO COMPRISE OF 12" MINIMUM DEPTH.

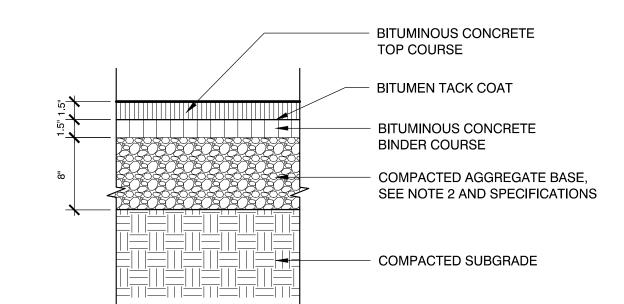
#### BIT CONC PAVEMENT- HEAVY DUTY SCALE: N.T.S.



RESET EX. LANDSCAPE BOULDER

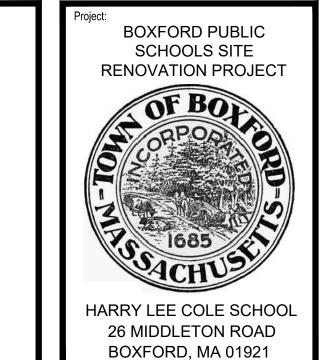






- CONTRACTOR TO PROVIDE SMOOTH TRANSITION WHERE NEW PAVEMENT ABUTS EXISTING PAVEMENT, TYP.
- 2. COMPACTED AGGREGATE BASE TO COMPRISE OF 12"
- MINIMUM DEPTH, 8" OF M1.03.0 TYPE B GRAVEL TOPPED WITH 4" OF DENSE GRADED CRUSHED STONE. 3. ONLY CLEAN GRAVEL BORROW MEETING SPECIFICATIONS
- SHALL BE USED. CLEAN GRAVEL BORROW SHALL BE CLEAR FROM TRASH, DEBRIS, ASPHALT, BRICK, CONCRETE, METAL, WOOD, RECYCLED CONSTRUCTION MATERIALS, OR OTHER DELETERIOUS MATERIALS.





Weston & Sampson Engineers, Inc.

55 Walkers Brook Drive, Suite 100 Reading, MA 01867 800.SAMPSON www.westonandsampson.com

Consultants:

Date Description JAMES I. PEARSON Issued For: PERMITTING ONLY NOT FOR CONSTRUCTION

W&S File No.:

Drawn By:

Reviewed By: CB

Approved By: JIP

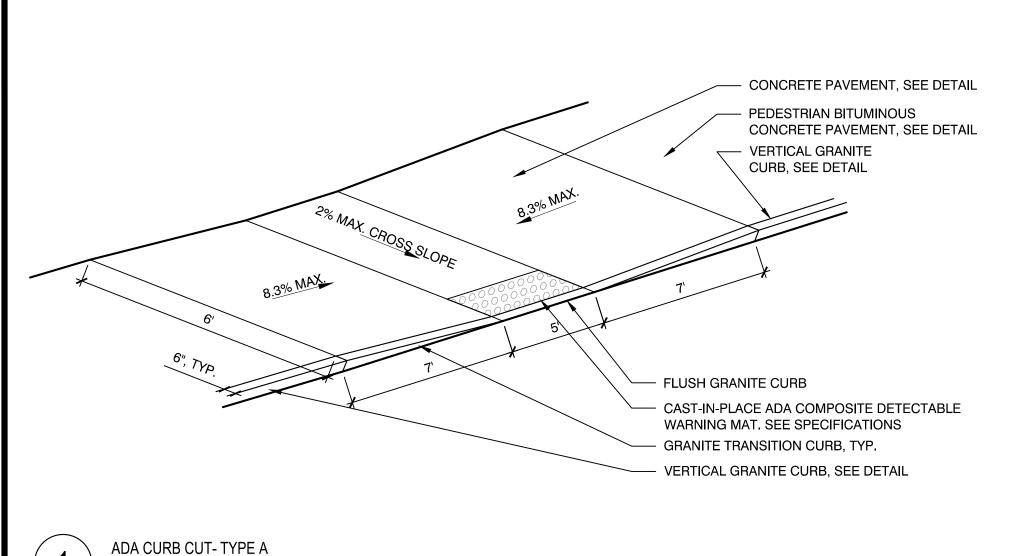
W&S Project No.: ENG20-0865

**DETAILS II** 

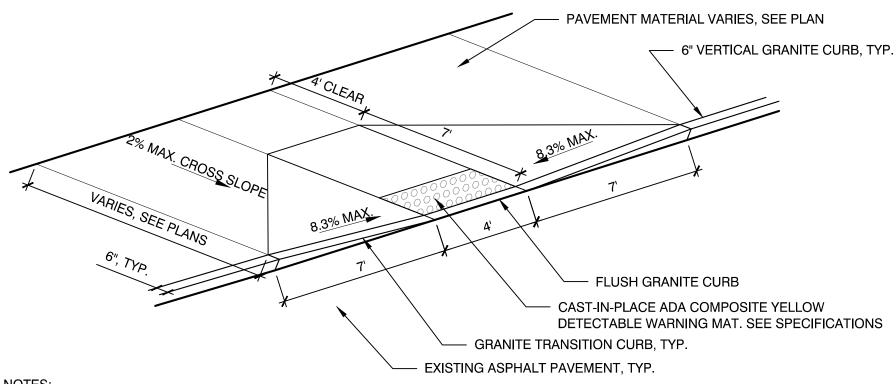
AS SHOWN

FEBRUARY 3, 2021

Sheet Number:

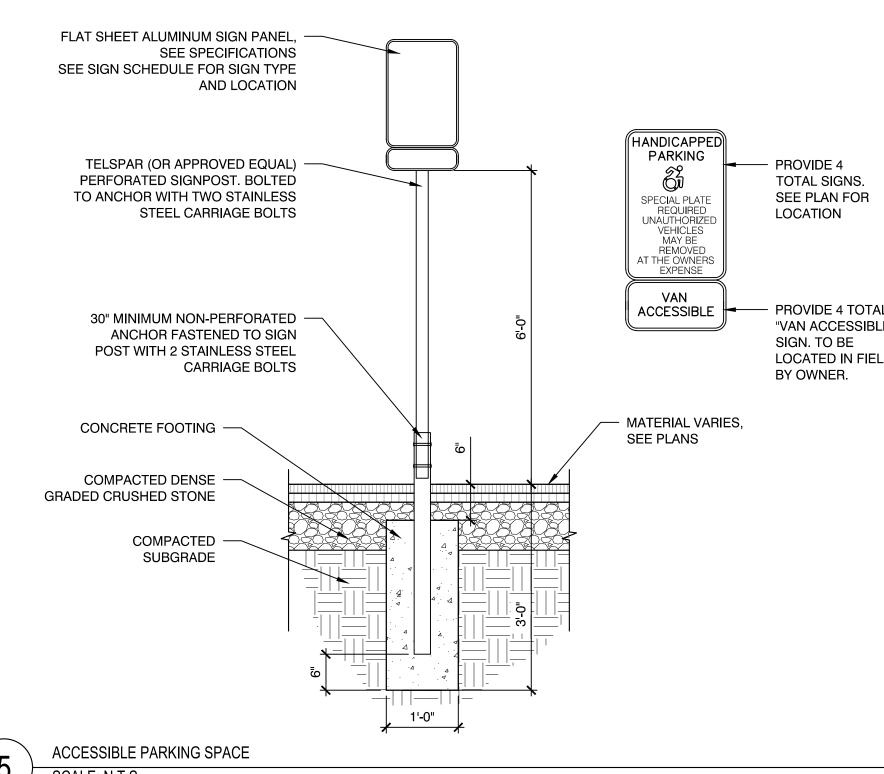


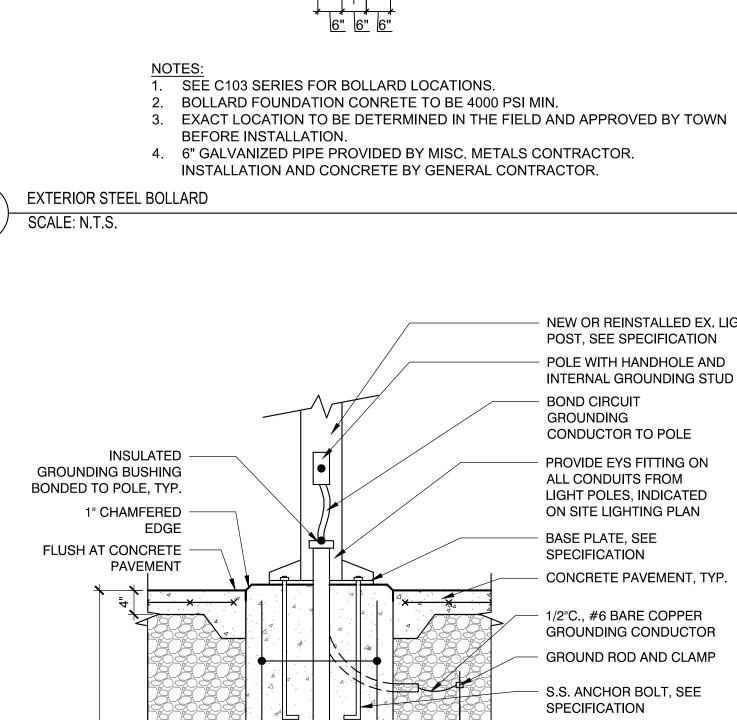
SCALE: N.T.S.



- 1. CONTRACTOR SHALL PROVIDE CLEAN AND STRAIGHT SAWCUT LINES AT LIMIT OF REMOVAL OF EXISTING ASPHALT PAVEMENT TO REMAIN. CONTRACTOR SHALL VERIFY LIMITS OF EXISTING ASPHALT PAVEMENT REMOVAL PRIOR TO COMMENCING DEMOLITION.
- 2. CONTRACTOR SHALL REMOVE AND REPLACE ASPHALT PAVEMENT, GRAVEL BORROW, AND SUBGRADE NECESSARY TO CONSTRUCT A CLEAN, SMOOTH TRANSITION AT ADA CURB CUT.

ADA CURB CUT- TYPE B SCALE: N.T.S.

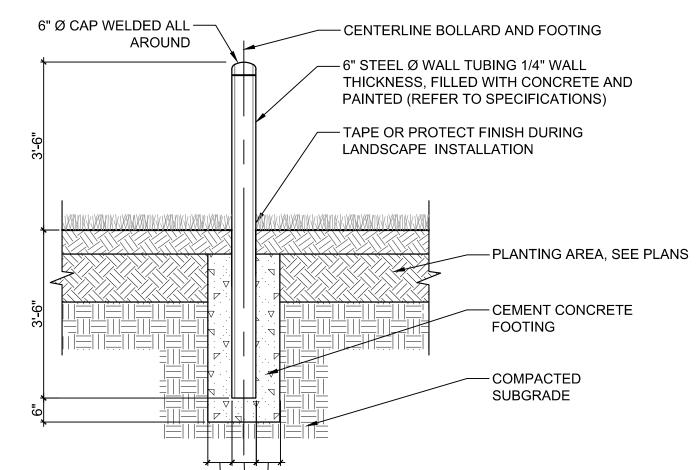


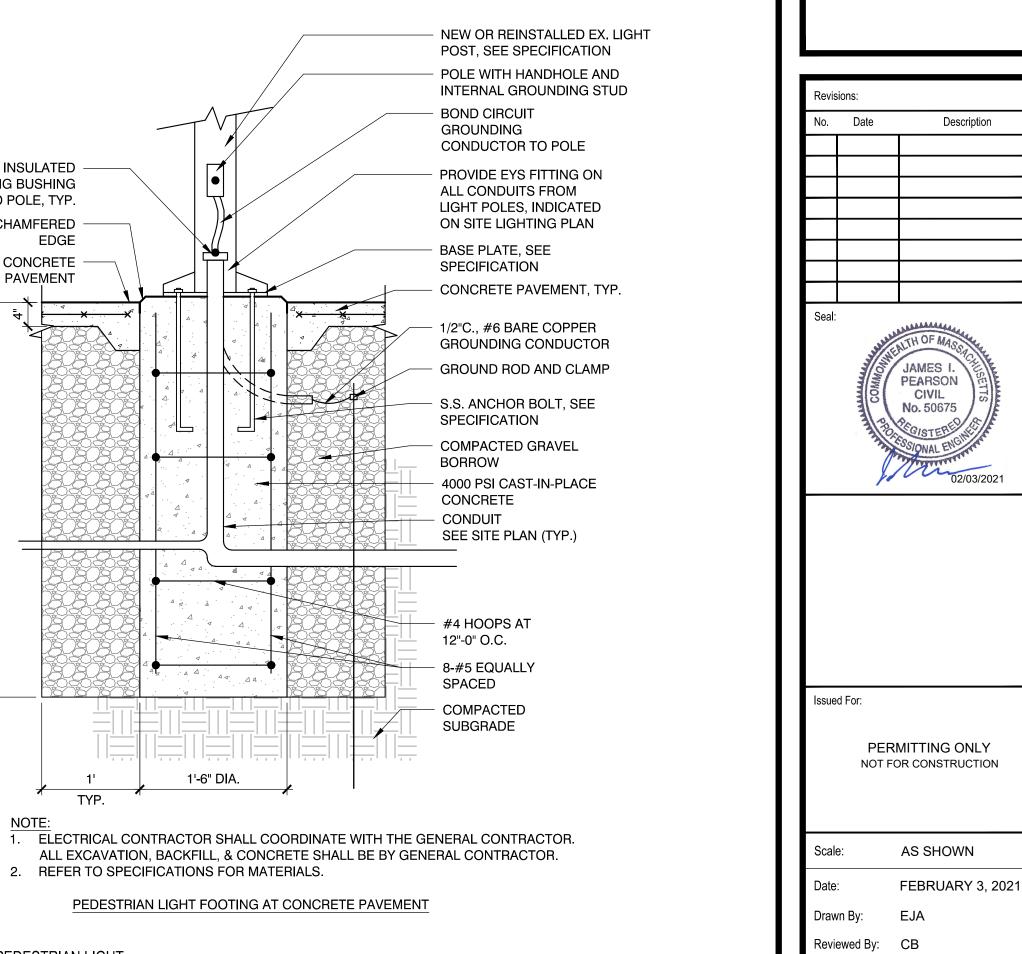


1. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR. ALL EXCAVATION, BACKFILL, & CONCRETE SHALL BE BY GENERAL CONTRACTOR.

PEDESTRIAN LIGHT FOOTING AT CONCRETE PAVEMENT

RESET EX. PEDESTRIAN LIGHT SCALE: N.T.S.





**DETAILS III** Sheet Number:

Approved By: JIP

W&S File No.:

W&S Project No.: ENG20-0865

BOXFORD PUBLIC SCHOOLS SITE

RENOVATION PROJECT

HARRY LEE COLE SCHOOL 26 MIDDLETON ROAD

BOXFORD, MA 01921

Weston & Sampson Engineers, Inc. 55 Walkers Brook Drive, Suite 100

Reading, MA 01867

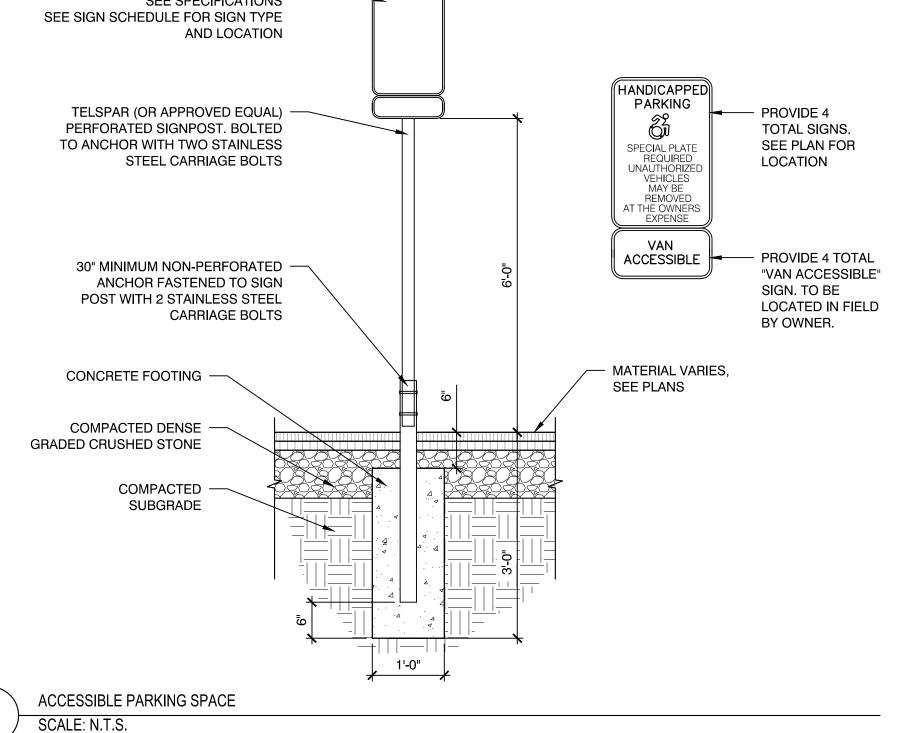
www.westonandsampson.com

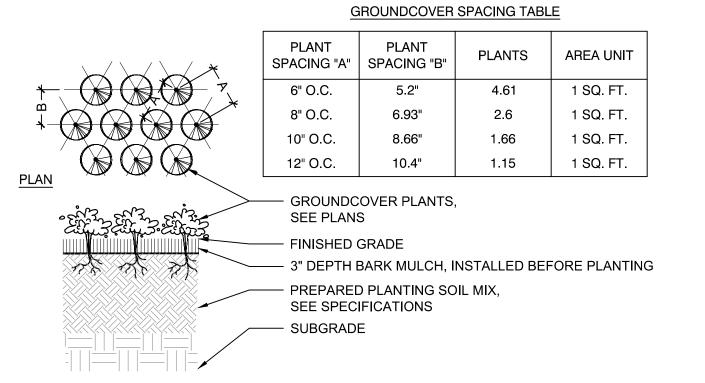
978.532.1900

Consultants:

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**EXISTING GATE** BITUMINOUS CONCRETE PAVEMENT, SEE DETAIL FINISHED GRADE -FOOTING DIAMETER TO BE 4 X DIA. OF GALVANIZED STEEL SWING SWIVEL GATE WHEEL POST (12" DIA. MIN.) HUB 3 7/8 INCHES WHEEL 5 7/8 DIA. x 1.5 INCHES WIDE (MODEL SGW-P AS MANUFACTURED BY HOVER FENCE CO. OR AN APPROVED EQUIVALENT) NORMAL WEIGHT CONCRETE AIR ENTRAINED WITH NOT LESS THAN 4,500 PSI COMPRESSIVE STRENGTH (28 DAYS), 3 INCH SLUMP, AND 1-INCH MAXIMUM SIZE AGGREGATE. RESET EX. METAL SWING GATE SCALE: N.T.S.





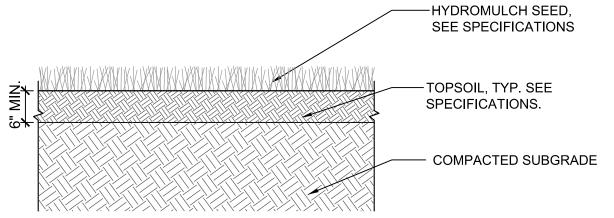
**SECTION** 

1. ALL GROUNDCOVERS TO BE PLANTED IN TRIANGULAR PATTERN. SEE PLANTING

SCHEDULE FOR SPACING. 2. JUTE EROSION CONTROL MAT TO BE USED ON ALL SLOPES 3:1 OR GREATER. SEE SPECIFICATIONS

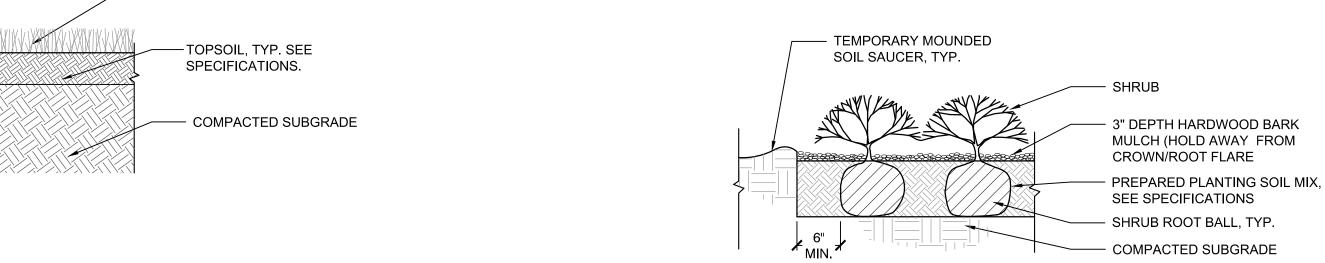
GROUNDCOVER PLANTING SCALE: N.T.S.

TIED IN FIGURE EIGHT



LOAM AND SEED

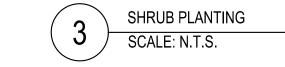
SCALE: N.T.S.



NOTE:

1. ALL MULCH MUST BE DARK IN COLOR. PROVIDE SAMPLE PRIOR TO

ARREST ARREQUED BY OWNER'S REPRESENTATIVE. INSTALLATION TO BE APPROVED BY OWNER'S REPRESENTATIVE.



BOXFORD PUBLIC SCHOOLS SITE RENOVATION PROJECT HARRY LEE COLE SCHOOL 26 MIDDLETON ROAD

BOXFORD, MA 01921

Weston & Sampson Engineers, Inc. 55 Walkers Brook Drive, Suite 100 Reading, MA 01867 978.532.1900 800.SAMPSON www.westonandsampson.com

Description No. Date



**DETAILS IV** 

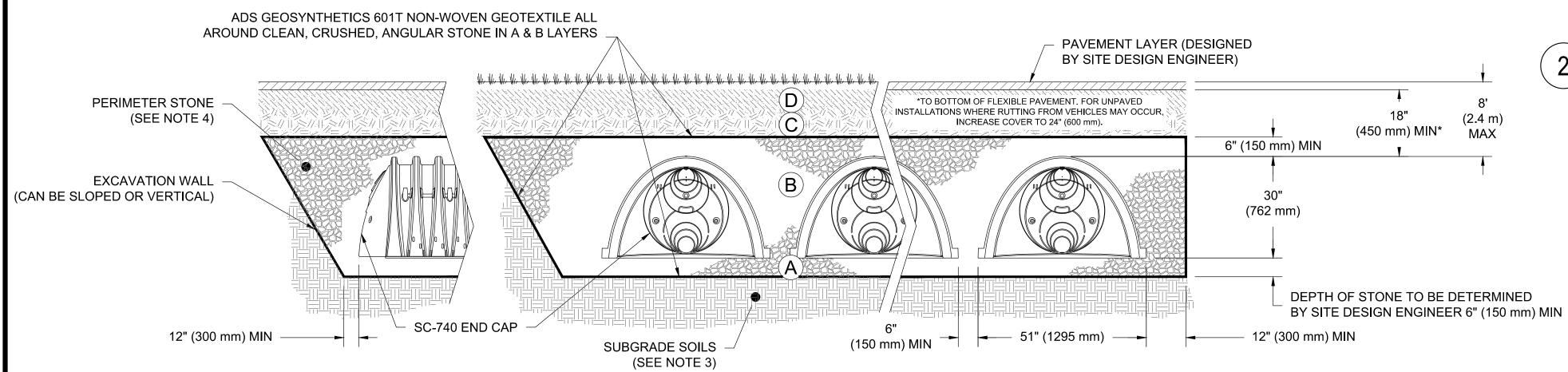
#### ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL	COMPACTION / DENSITY
1717 (1 21 (1) (2 2 3 3) (1 1 3 1 4	BESSIAII TISIA	CLASSIFICATIONS	REQUIREMENT
FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35%	AASHTO M145 <sup>1</sup> A-1, A-2-4, A-3	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX
FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE	FINES OR PROCESSED AGGREGATE.	OR	LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR
CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
<b>FOUNDATION STONE</b> : FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. <sup>2,3</sup>
	FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.  INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.  EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.  FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.  INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.  GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE.  MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.  EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.  FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE  CLEAN, CRUSHED, ANGULAR STONE	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.  ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBBRADE REQUIREMENTS.  ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.  AASHTO M145¹ A-1, A-2-4, A-3 FINES OR PROCESSED AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE.  OR MOST PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.  EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.  FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE  CLEAN, CRUSHED, ANGULAR STONE 3 357, 4, 467, 5, 56, 57  AASHTO M43¹ 3, 357, 4, 467, 5, 56, 57  AASHTO M43¹ 3, 357, 4, 467, 5, 56, 57  AASHTO M43¹ 3, 357, 4, 467, 5, 56, 57  AASHTO M43¹ 3, 357, 4, 467, 5, 56, 57  AASHTO M43¹ 3, 357, 4, 467, 5, 56, 57

#### PLEASE NOTE

- 1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- 2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.

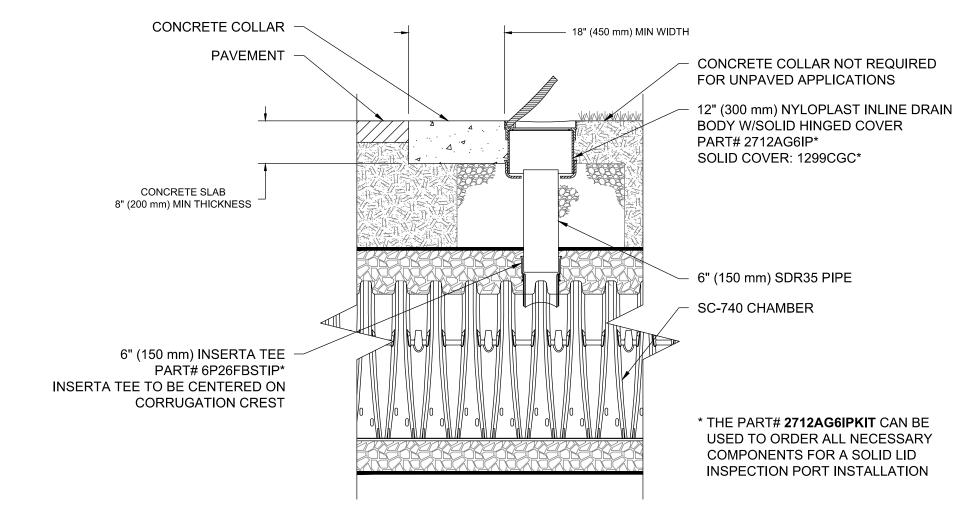
  3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION
- 3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- 4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



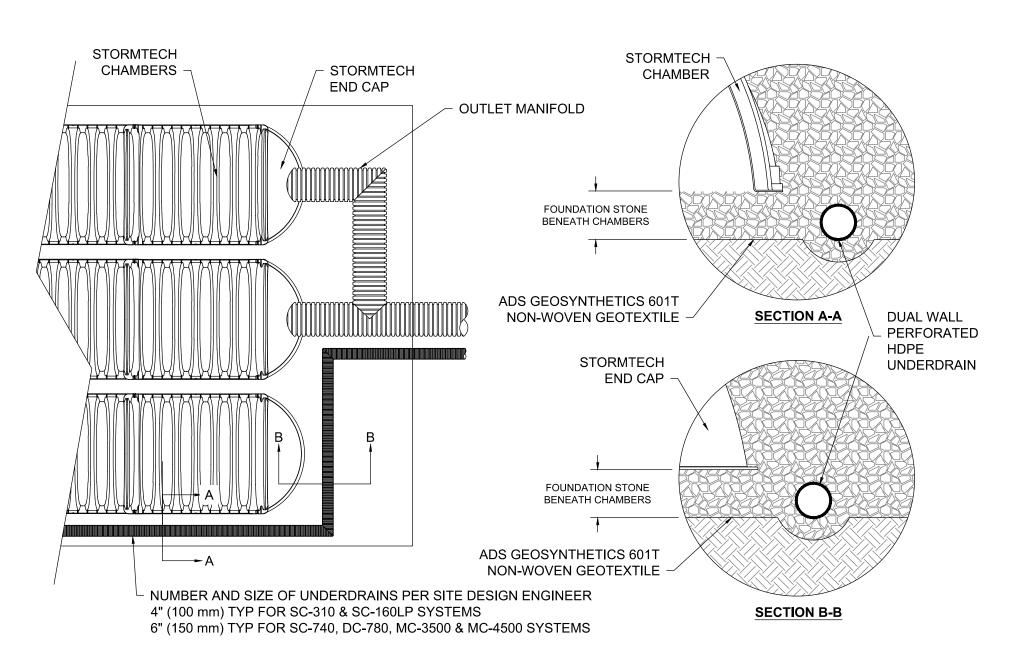
#### **NOTES:**

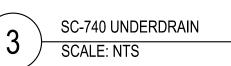
- 1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- 2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- 3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- 5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

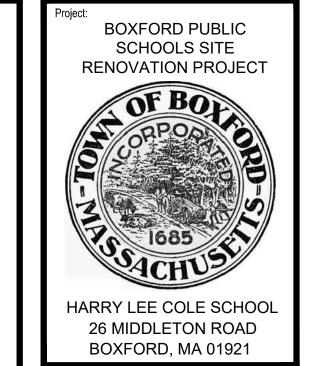




STORMWATER CHAMBER INSPECTION PORT SCALE: NTS





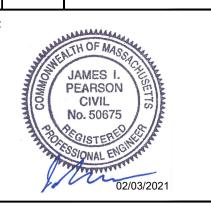


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800.SAMPSON

Consultants:

Revis	sions:	
No.	Date	Description



Scale:	AS SHOWN
Date:	FEBRUARY 3, 2021
Drawn By:	EJA
Reviewed By:	СВ
Approved By:	JIP

W&S Project No.: ENG20-0865 W&S File No.:

DETAILS V

Sheet Number

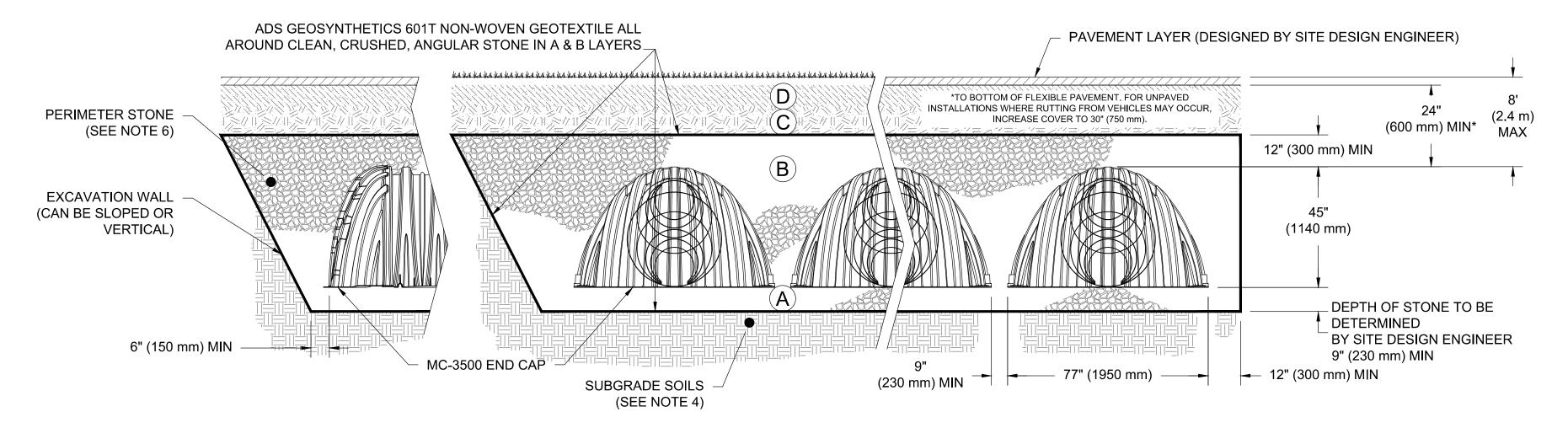
#### ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

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

#### PLEASE NOTE:

- 1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- 2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.

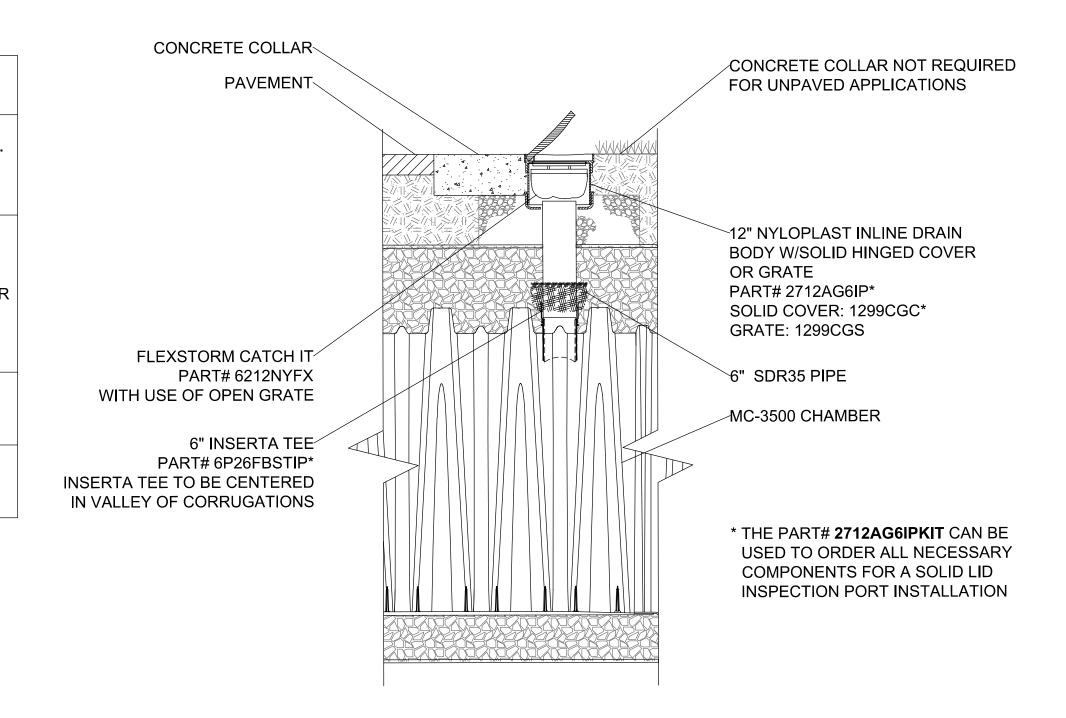
  3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

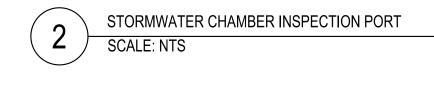


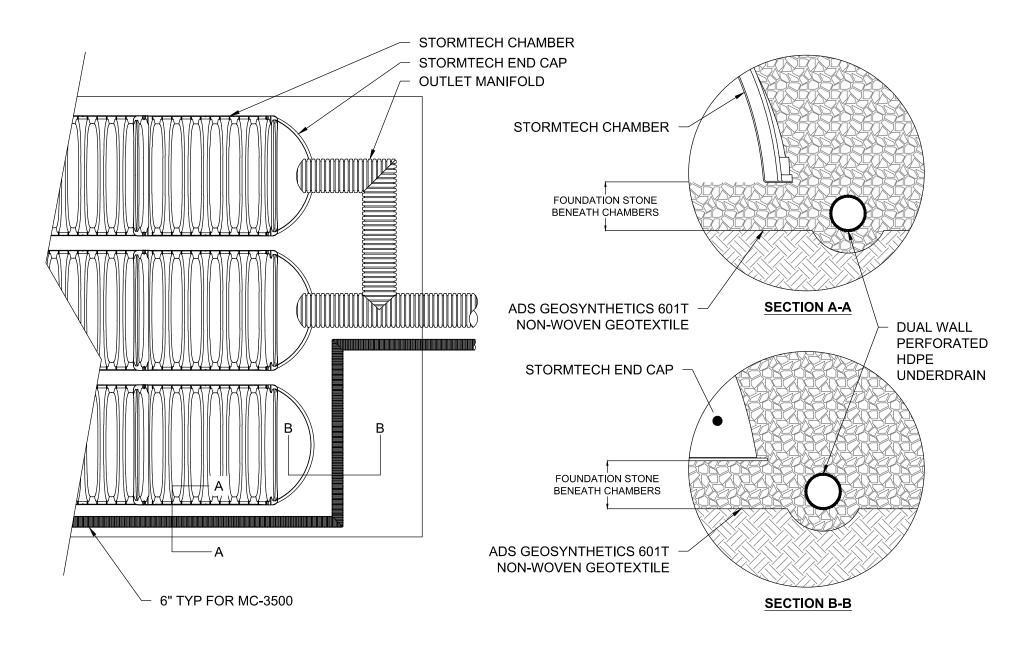
#### **NOTES:**

- 1. MC-3500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- 2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- 3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
- 4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- 5. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
- 6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.

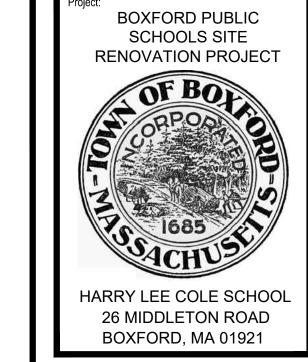












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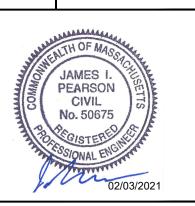
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Revisions:

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Date: FEBRUARY 3, 2021

Drawn By: EJA

Reviewed By: CB

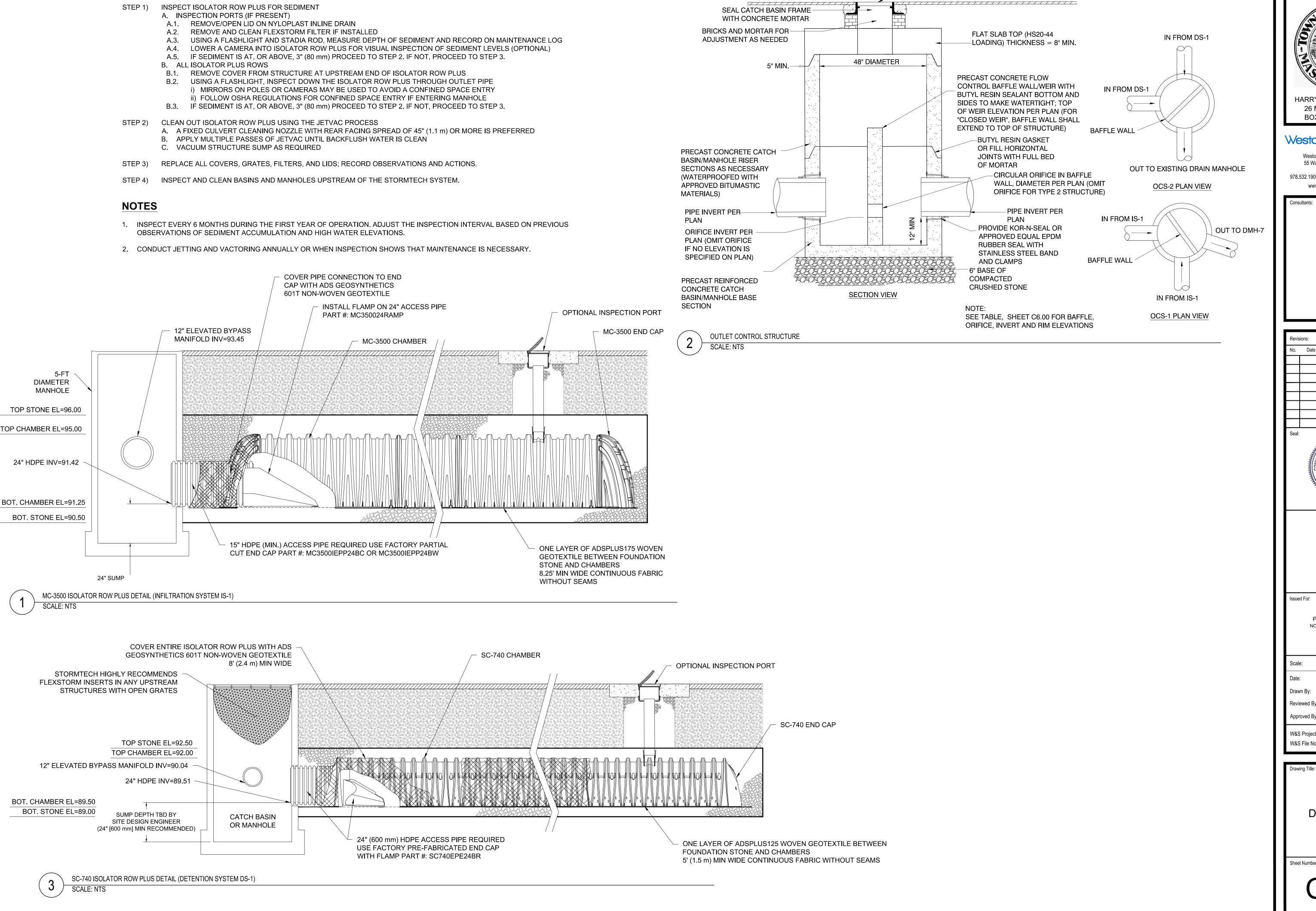
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DETAILS VI

Sheet Number:



**INSPECTION & MAINTENANCE** 

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MANHOLE FRAME & COVER

**PAVEMENT** 

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AS SHOWN FEBRUARY 3, 2021

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W&S Project No.: ENG20-0865 W&S File No.:

**DETAILS VII**