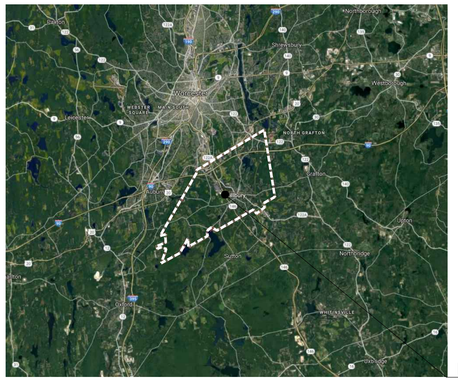
# TOWN OF MILLBURY

## IMPROVEMENTS TO MILLBURY DOWNTOWN

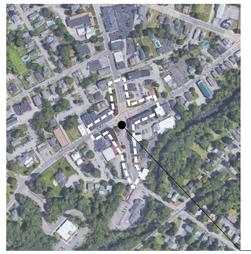
MILLBURY DOWNTOWN
INTERSECTION OF ELM STREET
AND N. MAIN / S. MAIN STREETS

**95% CONSTRUCTION DOCUMENTS**
**NOT FOR CONSTRUCTION**

### Locus Map



PROJECT AREA



PROJECT SITE

**JULY 2019**

**Prepared By**

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# GENERAL NOTES

1. PROPERTY LINES, SITE SURVEY AND TOPOGRAPHICAL INFORMATION BASED FROM A COMPILATION OF THE TOWN OF MILLBURY GIS, RECORD DRAWINGS AND ON THE GROUND SURVEYS PERFORMED BY WESTON & SAMPSON PE, LS, LA, PC. IN JULY 2018 AND OCTOBER 2018.

2. CONTOURS AND ELEVATIONS SHOWN ON NAVD88 VERTICAL DATUM BASED ON GPS OBSERVATIONS.

3. NORTH ORIENTATION IS TRUE NORTH BASED ON GPS OBSERVATIONS TAKEN AT THE TIME OF THE FIELD SURVEY. MAPPING PREPARED ON NADV83 STATE PLANE COORDINATE SYSTEM-MASSACHUSETTS MAINLAND ZONE.

4. FOR DETAILED NOTES REGARDING TEST PITS AND BORINGS, REFER TO MEMO TITLED "GEOTECH LETTER REPORT" IN THE SPECIFICATIONS.

5. REFER TO GENERAL SYMBOLS FOR SURVEY LEGEND. 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.

6. 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 OWNER'S REPRESENTATIVE PRIOR TO EXCAVATION WORK.

7. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE OWNER'S REPRESENTATIVE FOR RESOLUTION OF THE CONFLICT.

8. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY OWNER AT NO ADDITIONAL COST TO THE TOWN OF MILLBURY.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL DRAWINGS AND SPECIFICATIONS TO DETERMINE THE EXTENT OF EXCAVATION AND DEMOLITION REQUIRED TO RECEIVE SITE IMPROVEMENTS.

10. 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 THE OWNER.

11. ANY ALTERATIONS TO THESE DRAWINGS MADE IN THE FIELD DURING CONSTRUCTION SHALL BE RECORDED BY THE GENERAL CONTRACTOR ON "AS BUILT" DRAWINGS.

12. 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 OWNER.

13. ALL WORK SHOWN ON THE PLANS AS BOLD SHALL REPRESENT PROPOSED WORK. THE TERM "PROPOSED (PROP)" INDICATES WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET (R&R)" OR "REMOVE AND SALVAGE (R&S).

14. ALL KNOWN EXISTING STATE, COUNTY AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND ARE INDICATED ON THE PLANS.

15. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT HIS EMPLOYEES, AS WELL AS PUBLIC USERS FROM INJURY DURING THE ENTIRE CONSTRUCTION PERIOD USING ALL NECESSARY SAFEGUARDS, INCLUDING BUT NOT LIMITED TO, THE ERECTION OF TEMPORARY WALKS, STRUCTURES, PROTECTIVE BARRIERS, COVERING, OR FENCES AS NEEDED.

16. THE CONTRACTOR SHALL SUPPLY THE OWNER WITH THE NAME OF THE OSHA "COMPETENT PERSON" PRIOR TO CONSTRUCTION.

17. FILLING OF EXCAVATED AREAS SHALL NOT TAKE PLACE WITHOUT THE PRESENCE OR PERMISSION OF THE OWNER.

18. EXISTING TREES TO REMAIN SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES. NO STOCKPILING OF MATERIAL, EQUIPMENT OR VEHICULAR TRAFFIC SHALL BE ALLOWED WITHIN THE DRIP LINE OF TREES TO REMAIN. NO GUYS SHALL BE ATTACHED TO ANY TREE TO REMAIN. WHEN NECESSARY OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE, THE CONTRACTOR SHALL ERECT TEMPORARY BARRIERS FOR THE PROTECTION OF EXISTING TREES DURING CONSTRUCTION.

19. TREES AND SHRUBS WITHIN THE LIMITS OF WORK SHALL BE REMOVED ONLY UPON THE APPROVAL OF THE OWNER'S REPRESENTATIVE OR AS NOTED ON THE PLANS.

20. NO FILLING SHALL OCCUR AROUND EXISTING TREES TO REMAIN WITHOUT THE APPROVAL OF THE OWNER OR OWNER REPRESENTATIVE.

21. THE CONTRACTOR SHALL REMOVE ALL SURFACE VEGETATION PRIOR TO GRADING THE SITE. TREES AND STUMPS SHALL BE REMOVED AND DISPOSED COMPLETE BY CONTRACTOR. TEMPORARY EROSION CONTROL MEASURES SHOWN ON THE DRAWINGS (INCLUDING SILT FENCE, STRAW WATTLES, OR SILT SOCKS) SHALL BE INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THESE TEMPORARY EROSION CONTROL MEASURES THROUGHOUT THE PROJECT WHICH COST SHALL BE INCIDENTAL TO THE PROJECT.

22. ALL UNSUITABLE UNCONTAMINATED EXCESS SOIL FROM CONSTRUCTION ACTIVITIES SHALL BE DISPOSED OF BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE TOWN. REMOVAL ACTIVITIES SHALL BE ACCORDANCE WITH STATE AND LOCAL REGULATIONS AT NO ADDITIONAL COST TO THE TOWN. SUITABLE SOIL EXCAVATION AS PART OF THE PROJECT MUST MEET ONE OR MORE OF THE MATERIAL REQUIREMENTS SPECIFIED IN XXX-EARTHWORK. IF THE CONTRACTOR PROPOSES TO USE THE EXISTING FILL ON SITE BELOW PAVEMENT AREAS, HE MUST DEMONSTRATE THAT THE FILL MEETS THE REQUIREMENTS PER THE SPECIFICATIONS. ALL EXCAVATED FILL MATERIAL WHICH DOES NOT MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL BE REMOVED AND DISPOSED OF OFF-SITE AT NO ADDITIONAL COST.

23. CONTRACTOR IS RESPONSIBLE FOR STAKING CONSTRUCTION BASELINES IN FIELD WITH A MA. REGISTERED PROFESSIONAL LAND SURVEYOR. NO CONSTRUCTION WILL BE PERFORMED WITHOUT THE PROPOSED BASELINES AND LAYOUTS APPROVED BY THE ENGINEER.

24. NO FILL SHALL CONTAIN HAZARDOUS MATERIALS.

25. CONTRACTOR SHALL PROVIDE TEMPORARY CONSTRUCTION FENCING AROUND PERIMETER OF WORK AREA (LIMIT OF WORK). FENCE SHALL NOT IMPEDE TRAVEL WAYS.

26. ANY QUANTITIES SHOWN ON PLANS ARE FOR COMPARATIVE BIDDING PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE PROJECT SITE TO VERIFY ALL QUANTITIES AND CONDITIONS PRIOR TO SUBMITTING BID.

27. 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, 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.

28. CONTRACTOR'S STAGING AREA MUST BE WITHIN THE CONTRACT LIMIT LINE AND IN AREAS APPROVED BY OWNER. ANY OTHER AREAS THAT THE CONTRACTOR MAY WISH TO USE FOR STAGING MUST BE COORDINATED WITH THE OWNER.

29. THE CONTRACTOR SHALL KEEP ALL STREETS, PARKING LOTS 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.

30. CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER.

31. THE CONTRACTOR SHALL PROVIDE SAFE ACCESS TO OPEN BUSINESSES AT ALL TIMES. ANY WORK THAT RESTRICTS ACCESS TO BUSINESSES SHALL E COORDINATED WITH THE OWNER.

32. THE LIMIT OF WORK SHALL BE DELINEATED IN THE FIELD PRIOR TO THE START OF SITE CLEARING OR CONSTRUCTION AND AGREED UPON WITH THE OWNER'S REPRESENTATIVE.

33. DEEP SUMP CATCH BASINS AND STORMWATER BASINS SHALL BE CLEANED FOLLOWING CONSTRUCTION AND SHALL FOLLOW THE OPERATION AND MAINTENANCE PLAN THEREAFTER.

34. HAULING OF EARTH MATERIALS TO AND FROM THE SITE SHALL BE RESTRICTED TO THE HOURS OF 7 AM TO 5 PM.

35. ANY BOULDERS 3 CY OR SMALLER SHALL BE CONSIDERED UNDOCUMENTED FILL AND SHALL BE DISPOSED OF AT NO ADDITIONAL COST TO THE TOWN.

36. WORK ON WEEKENDS SHALL ONLY BE CONDUCTED IF PRIOR WRITTEN PERMISSION IS PROVIDED BY THE TOWN.

37. NO TRUCKS LEFT IDLING ON TOWN STREETS DURING CONSTRUCTION. CONSTRUCTION TRAFFIC AT NO TIME SHALL IMPEDE FLOW OF RESIDENT TRAFFIC.

# 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 AND DEMOLITION REQUIREMENTS 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. IF THE OWNER RETAINS ANY MATERIAL THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OWNER TO HAVE THOSE MATERIALS REMOVED OFF SITE TO A DESIGNATED MUNICIPAL PROPERTY AT NO ADDITIONAL COST. ALL GEOTECHNICALLY OR UNSUITABLE UNCONTAMINATED EXCESS SOIL FROM CONSTRUCTION ACTIVITIES SHALL BE DISPOSED OF BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE TOWN. REMOVAL ACTIVITIES SHALL BE ACCORDANCE WITH STATE AND LOCAL REGULATIONS AT NO ADDITIONAL COST TO THE TOWN.

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 AND/OR OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.

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 BITUMINOUS CONCRETE PAVEMENT BASE COURSE AND/ OR SUBBASE GRAVEL MATERIALS IF IT MEETS THE REQUIREMENTS OF THE SPECIFICATIONS FOR DENSE GRADED CRUSHED STONE.

7. STRIP & STOCKPILE EXISTING TOPSOIL FOR LATER REUSE AS REQUIRED. STOCKPILE SHALL HAVE APPROPRIATE EROSION AND SEDIMENT CONTROLS. THE CONTRACTOR SHALL CONFIRM THAT THE TOPSOIL IS SUITABLE FOR REUSE AND IT MEETS THE REQUIREMENTS OF THE SPECIFICATIONS FOR TOPSOIL LOAM BORROW.

8. CLEAR AND GRUB VEGETATION SHALL INCLUDE REMOVAL OF ALL GRASS/LAWN, SHRUBS, AND UNDERBRUSH, REMOVAL OF ROOTS, ROUGH GRADING.

9. INSTALLATION OF LOAM (IF APPLICABLE), FINE GRADING, SEEDING AND TURF OR VEGETATION ESTABLISHMENT BY THE CONTRACTOR.

10. THE CONTRACTOR SHALL PROTECT EXISTING TREES TO REMAIN. CONTRACTOR SHALL INSTALL TREE PROTECTION BARRIERS AFTER CLEARING TURF AND UNDERBRUSH BY HAND AND TAKE DUE CARE TO PREVENT INJURY TO TREES DURING CLEARING OPERATIONS.

11. THE STORAGE OF MATERIALS AND EQUIPMENT WILL BE PERMITTED AT LOCATIONS DESIGNATED BY OWNER OR OWNER'S REPRESENTATIVE. PROTECTION OF STORED MATERIALS AND EQUIPMENT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

12. REFER TO SHEET E1.00 FOR ALL ELECTRICAL DEMOLITION REFERENCES NOT NOTED IN SHEETS L2.00-L2.07. IF ANY NOTES ARE CONFLICTING, E1.00 NOTES WILL TAKE PRECEDENCE.

# EROSION AND SEDIMENT CONTROL NOTES

1. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE PUT INTO PLACE PRIOR TO BEGINNING ANY CONSTRUCTION OR DEMOLITION. REFER TO PLANS FOR APPROXIMATE LOCATION OF EROSION AND SEDIMENT CONTROL. REFER TO SPECS 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 AND THE TOWN OF MILLBURY WETLAND ORDINANCE REGULATIONS FOR SEDIMENT AND EROSION CONTROL.

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. ALL CATCH BASINS AND DRAIN GRATES WITHIN THE LIMIT OF WORK SHALL BE PROTECTED WITH SILT SACKS DURING THE ENTIRE DURATION OF CONSTRUCTION.

6. EROSION CONTROL BARRIERS TO BE INSTALLED AT THE TOE OF SLOPES. SEE GRADING & DRAINAGE PLANS, NOTES, DETAILS AND SPECIFICATIONS.

7. THE CONTRACTOR SHALL PROVIDE DUST CONTROL FOR CONSTRUCTION OPERATIONS AS APPROVED BY THE OWNER'S REPRESENTATIVE AND MASSACHUSETTS D.E.P. REQUIREMENTS.

8. ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ON TO PUBLIC/PRIVATE ROADS.

9. ALL MATERIAL HAULING VEHICLES SHALL BE COMPLETELY COVERED PRIOR TO LEAVING THE SITE.

10. CONTRACTOR SHALL BE RESPONSIBLE FOR WHEEL CLEANING OF ALL CONSTRUCTION VEHICLES PRIOR TO EXITING THE SITE. CONTRACTOR SHALL ENSURE THAT MATERIAL HAULING VEHICLES REMAIN ON PAVED SURFACES AS MUCH AS POSSIBLE

# LAYOUT NOTES

1. COORDINATE ALL LAYOUT ACTIVITIES WITH THE SCOPE OF WORK CALLED FOR BY DEMOLITION, 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. ALL WORK SHALL BE PERFORMED BY CONTRACTOR UNLESS SPECIFICALLY INDICATED THAT THE WORK WILL BE PERFORMED "BY OWNER".

3. THE LAYOUT OF SITE AMENITIES AND FENCES MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

4. 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.

5. 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.

6. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD MEASUREMENTS OF ALL PROPOSED FENCES, GATES.

# GRADING & DRAINAGE NOTES

1. ALL WORK RELATING TO INSTALLATION, RENOVATION OR MODIFICATION OF DRAINAGE SERVICES SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS OF THE TOWN OF MILLBURY AND ITS DEPARTMENT OF PUBLIC WORKS.

2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, GRADES AND INVERT ELEVATIONS IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER AND OWNER'S REPRESENTATIVE.

3. ALL NEW WALKWAYS MUST CONFORM TO CURRENT AMERICANS WITH DISABILITIES ACT (ADA) REGULATIONS: WALKWAYS SHALL MAINTAIN A CROSS PITCH OF NOT MORE THAN ONE AND A HALF (1.5%) PERCENT MAXIMUM AND THE RUNNING SLOPE (PARALLEL TO THE DIRECTION OF TRAVEL) OF 4.5% MAXIMUM.

4. MINIMUM SLOPE ON ALL WALKWAYS WILL BE 1:100 OR 1% TO PROVIDE POSITIVE DRAINAGE. ANY DISCREPANCIES NOT ALLOWING THIS TO OCCUR SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE PRIOR TO CONTINUING WORK.

5. 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. REGARDLESS OF WHETHER THEY ARE INDICATED AS ADJ. ON THE PLANS.

6. THE CONTRACTOR SHALL 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.

7. CONTRACTOR SHALL ENSURE ALL AREAS ARE PROPERLY PITCHED TO DRAIN, WITH NO SURFACE WATER PONDING OR PUDDLING.

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 COST TO THE OWNER.

9. WHERE NEW EARTHWORK MEETS EXISTING EARTHWORK, CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY INTO EXISTING, PROVIDING VERTICAL CURVES OR POUNDS 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 UNLESS OTHERWISE NOTED.

12. WHERE NEW IMPROVEMENTS MEET EXISTING CONDITIONS, MEET LINE AND GRADE OF EXISTING ADJACENT PAVEMENTS, TYPICAL.

Project:

TOWN OF MILLBURY, MA

DOWNTOWN REDEVELOPMENT

MILLBURY , MA


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Consultants:

Revisions:

| No. | Date | Description |
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GENERAL NOTES

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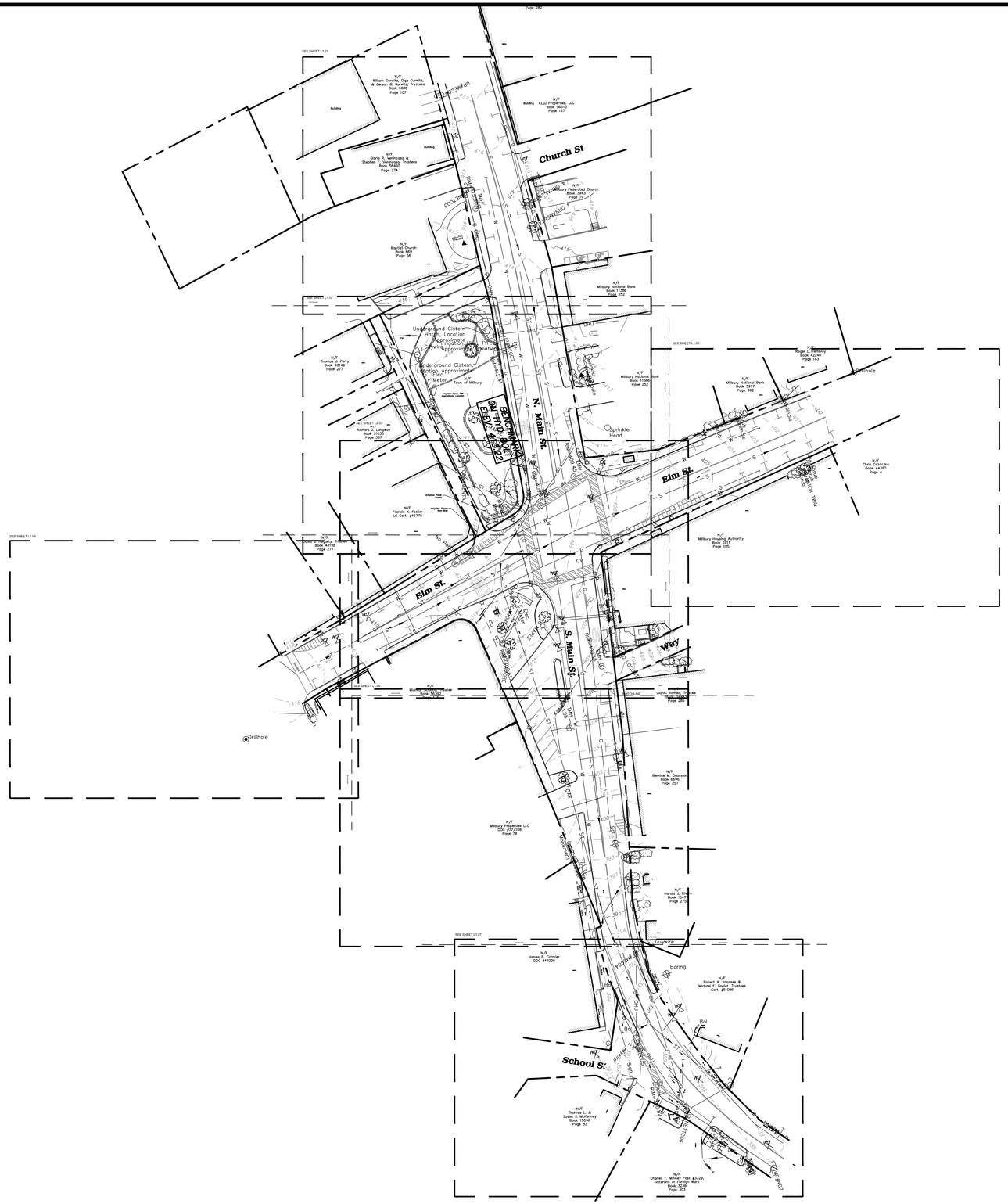


## LEGEND

- EDGE OF WOODS
- DECIDUOUS TREE
- CONIFEROUS TREE
- SHRUB/BUSH
- SIGN
- UTILITY POLE
- LIGHT POLE
- HYDRANT
- WATER SHUTOFF
- GAS VALVE
- WATER VALVE
- MONUMENT
- IRON PIN / IRON ROD
- HANDICAP SPACE
- HAND HOLE
- WLF — PROTECTED RESOURCE AREA
- FLOW DIRECTION
- PROPERTY LINE
- 10 — MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- ST — STORM SEWER LINE
- S — SANITARY SEWER LINE
- W — WATER LINE
- G — GAS LINE
- E — ELECTRIC LINE
- OHU — OVERHEAD UTILITIES
- SANITARY MANHOLE (SMH)
- DRAINAGE MANHOLE (DMH)
- CATCHBASIN (CB)
- METAL POST/BOLLARD (BOL)
- CNO — COULD NOT OPEN
- MAG NAIL — MAGNETIC CONCRETE NAIL
- SPRINKLER HEAD
- IRRIGATION HEAD (APPROXIMATE LOCATION)
- IRRIGATION LINE (APPROXIMATE LOCATION)

## SURVEY NOTES:

1. UNDERGROUND UTILITY LOCATIONS SHOWN HEREON ARE BASED ON UTILITY EVIDENCE VISIBLE AT GROUND SURFACE AND RECORD DRAWINGS AND ARE SUBJECT TO FIELD VERIFICATION BY EXCAVATION. UTILITIES SHOWN DO NOT PURPORT TO CONSTITUTE OR REPRESENT ALL UTILITIES LOCATED UPON OR ADJACENT TO THE SURVEYED PREMISES.
2. SURVEY PERFORMED BY WESTON & SAMPSON PE, LS, LA, PC. IN JULY 2018 AND OCTOBER 2018.
3. CONTOURS AND ELEVATIONS SHOWN ON NAVD88 VERTICAL DATUM BASED ON GPS OBSERVATIONS.
4. NORTH ORIENTATION IS TRUE NORTH BASED ON GPS OBSERVATIONS TAKEN AT THE TIME OF THE FIELD SURVEY. MAPPING PREPARED ON NAD83 STATE PLANE COORDINATE SYSTEM–MASSACHUSETTS MAINLAND ZONE.
5. SOUNDINGS BETWEEN DMH#1, SMH#3, AND DMH#2 CONFIRMED CONNECTIONS. SMH#3(DRY) HAS 8" CLAY PIPES WITH NO VISIBLE 18"RCP. HOWEVER, SOUNDING WITH A HAMMER HEARD AT DMH#1 & DMH#2.

0 50 100 150

SCALE: 1"=50'-0"

Project:

TOWN OF MILLBURY, MA

DOWNTOWN REDEVELOPMENT

MILLBURY , MA

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Revisions:

| No. | Date | Description |
|---|---|---|
| | | |

Seal:

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Scale: AS SHOWN

Date: 10-2018

Drawn By: GM

Reviewed By: MSM

Approved By:

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W&S File No:

Drawing Title:

OVERALL EXISTING CONDITIONS PLAN

Sheet Number:

L1.00

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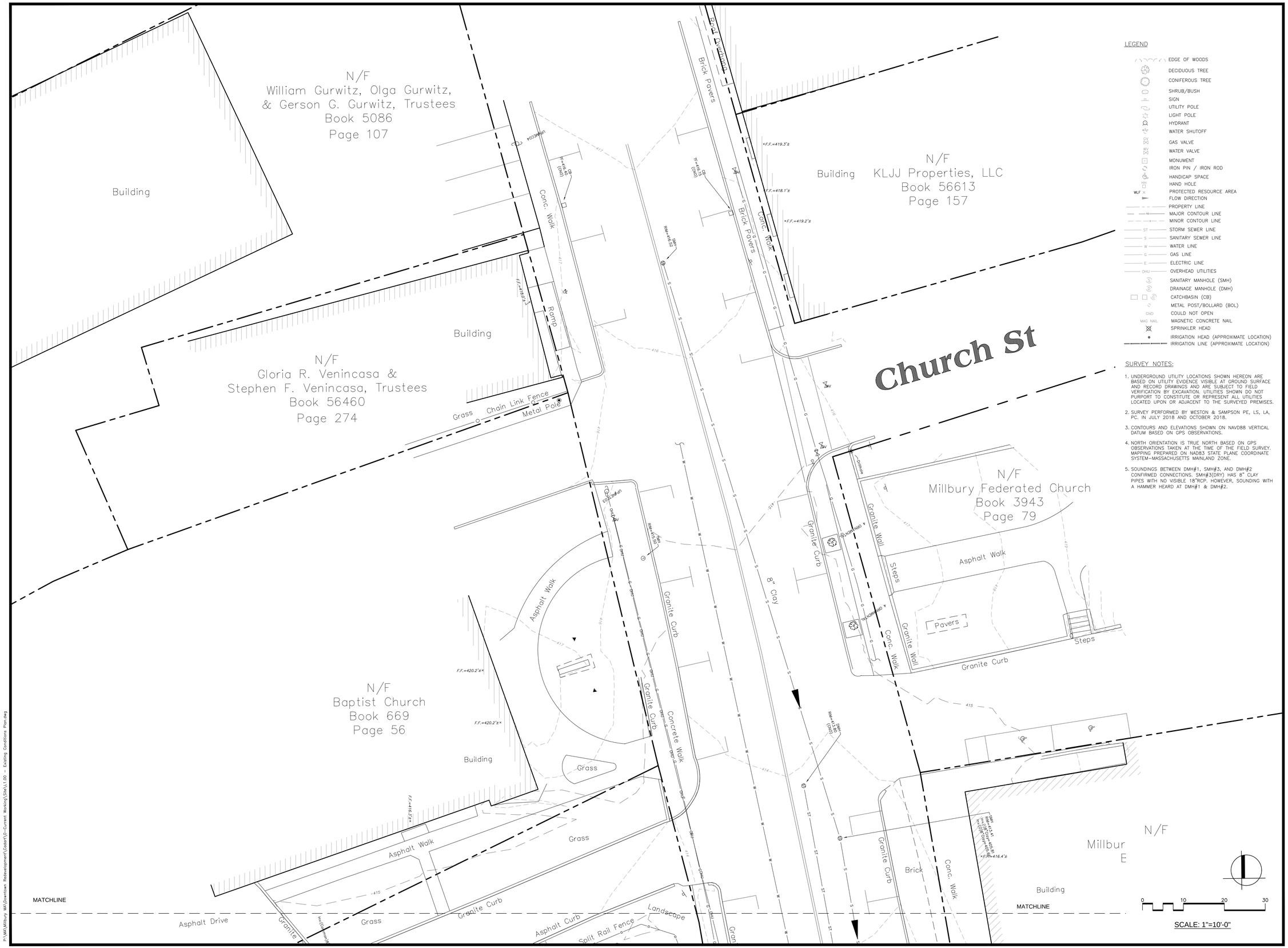


LEGEND

- EDGE OF WOODS
- DECIDUOUS TREE
- CONIFEROUS TREE
- SHRUB/BUSH
- SIGN
- UTILITY POLE
- LIGHT POLE
- HYDRANT
- WATER SHUTOFF
- GAS VALVE
- WATER VALVE
- MONUMENT
- IRON PIN / IRON ROD
- HANDICAP SPACE
- HAND HOLE
- WLF — PROTECTED RESOURCE AREA
- FLOW DIRECTION
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- MAG NAIL — MAGNETIC CONCRETE NAIL
- SPRINKLER HEAD
- IRRIGATION HEAD (APPROXIMATE LOCATION)
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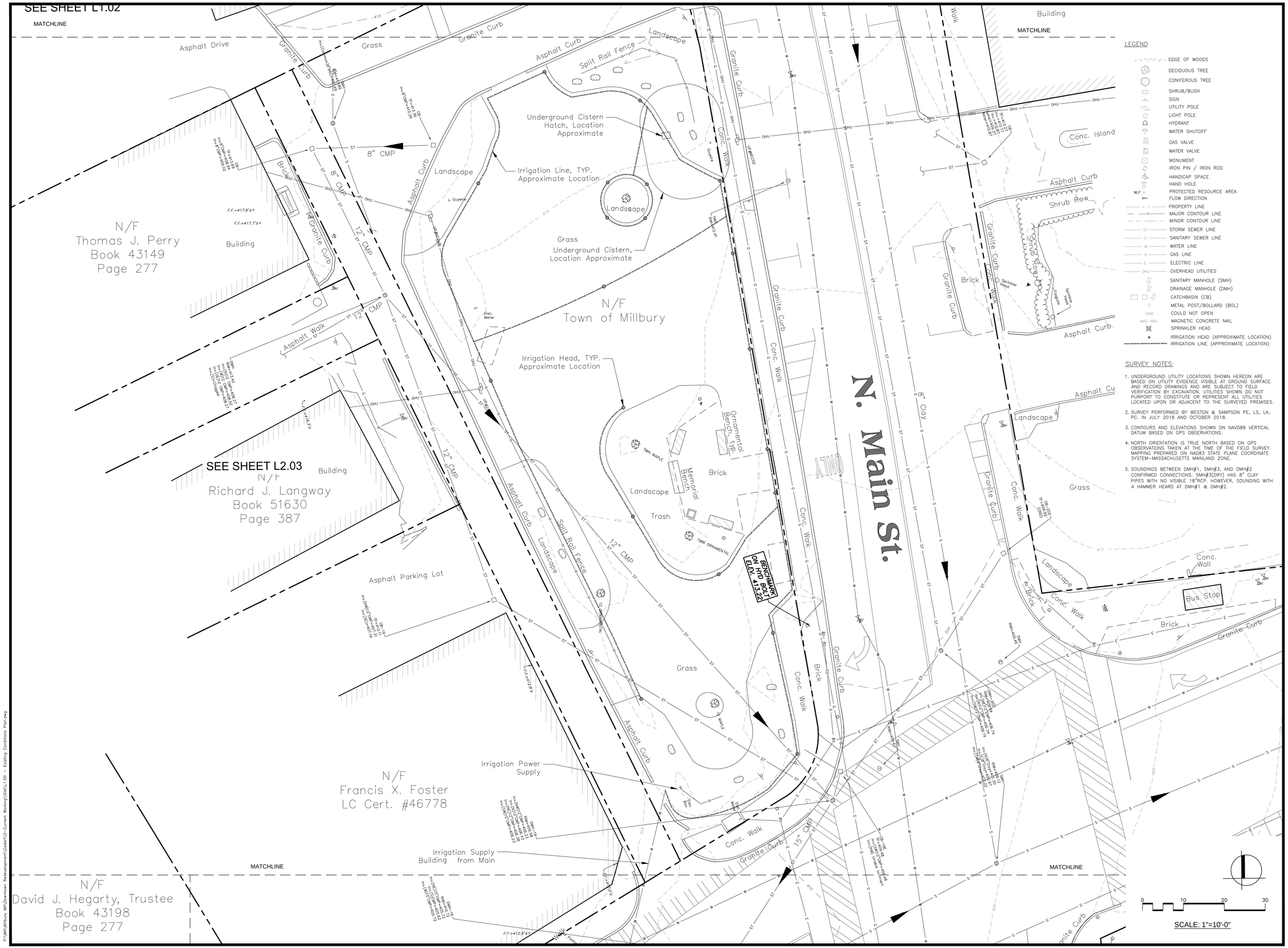


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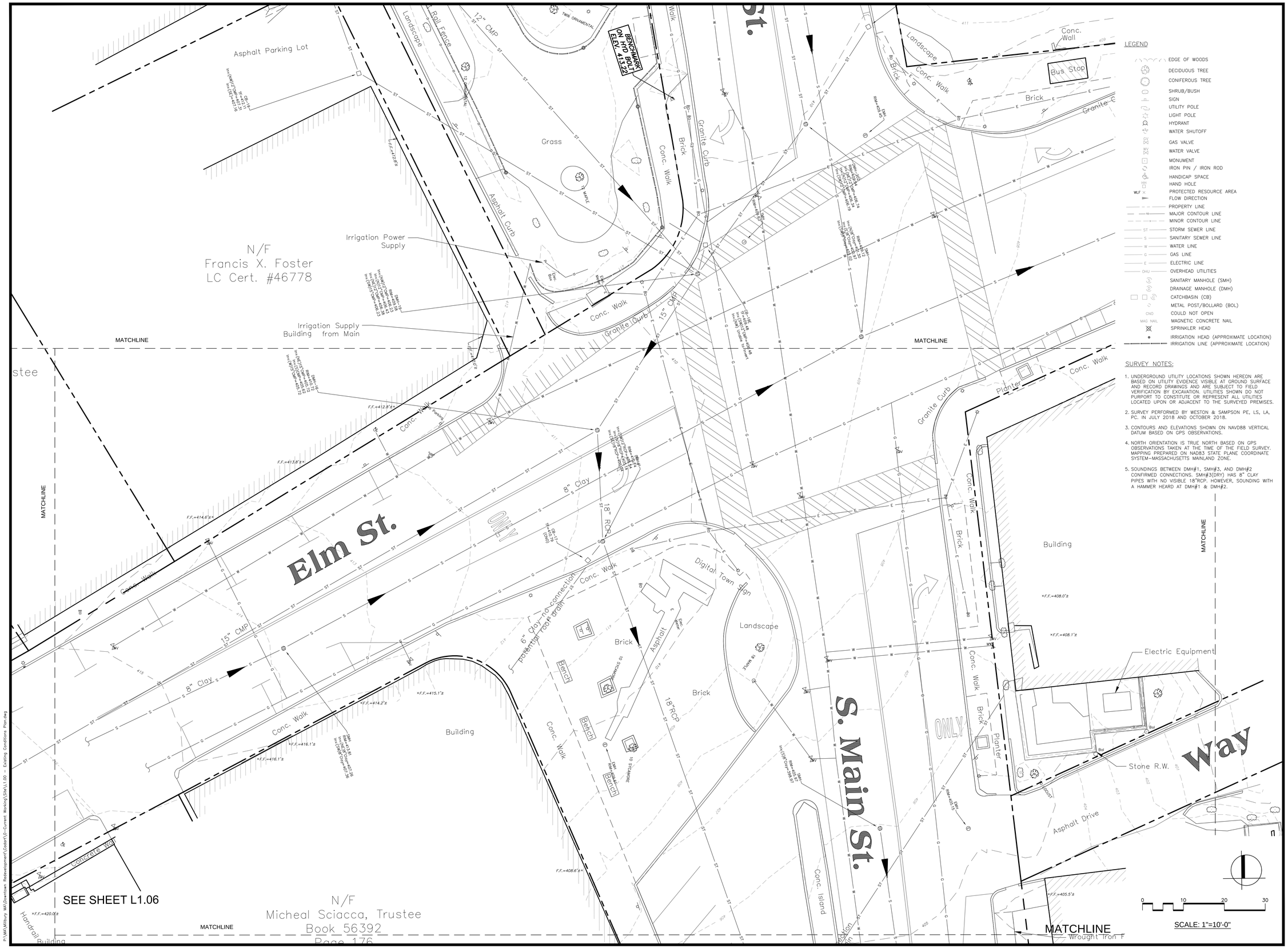


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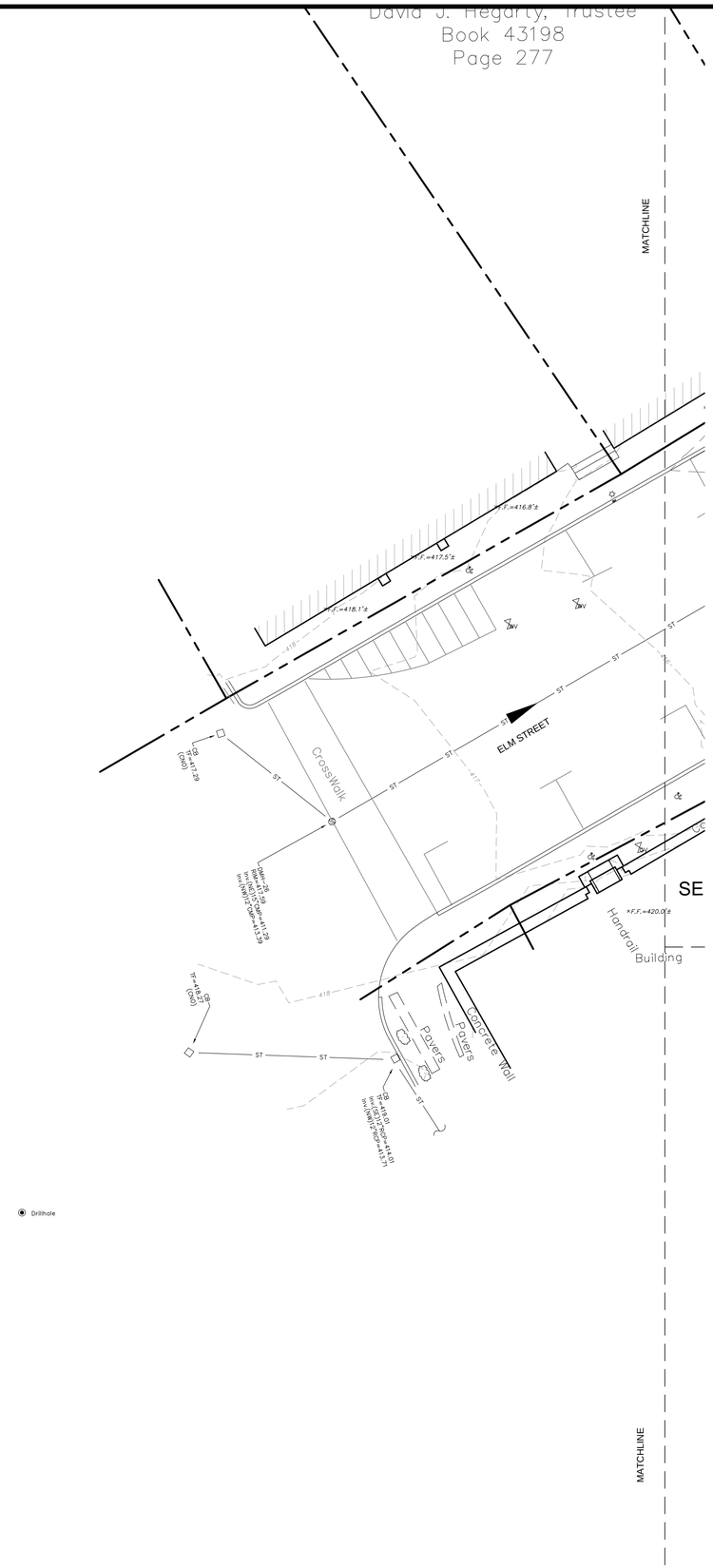


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SCALE: 1"=10'-0"

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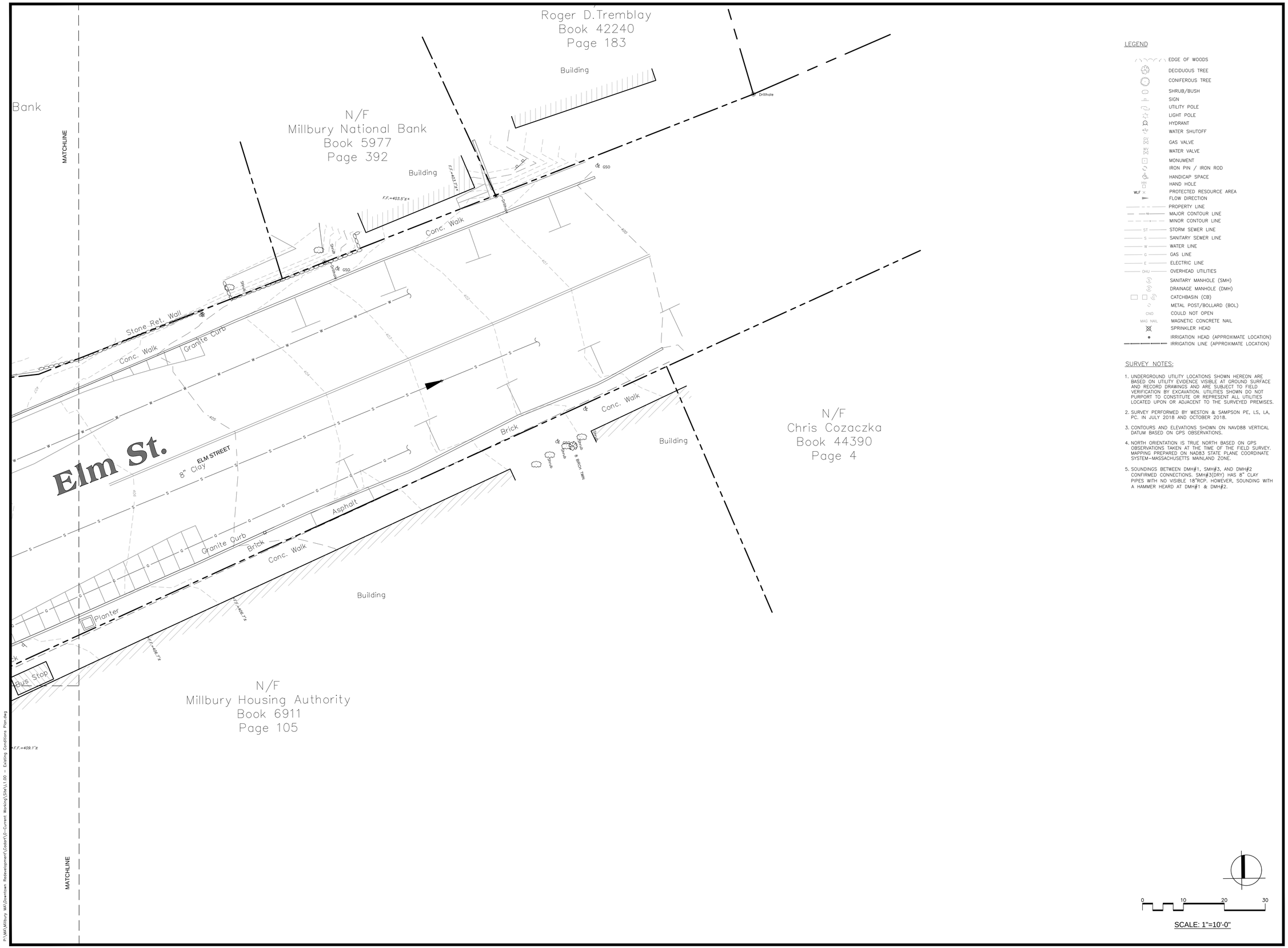


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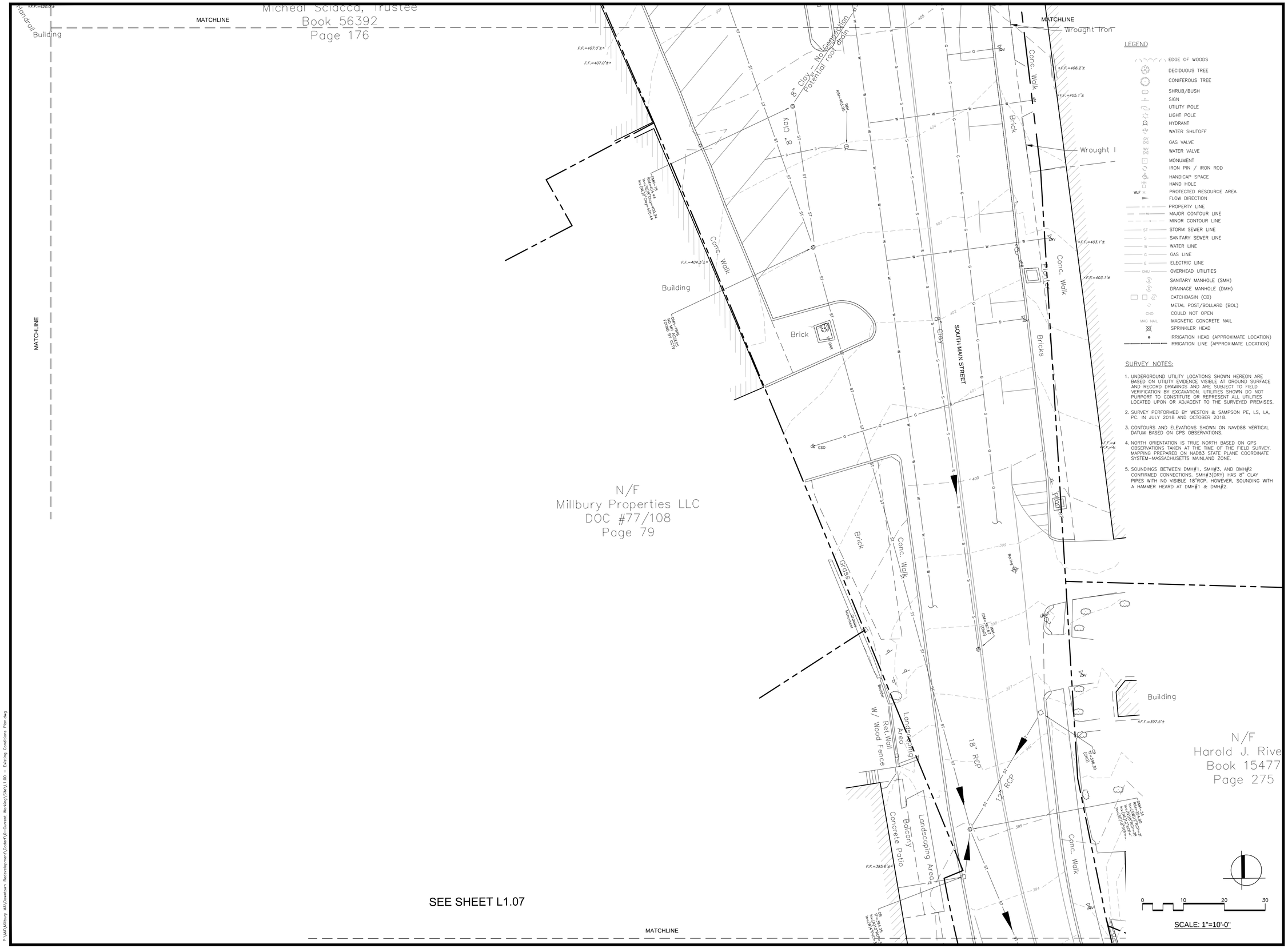


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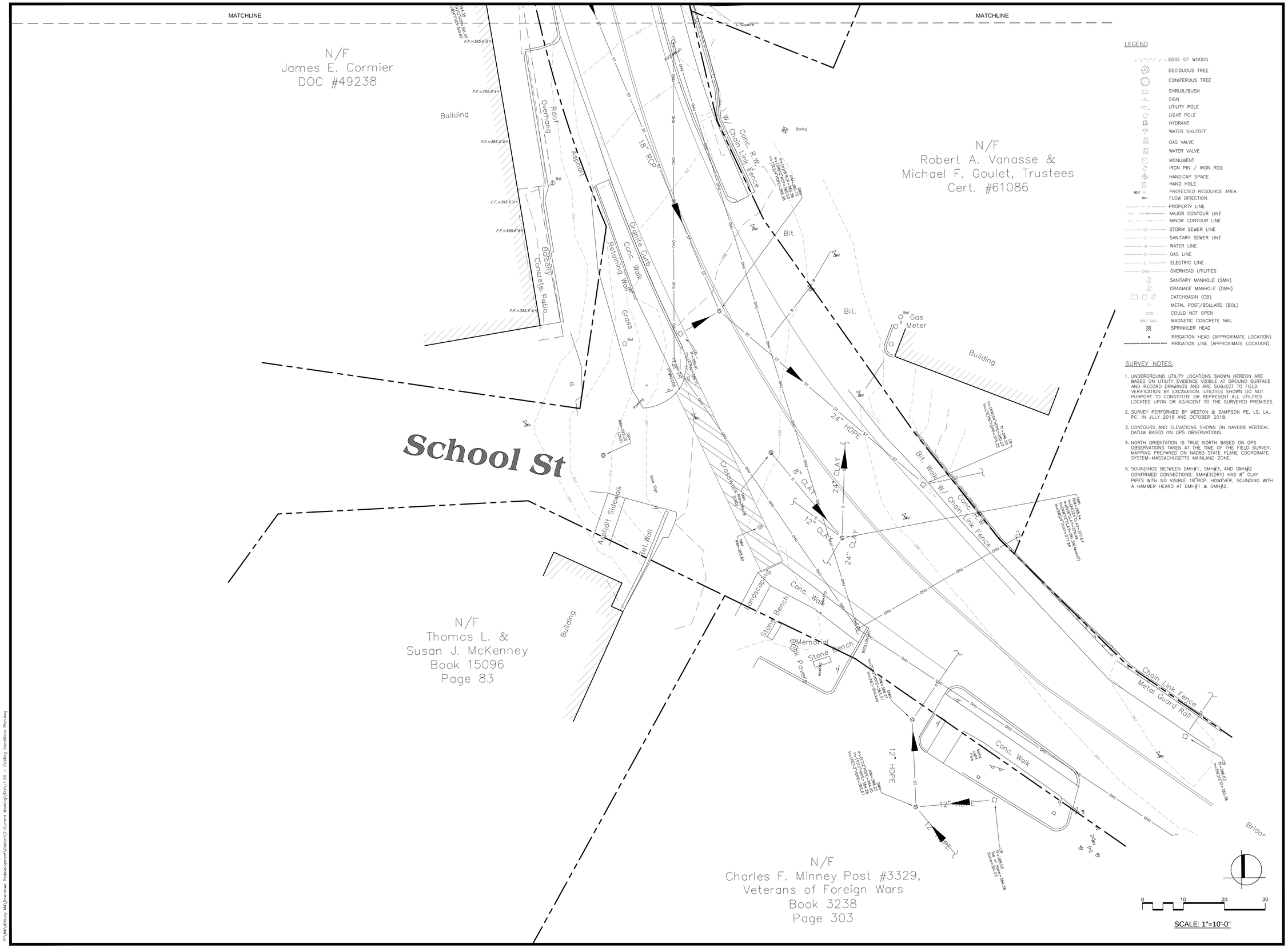


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## LEGEND

- LIMIT OF WORK
- R&R CURB
- SAW CUT
- EROSION AND SEDIMENT CONTROL
- R&D BRICK PAVING, COMPLETE
- R&D CEMENT CONCRETE PAVEMENT, COMPLETE.
- PULVERIZE BITUMINOUS CONCRETE PAVEMENT, PROTECT/ADJ. ALL STRUCTURES TYP.
- R&D PLANTING BEDS
- STRIP & STOCKPILE TOPSOIL
- SITE AMENITIES, TYP.
- TREE PROTECTION, TYP. (4 / L7.00)
- UTILITY PROTECTION, TYP.

| | |
|---|---|
| ADJ. | ADJUST |
| TYP. | TYPICAL |
| EX. | EXISTING |
| R&D | REMOVE AND DISPOSE |
| R&S | REMOVE AND STOCKPILE |
| R&R | REMOVE AND RESET |
| R&R&R | REMOVE, RELOCATE AND RESET |

- INLET SEDIMENT CONTROL (2 / L7.00)

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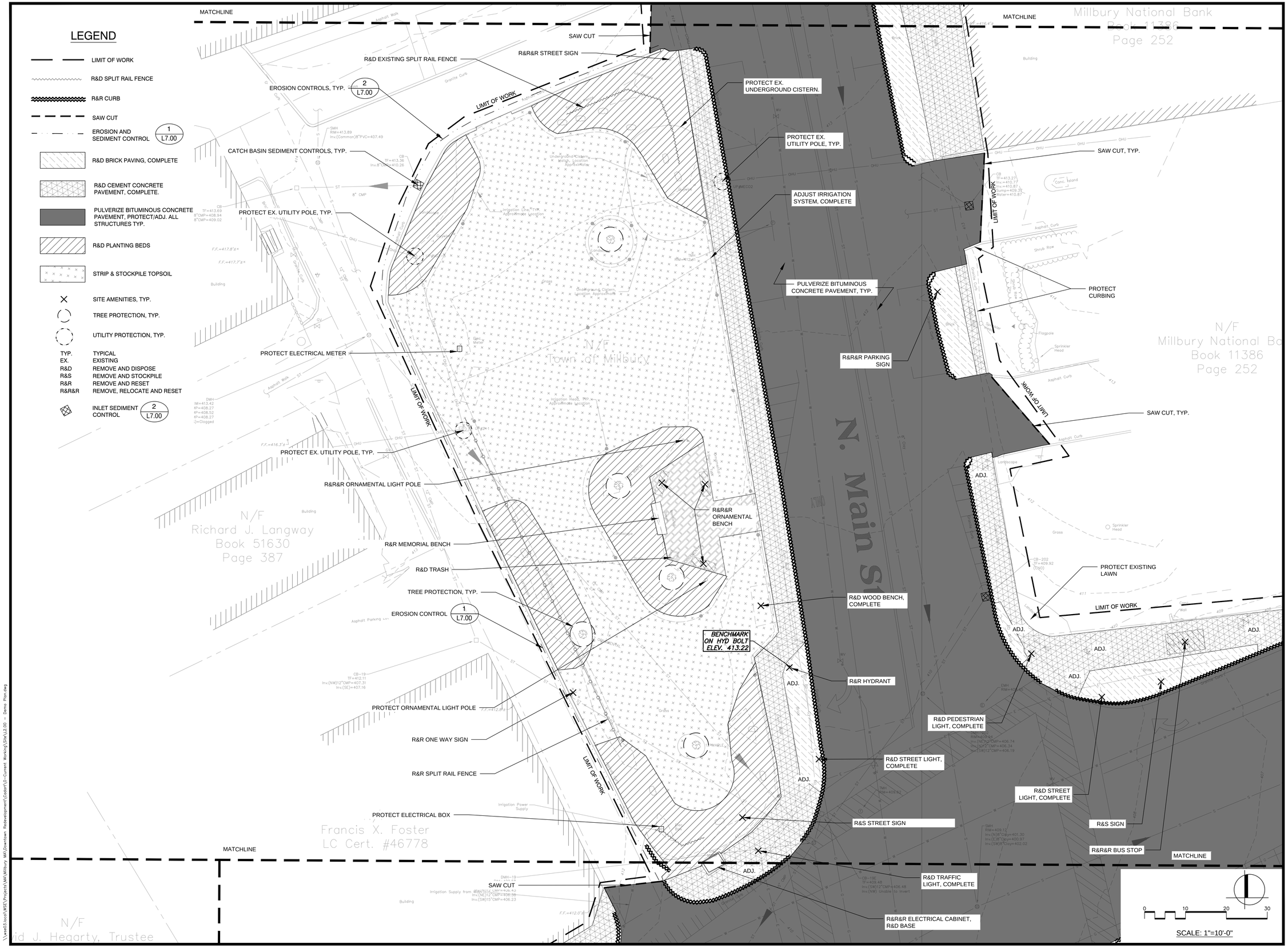


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SITE PREPARATION AND DEMOLITION PLAN

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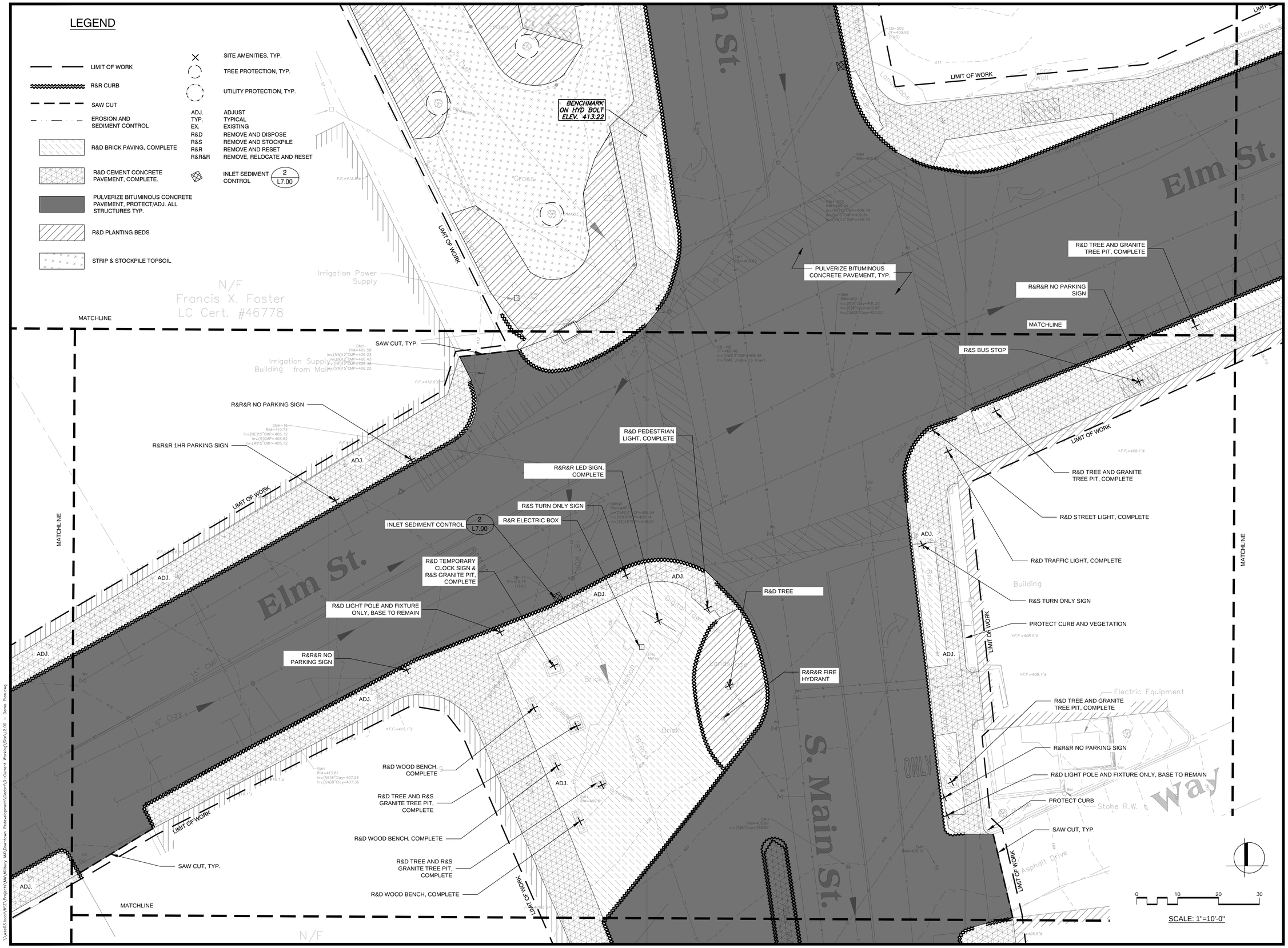
## LEGEND

- LIMIT OF WORK
- R&R CURB
- SAW CUT
- EROSION AND SEDIMENT CONTROL
- R&D BRICK PAVING, COMPLETE
- R&D CEMENT CONCRETE PAVEMENT, COMPLETE.
- PULVERIZE BITUMINOUS CONCRETE PAVEMENT, PROTECT/ADJ. ALL STRUCTURES TYP.
- R&D PLANTING BEDS
- STRIP & STOCKPILE TOPSOIL
- SITE AMENITIES, TYP.
- TREE PROTECTION, TYP.
- UTILITY PROTECTION, TYP.

| | |
|---|---|
| ADJ. | ADJUST |
| TYP. | TYPICAL |
| EX. | EXISTING |
| R&D | REMOVE AND DISPOSE |
| R&S | REMOVE AND STOCKPILE |
| R&R | REMOVE AND RESET |
| R&R&R | REMOVE, RELOCATE AND RESET |

- INLET SEDIMENT CONTROL (2 / L7.00)

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SITE PREPARATION AND DEMOLITION PLAN

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## LEGEND

- LIMIT OF WORK
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- EROSION AND SEDIMENT CONTROL
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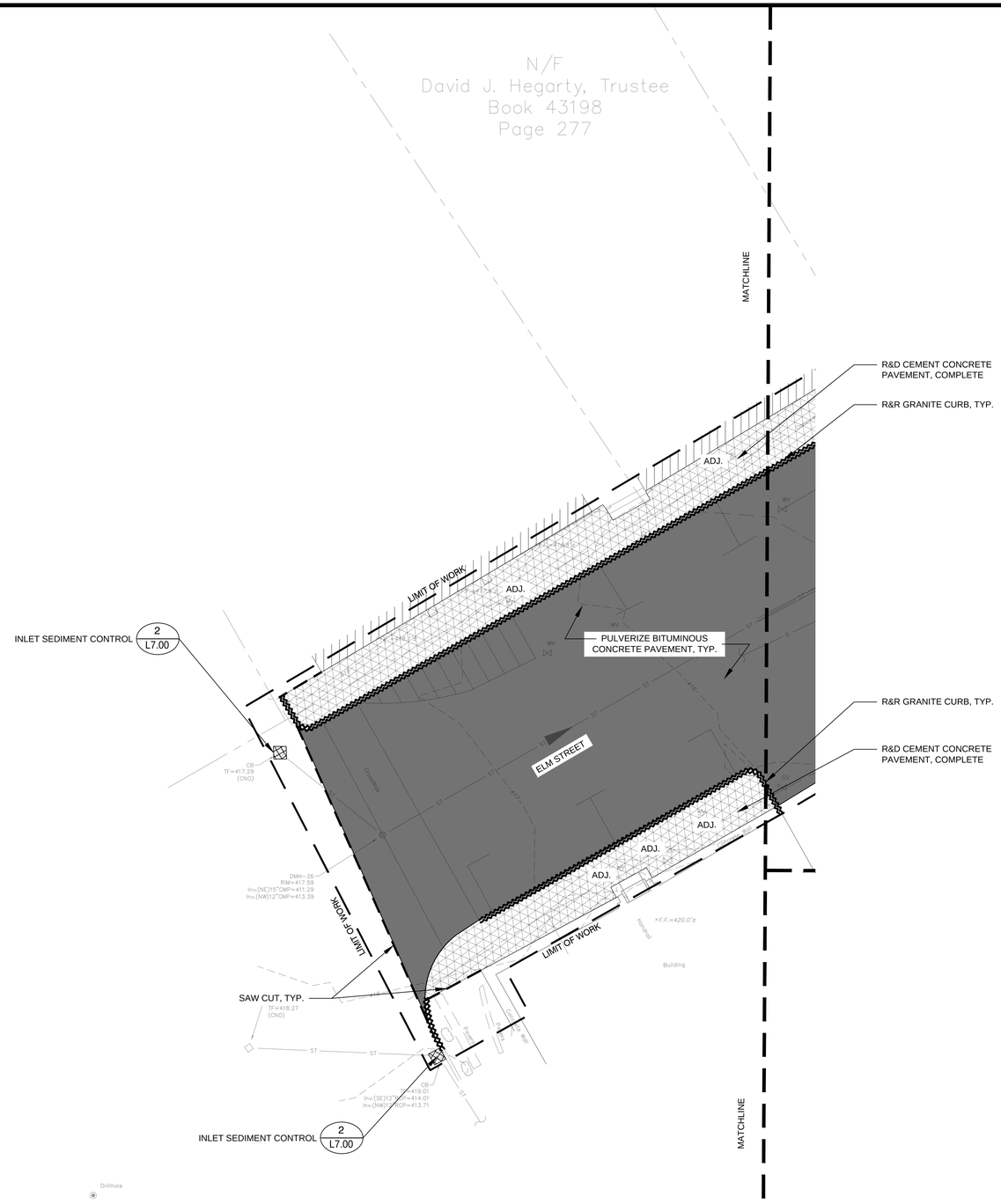
- R&D CEMENT CONCRETE PAVEMENT, COMPLETE.
- PULVERIZE BITUMINOUS CONCRETE PAVEMENT, PROTECT/ADJ. ALL STRUCTURES TYP.
- R&D PLANTING BEDS
- STRIP & STOCKPILE TOPSOIL
- UTILITY PROTECTION, TYP.

| | |
|---|---|
| TYP. | TYPICAL |
| EX. | EXISTING |
| R&D | REMOVE AND DISPOSE |
| R&S | REMOVE AND STOCKPILE |
| R&R | REMOVE AND RESET |
| R&R&R | REMOVE, RELOCATE AND RESET |

- INLET SEDIMENT CONTROL (2 / L7.00)




SCALE: 1"=10'-0"

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## LEGEND

- LIMIT OF WORK
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- SAW CUT
- EROSION AND SEDIMENT CONTROL
- R&D BRICK PAVING, COMPLETE
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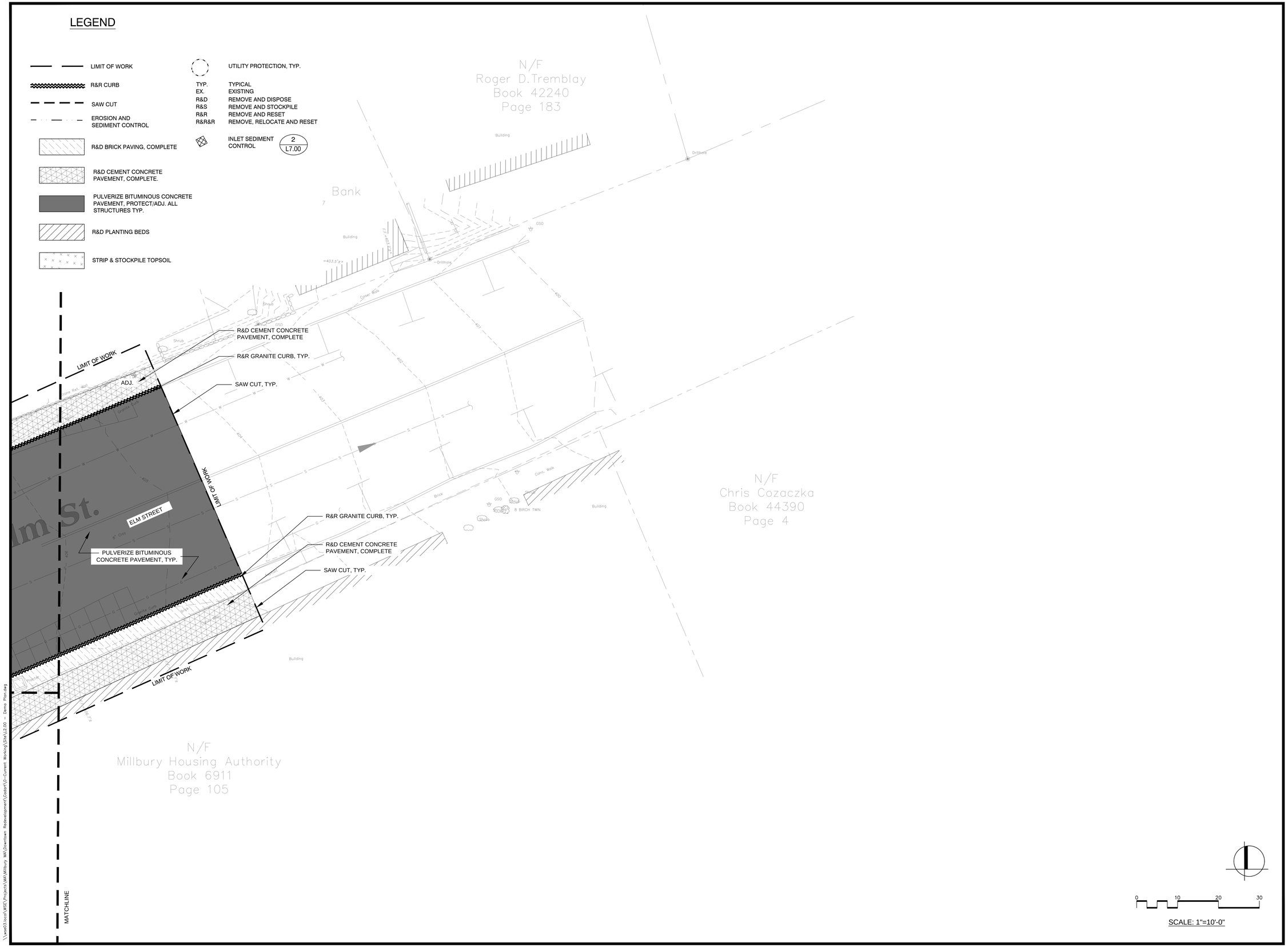
- PULVERIZE BITUMINOUS CONCRETE PAVEMENT, PROTECT/ADJ. ALL STRUCTURES TYP.
- R&D PLANTING BEDS
- STRIP & STOCKPILE TOPSOIL
- UTILITY PROTECTION, TYP.

| | |
|---|---|
| TYP. | TYPICAL |
| EX. | EXISTING |
| R&D | REMOVE AND DISPOSE |
| R&S | REMOVE AND STOCKPILE |
| R&R | REMOVE AND RESET |
| R&R&R | REMOVE, RELOCATE AND RESET |

- INLET SEDIMENT CONTROL (2 / L7.00)




SCALE: 1"=10'-0"

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- LIMIT OF WORK
- R&R CURB
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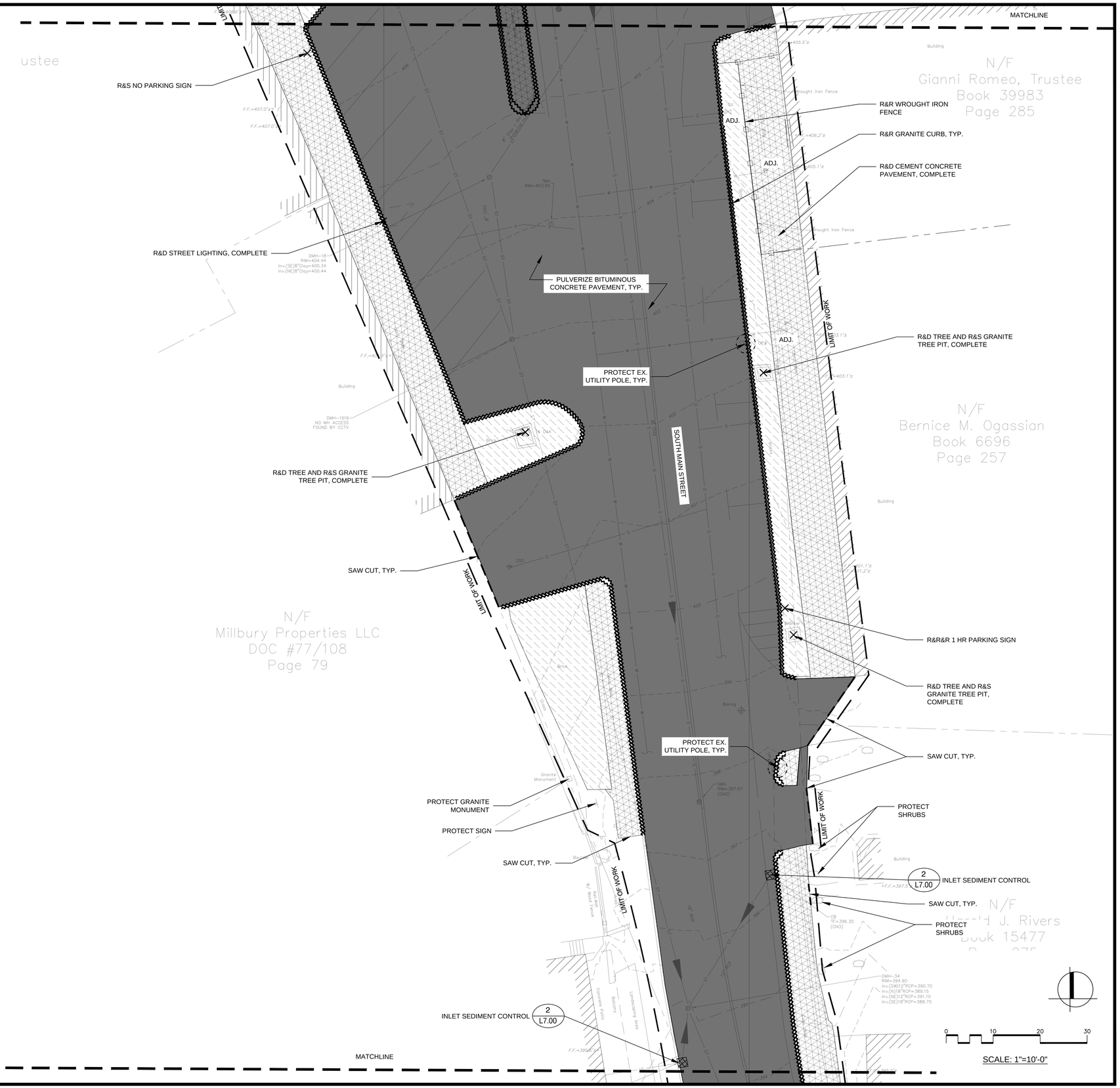
- R&D PLANTING BEDS
- STRIP & STOCKPILE TOPSOIL
- SITE AMENITIES, TYP.
- TREE PROTECTION, TYP.
- UTILITY PROTECTION, TYP.
- TYP. TYPICAL
- EX. EXISTING
- R&D REMOVE AND DISPOSE
- R&S REMOVE AND STOCKPILE
- R&R REMOVE AND RESET
- INLET SEDIMENT CONTROL (2 / L7.00)

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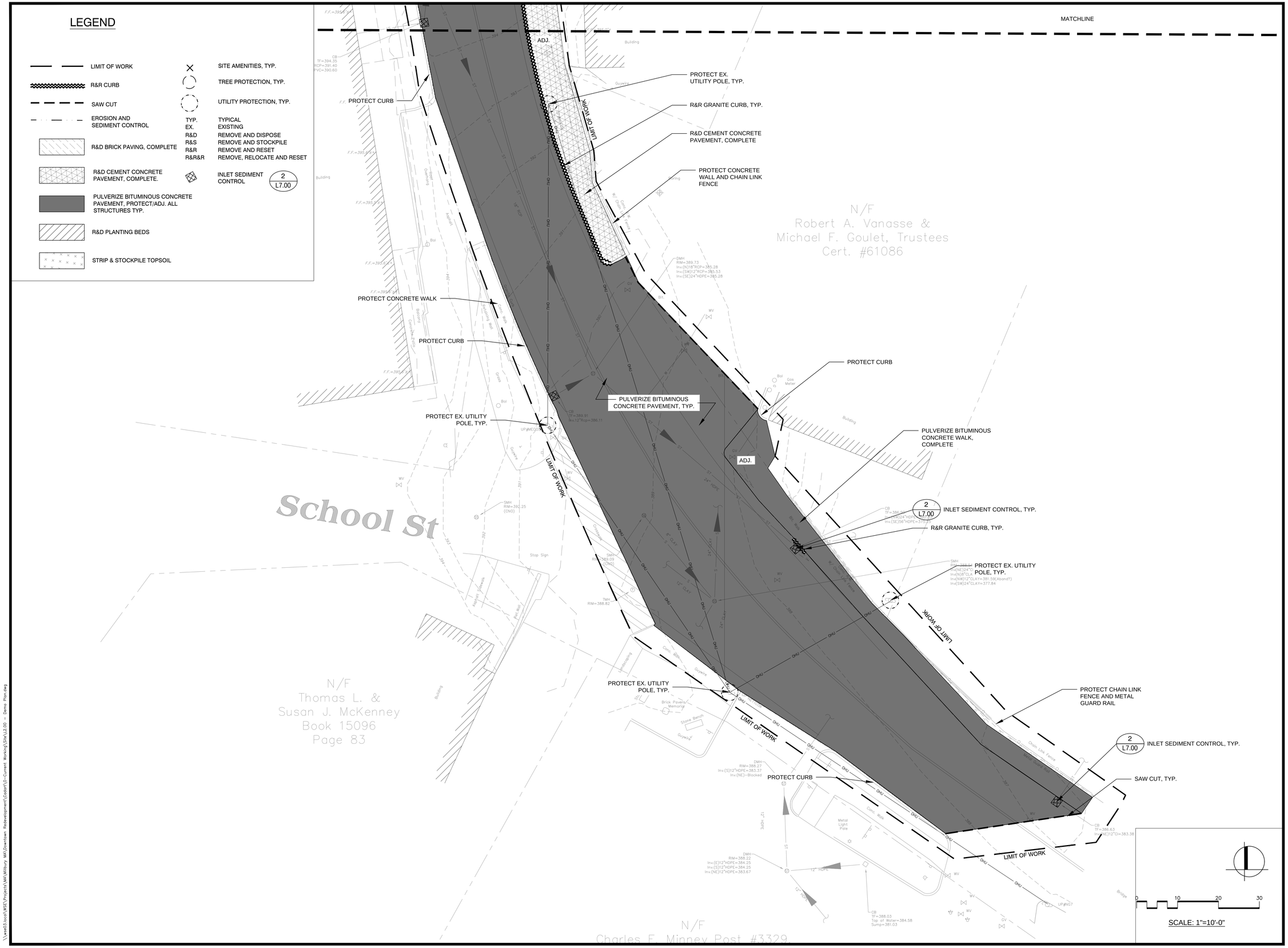


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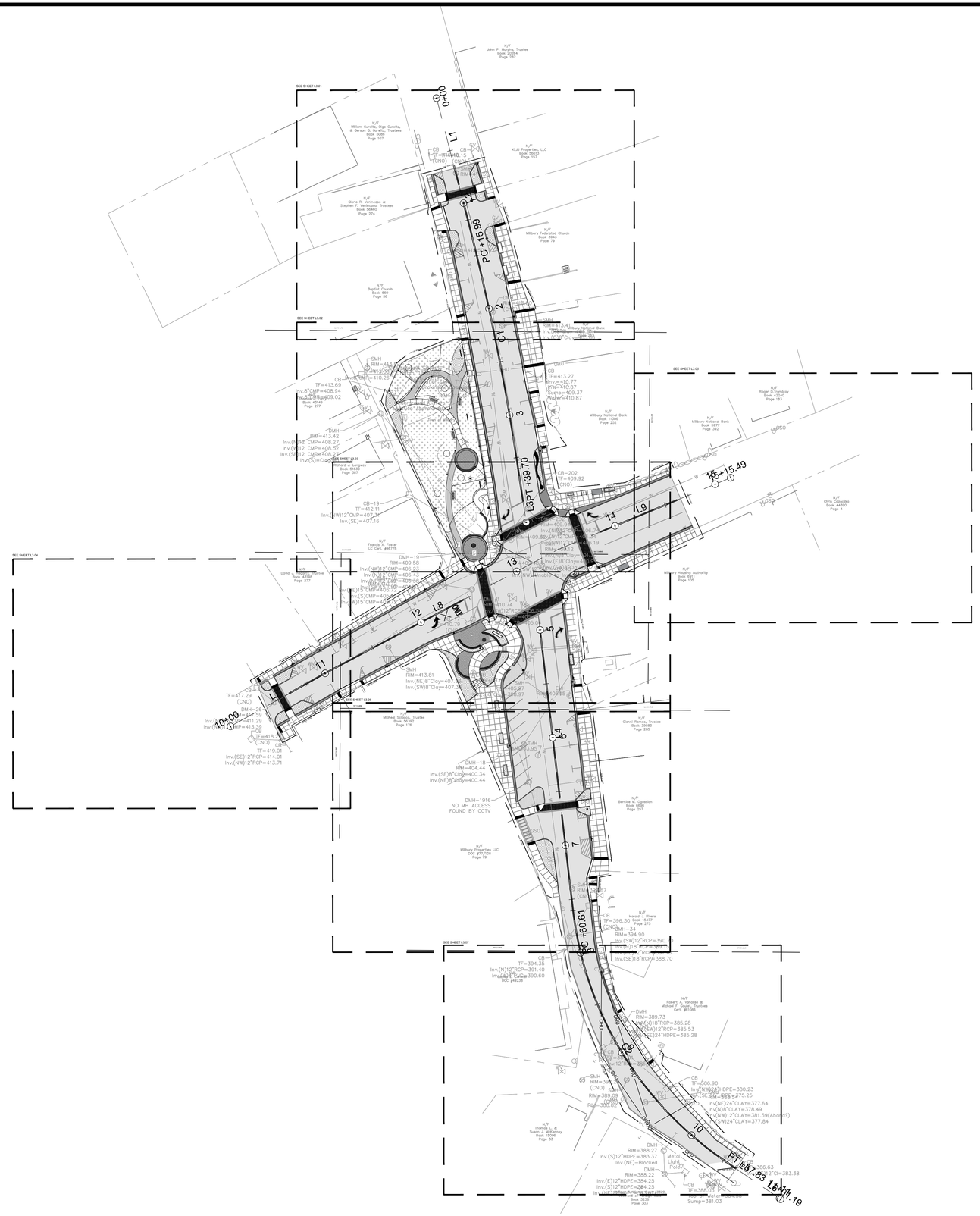


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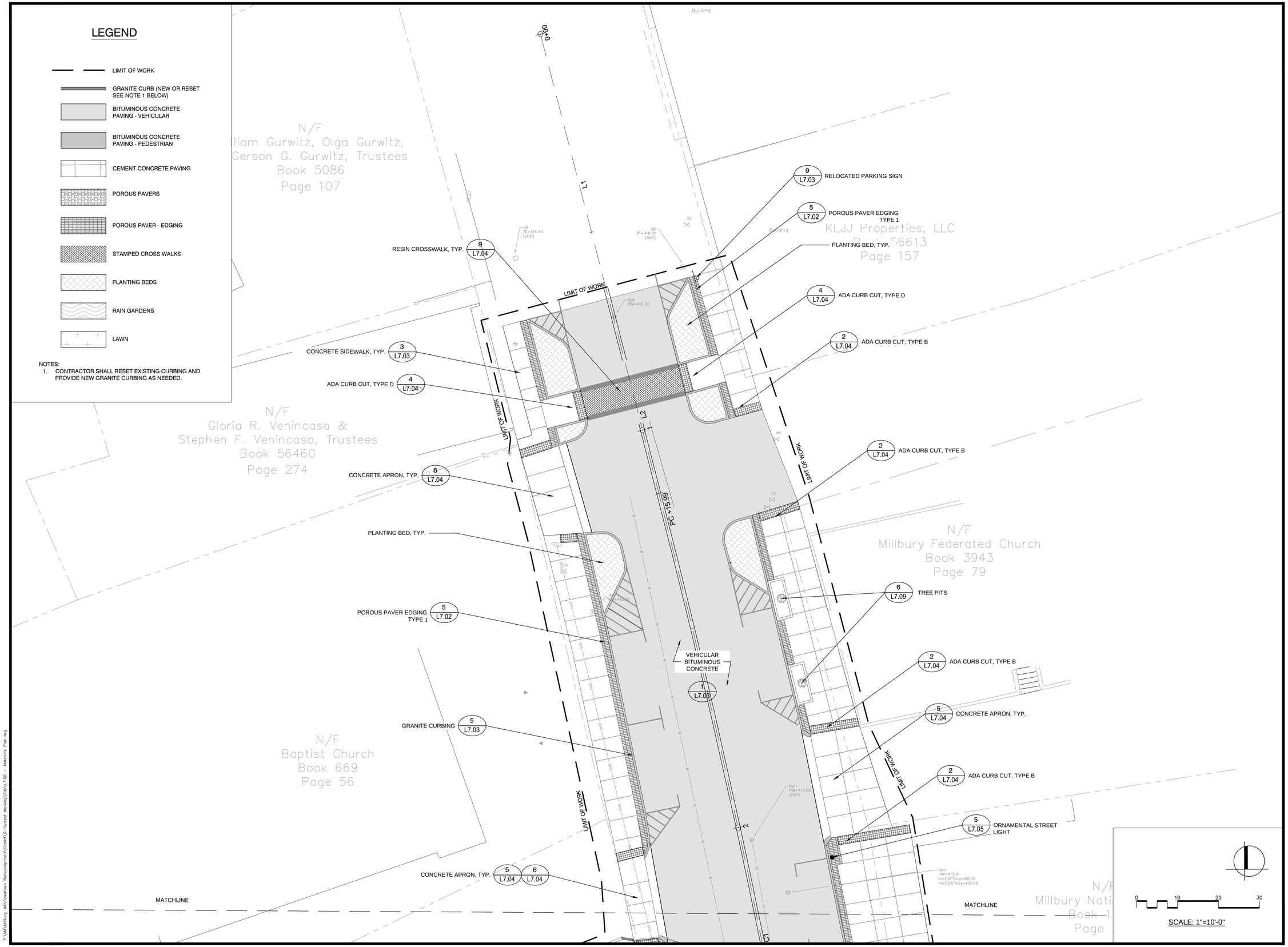
## LEGEND

- LIMIT OF WORK
- GRANITE CURB (NEW OR RESET SEE NOTE 1 BELOW)
- BITUMINOUS CONCRETE PAVING - VEHICULAR
- BITUMINOUS CONCRETE PAVING - PEDESTRIAN
- CEMENT CONCRETE PAVING
- POROUS PAVERS
- POROUS PAVER - EDGING
- STAMPED CROSS WALKS
- PLANTING BEDS
- RAIN GARDENS
- LAWN

NOTES:
1. CONTRACTOR SHALL RESET EXISTING CURBING AND PROVIDE NEW GRANITE CURBING AS NEEDED.

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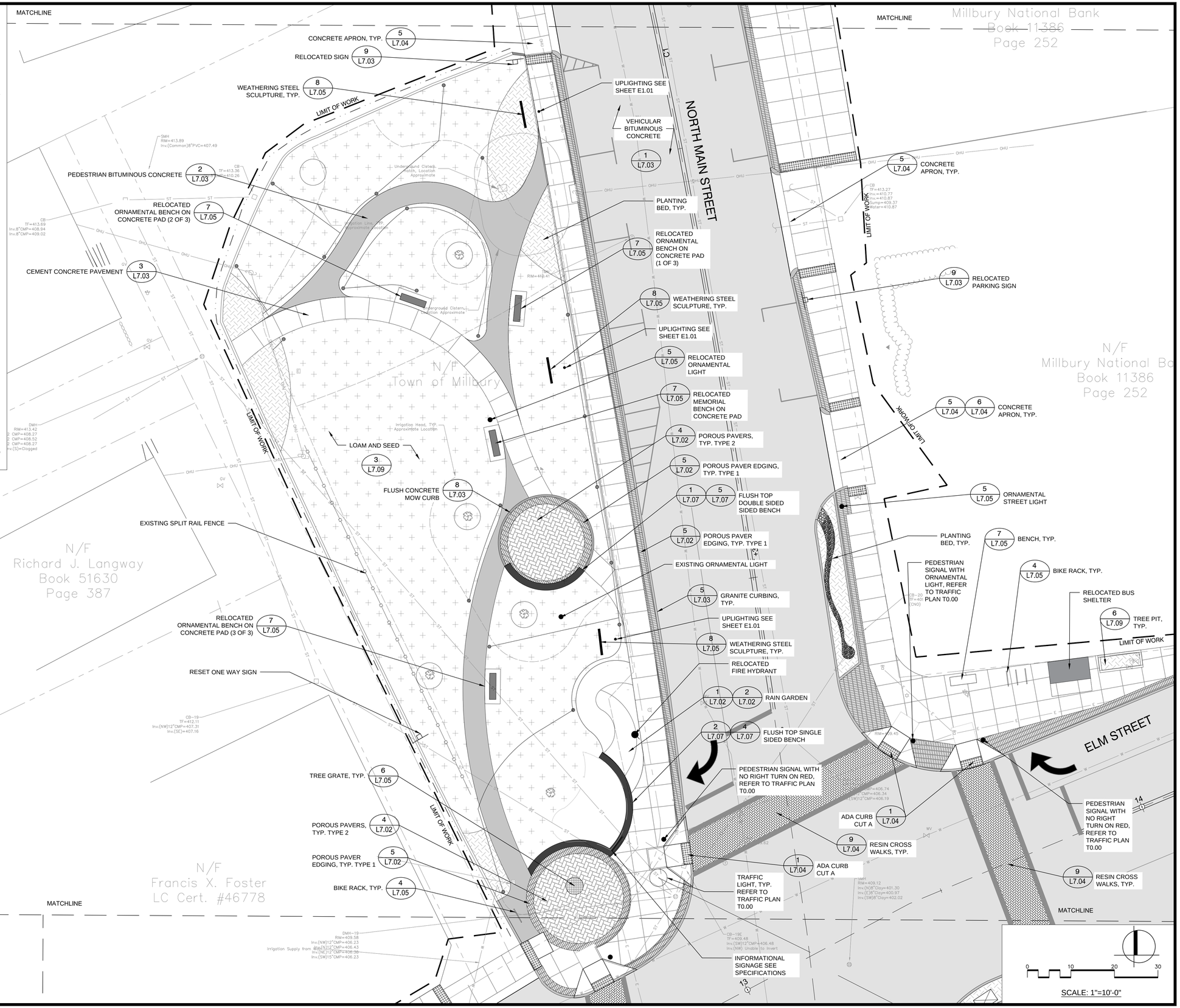
## LEGEND

- LIMIT OF WORK
- GRANITE CURB (NEW OR RESET SEE NOTE 1 BELOW)
- BITUMINOUS CONCRETE PAVING - VEHICULAR
- BITUMINOUS CONCRETE PAVING - PEDESTRIAN
- CEMENT CONCRETE PAVING
- POROUS PAVERS
- POROUS PAVER - EDGING
- STAMPED CROSS WALKS
- PLANTING BEDS
- RAIN GARDENS
- LAWN
- TREE GRATES
- FIRE HYDRANT

NOTES:

1. CONTRACTOR SHALL RESET EXISTING CURBING AND PROVIDE NEW GRANITE CURBING AS NEEDED.

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- GRANITE CURB (NEW OR RESET SEE NOTE 1 BELOW)
- BITUMINOUS CONCRETE PAVING - VEHICULAR
- BITUMINOUS CONCRETE PAVING - PEDESTRIAN
- CEMENT CONCRETE PAVING
- POROUS PAVERS
- POROUS PAVER - EDGING
- STAMPED CROSS WALKS
- PLANTING BEDS
- RAIN GARDENS
- LAWN
- TREE GRATES
- FIRE HYDRANT

NOTES:
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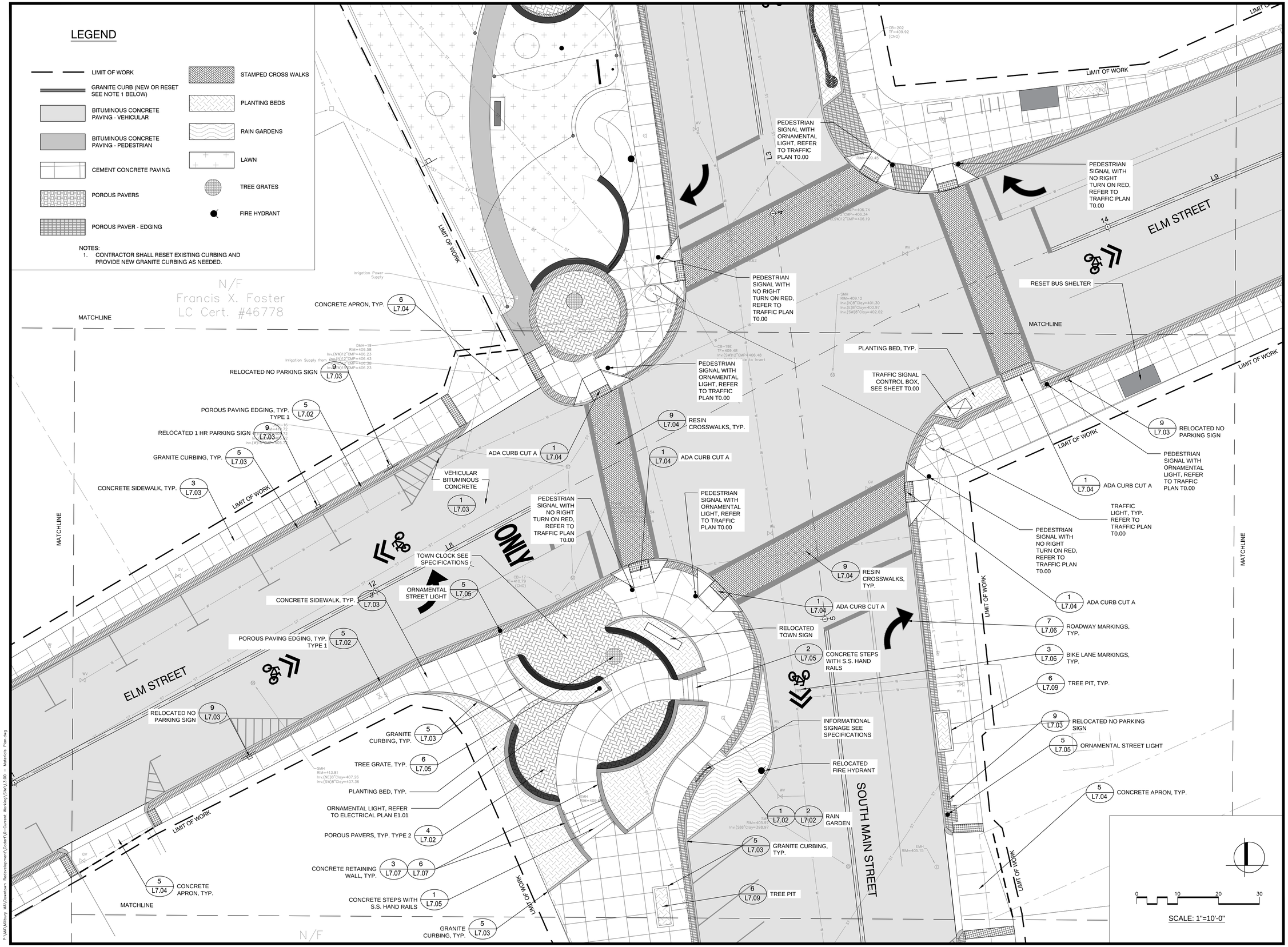


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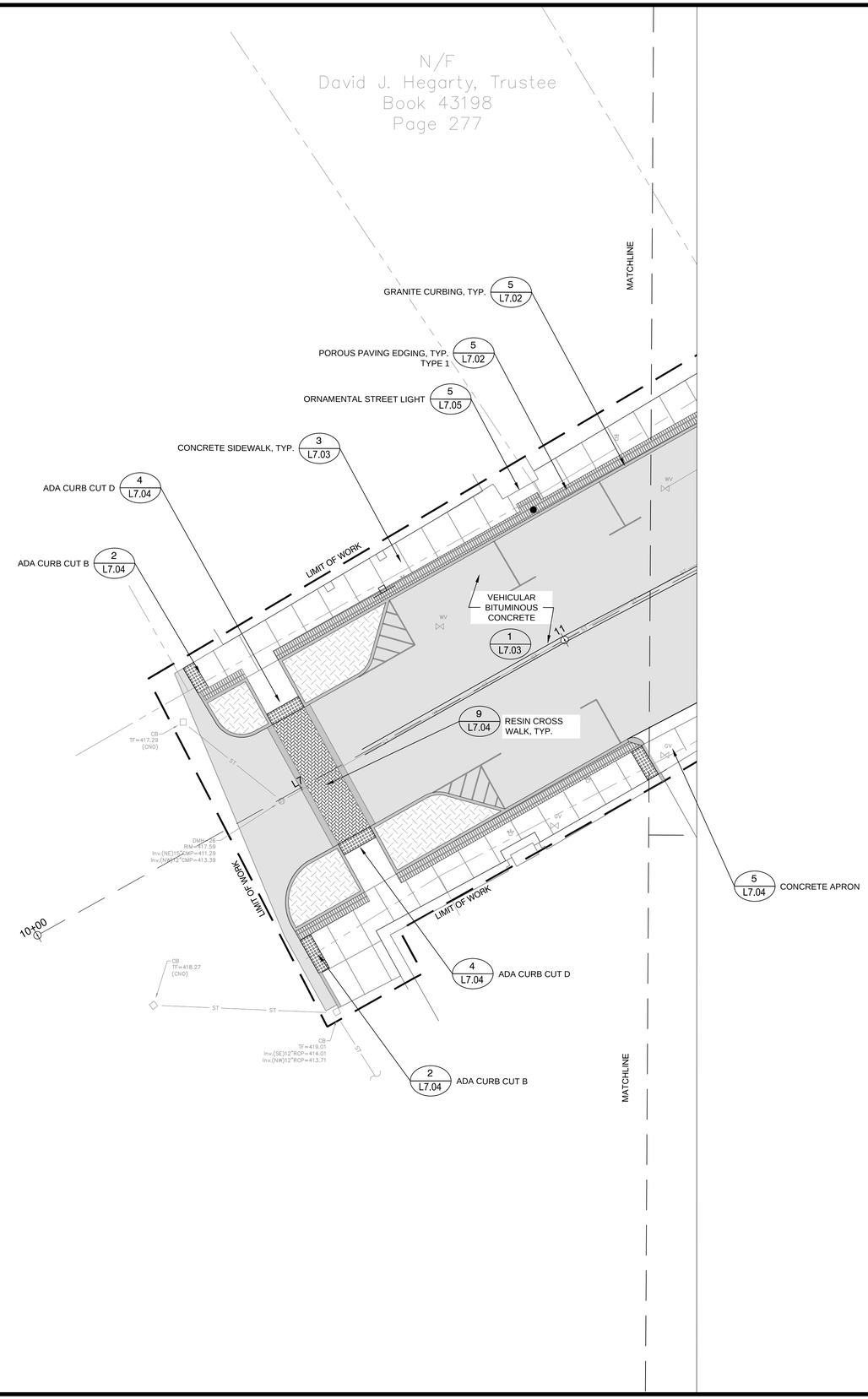


## LEGEND

- LIMIT OF WORK
- GRANITE CURB (NEW OR RESET SEE NOTE 1 BELOW)
- BITUMINOUS CONCRETE PAVING - VEHICULAR
- BITUMINOUS CONCRETE PAVING - PEDESTRIAN
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- POROUS PAVERS
- POROUS PAVER - EDGING
- STAMPED CROSS WALKS
- PLANTING BEDS
- RAIN GARDENS
- LAWN
- TREE GRATES

NOTES:
1. CONTRACTOR SHALL RESET EXISTING CURBING AND PROVIDE NEW GRANITE CURBING AS NEEDED.

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SCALE: 1"=10'-0"

Project:
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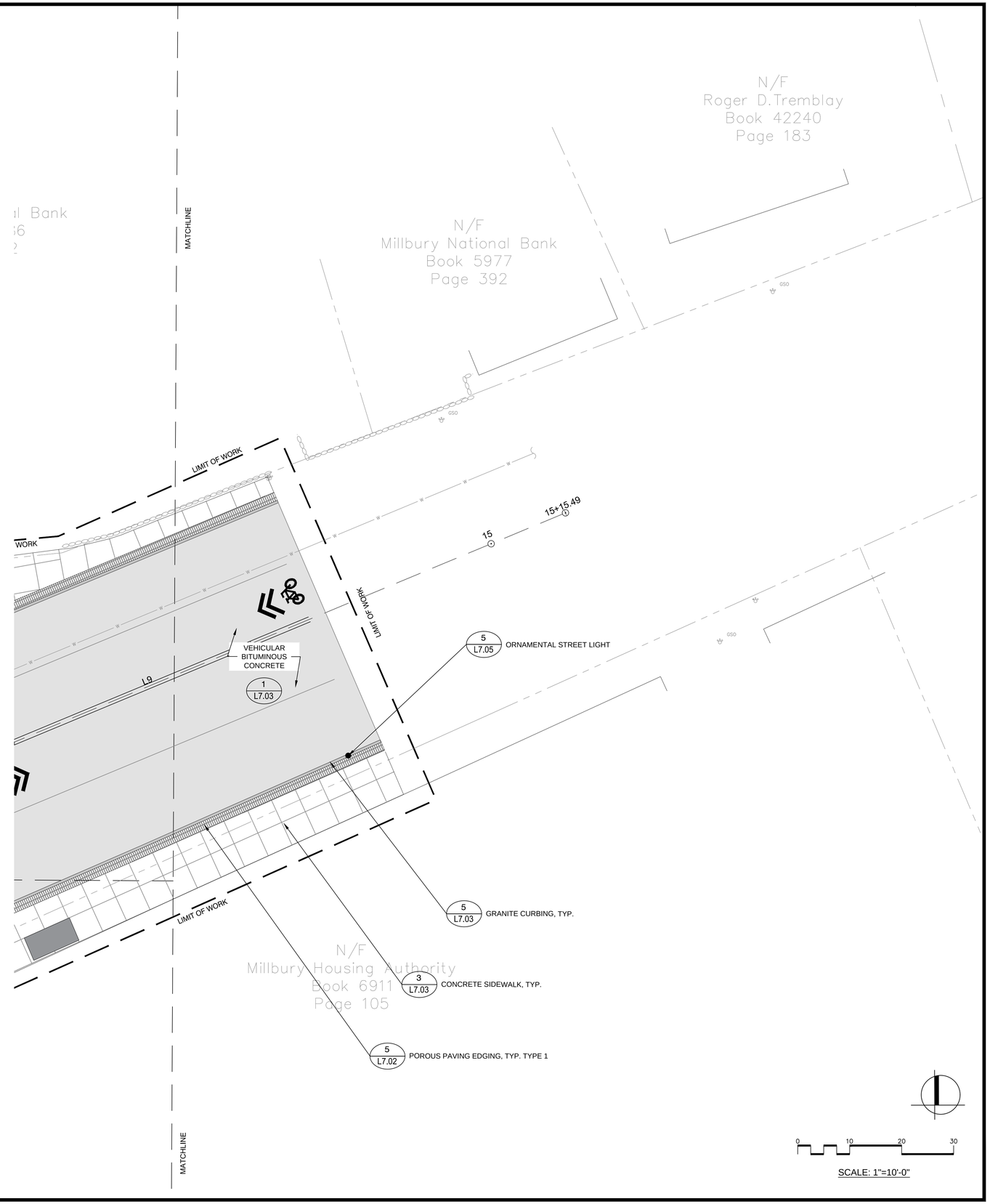


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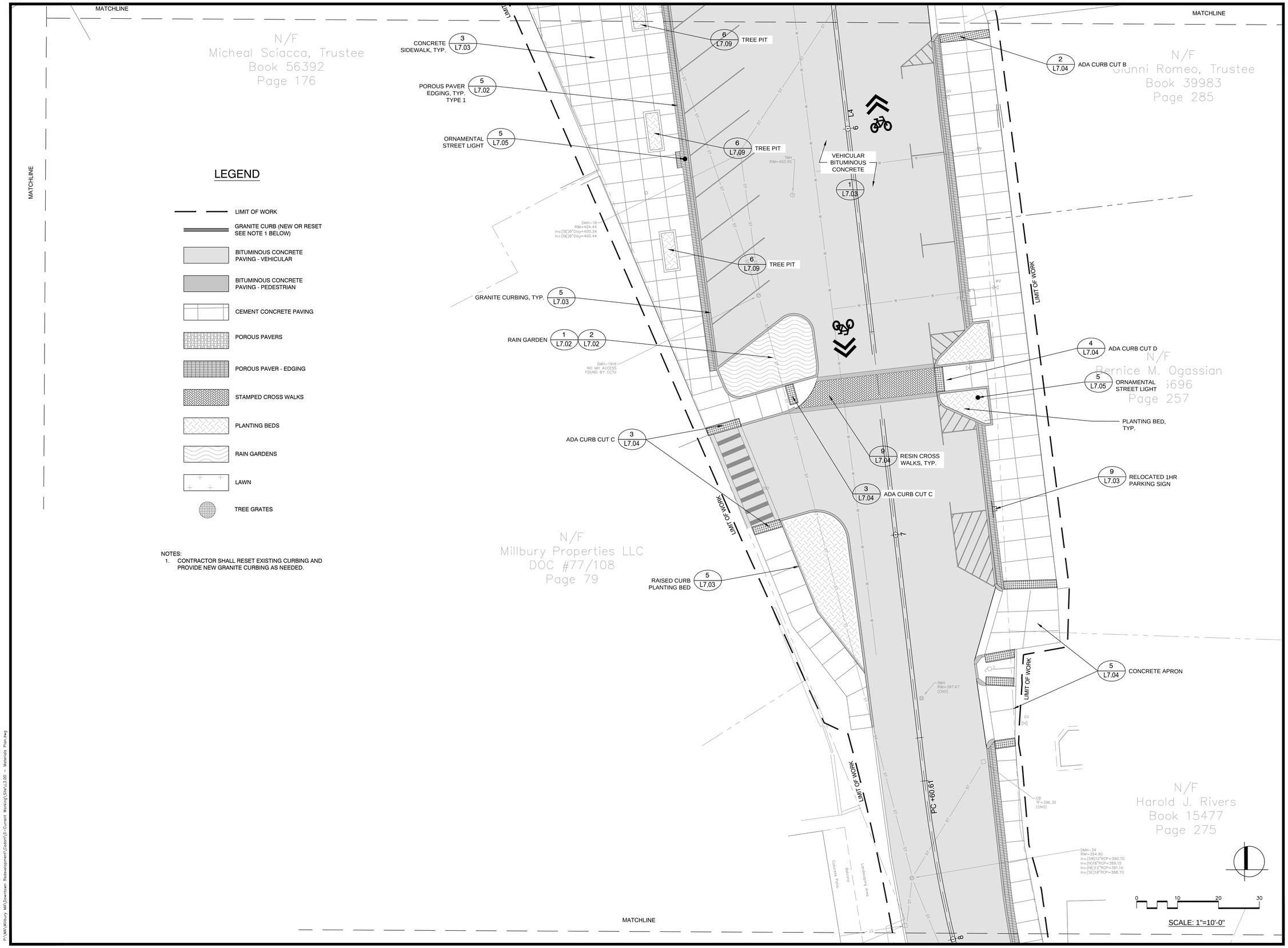


## LEGEND

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Project:
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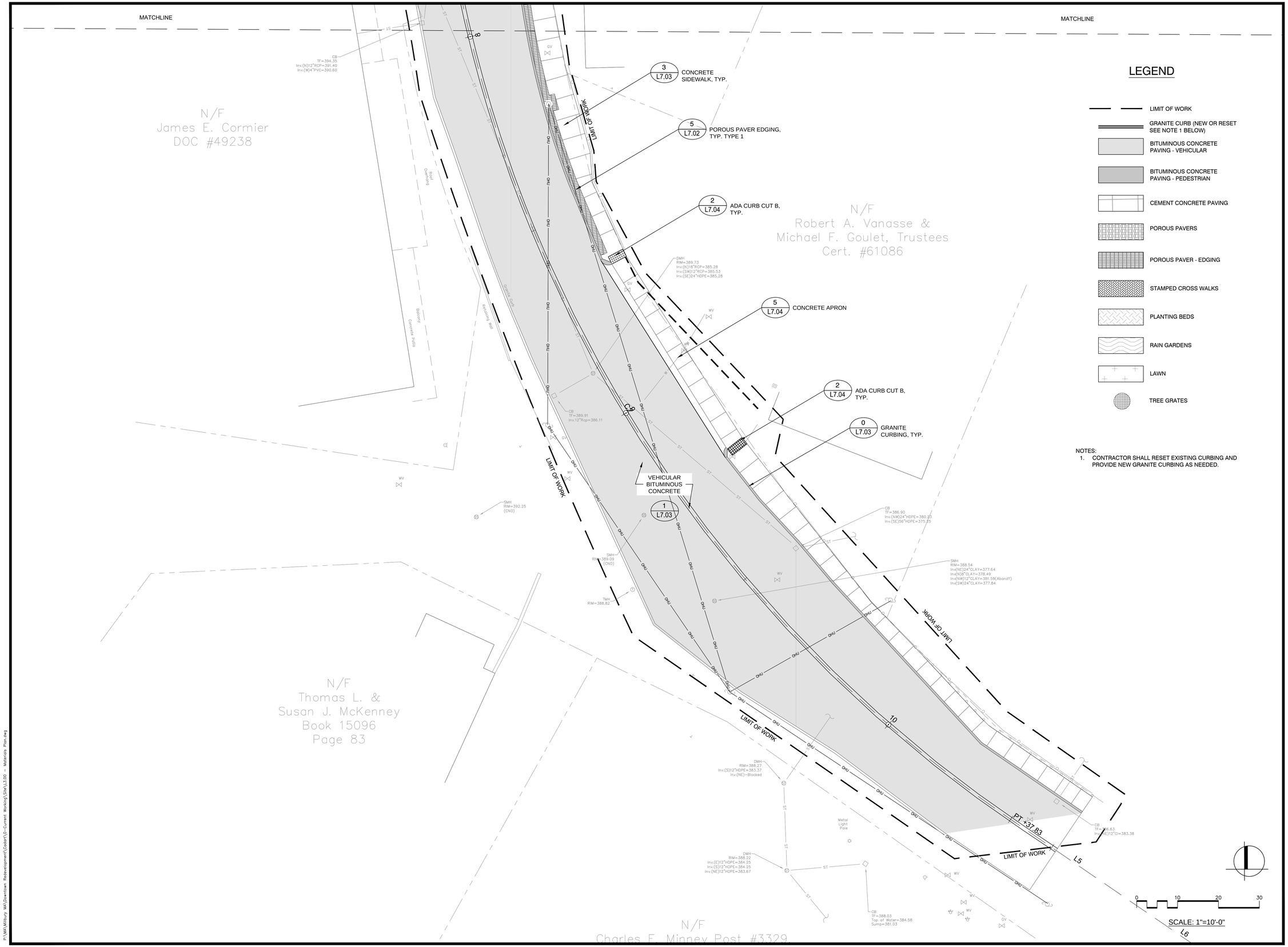


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- STAMPED CROSS WALKS
- PLANTING BEDS
- RAIN GARDENS
- LAWN
- TREE GRATES

NOTES:
1. CONTRACTOR SHALL RESET EXISTING CURBING AND PROVIDE NEW GRANITE CURBING AS NEEDED.

Project:
TOWN OF MILLBURY, MA

DOWNTOWN REDEVELOPMENT

MILLBURY , MA

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Drawn By: DMP
Reviewed By: MSM
Approved By:
W&S Project No: 2180403
W&S File No:

Drawing Title:
MATERIALS PLAN ENLARGEMENT

Sheet Number:
L3.07

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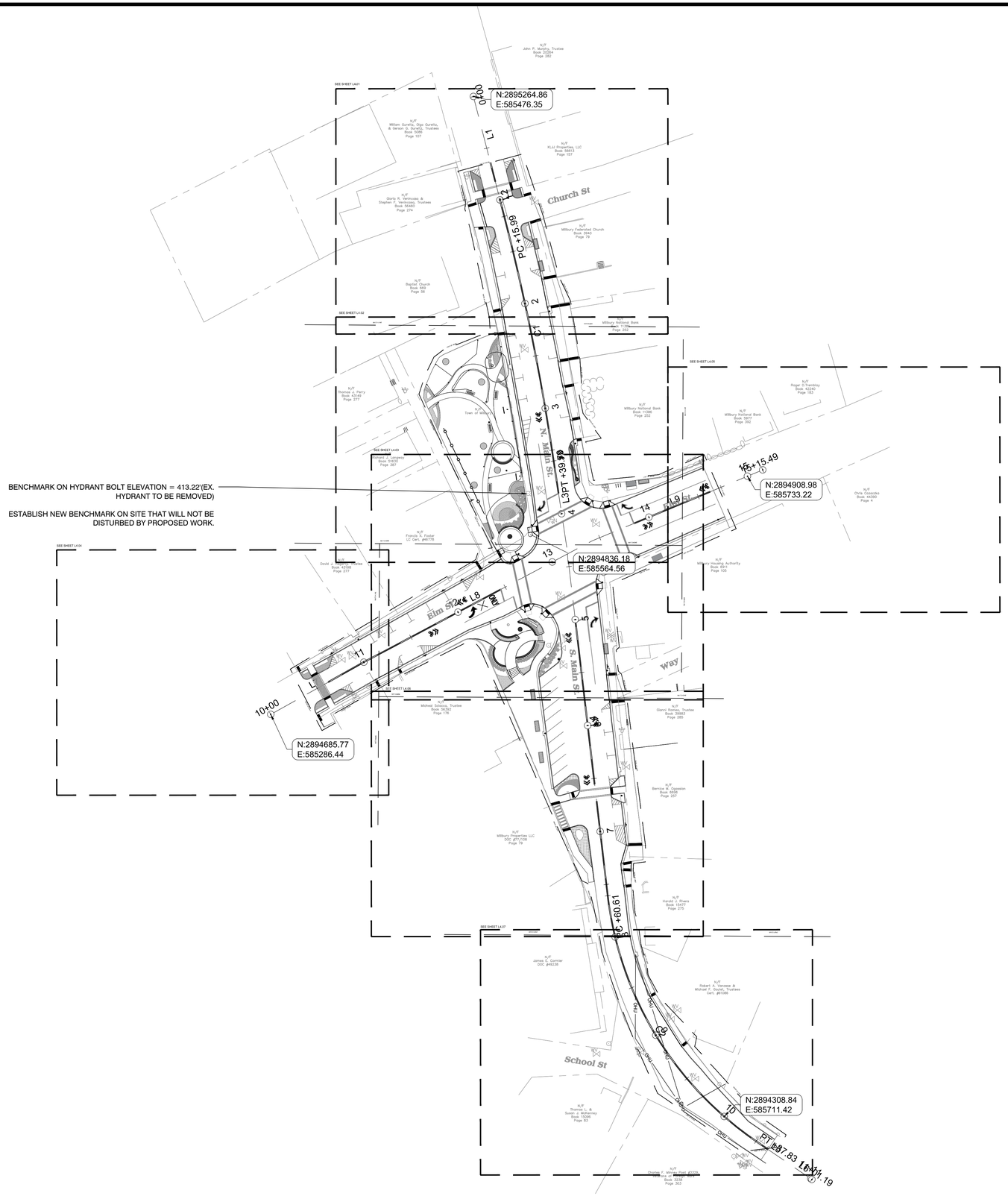


BENCHMARK ON HYDRANT BOLT ELEVATION = 413.22'(EX. HYDRANT TO BE REMOVED)

ESTABLISH NEW BENCHMARK ON SITE THAT WILL NOT BE DISTURBED BY PROPOSED WORK.

0 30 60 90

SCALE: 1"=30'-0"

Project:

TOWN OF MILLBURY, MA

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W&S File No:

Drawing Title:

OVERALL LAYOUT PLAN

Sheet Number:

L4.00

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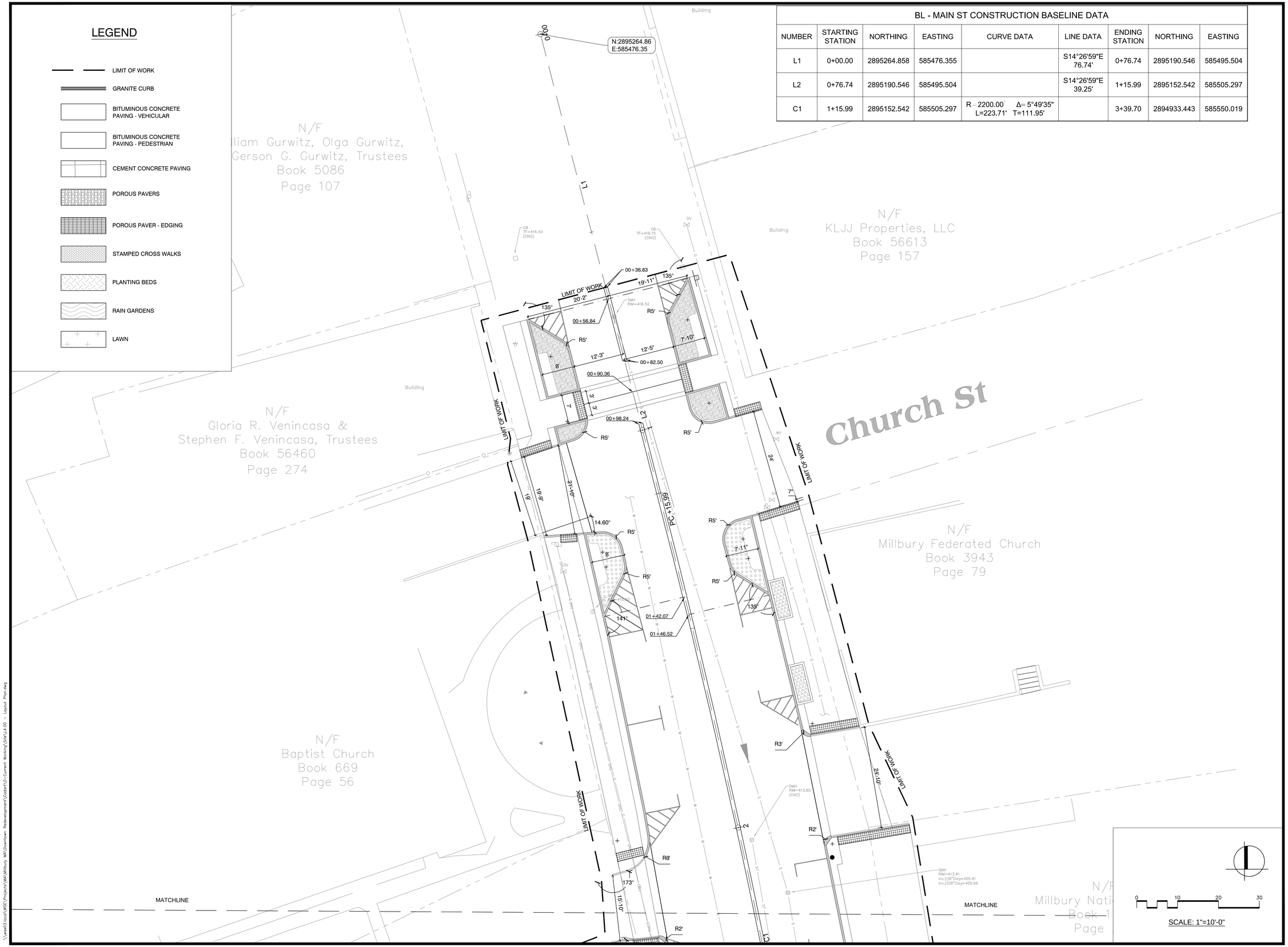
## LEGEND

- LIMIT OF WORK
- GRANITE CURB
- BITUMINOUS CONCRETE PAVING - VEHICULAR
- BITUMINOUS CONCRETE PAVING - PEDESTRIAN
- CEMENT CONCRETE PAVING
- POROUS PAVERS
- POROUS PAVER - EDGING
- STAMPED CROSS WALKS
- PLANTING BEDS
- RAIN GARDENS
- LAWN




### BL - MAIN ST CONSTRUCTION BASELINE DATA

| NUMBER | STARTING STATION | NORTHING | EASTING | CURVE DATA | LINE DATA | ENDING STATION | NORTHING | EASTING |
|---|---|---|---|---|---|---|---|---|
| L1 | 0+00.00 | 2895264.858 | 585476.355 | | S14°26'59"E 76.74' | 0+76.74 | 2895190.546 | 585495.504 |
| L2 | 0+76.74 | 2895190.546 | 585495.504 | | S14°26'59"E 39.25' | 1+15.99 | 2895152.542 | 585505.297 |
| C1 | 1+15.99 | 2895152.542 | 585505.297 | R=2200.00' Δ=5°49'35" L=223.71' T=111.95' | | 3+39.70 | 2894933.443 | 585550.019 |

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LAYOUT PLAN ENLARGEMENT

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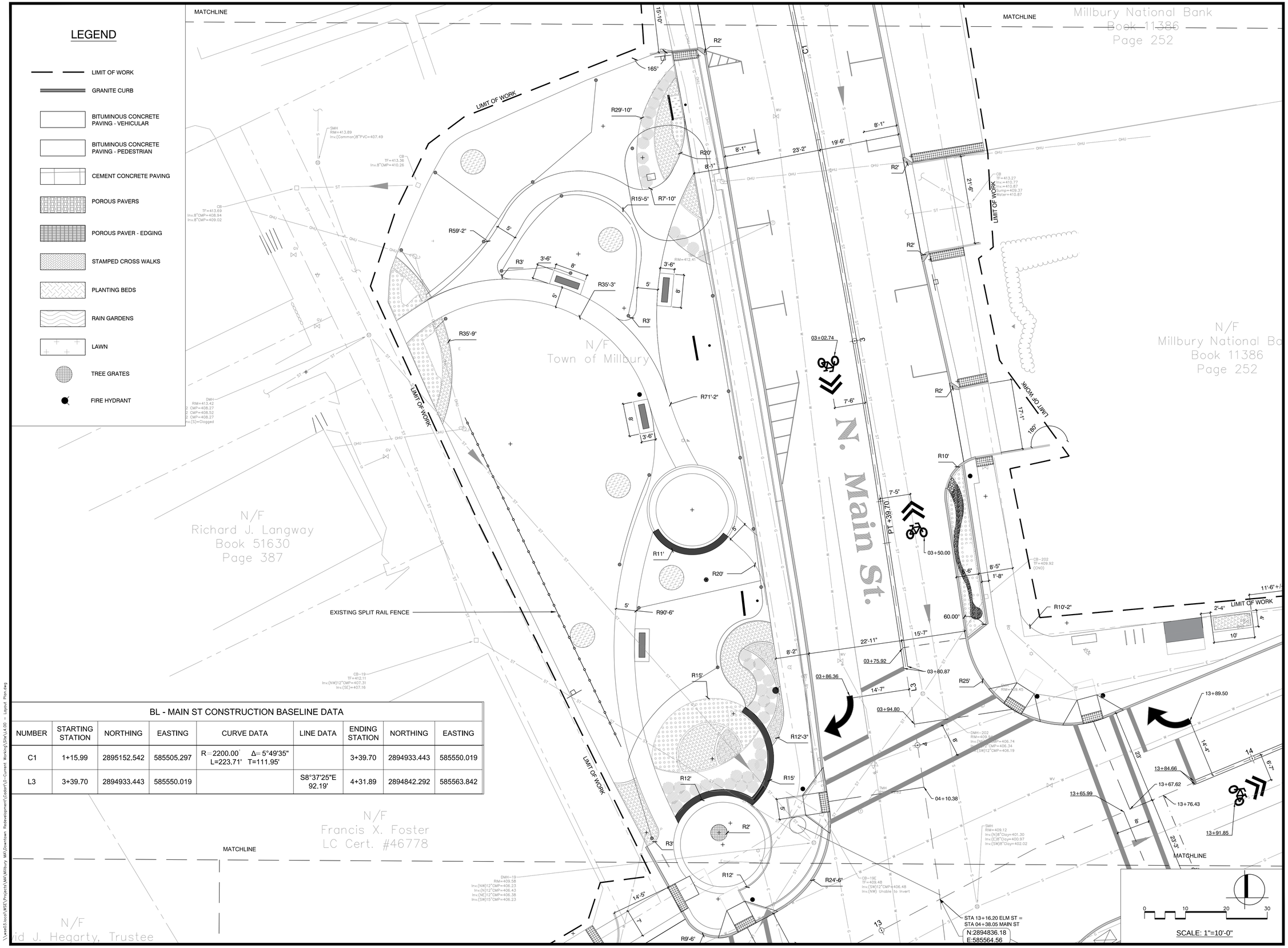


BL - MAIN ST CONSTRUCTION BASELINE DATA

| NUMBER | STARTING STATION | NORTHING | EASTING | CURVE DATA | LINE DATA | ENDING STATION | NORTHING | EASTING |
|---|---|---|---|---|---|---|---|---|
| C1 | 1+15.99 | 2895152.542 | 585505.297 | R=2200.00' Δ=5°49'35" L=223.71' T=111.95' | | 3+39.70 | 2894933.443 | 585550.019 |
| L3 | 3+39.70 | 2894933.443 | 585550.019 | | S8°37'25"E 92.19' | 4+31.89 | 2894842.292 | 585563.842 |

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## LEGEND

- LIMIT OF WORK
- GRANITE CURB
- BITUMINOUS CONCRETE PAVING - VEHICULAR
- BITUMINOUS CONCRETE PAVING - PEDESTRIAN
- CEMENT CONCRETE PAVING
- POROUS PAVERS
- POROUS PAVER - EDGING
- STAMPED CROSS WALKS
- PLANTING BEDS
- RAIN GARDENS
- LAWN
- TREE GRATES
- FIRE HYDRANT

### BL - MAIN ST CONSTRUCTION BASELINE DATA

| NUMBER | STARTING STATION | NORTHING | EASTING | CURVE DATA | LINE DATA | ENDING STATION | NORTHING | EASTING |
|---|---|---|---|---|---|---|---|---|
| L3 | 3+39.70 | 2894933.443 | 585550.019 | | S8°37'25"E 92.19' | 4+31.89 | 2894842.292 | 585563.842 |

### BL-ELM CONSTRUCTION BASELINE DATA

| NUMBER | STARTING STATION | NORTHING | EASTING | CURVE DATA |
|---|---|---|---|---|
| L8 | 11+00.00 | 2894734.643 | 585373.682 | |

| LINE DATA | ENDING STATION | NORTHING | EASTING |
|---|---|---|---|
| N61°59'26"E 242.18' | 13+42.18 | 2894848.373 | 585587.492 |

STA 13+16.20 ELM ST = STA 04+38.05 MAIN ST
N:2894836.18
E:585564.56

SCALE: 1"=10'-0"

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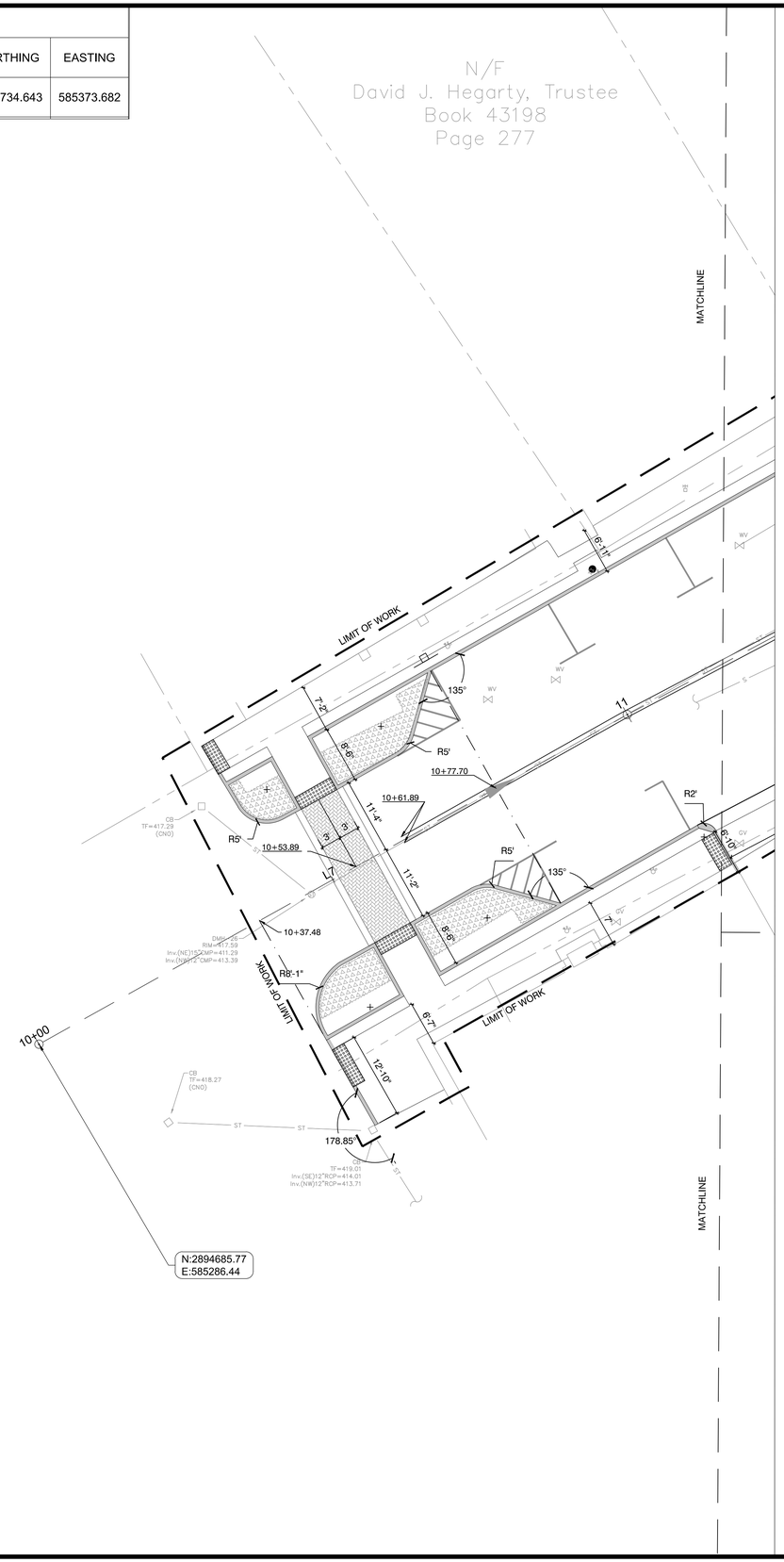
## BL-ELM CONSTRUCTION BASELINE DATA

| NUMBER | STARTING STATION | NORTHING | EASTING | CURVE DATA | LINE DATA | ENDING STATION | NORTHING | EASTING |
|---|---|---|---|---|---|---|---|---|
| L7 | 10+00.00 | 2894685.765 | 585286.441 | | N60°44'22"E 100.00' | 11+00.00 | 2894734.643 | 585373.682 |




## LEGEND

- LIMIT OF WORK
- GRANITE CURB
- BITUMINOUS CONCRETE PAVING - VEHICULAR
- BITUMINOUS CONCRETE PAVING - PEDESTRIAN
- CEMENT CONCRETE PAVING
- POROUS PAVERS
- POROUS PAVER - EDGING
- STAMPED CROSS WALKS
- PLANTING BEDS
- RAIN GARDENS
- LAWN
- TREE GRATES

0 10 20 30

SCALE: 1"=10'-0"

Project:

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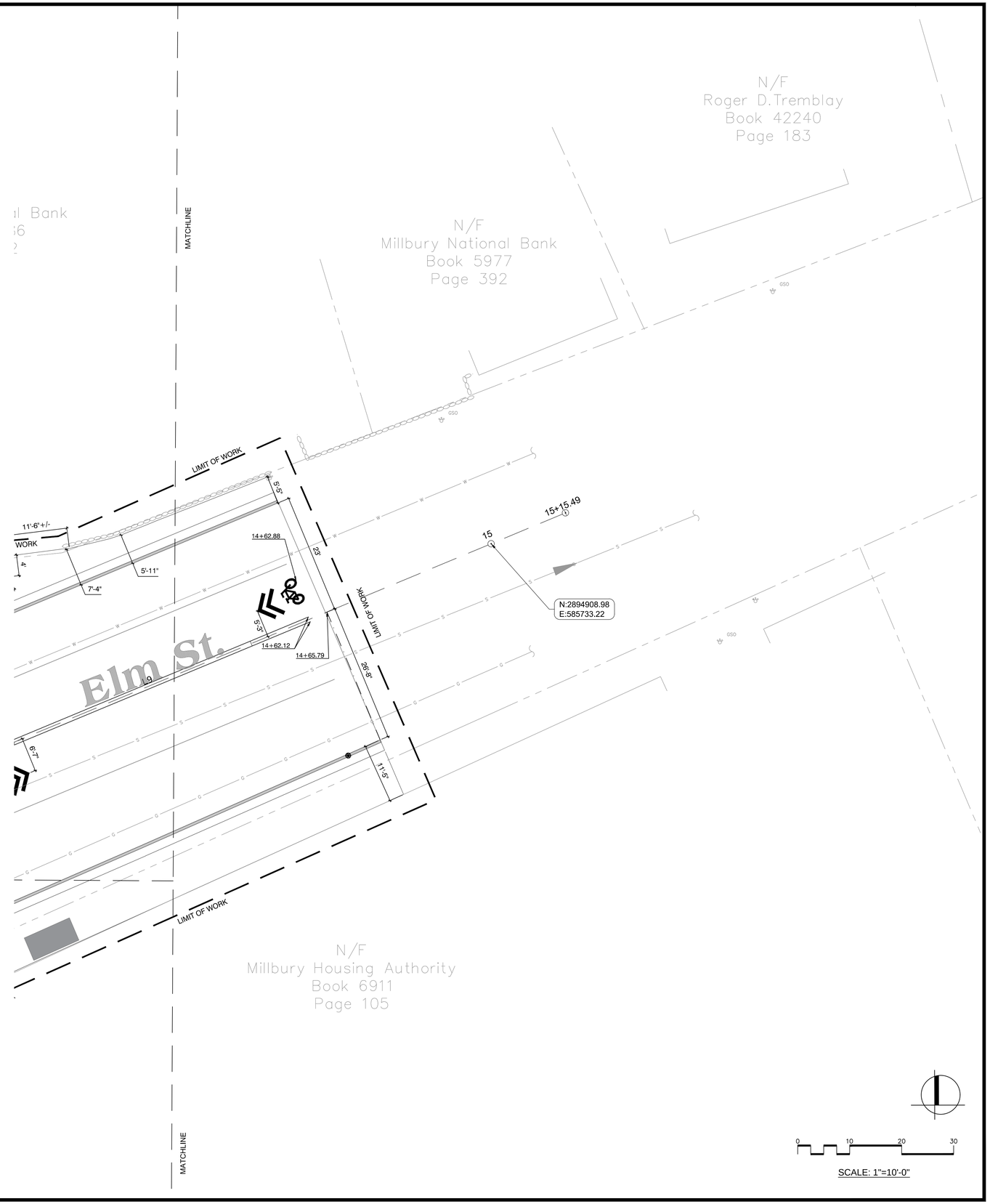
## LEGEND

- LIMIT OF WORK
- GRANITE CURB
- BITUMINOUS CONCRETE PAVING - VEHICULAR
- BITUMINOUS CONCRETE PAVING - PEDESTRIAN
- CEMENT CONCRETE PAVING
- POROUS PAVERS
- POROUS PAVER - EDGING
- STAMPED CROSS WALKS
- PLANTING BEDS
- RAIN GARDENS
- LAWN
- TREE GRATES

| BL-ELM CONSTRUCTION BASELINE DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NUMBER | STARTING STATION | NORTHING | EASTING | CURVE DATA | LINE DATA | ENDING STATION | NORTHING | EASTING |
| L9 | 13+42.18 | 2894848.373 | 585587.492 | | N67°25'08"E 173.31' | 15+15.49 | 2894914.923 | 585747.516 |

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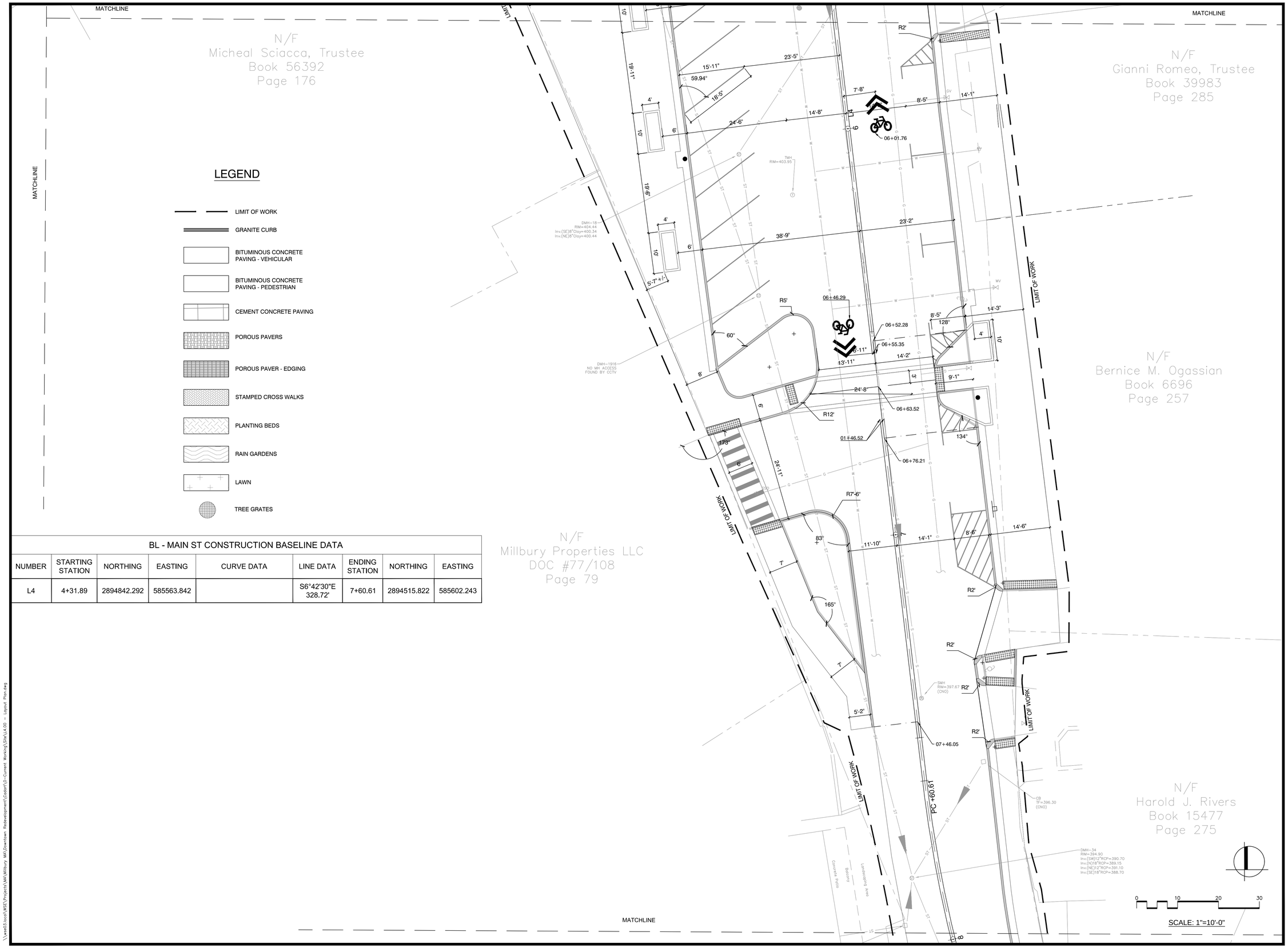


## LEGEND

- LIMIT OF WORK
- GRANITE CURB
- BITUMINOUS CONCRETE PAVING - VEHICULAR
- BITUMINOUS CONCRETE PAVING - PEDESTRIAN
- CEMENT CONCRETE PAVING
- POROUS PAVERS
- POROUS PAVER - EDGING
- STAMPED CROSS WALKS
- PLANTING BEDS
- RAIN GARDENS
- LAWN
- TREE GRATES

| BL - MAIN ST CONSTRUCTION BASELINE DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NUMBER | STARTING STATION | NORTHING | EASTING | CURVE DATA | LINE DATA | ENDING STATION | NORTHING | EASTING |
| L4 | 4+31.89 | 2894842.292 | 585563.842 | | S6°42'30"E 328.72' | 7+60.61 | 2894515.822 | 585602.243 |

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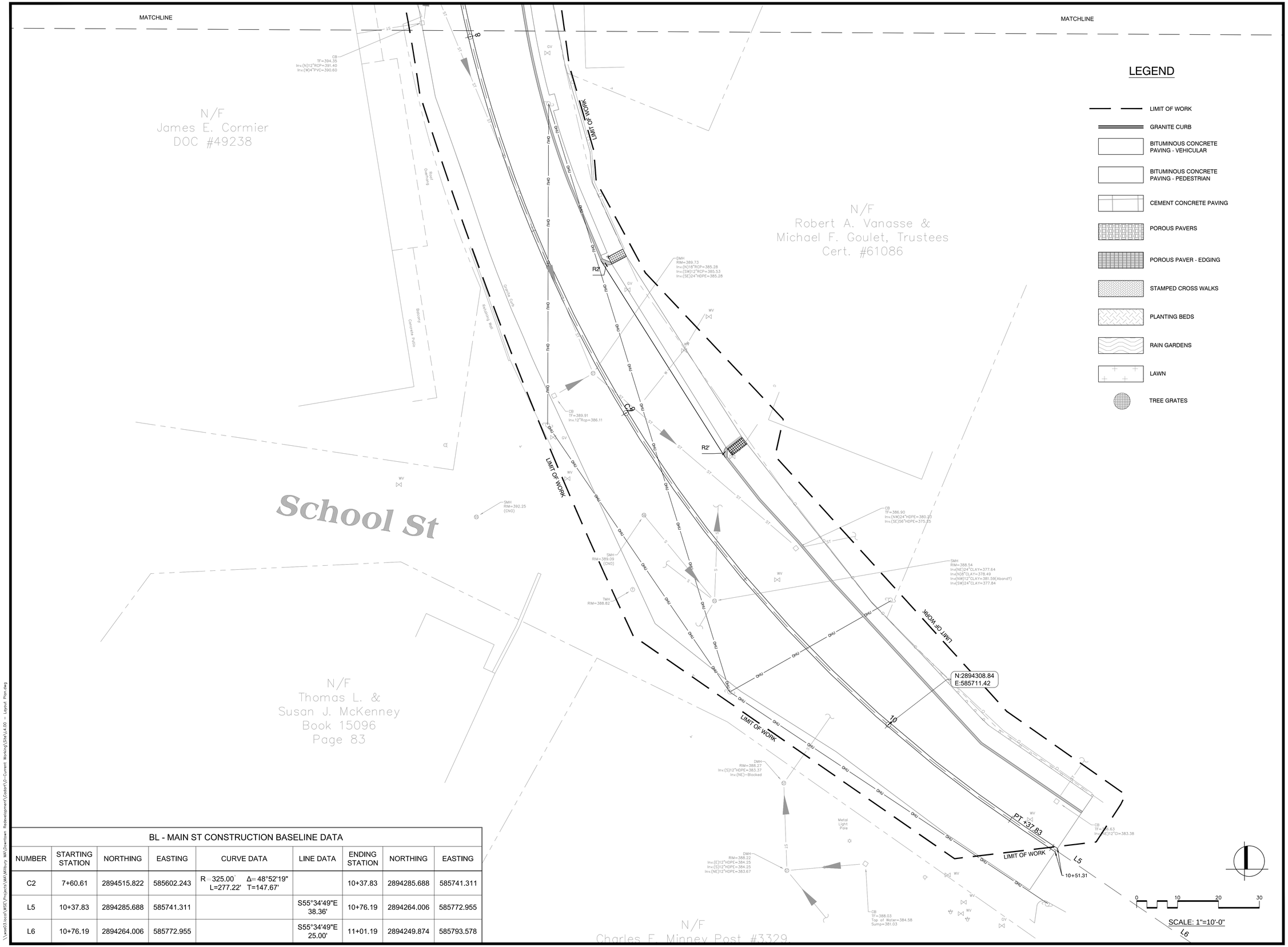


## LEGEND

- LIMIT OF WORK
- GRANITE CURB
- BITUMINOUS CONCRETE PAVING - VEHICULAR
- BITUMINOUS CONCRETE PAVING - PEDESTRIAN
- CEMENT CONCRETE PAVING
- POROUS PAVERS
- POROUS PAVER - EDGING
- STAMPED CROSS WALKS
- PLANTING BEDS
- RAIN GARDENS
- LAWN
- TREE GRATES

### BL - MAIN ST CONSTRUCTION BASELINE DATA

| NUMBER | STARTING STATION | NORTHING | EASTING | CURVE DATA | LINE DATA | ENDING STATION | NORTHING | EASTING |
|---|---|---|---|---|---|---|---|---|
| C2 | 7+60.61 | 2894515.822 | 585602.243 | R=325.00' Δ=48°52'19" L=277.22' T=147.67' | | 10+37.83 | 2894285.688 | 585741.311 |
| L5 | 10+37.83 | 2894285.688 | 585741.311 | | S55°34'49"E 38.36' | 10+76.19 | 2894264.006 | 585772.955 |
| L6 | 10+76.19 | 2894264.006 | 585772.955 | | S55°34'49"E 25.00' | 11+01.19 | 2894249.874 | 585793.578 |

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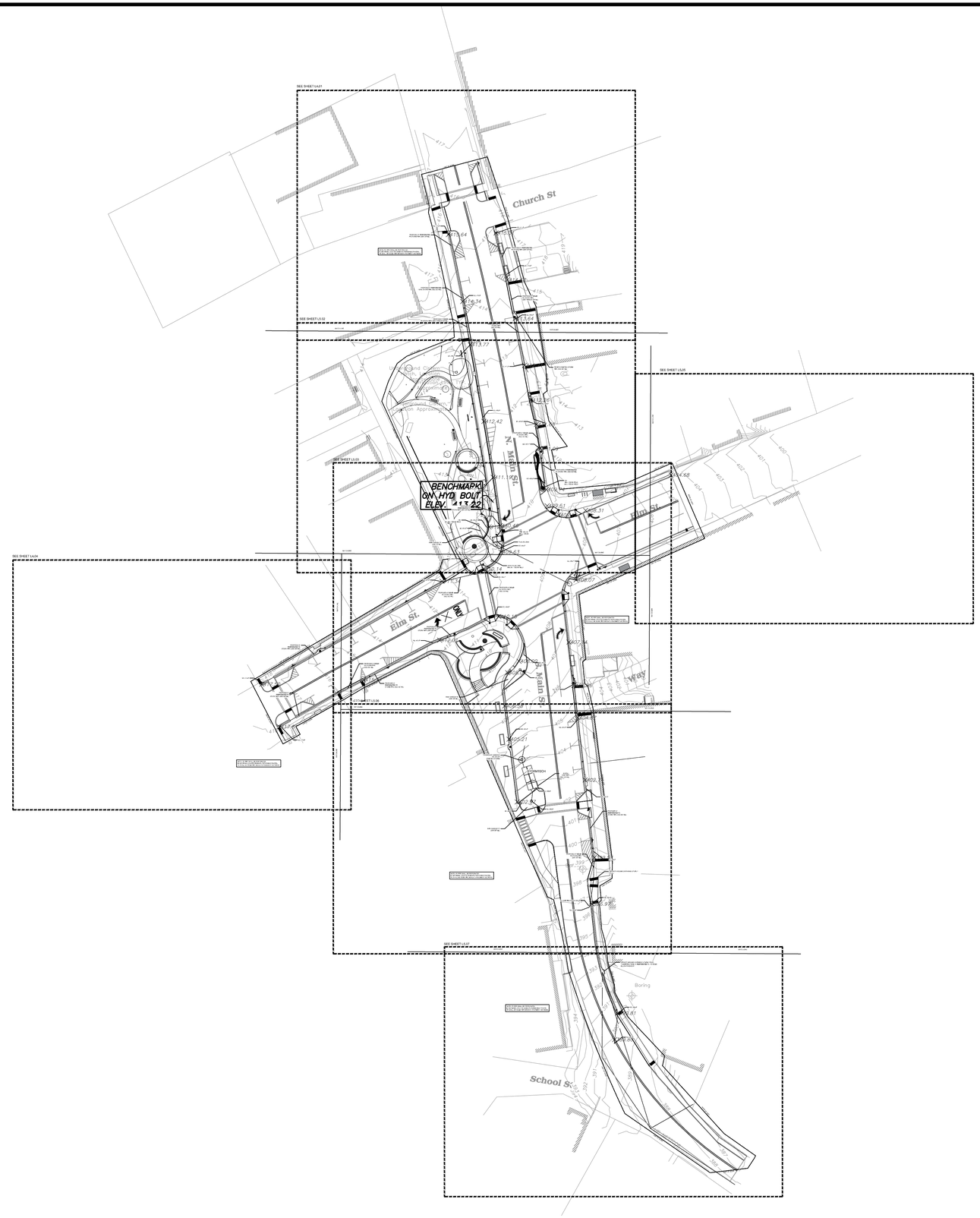


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SCALE: 1"=30'-0"

Project:

TOWN OF MILLBURY, MA

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Drawing Title:

OVERALL GRADING
AND UTILITIES PLAN

Sheet Number:

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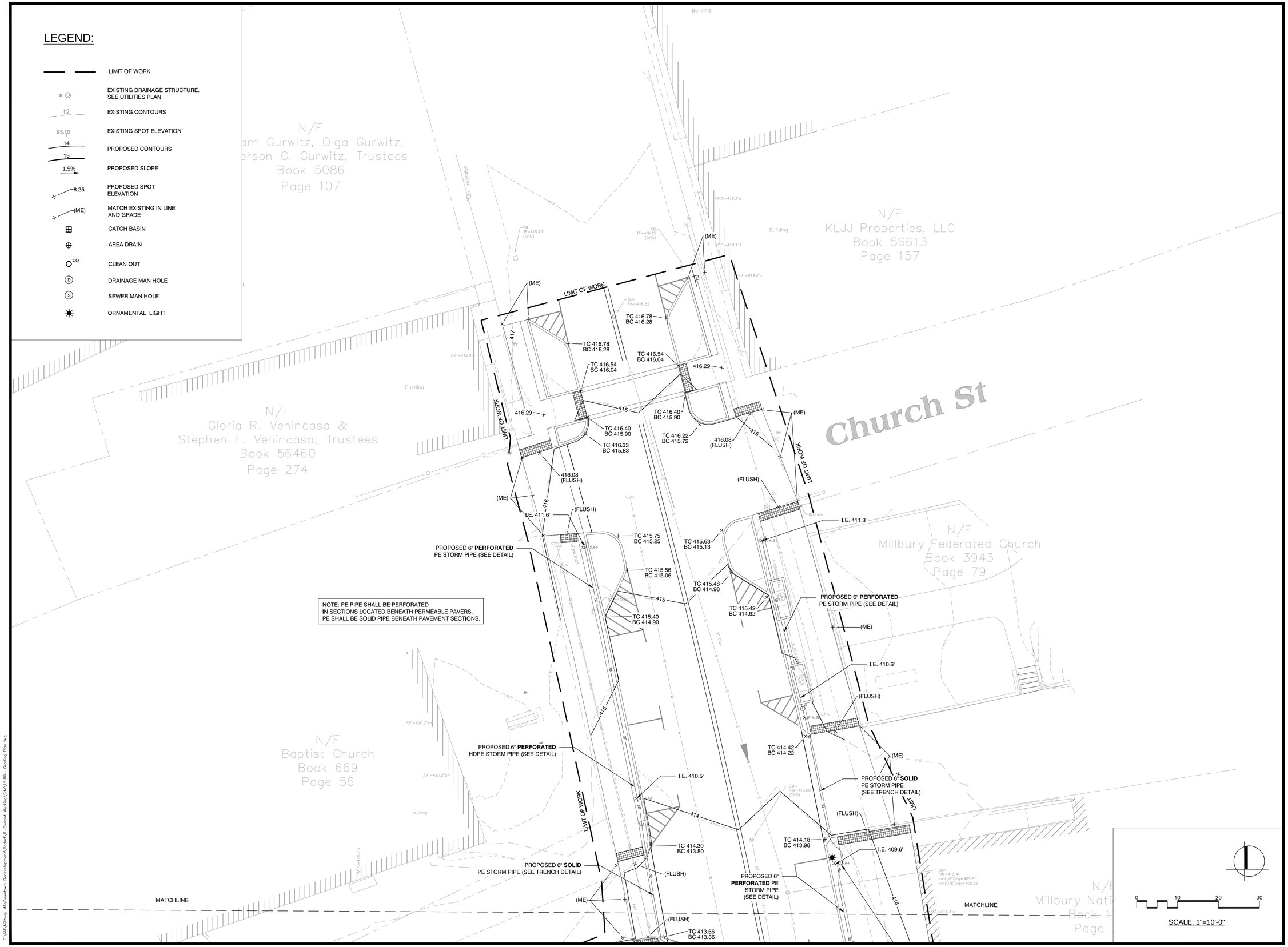
## LEGEND:

- LIMIT OF WORK
- EXISTING DRAINAGE STRUCTURE. SEE UTILITIES PLAN
- 12 — EXISTING CONTOURS
- 95.10 — EXISTING SPOT ELEVATION
- 14 — PROPOSED CONTOURS
- 15 — PROPOSED CONTOURS
- 1.5% — PROPOSED SLOPE
- 8.25 — PROPOSED SPOT ELEVATION
- (ME) — MATCH EXISTING IN LINE AND GRADE
- CATCH BASIN
- AREA DRAIN
- CO — CLEAN OUT
- D — DRAINAGE MAN HOLE
- S — SEWER MAN HOLE
- ORNAMENTAL LIGHT




NOTE: PE PIPE SHALL BE PERFORATED IN SECTIONS LOCATED BENEATH PERMEABLE PAVERS. PE SHALL BE SOLID PIPE BENEATH PAVEMENT SECTIONS.

SCALE: 1"=10'-0"

Project:

TOWN OF MILLBURY, MA

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Reviewed By: MSM

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W&S File No:

Drawing Title:

GRADING AND UTILITIES ENLARGEMENT PLAN

Sheet Number:

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Sheet Number:

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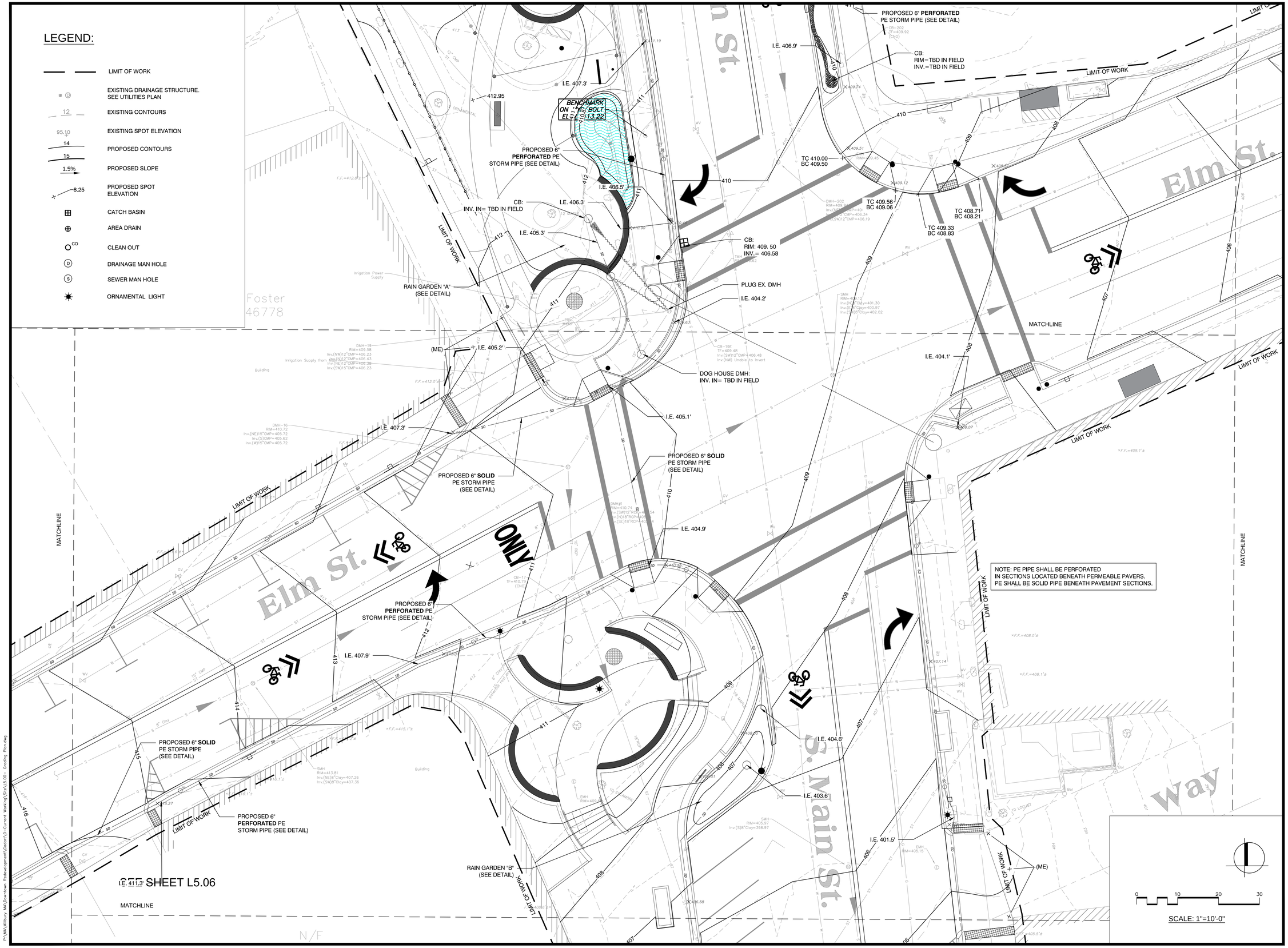
## LEGEND:

- LIMIT OF WORK
- EXISTING DRAINAGE STRUCTURE. SEE UTILITIES PLAN
- EXISTING CONTOURS
- EXISTING SPOT ELEVATION
- PROPOSED CONTOURS
- PROPOSED SLOPE
- PROPOSED SPOT ELEVATION
- CATCH BASIN
- AREA DRAIN
- CLEAN OUT
- DRAINAGE MAN HOLE
- SEWER MAN HOLE
- ORNAMENTAL LIGHT




Project:

TOWN OF MILLBURY, MA

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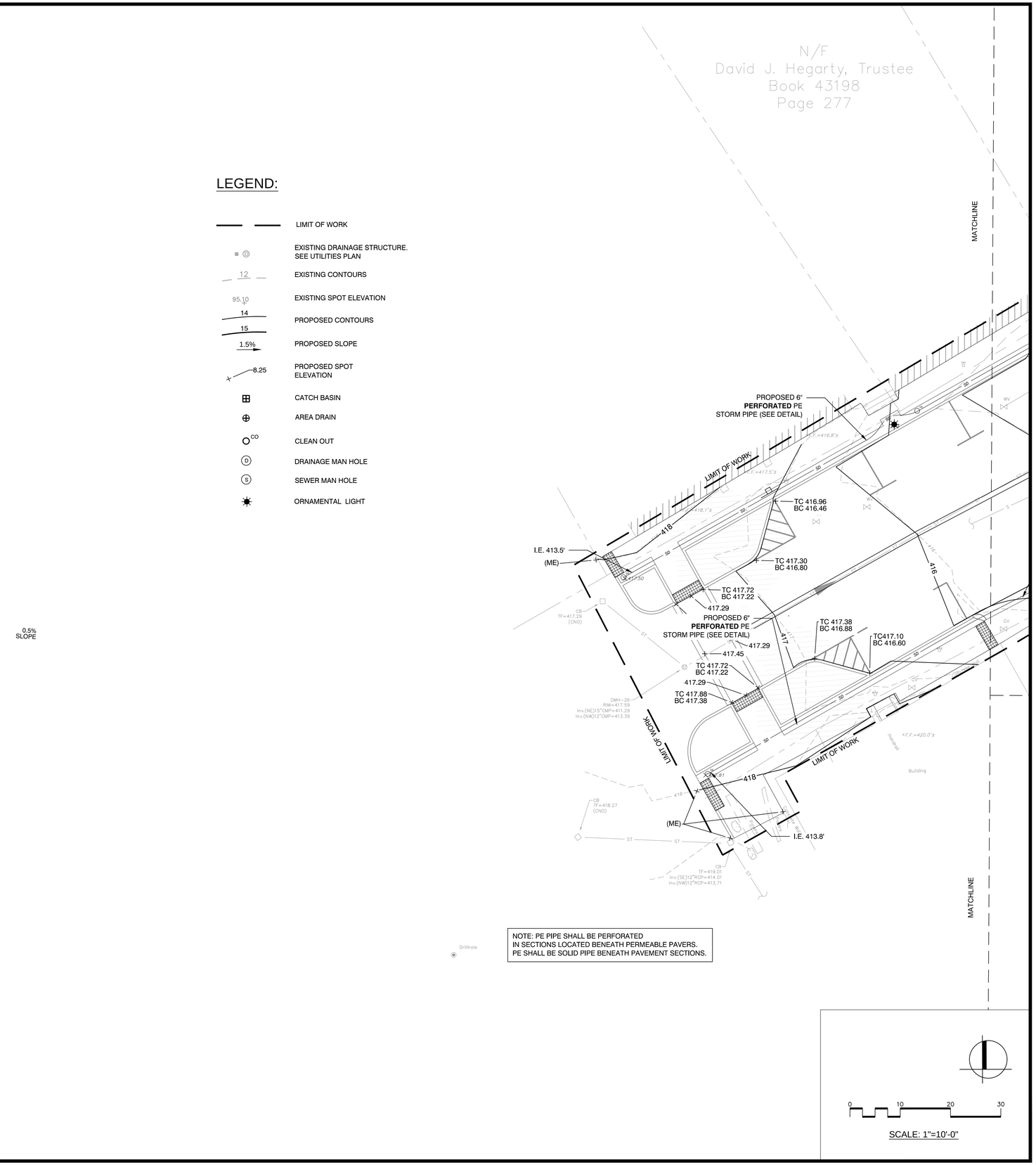
## LEGEND:

| | |
|---|---|
| | LIMIT OF WORK |
| | EXISTING DRAINAGE STRUCTURE. SEE UTILITIES PLAN |
| 12 | EXISTING CONTOURS |
| 95.10 | EXISTING SPOT ELEVATION |
| 14 | PROPOSED CONTOURS |
| 15 | |
| 1.5% | PROPOSED SLOPE |
| 8.25 | PROPOSED SPOT ELEVATION |
| | CATCH BASIN |
| | AREA DRAIN |
| CO | CLEAN OUT |
| D | DRAINAGE MAN HOLE |
| S | SEWER MAN HOLE |
| | ORNAMENTAL LIGHT |




NOTE: PE PIPE SHALL BE PERFORATED
IN SECTIONS LOCATED BENEATH PERMEABLE PAVERS.
PE SHALL BE SOLID PIPE BENEATH PAVEMENT SECTIONS.

0 10 20 30

SCALE: 1"=10'-0"

Project:

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DOWNTOWN REDEVELOPMENT

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Reviewed By: MSM

Approved By:

W&S Project No: 2180403

W&S File No:

Drawing Title:

GRADING AND UTILITIES ENLARGEMENT PLAN

Sheet Number:

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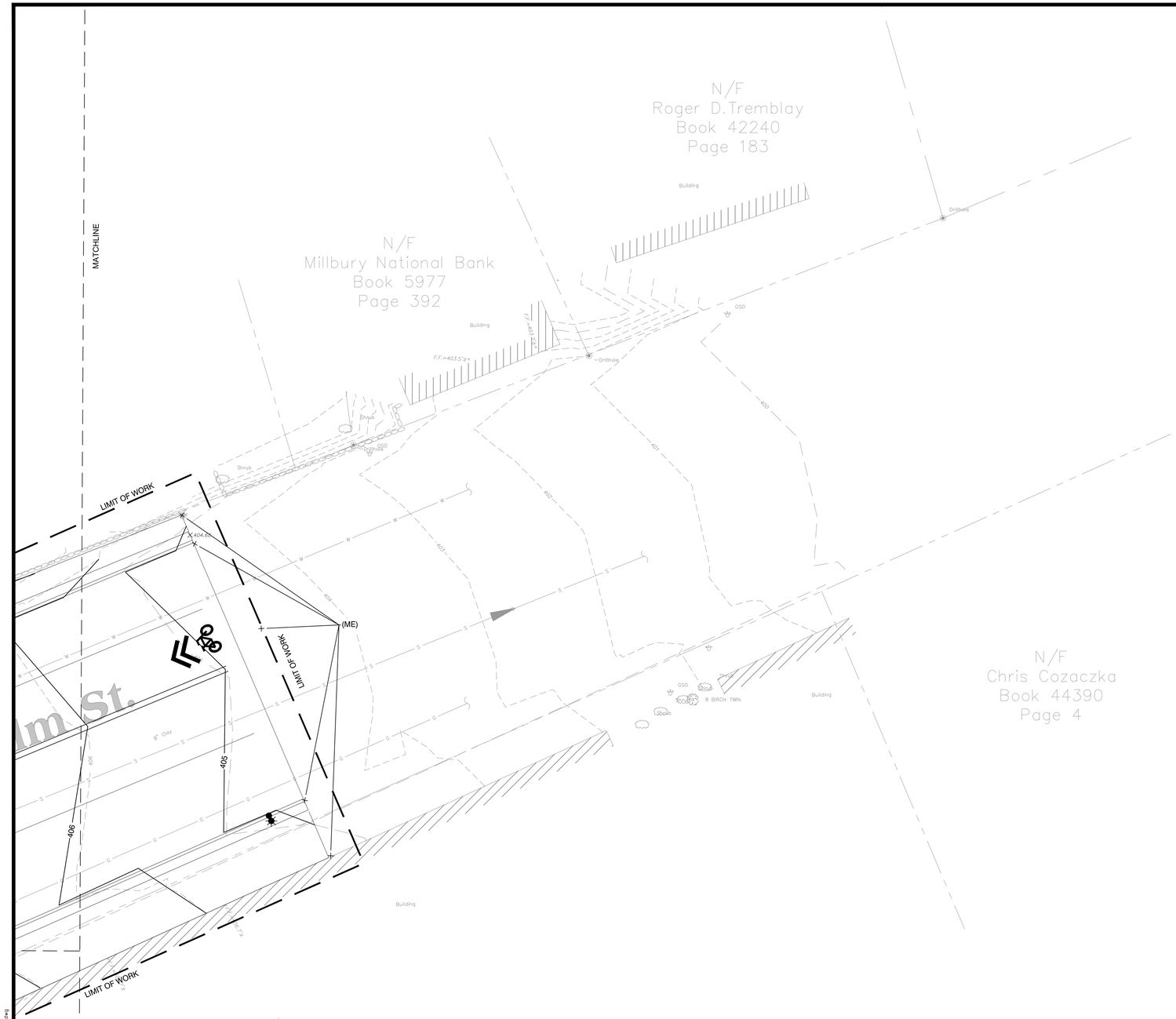


## LEGEND:

| | |
|---|---|
| | LIMIT OF WORK |
| | EXISTING DRAINAGE STRUCTURE. SEE UTILITIES PLAN |
| 12 | EXISTING CONTOURS |
| 95.10 | EXISTING SPOT ELEVATION |
| 14 | PROPOSED CONTOURS |
| 15 | |
| 1.5% | PROPOSED SLOPE |
| 8.25 | PROPOSED SPOT ELEVATION |
| | CATCH BASIN |
| | AREA DRAIN |
| CO | CLEAN OUT |
| D | DRAINAGE MAN HOLE |
| S | SEWER MAN HOLE |
| | ORNAMENTAL LIGHT |

0 10 20 30

SCALE: 1"=10'-0"

Project:

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Drawing Title:

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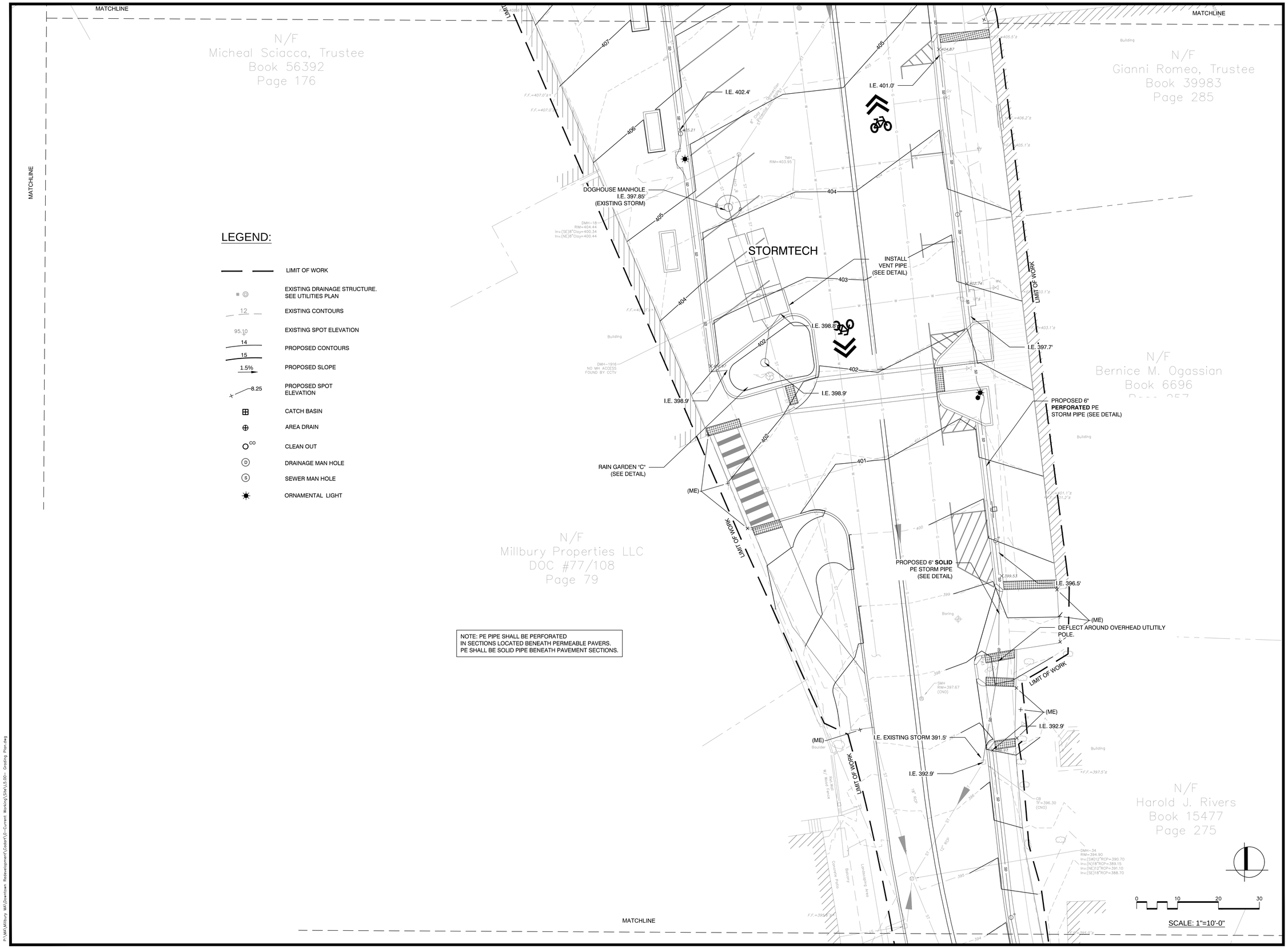


## LEGEND:

- LIMIT OF WORK
- EXISTING DRAINAGE STRUCTURE. SEE UTILITIES PLAN
- EXISTING CONTOURS
- EXISTING SPOT ELEVATION
- PROPOSED CONTOURS
- PROPOSED SLOPE
- PROPOSED SPOT ELEVATION
- CATCH BASIN
- AREA DRAIN
- CLEAN OUT
- DRAINAGE MAN HOLE
- SEWER MAN HOLE
- ORNAMENTAL LIGHT

NOTE: PE PIPE SHALL BE PERFORATED
IN SECTIONS LOCATED BENEATH PERMEABLE PAVERS.
PE SHALL BE SOLID PIPE BENEATH PAVEMENT SECTIONS.

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MATCHLINE

MATCHLINE

DEFLECT AROUND OVERHEAD UTLITILY POLE.
TRANSITION FROM 6" **PERFORATED** PE TO SOLID
BELOW PAVEMENT

NOTE: PE PIPE SHALL BE PERFORATED
IN SECTIONS LOCATED BENEATH PERMEABLE PAVERS.
PE SHALL BE SOLID PIPE BENEATH PAVEMENT SECTIONS.

N/F
James E. Cormier
DOC #49238

N/F
Robert A. Vanasse &
Michael F. Goulet, Trustees
Cert. #61086

N/F
Thomas L. &
Susan J. McKenney
Book 15096
Page 83

N/F
Charles E. Minney Post #3329

School St

LIMIT OF WORK

I.E. 386.8'

I.E. 385.8'

(ME)

## LEGEND:

| | |
|---|---|
| | LIMIT OF WORK |
| | EXISTING DRAINAGE STRUCTURE. SEE UTILITIES PLAN |
| 12 | EXISTING CONTOURS |
| 95.10 | EXISTING SPOT ELEVATION |
| 14 | PROPOSED CONTOURS |
| 15 | |
| 1.5% | PROPOSED SLOPE |
| 8.25 | PROPOSED SPOT ELEVATION |
| | CATCH BASIN |
| | AREA DRAIN |
| CO | CLEAN OUT |
| D | DRAINAGE MAN HOLE |
| S | SEWER MAN HOLE |
| | ORNAMENTAL LIGHT |

0 10 20 30

SCALE: 1"=10'-0"

Project:

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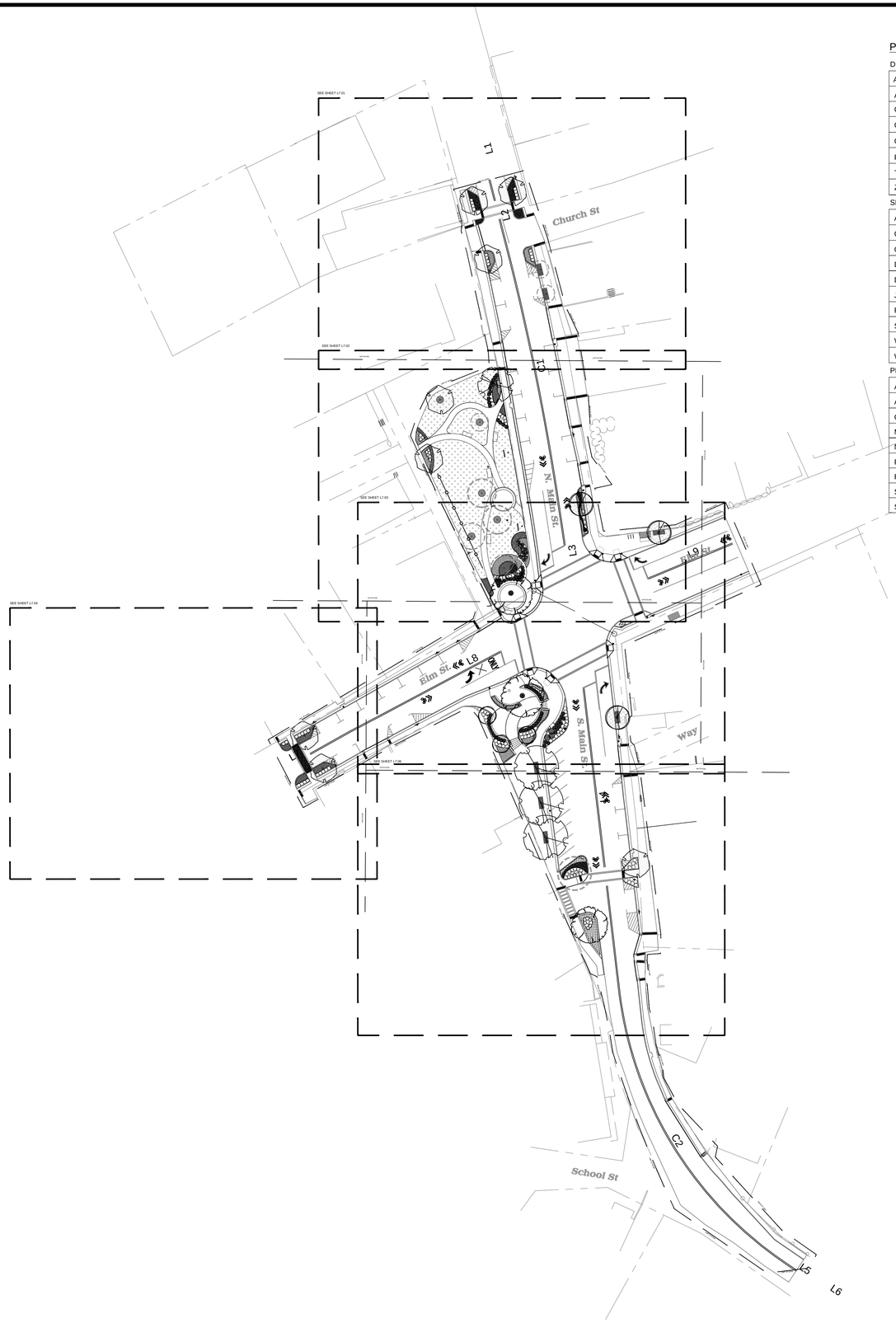


## PLANTING SCHEDULE

DECIDUOUS TREES

| ABRV. | QTY | COMMON NAME | BOTANICAL NAME | SIZE | NOTES |
|---|---|---|---|---|---|
| AG | 3 | 'Autumn Brilliance' SERVICEBERRY | AMELANCHIER X GRANDIFLORA 'Autumn Brilliance' | 7-8' TALL* , B&B | SPACE 15-20' O.C. |
| CF | 2 | PINK FLOWERING DOGWOOD | CORNUS FLORIDA ' Cherokee Princess' | 2"-2.5" CAL.B&B | SPACE 15-20' O.C. |
| GBA | 6 | 'Autumn Gold' MAINDENHAIR TREE | GINKGO BILOBA 'Autumn Gold' | 3"-3.5" CAL.B&B | SPACE 40' O.C. |
| GB | 5 | 'Princeton Sentry' COLUMNAR GINKGO | GINKGO BILOBA 'Princeton Sentry' | 3"-3.5" CAL.B&B | SPACE 15' O.C. |
| PC | 1 | 'Cleveland Select' FLOWERING PEAR | PYRUS CALLERYANA 'Cleveland Select' | 3"-3.5" CAL.B&B | SPACE 35' O.C. |
| TC | 3 | 'Greenspire' LITTLELEAF LINDEN | TILIA CORDATA 'Greenspire' | 3"-3.5" CAL.B&B | SPACE 35' O.C. |
| ZS | 1 | 'Village Green' JAPANESE ZELKOVA | ZELKOVA SERRATA 'Village Green' | 3"-3.5" CAL.B&B | SPACE 30-50' O.C. |

SHRUBS

| | | | | | |
|---|---|---|---|---|---|
| AM | 44 | 'Low Scape Mound' BLACK CHOKEBERRY | ARONIA MELANOCARPA 'Low Scape Mound' | #2 CONT., B&B | SPACE 2'+/- O.C. |
| CA # | 28 | 'Hummingbird' SWEETSPIRE | CLETHRA ALNIFOLIA 'Hummingbird' | #2 CONT., B&B | SPACE 4' O.C. |
| CS # | 58 | 'Arctic Fire' RED TWIG DOGWOOD | CORNUS STOLONIFERA 'Farrow' | #2 CONT., B&B | SPACE 3'-4'+/- O.C. |
| DN | 31 | 'Night Glow' DWARF BUSH HONEYSUCKLE | DIERVILLA SPLENDENS 'El Madrigal' | #2 CONT., B&B | SPACE 3' O.C. |
| DS | 19 | VARIEGATED DWARF BUSH HONEYSUCKLE | DIERVILLA SESSILIFOLIA 'Cool Splash' | #2 CONT., B&B | SPACE 3' O.C. |
| JH | 35 | HUGHES SPREADING JUNIPER | JUNIPERUS HORIZONTALIS 'Hughes' | #2 CONT., B&B | SPACE 5' O.C. |
| RA | 44 | SPREADING FRAGRANT SUMAC | RHUS AROMATICA 'Gro-Low' | #2 CONT., B&B | SPACE 4' O.C. |
| SX | 36 | 'Bloomerang Dwarf Pink' REBLOOMING LILAC | SYRINGA X 'Bloomerang Dwarf Pink' | #2 CONT., B&B | SPACE 3-4' O.C. |
| WF | 10 | 'Spilled Wine' WEIGELA | WEGEILA FLORIDA 'Spilled Wine' | #2 CONT., B&B | SPACE 2.5'+/- O.C. |
| WS | 15 | 'Sonic Bloom Pink' WEIGELA | WEIGELA FLORIDA 'Sonic Bloom Pink' | #2 CONT., B&B | SPACE 5' O.C. |

PERENNIALS

| | | | | | |
|---|---|---|---|---|---|
| AS | 53 | BASKET-OF-GOLD | AURINIA SAXATILIS | #2 CONT., B&B | SPACE 1.5'+/- O.C. |
| AX # | 28 | 'Chantilly Lace' COMPACT GOATSBEARD | ARUNCUS X 'Chantilly Lace' | #2 CONT., B&B | SPACE 3'+/- O.C. |
| CX | 23 | FEATHER REED GRASS | CALAMAGROSTIS X ACUTIFLORA 'Karl Foerster' | #2 CONT., B&B | SPACE 3'+/- O.C. |
| MD # | 71 | 'Pardon My Cerise' DWARF BEE BALM | MONARDA DIDYMA 'Pardon My Cerise' (RED) | #2 CONT., B&B | SPACE 1.5' O.C. |
| NF | 51 | 'Walkers Low' CATMINT | NEPETA X FAASSENII 'Walkers Low' | #2 CONT., B&B | SPACE 2.5' O.C. |
| PA | 17 | 'Denim & Lace' DWARF RUSSIAN SAGE | PEROVSKIA ATRIPLICIFOLIA 'Denim & Lace' | #2 CONT., B&B | SPACE 3'+/- O.C. |
| PAM | 36 | BLACK FLOWERING FOUNTAIN GRASS | PENNISETUM ALOPPECUROIDES 'Moudry' | #2 CONT., B&B | SPACE 3'+/- O.C. |
| SR # | 6 | 'Lemony Lace' ELDERBERRY | SAMBUCUS RACEMOSA 'Lemony Lace' | #2 CONT., B&B | SPACE 4-5'+/- O.C. |
| SS | 9 | Autumn Fire STONECROP | SEDUM SPECTABILE 'Autumn Fire' | #2 CONT., B&B | SPACE 2'+/- O.C. |

* MULTI-STEMMED FORM # RAIN GARDEN APPROPRIATE

0 30 60 90

SCALE: 1"=30'-0"

Project:

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DOWNTOWN REDEVELOPMENT

MILLBURY , MA

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OVERALL PLANTING PLAN

Sheet Number:

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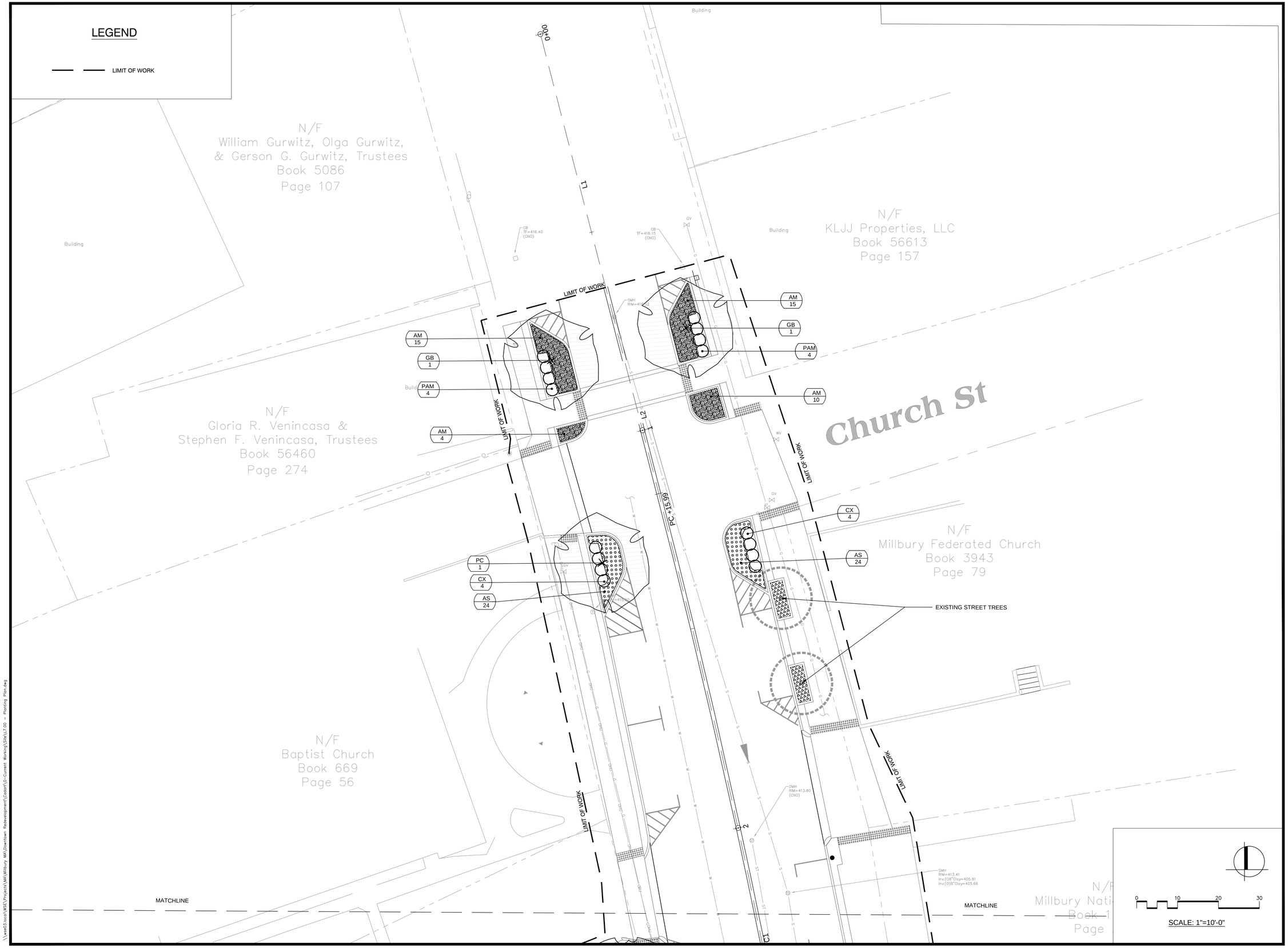


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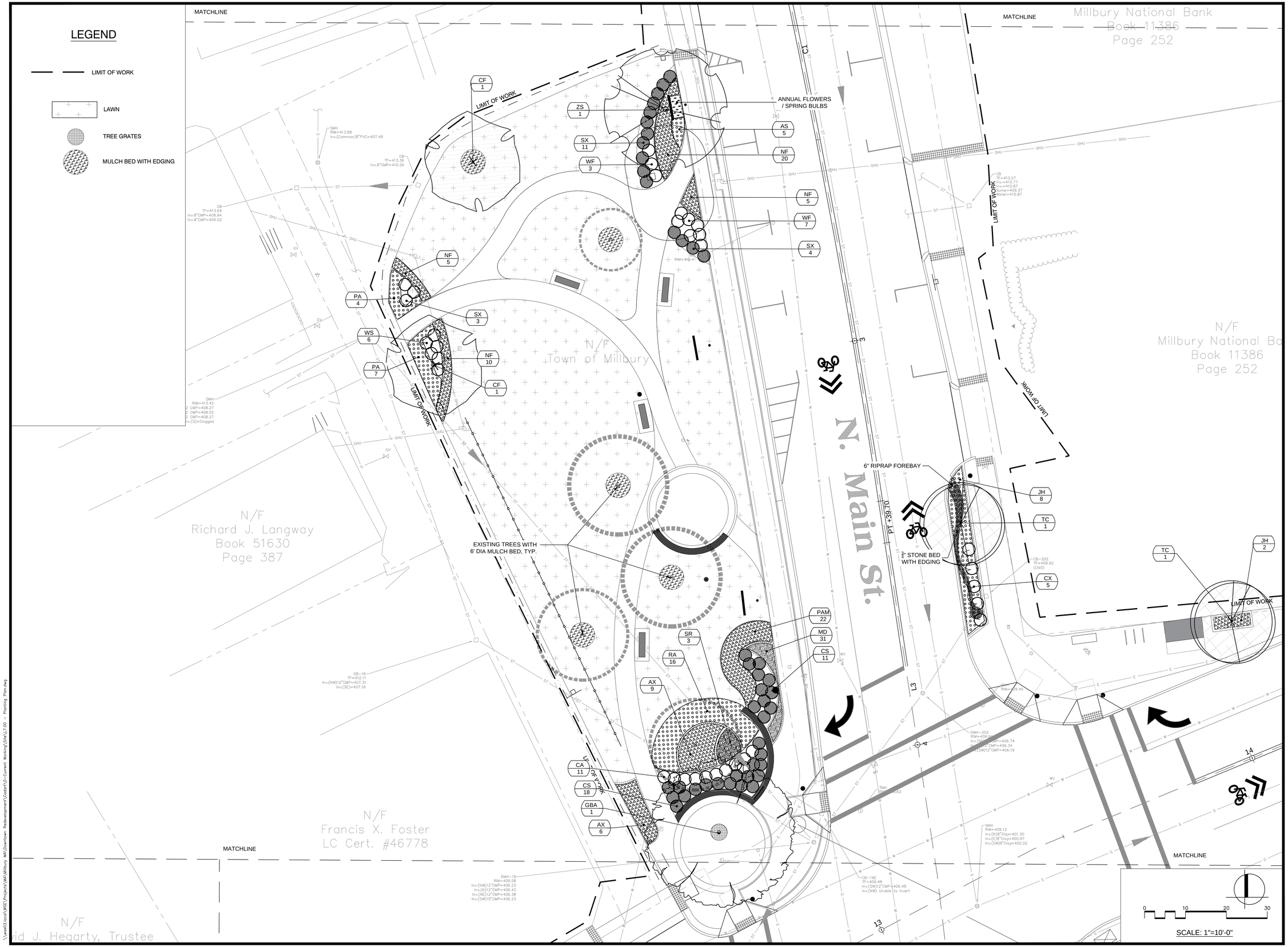
## LEGEND

- LIMIT OF WORK
- LAWN
- TREE GRATES
- MULCH BED WITH EDGING

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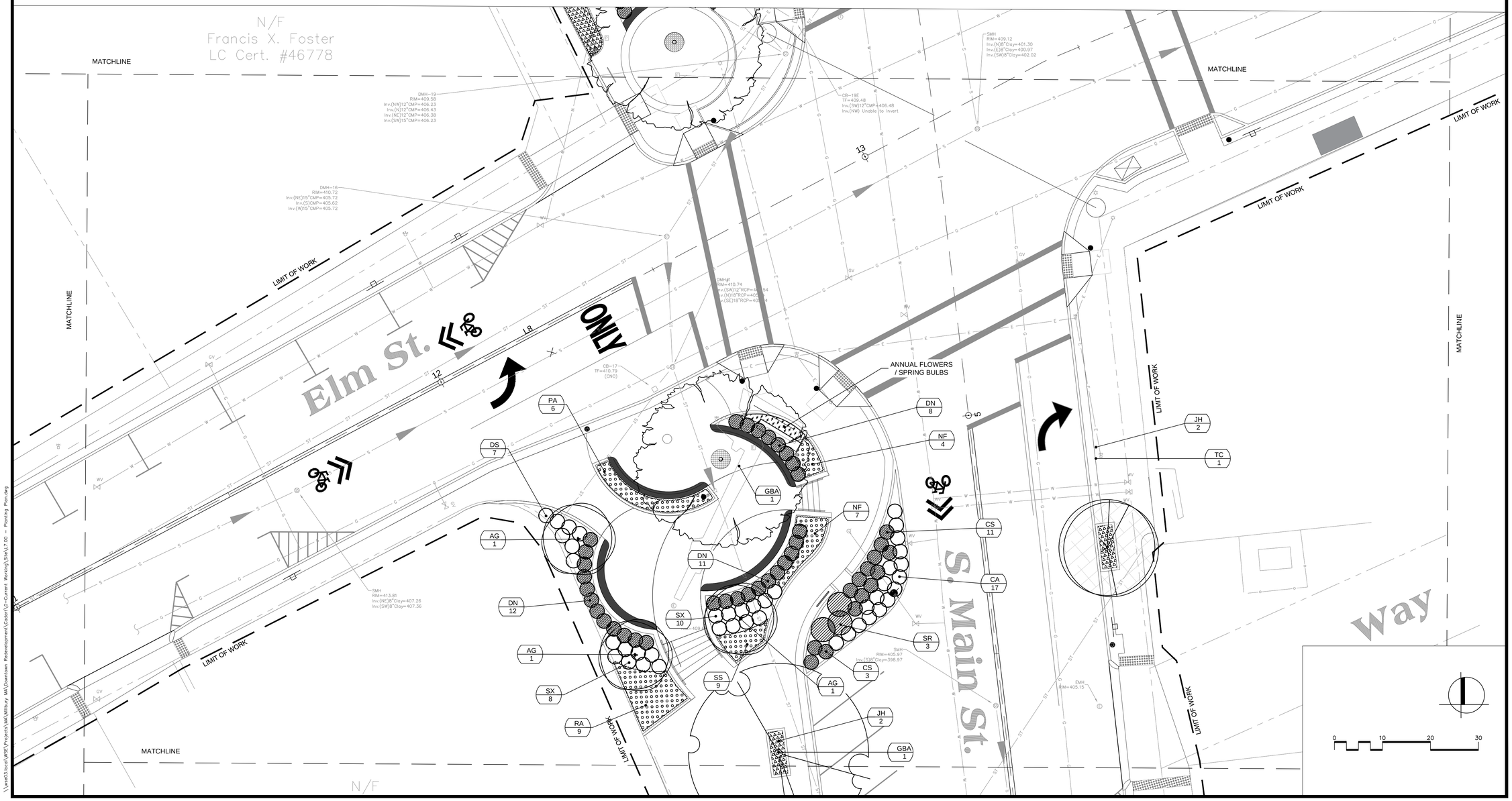
## LEGEND

LIMIT OF WORK

TREE GATES

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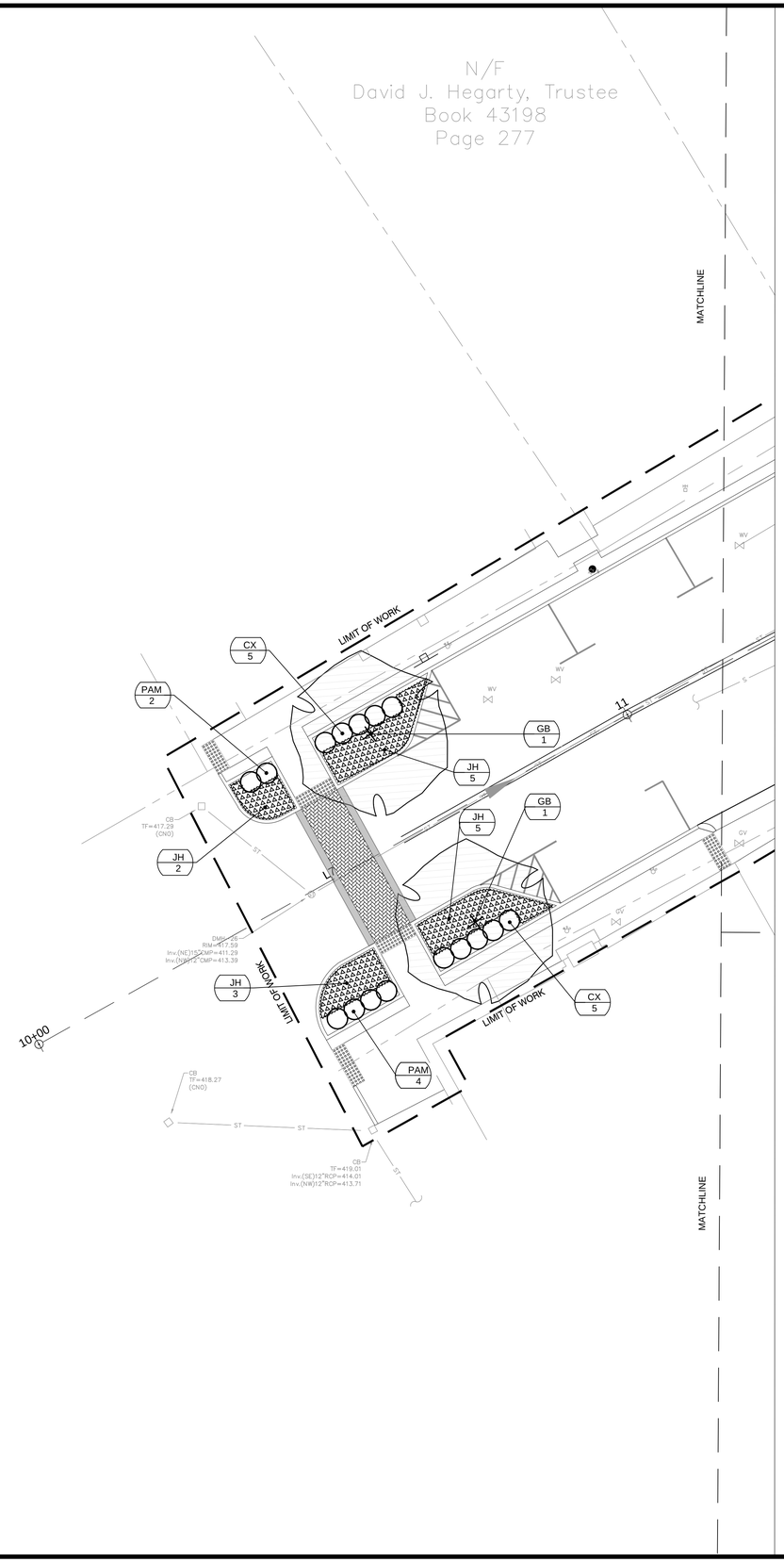


## LEGEND

LIMIT OF WORK

0 10 20 30

SCALE: 1"=10'-0"

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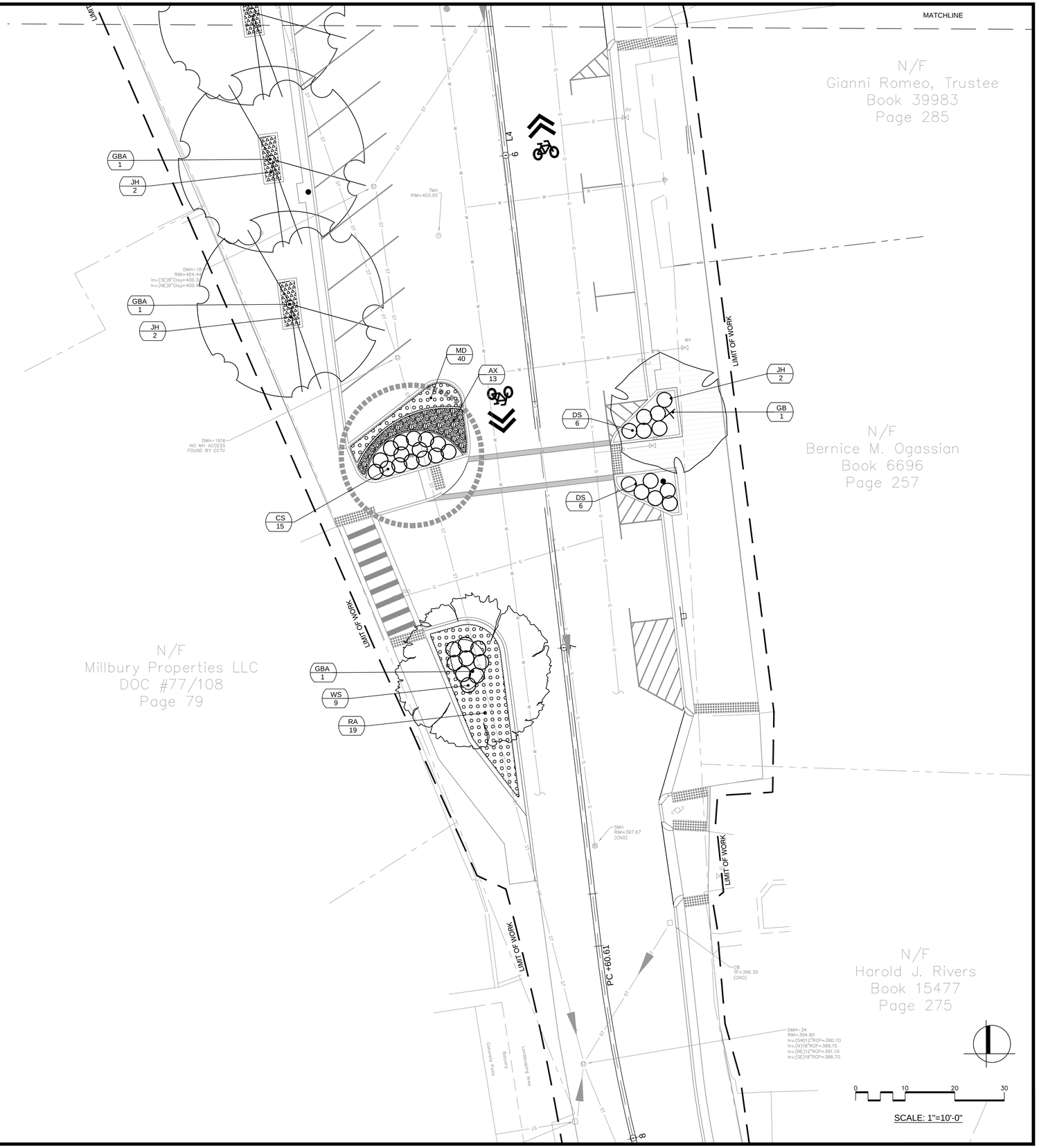
## LEGEND

- LIMIT OF WORK
- LAWN
- TREE GRATES

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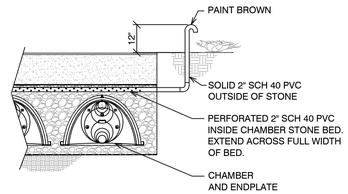
| MATERIAL LOCATION | DESCRIPTION | AASHTO M43 DESIGNATION | AASHTO M145 DESIGNATION | COMPACTION/DENSITY REQUIREMENT |
|---|---|---|---|---|
| Ⓓ FILL MATERIAL FROM 18" TO GRADE ABOVE CHAMBERS | REFER TO DETAILS AND GEOTECHNICAL REPORT FOR PAVEMENT, BASE AND SUBBASE DESIGN | N/A | N/A | PREPARE PER GEOTECHNICAL REPORT. |
| Ⓒ FILL MATERIAL FOR 6" TO 18" ELEVATION ABOVE CHAMBERS (24" FOR UNPAVED INSTALLATIONS) | GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES. | 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10 | A-1<br>A-2<br>A-3 | COMPACT IN 6" LIFTS TO A MINIMUM 95% STANDARD PROCTOR DENSITY. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 LBS. DYNAMIC FORCE NOT TO EXCEED 20,000 LBS. |
| Ⓑ EMBEDMENT STONE SURROUNDING AND TO A 6" ELEVATION ABOVE CHAMBERS | WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN - 2 INCH | 3, 357, 4, 467, 5, 56, 57 | N/A | NO COMPACTION REQUIRED |
| Ⓐ FOUNDATION STONE BELOW CHAMBERS | WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN ¾ - 2 INCH | 3, 357, 4, 467, 5, 56, 57 | N/A | PLATE COMPACT OR ROLL TO ACHIEVE A 95% STANDARD PROCTOR DENSITY |

PLEASE NOTE: THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE WASHED CRUSHED ANGULAR. FOR EXAMPLE, THE STONE MUST BE SPECIFIED AS WASHED, CRUSHED, ANGULAR NO. 4 STONE.

1 CHAMBER DETENTION - ACCEPTABLE FILL MATERIALS
SCALE: N.T.S.




4 VENT DETAIL, TYP.
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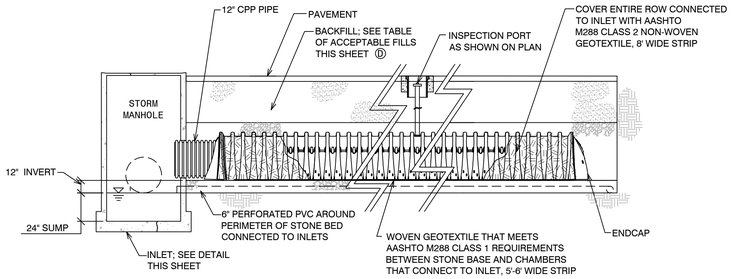
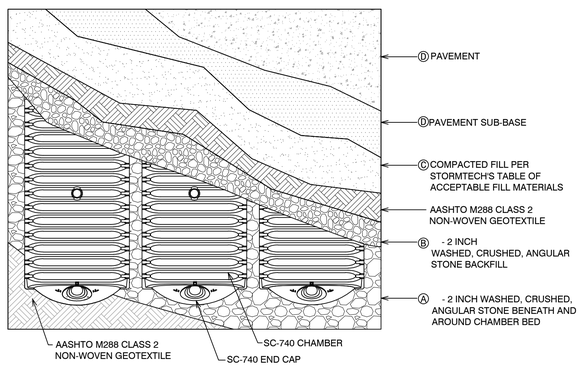
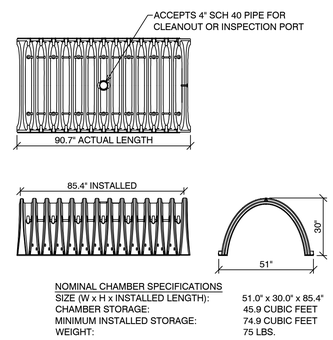



NOTES:
1. FOR DESIGN OF STORM MANHOLE SEE DETAIL, THIS SHEET.
2. SEE STORM MANAGEMENT PLAN, FOR LOCATION OF STORM PIPES AT MANHOLES, INVERT OF PIPES, ELEVATION OF BOTTOM OF STONE BED AND LAYOUT OF CHAMBER DETENTION SYSTEM.
3. DETAILS SHOWN FOR REFERENCE ONLY. LANDSAVER CHAMBERS ARE ALSO AN APPROVED DETENTION MATERIAL.

7 INSULATOR ROW - PROFILE VIEW, TYP.
SCALE: N.T.S.




2 CHAMBER DETENTION - PLAN VIEW, TYP.
SCALE: N.T.S.



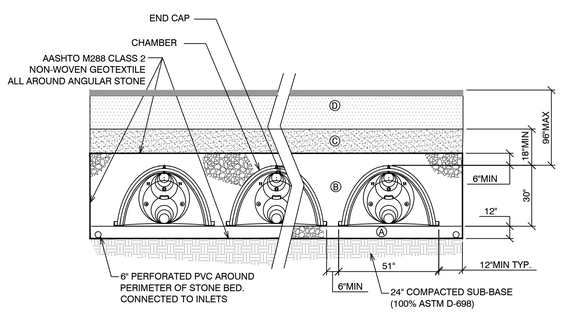

NOMINAL CHAMBER SPECIFICATIONS

| | |
|---|---|
| SIZE (W x H x INSTALLED LENGTH): | 51.0" x 30.0" x 85.4" |
| CHAMBER STORAGE: | 45.9 CUBIC FEET |
| MINIMUM INSTALLED STORAGE: | 74.9 CUBIC FEET |
| WEIGHT: | 75 LBS. |

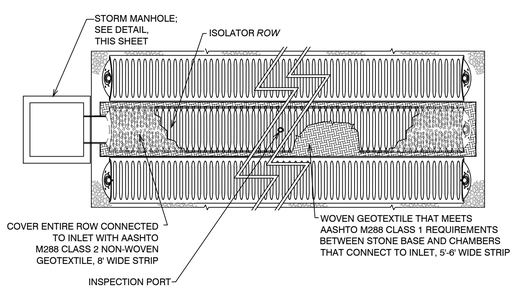
CHAMBER GENERAL NOTES

1. INSTALLATION PER MANUFACTURE.
2. INSULATOR REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.): MINIMUM COVER IS 18 INCHES NOT INCLUDING PAVEMENT; MAXIMUM COVER IS 96 INCHES INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT, WHERE RUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24 INCHES, MAXIMUM COVER IS 96 INCHES.
3. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
4. AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
5. STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION MANUFACTURE'S INSTALLATION INSTRUCTIONS.
6. BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF MANUFACTURE'S INSTALLATION INSTRUCTIONS.
7. THE CONTRACTOR MUST REFER TO MANUFACTURE'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED MANUFACTURE'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE STORMWATER SYSTEM. TEMPORARY FENCING, WARNING TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.
8. THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.

5 CHAMBER, TYP.
SCALE: N.T.S.




3 CHAMBER DETENTION - ELEVATION VIEW, TYP.
SCALE: N.T.S.




6 INSULATOR ROW - PLAN VIEW, TYP.
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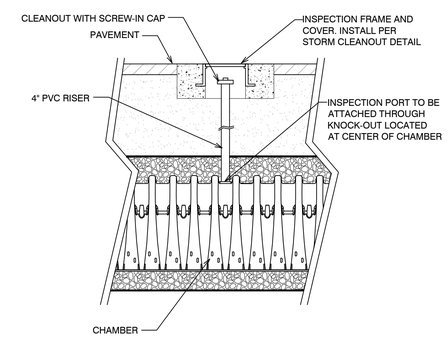


8 INSPECTION PORT DETAIL, TYP.
SCALE: N.T.S.

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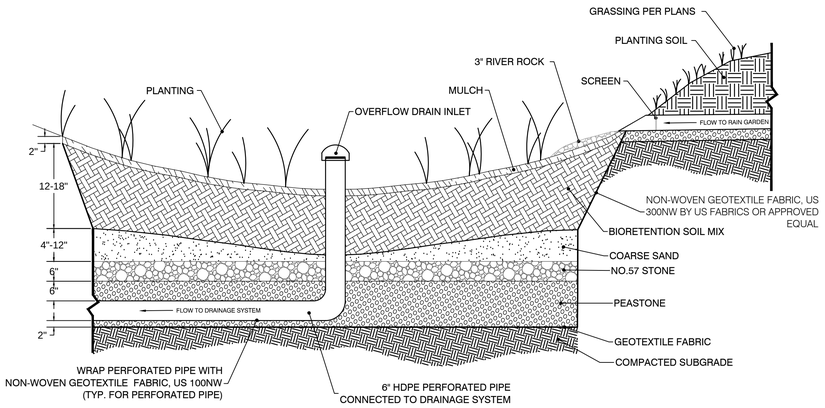


1 RAIN GARDEN CROSS-SECTION: AT-GRADE INFLUENT, TYP.

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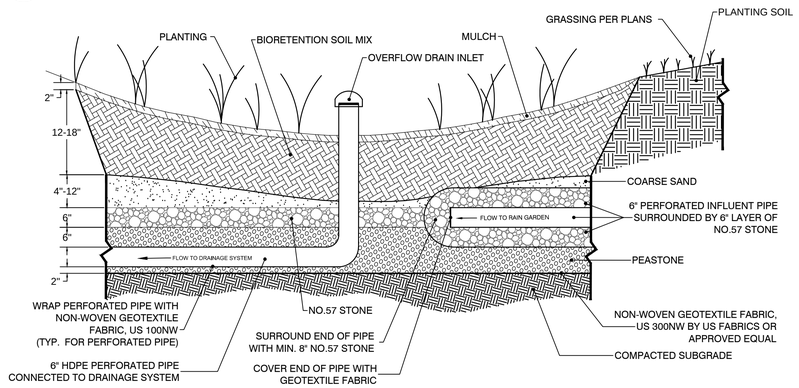


2 RAIN GARDEN CROSS-SECTION: BELOW-GRADE INFLUENT, TYP.

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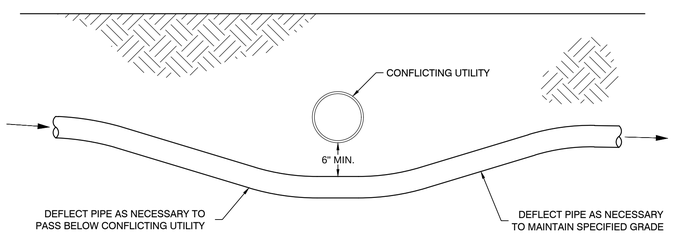


3 UTILITY CONFLICT, TYP.

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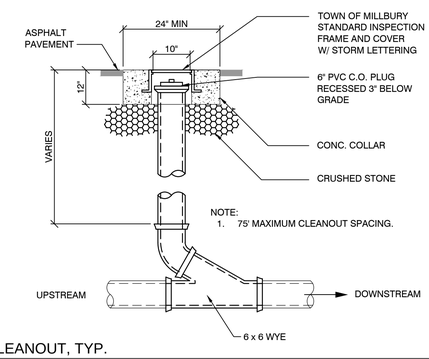


4 STORM CLEANOUT, TYP.

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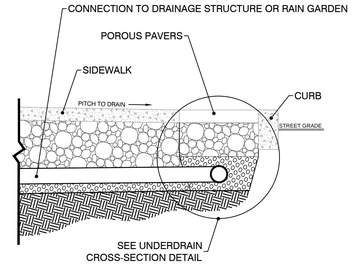


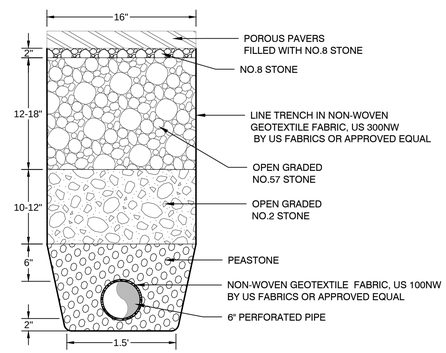


5 POROUS PAVER TYPE 1, WITH UNDER-DRAIN CROSS-SECTION , TYP.

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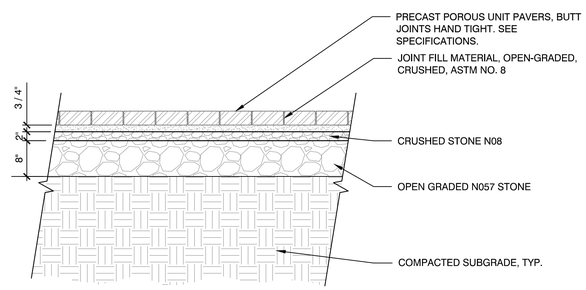
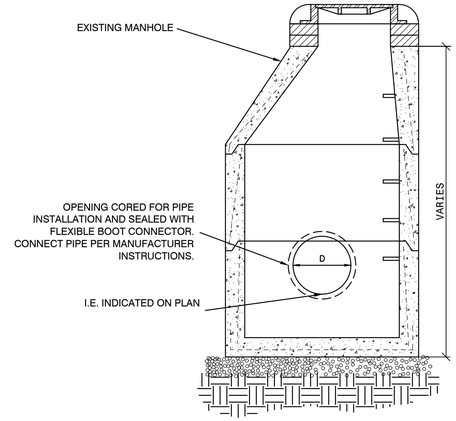



NOTES:
1. ALL AGGREGATE MATERIAL SHALL BE CRUSHED, ANGULAR STONE AND FREE OF FINES.
2. SURFACE SLOPE SHALL BE A MINIMUM OF 1% AND MAXIMUM OF 5%.
3. INSTALL PVC UNDERDRAIN PIPE WHERE INFILTRATION RATE OF SUBSOIL IS LESS THAN 0.5 IN./HR.
4. MAINTAIN A MINIMUM DISTANCE OF 2' BETWEEN BOTTOM OF PERMEABLE BASE AND WATER TABLE.
5. THE MINIMUM AGGREGATE THICKNESS ARE AFTER COMPACTION.

4 POROUS PAVER TYPE 2 TYP.

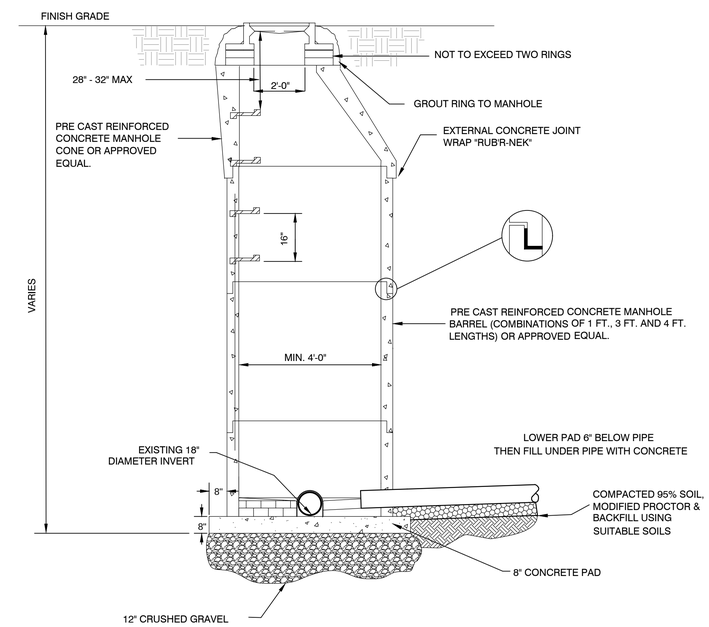
SCALE: N.T.S.



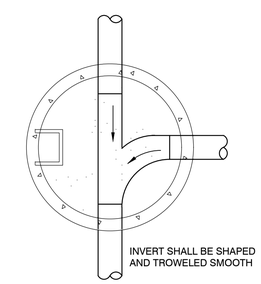

NOTES:
1. A FLEXIBLE PIPE TO MANHOLE CONNECTION SHALL BE USED WHENEVER A PIPE PENETRATES INTO A MANHOLE STRUCTURE.
2. THE DESIGN OF THE CONNECTOR SHALL PROVIDE A WATERTIGHT SEAL BETWEEN THE PIPE AND CONCRETE STRUCTURE.
3. CONNECT DRAIN PIPE TO MANHOLE WITH MIN. 4' HDPE. TRANSITION FROM PERFORATED HDPE TO HDPE USING ADAPTER OR COUPLING.
4. SEE PLANS FOR LOCATION OF STORM PIPE(S) AT INLET.
5. SEE EROSION & SEDIMENT CONTROL PLAN FOR INLET PROTECTION MEASURES. MAINTAIN MEASURES UNTIL FINAL STABILIZATION IS ACHIEVED.

6 CONNECTING TO EXISTING MANHOLE, TYP.

SCALE: N.T.S.




NOTES:
1. MANHOLES SHALL MEET OR EXCEED ASTM-C478
2. MINIMUM WALL THICKNESS SHALL BE 5"
3. ALL MANHOLE SECTIONS SHALL HAVE LIFTING HOLES PROVIDED
4. MANHOLE SECTION SHALL BE TONGUE AND GROOVED
5. STEPS SHALL BE CAST IN PLACE WITH A MAX. 16" O.C.
6. MASTIC OR 'O' RING WILL BE ACCEPTABLE
7. INLET AND OUTLET PIPES MUST BE AT PROPER ELEVATION WITH OPENING CAST IN MANHOLE BY MANUFACTURER
8. MANHOLES MAY BE CONSTRUCTED CONCENTRIC IF TOTAL HEIGHT IS 5' OR LESS
9. DISTANCE FROM BOTTOM OF TROUGH TO SHELF EDGE TO BE 70% DIAMETER OF OUTLET PIPE
10. 10% SLOPE ON SHELF - ALL DIRECTION
11. MIN. 15" WIDTH OF SHELF (BENCH)
12. ADJUST ELEVATION OF FRAME AS REQUIRED USING CONCRETE GRADE RINGS




7 "DOGHOUSE TYPE" MANHOLE

SCALE: N.T.S.

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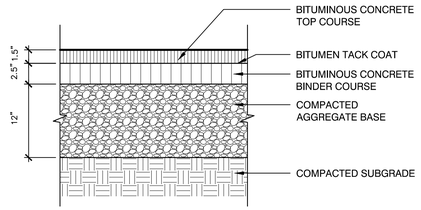
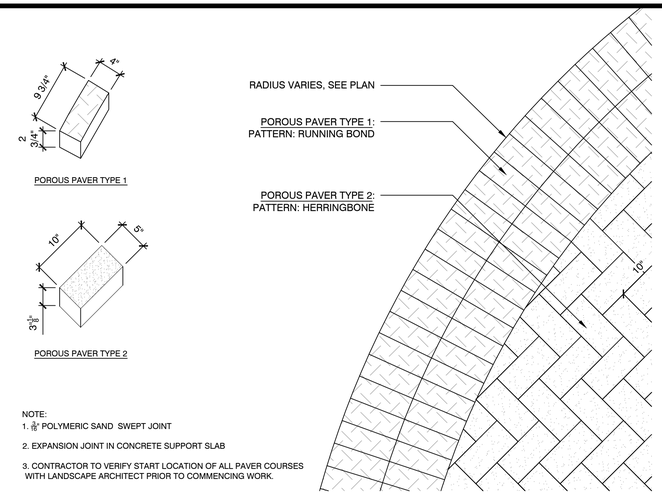



1 VEHICULAR RATED BITUMINOUS CONCRETE PAVEMENT, TYP.

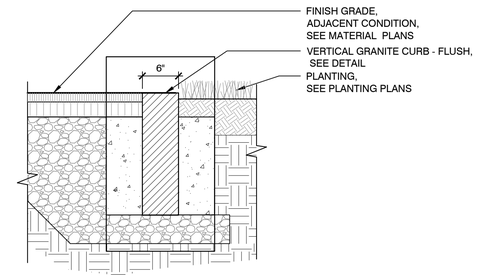
SCALE: N.T.S.




NOTE:
1. 3/8" POLYMERIC SAND SWEPT JOINT
2. EXPANSION JOINT IN CONCRETE SUPPORT SLAB
3. CONTRACTOR TO VERIFY START LOCATION OF ALL PAVER COURSES WITH LANDSCAPE ARCHITECT PRIOR TO COMMENCING WORK.

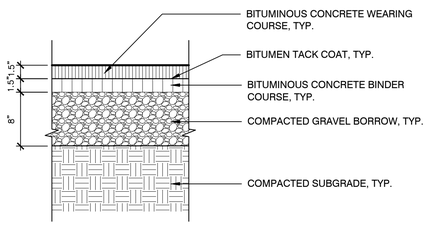
4 POROUS PAVERS TYPE 1 AND 2 AT PLAZA

SCALE: N.T.S.




7 VERTICAL GRANITE CURB-FLUSH AT PLANTING, TYP.

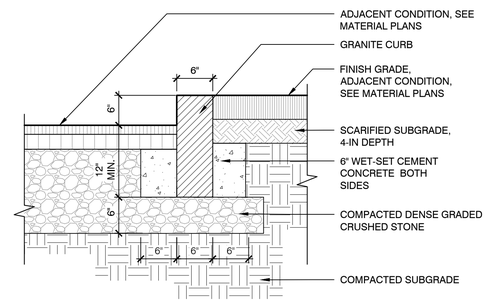
SCALE: N.T.S.




NOTE:.
1. CONTRACTOR TO PROVIDE SMOOTH TRANSITION WHERE NEW PAVEMENT ABUTS EXISTING PAVEMENT, TYP.

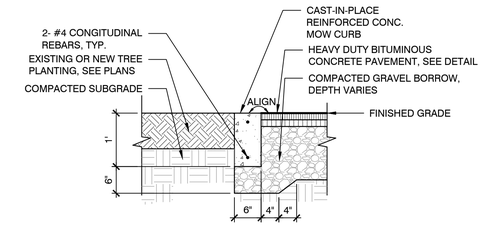
2 PEDESTRIAN RATED BITUMINOUS CONCRETE PAVEMENT, TYP.

SCALE: N.T.S.




5 VERTICAL GRANITE CURB, TYP.

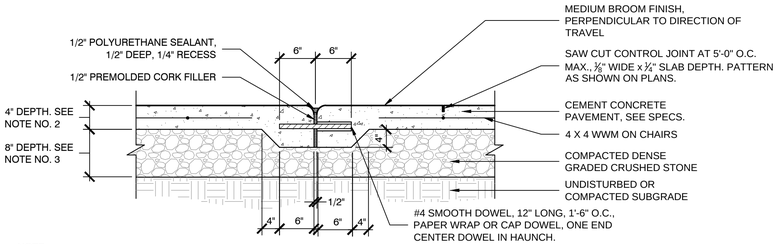
SCALE: N.T.S.




NOTES:
1. MOW STRIP CORNERS ADJACENT TO RESILIENT SURFACING SHALL BE SQUARE TO ENSURE SMOOTH INTERFACE BETWEEN MATERIALS.
2. MOW STRIP CORNERS ADJACENT TO PLANTING BED OR LAWN AREAS WILL HAVE 1/2" CHAMFER
3. CONTRACTOR SHALL PROVIDE 3/8" PREMOLDED POLYETHYLENE FOAM EXPANSION JOIN, FULL DEPTH WITH SILICONE SEALANT EVERY 30' O.C. UNLESS OTHERWISE NOTED.
4. CONTRACTOR SHALL USE EXTREME CAUTION AT ROOT ZONE OF EXISTING TREES TO REMAIN. CONTRACTOR SHALL CLEAN CUT ANY ROOTS OVER 2" DIA. THAT ARE EFFECTED BY THE SCOPE OF WORK. CONTRACTOR SHALL CONSULT ARBORIST PRIOR TO ANY ROOT REMOVAL.

8 MOW CURB - FLUSH, TYP.

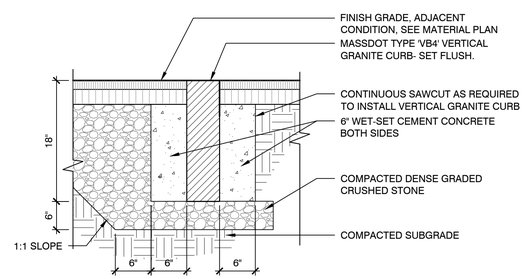
SCALE: N.T.S.




NOTE:
1. EXPANSION JOINT SPACING SHALL BE 25'-0" MAX, UNLESS OTHERWISE SHOWN ON PLANS.
2. NO REINF. @ 4" DEPTH PVMT.' 6x6-W2.9xW2.9 WELDED WIRE FABRIC W/12" LAP @ 6" DEPTH PVMT.
3. USE 8" GRAVEL BORROW UNDER 4" CEM. CONC. WALK PVMT. USE 12" GRAVEL BORROW UNDER 6" CEM. CONC. PADS/SLABS.
4. DOWELS SHALL BE USED AT EXPANSION JOINTS, WHERE NEW CONCRETE PAVEMENT ABUTS EXISTING CONCRETE PAVING TO REMAIN, AND ANY PROPOSED CONCRETE RAMPS AND STAIRS.
5. FOR SIDEWALK PAVEMENT, USE BROOM FINISH PERPENDICULAR TO ROUTE OF TRAVEL.
6. DOWEL IS TYPICAL AT ALL EXPANSION JOINTS (18"O.C.) WITHIN CONCRETE PAVING AND NEW CONCRETE PAVING BETWEEN EXISTING CONCRETE PAVING TO REMAIN.
7. DELETE EXPANSION SLEEVE AND DOWEL WHERE JOINT ABUTS WALL, CURBS, OR OTHER VERTICAL SURFACES UNLESS OTHERWISE NOTED.

3 CEMENT CONCRETE PAVEMENT, TYP.

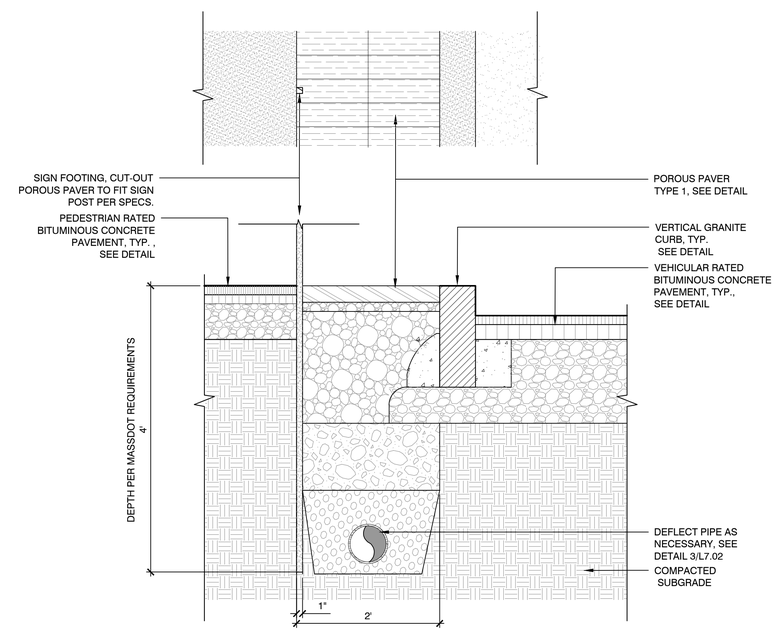
SCALE: N.T.S.




NOTES:
1. CEMENT CONCRETE SHALL EXTEND TO THE BOTTOM OF THE BITUMINOUS CONCRETE.
2. ANY CLASS OF CEMENT CONCRETE ASSEPTABLE UNDER SECTION M4 OF TEH MASS. "SSHB" MAY BE USED.

6 VERTICAL GRANITE CURB - FLUSH, TYP.

SCALE: N.T.S.




9 SIGNAGE SURFACE MOUNT, TYP.

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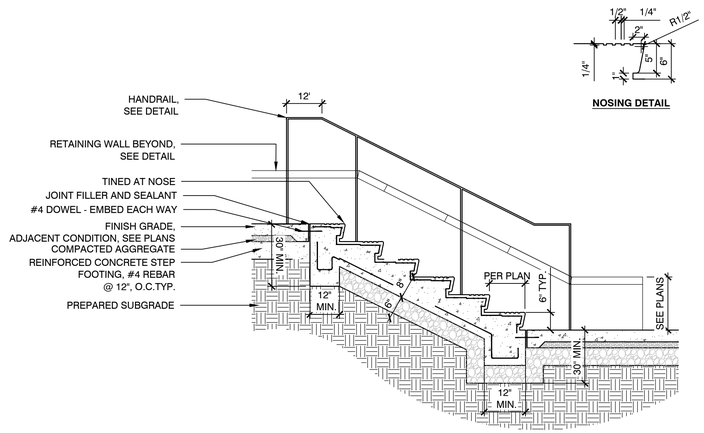


1 CONCRETE STAIRS, 6 STEPS

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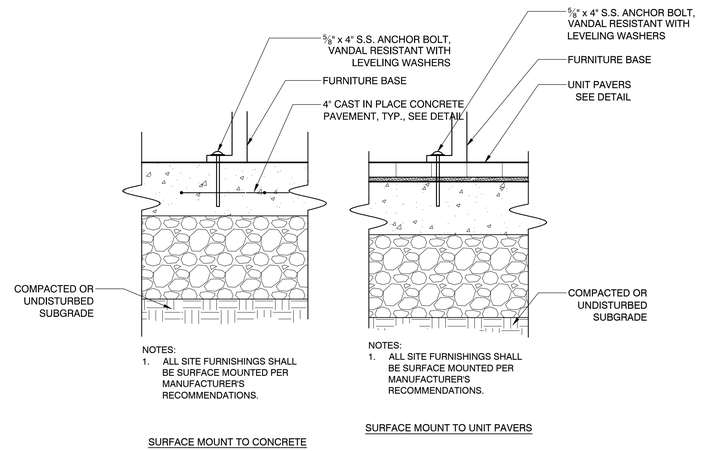


4 FURNITURE SURFACE MOUNT, TYP.

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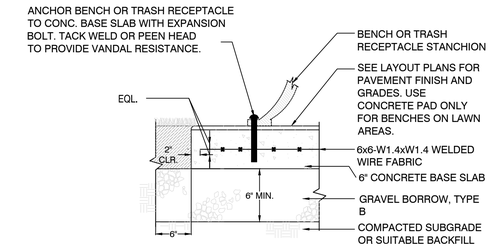


7 BENCH FOOTING ON CONCRETE PAD, TYP.

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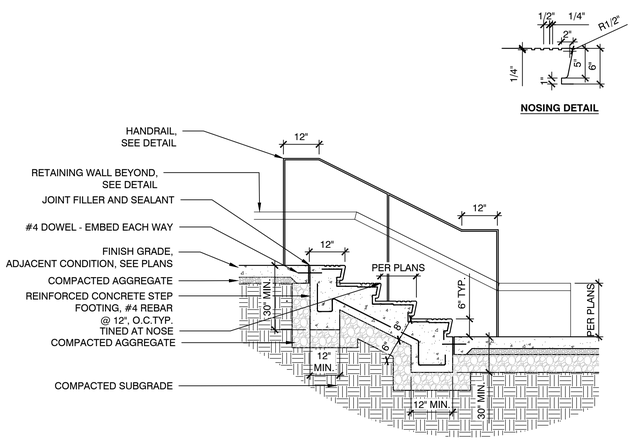


2 CONCRETE STAIRS, 4 STEPS

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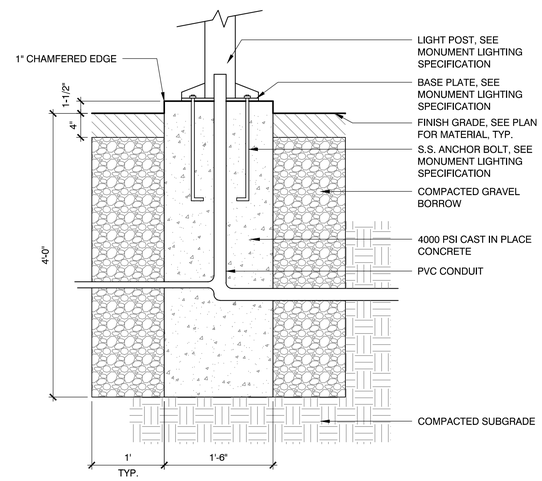
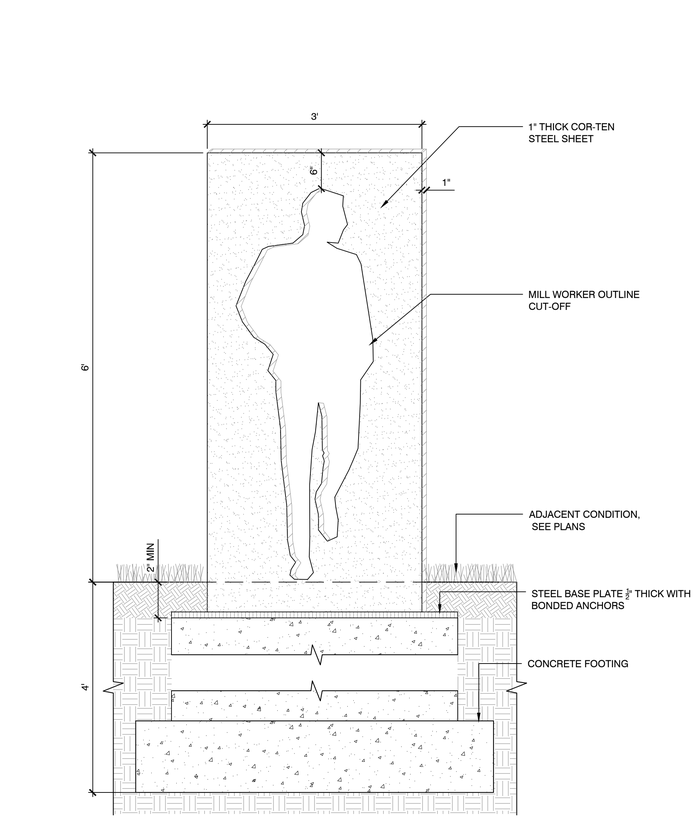



5 LIGHT POST FOOTING, TYP.

SCALE: N.T.S.




8 WEATHERING STEEL SCULPTURE

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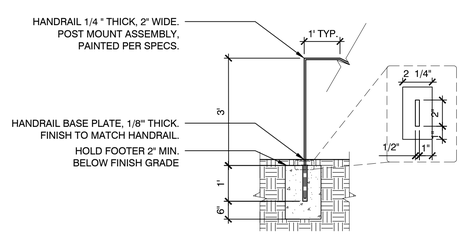
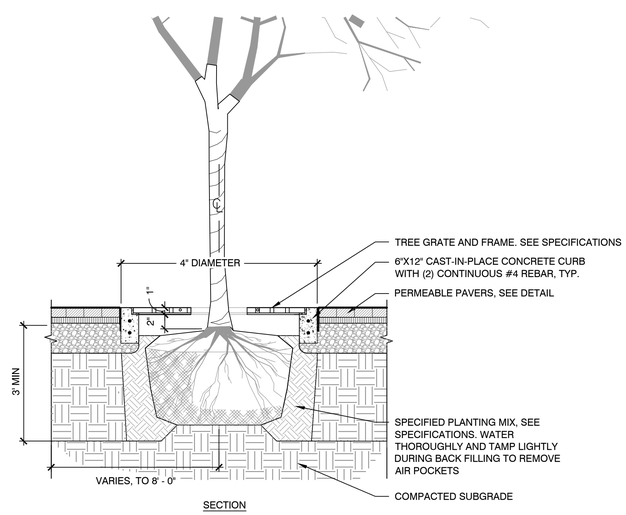



NOTES:
1. SUBMIT SHOP DRAWINGS INCLUDING FIELD MEASUREMENTS FOR APPROVAL BY LANDSCAPE ARCHITECT PRIOR FABRICATION.
2. ENSURE ADA COMPLIANCE.
3. ENSURE HANDRAILS INSTALLED UPRIGHT AND PLUMB.

3 HANDRAIL, TYP.

SCALE: N.T.S.




6 TREE GRATE EDGING CONDITIONS, TYP.

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Sheet Number:

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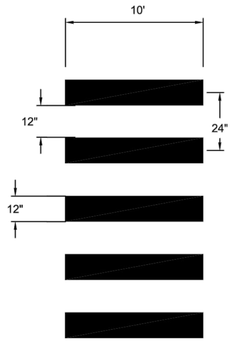
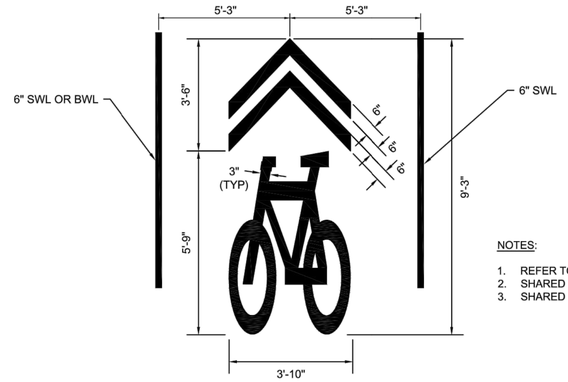



NOTES:

1. PAVEMENT MARKINGS SHALL BE THERMOPLASTIC AND CONFORM TO MASSDOT STANDARDS.
2. CROSSWALK LINE SHOULD BE BETWEEN ONE AND THREE FEET FROM THE CURB.

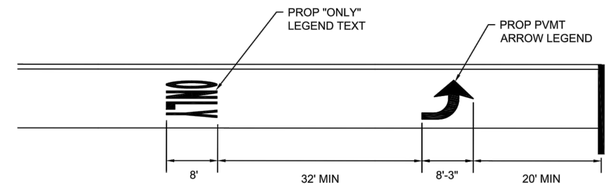
1 CROSSWALK WITH STRIPPING DETAIL, TYP.
SCALE: N.T.S.



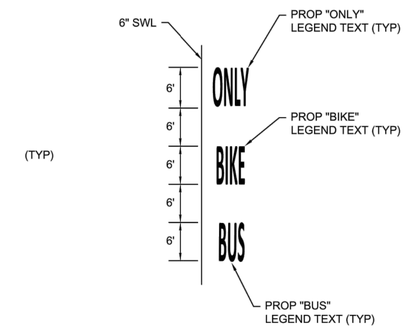

NOTES:

1. REFER TO FIGURE 9C-9 IN THE MUTCD FOR MORE DETAIL.
2. SHARED LANE MARKINGS SHALL BE EPOXY PAINT.
3. SHARED LANE MARKINGS SHALL BE ONE PIECE.

3 SHARED LANE PAVEMENT LEGEND DETAIL, TYP.
SCALE: N.T.S.




7 PAVEMENT ARROW AND LEGEND DETAIL, TYP.
SCALE: N.T.S.



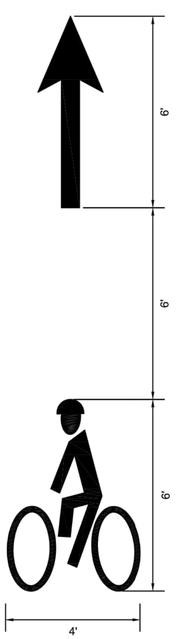

NOTES:

1. BUS/BIKE/ONLY PAVEMENT MARKINGS SHOULD BE CENTERED IN THE LANE UNLESS OTHERWISE NOTED.

8 BUS BIKE ONLY PAVEMENT MARKING DETAIL, TYP.
SCALE: N.T.S.

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | - | 90 | 125 |
| PROJECT FILE NO. | 608078 | | |

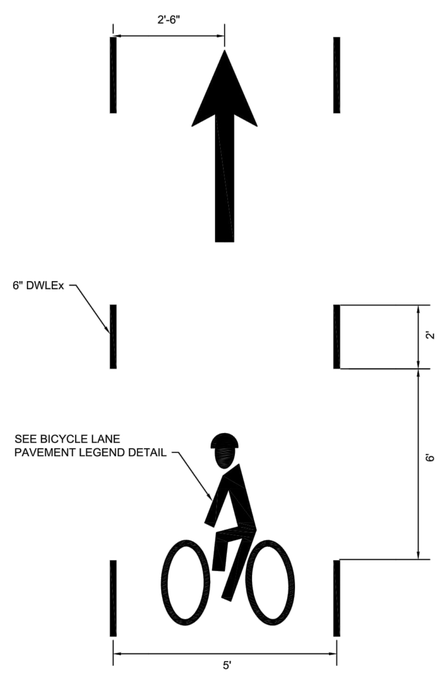
5 PAVEMENT MARKING DETAILS, TYP.
SCALE: N.T.S.



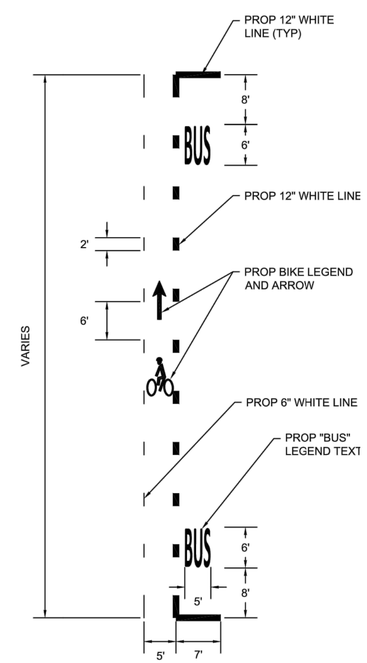

NOTES:

1. BIKE LANE PAVEMENT MARKING SHALL BE EPOXY PAINT UNLESS OTHERWISE SPECIFIED.

2 BICYCLE LANE PAVEMENT - LEGEND DETAIL
SCALE: N.T.S.



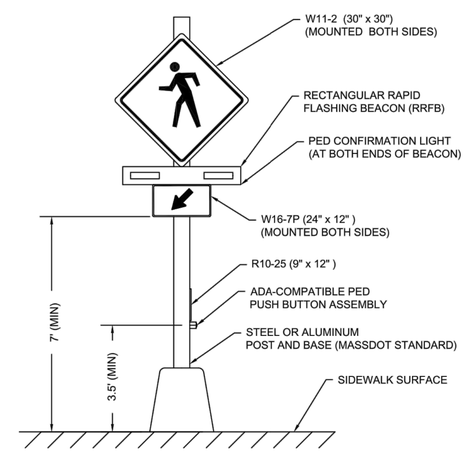

4 BICLYCLE LANE CROSSING PAVEMENT MARKING DETAIL, TYP.
SCALE: N.T.S.




NOTES:

1. BUS STOP PAVEMENT MARKINGS SHOULD BE 7' FROM FACE OF CURB UNLESS OTHERWISE NOTED.
2. REFER TO SIGN AND PAVEMENT MARKING PLAN FOR LENGTH OF BUS STOP PAVEMENT MARKINGS.

6 BUS AND BICYCLE LANE MARKING DETAIL, TYP.
SCALE: N.T.S.




NOTES:

1. OPERATION OF RRFB LED LIGHTS SHALL CONFORM TO FHWA INTERIM APPROVAL IA-11.
2. EACH RRFB UNIT SHALL CONTAIN A CONFIRMATION LIGHT WITHIN THE BEACON AT EACH END THAT SHALL BE ILLUMINATED WHEN THE RRFB UNIT IS ACTIVATED.
3. THE RRFB UNITS AT EACH CROSSWALK LOCATION SHALL COMMUNICATE WIRELESSLY WITH EACH OTHER.
4. UPON ACTIVATION OF A WAITING PEDESTRIAN, RRFB UNITS SHALL FLASH SIMULTANEOUSLY FOR A PERIOD OF 20 SECONDS, THEN STOP FLASHING.
5. RRFB UNITS SHALL BE "TRAFFIC SAFETY CORP." BRAND OR APPROVED EQUAL.

9 RECTANGULAR RAPID FLASHING BEACON (RRFB) DETAIL, TYP.
SCALE: N.T.S.

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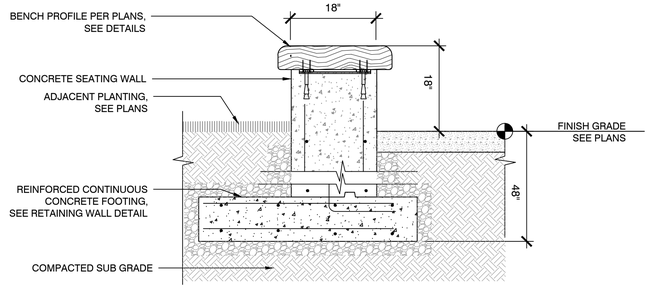
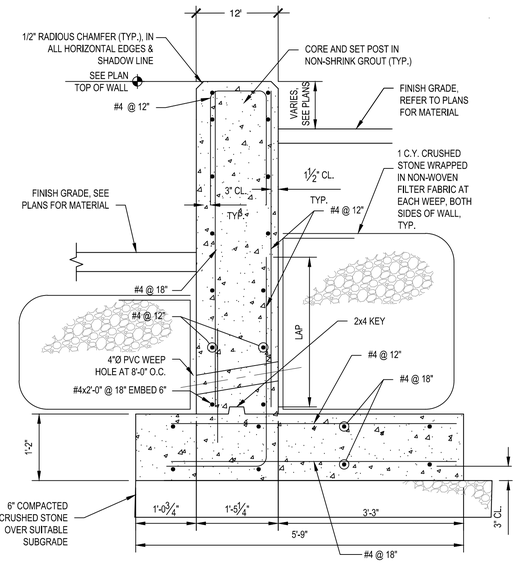



1 SEATING WALL, TYP.

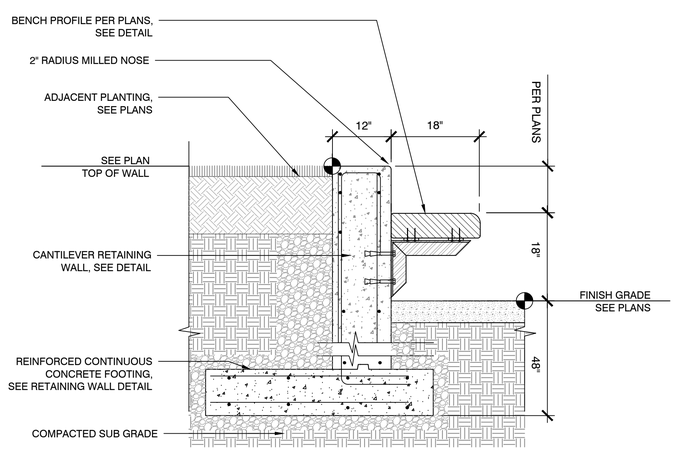
SCALE: N.T.S.




NOTES:
1. VERTICAL WALL EXPANSION JOINTS AT NO MORE THAN 50 FT. ON CENTER FOR ALL CONCRETE WALL POURS SEE SPECS.
2. CONTRACTOR SHALL SUBMIT TO THE ENGINEER, LOCATIONS OF CONSTRUCTION AND EXPANSION JOINTS FOR APPROVAL PRIOR TO THE START OF THE WALL CONSTRUCTION.

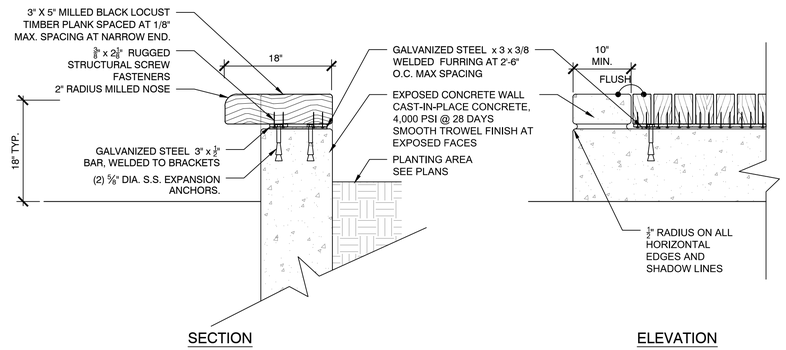
2 CANTILEVER RETAINING WALL, TYP.

SCALE: N.T.S.



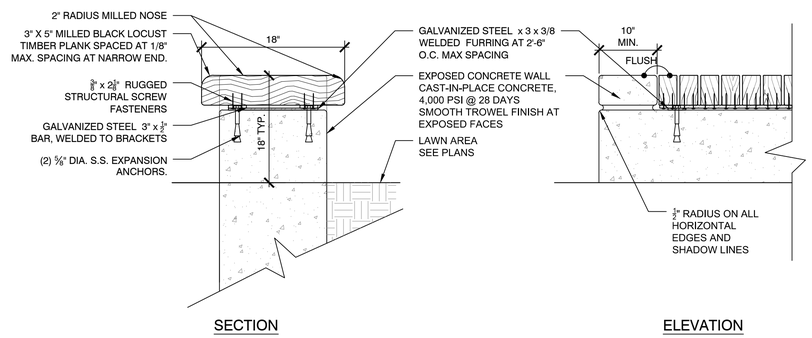

3 RETAINING SEATING WALL, TYP.

SCALE: N.T.S.



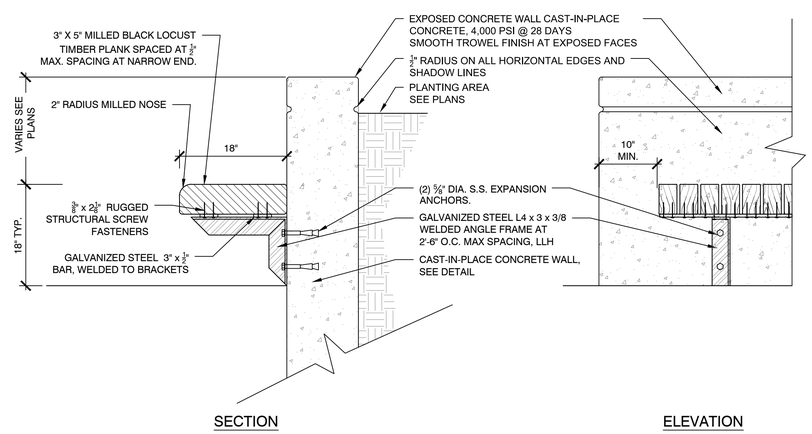

4 FLUSH TOP SINGLE-SIDED BENCH, TYP.

SCALE: N.T.S.




5 FLUSH TOP DOUBLE-SIDED BENCH, TYP.

SCALE: N.T.S.




6 CANTILIVER BENCH, TYP.

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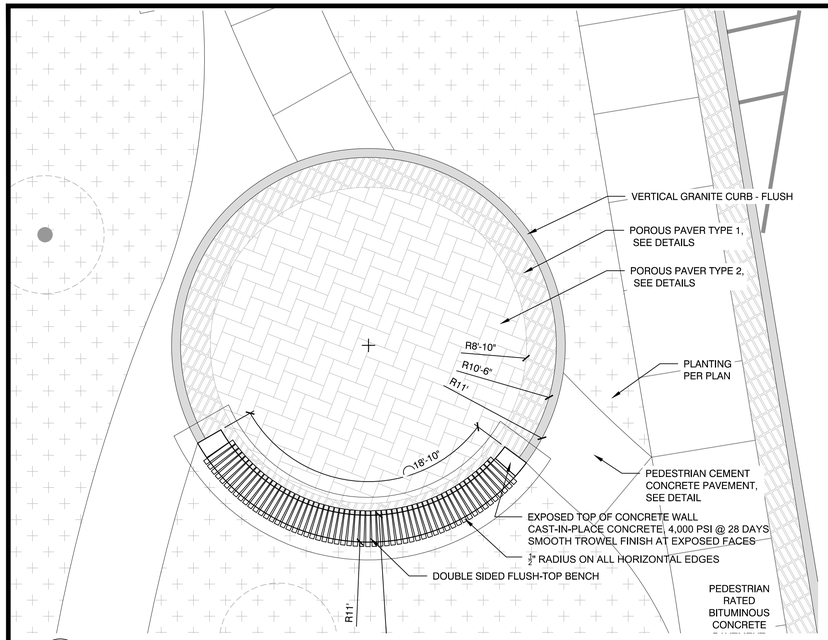
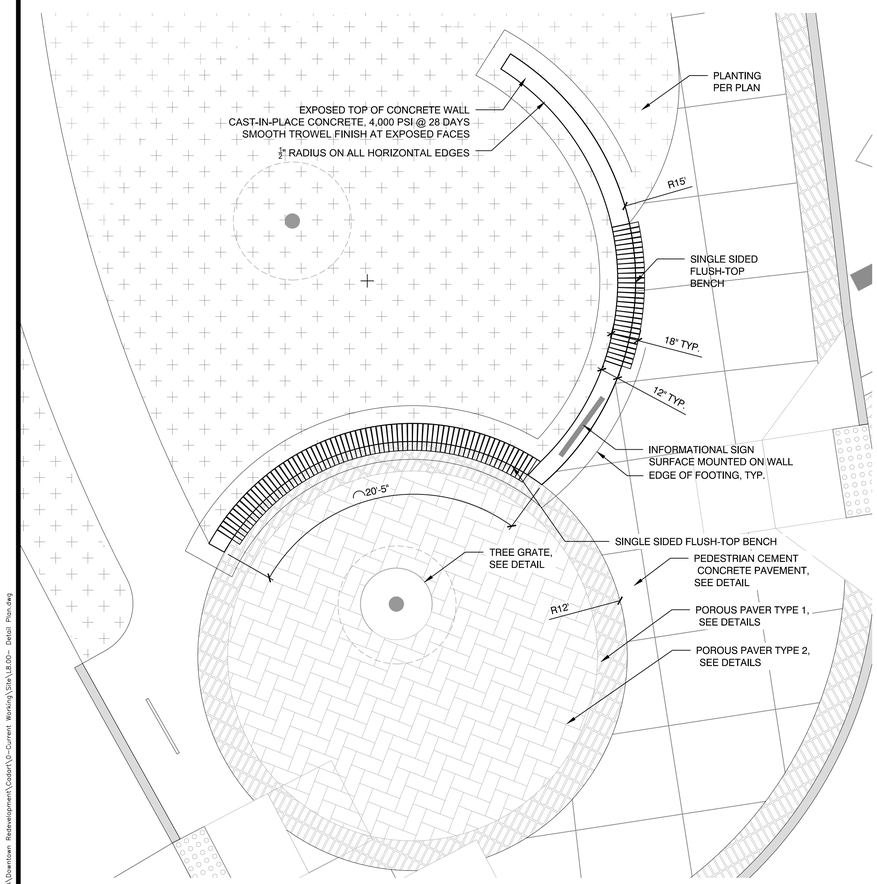


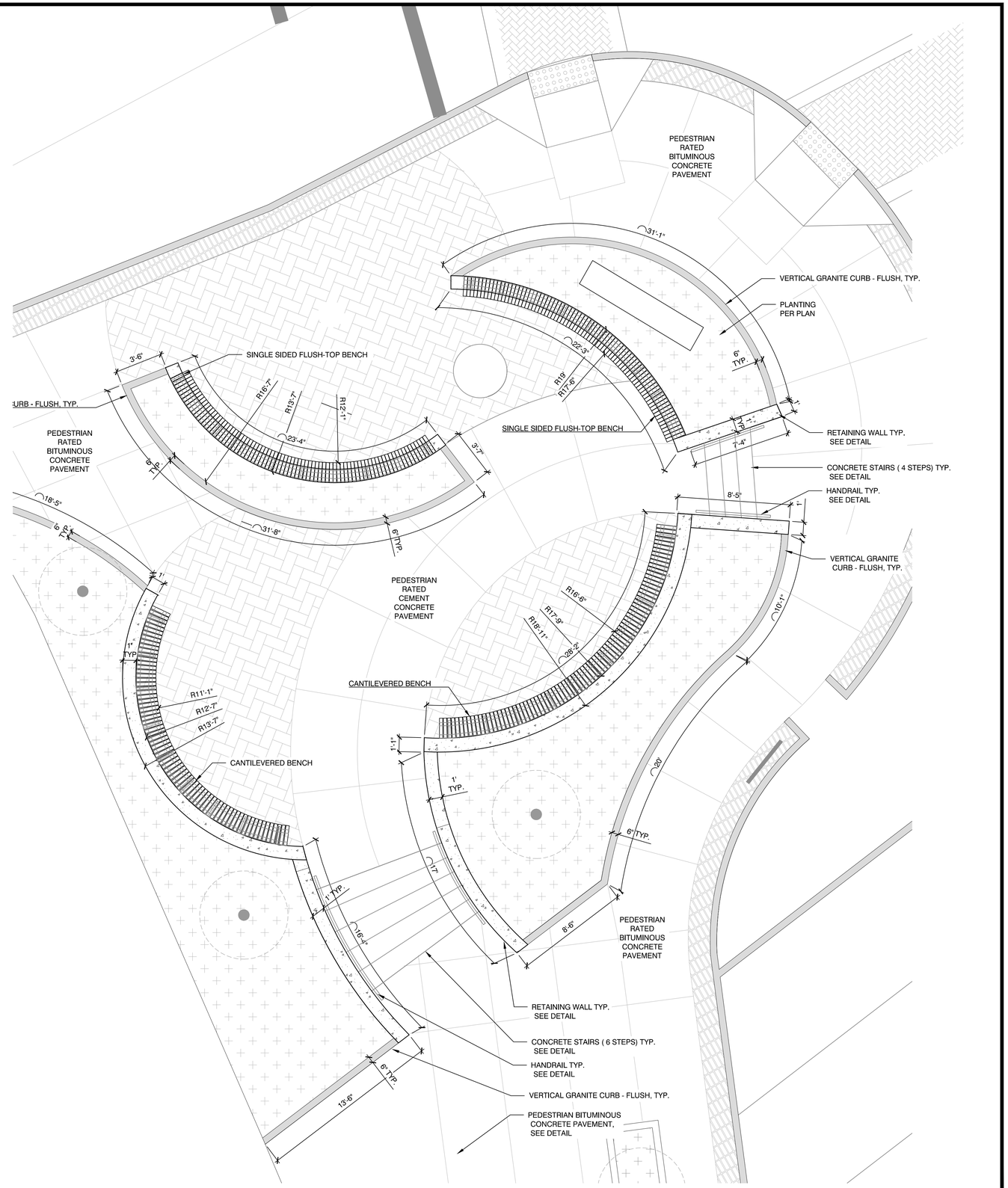

1 NORTH COMMON BENCH A

SCALE: N.T.S.




2 NORTH COMMON BENCH B

SCALE: N.T.S.




3 SOUTH COMMON BENCHES

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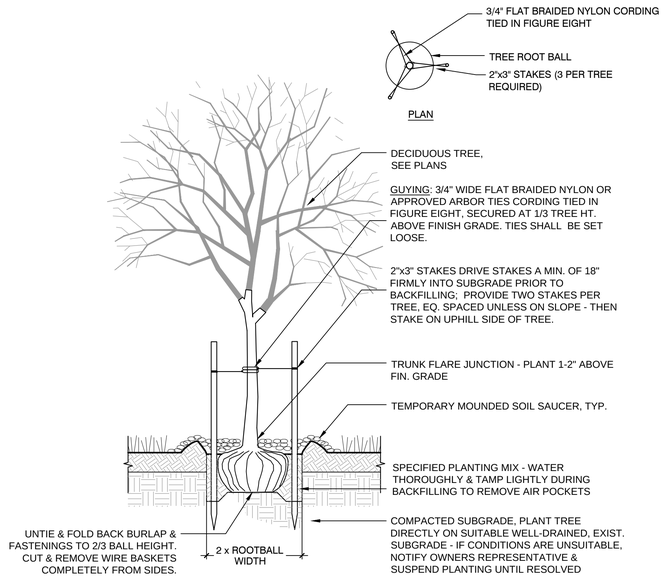
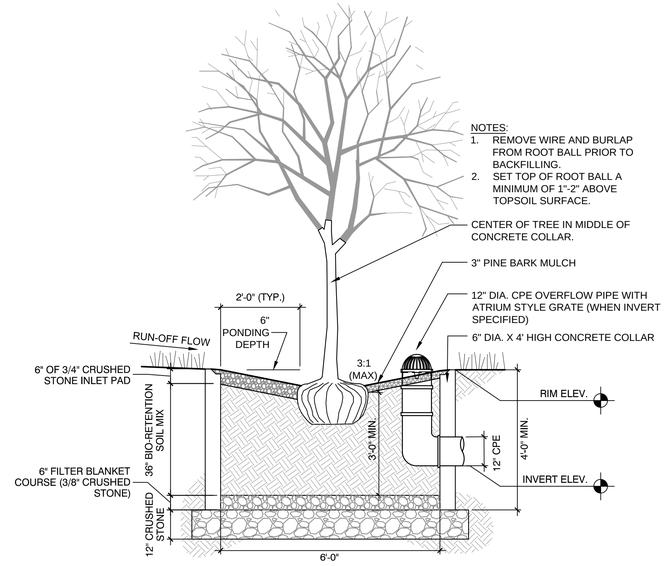


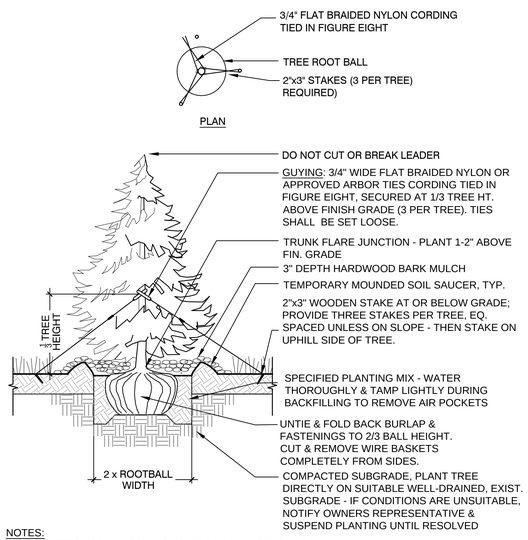

## 1 TREE STACKING AND PLANTING, TYP.

SCALE: N.T.S.




## 4 TREE FILTER PLANTING, TYP.

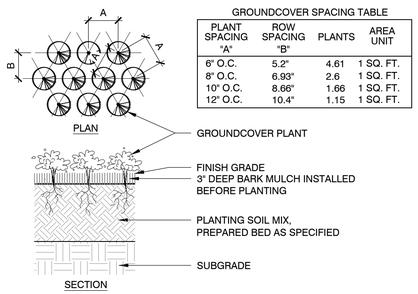
SCALE: N.T.S.




NOTES:
1. STAKING ONLY REQUIRED ON TREES 6' HT. OR TALLER.

## 2 TREE STACKING AND PLANTING - EVERGREEN, TYP.

SCALE: N.T.S.



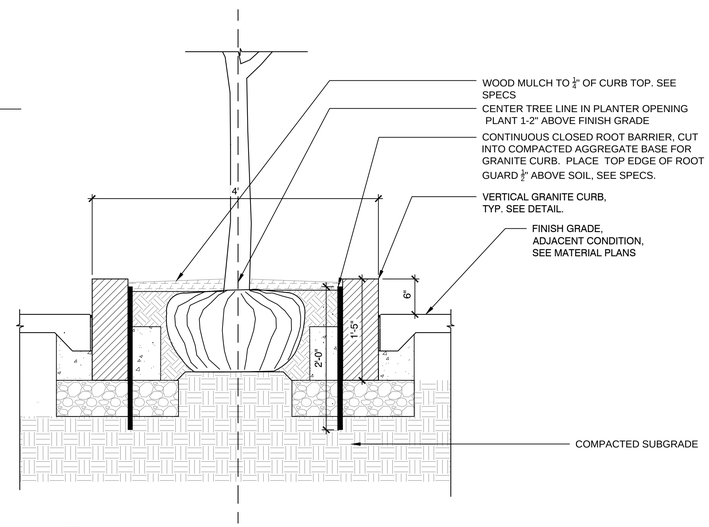

GROUNDCOVER SPACING TABLE

| PLANT SPACING "A" | ROW SPACING "B" | PLANTS | AREA UNIT |
|---|---|---|---|
| 6" O.C. | 5.2" | 4.61 | 1 SQ. FT. |
| 8" O.C. | 6.93" | 2.6 | 1 SQ. FT. |
| 10" O.C. | 8.66" | 1.66 | 1 SQ. FT. |
| 12" O.C. | 10.4" | 1.15 | 1 SQ. FT. |

NOTES:
1. ALL GROUNDCOVER TO BE PLANTED IN TRIANGULAR PATTERN. SEE DETAIL PLAN AND GROUNDCOVER SPACING TABLE.
2. JUTE EROSION CONTROL MAT TO BE USED ON ALL SLOPES GREATER THAN 3:1

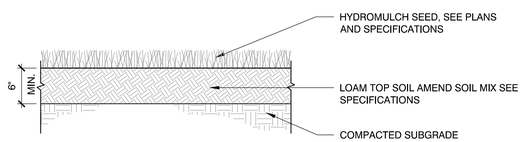
## 5 GROUNDCOVER PLANTINTG, TYP.

SCALE: N.T.S.




## 6 TREE PIT WITH ROOTGUARD, TYP.

SCALE: N.T.S.




## 3 LOAM AND SEED, TYP.

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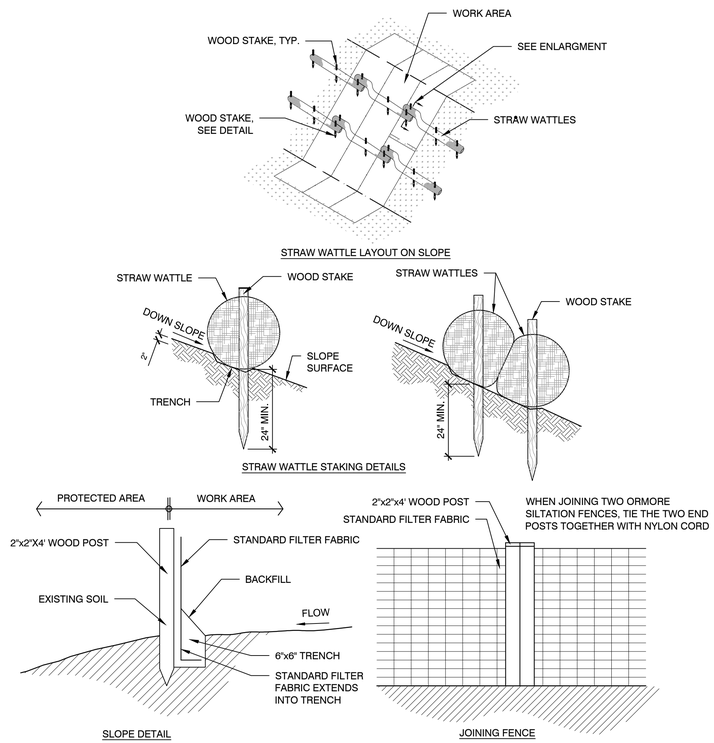



## 1 EROSION AND SEDIMENT CONTROL

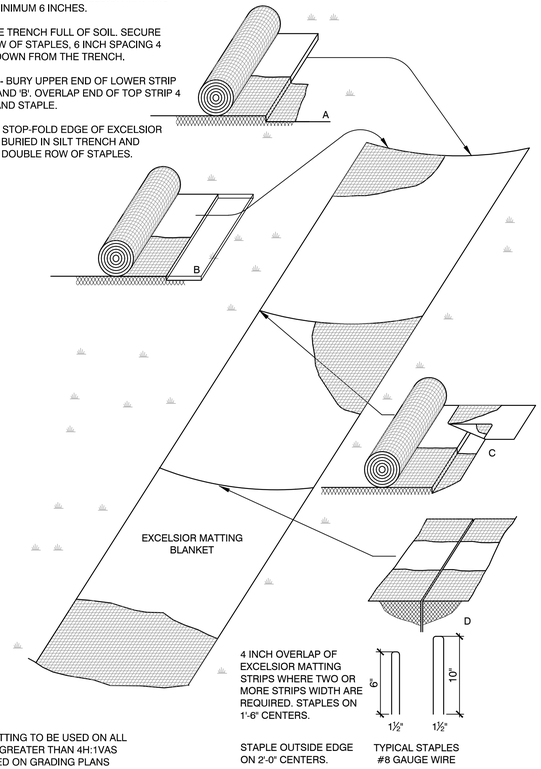
SCALE: N.T.S.

A. BURY THE TOP END OF EXCELSIOR MATTING STRIPS MINIMUM 6 INCHES.

B. TAMP THE TRENCH FULL OF SOIL. SECURE WITH ROW OF STAPLES, 6 INCH SPACING 4 INCHES DOWN FROM THE TRENCH.

C. OVERLAP- BURY UPPER END OF LOWER STRIP AS IN 'A' AND 'B'. OVERLAP END OF TOP STRIP 4 INCHES AND STAPLE.

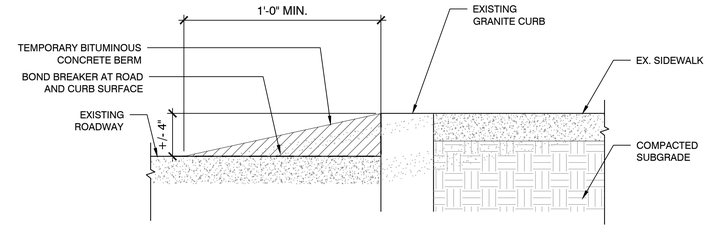
D. EROSION STOP-FOLD EDGE OF EXCELSIOR MATTING BURIED IN SILT TRENCH AND TAMPED; DOUBLE ROW OF STAPLES.




NOTE:
1. JUTE NETTING TO BE USED ON ALL SLOPES GREATER THAN 4H:1VAS INDICATED ON GRADING PLANS

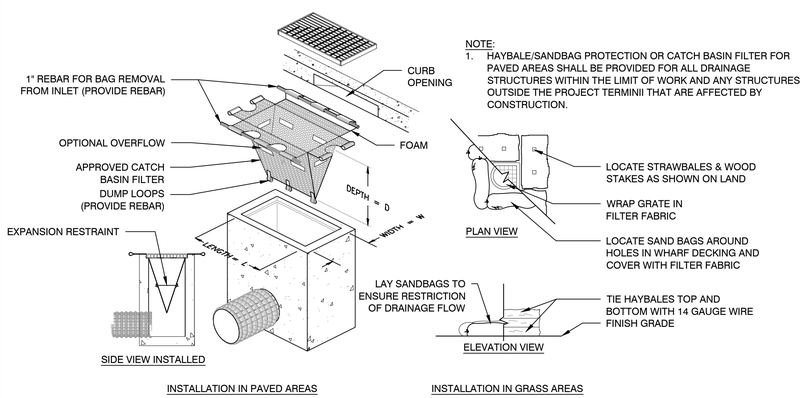
## 3 EROSION CONTROL BLANKET

SCALE: N.T.S.




## 5 TEMPORARY MOUNTING CURB

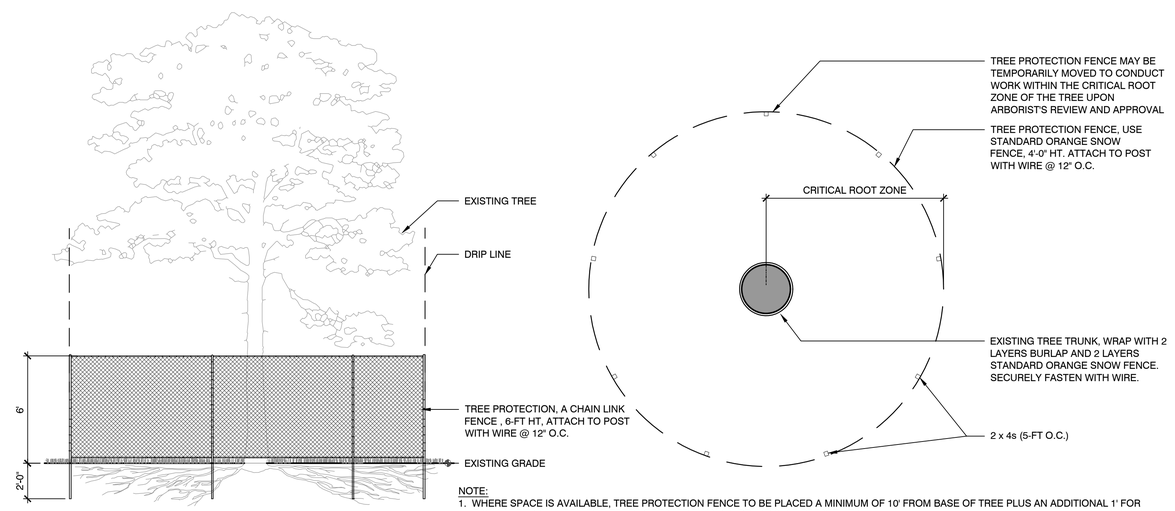
SCALE: N.T.S.




NOTE:
1. HAYBALE/SANDBAG PROTECTION OR CATCH BASIN FILTER FOR PAVED AREAS SHALL BE PROVIDED FOR ALL DRAINAGE STRUCTURES WITHIN THE LIMIT OF WORK AND ANY STRUCTURES OUTSIDE THE PROJECT TERMINII THAT ARE AFFECTED BY CONSTRUCTION.

## 2 INLET SEDIMENT CONTROL

SCALE: N.T.S.




NOTE:
1. WHERE SPACE IS AVAILABLE, TREE PROTECTION FENCE TO BE PLACED A MINIMUM OF 10' FROM BASE OF TREE PLUS AN ADDITIONAL 1' FOR EACH ADDITIONAL DBH FOR TREES GREATER THAN 10" DBH (DIA. AT BREAST HT.)
2. ALL WORK DONE WITHIN TREE PROTECTION FENCE IS TO BE DONE BY HAND AND LIGHT EQUIPMENT.
3. ROOTS EXPOSED DURING EXCAVATION SHALL BE NEATLY CUT AND COVERED WITH SOIL IMMEDIATELY.
4. FOR TREES THAT OCCUR IN GROUPS PROVIDE TREE PROTECTION FENCE AROUND ENTIRE AREA. SEE PLAN FOR LOCATIONS.
5. MAINTAIN FENCE PROTECTION IN SOUND CONDITION UNTIL FENCE COMPLETION
6. A CERTIFIED ARBORIST SHALL DELINEATE LIMIT OF TREE PROTECTION FENCE AS THEY RELATE TO THE LIMITS OF THE CRITICAL ROOT ZONE.

## 4 TREE PROTECTION

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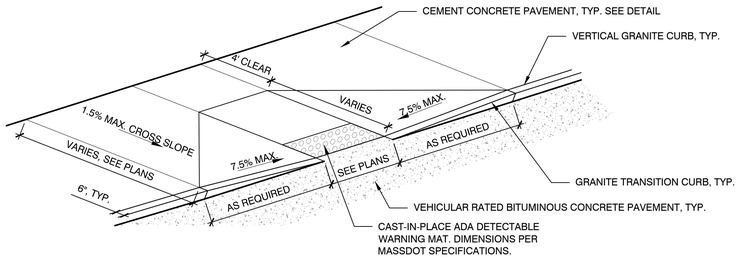
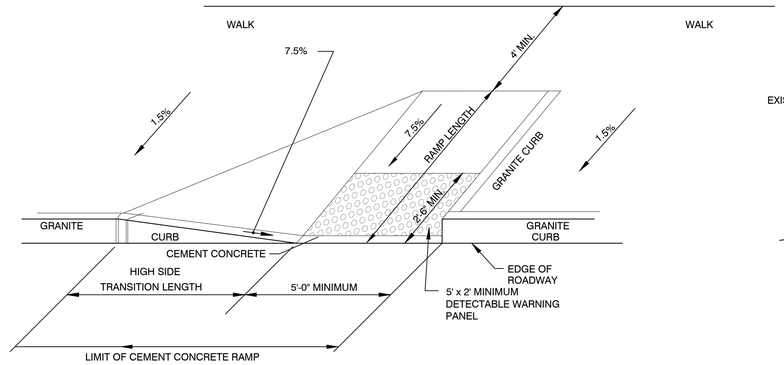


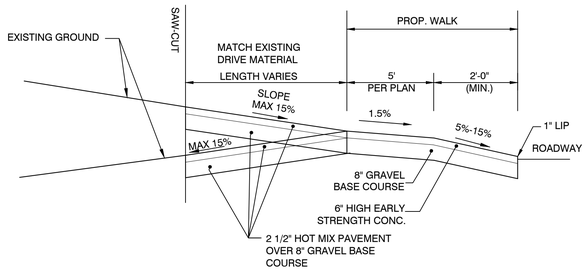

NOTES:
1. CONTRACTOR SHALL PROVIDE CLEAN AND STRAIGHT SAWCUT LINES AT LIMIT OF REMOVAL OF EXISTING ASPHALT PAVEMENT TO REMAIN. CONTRACTOR SHALL VERIFY LIMITS OF EXISTING ASPHALT PAVEMENT REMOVAL PRIOR TO COMMENCING DEMOLITION.
2. CONTRACTOR SHALL REMOVE AND REPLACE ASPHALT PAVEMENT, GRAVEL BORROW, AND SUBGRADE NECESSARY TO CONSTRUCT A CLEAN, SMOOTH TRANSITION AT ADA CURB CUT.
3. INSTALL DETECTABLE WARNING PANEL ACCORDING TO MASSDOT DWG M/E 107.6.5R

## 1 ADA CURB CUT, TYPE A
SCALE: N.T.S.



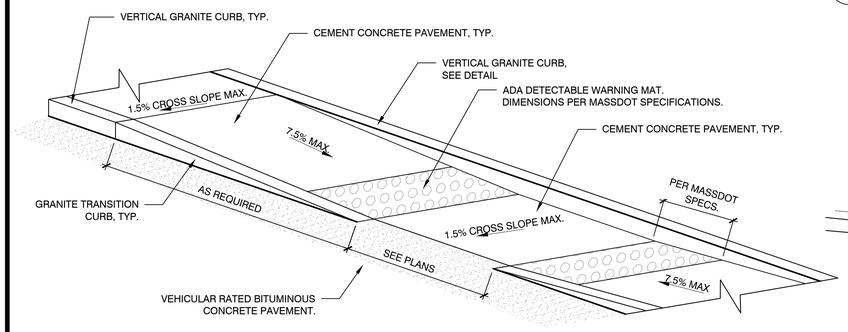

NOTES:
1. INSTALL DETECTABLE WARNING PANEL ACCORDING TO MASSDOT DWG M/E 107.6.5R
2. EXISTING GRANITE DRIVEWAY GRANITE CURB TRANSITION STONES SHALL BE REMOVED AND RESET OR REMOVED AND REPLACED AS DIRECTED BY THE RESIDENT ENGINEER.
3. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION OF RAMP WITHIN TOLERANCES GIVEN UNLESS OTHERWISE NOTED. FAILURE TO MEET TOLERANCES, OR PRIOR NOTICE TO ENGINEER THAT TOLERANCES CANNOT BE MET, WILL REQUIRE RECONSTRUCTION TO PROPER TOLERANCES AT NO EXPENSE TO THE OWNER.
4. TYPE 2a AND 5a RAMPS (ON CURVES) ARE VARIATIONS OF RAMP 2 AND 5 RESPECTIVELY. SEE GRADING PLAN FOR ACTUAL DIFFERENCES IN GRADE BREAK ELEVATION AT BOTTOM OF RAMP.
5. SLOPE TOLERANCE FOR CONSTRUCTION 0.5% ±

## 4 ADA CURB CUT, TYPE D
SCALE: N.T.S.



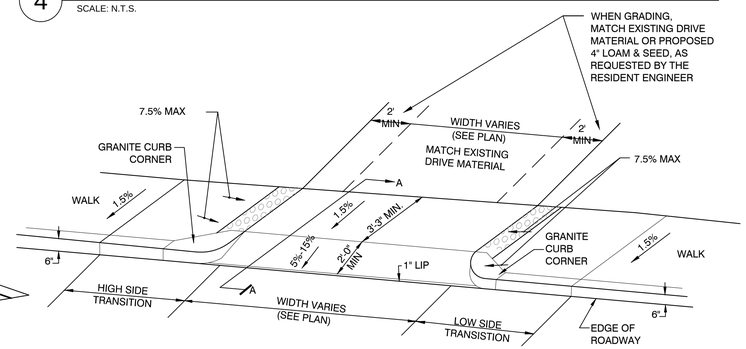

NOTES:
1. USE 8" GRAVEL BASE COURSE FOR DRIVES WITH NO PAVED SURFACE. USE 6" CEMENT CONCRETE OVER 8" GRAVEL BASE COURSE FOR DRIVES WITH CEMENT CONCRETE.
2. DRIVEWAYS SHALL BE INSTALLED WITH EITHER A 2' OR 3' RADIUS GRANITE CURB CORNER. SEE THE DRIVE/WCR TABLE FOR RADIUS INFORMATION FOR EACH DRIVEWAY.

## 7 CEMENT CONCRETE DRIVE SECTION A - A, TYP.
SCALE: N.T.S.



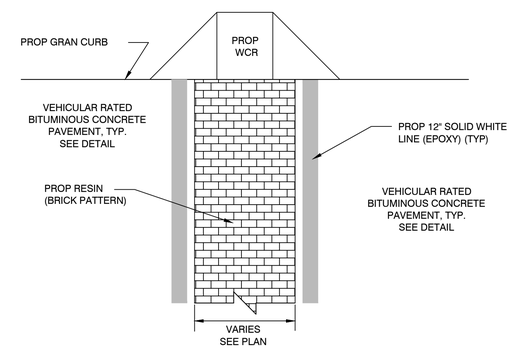

NOTES:
1. CONTRACTOR SHALL PROVIDE CLEAN AND STRAIGHT SAWCUT LINES AT LIMIT OF REMOVAL OF EXISTING ASPHALT PAVEMENT TO REMAIN. CONTRACTOR SHALL VERIFY LIMITS OF EXISTING ASPHALT PAVEMENT REMOVAL PRIOR TO COMMENCING DEMOLITION.
2. CONTRACTOR SHALL REMOVE AND REPLACE ASPHALT PAVEMENT, GRAVEL BORROW, AND SUBGRADE NECESSARY TO CONSTRUCT A CLEAN, SMOOTH TRANSITION AT ADA CURB CUT.
3. INSTALL DETECTABLE WARNING PANEL ACCORDING TO MASSDOT DWG M/E 107.6.5R

## 2 ADA CURB CUT, TYPE B
SCALE: N.T.S.

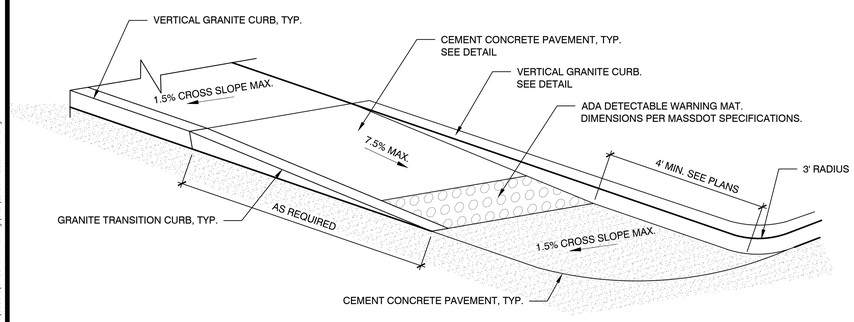



NOTES:
1. INSTALL DETECTABLE WARNING PANEL ACCORDING TO MASSDOT DWG M/E 107.6.5R
2. EXISTING GRANITE DRIVEWAY GRANITE CURB TRANSITION STONES SHALL BE REMOVED AND RESET OR REMOVED AND REPLACED AS DIRECTED BY THE RESIDENT ENGINEER.
2. LAYOUT OF PROPOSED DRIVE STONES SHALL BE INSTALLED AS SHOWN ON THE PLANS OR AS REQUESTED BY THE RESIDENT ENGINEER. STONES SHALL NOT BE INSTALLED WITHOUT PRIOR APPROVAL FROM RESIDENT ENGINEER ON LOCATION.
3. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION OF RAMP WITHIN TOLERANCES GIVEN UNLESS OTHERWISE NOTED. FAILURE TO MEET TOLERANCES, OR PRIOR NOTICE TO ENGINEER THAT TOLERANCES CANNOT BE MET, WILL REQUIRE RECONSTRUCTION TO PROPER TOLERANCES AT NO EXPENSE TO THE OWNER.
4. TYPE 2a AND 5a RAMPS (ON CURVES) ARE VARIATIONS OF RAMP 2 AND 5 RESPECTIVELY. SEE GRADING PLAN FOR ACTUAL DIFFERENCES IN GRADE BREAK ELEVATION AT BOTTOM OF RAMP.
5. SLOPE TOLERANCE FOR CONSTRUCTION 0.5% ±

## 5 CEMENT CONCRETE DRIVE WITH DRIVE STONES, TYP.
SCALE: N.T.S.

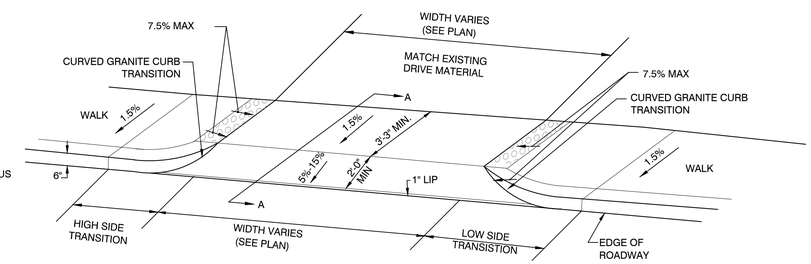



## 9 RESIN CROSSWALK, TYP.
SCALE: N.T.S.



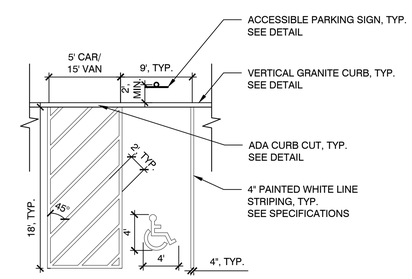

NOTES:
1. CONTRACTOR SHALL PROVIDE CLEAN AND STRAIGHT SAWCUT LINES AT LIMIT OF REMOVAL OF EXISTING BITUMINOUS CONCRETE PAVEMENT TO REMAIN AT ROADWAY. CONTRACTOR SHALL VERIFY LIMITS OF EXISTING ASPHALT PAVEMENT REMOVAL PRIOR TO COMMENCING DEMOLITION.
2. CONTRACTOR SHALL REMOVE AND REPLACE BITUMINOUS CONCRETE PAVEMENT, GRAVEL BORROW, AND SUBGRADE NECESSARY TO CONSTRUCT A CLEAN, SMOOTH TRANSITION AT ADA CURB CUT.
3. INSTALL DETECTABLE WARNING PANEL ACCORDING TO MASSDOT DWG M/E 107.6.5R

## 3 ADA CURB CUT, TYPE C
SCALE: N.T.S.




NOTES:
1. INSTALL DETECTABLE WARNING PANEL ACCORDING TO MASSDOT DWG M/E 107.6.5R
2. EXISTING GRANITE DRIVEWAY GRANITE CURB TRANSITION STONES SHALL BE REMOVED AND RESET OR REMOVED AND REPLACED AS DIRECTED BY THE RESIDENT ENGINEER.
3. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION OF RAMP WITHIN TOLERANCES GIVEN UNLESS OTHERWISE NOTED. FAILURE TO MEET TOLERANCES, OR PRIOR NOTICE TO ENGINEER THAT TOLERANCES CANNOT BE MET, WILL REQUIRE RECONSTRUCTION TO PROPER TOLERANCES AT NO EXPENSE TO THE OWNER.
4. TYPE 2a AND 5a RAMPS (ON CURVES) ARE VARIATIONS OF RAMP 2 AND 5 RESPECTIVELY. SEE GRADING PLAN FOR ACTUAL DIFFERENCES IN GRADE BREAK ELEVATION AT BOTTOM OF RAMP.
5. SLOPE TOLERANCE FOR CONSTRUCTION 0.5% ±

## 6 CEMENT CONCRETE DRIVE WITH CURVED GRANITE CURB TRANSITIONS, TYP.
SCALE: N.T.S.




## 10 ADA PARKING PAVEMENT MARKINGS, TYP.
SCALE: N.T.S.

Project:
TOWN OF MILLBURY, MA

DOWNTOWN REDEVELOPMENT
MILLBURY , MA

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Drawing Title:
SITE IMPROVEMENT DETAILS

Sheet Number:
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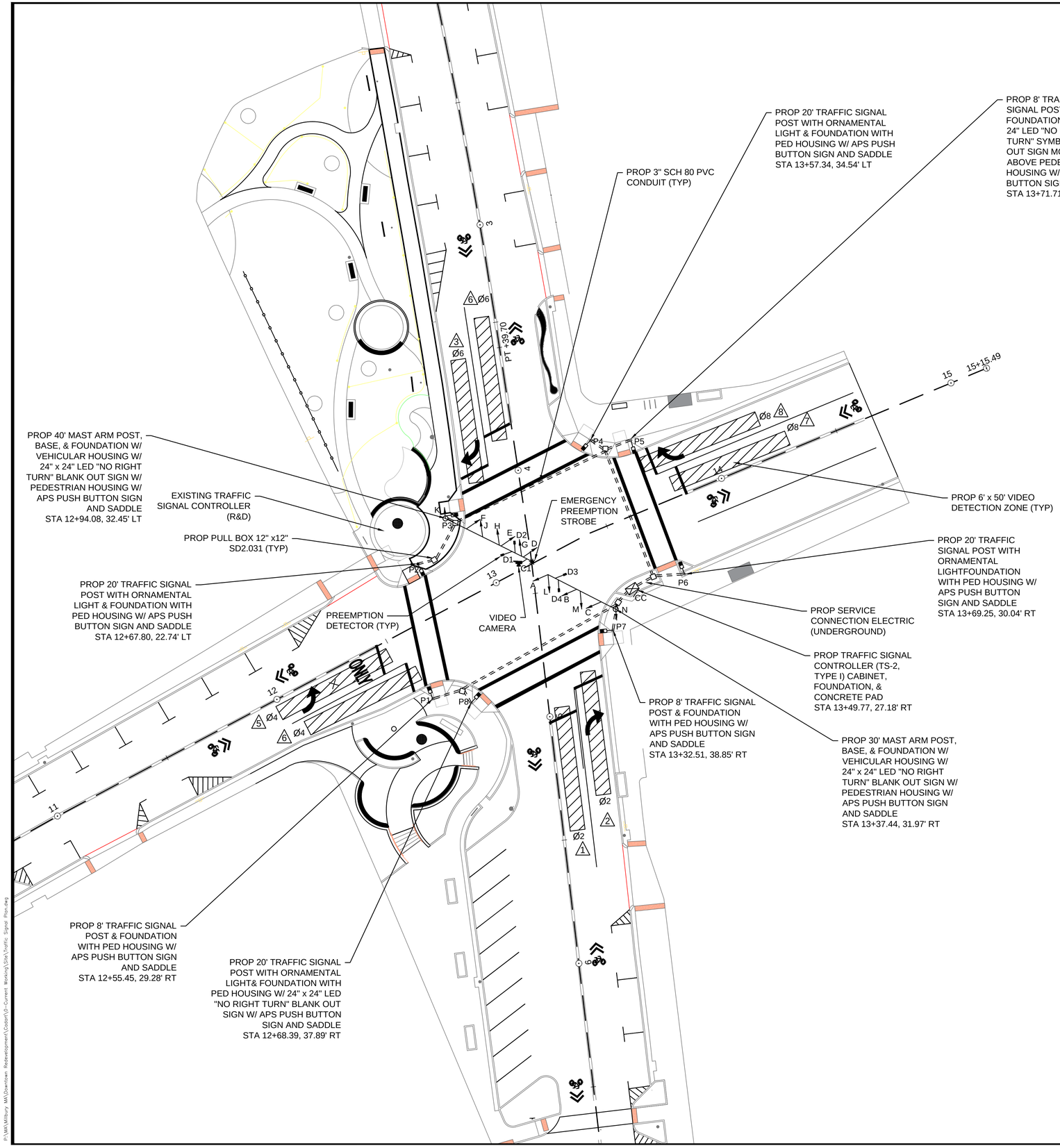


TRAFFIC SYMBOLS

| PROPOSED | DESCRIPTION |
|---|---|
| Ø1 | CONTROLLER PHASE ACTUATED |
| | TRAFFIC SIGNAL HEAD (SIZE AS NOTED) |
| | VIDEO DETECTION CAMERA |
| | PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE |
| | EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT |
| | VEHICULAR SIGNAL HEAD |
| | PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED) |
| | SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED) |
| | MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED) |
| | SIGN AND POST |
| | MAST ARM WITH LUMINAIRE |
| | OPTICAL PRE-EMPTION DETECTOR |
| | CONTROL CABINET, GROUND MOUNTED |
| | PULL BOX 12"x12" (OR AS NOTED) |
| | ELECTRIC HANDHOLE 12"x24" (OR AS NOTED) |
| | TRAFFIC SIGNAL CONDUIT |

TRAFFIC SIGNAL NOTES

1. EXISTING TRAFFIC SIGNAL EQUIPMENT TO BE REMOVED AND DISCARDED
2. ABANDON ALL EXISTING SIGNAL CONDUIT IN PLACE UNLESS OTHERWISE NOTED
3. CONSTRUCTION OF THE TRAFFIC CONTROL SIGNAL SYSTEM SHALL CONFORM TO THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES" 1988 ED. AS AMENDED, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, THE 2009 FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) LATEST EDITION, AS AMENDED, AND THE 1968 STANDARD DRAWING FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING
4. ALL VEHICLE INDICATION MOUNTED ON MAST ARMS SHALL BE FIXED AND EQUIPPED WITH 5" LOUVERED BACKPLATES
5. BCE MOUNTED SIGNALS SHALL BE MOUNTED TO PROVIDE A 2 FOOT MINIMUM CLEARANCE BETWEEN VERTICAL PROJECTION OF THE CURB LINE AND SIGNAL VISOR. PROVIDE SPECIAL MOUNTING HARDWARE AS REQUIRED

0 20 50 100

SCALE: 1" = 20'

Project:

TOWN OF MILLBURY, MA

DOWNTOWN REDEVELOPMENT

MILLBURY , MA

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Drawn By: MD

Reviewed By: LFK

Approved By: JS

W&S Project No: XXX

W&S File No: XXX

Drawing Title:

INTERSECTION SIGNAL PLAN

Sheet Number:

T0.00

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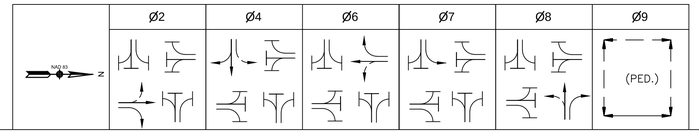



SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (ISOLATED)

| STREET | DIRECTION | HOUSINGS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 10 | 11 | 12 | 13 | 14 | 15 | FLASH OPER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ELM STREET | EB | A | R | R | R | FYA | Y | R | R | R | R | G | Y | Y | R | R | R | | | | FR |
| ELM STREET | EB | B | R | R | R | G | Y | R | R | R | R | R | R | R | R | R | R | | | | FR |
| ELM STREET | EB | C | R | R | R | G | Y | R | R | R | R | R | R | R | R | R | R | | | | FR |
| ELM STREET | WB | D | R | R | R | R | R | R | R | R | R | R | R | R | G | Y | R | | | | FR |
| ELM STREET | WB | E | R | R | R | R | R | R | R | R | R | R | R | R | G | Y | R | | | | FR |
| ELM STREET | WB | F | R | R | R | R | R | R | R | R | R | R | R | R | G | Y | R | | | | FR |
| N. MAIN STREET | SB | G | R | R | R | R | R | R | G | Y | R | R | R | R | R | R | R | | | | FY |
| N. MAIN STREET | SB | H | R | R | R | R | R | R | G | Y | R | R | R | R | R | R | R | | | | FY |
| N. MAIN STREET | SB | J | R | R | R | R | R | R | G | Y | R | R | R | R | R | R | R | | | | FYR |
| N. MAIN STREET | SB | K | R | R | R | R | R | R | G | Y | R | R | R | R | R | R | R | | | | FYR |
| S. MAIN STREET | NB | L | G | Y | R | R | R | R | R | R | R | R | R | R | R | R | R | | | | FY |
| S. MAIN STREET | NB | M | G | Y | R | R | R | R | R | R | R | R | R | R | R | R | R | | | | FY |
| S. MAIN STREET | NB | N | G | Y | R | R | R | R | R | R | R | R | R | R | R | R | R | | | | FY |
| PEDESTRIAN CROSSING | EB-WB | P3-P4 | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | W | FDW | DW | |
| PEDESTRIAN CROSSING | NB-SB | P1-P2 | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | W | FDW | DW | |
| PEDESTRIAN CROSSING | EB-WB | P7-P8 | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | W | FDW | DW | |
| PEDESTRIAN CROSSING | NB-SB | P5-P6 | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | DW | W | FDW | DW | |
| TIMING IN SECONDS | | | | | | | | | | | | | | | | | | | | | |
| MINIMUM GREEN (INITIAL) | | | 5 | | | 10 | | | 10 | | | 5 | | | 10 | | | | | | EMERGENCY ONLY |
| PASSAGE TIME (VEHICLE) | | | 3 | | | 3 | | | 3 | | | 3 | | | 3 | | | | | | |
| MAXIMUM 1 | | | 12 | | | 48 | | | 12 | | | 7.5 | | | 37 | | | | | | |
| MAXIMUM 2 | | | 18 | | | 40 | | | 18 | | | 7.5 | | | 29 | | | | | | |
| YELLOW CLEARANCE | | | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | | | | | |
| RED CLEARANCE | | | | | 1.5 | | | 1.5 | | | 1.5 | | | - | | | 1.5 | | | 3 | |
| WALK (W) | | | | | | | | | | | | | | | | | | 7 | | | |
| PEDESTRIAN CLEARANCE | | | | | | | | | | | | | | | | | | | 13 | | |
| | | | | | | | | | | | | | | | | | | | | | |
| RECALL | | | MIN | | | MIN | | | OFF | | | OFF | | | OFF | | | OFF | | | |
| MEMORY | | | NON-LOCK | | | NON-LOCK | | | NON-LOCK | | | NON-LOCK | | | NON-LOCK | | | LOCK | | | |

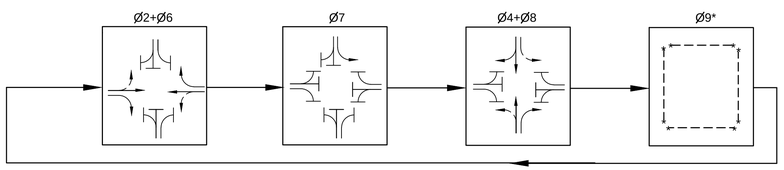
MAX 1 - ALL OTHER TIMES
MAX 2 - PM PEAK HOURS 3-6 PM
* PEDESTRIAN PHASE UPON PUSH BUTTON ACTIVATION ONLY
24" x 24" LED "NO RIGHT TURN" BLANK OUT SIGNS SHALL BE ILLUMINATED DURING EXCLUSIVE PEDESTRIAN PHASE

| | MAJOR ITEMS REQUIRED | |
|---|---|---|
| PAY ITEM | QUANTITY | ITEM |
| 815.01 | 1 | CONTROLLER NEMA 8 PHASE T52 - TYPE 1 CAB. FDN |
| | 1 | SERVICE CONNECTION, TYPE UNDERGROUND |
| | 4 | 8' SIGNAL POLE, BASE & FDN |
| | 3 | 10' SIGNAL POLE, BASE & FDN |
| | 12 | 1 WAY, 3 SECTION, SIGNAL HOUSINGS (12" LED) |
| | 1 | 1 WAY, 4 SECTION, SIGNAL HOUSINGS (12" LED) "FLASHING YELLOW ARROW' |
| | 12 | 5" 3 SECTION BACK PLATES (LOUVERED) WITH 3" REFLECTIVE BORDER |
| | 1 | 5" 4 SECTION BACK PLATES( LOUVERED) WITH 3" REFLECTIVE BORDER |
| | 8 | 16" PEDESTRIAN COUNTDOWN HOUSING, TYPE LED (INT'L SYMBOL) |
| | 4 | PEDESTRIAN PUSH BUTTON SIGN & SADDLE (APS) |
| | 2 | EMERGENCY VEHICLE PREEMPTION PHASE SELECTION MODULE DUAL CHANNEL |
| | 4 | EMERGENCY PREEMPTION RECEIVERS |
| | 1 | PREEMPTION CARD RACK |
| | 1 | EMERGENCY VEHICLE PREEMPTION CONFIRMATION STROBE (WHITE) |
| | 1 | 40' TYPE II GALV. STEEL MAST ARM ASSEMBLY, BASE & FDN |
| | 1 | 30' TYPE II GALV. STEEL MAST ARM ASSEMBLY, BASE & FDN |
| | 4 | 24" x 24" LED BLANK OUT PANEL "NO RIGHT TURN" SYMBOL |
| | 1 | VIDEO DETECTION SYSTEM W/ 360° FISH EYE CAMERA W/ MOUNTING BRACKET & 10' EXTENSION POLE, MULTIPLEXER, MONITOR, AUTOMATIC CONTROL UNIT & POINTING DEVICE, ISOLATION AMPLIFIERS FOR CABLING & SOFTWARE |
| 811.31 | 6 | 12" x 12" PULL BOX SD2.031 |

PLUS ALL NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.

## VIDEO DETECTOR DATA

| DETECTOR NUMBER | DETECTOR ZONE SIZE | Ø CALLED | MODE A=PULSE B=PRES. | DELAY TIME | EXT. TIME |
|---|---|---|---|---|---|
| 1 | VIDEO 6'x50' | Ø4 | B | - | - |
| 2 | VIDEO 6'x50' | Ø2 | B | - | - |
| 3 | VIDEO 6'x50' | Ø6 | B | - | - |
| 4 | VIDEO 6'x50' | Ø6 | B | - | - |
| 5 | VIDEO 6'x50' | Ø4 | B | - | - |
| 6 | VIDEO 6'x50' | Ø4 | B | - | - |
| 7 | VIDEO 6'x50' | Ø8 | B | - | - |
| 8 | VIDEO 6'x50' | Ø8 | B | - | - |

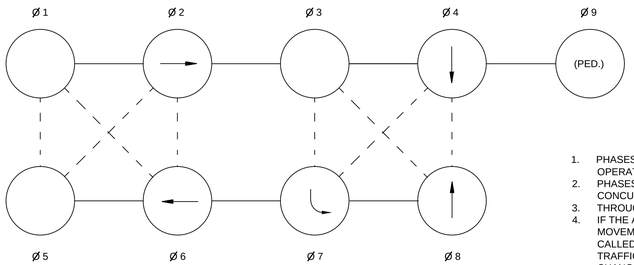



| APPROACH | PREEMPTION PHASE DETECTOR | VEHICLE PHASE CALLED | MOVEMENT |
|---|---|---|---|
| EASTBOUND | D1 | Ø4 | |
| WESTBOUND | D3 | Ø8 | |
| NORTHBOUND | D4 | Ø2 | |
| SOUTHBOUND | D2 | Ø6 | |

– – – – = PERMISSIVE MOVEMENT

* = UPON PUSH BUTTON ACTIVATION

## NEMA DUAL RING PHASING NOTES:

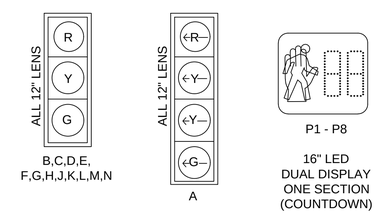



1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

EMERGENCY VEHICLE PREEMPTION OPERATION:

1. EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
2. PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
3. IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT THAT TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED) OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
4. PREEMPTION MINIMUM GREENS SHALL BE SIX SECONDS.
5. NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
6. ACTUAL TIMMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT AND SHALL BE APPROVED BY MHD PRIOR TO OPERATION.

## PROPOSED SIGNAL IDENTIFICATION




NOTES:

1. ALL SIGNALS SHALL HAVE CAP VISORS
2. ALL SIGNALS SHALL BE 12" LED WITH 5" LOUVERED BACKPLATES
3. ALL BACKPLATES SHALL HAVE A 3" RETROREFLECTIVE BORDER
4. ALL PED INDICATORS SHALL HAVE SUN CAP VISORS
5. SIGNAL HEAD A TO BE FLASHING YELLOW ARROW SETUP

Project:
TOWN OF MILLBURY, MA

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Approved By: JS
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W&S File No: XXX

Drawing Title:
SIGNAL TIMING PLAN

Sheet Number:
T1.00

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## ABBREVIATIONS

| | |
|---|---|
| AFF | ABOVE FINISHED FLOOR |
| AC | ALTERNATING CURRENT |
| A | AMPERE |
| AF | AMP FRAME |
| AT | AMP TRIP |
| ATC | AUTOMATIC TEMPERATURE CONTROLS |
| ATS | AUTOMATIC TRANSFER SWITCH |
| BKR | BREAKER |
| C | CONDUIT |
| CKT | CIRCUIT |
| CB | CIRCUIT BREAKER |
| EC | ELECTRICAL CONTRACTOR |
| EMT | ELECTRIC METALLIC TUBING |
| EWC | ELECTRIC WATER COOLER |
| EWH | ELECTRIC WATER HEATER |
| EF | EXHAUST FAN |
| FL | FLOOR |
| FLA | FULL LOAD AMPERE |
| GC | GENERAL CONTRACTOR |
| GFI | GROUND FAULT INTERRUPTER |
| GND | GROUND |
| HOA | HAND OFF AUTOMATIC |
| HP | HORSEPOWER |
| IG | ISOLATED GROUND |
| JB | JUNCTION BOX |
| KVA | KILOVOLT AMPERES |
| KW | KILOWATT |
| MCB | MAIN CIRCUIT BREAKER |
| MLO | MAIN LUGS ONLY |
| MC | MECHANICAL CONTRACTOR |
| MTD | MOUNTED |
| MTG | MOUNTING |
| NMC | NON-METALLIC CONDUIT |
| NC | NORMALLY CLOSED |
| NO | NORMALLY OPEN |
| NA | NOT APPLICABLE |
| NIC | NOT IN CONTRACT |
| NTS | NOT TO SCALE |
| PNL | PANELBOARD |
| PH | PHASE |
| PVC | POLYVINYL CHLORIDE CONDUIT |
| RSC | RIGID GALVANIZED STEEL CONDUIT |
| SF | SUPPLY FAN |
| SS | SAFETY SWITCH |
| TEL | TELEPHONE |
| TRF | TRANSFORMER |
| V | VOLTS |
| W | WATTS OR WIRE |
| WP | WEATHERPROOF |
| 4WSN | 4-WIRE SOLID NEUTRAL |

## RECEPTACLE ABBREVIATIONS

| | |
|---|---|
| GFI | GROUND FAULT CIRCUIT INTERUPTER, PERSONAL PROTECTION |
| WP | WEATHERPROOF RECEPTACLE WITH COVERPLATE LISTED FOR WET LOCATION WITH AN ATTACHMENT PLUG INSERTED. |

## ELECTRICAL LEGEND

### RACEWAY AND WIRING

1,3 LP1B — HOME RUNS ARE 3/4"C., 2#12 & 1#12 GND. UNLESS NOTED OTHERWISE ON PLAN.

UNDERGROUND RACEWAY

### LIGHTING FIXTURES

P1 A — POLE & FIXTURE - 'P1' INDICATES POLE TYPE, 'A' INDICATES FIXTURE TYPE

### RECEPTACLES

GFI — DUPLEX CONVENIENCE OUTLET RATED 20A, 125V, U-SLOT GROUNDED TYPE . REFER TO RECEPTACLE ABBREVIATIONS FOR SPECIAL PURPOSE RECEPTACLES. GFI INDICATES GROUND FAULT INTERRUPTING TYPE.

### POWER DISTRIBUTION EQUIPMENT

HH — HAND HOLE

GROUND - SYSTEM AND/OR EQUIPMENT

## GENERAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC ONLY. THE EXACT LOCATION, MOUNTING HEIGHTS, SIZE OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATED AND DETERMINED IN THE FIELD.
2. WORK SHALL CONFORM TO THE MASSACHUSETTS ELECTRICAL CODE AND MASSACHUSETTS BUILDING CODE AND REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
3. THE WORD "CONTRACTOR" AS USED IN THE "ELECTRICAL WORK" SHALL MEAN THE ELECTRICAL SUBCONTRACTOR.
4. CONTRACTOR SHALL PAY FOR ALL PERMITS, INSURANCE AND TESTS, AND SHALL PROVIDE LABOR AND MATERIAL TO COMPLETE THE ELECTRICAL WORK SHOWN.
5. CONTRACTOR SHALL PAY ELECTRIC UTILITY COMPANY BACKCHARGES AND PROVIDE COORDINATION WITH SAME.
6. EXCEPT AS OTHERWISE NOTED, THE ELECTRICAL WORK SHALL INCLUDE PANELBOARDS, CIRCUIT BREAKERS, FEEDERS, WIRING, RACEWAYS, LIGHTING FIXTURES, DEVICES, SAFETY SWITCHES, MOUNTING AND WIRING, TRANSFORMERS AND CONNECTIONS NECESSARY TO OPERATE ALL EQUIPMENT.
7. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY LIGHTING AND POWER AND PAY ALL ENERGY CHARGES.
8. DURING CONSTRUCTION, THE ELECTRICAL CONTRACTOR SHALL KEEP HIS PORTION OF THE WORK NEAT, CLEAN AND ORDERLY.
9. ALL SYSTEMS SHALL BE TESTED FOR SHORT CIRCUIT AND GROUNDS PRIOR TO ENERGIZING AND ANY DEFECTS SHALL BE CORRECTED.
10. ALL CUTTING AND PATCHING REQUIRED FOR ELECTRICAL WORK SHALL BE INCLUDED AS PART OF THIS SECTION.
11. COMPLETE SHOP DRAWINGS SHALL BE SUBMITTED FOR ELECTRICAL EQUIPMENT. WHERE SPECIFIED, ELECTRICAL EQUIPMENT IS SUBSTITUTED. THE ELECTRICAL CONTRACTOR SHALL SUBMIT COMPLETE SPECIFICATIONS ON THE SUBSTITUTE AS WELL AS THE ITEM ORIGINALLY SPECIFIED.
12. MATERIALS SHALL BE SPECIFICATION GRADE AND UL LISTED.
13. WHERE MATERIAL IS CALLED OUT IN THE LEGEND BY MANUFACTURER, TYPE OR CATALOG NUMBER, SUCH DESIGNATIONS ARE TO ESTABLISH STANDARDS OR DESIRED QUALITY. ACCEPTANCE OR REJECTIONS OF PROPOSED SUBSTITUTIONS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER.
14. WORK SHALL BE COORDINATED WITH THAT OF OTHER TRADES TO ELIMINATE INTERFERENCES.
15. ELECTRICAL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF WHICH SYSTEM IS PUT INTO SERVICE.
16. WORK SHALL BE GROUNDED IN ACCORDANCE WITH CODE REQUIREMENTS. COMPLETE EQUIPMENT (INSULATED GREEN WIRE) GROUNDING SYSTEM SHALL BE INSTALLED.
17. WIRE SHALL BE TYPE "THHN/THWN" INSULATED FOR 600 VOLTS, MINIMUM SIZE #12 AWG COPPER UNLESS SPECIFICALLY NOTED OTHERWISE.
18. WIRING METHODS:
    A. ALL BELOW GRADE DIRECT BURIED CONDUIT SHALL BE SCHEDULE 80 PVC.
    B. ALL BELOW GRADE CONCRETE ENCASED CONDUITS SHALL BE SCHEDULE 40 PVC.
    C. ALL ABOVE GRADE CONDUITS SHALL BE RGS.
19. PANELBOARDS SHALL BE DEAD FRONT, THERMAL MAGNETIC BOLT-ON CIRCUIT BREAKER TYPE, DESIGNED FOR SURFACE MOUNTING AS INDICATED ON PLAN, AND HAVING CONNECTIONS TO 120/240 VOLT, 3 PHASE, 4 WIRE SERVICE. ALL BUS BARS SHALL BE COPPER. CABINETS SHALL BE MADE OF CODE GAUGE GALVANIZED SHEET STEEL, WITH A MINIMUM OF 4 INCH GUTTERS, DOOR IN DOOR CONSTRUCTION, LOCKED DOOR, AND FLUSH HINGES. TYPEWRITTEN INDEX SHALL BE MOUNTED ON DOOR INSIDE TRANSPARENT COVER INDICATING LOAD SERVED. PANELS SHALL INCLUDE SEPARATE EQUIPMENT GROUND BUS.
20. CONDUIT RUNS AS SHOWN ON THE PLANS ARE DIAGRAMMATIC ONLY EXACT LOCATION AND METHOD OF SUPPORT SHALL BE DETERMINED IN THE FIELD.
21. CONTRACTOR SHALL CHECK EXISTING CONDITIONS TO DETERMINE EXACT EXTENT OF WORK TO BE PERFORMED PRIOR TO BIDDING. DIMENSIONS RELEVANT TO EXISTING WORK SHALL BE VERIFIED IN THE FIELD.
22. PROVIDE AS-BUILT "CADD" DRAWINGS AT THE COMPLETION OF THE PROJECT.
23. UTILITY WORK ORDERS FROM NATIONAL GRID:
    BILLBOARD SERVICE - 27758565
    TRAFFIC CONTROL CABINET SERVICE - TBD
    STREET LIGHTING SERVICE - TBD

Project:

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DOWNTOWN REDEVELOPMENT

MILLBURY , MA

Weston & Sampson

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Reviewed By: DNM

Approved By: RFM

W&S Project No: 2180403

W&S File No: E0.00

Drawing Title:

ELECTRICAL SYMBOLS, NOTES & ABBREVIATIONS

Sheet Number:

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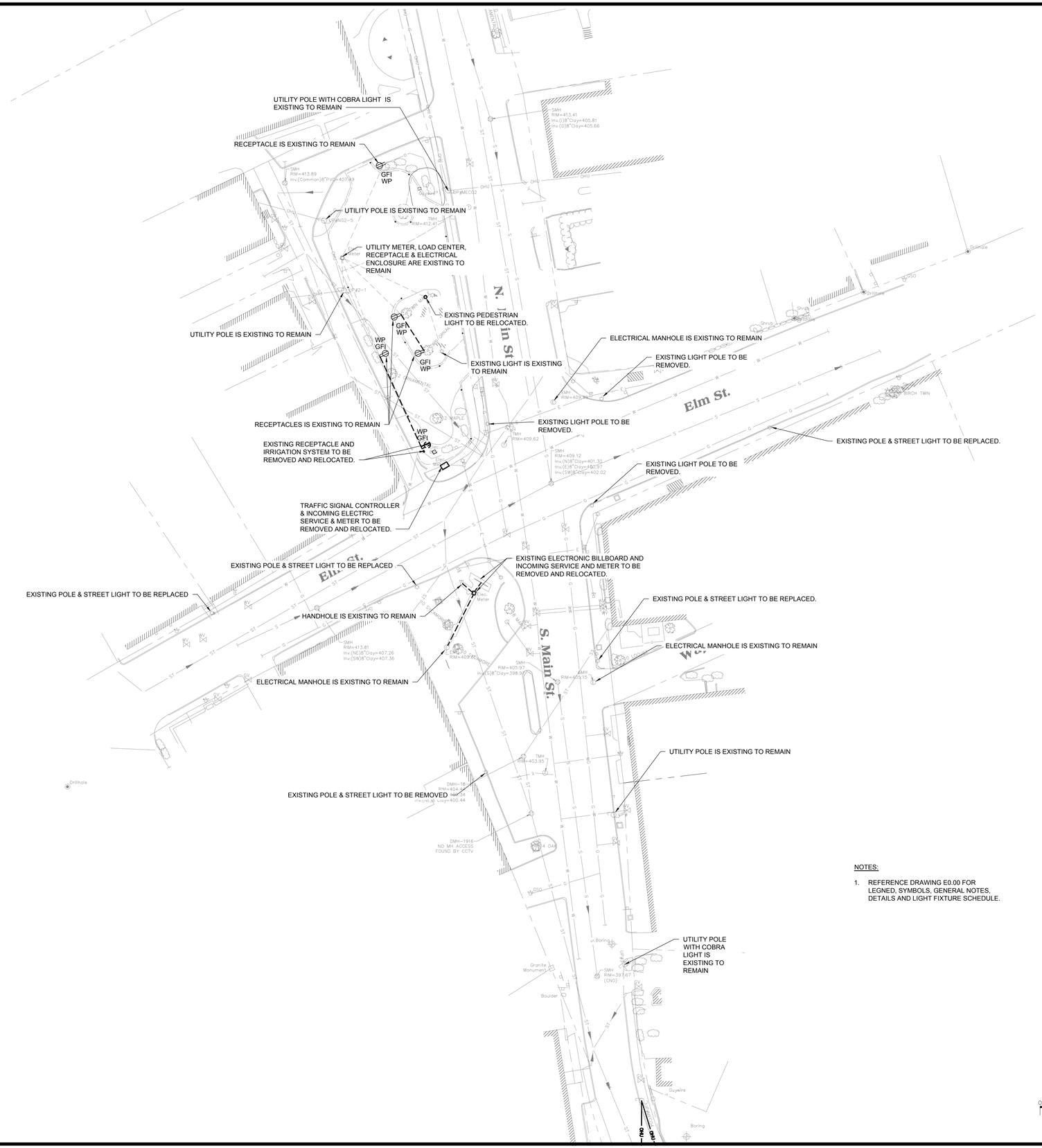


NOTES:

1. REFERENCE DRAWING E0.00 FOR LEGNED, SYMBOLS, GENERAL NOTES, DETAILS AND LIGHT FIXTURE SCHEDULE.

0 30 60 90

SCALE: 1" 30'-0"

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Drawing Title:

ELECTRICAL DEMOLITION PLAN

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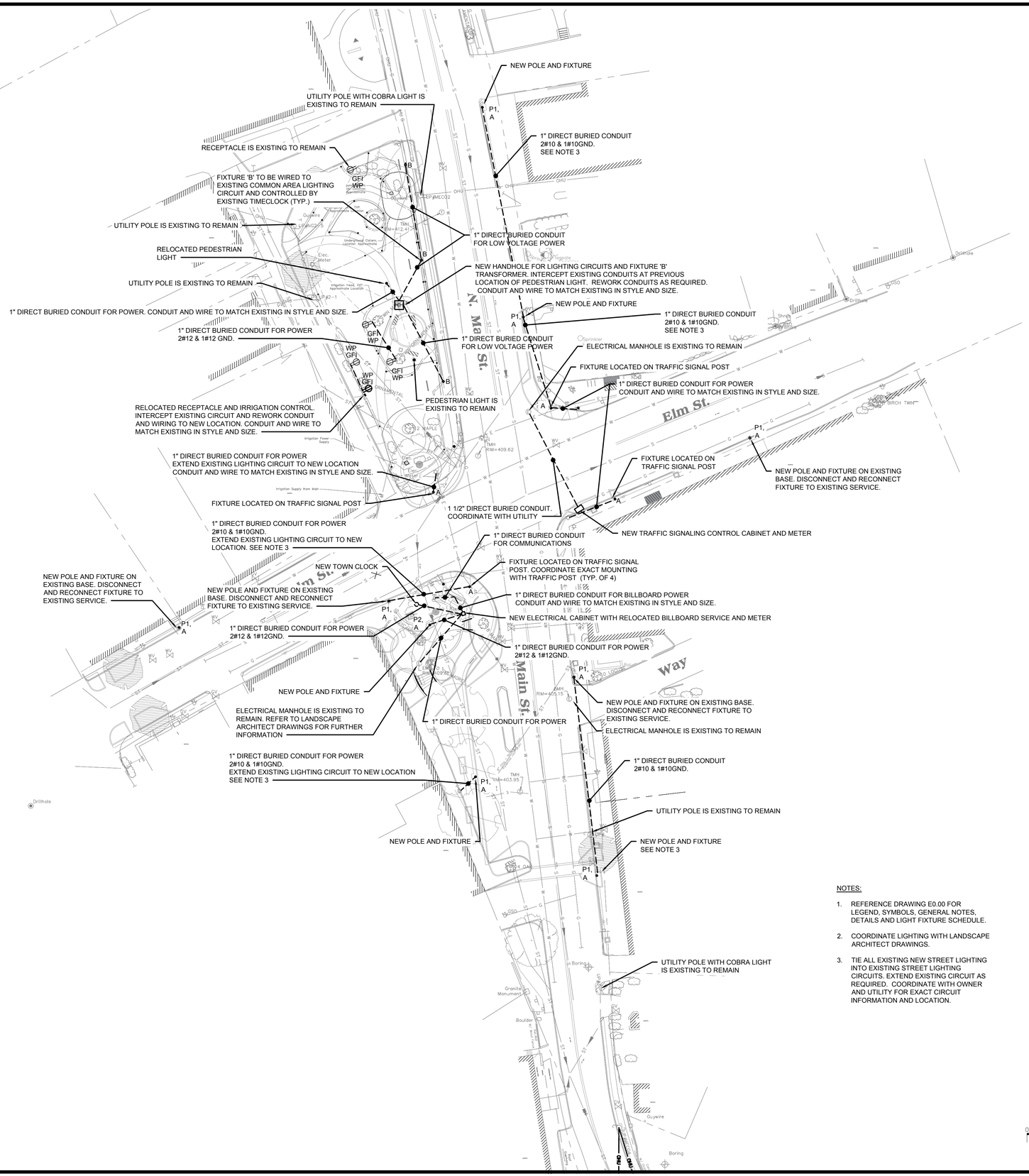


NOTES:

1. REFERENCE DRAWING E0.00 FOR LEGEND, SYMBOLS, GENERAL NOTES, DETAILS AND LIGHT FIXTURE SCHEDULE.
2. COORDINATE LIGHTING WITH LANDSCAPE ARCHITECT DRAWINGS.
3. TIE ALL EXISTING NEW STREET LIGHTING INTO EXISTING STREET LIGHTING CIRCUITS. EXTEND EXISTING CIRCUIT AS REQUIRED. COORDINATE WITH OWNER AND UTILITY FOR EXACT CIRCUIT INFORMATION AND LOCATION.

0 30 60 90

SCALE: 1" 30'-0"

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ELECTRICAL SITE PLAN

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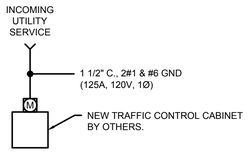
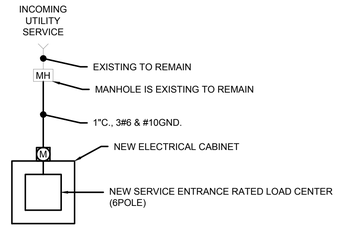


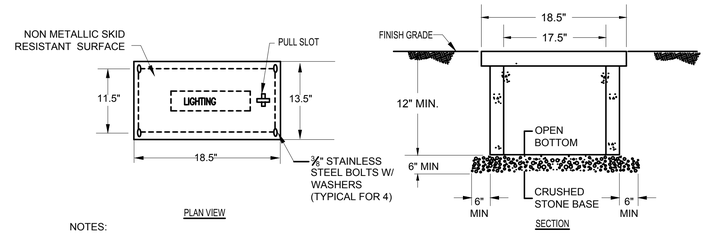

## TRAFFIC CONTROL CABINET ONE-LINE

**SCALE: NONE**




## BILLBOARD ONE-LINE

**SCALE: NONE**

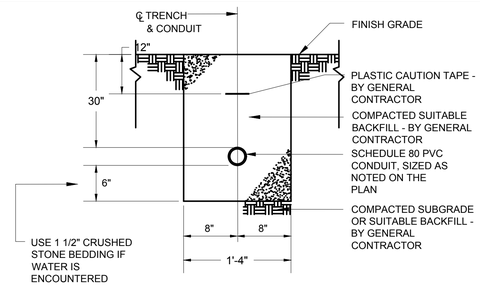



NOTES:

1. THIS HANDHOLE IS INTENDED FOR NON-DELIBERATE VEHICULAR TRAFFIC ONLY.

2. HANDHOLE SHALL BE PREFABRICATED POLYMER CONCRETE AGGREGATE EQUAL TO QUAZITE OR EQUAL PRE CAST CONCRETE CONSTRUCTION.

| 1 | PREFABRICATED HANDHOLE DETAIL | NO SCALE |
|---|---|---|




| 2 | TYPICAL DIRECT BURIED DUCTBANK DETAIL | NO SCALE |
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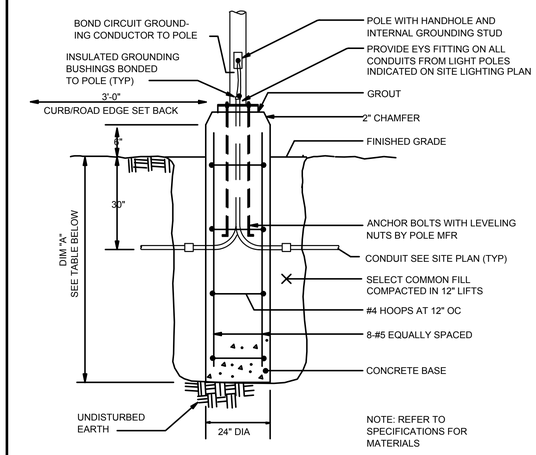
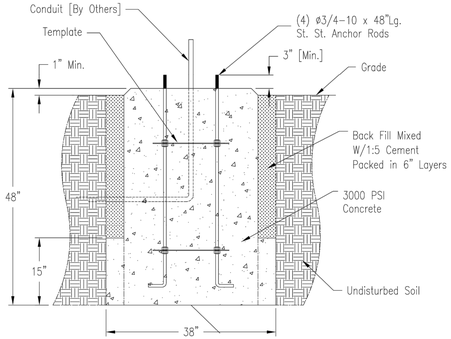



| POLE HEIGHT | DIMENSION "A" |
|---|---|
| 10'-0" | 4'-6" |
| 20'-0" | 4'-6" |
| 30'-0" | 6'-6" |
| 40'-0" | 6'-6" |

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

| 3 | TYPICAL LIGHT POLE BASE DETAIL | NO SCALE |
|---|---|---|

NOTE:
REFER TO MANUFACTURER'S INSTALLATION INSTRUCTION FOR FURTHER INFORMATION.




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

| 4 | CLOCK BASE DETAIL | NO SCALE |
|---|---|---|

LOCATION: ELECTRICAL CABINET

## LOAD CENTER

SERVICE: 120/240V, 1Ø, 3W, 60Hz — 100 AMP MAINS

MOUNTING: SURFACE — 60 AMP MAIN CIRCUIT BREAKER

| CKT # | CIRCUIT DESCRIPTION | LOAD | | BREAKER | |
|---|---|---|---|---|---|
| | | KW | HP | POLES | TRIP |
| 1 | BILLBOARD | X | " | 1 | 20 |
| 2 | CLOCK | 0.1 | " | 1 | 20 |
| 3 | PEDESTRIAN LIGHT | 0.1 | " | 1 | 20 |
| 4 | SPARE | " | " | 1 | 20 |
| 5 | SPARE | " | " | 1 | 20 |
| 6 | SPARE | " | " | 1 | 20 |

## LIGHTING FIXTURE SCHEDULE

| TYPE | TYPE | MANUFACTURER | CATALOG NUMBER | LAMP | | MOUNTING | VOLTAGE | LOAD | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | NO. | TYPE | | | | |
| A | DECORATIVE LED STREET LIGHT, ACORN STYLE | HALOPHANE | GVD2 P50 30K AS M BK 3 R B BK F H AO PCLL | 1 | LED 10,694 LUMENS 3000K | POLE | 120 | 100W | (8) SUPPLIED BY OWNER. INDIVIDUAL PHOTOCELLS. |
| B | CONCRETE INCASED LED UPLIGHT | B-K LIGHTING | AW-LED-e65-XX-A9-XX-XX-XX-XX-CPC | 1 | LED 466 LUMENS 3000K | CONCRETE ENCASED | 12 | 7W | PROVIDE WITH 12VAC BKSSL REMOTE TRANSFORMER MOUNTED IN HAND HOLE. |
| P1 | CHARLSTON ALUMINUM POLE, 18' | HALOPHANE | CHA 18 L5J 16_1 P07 ABG BK BA 30 L45 B 5 BK | N/A | N/A | BASE/ ANCHOR PLATE | N/A | N/A | (8) SUPPLIED BY OWNER. |
| P2 | CHARLSTON ALUMINUM POLE, 10' | HALOPHANE | CHA 10 L5J 16_1 P07 ABG BK | N/A | N/A | | N/A | N/A | HEIGHT TO BE DETERMINED BY ARCHITECT |

LIGHTING FIXTURE SCHEDULE REQUIREMENTS

1. FURNISH AND INSTALL ALL MATERIALS, ACCESSORIES AND OTHER EQUIPMENT NECESSARY FOR THE COMPLETE AND PROPER INSTALLATION OF ALL LIGHTING FIXTURES INCLUDED IN THIS CONTRACT. PROVIDE ALL NECESSARY ACCESSORIES AS NECESSARY TO PROVIDE A COMPLETE LIGHTING SYSTEM.
2. SPECIFICATIONS AND DRAWINGS ARE INTENDED TO CONVEY THE FEATURES, FUNCTION AND CHARACTER OF THE FIXTURES ONLY, AND DO NOT UNDERTAKE TO SPECIFY EVERY ITEM OR DETAIL NECESSARY. MINOR DETAILS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE LIGHTING SYSTEM NOT INDICATED ON THE DRAWINGS NOR SPECIFIED SHALL BE PROVIDED AS IF THEY WERE SPECIFIED HERE OR INDICATED ON THE DRAWINGS.
3. FIXTURES SUBSTITUTIONS (FROM MANUFACTURERS OTHER THAN THOSE LISTED) SHALL BE EQUAL IN ALL RESPECTS OF PERFORMANCE, QUALITY OF CONSTRUCTION, SUITABILITY TO PROJECT CONDITIONS AND APPEARANCE OF THE SPECIFIED FIXTURE. SUBSTITUTIONS SHALL BE SUBMITTED FOR APPROVAL IN THE FORM OF CATALOG CUTS OR DETAIL DRAWINGS. UPON REQUEST SUBMIT SAMPLES OF SUBSTITUTE FIXTURES FOR APPROVAL.
4. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE LIGHTING FIXTURE INSTALLATION WITH THE DRAWINGS AND DETAIL OF THE ARCHITECTURAL, STRUCTURAL AND OTHER RELATED TRADES TO ASSURE AN EFFICIENT INSTALLATION.

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Drawing Title:
ELECTRICAL DETAILS, SCHEDULES & ONE-LINES

Sheet Number:
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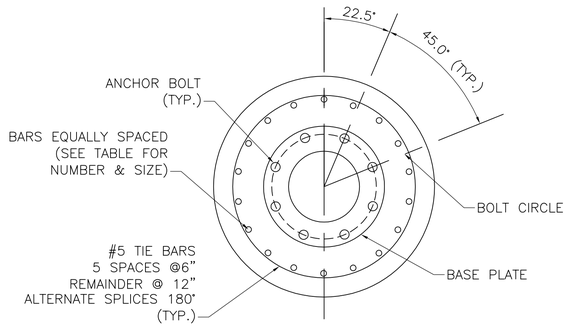
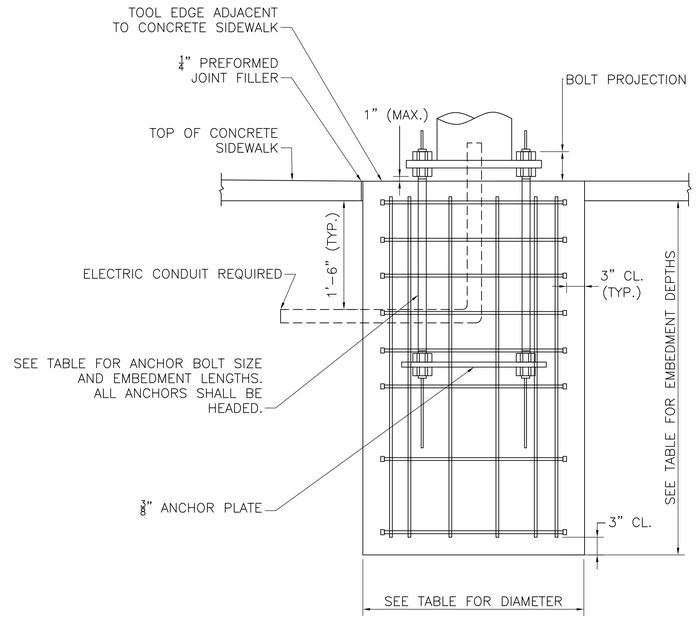



PIER FOUNDATION PLAN

N.T.S.




PIER FOUNDATION DETAIL

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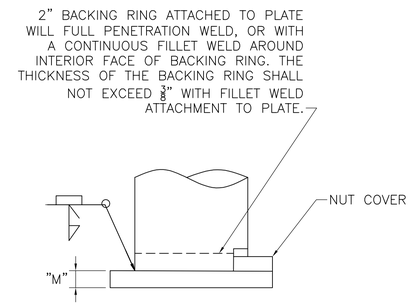


POLE BASE ELEVATION

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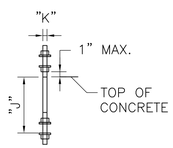
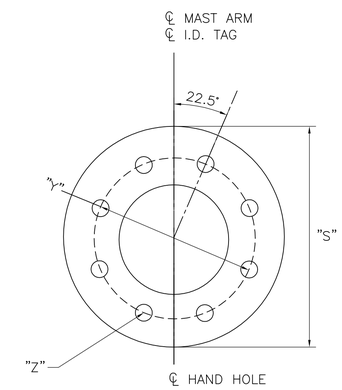



(8) ANCHOR BOLTS WITH (4) HEX NUTS, (4) FLAT WASHERS, AND (1) LOCK-WASHER PER BOLT.

ANCHOR BOLT DETAIL

N.T.S.

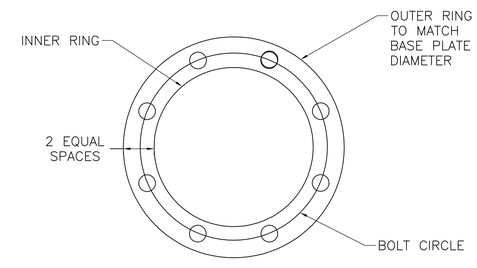



POLE BASE PARTIAL PLAN

N.T.S.

| POLE AND SIGNAL ARM DATA | | | | | | |
|---|---|---|---|---|---|---|
| POLE BASE | | | | | ANCHOR BOLT | |
| DESIGNATION | PLATE CIRCLE "S" | BOLT CIRCLE "Y" | THK. "M" | HOLE "Z" | DIA. "K" | EMBED LENGTH "J" |
| 30' - 0" MAST ARM | 29.50" | 24.00" | 1.50" | 1.813" | 1.50" | 36.00" |
| 40' - 0" MAST ARM | 34.50" | 28.00" | 1.75" | 2.063" | 1.75" | 36.00" |

| SIGNAL FOUNDATIONS | | | |
|---|---|---|---|
| DESIGNATION | DIAMETER | DEPTH | VERTICAL BARS |
| 30'-0" MAST ARM | 4'-0" | 12'-0" | 18 - #9 |
| 40'-0" MAST ARM | 4'-6" | 13'-0" | 18 - #10 |
| 8'-0" TRAFFIC SIGNALS | FOUNDATION SIMILAR TO LIGHT POST FOOTING SHOWN ON SECTION 5 SHEET L7.05 | | |




ANCHOR BOLT DETAIL

N.T.S.

NOTES:

1. FOUNDATIONS SHALL BE 4000 PSI, 1½", 565 CEMENT CONCRETE.
2. REINFORCEMENT SHALL BE ASTM A615 GRADE 60.
3. ANCHOR BOLTS SHALL BE SET BY TEMPLATE.
4. PROVIDE FOR ELECTRICAL CONDUIT.
5. EXCAVATION SHALL BE BY THE AUGER METHOD TO THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATIONS WITHOUT DISTURBING THE SOIL AROUND AND BELOW THE BOTTOM. ALTERNATE METHODS OF EXCAVATION MAY BE SUBMITTED TO MASSHIGHWAY FOR APPROVAL IF THEY MEET THE REQUIREMENTS LISTED IN NOTES 6, 7, AND 8.
6. THE EARTH WALLS OF THE FOUNDATION SHALL BE ADEQUATELY AND SECURELY PROTECTED AT ALL TIMES AGAINST CAVE-INS, DISPLACEMENT OF THE SURROUNDING EARTH AND FOR EXCLUSION OF GROUND WATER. THIS MAY BE DONE BY THE USE OF STEEL CYLINDER LINERS OR CASINGS THAT ARE APPROVED BY MASSHIGHWAY. IF LINERS ARE USED THEY MAY BE RECLAIMED PROVIDED THAT THEY ARE WITHDRAWN AS THE CONCRETE IS BEING PLACED, MAINTAINING A SUFFICIENT HEAD OF CONCRETE WITHIN THE LINER TO PREVENT REDUCTION IN THE FOUNDATION DIAMETER AND TO PREVENT EXTRANEOUS MATERIAL FROM FALLING IN FROM THE SIDE AND MIXING WITH THE CONCRETE.
7. IF THE SOIL IS DISTURBED OR REMOVED BEYOND THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATION, IT SHALL BE REPLACED WITH CONCRETE. ANY ADDITIONAL COST FOR THE CONCRETE SHALL BE PAID FOR BY THE CONTRACTOR.
8. SPECIAL CARE SHOULD BE GIVEN TO AREAS WHERE WET SOIL IS ENCOUNTERED, TO INSURE THAT THE PREAUGERED HOLE DOES NOT COLLAPSE. THIS MAY REQUIRE THE USE OF STEEL CYLINDER LINERS OR CASINGS TO HOLD THE SOIL IN PLACE UNTIL READY FOR CONCRETE PLACEMENT. THE STEEL CYLINDERS OR CASINGS SHALL BE WITHDRAWN AS THE FOUNDATION CONCRETE IS PLACED.
9. CONTRACTORS SHALL CONTACT ENGINEER IN THE EVENT ROCK IS ENCOUNTERED AND ADDITIONAL DIRECTION SHALL BE PROVIDED.

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