CUBE3
architecture | interiors | planning
370 Merrimack St., Suite 337 Lawrence MA 01843
phone: 978.989.9900 www.cube3.com

project information:

# Arbella at Ashland

MBTA Access Road
Ashland, MA 01721

client information:

U A Senior Manager LLC

Rensselaer Technology Park
300 Jordan Road
Troy,NY 12180

consultant information:

issuance:

PERMIT / GMP Coordination Set

NOT FOR CONSTRUCTION

key plan:

drawing information:

| | |
|---|---|
| drawing by: | SL |
| drawing checked by: | AD |
| drawing scale: | 1" = 60' |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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

registration:

DRAFT

drawing name:

## EXISTING CONDITIONS

drawing number:

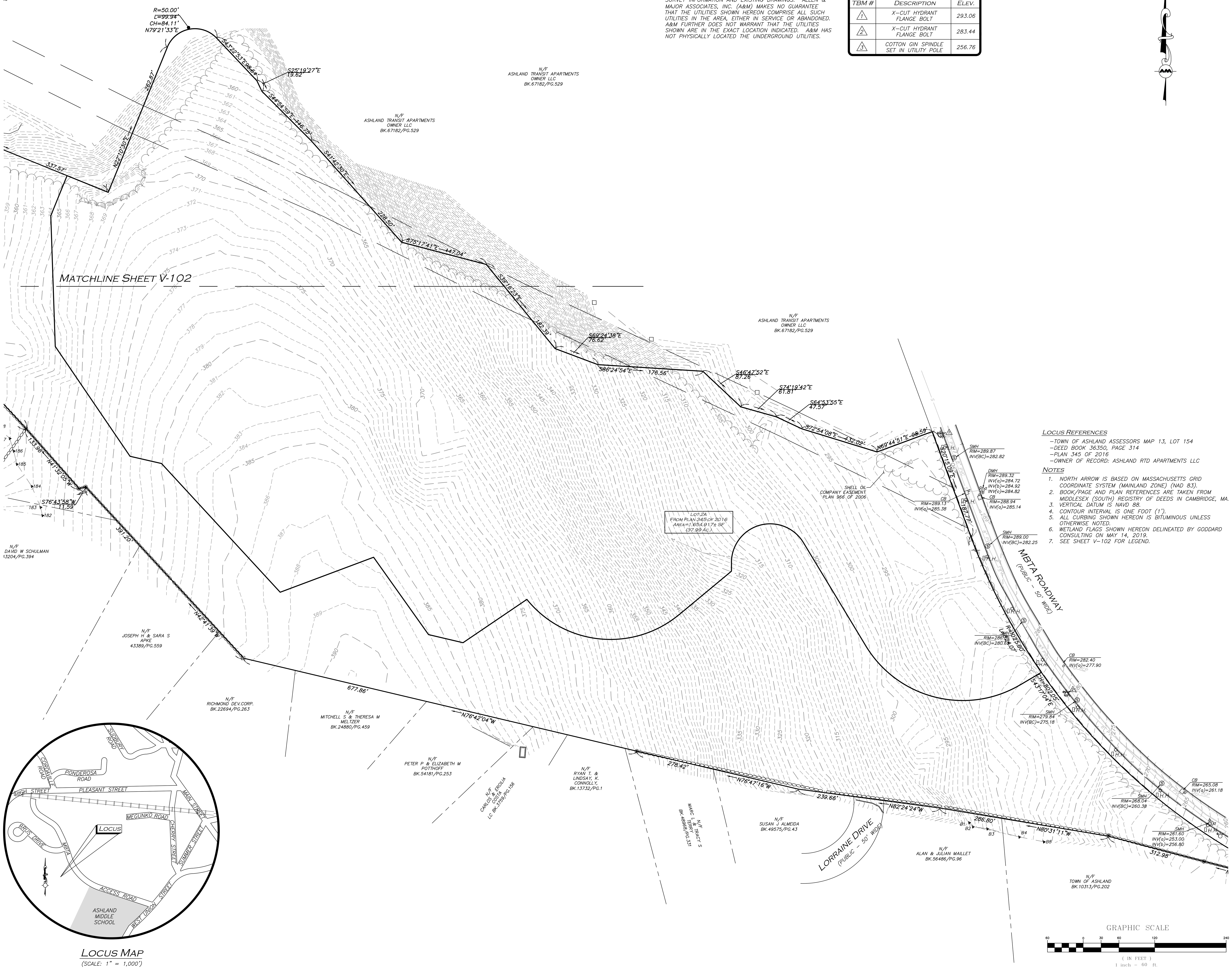
V-101

## Utility Statement

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

## Benchmark Summary

| TBM # | Description | Elev. |
|---|---|---|
| 1 | X-CUT HYDRANT FLANGE BOLT | 293.06 |
| 2 | X-CUT HYDRANT FLANGE BOLT | 283.44 |
| 3 | COTTON GIN SPINDLE SET IN UTILITY POLE | 256.76 |




LOCUS MAP
(SCALE: 1" = 1,000')

## Locus References

- TOWN OF ASHLAND ASSESSORS MAP 13, LOT 154
- DEED BOOK 36350, PAGE 314
- PLAN 345 OF 2016
- OWNER OF RECORD: ASHLAND RTD APARTMENTS LLC

## Notes

1. NORTH ARROW IS BASED ON MASSACHUSETTS GRID COORDINATE SYSTEM (MAINLAND ZONE) (NAD 83).
2. BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM MIDDLESEX (SOUTH) REGISTRY OF DEEDS IN CAMBRIDGE, MA.
3. VERTICAL DATUM IS NAVD 88.
4. CONTOUR INTERVAL IS ONE FOOT (1').
5. ALL CURBING SHOWN HEREON IS BITUMINOUS UNLESS OTHERWISE NOTED.
6. WETLAND FLAGS SHOWN HEREON DELINEATED BY GODDARD CONSULTING ON MAY 14, 2019.
7. SEE SHEET V-102 FOR LEGEND.

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## LEGEND

| | |
|---|---|
| DRILL HOLE (DH) | |
| BOUND | |
| DRAIN MANHOLE (DMH) | |
| SEWER MANHOLE (SMH) | |
| ELECTRIC MANHOLE (EMH) | |
| CATCH BASIN (CB) | |
| UTILITY POLE | |
| UTILITY POLE W/RISER | |
| UTILITY POLE W/LIGHT | |
| GUY WIRE | |
| FIRE HYDRANT | |
| WATER GATE | |
| INVERT (INV) | |
| FLARED END SECTION | |
| LIGHT | |
| SIGN | |
| WETLAND FLAG | A31 |
| HAND HOLE | H.H. |
| RIP-RAP | |
| BUILDING | |
| WETLAND | |
| EASEMENT LINE | |
| 1' CONTOUR | 53 |
| 5' CONTOUR | 55 |
| PROPERTY LINE | |
| ABUTTERS LINE | |
| STONE WALL | |
| RETAINING WALL | |
| TREE LINE | |
| EDGE OF PAVEMENT | |
| EDGE OF GRAVEL | |
| CURB | |
| CHAIN LINK FENCE | x |
| GUARDRAIL | |
| BITUMINOUS | BIT. |
| FOUND | FND |
| NOW OR FORMERLY | N/F |
| BOOK | BK. |
| PAGE | PG. |
| CERTIFICATE OF TITLE | COT |
| LAND COURT | L.C. |
| LAND COURT CASE | L.C.C. |

## LOCUS REFERENCES

- TOWN OF ASHLAND ASSESSORS MAP 13, LOT 154
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5. ALL CURBING SHOWN HEREON IS BITUMINOUS UNLESS OTHERWISE NOTED.
6. WETLAND FLAGS SHOWN HEREON DELINEATED BY GODDARD CONSULTING ON MAY 14, 2019.
7. SEE SHEET V-102 FOR LEGEND.

GRAPHIC SCALE

60 0 30 60 120 240

( IN FEET )
1 inch = 60 ft.

MATCHLINE SHEET V-101

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# NOTES

## GENERAL NOTES:

1. TOPOGRAPHIC INFORMATION AND EXISTING SITE FEATURES WERE OBTAINED FROM AN ACTUAL FIELD SURVEY PERFORMED BY ALLEN & MAJOR ASSOCIATES, INC, 100 COMMERCE WAY, WOBURN, MASSACHUSETTS.
2. ZONING DISTRICT IS RAIL TRANSIT DISTRICT (RTD) A, E, & F.
3. OVERALL LOT SIZE: 17.98± ACRES. LOT SIZE IS BASED ON COMPLETION OF AN APPROVAL NOT REQUIRED PLAN.
4. DURING CONSTRUCTION, ALL VEHICLES MUST BE PARKED ON SITE.
5. DURING CONSTRUCTION, ALL STAGING AND DELIVERIES WILL OCCUR ON SITE.
6. THIS PROJECT WILL BE SERVED BY PUBLIC WATER AND SEWER AND PRIVATE, NATURAL GAS, TELEPHONE, CABLE AND ELECTRIC. ALL UTILITY LINES WILL BE INSTALLED UNDERGROUND UNLESS OTHERWISE NOTED.
7. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS AT NO ADDITIONAL COST.
8. ALL PROPOSED MAIN BUILDING ENTRANCES AND WALKS SHALL BE ACCESSIBLY COMPLIANT PER FEDERAL ADA & MA AAB REGULATIONS.
9. ALL SITE WORK DONE FOR THIS PROJECT SHALL BE IN STRICT ACCORDANCE WITH THE SITE PLANS AND SITE WORK SPECIFICATIONS FOR CONSTRUCTION.
10. ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTIES DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
11. ALL PROPERTY MARKERS AND STREET LINE MONUMENTS SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION. ANY DAMAGE TO THESE ITEMS SHALL BE REPAIRED AND RESTORED BY A SURVEYOR REGISTERED IN THE STATE OF MASSACHUSETTS AT THE CONTRACTOR'S EXPENSE.
12. ALL APPLICABLE PERMITS AND AN APPROVED SET OF PLANS SHALL BE AVAILABLE AT THE CONSTRUCTION SITE.
13. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION MEETING THE WITH THE APPROPRIATE TOWN DEPARTMENTS, THE APPROPRIATE UTILITY COMPANIES, THE OWNER AND OWNER'S REPRESENTATIVE. THE MEETING SHALL TAKE PLACE PRIOR TO THE START OF CONSTRUCTION AND THE CONTRACTOR MUST PROVIDE 48 HOURS NOTICE TO ALL ATTENDEES PRIOR TO THE START OF THE MEETING.
14. APPROPRIATE WARNING SIGNS, MARKERS, BARRICADES AND/OR FLAG MEN SHALL BE PROVIDED TO REGULATE TRAFFIC. CONSTRUCTION TRAFFIC CONTROLS SHALL BE IMPLEMENTED AND OPERATED ACCORDING TO THE MASS DEPARTMENT OF TRANSPORTATION, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE LOCAL AUTHORITY.
15. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ADDITIONAL BENCHMARK INFORMATION IF REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING BENCHMARKS. IF IT IS NECESSARY TO RELOCATE A BENCHMARK, IT SHALL BE RELOCATED BY A MASSACHUSETTS PROFESSIONAL LAND SURVEYOR AND DONE SO AT THE CONTRACTOR'S EXPENSE.
16. ALL BUILDING DIMENSIONS ARE MEASURED TO THE OUTSIDE FACE OF THE BUILDING.
17. ALL RADII ARE 3 FEET UNLESS OTHERWISE NOTED.
18. ALL PARKING LOT AND AISLE DIMENSIONS ARE TAKEN FROM THE FACE OF CURB AND INDICATE EDGE OF PAVEMENT.
19. CONSTRUCTION DURING WET WEATHER OR WINTER CONDITIONS IS TO BE ANTICIPATED AND PROVISIONS TO ADEQUATELY ADDRESS THESE CONDITIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST.
20. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ANY PERMITS AND/OR CONNECTION FEES REQUIRED TO CARRY OUT THE WORK INCLUDING BUT NOT LIMITED TO DEMOLITION.
21. DISPOSAL OF ALL DEMOLISHED MATERIALS INCLUDING EXISTING MISC. CONSTRUCTION DEBRIS IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL MUNICIPAL REQUIREMENTS AT NO ADDITIONAL COST.
22. ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER TREATMENT ARE TO RECEIVE SIX INCHES (6") MINIMUM OF TOPSOIL & SEED, AND BE MAINTAINED UNTIL ESTABLISHED & ACCEPTED.
23. EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE PROTECTED, ABANDONED, REMOVED OR RELOCATED AS NECESSARY.
24. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH THE LOCAL MUNICIPALITY'S GOVERNING AUTHORITY'S SPECIFICATIONS AND SHALL BE APPROVED BY SAME.
25. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO DETERMINE EXACT POINT OF SERVICE CONNECTION AND DISCONNECTION AT EXISTING UTILITY.
26. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARKS SHOWN ON THE EXISTING CONDITIONS SITE PLAN AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR AT GROUNDBREAKING.
27. CONTRACTOR IS RESPONSIBLE FOR DIGGING TEST HOLES AND VERIFYING ANY EXISTING UTILITY OR STRUCTURE PRIOR TO CONSTRUCTION. CONTRACTOR SHALL VERIFY THAT BASED ON EXACT LOCATION OF EXISTING UTILITIES, THERE ARE NO CONFLICTS BETWEEN THE EXISTING AND THE PROPOSED UTILITIES/DRAINAGE STRUCTURES.
28. THE CONTRACTOR SHALL ADHERE TO ALL PERMIT CONDITIONS PROVIDED BY ALL GOVERNING AGENCIES AT NO ADDITIONAL COSTS. THIS INCLUDES BUT IS NOT LIMITED TO BUILDING PERMITS, DEMOLITION PERMITS, PLUMBING, GAS, AND ELECTRICAL PERMITS. PERMITS FROM THE ZONING BOARD OF APPEALS.
29. DURING EXCAVATION, ANY EXISTING EARTH CUT MATERIALS THAT DO NOT MEET THE "ORDINARY FILL" SPECIFICATIONS OR "LOAM" SPECIFICATIONS AND CANNOT BE REUSED SHALL BE REMOVED OFFSITE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNERS. MATERIAL WHICH DOES NOT MEET THE SPECIFICATION INCLUDES ALL BOULDERS, ROCKS, CONSTRUCTION DEBRIS, AND MISC. MATERIAL. PRIOR TO REUSE, CONTRACTOR TO PROVIDE TESTING REPORT OF SIEVE ANALYSIS TO ENGINEER FOR APPROVAL. CONTRACTOR CAN AMEND MATERIALS AND CONTINUE TO RETEST AS NECESSARY AT NO ADDITIONAL COST TO OWNER. AFTER AMENDING, IF MATERIAL STILL DOES NOT MEET THE SPECIFICATIONS, IT IS TO BE REMOVED FROM SITE AT NO ADDITIONAL COST TO THE OWNER AND IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
30. ANY PROPOSED SIGNAGE SHALL BE APPROVED BY SEPARATE APPLICATION TO THE APPROPRIATE MUNICIPAL AUTHORITY INCLUDING BUT NOT LIMITED TO THE ZONING BOARD OF APPEALS. ALL PROPOSED SIGNAGE MUST MEET THE REQUIREMENTS OF THE LOCAL ZONING CODE.

## GRADING & DRAINAGE NOTES:

1. EXISTING PAVEMENT SHALL BE SAW-CUT AND PAVEMENT JOINT SHALL BE INSTALLED WHERE NECESSARY TO ENSURE A SMOOTH CONTINUOUS GRADE.
2. ALL GRADING OPERATIONS SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANIES.
3. IN LANDSCAPED AREAS THE TOP ELEVATION OF MANHOLES SHALL MATCH THE FINISH GRADE OF THE TOPSOIL. IN PAVED AREAS THE TOP ELEVATIONS OF MANHOLES SHALL MATCH FINISH GRADE.
4. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED AS SOON AS POSSIBLE UPON COMPLETION OF CONSTRUCTION WORK IN THE AREA.
5. TEMPORARY TUBULAR BARRIER PROTECTION AND/OR SILT SACKS SHALL BE INSTALLED AND MAINTAINED AT EXISTING DRAINAGE STRUCTURES DURING CONSTRUCTION, TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE DRAINAGE SYSTEM.
6. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE PER DEMOLITION PLAN.
7. ALL CATCH BASINS, MANHOLES, INFILTRATION SYSTEMS, AND WATER QUALITY STRUCTURES ARE TO BE CLEANED TO REMOVE ALL CONSTRUCTION SILT AND DEBRIS PRIOR TO FINAL APPROVAL.
8. IF ANY EXISTING UTILITY STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER AT NO ADDITIONAL COST.
9. ALL STORM PIPES ENTERING STRUCTURES SHALL BE GROUTED TO ENSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
10. ALL STORM DRAIN MANHOLES SHALL HAVE TRAFFIC BEARING RING & COVERS & SHALL BE LABELED "DRAIN".
11. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
12. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
13. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES STEEPER THAN 3H:1V.
14. ALL DRAINAGE SYSTEM COMPONENTS SHALL CONFORM TO LOCAL REQUIREMENTS.
15. THE AREA DIRECTLY BELOW THE SUBSURFACE RECHARGE FIELD SHALL BE KEPT FREE OF COMPACTION OR HEAVY CONSTRUCTION VEHICLES. THE BOTTOM SHALL BE SCARIFIED PRIOR TO PLACEMENT OF STONE.

## UTILITY NOTES:

1. THE LATEST STANDARDS OF THE LOCAL MUNICIPALITY SHALL BE FOLLOWED WHEN INSTALLING ANY STORM DRAIN WORK. STORM DRAIN WORK WILL BE INSPECTED BY THE LOCAL GOVERNING AUTHORITY PERSONNEL AND ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION.
3. ABANDONED EXISTING UTILITIES AND UTILITIES TO BE ABANDONED SHALL EITHER BE ABANDONED IN PLACE AS NOTED OR SHALL BE REMOVED AND DISPOSED OF AS SPECIFIED. ALL UTILITIES SCHEDULED FOR ABANDONMENT OR REMOVAL AND DISPOSAL MUST BE COORDINATED BY THE CONTRACTOR WITH THE RESPECTIVE UTILITY OWNER. WHEN ABANDONED UTILITIES ARE TO BE LEFT IN PLACE, PLUG OR CAP THE ENDS OF THE CONDUITS AND PIPES. REMOVE ABANDONED UTILITY MANHOLES, JUNCTION BOXES AND SIMILAR STRUCTURES TO A MINIMUM DEPTH OF 4 FEET BELOW FINISHED GRADE AND PUNCTURE OR BREAK THE BOTTOM SLABS OF MANHOLES AND SIMILAR STRUCTURE TO ALLOW DRAINAGE. BACKFILL AND COMPACT EXCAVATIONS RESULTING FROM REMOVAL OF UTILITY FACILITATES, AS REQUIRED TO RESTORE THE ORIGINAL GRADE.
4. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENTS OF NATURAL GAS, ELECTRIC, TELEPHONE AND ANY OTHER UTILITY BY THE UTILITY OWNER.
5. THE CONTRACTOR SHALL USE THE FOLLOWING PIPE MATERIALS:
   - DRAIN – HDPE (HIGH DENSITY CORRUGATED POLYETHYLENE PIPE WITH SMOOTH INNER WALL), ASTM D2321 (UNLESS OTHERWISE SPECIFIED ON PLAN)
8. BEFORE UTILITY WORK BEGINS, THE CONTRACTOR WILL COORDINATE WITH THE LOCAL MUNICIPALITY FOR THE APPROPRIATE PERMIT AND INSPECTION FEES.
9. A MINIMUM OF 10 FEET CLEAR HORIZONTALLY SHALL BE MAINTAINED BETWEEN WATER MAINS AND SANITARY SEWER MAINS AND/OR STORM DRAINS. WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET TO A WATER MAIN, THE WATER MAIN SHALL BE LAID IN A SEPARATE TRENCH AND THE DIFFERENCE IN ELEVATION BETWEEN THE WATER MAIN AND THE SEWER MAIN SHALL BE AT LEAST 18 INCHES.
10. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES, EXCEPT WHERE IMPRACTICAL TO DO SO.
11. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITY'S INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.
12. MINIMUM TRENCH WIDTH SHALL BE 2 FEET.
13. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 5'-0" COVER AND A MAXIMUM OF 8'-0" COVER ON ALL WATERLINES.
14. IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATERLINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE SANITARY LINE SHALL BE DUCTILE IRON PIPE WITH MECHANICAL JOINTS AT LEAST 10 FEET ON BOTH SIDES OF CROSSING, THE WATERLINE SHALL HAVE MECHANICAL JOINTS WITH APPROPRIATE THRUST BLOCKING AS REQUIRED TO PROVIDE A MINIMUM OF 18" CLEARANCE BETWEEN THE PIPES. WHERE THE WATERLINE IS LESS THAN THE 18" VERTICAL CLEARANCE AND MEETING 10' HORIZONTAL CLEARANCE CANNOT BE MET, THE WATER MUST BE ENCASED IN CONCRETE.
15. ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 P.S.I.
16. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE SPECIFICATIONS OF THE LOCAL AUTHORITIES WITH REGARDS TO MATERIALS AND INSTALLATION OF THE WATER, SEWER, GAS AND ELECTRICAL AND TELECOMMUNICATIONS LINES.
17. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICE.
18. DRAWINGS DO NOT NECESSARILY SHOW ALL EXISTING UTILITIES.
19. CONTRACTOR TO PROVIDE 1" CONDUIT TO ALL SITE LIGHTING IN AN ECONOMICALLY APPROPRIATE FASHION.

# ABBREVIATIONS

| | |
|---|---|
| ABAN | ABANDON |
| ADJ | ADJUST |
| B | BORING |
| BC | BOTTOM OF CURB |
| BIT | BITUMINOUS |
| BCB | BITUMINOUS CONCRETE BERM |
| BLDG | BUILDING |
| BM | BENCH MARK |
| BOS | BOTTOM OF SLOPE |
| BOW | BOTTOM OF WALL |
| BRK | BRICK |
| BV&B | BUTTERFLY VALVE & BOX |
| BVW | BORDERING VEGETATED WETLAND |
| CATV | CABLE TELEVISION |
| CB | CATCH BASIN |
| CF | CUBIC FEET |
| CFS | CUBIC FEET PER SECOND |
| CI | CAST IRON (PIPE) |
| CL | CENTERLINE |
| CLDI | CEMENT LINED DUCTILE IRON (PIPE) |
| CM | CONSTRUCTION MANAGER |
| CMP | CORRUGATED METAL PIPE |
| CO | CLEAN OUT |
| CONC | CONCRETE |
| CONST | CONSTRUCTION |
| CONT | CONTRACTOR |
| CRD | COORDINATE |
| CPP | CORRUGATED POLYETHYLENE PIPE |
| CUL | CULVERT |
| CY | CUBIC YARD |
| DB | DISTRIBUTION BOX |
| DBL | DOUBLE |
| DEM | DEMOLISH |
| DET | DETENTION |
| DI | DUCTILE IRON (PIPE) |
| DIA | DIAMETER |
| DIM | DIMENSION |
| DMH | DRAIN MANHOLE |
| DW | DOMESTIC WATER (OR DRY WELL) |
| DWG | DRAWING |
| DYCL | DOUBLE YELLOW CENTERLINE |
| EHH | ELECTRIC HANDHOLE |
| EL | ELEVATION |
| ELEC | ELECTRIC |
| EMH | ELECTRIC MANHOLE |
| EOP | EDGE OF PAVEMENT |
| EOR | EDGE OF ROAD |
| EOW | EDGE OF WETLANDS |
| ETC | ELECTRIC, TELEPHONE, CABLE |
| EXIST | EXISTING |
| EXT | EXTERIOR |
| FA | FIRE ALARM |
| FCC | FLUSH CONCRETE CURB |
| FES | FLARED END SECTION |
| FFE | FINISH FLOOR ELEVATION |
| FLNP | FIRE LANE NO PARKING |
| FPS | FEET PER SECOND |
| FS | FIRE SERVICE |
| FT | FOOT/FEET |
| GC | GENERAL CONTRACTOR |
| GEN | GENERAL |
| GG | GAS GATE |
| GR | GUIDE RAIL |
| GRAN | GRANITE |
| GV | GATE VALVE |
| GV&B | GATE VALVE & BOX |
| GW | GROUND WATER |
| HCR | HANDICAP RAMP |
| HOR | HORIZONTAL |
| HT | HEIGHT |
| HW | HEADWALL |
| HWY | HIGHWAY |
| HYD | HYDRANT |
| ID | INSIDE DIAMETER |
| IN | INCHES |
| INCL | INCLUDE |
| INST | INSTALLED |
| INV, I.E. | INVERT, INVERT ELEVATION |
| L | LENGTH |
| LB | LEACHING BASIN |
| LP | LIGHT POLE |
| MAT | MATERIAL |
| MAX | MAXIMUM |
| MH | MANHOLE |
| MIN | MINIMUM |
| MISC | MISCELLANEOUS |
| MTD | MOUNTED |
| MW | MONITORING WELL |
| N | NORTH |
| NIC | NOT IN CONTRACT |
| NO | NUMBER |
| NTS | NOT TO SCALE |
| OC | ON CENTER |
| OD | OUTSIDE DIAMETER |
| OHW | OVERHEAD WIRE |
| OVHD | OVERHEAD |
| OW | OBSERVATION WELL |
| PC | POINT OF CURVATURE |
| PCC | PRECAST CONCRETE CURB |
| PI | POINT OF INTERSECTION |
| PKG | PARKING |
| PL | PROPERTY LINE |
| PLMB | PLUMBING |
| POC | POINT ON CURVATURE |
| POT | POINT ON TANGENT |
| PRC | POINT OF REVERSE CURVATURE |
| PROP, P | PROPOSED |
| PT | POINT (OR POINT OF TANGENT) |
| PVC | POLYVINYL CHLORIDE (PIPE) |
| R&R | REMOVE & RESET/REPLACE |
| R&S | REMOVE & STACK |
| RCP | REINFORCED CONCRETE PIPE |
| RD | ROAD (OR ROOF DRAIN) |
| RED | REDUCER |
| RELOC | RELOCATE |
| REM | REMOVE |
| RET | RETAIN, RETAINING OR RETENTION |
| ROW | RIGHT OF WAY |
| RR | RAILROAD |
| RWL | RAIN WATER LEADER |
| RWY | ROADWAY |
| SD | SUBDRAIN |
| SF | SQUARE FEET |
| SGC | SLOPED GRANITE CURB |
| SMH | SEWER MANHOLE |
| SP | STANDPIPE |
| SPEC | SPECIFICATION |
| STA | STATION |
| STC | STORMCEPTOR |
| STD | STANDARD |
| STRTL | STRUCTURAL |
| SWEL | SOLID WHITE EDGE LINE |
| SW | SIDEWALK |
| SWLL | SOLID WHITE LANE LINE |
| SYCL | SOLID YELLOW CENTERLINE |
| TB | TEST BORING |
| TC | TOP OF CURB |
| TD | TRENCH DRAIN |
| TEL T | TELEPHONE |
| TMH | TELEPHONE MANHOLE |
| TOS | TOP OF SLOPE |
| TOW | TOP OF WALL |
| TP | TEST PIT |
| TS&V | TAPPING SLEEVE & VALVE |
| TYP | TYPICAL |
| UD | UNDERDRAIN |
| UL | UNDERWRITERS LABORATORY |
| UP | UTILITY POLE |
| VCP | VITRIFIED CLAY PIPE |
| VERT | VERTICAL |
| VGC | VERTICAL GRANITE CURB |
| WD | WOOD |
| WG | WATER GATE |
| WM | WATER MAIN |
| WMH | WATER MANHOLE |
| WSO | WATER SHUTOFF |


CUBE 3
architecture | interiors | planning
370 Merrimack St., Suite 337 Lawrence MA 01843
phone: 978.989.9900 www.cube3.com


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Arbella at Ashland

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Ashland, MA 01721

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U A Senior Manager LLC

Rensselaer Technology Park
300 Jordan Road
Troy,NY 12180

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drawing number:
C-001


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# EROSION CONTROL NOTES

## EROSION & SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE. ANY MODIFICATIONS TO SILT CONTROLS SHOWN ON THE APPROVED PLANS AS A RESULT OF ACTUAL FIELD CONDITIONS OR CONSTRUCTION PRACTICES SHALL BE INSTALLED IN ACCORDANCE WITH B.M.P. (BEST MANAGEMENT PRACTICES) PER THE E.P.A. 2017 "CONSTRUCTION GENERAL PERMIT" MANUAL, AND MASSACHUSETTS 2003 EROSION & SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS, ANY SUCH MODIFICATIONS FROM THE ABOVE MANUALS SHALL BE INSTALLED AS APPROVED BY THE ENGINEER OR THE LOCAL MUNICIPALITY.

2. AREAS OF EXPOSED SOIL UNDERGOING CONSTRUCTION THAT WILL NOT BE COVERED AND OR FINISHED GRADED SHALL BE STABILIZED AS SOON AS PRACTICABLE BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY (UNLESS MUNICIPALITY HAS STRICTER REQUIREMENTS WHICH SHALL BE FOLLOWED) IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY EROSION CONTROL MEASURES SHALL INCLUDE EROSION CONTROL MESH, NETTING OR MULCH AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND SHOWN ON THE DESIGN PLANS. IF MULCH IS USED, STRAW MULCH SHALL BE APPLIED AT THE RATE OF 4 BALES PER 1,000 SQUARE FEET. APPLICATION AREA SHALL BE SUFFICIENTLY COVERED WITH MULCH TO AVOID ANY VISIBLE SOIL EXPOSURE. MULCH SHALL BE KEPT MOIST TO AVOID LOSS DUE TO WIND. MULCH AND NETTING SHALL BE APPLIED IN THE BASE OF ALL GRASSED WATERWAYS, IN VEGETATIVE SLOPES WHICH EXCEED 15% AND DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS.

3. IF DISTURBED AREAS DO NOT RECEIVE FINAL SEEDING BY OCTOBER 1ST OF THE CONSTRUCTION YEAR, THEN ALL DISTURBED AREAS SHALL BE SEEDED WITH A WINTER COVER CROP AT THE RATE OF 3 LBS PER 1,000 SQUARE FEET. WINTER SEEDING SHALL BE COVERED WITH EROSION CONTROL MESH (MULCH AND NETTING). HEAVY GRADE MATS SHALL BE USED IN THE BASE OF ALL GRASSED WATERWAYS ON VEGETATED SLOPES IN EXCESS OF 15%, AND ANY DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS. MULCH AND NETTING SHALL ALSO BE PROVIDED FOR ADDITIONAL WINTER PROTECTION.

4. ALL TOPSOIL SHALL BE COLLECTED, STOCKPILED, SEEDED WITH RYE AT 3LBS PER 1,000 SQUARE FOOT AND MULCHED, AND REUSED AS REQUIRED. TUBULAR BARRIERS SHALL BE PLACED DOWN GRADIENT FROM STOCKPILED LOAM. LOAM SHALL BE STOCKPILED AT LOCATIONS DESIGNATED BY THE OWNER AND ENGINEER.

5. ALL TUBULAR BARRIERS, SILT SACKS, AND EROSION CONTROL BERMS SHALL BE INSTALLED ACCORDING TO THE SITE PREPARATION PLAN. THESE SHALL BE MAINTAINED DURING DEVELOPMENT TO REMOVE SEDIMENT FROM RUNOFF WATER. ALL THE FILTER BARRIERS AND EROSION CONTROL BERMS SHALL BE INSPECTED AFTER ANY RAINFALL OR RUNOFF EVENT, MAINTAINED AND CLEANED UNTIL ALL AREAS HAVE AT LEAST 85-90% VIGOROUS PERENNIAL COVER OF GRASSES.

6. ADJACENT ROADS SHALL BE PERIODICALLY SWEPT OR WASHED TO AVOID TRACKING MUD, DUST OR DEBRIS FROM THE CONSTRUCTION AREA AS OFTEN AS NECESSARY (WHICH COULD BE ON A DAILY BASIS) TO REMOVE ANY SOIL OR SEDIMENTS AT NO ADDITIONAL COST TO THE OWNER. A WATERING TRUCK WILL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AT NO ADDITIONAL COST TO THE OWNER.

7. THE CONTRACTOR SHALL USE EXTREME CAUTION TO AVOID ALLOWING SEDIMENTS TO ENTER THE STORM DRAIN SYSTEM DURING CONSTRUCTION. BOTH EXISTING AND PROPOSED CATCH BASIN INLETS SHALL BE PROTECTED DURING CONSTRUCTION BY THE USE SILT SACKS AND/OR TUBULAR BARRIERS AROUND EACH INLET AS NOTED ON THE PLANS. INLET PROTECTION MAY BE REMOVED ONLY AFTER FINISHED AREAS ARE PAVED AND THE VEGETATED SLOPES ARE ESTABLISHED WITH AT LEAST 85-90% OF VIGOROUS PERENNIAL GROWTH.

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

9. AT A MINIMUM, ALL TUBULAR BARRIERS AND FILTER FABRIC SHALL REMAIN IN PLACE UNTIL SEEDINGS OR PLANTINGS HAVE BECOME 85-90% ESTABLISHED. THE LOCAL CONSERVATION COMMISSION MUST APPROVE THE REMOVAL OR RELOCATION OF ANY OF THE TUBULAR BARRIERS AND FILTER FABRIC. ONCE THE TUBULAR BARRIERS ARE REMOVED THE AREAS ARE TO BE LOAMED AND SEEDED TO ACHIEVE FULL STABILIZATION.

10. AT THE OWNER'S DISCRETION ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED TO MAINTAIN STABILITY OF EARTHWORKS AND FINISHED GRADED AREAS. THE CONTRACTOR, AT HIS EXPENSE, WILL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY ADDITIONAL MEASURES AS SPECIFIED BY THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO REQUESTS BY MA DEP, THE ENGINEER AND THE LOCAL MUNICIPALITY, AS AUTHORIZED BY THE OWNER. FAILURE TO COMPLY WITH THE OWNER'S DIRECTIONS WILL RESULT IN DISCONTINUATION OF CONSTRUCTION ACTIVITIES.

11. INSPECTIONS AND MONITORING MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. WEEKLY INSPECTIONS SHALL BE HELD THROUGH THE DURATION OF CONSTRUCTION ACTIVITY. WEEKLY INSPECTION REPORTS SHALL BE MAINTAINED BY THE CONTRACTOR AND LOCATED IN THE CONTRACTORS FIELD OFFICE ONSITE. IN ADDITION TO THE NORMAL WEEKLY INSPECTIONS, THE CONTRACTOR SHALL PERFORM AN INSPECTION OF ALL EROSION CONTROL MEASURES AFTER EACH RAINFALL OR RUNOFF EVENT, AND PERFORM THE NECESSARY REPAIRS. THE INSPECTIONS SHALL INCLUDE BUT NOT BE LIMITED TO THE SITE'S DOWN STREAM DISCHARGE POINTS.

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

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

14. CONTRACTOR & ALL SITE SUBCONTRACTORS SHALL BE FAMILIAR WITH & FOLLOW ALL APPROVED PERMITS AND CONDITIONS. CONTRACTOR SHALL MAINTAIN A COPY OF ALL APPROVED PERMITS ONSITE. ALL CONDITIONS & RECOMMENDATIONS WITHIN THE APPROVED PERMITS SHALL BE COMPLETED.

15. ALL EROSION MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE. ANY MODIFICATIONS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER OR THE LOCAL MUNICIPALITY.

16. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITE WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.

17. TOP OF STOCKPILES SHALL BE COVERED IN SUCH MANNER THAT STORMWATER DOES NOT INFILTRATE THE MATERIALS AND THEREBY RENDER THE SAME UNSUITABLE FOR FILL USE.

## EROSION & SEDIMENTATION CONTROL NOTES (CONTINUED):

18. ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION SHALL BE STABILIZED WITH MULCH OR SEEDED FOR TEMPORARY VEGETATIVE COVER. NO AREA, SUBJECT TO EROSION SHALL BE LEFT DISTURBED AND UNSTABILIZED FOR PERIODS LONGER THAN IS ABSOLUTELY NECESSARY TO CARRY OUT THAT PORTION OF THE CONSTRUCTION WORK OR SIX MONTHS AFTER SOIL HAS BEEN DISTURBED WHICHEVER IS LESS.

19. CULVERT/PIPE INLETS AND OUTFALLS SHALL BE PROTECTED BY TUBULAR BARRIER FILTERS AND STONE CHECK DAMS UNTIL DISTURBED AREAS ARE PERMANENTLY STABILIZED.

20. TUBULAR BARRIER DIKES SHALL BE CONSTRUCTED AT ALL EXISTING & PROPOSED CATCH BASINS. NO SEDIMENTATION SHALL ENTER THE ON-SITE OR OFF-SITE DRAINAGE SYSTEMS AT ANY TIME.

21. ALL EROSION CONTROL MEASURES SHALL BE ROUTINELY INSPECTED, CLEANED AND REPAIRED OR REPLACED AS NECESSARY THROUGHOUT ALL PHASES OF CONSTRUCTION. IN ADDITION, INSPECTIONS SHALL TAKE PLACE WEEKLY AND BEFORE AND AFTER EACH RAINFALL EVENT.

22. ALL PROPOSED SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH JUTE MESH AND PROTECTED FROM EROSION UNTIL WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.

23. THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES ADDITIONAL TUBULAR BARRIERS FOR INSTALLATION AT THE DIRECTION OF THE ENGINEER OR THE TOWN ENGINEER TO MITIGATE ANY EMERGENCY CONDITION.

24. AS CONSTRUCTION DISTURBANCE IS GREATER THAN 1 ACRE, A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION GENERAL PERMIT NOI, AND STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WILL NEED TO BE SUBMITTED TO THE EPA. THE NPDES PERMIT FOR STORM WATER DISCHARGE, & CONSTRUCTION GENERAL PERMIT NOI WILL BE REQUIRED TO BE SUBMITTED AT LEAST 14 DAYS PRIOR TO COMMENCING CONSTRUCTION BY THE CONTRACTOR.

25. OWNER AND CONTRACTOR ARE RESPONSIBLE FOR COMPLIANCE WITH THE CONSTRUCTION GENERAL PERMIT NOI. WEEKLY SWPPP INSPECTION REPORTS TO BE PERFORMED BY CONTRACTOR. COPIES OF ALL SWPPP INSPECTION REPORTS SHALL BE PROVIDED TO THE LOCAL MUNICIPALITY, EPA, DEP, OR ANY OTHER AUTHORITY REQUESTING WITHIN 3 DAYS OF EACH INSPECTION.

26. APPLICABLE WORK AND MATERIALS SHALL COMPLY WITH ALL LOCAL, MA DEP, EPA CONSTRUCTION GENERAL PERMIT STANDARDS. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE SITE PLAN REGULATIONS FROM THE LOCAL AND USDA SOIL CONSERVATION SERVICE VEGETATIVE PRACTICES IN SITE DEVELOPMENT.

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

28. INITIATE STABILIZATION OF EXPOSED AREAS IMMEDIATELY IF CONSTRUCTION WORK TEMPORARILY OR PERMANENTLY CEASES.

29. ALL DISCHARGES FROM POLLUTION SOURCES ARE PROHIBITED ONSITE SUCH AS FUELS, WASTEWATER FROM WASH OUT OF CONCRETE, WASTEWATER FROM CLEAN OUT OF PAINTS, FORM RELEASE OILS, SOLVENTS, ADHESIVES, CURING COMPOUNDS, POLLUTANTS USED FOR MAINTENANCE OF VEHICLES AND EQUIPMENT, SOAPS & SOLVENTS, TOXIC OR HAZARDOUS SUBSTANCES, CHEMICALS AND OILS. IF A POLLUTANT IS DISCHARGED IT NEEDS TO BE IMMEDIATELY CLEANED UP BY REMOVING THE CHEMICAL AND AFFECTED SOIL OR AREA OF SPILL FROM THE SITE IN ACCORDANCE WITH BOTH THE MANUFACTURER RECOMMENDATIONS, FEDERAL, STATE, AND LOCAL REQUIREMENTS. DO NOT HOSE DOWN AND SPREAD SPILLED ITEM. ALL CHEMICALS USED ON THE SITE SHALL BE IN LEAK-PROOF CONTAINERS STORED AWAY FROM WETLANDS, SURFACE WATERS, STORMWATER INLETS, AND DRAINAGE MEASURES. SPILL KITS SHALL BE AVAILABLE ONSITE FOR EMERGENCY USE. THERE SHALL BE A SECONDARY CONTAINMENT MEASURE OF ALL CHEMICALS IN ADDITION TO SPILL-PROOF CONTAINERS.

30. PRIOR TO COMMENCEMENT OF CONSTRUCTION, APPLICABLE CONTRACTOR PERSONNEL MUST HAVE AN UNDERSTANDING OF THE EPA CONSTRUCTION GENERAL PERMIT REQUIREMENTS AND THEIR SPECIFIC RESPONSIBILITIES UNDER THE PERMIT. AT A MINIMUM, PERSONNEL MUST BE TRAINED AND UNDERSTAND THE FOLLOWING: LOCATION OF ALL STORMWATER CONTROLS AND HOW TO MAINTAIN THEM, PROCEDURES FOR COMPLYING WITH THE POLLUTION PREVENTION REQUIREMENTS. PROCEDURES FOR CONDUCTING INSPECTIONS, RECORDING FINDINGS, AND TAKING CORRECTIVE ACTION.

31. ALL SEDIMENT TRACKED ONTO ROADWAYS MUST BE REMOVED AT END OF EACH WORK DAY.

32. ALL USE OF CATIONIC TREATMENT CHEMICALS (EXAMPLES INCLUDE POLYMERS, CHITOSAN, CATIONIC PAM, FLOCCULANTS OR OTHER CHEMICAL UTILIZED FOR STABILIZATION) ARE PROHIBITED. IF ALL OTHER AVAILABLE STABILIZATION MEASURES ARE NOT POSSIBLE AND USE OF CATIONIC CHEMICALS IS ABSOLUTELY NECESSARY THE CONTRACTOR WILL NEED TO CONTACT THE EPA NEW ENGLAND OFFICE IN WRITING FOR APPROVAL AND SPECIFIC REQUIREMENTS (MAXIMUM DOSAGE RATE, RESIDUAL TESTING, SPECIFIC LIMITATIONS, ETC) PRIOR TO USE.

33. IF USING NON-VEGETATIVE STABILIZATION MEASURES, IT MUST BE COMPLETED NO LATER THAN 14 DAYS AFTER INITIATING STABILIZATION. ALL AREAS OF EXPOSED SOILS MUST BE COVERED.

34. INSPECTIONS OF EROSION CONTROL MEASURES SHALL BE AT LEAST ONCE EVERY 7 DAYS BY THE CONTRACTOR. AT A MINIMUM INSPECTIONS SHALL INCLUDE ALL DISTURBED AREAS, ALL STORMWATER CONTROLS AND POLLUTION PREVENTION MEASURES, ALL LOCATIONS WHERE STABILIZATION MEASURES HAVE BEEN IMPLEMENTED, EQUIPMENT AND MATERIAL STORAGE AREAS, ALL AREAS WHERE STORMWATER FLOWS AND ALL POINTS OF DISCHARGE. WHEN CORRECTIVE ACTIONS ARE REQUIRED, THE CONTRACTOR MUST IMMEDIATELY TAKE ALL STEPS TO PREVENT POLLUTANT DISCHARGES UNTIL A PERMANENT SOLUTION IS IMPLEMENTED. AS NECESSARY NEW OR MODIFIED CONTROLS MUST BE INSTALLED AND OPERATIONAL, THE REPAIR MUST BE COMPLETED WITHIN 7 DAYS FROM THE TIME OF DISCOVERY. WITHIN 24 HOURS OF A TRIGGERING CONDITION OCCURRING THAT REQUIRES A CORRECTIVE ACTION, A CORRECTIVE ACTION REPORT MUST BE COMPLETED.

## MAINTENANCE:

ALL MEASURES STATED ON THE STORMWATER POLLUTION PREVENTION PLANS, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION BY CONTRACTOR UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.

2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A HEALTHY STAND OF GRASS IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.

3. ALL SEDIMENT CONTROLS SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE TUBULAR SEDIMENT CONTROLS WHEN IT REACHES HALF THE HEIGHT OF THE CONTROL MEASURE OR AS REQUESTED BY THE OWNER OR ENGINEER.

4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.

5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.

6. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.

## CONSTRUCTION GENERAL PERMIT NOTES AND NARRATIVE:

NARRATIVE: THE STORMWATER POLLUTION PREVENTION PLANS CONSIST OF THE SITE PREPARATION PLAN TOGETHER WITH AN EXISTING CONDITIONS PLANS, GRADING PLANS, ABBREVIATIONS AND NOTES SHEETS, AND DETAIL SHEETS.

THE EROSION CONTROL PLAN WILL BE IMPLEMENTED TO:

A. TREAT EROSION AS SOON AS POSSIBLE AFTER DISTURBANCE.

B. PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION AREA AND ENTERING THE RECEIVING WATERS.

C. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED TO MINIMIZE EROSION.

D. ONLY DISTURB, CLEAR, OR GRADE AREAS NECESSARY FOR CONSTRUCTION.

CUBE 3
architecture | interiors | planning
370 Merrimack St., Suite 337 Lawrence MA 01843
phone: 978.989.9900 www.cube3.com

project information:
Arbella at Ashland

MBTA Access Road
Ashland, MA 01721

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U A Senior Manager LLC

Rensselaer Technology Park
300 Jordan Road
Troy,NY 12180

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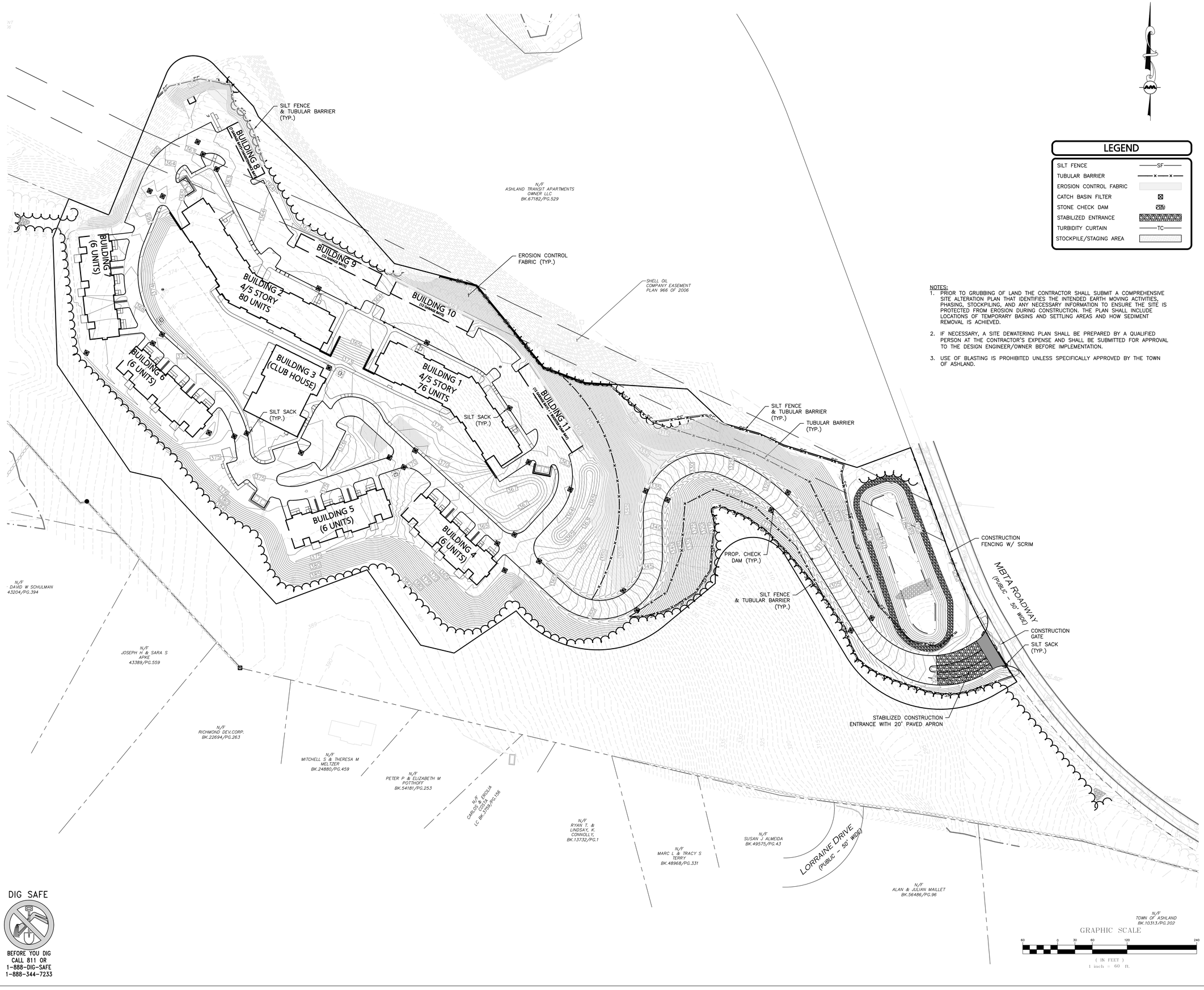


## LEGEND

| | |
|---|---|
| SILT FENCE | SF |
| TUBULAR BARRIER | x x x |
| EROSION CONTROL FABRIC | |
| CATCH BASIN FILTER | |
| STONE CHECK DAM | |
| STABILIZED ENTRANCE | |
| TURBIDITY CURTAIN | TC |
| STOCKPILE/STAGING AREA | |

NOTES:

1. PRIOR TO GRUBBING OF LAND THE CONTRACTOR SHALL SUBMIT A COMPREHENSIVE SITE ALTERATION PLAN THAT IDENTIFIES THE INTENDED EARTH MOVING ACTIVITIES, PHASING, STOCKPILING, AND ANY NECESSARY INFORMATION TO ENSURE THE SITE IS PROTECTED FROM EROSION DURING CONSTRUCTION. THE PLAN SHALL INCLUDE LOCATIONS OF TEMPORARY BASINS AND SETTLING AREAS AND HOW SEDIMENT REMOVAL IS ACHIEVED.
2. IF NECESSARY, A SITE DEWATERING PLAN SHALL BE PREPARED BY A QUALIFIED PERSON AT THE CONTRACTOR'S EXPENSE AND SHALL BE SUBMITTED FOR APPROVAL TO THE DESIGN ENGINEER/OWNER BEFORE IMPLEMENTATION.
3. USE OF BLASTING IS PROHIBITED UNLESS SPECIFICALLY APPROVED BY THE TOWN OF ASHLAND.

GRAPHIC SCALE

60 0 30 60 120 240

( IN FEET )
1 inch = 60 ft.

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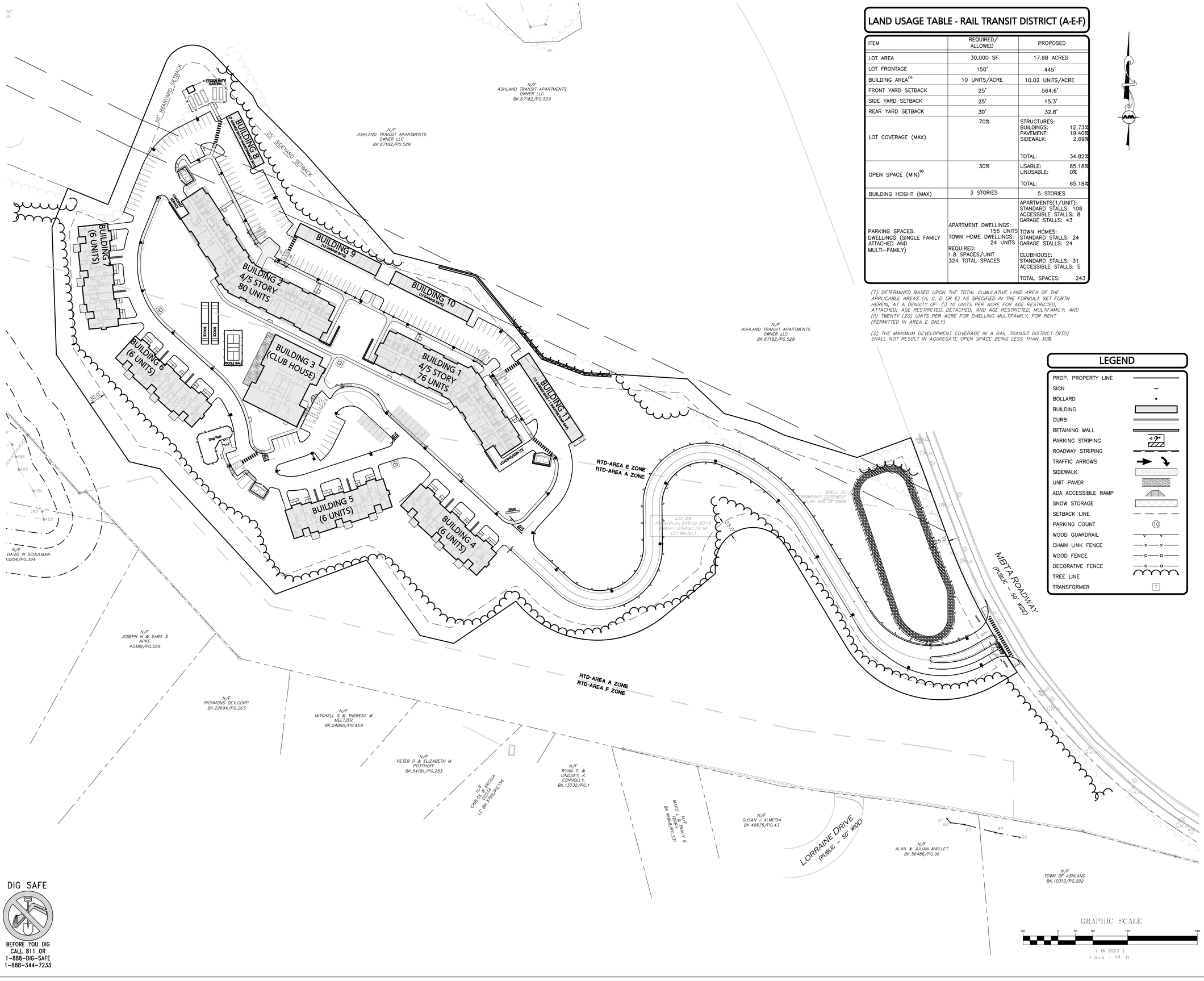


## LAND USAGE TABLE - RAIL TRANSIT DISTRICT (A-E-F)

| ITEM | REQUIRED/ ALLOWED | PROPOSED |
|---|---|---|
| LOT AREA | 30,000 SF | 17.98 ACRES |
| LOT FRONTAGE | 150' | 445' |
| BUILDING AREA[1] | 10 UNITS/ACRE | 10.02 UNITS/ACRE |
| FRONT YARD SETBACK | 25' | 564.6' |
| SIDE YARD SETBACK | 25' | 15.3' |
| REAR YARD SETBACK | 30' | 32.8' |
| LOT COVERAGE (MAX) | 70% | STRUCTURES: BUILDINGS: 12.73% PAVEMENT: 19.40% SIDEWALK: 2.69% TOTAL: 34.82% |
| OPEN SPACE (MIN)[2] | 30% | USABLE: 65.18% UNUSABLE: 0% TOTAL: 65.18% |
| BUILDING HEIGHT (MAX) | 3 STORIES | 5 STORIES |
| PARKING SPACES: DWELLINGS (SINGLE FAMILY ATTACHED AND MULTI-FAMILY) | APARTMENT DWELLINGS: 156 UNITS TOWN HOME DWELLINGS: 24 UNITS REQUIRED: 1.8 SPACES/UNIT 324 TOTAL SPACES | APARTMENTS(1/UNIT): STANDARD STALLS: 108 ACCESSIBLE STALLS: 8 GARAGE STALLS: 43 TOWN HOMES: STANDARD STALLS: 24 GARAGE STALLS: 24 CLUBHOUSE: STANDARD STALLS: 31 ACCESSIBLE STALLS: 5 TOTAL SPACES: 243 |

*(1) DETERMINED BASED UPON THE TOTAL CUMULATIVE LAND AREA OF THE APPLICABLE AREAS (A, C, D OR E) AS SPECIFIED IN THE FORMULA SET FORTH HEREIN, AT A DENSITY OF: (i) 10 UNITS PER ACRE FOR AGE RESTRICTED, ATTACHED; AGE RESTRICTED, DETACHED; AND AGE RESTRICTED, MULTIFAMILY; AND (ii) TWENTY (20) UNITS PER ACRE FOR DWELLING MULTIFAMILY, FOR RENT (PERMITTED IN AREA E ONLY)*

*(2) THE MAXIMUM DEVELOPMENT COVERAGE IN A RAIL TRANSIT DISTRICT (RTD) SHALL NOT RESULT IN AGGREGATE OPEN SPACE BEING LESS THAN 30%.*

## LEGEND

- PROP. PROPERTY LINE
- SIGN
- BOLLARD
- BUILDING
- CURB
- RETAINING WALL
- PARKING STRIPING
- ROADWAY STRIPING
- TRAFFIC ARROWS
- SIDEWALK
- UNIT PAVER
- ADA ACCESSIBLE RAMP
- SNOW STORAGE
- SETBACK LINE
- PARKING COUNT (10)
- WOOD GUARDRAIL
- CHAIN LINK FENCE
- WOOD FENCE
- DECORATIVE FENCE
- TREE LINE
- TRANSFORMER (T)

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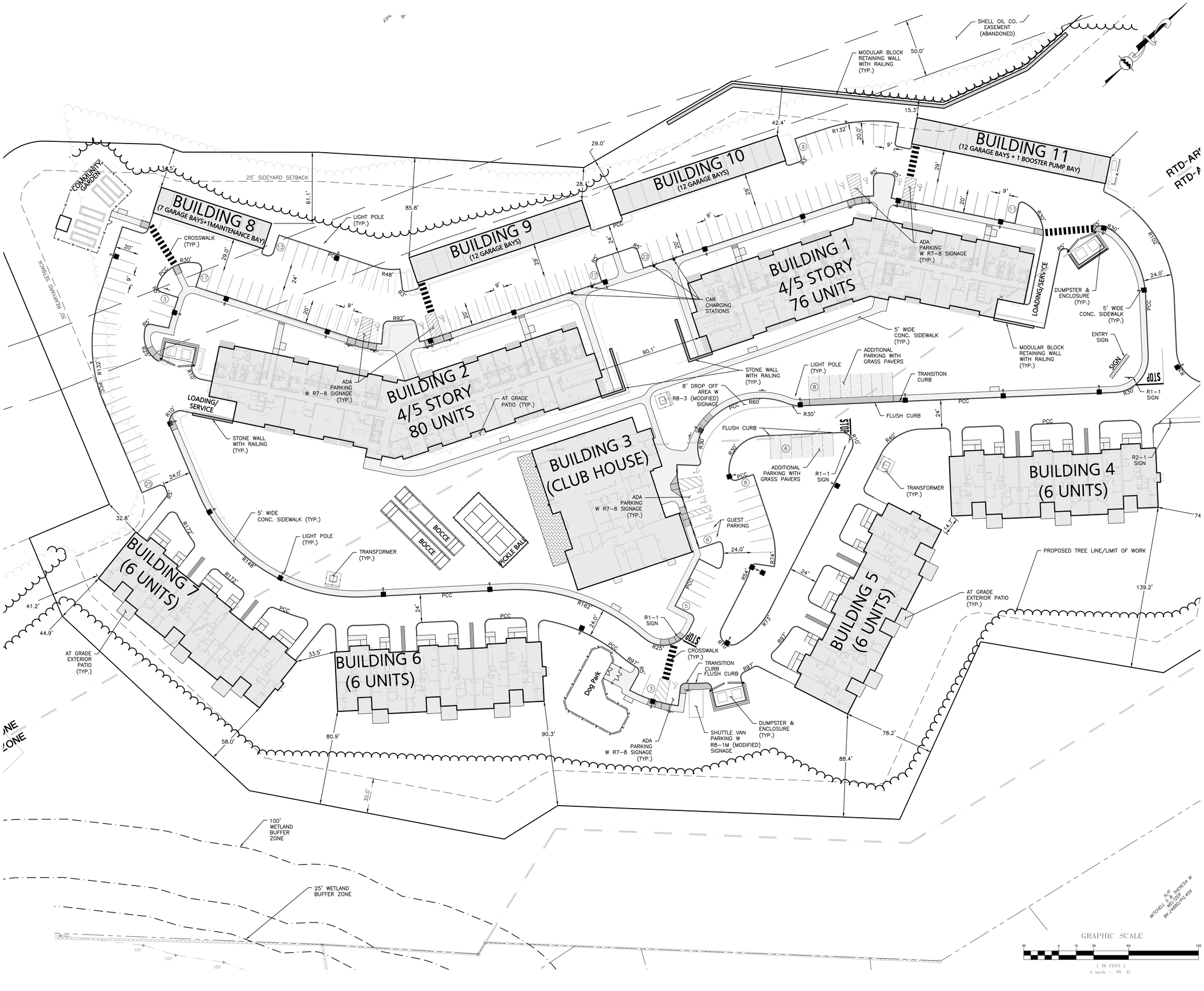


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| drawing scale: | 1" = 30' |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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

registration:
DRAFT

drawing name:
LAYOUT & MATERIALS PLAN

drawing number:
C-103

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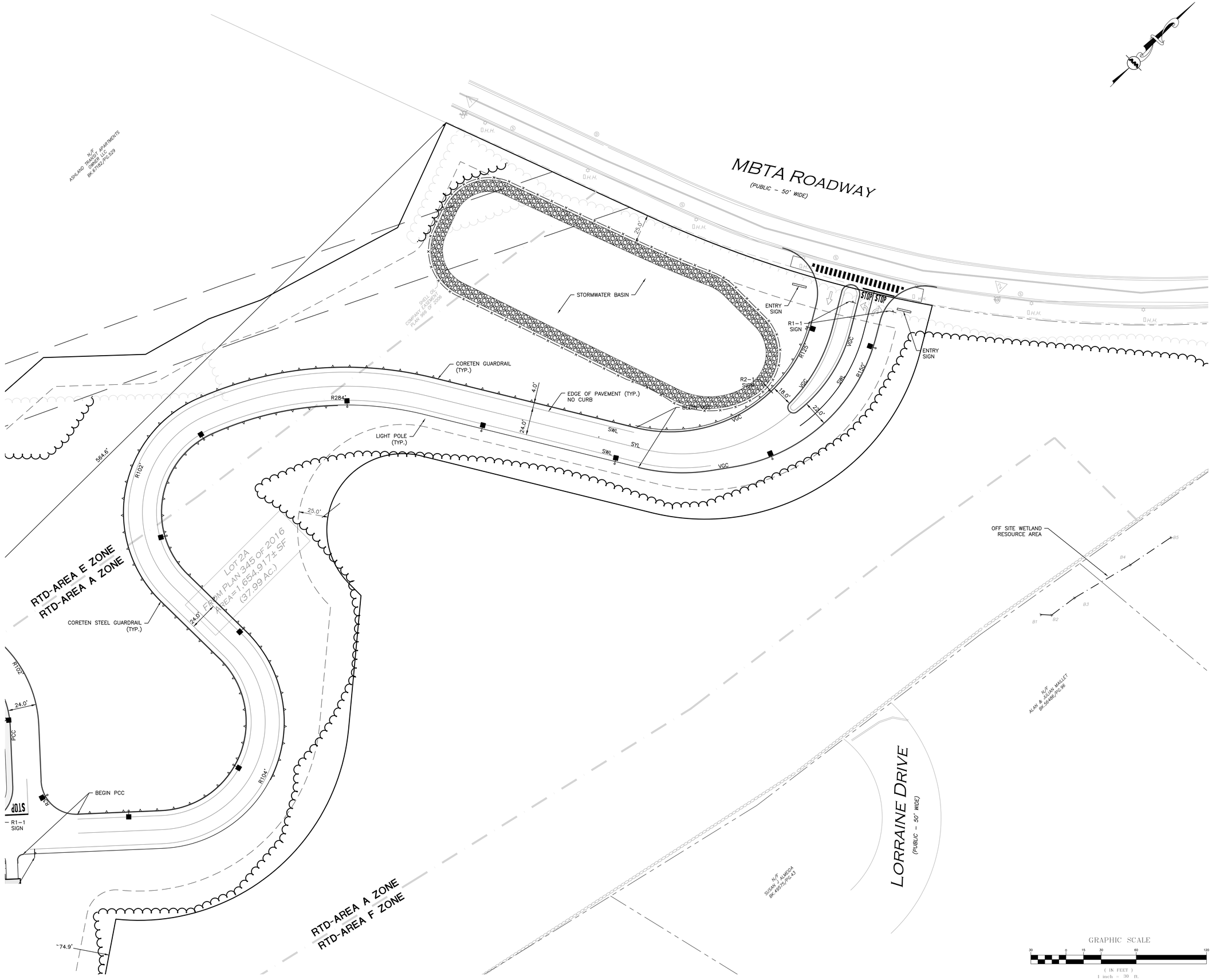


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project information:

Arbella at Ashland

MBTA Access Road
Ashland, MA 01721

client information:

U A Senior Manager LLC

Rensselaer
Technology Park
300 Jordan Road
Troy,NY 12180

issuance:

PERMIT / GMP Coordination Set

NOT FOR CONSTRUCTION

key plan:

drawing information:

| | |
|---|---|
| drawing by: | SL |
| drawing checked by: | AD |
| drawing scale: | 1" = 30' |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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

registration:

DRAFT

drawing name:

LAYOUT & MATERIALS PLAN

drawing number:

C-104

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## LEGEND

- DRAIN MANHOLE
- CATCH BASIN
- CATCH BASIN – DOUBLE GRATE
- OUTLET CONTROL
- DIVERSION WEIR
- WATER QUALITY UNIT (WQ)
- AREA DRAIN
- FLARED END SECTION
- DRAIN LINE
- RIPRAP OUTFALL
- HEADWALL
- 10' CONTOUR (300)
- 2' CONTOUR (322)
- SPOT GRADE ×384.00
- INFILTRATION SYSTEM
- INFILTRATION PIPE
- DETENTION PIPE
- UNDERDRAIN (UD)
- FLOW DIRECTION

MBTA ROADWAY
(PUBLIC - 50' WIDE)

LORRAINE DRIVE
(PUBLIC - 50' WIDE)

RTD-AREA A ZONE
RTD-AREA F ZONE

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

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Ashland, MA 01721

client information:
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Rensselaer Technology Park
300 Jordan Road
Troy,NY 12180

consultant information:

issuance:
PERMIT / GMP Coordination Set
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key plan:

drawing information:

| | |
|---|---|
| drawing by: | SL |
| drawing checked by: | AD |
| drawing scale: | 1" = 60' |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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

registration:
DRAFT

drawing name:
GRADING & DRAINAGE PLAN

drawing number:
C-105

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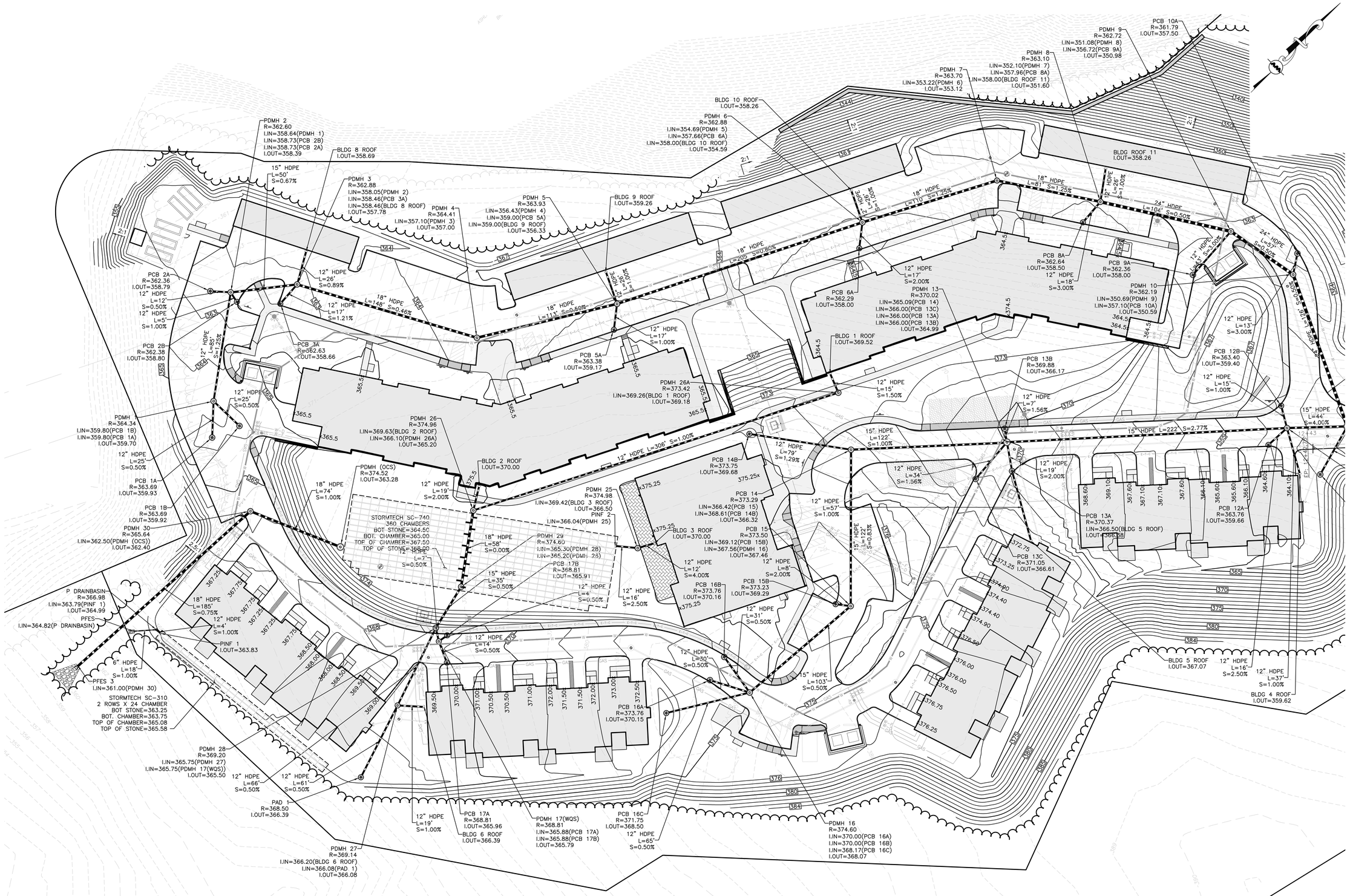


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project information
Arbella at Ashland

MBTA Access Road
Ashland, MA 01721

client information
U A Senior Manager LLC

Rensselaer
Technology Park
300 Jordan Road
Troy,NY 12180

consultant information

issuance
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key plan

drawing information

| | |
|---|---|
| drawing by: | SL |
| drawing checked by: | AD |
| drawing scale: | 1" = 30' |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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

registration
DRAFT

drawing name
GRADING & DRAINAGE PLAN

drawing number
C-106

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U A Senior Manager LLC

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Technology Park
300 Jordan Road
Troy,NY 12180

issuance:
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key plan:

drawing information:

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| drawing checked by: | AD |
| drawing scale: | 1" = 30' |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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

registration:
DRAFT

drawing name:
GRADING & DRAINAGE PLAN

drawing number:
C-107

MBTA ROADWAY
(PUBLIC ~ 50' WIDE)

LORRAINE DRIVE
(PUBLIC ~ 50' WIDE)

DRAINAGE BASIN
BOT. EL=283.50

PROP. GRASS SWALE WITH 3:1 SLOPE BOT. WIDTH=2' DEPTH=1', TYP.
PROP. STONE CHECK DAM, TYP.
12" HDPE L=20' S=2.00%
PCB 21B R=316.29 I.OUT=312.40
24" HDPE L=96' S=4.00%
PDMH 20 R=323.68 I.IN=318.50(PDMH 19) I.OUT=313.50
12" HDPE L=13' S=3.89%
PCB 19B R=334.74 I.OUT=330.50
PCB 21A R=316.29 I.OUT=312.48
24" HDPE L=147' S=5.00%
PDMH 21 R=316.43 I.IN=309.48(PDMH 20) I.IN=312.00(PCB 21B) I.IN=312.00(PCB 21A) I.OUT=303.77
12" HDPE L=24' S=2.00%
24" HDPE L=219' S=4.00%
PDMH 22 R=300.15 I.IN=295.00(PDMH 21) I.IN=293.64(PCB 22B) I.IN=293.64(PCB 22A) I.OUT=286.89
12" HDPE L=30' S=2.00%
PCB 22A R=297.86 I.OUT=294.25
12" HDPE L=16' S=2.00%
PCB 22B R=297.87 I.OUT=293.95
PCB 24B R=285.65 I.OUT=279.50
12" HDPE L=60' S=0.50%
PCB 24A R=285.44 I.OUT=279.46
12" HDPE L=7' S=4.00%
PDMH 24(WQS) R=286.23 I.IN=279.20(PCB 24B) I.IN=279.20(PCB 24A) I.OUT=279.10
24" HDPE L=258' S=3.00%
OCS R=289.75 I.OUT=281.00
12" HDPE L=6' S=1.00%
PDMH 31 R=284.37 I.IN=279.04(PDMH 24(WQS)) I.IN=277.45(OCS) I.OUT=277.35
PFES 2 I.IN=269.61(PDMH 31)
24" HDPE L=118' S=2.93%
PFES 1 R=287.81 I.IN=285.55(PDMH 23(WQS))
24" HDPE L=20' S=2.25%
PDMH 23(WQS) R=291.04 I.IN=286.00(PDMH 22) I.OUT=286.00
24" HDPE L=39' S=2.25%
PCB 19A R=334.77 I.OUT=330.50
12" HDPE L=21' S=2.37%
PDMH 19 R=335.70 I.IN=332.00(PDMH 18) I.IN=330.00(PCB 19B) I.IN=330.00(PCB 19A) I.OUT=325.87
24" HDPE L=186' S=4.00%
PROP. GRASS SWALE WITH 3:1 SLOPE BOT. WIDTH=2' DEPTH=1', TYP.
12" HDPE L=13' S=4.00%
PROP. STONE CHECK DAM, TYP.
PCB 18A R=348.85 I.OUT=345.25
12" HDPE L=20' S=2.70%
PDMH 18 R=350.36 I.IN=342.64(PDMH 11) I.IN=344.71(PCB 18B) I.IN=344.71(PCB 18A) I.OUT=339.50
PCB 18B R=348.89 I.OUT=345.25
24" HDPE L=176' S=4.00%
PCB 11B R=361.47 I.OUT=357.44
12" HDPE L=12' S=1.00%
PDMH 11 R=362.03 I.IN=349.96(PDMH 10) I.IN=357.32(PCB 11B) I.IN=357.08(PDMH 12) I.IN=357.32(PCB 11A) I.OUT=349.86
12" HDPE L=40' S=1.50%
PDMH 12 R=363.51 I.IN=358.83(PDMH 13) I.IN=359.25(PCB 12A) I.IN=359.25(PCB 12B) I.IN=359.25(BLDG 4 ROOF)
PCB 11A R=362.01 I.OUT=358.85 I.OUT=357.92
15" HDPE L=44' S=4.00%

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GRAPHIC SCALE
30 0 15 30 60 120
( IN FEET )
1 inch = 30 ft.

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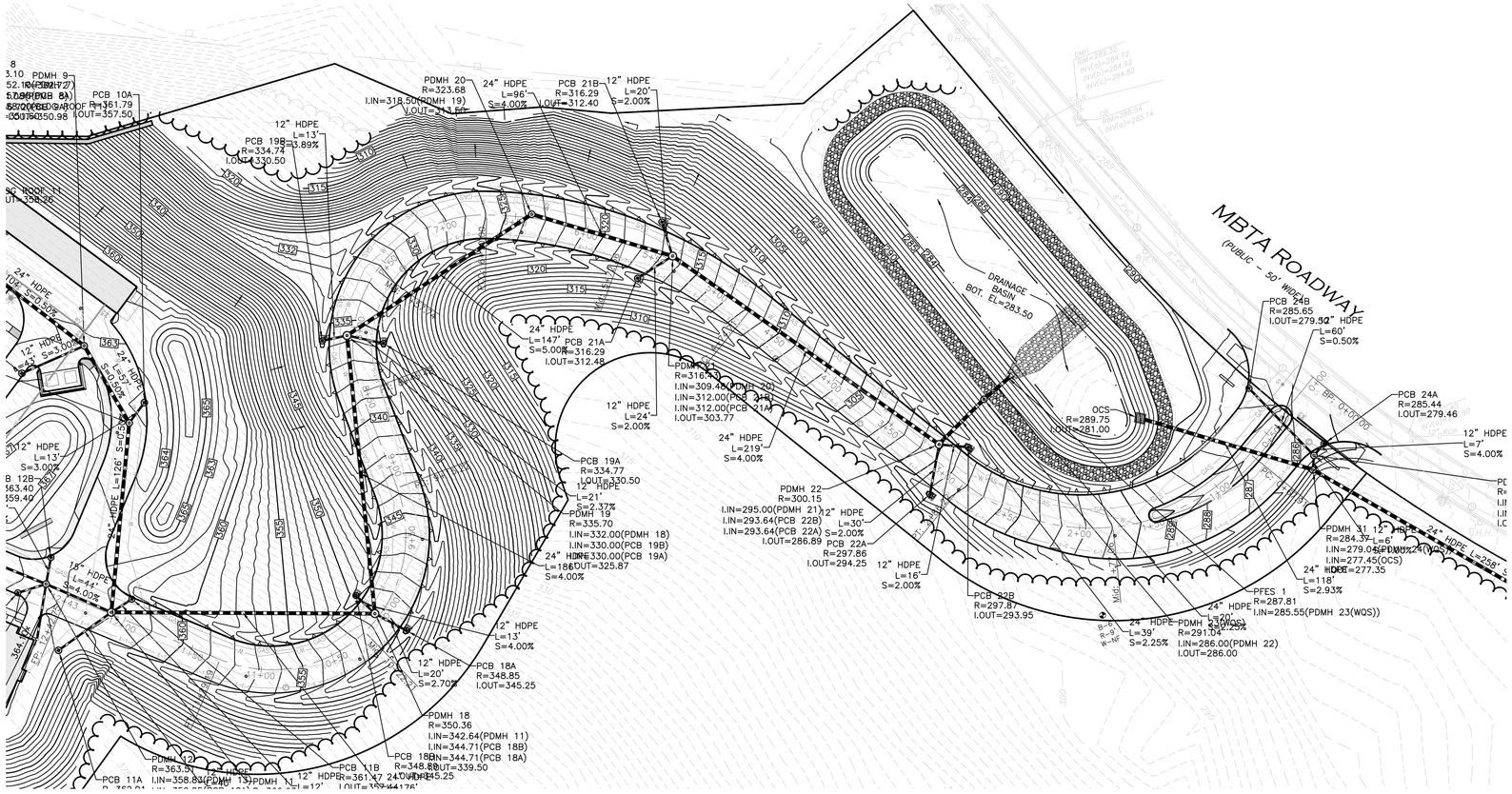


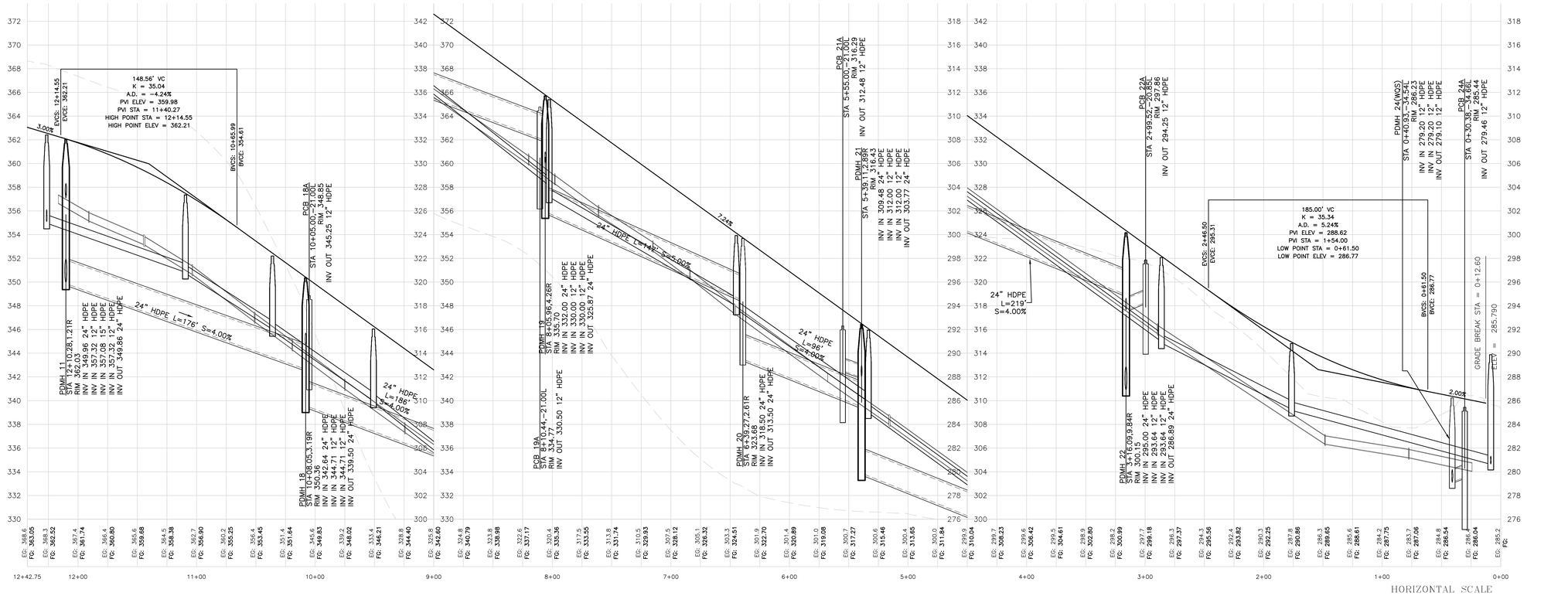


project information
Arbella at Ashland

MBTA Access Road
Ashland, MA 01721

client information
U A Senior Manager LLC

Rensselaer Technology Park
300 Jordan Road
Troy,NY 12180

consultant information

issuance
PERMIT / GMP Coordination Set

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key plan

drawing information

| | |
|---|---|
| drawing by: | SL |
| drawing checked by: | AD |
| drawing scale: | |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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registration
DRAFT

drawing name
PROFILE PLAN

drawing number
C-108

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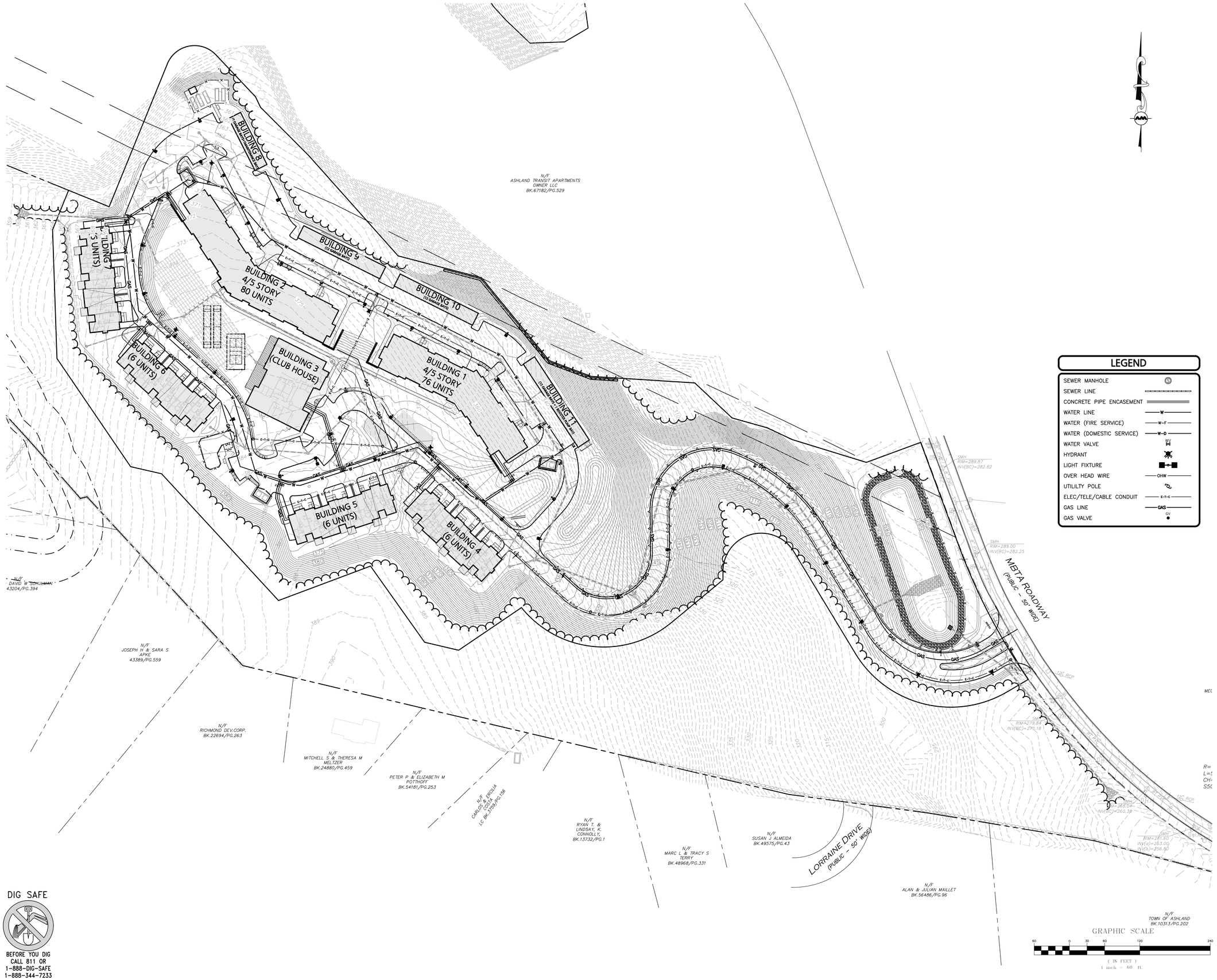


## LEGEND

| | |
|---|---|
| SEWER MANHOLE | S |
| SEWER LINE | |
| CONCRETE PIPE ENCASEMENT | |
| WATER LINE | W |
| WATER (FIRE SERVICE) | W-F |
| WATER (DOMESTIC SERVICE) | W-D |
| WATER VALVE | WV |
| HYDRANT | |
| LIGHT FIXTURE | |
| OVER HEAD WIRE | OHW |
| UTILILTY POLE | |
| ELEC/TELE/CABLE CONDUIT | E-T-C |
| GAS LINE | GAS |
| GAS VALVE | GV |

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key plan:

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| drawing by: | SL |
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| drawing scale: | 1" = 60' |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |
| drawing revisions: | |

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registration:

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drawing name:

OVERALL
UTILITIES
PLAN

drawing number:

C-109

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key plan

drawing information
drawing by: SL
drawing checked by: AD
drawing scale: 1" = ##'
drawing date: 04 SEPTEMBER 2020
project number: 19021.00
drawing revisions:

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

registration
DRAFT

drawing name
UTILITIES PLAN

drawing number
C-110

BUILDING 8 (7 GARAGE BAYS+1MAINTENANCE BAY)
BUILDING 9 (12 GARAGE BAYS)
BUILDING 10 (12 GARAGE BAYS)
8" PVC Pipe L=399' S=0.50%
BUILDING 11 (12 GARAGE BAYS + 1 BOOSTER PUMP BAY)
8" PVC Pipe L=181' S=0.50%
BOOSTER PUMP
PSMH 7B R=363.31 I.IN=356.36(PSMH 7C) I.OUT=356.26
PSMH 7C R=364.06 I.IN=357.38(PSMH 7D) I.IN=357.50(BLDG 1) I.OUT=357.28
8" PVC Pipe L=64' S=2.25%
BUILDING 1 4/5 STORY 76 UNITS
BLDG 1 I.OUT=358.98
PROP. HYD (TYP.)
8" PVC Pipe L=85' S=0.50%
PSMH 7A R=362.44 I.IN=355.81(PSMH 7B) I.OUT=355.71
PROP. 4" DOMESTIC SERVICE
PROP. 6" FIRE SERVICE
PROP. GAS LINE (TYP.)
PROP. 8" PRESSURIZED WATER LINE (TYP.)
8" PVC Pipe L=121' S=0.50%
PSMH 6 R=370.14 I.IN=359.53(PSMH 5) I.IN=363.91(BLDG 5) I.IN=363.91(BLDG 3) I.OUT=359.43
PROP. HYD (TYP.)
PSMH 7D R=364.55 I.IN=359.50(BLDG 2) I.OUT=359.40
8" PVC Pipe L=64' S=0.75%
BUILDING 2 4/5 STORY 80 UNITS
BLDG 2 I.OUT=360.00
PROP. 4" DOMESTIC SERVICE
PROP. 6" FIRE SERVICE
PROP. 8" PRESSURIZED WATER LINE (TYP.)
8" PVC Pipe L=249' S=1.71%
BUILDING 3 (CLUB HOUSE)
BLDG 3 I.OUT=370.00
6" PVC Pipe L=201' S=3.00%
PROP. 6" FIRE SERVICE
PROP. 2" DOMESTIC SERVICE
BUILDING 4 (6 UNITS)
BLDG 4 I.OUT=359.00
6" PVC Pipe L=54' S=6.00%
6" PVC Pipe L=76' S=4.00%
PROP. ELECTRIC-TELEPHONE-CABLE (TYP.)
PSMH 2 R=368.66 I.IN=363.00(PSMH 1) I.OUT=362.90
BUILDING 7 (6 UNITS)
BLDG 7 I.OUT=363.93
8" PVC Pipe L=51' S=0.45%
6" PVC Pipe L=20' S=2.00%
PROP. GAS LINE (TYP.)
8" PVC Pipe L=160' S=0.55%
BUILDING 6 (6 UNITS)
PSMH 3 R=372.22 I.IN=362.00(PSMH 2) I.OUT=361.99
8" PVC Pipe L=146' S=0.50%
BUILDING 5 (6 UNITS)
BLDG 5 I.OUT=367.05
8" PVC Pipe L=207' S=0.50%
PSMH 5 R=375.64 I.IN=360.69(PSMH 4) I.OUT=360.59
PSMH 1 R=369.22 I.IN=363.50(BLDG 7) I.IN=363.50(BLDG 6) I.OUT=363.25
6" PVC Pipe L=20' S=2.00%
BLDG 6 I.OUT=363.94
PSMH 4 R=374.89 I.IN=361.24(PSMH 3) I.OUT=361.14
8" PVC Pipe L=86' S=0.50%

GRAPHIC SCALE
( IN FEET )
1 inch = ## ft.

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MBTA ROADWAY
(PUBLIC – 50' WIDE)

LORRAINE DRIVE
(PUBLIC – 50' WIDE)

ESMH B
R=289.87
I.IN=280.65(PSMH 15)
I.IN=280.65(ESMH A)
I.OUT=280.65

8" PVC Pipe
L=158'
S=2.80%

PSMH 15
R=290.81
I.IN=285.30(PSMH 14)
I.OUT=285.20

8" PVC Pipe L=242' S=7.33%

8" PVC Pipe
L=108' S=5.00%

PSMH 14
R=298.07
I.IN=291.00(PSMH 13)
I.OUT=290.88

PSMH 13
R=315.94
I.IN=309.93(PSMH 12)
I.OUT=309.00

PSMH 12
R=323.92
I.IN=318.00(PSMH 11)
I.OUT=317.74

8" PVC Pipe L=104' S=7.25%

8" PVC Pipe
L=123'
S=7.25%

PSMH 11
R=335.39
I.IN=328.16(PSMH 10)
I.OUT=327.19

8" PVC Pipe L=143' S=8.00%

PROP.
ELECTRIC–TELEPHONE–CABLE
(TYP.)

PSMH 10
R=346.04
I.IN=340.00(PSMH 9)
I.OUT=339.90

8" PVC Pipe L=89' S=6.40%

8" PVC Pipe L=121' S=0.50%

8" PVC Pipe L=75' S=6.00%

PSMH 9
R=352.20
I.IN=346.03(PSMH 8)
I.OUT=345.93

8" PVC Pipe L=114' S=3.50%

PSMH 8
R=357.36
I.IN=350.85(PSMH 7)
I.OUT=350.75

PROP. 8" WATER LINE
(TYP.)

PSMH 7
R=362.42
I.IN=355.09(PSMH 6)
I.IN=355.09(PSMH 7A)
I.IN=355.62(BLDG 4)
I.OUT=354.99

N/F
ALAN & SUSAN MALLET
BK 36486/PG 36

N/F
SUSAN J ALMEIDA
BK 40575/PG 43

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GRAPHIC SCALE
30 0 15 30 60 120
( IN FEET )
1 inch = 30 ft.

project information:
Arbella at Ashland

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Rensselaer
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300 Jordan Road
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| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

| No. | Description | Date |
|---|---|---|
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registration:
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drawing name:
UTILITIES
PLAN

drawing number:
C-111

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## LEGEND

| | |
|---|---|
| DOUBLE POLE LIGHT | |
| SINGLE POLE LIGHT | |
| WALL MOUNT LIGHT | |
| BOLLARD LIGHT | |
| 1 FOOTCANDLE CONTOUR | 1FC |
| .5 FOOTCANDLE CONTOUR | .5FC |
| LIGHTING LEVELS GIVEN IN FOOT-CANDLES | 0.0 0.1 0.2 0.4 0.6 |

NOTES:

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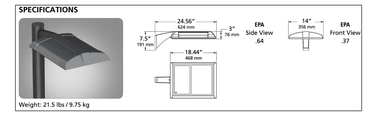
2. FOOT CANDLE VALUES SHOWN ON THE PLAN ARE PRODUCED UTILIZING DESIGN MASTER PHOTOMETRICS SOFTWARE AND ASSOCIATED IES FILES BY THE MANUFACTURER FOR THE PROPOSED LIGHT FIXTURE.
3. ALL PHOTOMETRIC DATA REFERS TO UNITS IN FOOT CANDLES (FC). THE LIMIT OF 1.0 FC ILLUMINATION IS SHOWN IN A RED SOLID LINE AND THE LIMIT OF THE 0.5 FOOT CANDLE (FC) ILLUMINATION IS SHOWN IN BLUE.
4. QUANTITY SHOWN IN LUMINIARE SCHEDULE TABLE DENOTES NUMBER OF FIXTURE HEADS. REFER TO PLAN FOR POLES WITH DOUBLE FIXTURES.
5. MOUNTING HEIGHTS:
   - 5.1. A MOUNTING HEIGHT OF 12'-6" CONSIST OF A 12' POLE WITH A 6" REVEAL ON THE CONCRETE LIGHT POLE BASE;
   - 5.2. A MOUNTING HEIGHT OF 14'-6" CONSIST OF A 12' POLE WITH A 2'-6" REVEAL ON THE CONCRETE LIGHT POLE BASE;
   - 5.3. A MOUNTING HEIGHT OF 20'-6" CONSIST OF A 18' POLE WITH A 6" REVEAL ON THE CONCRETE LIGHT POLE BASE.

**SPECIFICATIONS**




Weight: 21.5 lbs / 9.75 kg

**PARKING/SITE LIGHT FIXTURE**
**KIM LIGHTING, ALTITUDE 2.0 - ALT1**

## GENERAL PHOTOMETRIC SCHEDULE

| | |
|---|---|
| AVERAGE FOOT-CANDLES | 1.33 |
| MAXIMUM FOOT-CANDLES | 16.8 |
| MINIMUM FOOT-CANDLES | 0.0 |

## LUMINAIRE SCHEDULE

| CALLOUT | SYMBOL | DESCRIPTION | MOUNTING | NOTE 1 | TOTAL LUMENS | LAMP DEPRECIATION | QUANTITY |
|---|---|---|---|---|---|---|---|
| Alt 2 | | KIM LIGHTING, ALTITUDE 2.0 Type II ALT1-54L-155-4k7-2 | POLE | Mounting Height Varies, See Plan | 17310 | 0.9 | 12 |
| Alt 4W | | KIM LIGHTING, ALTITUDE 2.0 Type IV Wide ALT1-54L-155-4k7-4W | POLE | Mounting Height Varies, See Plan | 17299 | 0.9 | 33 |

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

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Rensselaer Technology Park
300 Jordan Road
Troy,NY 12180

consultant information:

issuance:
PERMIT / GMP Coordination Set

NOT FOR CONSTRUCTION

key plan:

drawing information:

| | |
|---|---|
| drawing by: | SL |
| drawing checked by: | AD |
| drawing scale: | 1" = 60' |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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

registration:
DRAFT

drawing name:
PHOTO-METRICS PLAN

drawing number:
C-112

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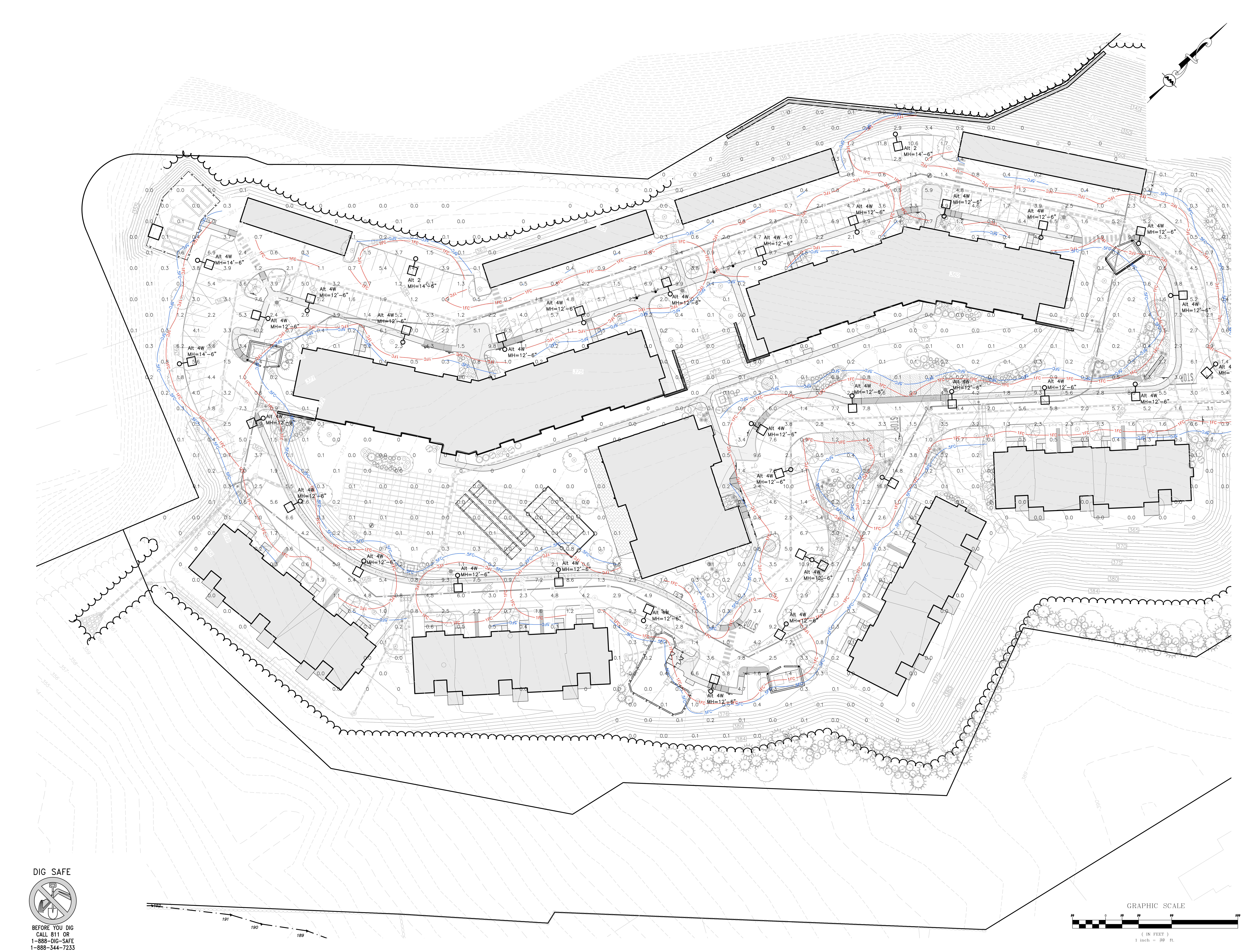


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project information:
Arbella at Ashland
MBTA Access Road
Ashland, MA 01721

client information:
U A Senior
Manager LLC
Rensselaer
Technology Park
300 Jordan Road
Troy,NY 12180

consultant information:

issuance:
PERMIT / GMP
Coordination Set
NOT FOR
CONSTRUCTION

key plan:

drawing information:

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| drawing by: | SL |
| drawing checked by: | AD |
| drawing scale: | 1" = 30' |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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

registration:
DRAFT

drawing name:
PHOTO-
METRICS
PLAN

drawing number:
C-113

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GRAPHIC SCALE
30 0 15 30 60 120
( IN FEET )
1 inch = 30 ft.

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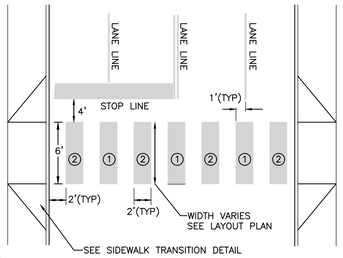
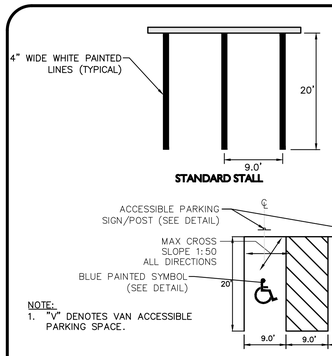



NOTE:

1. LANE LINE STRIP: THIS IS LOCATED IN THE LINE WITH EACH LANE LINE AND HALF THE STRIP ON EACH SIDE.
2. MID LINE STRIP: THIS IS LOCATED MIDWAY BETWEEN EACH LANE LINE STRIP.
3. TO BE HIGH VISIBILITY & RETRO REFLECTIVE EPOXY MATERIAL.
4. CROSSWALKS AT MAJOR INTERSECTIONS TO BE 10' WIDE.

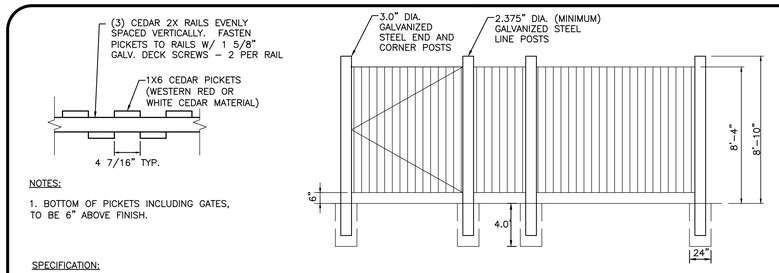
**CROSSWALK STRIPING**
NOT TO SCALE
18




NOTE:
1. "V" DENOTES VAN ACCESSIBLE PARKING SPACE.

**ADA STANDARD AND VAN ACCESSIBLE PARKING SPACE**

**ADA AND STANDARD PARKING STRIPING**
NOT TO SCALE
17



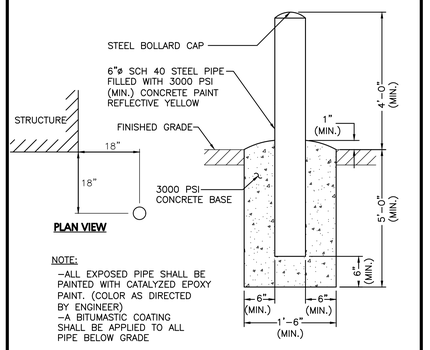

NOTES:

1. BOTTOM OF PICKETS INCLUDING GATES, TO BE 6" ABOVE FINISH.

SPECIFICATION:

1. CEDAR FENCE: WESTERN RED CEDAR OR WHITE CEDAR WITH BAND SAWN TEXTURED SURFACE.
2. POSTS: GALVANIZED STEEL POSTS, CONCEALED ON THE SHOW SIDE (FACING NEIGHBORS) BY A WOOD BOARD/PICKET. PROVIDE ASTM A-90 ZINC COATING, TYPE I. LINE POSTS SHALL BE MIN. 2.375" (NOM. O.D.). CORNER AND TERMINAL POSTS SHALL BE MIN. 6.0" (NOM. O.D.).
3. RAILS: GRADE: STANDARD OR BETTER PER NLGA 122B, C, WCLIB 122B, C AND WWPA 40.11.
4. BOARDS: GRADE: CUSTOM KNOTTY PER WRCLA.
5. SEALER: OLYMPIC MAXIMUM CLEAR WATERPROOFING SEALANT OR APPROVED EQUAL.

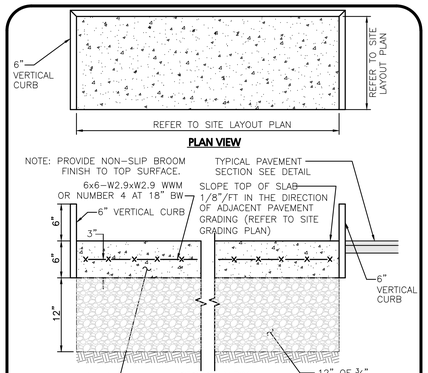
**SHADOW BOX FENCE AT DUMPSTER AREA**
NOT TO SCALE
16




**PLAN VIEW**

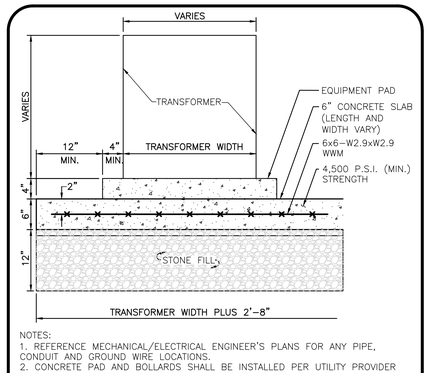
NOTE:
–ALL EXPOSED PIPE SHALL BE PAINTED WITH CATALYZED EPOXY PAINT. (COLOR AS DIRECTED BY ENGINEER)
–A BITUMASTIC COATING SHALL BE APPLIED TO ALL PIPE BELOW GRADE

**FIXED BOLLARD**
NOT TO SCALE
15



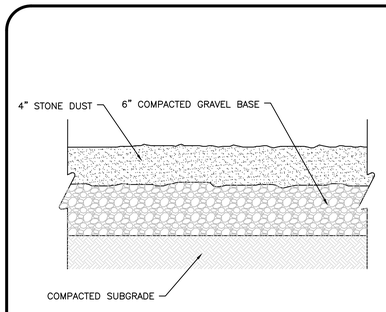

**SECTION VIEW**

**CONCRETE DUMPSTER PAD DETAIL**
NOT TO SCALE
14

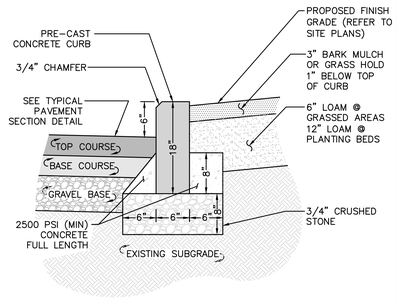



NOTES:
1. REFERENCE MECHANICAL/ELECTRICAL ENGINEER'S PLANS FOR ANY PIPE, CONDUIT AND GROUND WIRE LOCATIONS.
2. CONCRETE PAD AND BOLLARDS SHALL BE INSTALLED PER UTILITY PROVIDER REQUIREMENTS.

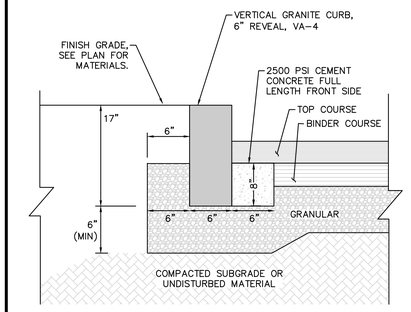
**TRANSFORMER PAD DETAIL**
NOT TO SCALE
13



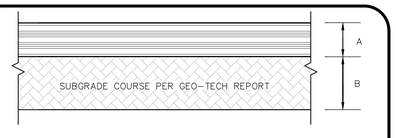

**DOG PARK SURFACE**
NOT TO SCALE
12




**PRECAST CONCRETE CURB**
NOT TO SCALE
11




**VERTICAL GRANITE CURB**
NOT TO SCALE
10

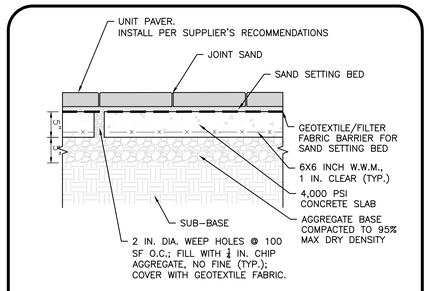



NOTES:
1. SURFACE COURSE, BASE, AND SUBGRADE SHALL BE PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS FOR LOCAL SOILS OR DRAINAGE CONDITIONS AND/OR METHODS.
2. SUBGRADE SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY (AS DETERMINED BY ASTM D1557).
3. COORDINATE PAVEMENT DETAIL WITH GEOTECHNICAL ENGINEER.

STANDARD DUTY PAVING
A= 1.5" ASPHALT CONCRETE – SURFACE COURSE (M.3.11.0, TABLE A, TOP COURSE)
2.5" ASPHALT CONCRETE – BINDER COURSE (M.3.11.0, TABLE A, BINDER COURSE)

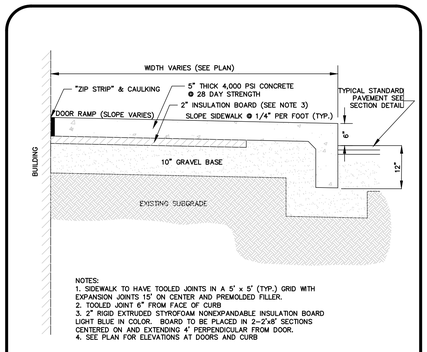
B= 12" SUBBASE COURSE (MASSDOT 1.03.0, TYPE B)

**STANDARD DUTY BITUMINOUS PAVEMENT**
NOT TO SCALE
9



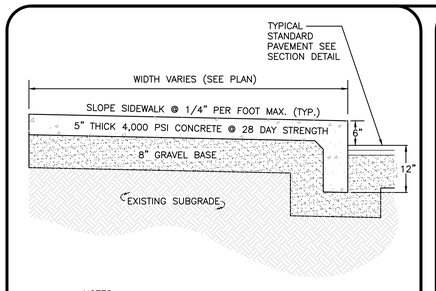

NOTES:
1. PAVER COLOR TO BE SELECTED BY OWNER AND ARCHITECT. PROVIDE SAMPLES AND SHOP DRAWINGS OF PAVERS TO OWNER FOR APPROVAL PRIOR TO ORDER.
2. SWEEP & REFILL RG+ POLYMERIC SAND, (COLOR TO BE APPROVED BY OWNER) AS AVAILABLE FROM TECHNISEAL, (1-800-465-7325) INTO HAND TIGHT JOINTS. REPEAT AS NECESSARY TO FILL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
3. PROTECT GRANITE PAVER SURFACE WITH URETHANE SCUFF PAD DURING COMPACTION.

**UNIT PAVERS**
NOT TO SCALE
8



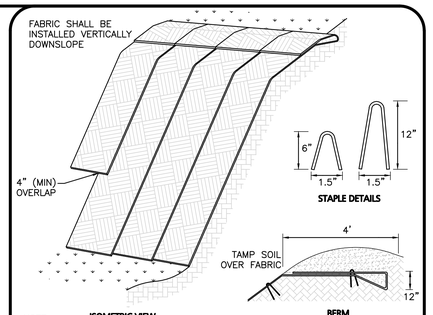

NOTES:
1. SIDEWALK TO HAVE TOOLED JOINTS IN A 5' x 5' (TYP.) GRID WITH EXPANSION JOINTS 15' ON CENTER AND PREMOLDED FILLER.
2. TOOLED JOINT 6" FROM FACE OF CURB
3. 2" RIGID EXTRUDED STYROFOAM NONEXPANDABLE INSULATION BOARD LIGHT BLUE IN COLOR. BOARD TO BE PLACED IN 2'-0"x8' SECTIONS CENTERED ON AND EXTENDING 4' PERPENDICULAR FROM DOOR.
4. SEE PLAN FOR ELEVATIONS AT DOORS AND CURB

**CONCRETE SIDEWALK @ DOOR**
NOT TO SCALE
7



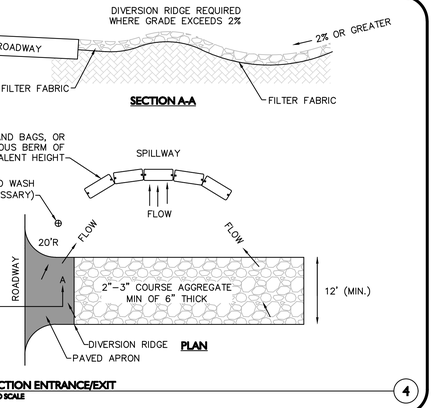

NOTES:
1. SIDEWALK TO HAVE TOOLED JOINTS IN A 5' x 5' (TYP.) GRID WITH EXPANSION JOINTS 15' ON CENTER AND PREMOLDED FILLER.
2. TOOLED JOINT 6" FROM FACE OF CURB
3. SEE PLAN FOR ELEVATIONS AT CURB

**CONCRETE SIDEWALK**
NOT TO SCALE
6




NOTE:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. FABRIC SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING FABRIC.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
4. CHOOSE MATERIAL BASED ON SLOPE, SOILS, AND APPLICATION.

**EROSION CONTROL FABRIC**
NOT TO SCALE
5



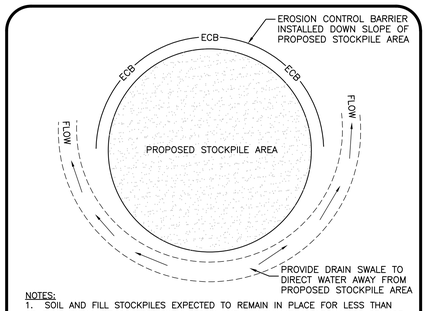

**SECTION A-A**




**PLAN**

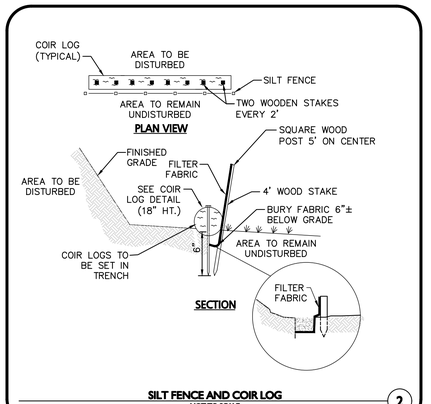
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTERING THE PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. USE SANDBAGS, HAYBALES, OR OTHER APPROVED METHODS TO CHANNELIZE RUNOFF TO BASIN AS REQUIRED.
5. PAVE FIRST 20' OF CONSTRUCTION ENTRANCE.

**TEMPORARY CONSTRUCTION ENTRANCE/EXIT**
NOT TO SCALE
4

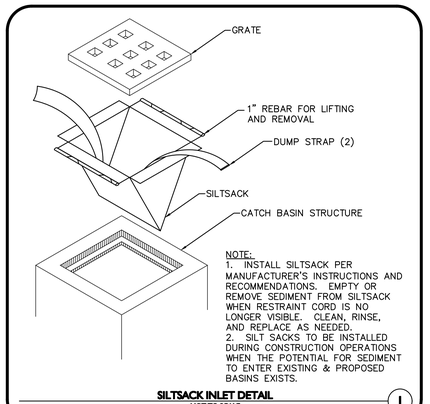



NOTES:
1. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR LESS THAN 90 DAYS SHALL BE COVERED WITH STRAW AND MULCH (AT 100LBS/1,000 SF), OR WITH AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.
2. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR 90 DAYS OR MORE SHALL BE SEEDED WITH WINTER RYE (FOR FALL SEEDING AT 1LB/1,000 SF) OR OATS (FOR SUMMER SEEDING AT 2LB/1,000 SF) AND THEN COVERED WITH HAY MULCH (AT 100LB/1,000 SF) OR AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.

**STOCKPILE PROTECTION**
NOT TO SCALE
3




**SILT FENCE AND COIR LOG**
NOT TO SCALE
2




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

**SILTSACK INLET DETAIL**
NOT TO SCALE
1

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370 Merrimack St., Suite 337 Lawrence MA 01843
phone: 978.989.9900 www.cube3.com

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registration
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drawing name:
DETAILS

drawing number:
C-501

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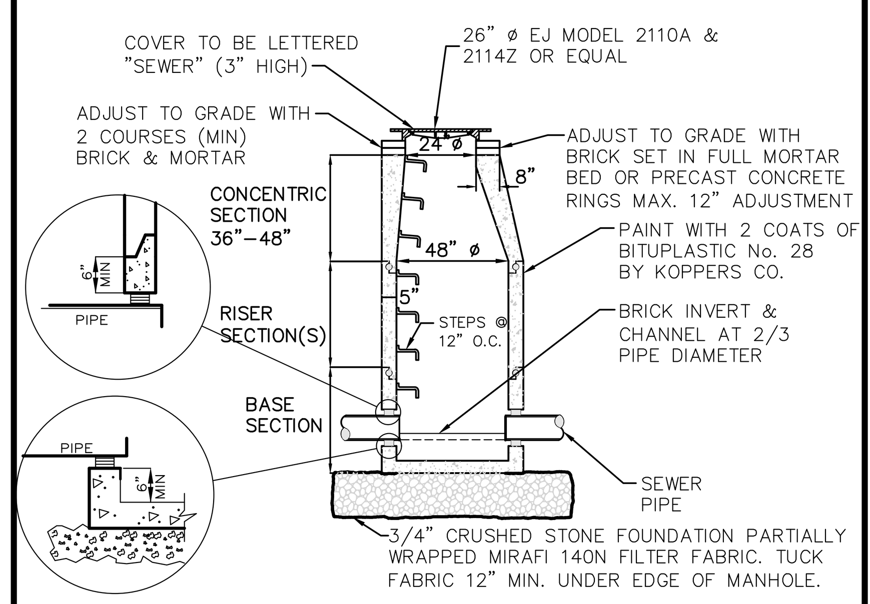
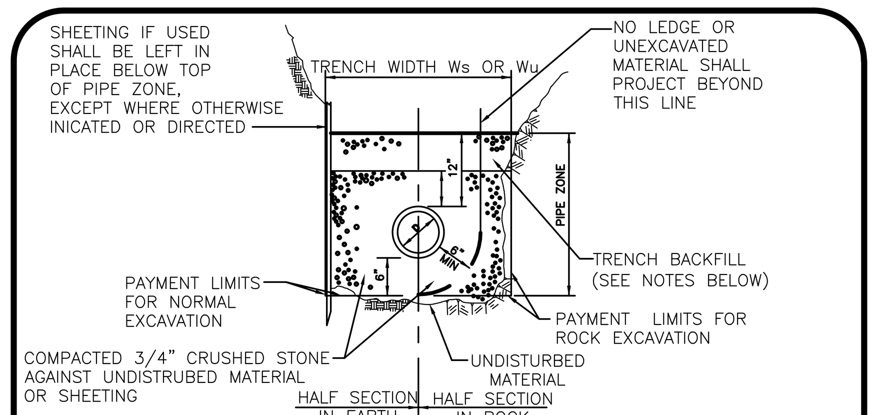



NOTES:

1. ALL INSIDE DROPS (IF NEEDED) REQUIRE A 5' DIAMETER

**PRECAST CONCRETE SEWER MANHOLE**
NOT TO SCALE
(17)




NOTES:

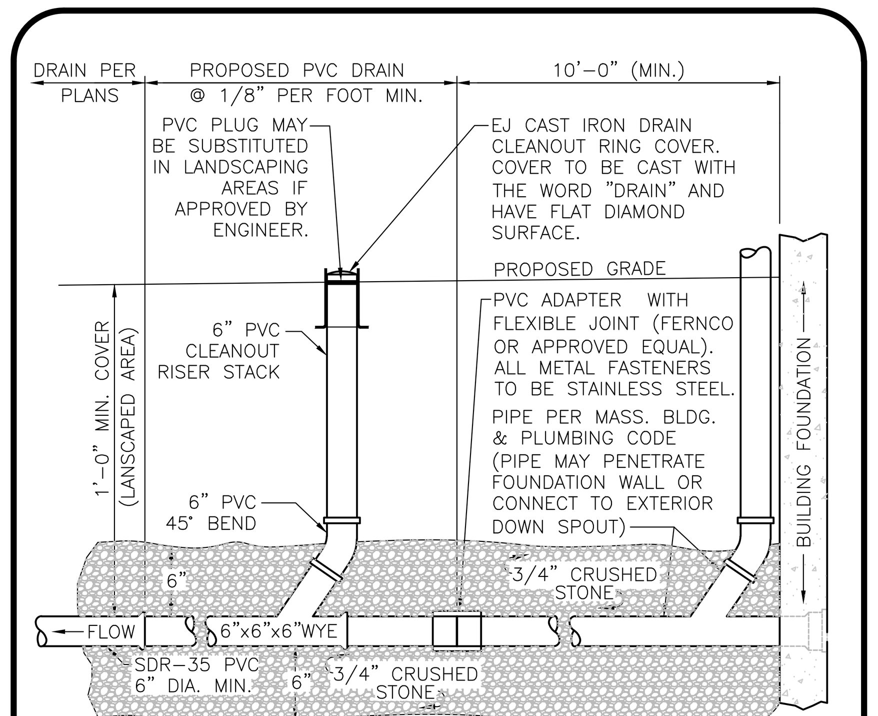
1. TRENCH BACKFILL TO BE USED WITHIN THE RIGHT–OF–WAY SHALL CONSIST OF EITHER GRAVEL BORROW MEETING MHD SPECIFICATION M1.03.0, TYPE "B" OR PROCESSED GRAVEL BORROW FOR SUBBASE MEETING MHD SPECIFICATION M1.03.1.

2. WHEE THE REMOVAL OF 100 SQUARE FEET OR LESS OF ASPHALT IS REQUIRED WITHIN THE RIGHT OF WAY, THEN THE TRENCH BACKFILL MATERIAL SHALL CONSIST OF CONTROLLED DENSITY FILL MEETING MHD SPECIFICATION M4.08.0, TYPE "1E" OR "2E".

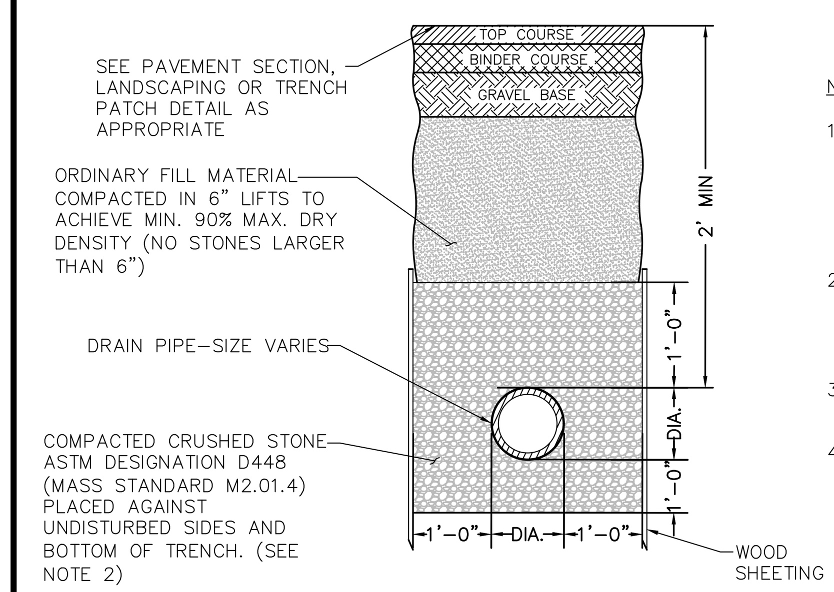
3. TRENCH BACKFILL MATERIAL TO BE USED OF THE RIGHT–OF–WAY MAY CONSIST OF MATERIAL GENERATED DURING EXCAVATIONS PROVIDED ALL STONES GREATER THAN 4" ARE REMOVED PRIOR TO PLACEMENT AND COMPACTION

4. GRANULAR TRENCH BACKFILL MATERIAL USED WITHIN THE RIGHT–OF–WAY SHALL BE PLACED IN MAXIMUM 6" LIFTS AND MECHANICALLYCOMPACTED TO A MINIMUM OF 95% OF THE MATERIAL'S MAXIMUM DRY DENSITY AND TO 90% ELSEWHERE AS DETERMINED BY ASTM D 1557.

**SEWER TRENCH**
NOT TO SCALE
(16)




**ROOF DRAIN**
NOT TO SCALE
(15)




NOTES:

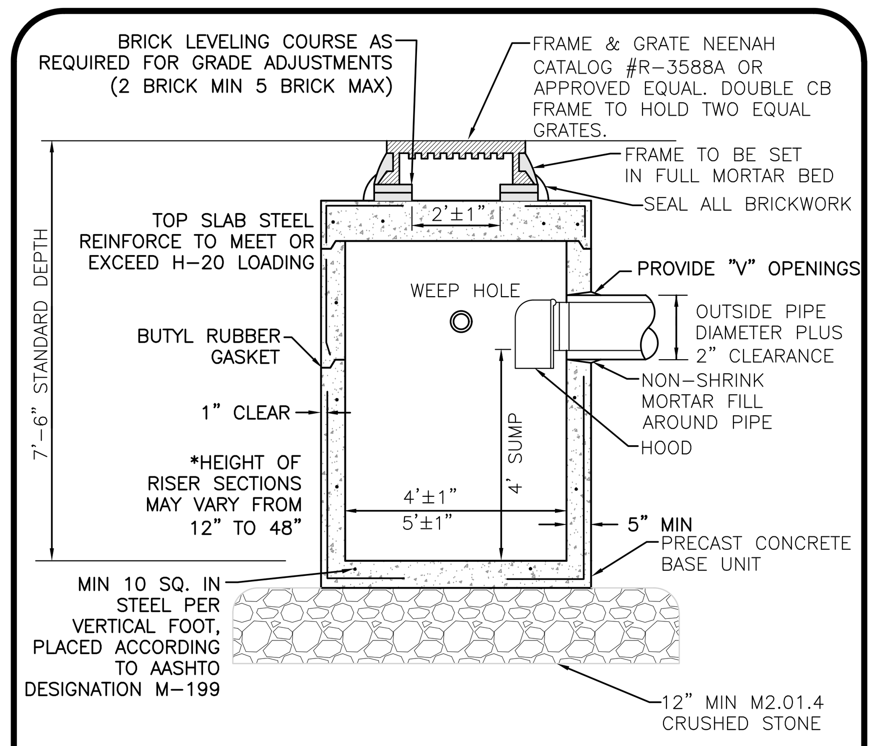
1. SHEETING, WHEN REQUIRED, TO BE CUT OFF AT LEAST 5' BELOW STREET AND A MINIMUM OF 1' ABOVE TOP OF PIPE. WOOD SHEETING DRIVEN BELOW MID–DIAMETER OF THE PIPE SHALL BE LEFT IN PLACE. STEEL SHEETING DRIVEN BELOW MID–DIAMETER MAY BE WITHDRAWN IF APPROVED IN WRITING BY THE ENGINEER. FOR PVC PIPE ALL SHEETING DRIVEN BELOW MID–DIAMETER SHALL BE LEFT IN PLACE.

2. WHEN APPROVED BY THE ENGINEER FOR PIPES OTHER THAN PVC, SELECTED GRAVEL FILL MATERIAL MAY BE USED FROM MID–DIAMETER OF PIPE TO 12" ABOVE TOP OF PIPE. NO STONES LARGER THAN 2" IN ANY DIMENSION WILL BE PERMITTED IN THIS AREA – MASSDOT MATERIAL STANDARD M1.03.0 TYPE C.

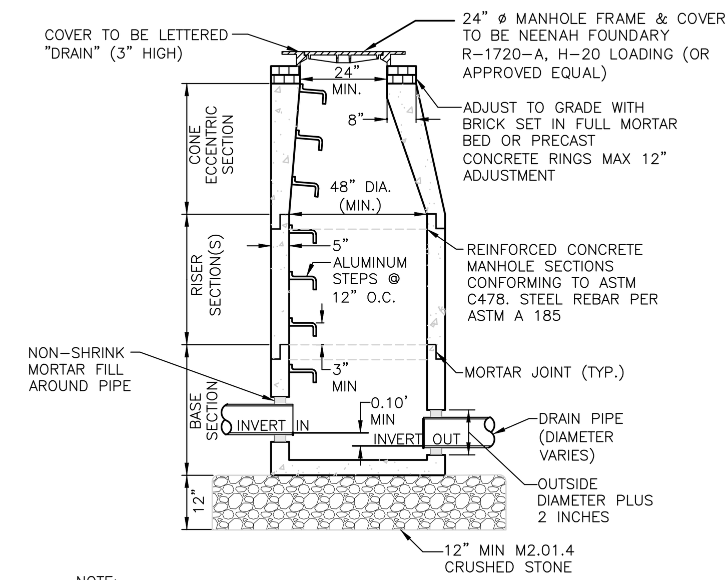
3. PROVIDE AT LEAST ONE IMPERVIOUS DAM IN GRAVEL BEDDING BETWEEN EACH MANHOLE WHERE DIRECTED, OR EVERY 300 FT, WHICHEVER IS LESS.

4. BEDDING MATERIAL FOR PVC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D2321 CLASS I OR CLASS II EMBEDMENT MATERIALS.

**DRAINAGE TRENCH**
NOT TO SCALE
(14)

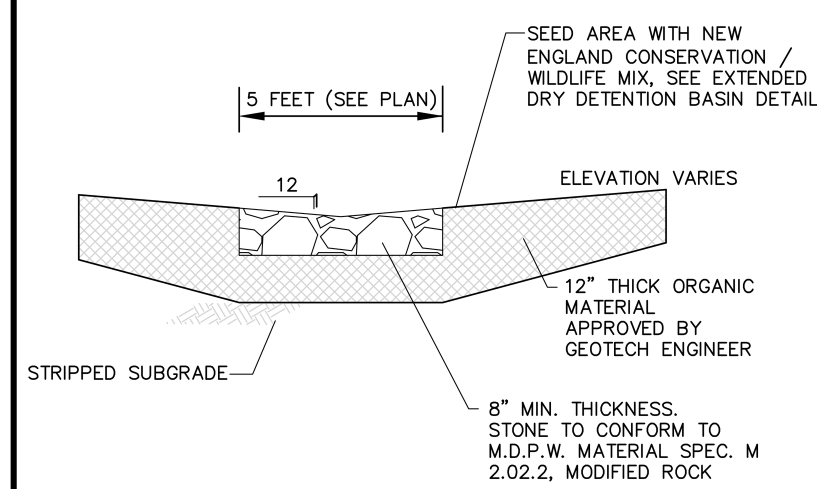



**CATCH BASIN**
NOT TO SCALE
(13)

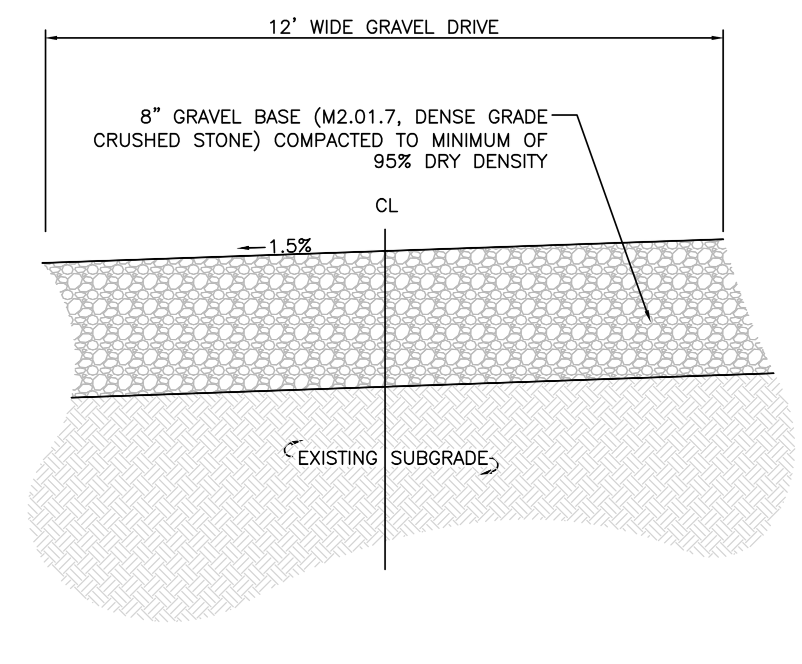



NOTE:
1. THE MANHOLE, INCLUDING ALL COMPONENT PARTS, SHALL HAVE ADEQUATE SPACE AND STRENGTH QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENT AND CONFIGURATIONS SHALL BE AS SHOWN ON THE DRAWING. THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND (H–20 LOADING) WITHOUT FAILURE. VERTICAL FOOT OF MANHOLE.

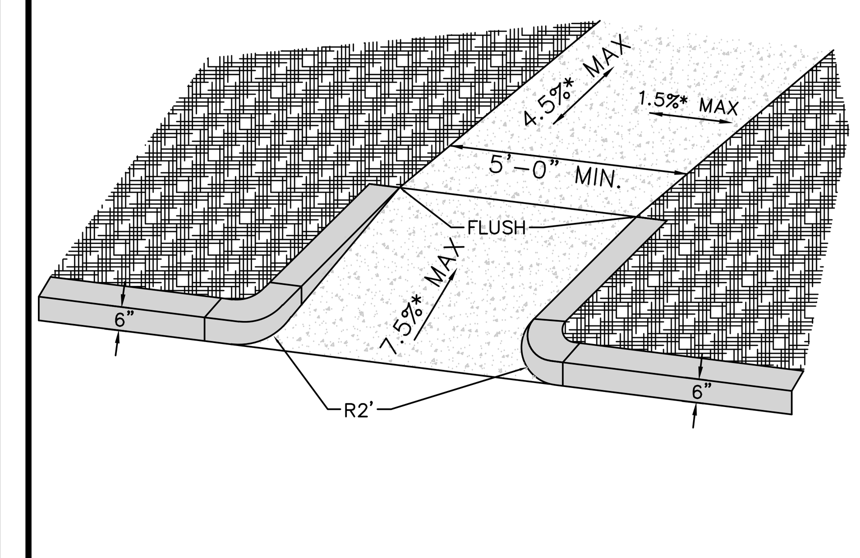
**PRECAST DRAIN MANHOLE**
NOT TO SCALE
(12)




**BASIN MODIFIED ROCK FILL RIPRAP CHANNEL**
NOT TO SCALE
(11)



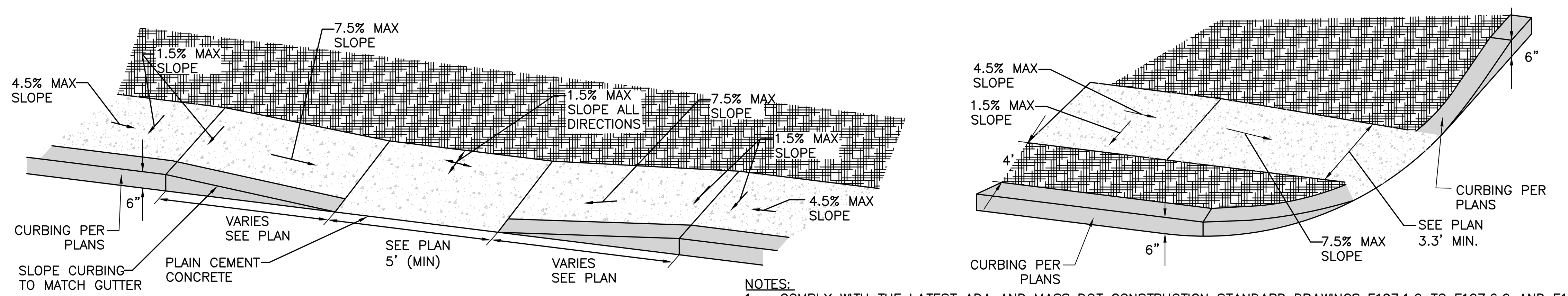

**GRAVEL BASIN ACCESS DRIVE**
NOT TO SCALE
(10)

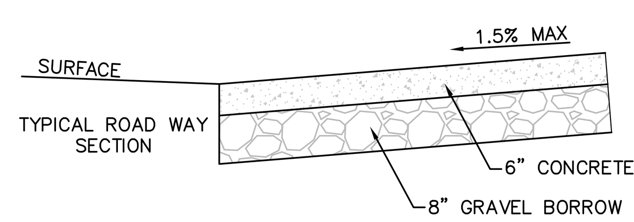



NOTES:

1. * = TOLERANCE FOR CONSTRUCTION ±0.5%

**ADA RAMP (A)**
NOT TO SCALE
(9)



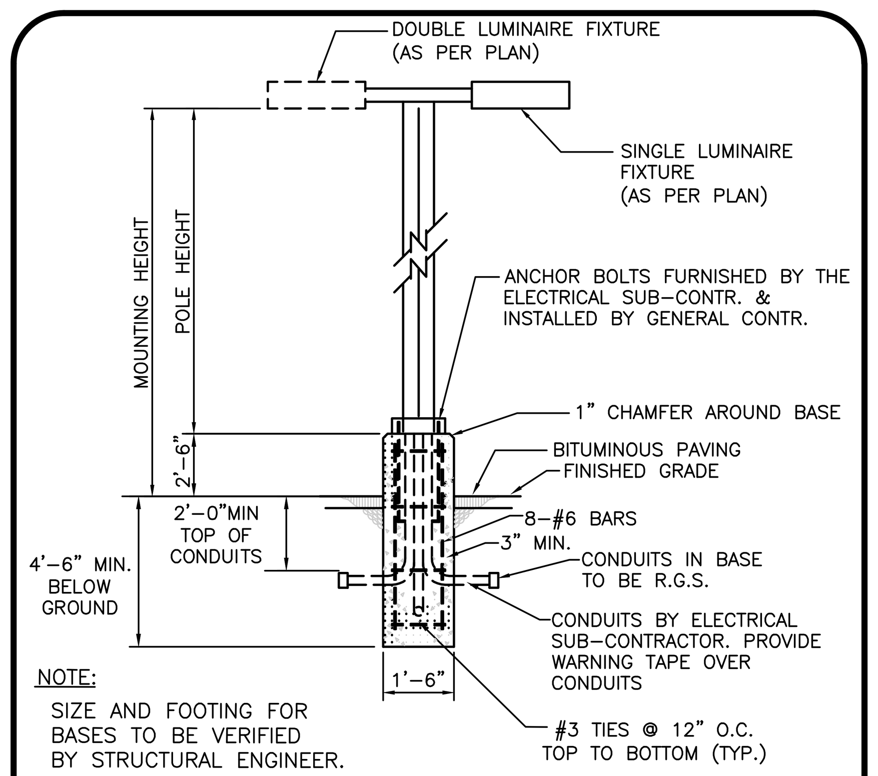




SECTION VIEW

NOTES:

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

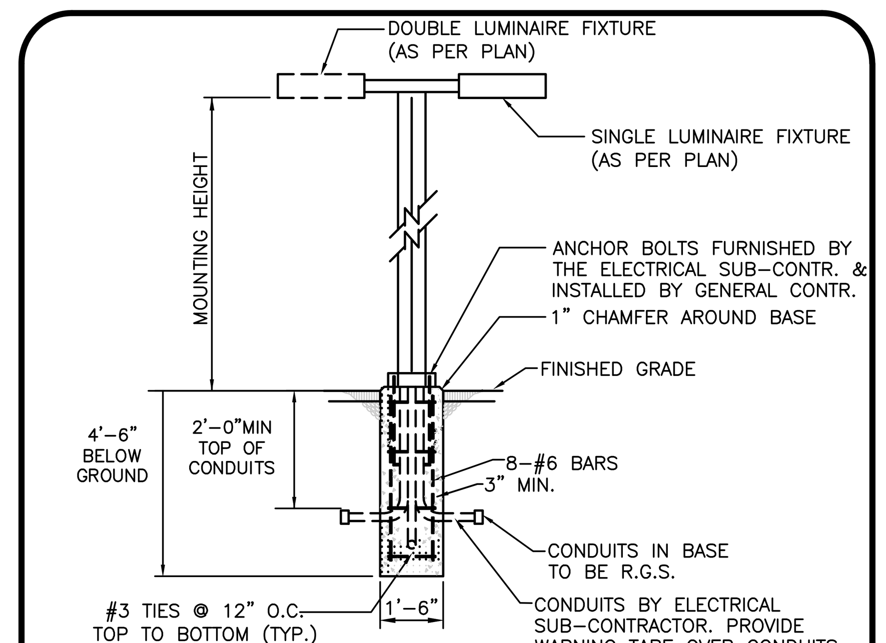
**ACCESSIBLE RAMP & CURB TRANSITION**
NOT TO SCALE
(8)




NOTE:

SIZE AND FOOTING FOR BASES TO BE VERIFIED BY STRUCTURAL ENGINEER.

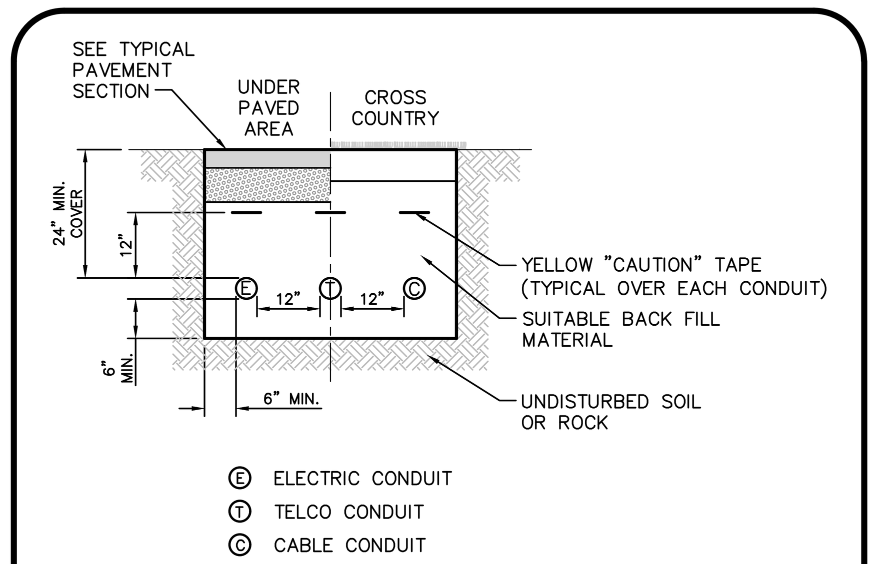
**RAISED LIGHT POLE BASE**
NOT TO SCALE
(7)




NOTE:

SIZE AND FOOTING FOR BASES TO BE VERIFIED BY STRUCTURAL ENGINEER.

**FLUSH LIGHT POLE BASE**
NOT TO SCALE
(6)




Ⓔ ELECTRIC CONDUIT
Ⓣ TELCO CONDUIT
Ⓒ CABLE CONDUIT

NOTES:

1. SCHEDULE 80 PVC CONDUIT REQUIRED UNDER ROAD AND DRIVEWAY SURFACES.

2. ALL UTILITY INSTALLATION REQUIREMENTS, SEPARATIONS, AND CONDUIT SIZES TO BE VERIFIED WITH EACH UTILITY COMPANY PRIOR TO INSTALLATION OF ANY UNDERGROUND UTILITY CONDUIT.

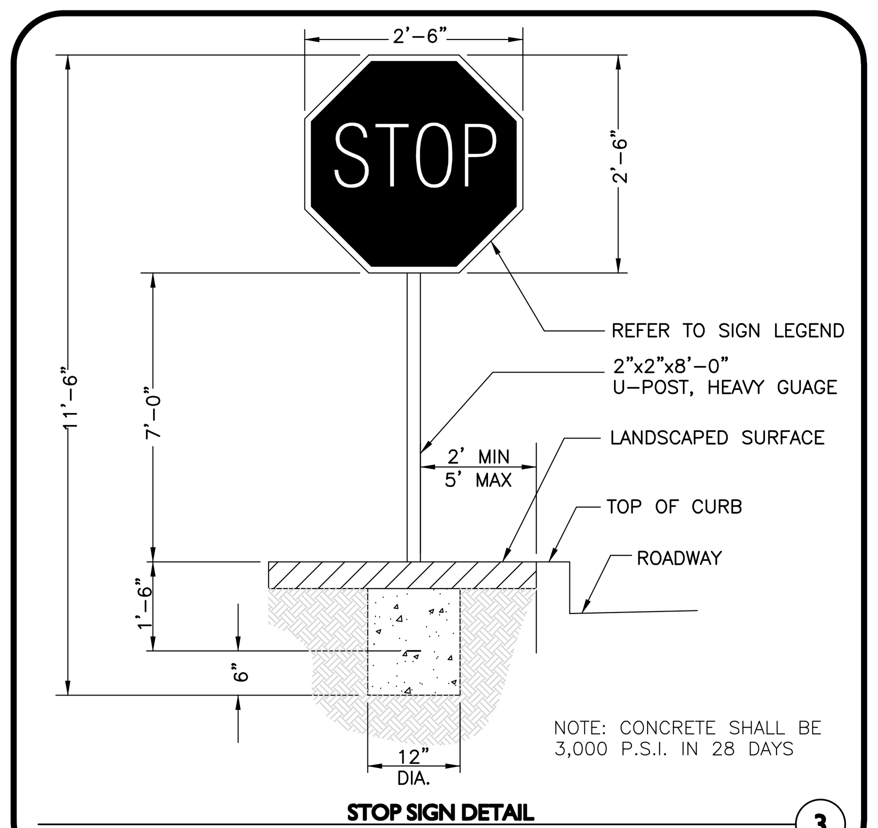
3. SEE SITE ELECTRICAL PLAN FOR SPECIFIC DETAILS

**BURIED CONDUIT DETAIL**
NOT TO SCALE
(5)

| DESC. | SIGN | SIZE | MOUNTING HEIGHT | DESCRIPTION | REFLEC–TORIZED |
|---|---|---|---|---|---|
| R1–1 | STOP | 30"x30" | 7' – 0" | WHITE ON RED | YES |
| R7–8 | VIOLATORS WILL BE FINED / HANDICAPPED PARKING STATE PERMIT REQUIRED | 12"x20" | 7' – 0" | WHITE ON BLUE | YES |
| R7–8 (MODIFIED) | VIOLATORS WILL BE FINED / HANDICAPPED PARKING STATE PERMIT REQUIRED / VAN ACCESSIBLE | 12"x20" | 7' – 0" | WHITE ON BLUE | YES |
| R2–1 | SPEED LIMIT 15 | 24"x30" | 7' – 0" | BLACK ON WHITE | YES |
| R8–3 (MODIFIED) | DROP OFF ZONE | 12"x18" | 7' – 0" | RED ON WHITE | YES |
| R8–1M (MODIFIED) | NO PARKING SHUTTLE ONLY | 12"x18" | 7' – 0" | RED ON WHITE | YES |

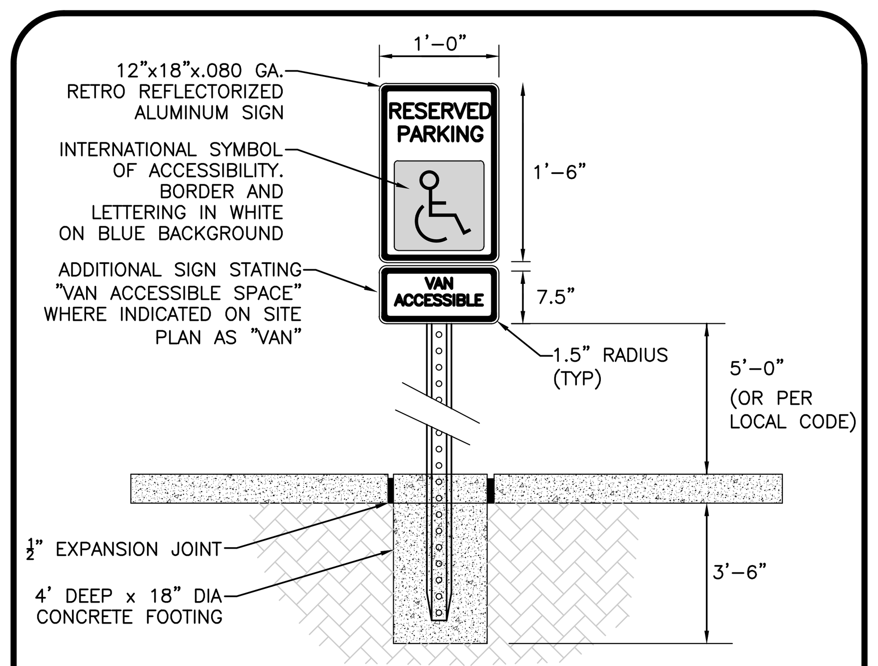
1. TRAFFIC AND SAFETY SIGNAGE SHALL COMPLY WITH MUTCD STANDARDS.

**SIGN TABLE**
NOT TO SCALE
(4)



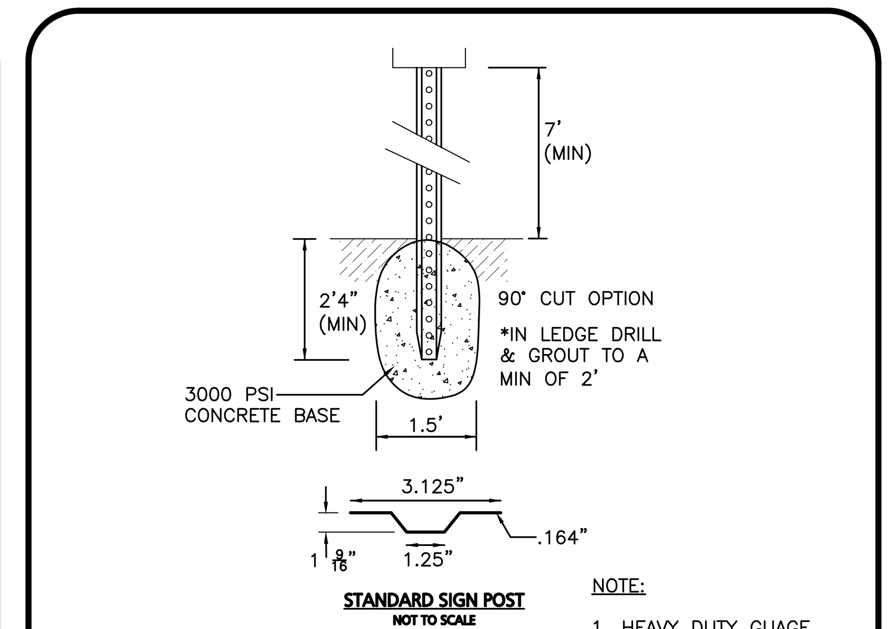

NOTE: CONCRETE SHALL BE 3,000 P.S.I. IN 28 DAYS

**STOP SIGN DETAIL**
NOT TO SCALE
(3)




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

**ADA ACCESSIBLE PARKING SIGN**
NOT TO SCALE
(2)




**STANDARD SIGN POST**
NOT TO SCALE

NOTE:

1. HEAVY DUTY GUAGE

LENGTH: AS REQUIRED
WEIGHT PER LF: 2.50 LBS (MIN)
HOLES: 3/8" DIAMETER, 1" C–C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A–499 OR ASTM A–576
FINISH: SHALL BE PAINTED WITH 2 COATS OF AN APPROVED MEDIUM GREEN, BAKED ON OR AIR DRIED, PAINT OF WEATHER RESISTANT QUALITY.

**SIGN POST DETAIL**
NOT TO SCALE
(1)


CUBE 3
architecture | interiors | planning
370 Merrimack St., Suite 337 Lawrence MA 01843
phone: 978.989.9900 www.cube3.com


project information:
Arbella at Ashland
MBTA Access Road
Ashland, MA 01721

client information:
U A Senior Manager LLC
Rensselaer Technology Park
300 Jordan Road
Troy,NY 12180

consultant information:

issuance:
PERMIT / GMP Coordination Set
NOT FOR CONSTRUCTION

key plan:

drawing information:

| | |
|---|---|
| drawing by: | SL |
| drawing checked by: | AD |
| drawing scale: | AS SHOWN |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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

registration:
DRAFT

drawing name:
DETAILS

drawing number:
C-502

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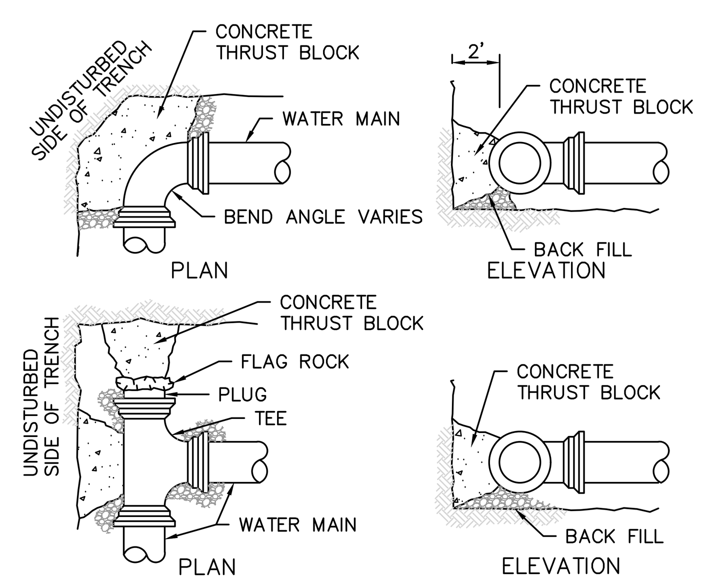
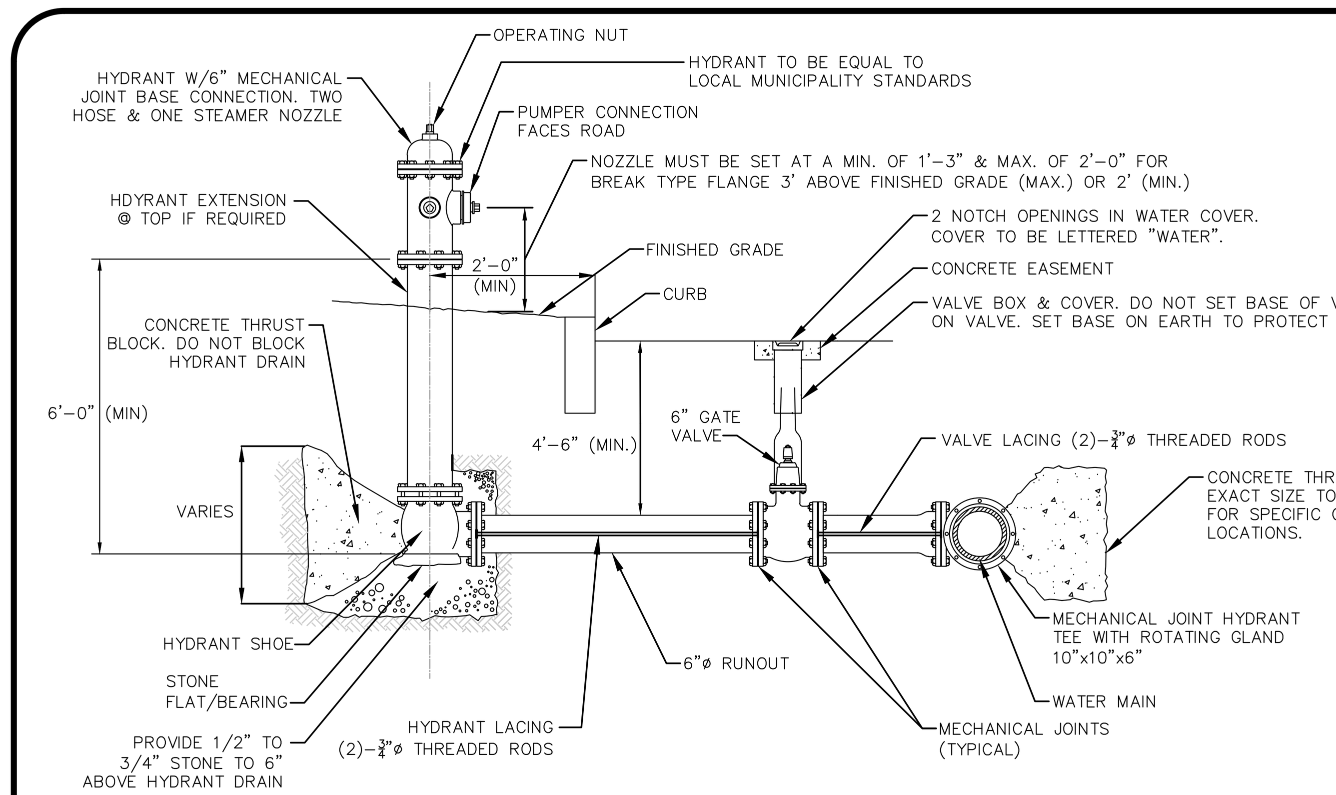
| MINIMUM THRUST BLOCK BEARING AREAS | | | | |
|---|---|---|---|---|
| PIPE DIAMETER | 90° BEND (SQ. FT.) | 45° BEND (SQ. FT.) | 22.5° BEND (SQ. FT.) | TEES, PLUGS, CAPS & HYDRANTS (SQ.FT.) |
| 6" | 5 | 3 | 3 | 4 |
| 8" | 9 | 6 | 3 | 9 |
| 10" | 13 | 7 | 4 | 12 |
| 12" | 20 | 10 | 5 | 16 |

NOTES:
1. ALL WATER MAIN FITTINGS, BENDS, TEES, PLUGS ETC. SHALL BE RESTRAINED W/ THRUST BLOCKS EXCEPT WHERE NOTED.
2. ALL THRUST BLOCKS & COLLARS SHALL BE INSTALLED SO THAT THEY BEAR AGAINST UNDISTURBED EARTH.
3. SIZE OF CONCRETE THRUST BLOCKS SHALL BE AS NOTED BELOW.
4. MINIMUM COMPRESSIVE STRENGTH OF THRUST BLOCK CONCRETE SHALL BE 3,000 P.S.I.
5. KEEP CONCRETE CLEAR OF MECHANICAL JOINTS.
6. THE BELOW PREDICATED ON A WATER PRESSURE OF 225 PSI AND A SOIL RESISTANCE OF 2000 PSF (TILL). FOR OTHER SOILS THE VALUES IN THE ABOVE TABLE SHALL BE MULTIPLIED BY:

| | |
|---|---|
| SOFT CLAY | 4 |
| SAND | 2 |
| SAND & GRAVEL | 1.33 |
| SHALE | 0.4 |

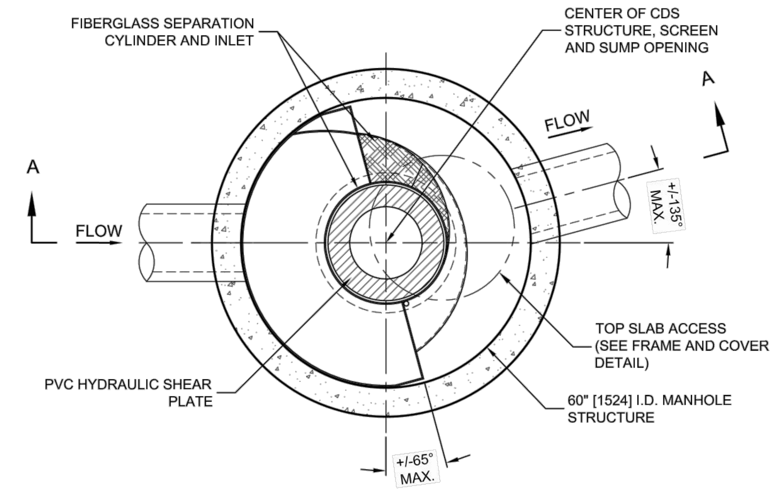



**THRUST BLOCK DETAIL**
NOT TO SCALE
11

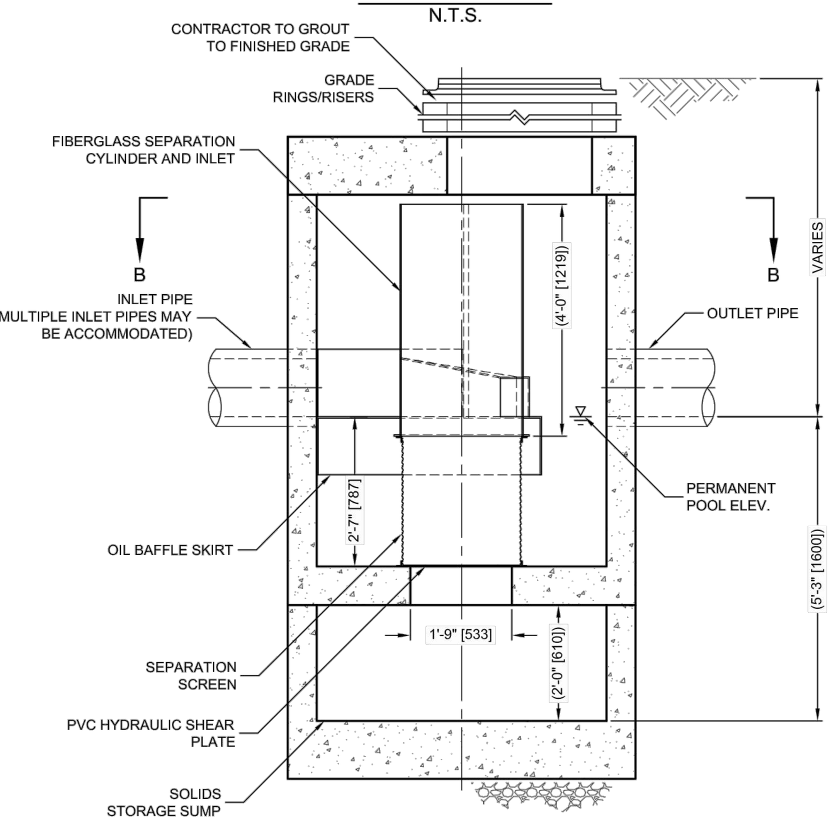



NOTES:
1. ALL HYDRANTS, VALVES AND LOCAL CONNECTIONS SHALL COMPLY WITH THE SPECIFICATIONS OF THE LOCAL MUNICIPALITY.
2. PIPING TO BE RESTRAINED WITH RODDING OR RETAINING GLANDS.
3. GATE VALVE INSTALLATION IS TYPICAL FOR ALL GATES SHOWN ON THE DRAWINGS.

**FIRE HYDRANT CONNECTION**
NOT TO SCALE
10




**PLAN VIEW B-B**
N.T.S.




**ELEVATION A-A**
N.T.S.

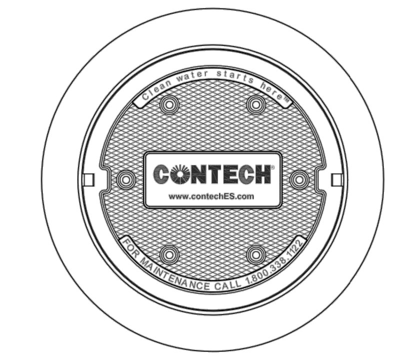
CDS

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,788,848; 6,641,720; 6,511,595; 6,581,783; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

## CDS2020-5-C DESIGN NOTES

THE STANDARD CDS2020-5-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

**CONFIGURATION DESCRIPTION**
- GRATED INLET ONLY (NO INLET PIPE)
- GRATED INLET WITH INLET PIPE OR PIPES
- CURB INLET ONLY (NO INLET PIPE)
- CURB INLET WITH INLET PIPE OR PIPES
- SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
- SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS




**FRAME AND COVER**
(DIAMETER VARIES)
N.T.S.

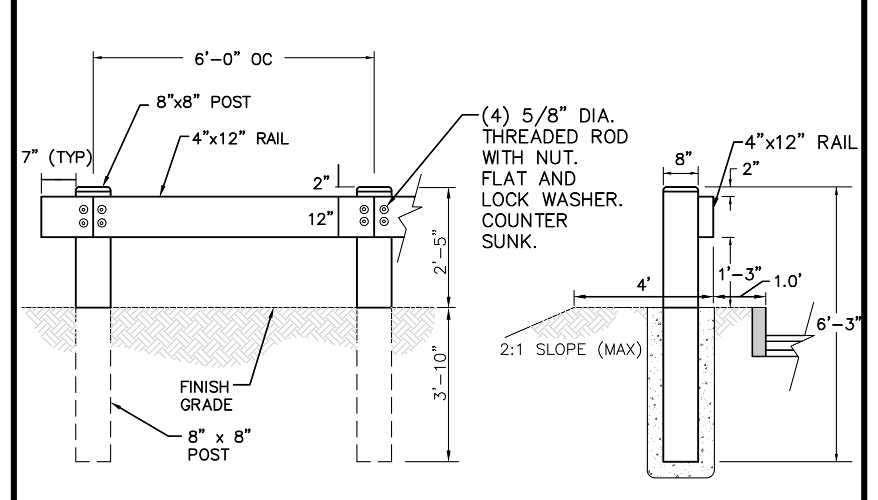
| SITE SPECIFIC DATA REQUIREMENTS | | | |
|---|---|---|---|
| STRUCTURE ID | | | |
| WATER QUALITY FLOW RATE (CFS OR L/s) | * | | |
| PEAK FLOW RATE (CFS OR L/s) | * | | |
| RETURN PERIOD OF PEAK FLOW (YRS) | * | | |
| SCREEN APERTURE (2400 OR 4700) | * | | |
| PIPE DATA: | I.E. | MATERIAL | DIAMETER |
| INLET PIPE 1 | * | * | * |
| INLET PIPE 2 | * | * | * |
| OUTLET PIPE | * | * | * |
| RIM ELEVATION | * | | |
| ANTI-FLOTATION BALLAST | WIDTH | HEIGHT | |
| | * | * | |
| NOTES/SPECIAL REQUIREMENTS: | | | |
| * PER ENGINEER OF RECORD | | | |

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

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

| CONTECH® ENGINEERED SOLUTIONS LLC<br>www.contechES.com<br>9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069<br>800-338-1122 513-645-7000 513-645-7993 FAX | CDS2020-5-C<br>INLINE CDS<br>STANDARD DETAIL |
|---|---|

**WATER QUALITY STRUCTURE - CDS 2020-5-C**
NOT TO SCALE
9

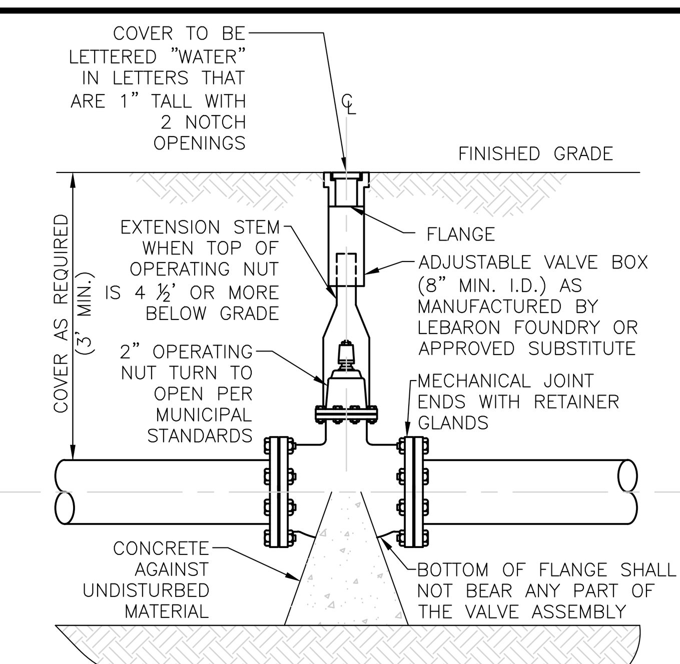



**FRONT ELEVATION**

**TYPICAL SECTION AT CURB**

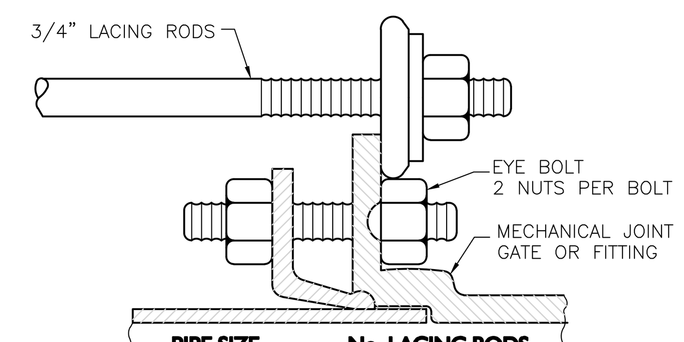
NOTES:
1. ALL TIMBER STOCK TO BE PRESSURE TREATED.
2. ALL HARDWARE TO BE GALVANIZED STEEL.

**WOOD BEAM GUARDRAIL**
NOT TO SCALE
8




NOTE:
1.) CONTRACTOR MAY USE ANCHOR TEES AT HIS OPTION.
2.) HYDRANTS AND VALVES TO OPERATE PER MUNICIPAL STANDARDS

**GATE VALVE**
NOT TO SCALE
7

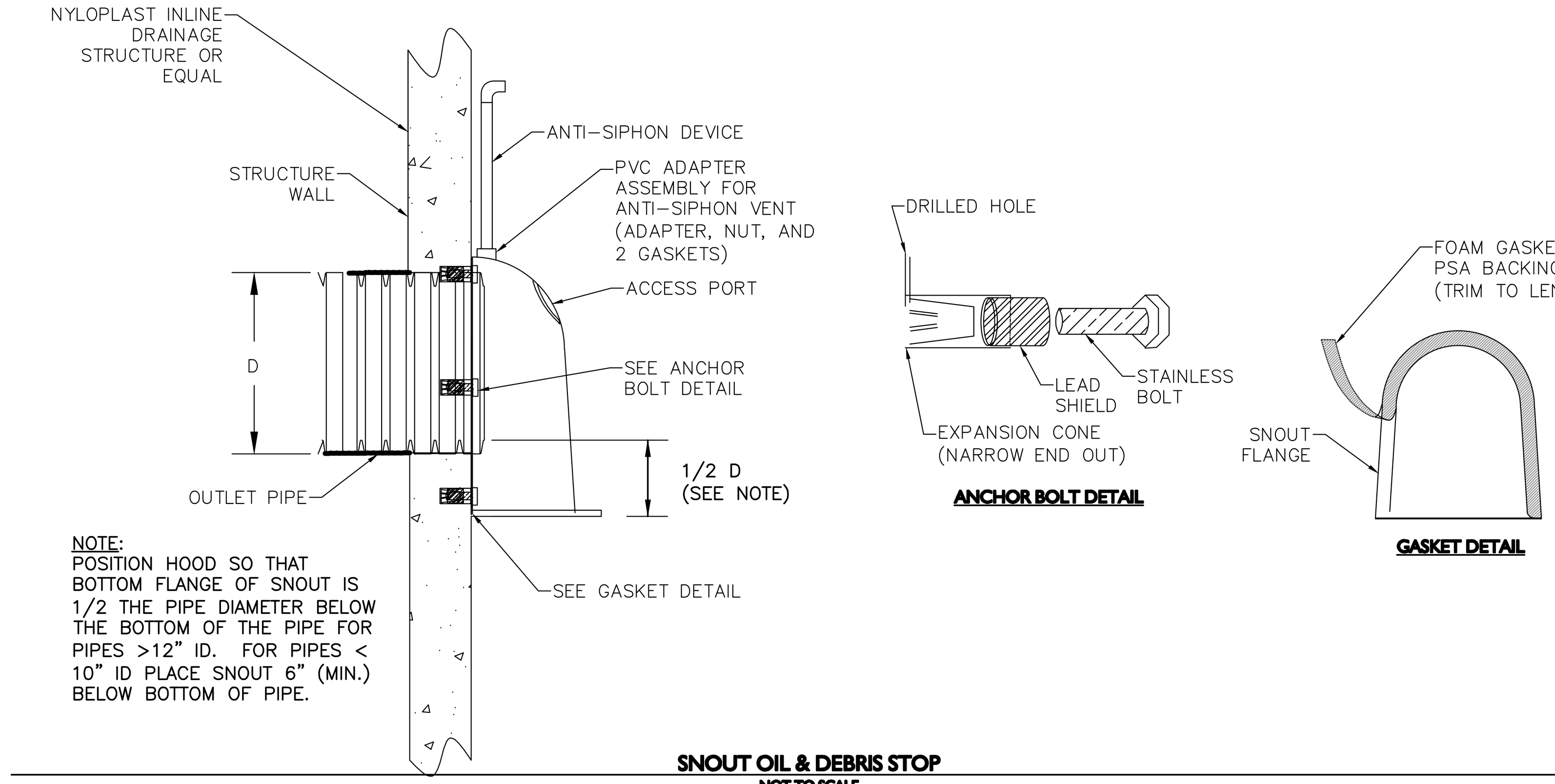



| PIPE SIZE | No. LACING RODS |
|---|---|
| 4", 6" & 8" | 2 - 3/4" * |
| 10" & 12" | 4 - 3/4" * |
| 16" | 4 - 3/4" * |
| 20" | 6 - 3/4" * |

* STANDARD LENGTHS ARE 6' & 10'. COUPLINGS MAY BE USED FOR LONGER LENGTHS.

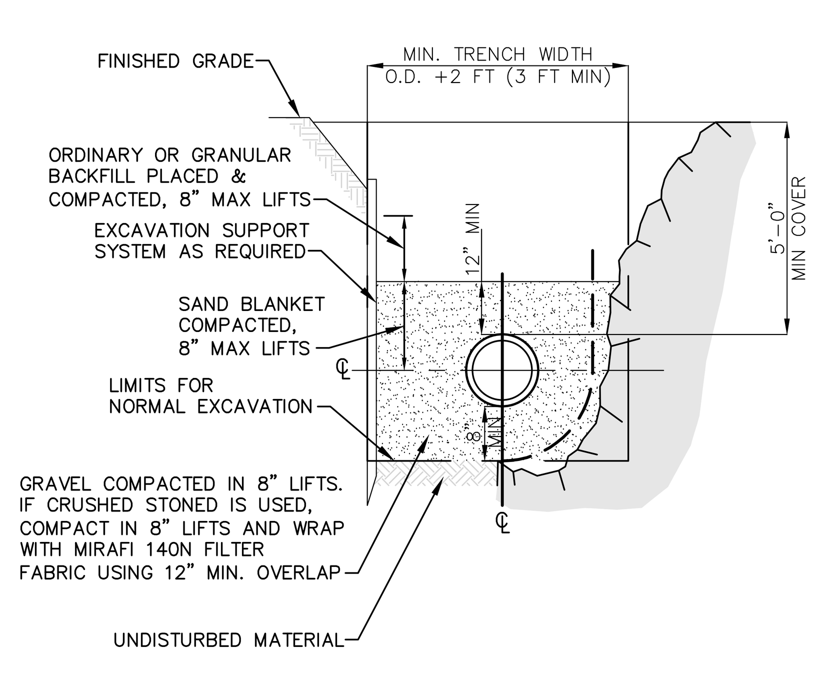
NOTES:
1. NUMBER OF LACING RODS IS BASED ON MAXIMUM PRESSURE OF 125 P.S.I. IN MAIN.
2. EYE-BOLTS AND LACING RODS ARE TO BE FABRICATED FROM A-36 STEEL.
3. STEEL LACING RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 36,000 P.S.I.
4. EYE-BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 7,000 LBS. EACH.

**MECHANICAL JOINT LACING DETAIL**
NOT TO SCALE
6




NOTE:
POSITION HOOD SO THAT BOTTOM FLANGE OF SNOUT IS 1/2 THE PIPE DIAMETER BELOW THE BOTTOM OF THE PIPE FOR PIPES >12" ID. FOR PIPES < 10" ID PLACE SNOUT 6" (MIN.) BELOW BOTTOM OF PIPE.

**SNOUT OIL & DEBRIS STOP**
NOT TO SCALE
5

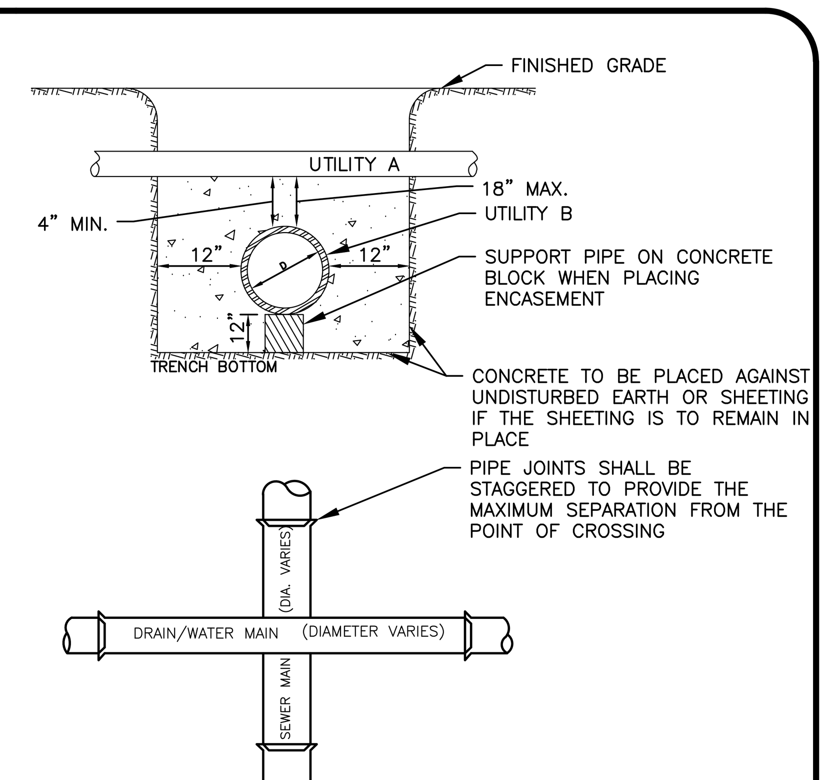



**WATER TRENCH SECTION**
NOT TO SCALE
4

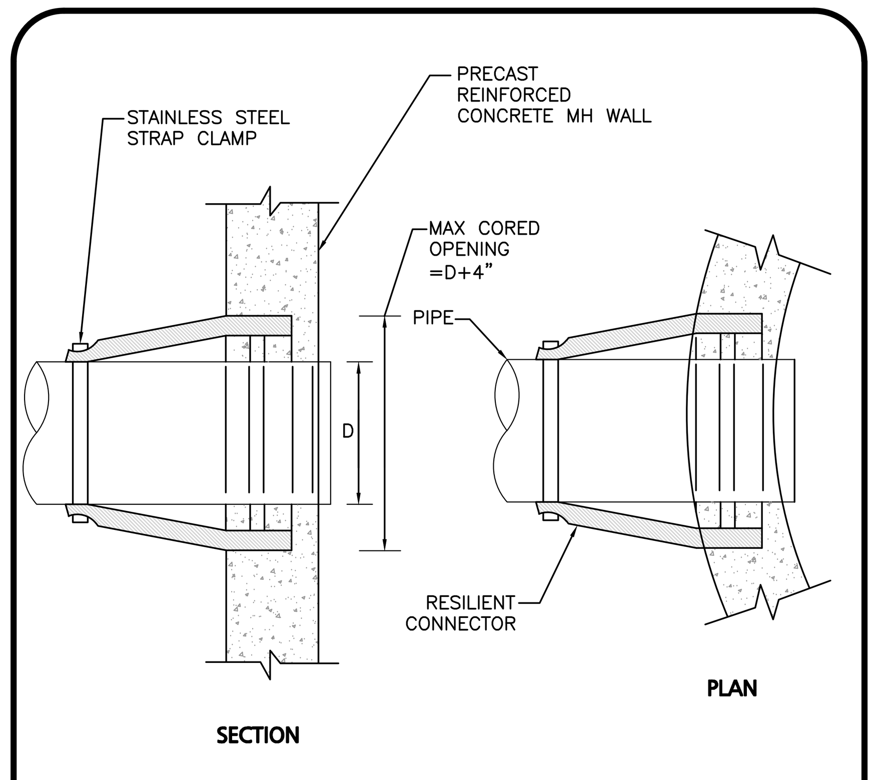
NOTES:

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

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

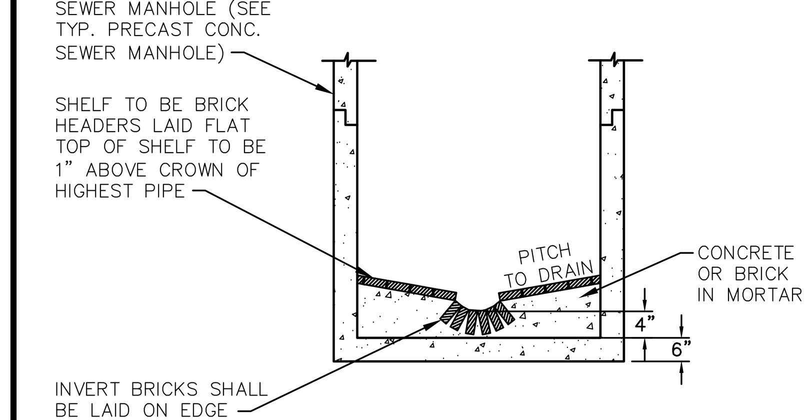



**SEWER, WATER/DRAIN CROSSING DETAIL**
NOT TO SCALE
3




**WATERTIGHT RESILIENT CONNECTION TO SEWER MANHOLES**
NOT TO SCALE
2

MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW. AT CHANGES IN DIRECTION, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOW THROUGH CHANNEL.




NOTE:
INVERT & SHELF TO BE PLACED AFTER LEAKAGE TEST

**TYPICAL BRICK INVERT SECTION FOR SEWER MANHOLES**
NOT TO SCALE
1

CUBE3
architecture | interiors | planning
370 Merrimack St., Suite 337 Lawrence MA 01843
phone: 978.989.9900 www.cube3.com

project information: Arbella at Ashland
MBTA Access Road
Ashland, MA 01721

client information: U A Senior Manager LLC
Rensselaer Technology Park
300 Jordan Road
Troy,NY 12180

consultant information:

issuance: PERMIT / GMP Coordination Set
NOT FOR CONSTRUCTION

key plan:

| drawing information: | |
|---|---|
| drawing by: | SL |
| drawing checked by: | AD |
| drawing scale: | AS SHOWN |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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

registration: DRAFT

drawing name: DETAILS

drawing number: C-503

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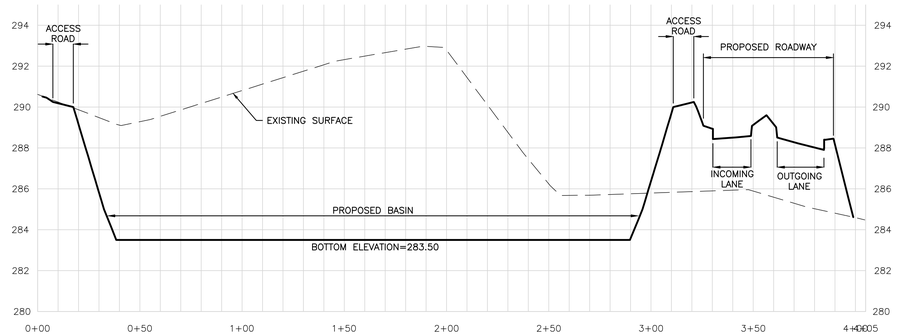
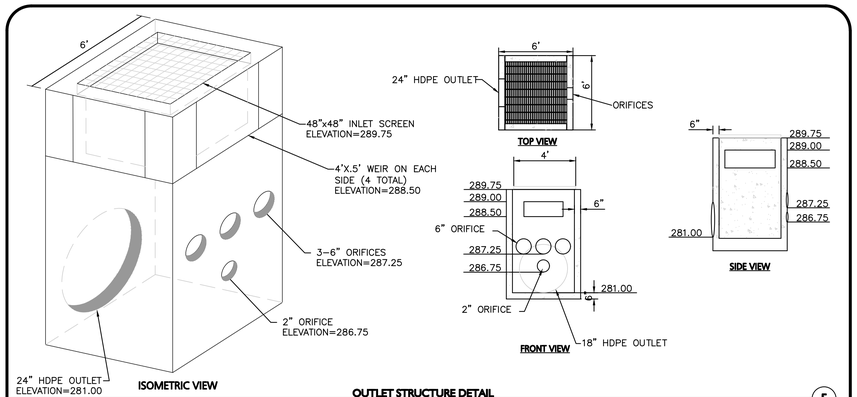
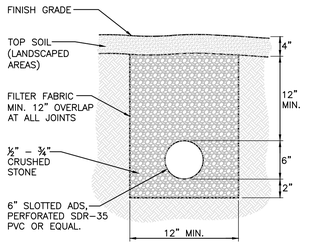



**PROPOSED BASIN PROFILE** (6)
HORIZONTAL SCALE: 1"=30' - VERTICAL SCALE:1"=3'




**OUTLET STRUCTURE DETAIL** (5)
NOT TO SCALE



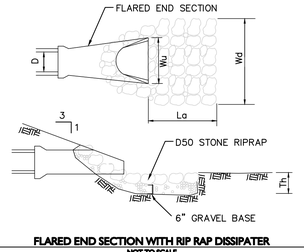

1. FILTER FABRIC TO BE MODEL MIRAFI 140N OR APPROVED ALTERNATE.
2. UNDERDRAIN TO BE LAID AT A MINIMUM SLOPE OF 0.5%.

**UNDERDRAIN DETAIL** (4)
NOT TO SCALE

RIPRAP SIZING CHART

| FES# | D | Q100 | La | Wu | Wd | Th | D50 |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | T.B.D | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |

RIP RAP SHALL EXTEND FROM THE FES TO THE BOTTOM OF THE PROPOSED AREA OR FURTHER AS SHOWN ON THE GRADING & DRAINAGE PLAN.



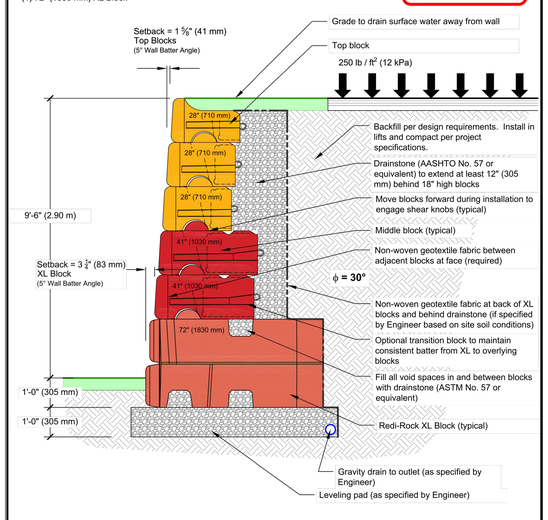

**FLARED END SECTION WITH RIP RAP DISSIPATER** (3)
NOT TO SCALE

$\phi$ = 30° | FINE TO MEDIUM SAND or SILTY SAND

**LOAD CONDITION B** | 250 lb/ft² (12 kPa) LIVE LOAD SURCHARGE, NO BACK SLOPE, NO TOE SLOPE

**10.5-FOOT (3.20 m) HIGH SECTION**
(3) 28" (710 mm) Blocks
(2) 41" (1030 mm) Blocks
(1) 72" (1830 mm) XL Block

PRELIMINARY
Professional Engineering Design Required for Construction




This drawing is for reference only. Determination of the suitability and/or manner of use of any details contained in this document is the sole responsibility of the design engineer of record. Final project designs, including all construction details, shall be prepared by a licensed professional engineer using the actual conditions of the proposed site. Final wall design must address both internal and external drainage and all modes of wall stability.

| | | | |
|---|---|---|---|
| DRAWN BY: | N. Lindwall | TITLE: | **Preliminary Wall Section** |
| APPROVED BY: | J. Johnson | | Fine to Medium Sand or Silty Sand, ϕ = 30° |
| DATE: | May 8, 2019 | | 250 lb/ft² (12 kPa) Live Load Surcharge |
| SHEET: | 1 of 1 | FILE: | B_30_XL_126_cad.dwg |

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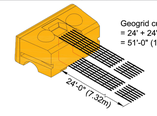
**PRELIMINARY WALL SECTION DETAIL (I)** (2)
NOT TO SCALE

$\phi$ = 30° | FINE TO MEDIUM SAND or SILTY SAND AND GRAVEL

**LOAD CONDITION CR** | 1:2 CREST SLOPE, 10' (3.0m) HIGH, 250 lb/ft² (12 kPa) SURCHARGE AT CREST

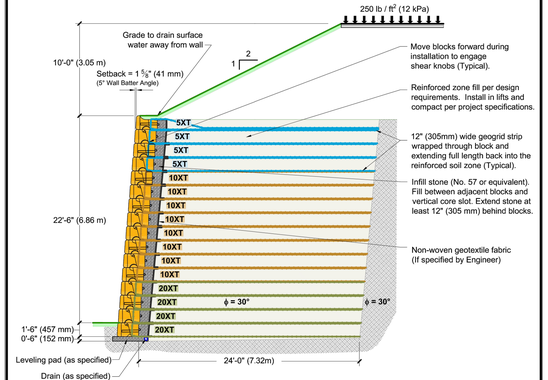
**16 BLOCK HIGH SECTION**
(16) 28" (710 mm) Blocks

PRELIMINARY
Professional Engineering Design Required for Construction




| *Geogrid Rolls Required per Wall Length* | | |
|---|---|---|
| *Type* | *Rolls / linear ft* | *Rolls / linear m* |
| 5XT | ± 0.35 | ± 1.14 |
| 10XT | ± 0.69 | ± 2.28 |
| 20XT | ± 0.35 | ± 1.14 |

Geogrid shall be 12" (305 mm) wide strips of Mirafi geogrid, type as noted. Geogrid shall be **Factory cut** and **Certified** for width and strength by TenCate Mirafi.

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| | | | |
|---|---|---|---|
| DRAWN BY: | B. Lindfors | TITLE: | **Preliminary Wall Section** |
| APPROVED BY: | J. Johnson | | Fine to Medium Sand or Silty Sand, Ø=30° |
| DATE: | Oct 30, 2015 | | 1:2 Crest Slope, 10' (3.0m) High, 250 lb/ft² (12 kPa) Surcharge |
| SHEET: | 1 of 1 | FILE: | CR_30_PC_28_288_cad.dwg |

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**PRELIMINARY WALL SECTION DETAIL (I)** (1)
NOT TO SCALE


CUBE3
architecture | interiors | planning
370 Merrimack St., Suite 337 Lawrence MA 01843
phone: 978.989.9900 www.cube3.com


project information:
Arbella at Ashland

MBTA Access Road
Ashland, MA 01721

client information:
U A Senior Manager LLC

Rensselaer Technology Park
300 Jordan Road
Troy,NY 12180

consultant information:

issuance:
PERMIT / GMP Coordination Set

NOT FOR CONSTRUCTION

key plan:

drawing information:

| | |
|---|---|
| drawing by: | SL |
| drawing checked by: | AD |
| drawing scale: | **AS SHOWN** |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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

registration:
DRAFT

drawing name:
DETAILS

drawing number:
C-504


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## STORMWATER CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-740, SC-310, OR APPROVED EQUAL.
2. CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL MEET ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:

a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.

b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.

c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.

8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

StormTech®
*Detention • Retention • Water Quality*

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860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310/SC-740 SYSTEM

1. STORMTECH SC-310 & SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/SC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.

STORMTECH RECOMMENDS 3 BACKFILL METHODS:
- STONESHOOTER LOCATED OFF THE CHAMBER BED.
- BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUB-GRADE.
- BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.

4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

   USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

   CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

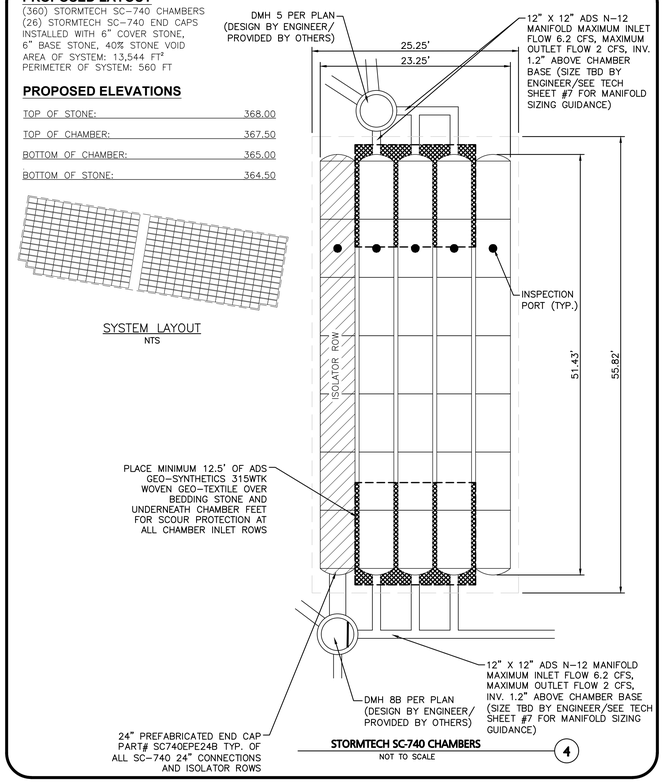
**GENERAL NOTES** (5)
NOT TO SCALE

## PROPOSED LAYOUT

(360) STORMTECH SC-740 CHAMBERS
(26) STORMTECH SC-740 END CAPS
INSTALLED WITH 6" COVER STONE, 6" BASE STONE, 40% STONE VOID
AREA OF SYSTEM: 13,544 FT²
PERIMETER OF SYSTEM: 560 FT

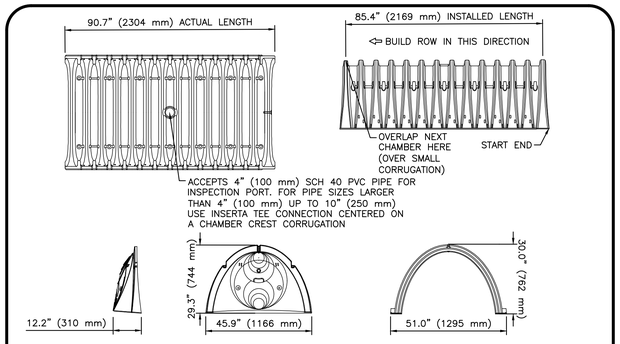
## PROPOSED ELEVATIONS

| | |
|---|---|
| TOP OF STONE: | 368.00 |
| TOP OF CHAMBER: | 367.50 |
| BOTTOM OF CHAMBER: | 365.00 |
| BOTTOM OF STONE: | 364.50 |




SYSTEM LAYOUT
NTS

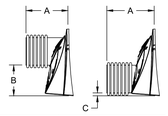
**STORMTECH SC-740 CHAMBERS** (4)
NOT TO SCALE




NOMINAL CHAMBER SPECIFICATIONS

| | | |
|---|---|---|
| SIZE (W X H X INSTALLED LENGTH) | 51.0" X 30.0" X 85.4" | (1295 mm X 762 mm X 2169 mm) |
| CHAMBER STORAGE | 45.9 CUBIC FEET | (1.30 m³) |
| MINIMUM INSTALLED STORAGE* | 74.9 CUBIC FEET | (2.12 m³) |
| WEIGHT | 75.0 lbs. | (33.6 kg) |

*ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS




STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

| PART # | STUB | A | B | C |
|---|---|---|---|---|
| SC740EPE06T | 6" (150 mm) | 10.9" (277 mm) | 18.5" (470 mm) | --- |
| SC740EPE06B | | | --- | 0.5" (13 mm) |
| SC740EPE08T | 8" (200 mm) | 12.2" (310 mm) | 16.5" (419 mm) | --- |
| SC740EPE08B | | | --- | 0.6" (15 mm) |
| SC740EPE10T | 10" (250 mm) | 13.4" (340 mm) | 14.5" (368 mm) | --- |
| SC740EPE10B | | | --- | 0.7" (18 mm) |
| SC740EPE12T | 12" (300 mm) | 14.7" (373 mm) | 12.5" (318 mm) | --- |
| SC740EPE12B | | | --- | 1.2" (30 mm) |
| SC740EPE15T | 15" (375 mm) | 18.4" (467 mm) | 9.0" (229 mm) | --- |
| SC740EPE15B | | | --- | 1.3" (33 mm) |
| SC740EPE18T | 18" (450 mm) | 19.7" (500 mm) | 5.0" (127 mm) | --- |
| SC740EPE18B | | | --- | 1.6" (41 mm) |
| SC740EPE24B* | 24" (600 mm) | 18.5" (470 mm) | --- | 0.1" (3 mm) |

ALL STUBS, EXCEPT FOR THE SC740EPE24B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

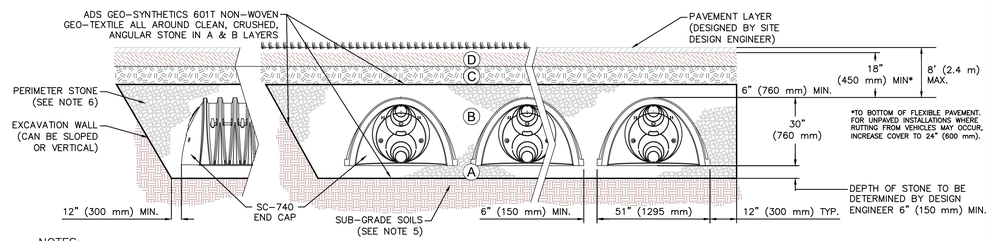
* FOR THE SC740EPE24B THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

**SC-740 TECHNICAL SPECIFICATION** (3)
NOT TO SCALE

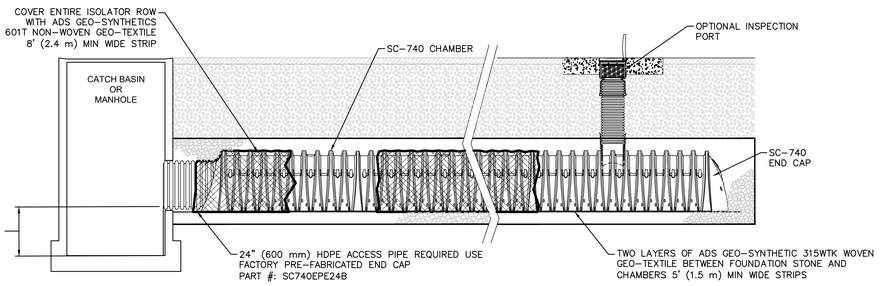
| MATERIAL LOCATION | | DESCRIPTION | AASHTO MATERIAL CLASSIFICATIONS | COMPACTION / DENSITY REQUIREMENT |
|---|---|---|---|---|
| D | **FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUB-BASE MAY BE PART OF THE 'D' LAYER | ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUB-GRADE REQUIREMENTS. | N/A | PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS. |
| C | **INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUB-BASE MAY BE A PART OF THE 'C' LAYER. | GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE.<br>MOST PAVEMENT SUB-BASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER. | AASHTO M145¹ A-1, A-2-4, A-3<br>OR<br>AASHTO M43¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10 | BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN). |
| B | **EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE. | CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm) | AASHTO M43¹ 3, 357, 4, 467, 5, 56, 57 | NO COMPACTION REQUIRED. |
| A | **FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUB-GRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER. | CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm) | AASHTO M43¹ 3, 357, 4, 467, 5, 56, 57 | PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ² ³ |

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.




NOTES:
1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
5. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUB-GRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
7. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUB-BASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

**ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS** (2)
NOT TO SCALE




INSPECTION & MAINTENANCE

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

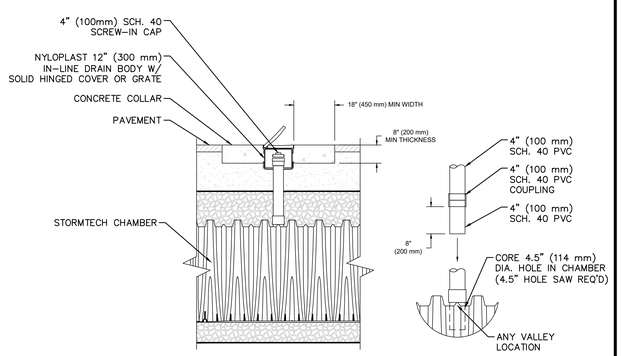
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

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

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

NOTES

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




NOTES:
1. INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY
2. ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED.

CONNECTION DETAIL
NTS

**SC-740 ISOLATOR ROW DETAIL** (1)
NOT TO SCALE


CUBE3
architecture | interiors | planning
370 Merrimack St., Suite 337 Lawrence MA 01843
phone: 978.989.9900 www.cube3.com


project information
Arbella at Ashland
MBTA Access Road
Ashland, MA 01721

client information
U A Senior Manager LLC
Rensselaer Technology Park
300 Jordan Road
Troy,NY 12180

consultant information

issuance
PERMIT / GMP Coordination Set
NOT FOR CONSTRUCTION

key plan

drawing information

| | |
|---|---|
| drawing by: | SL |
| drawing checked by: | AD |
| drawing scale: | AS SHOWN |
| drawing date: | 04 SEPTEMBER 2020 |
| project number: | 19021.00 |

drawing revisions:

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

registration
DRAFT

drawing name:
DETAILS

drawing number
C-505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phone: 978.989.9900 www.cube3.com

## STORMWATER CHAMBER SPECIFICATIONS

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2. CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL MEET ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
   b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET, THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
   c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310/SC-740 SYSTEM

1. STORMTECH SC-310 & SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/SC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.

STORMTECH RECOMMENDS 3 BACKFILL METHODS:
- STONESHOOTER LOCATED OFF THE CHAMBER BED.
- BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUB-GRADE.
- BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.

4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
- NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
- NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".

3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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**GENERAL NOTES** 4
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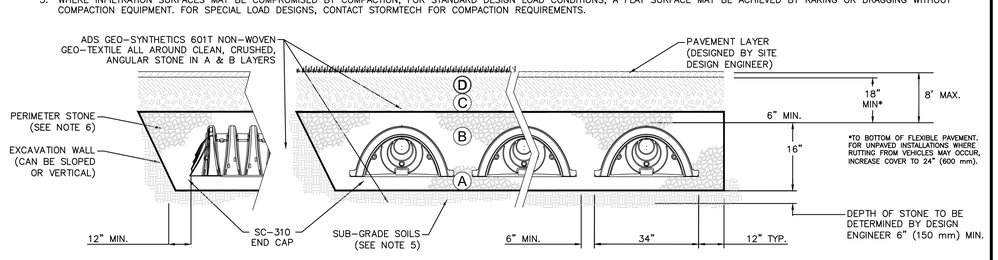
| | MATERIAL LOCATION | DESCRIPTION | AASHTO MATERIAL CLASSIFICATIONS | COMPACTION / DENSITY REQUIREMENT |
|---|---|---|---|---|
| D | **FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUB-BASE MAY BE PART OF THE 'D' LAYER | ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUB-GRADE REQUIREMENTS. | N/A | PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS. |
| C | **INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUB-BASE MAY BE A PART OF THE 'C' LAYER. | GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE.<br>MOST PAVEMENT SUB-BASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER. | AASHTO M145[1]<br>A-1, A-2-4, A-3<br>OR<br>AASHTO M43[1]<br>3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10 | BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN). |
| B | **EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE. | CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm) | AASHTO M43[1]<br>3, 357, 4, 467, 5, 56, 57 | NO COMPACTION REQUIRED. |
| A | **FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUB-GRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER. | CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm) | AASHTO M43[1]<br>3, 357, 4, 467, 5, 56, 57 | PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2] [3] |

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.




NOTES:
1. SC-310 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
5. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUB-GRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
7. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUB-BASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

**ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS** 3
NOT TO SCALE

## PROPOSED LAYOUT

(48) STORMTECH SC-310 CHAMBERS
(4) STORMTECH SC-310 END CAPS
INSTALLED WITH 6" COVER STONE.
6" BASE STONE, 40% STONE VOID
AREA OF SYSTEM: 1,412 FT²
PERIMETER OF SYSTEM: 362 FT

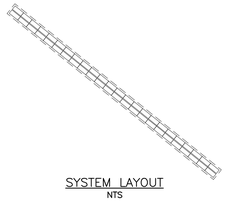
## PROPOSED UIS#2 ELEVATIONS

TOP OF STONE:365.58

TOP OF CHAMBERS:365.08

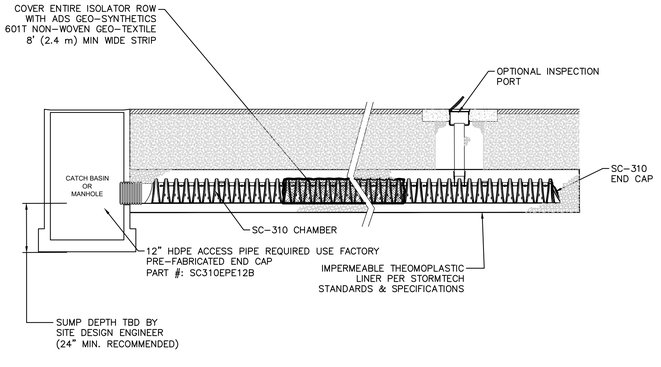
BOTTOM OF CHAMBERS:363.75

BOTTOM OF STONE:363.25

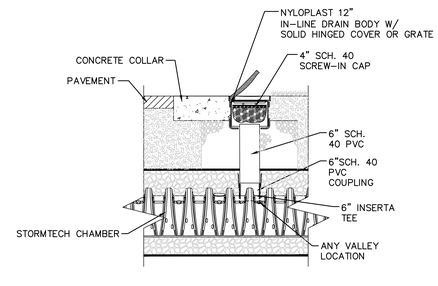


SYSTEM LAYOUT
NTS

**STORMTECH SC-310 CHAMBERS** 2
NOT TO SCALE




**STORMTECH ISOLATOR ROW*** 1
NOT TO SCALE




NOTES:
1. INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY
2. ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED.

CONNECTION DETAIL
NTS

**INSPECTION PORT DETAIL**

project information
Arbella at Ashland
MBTA Access Road
Ashland, MA 01721

client information
U A Senior Manager LLC
Rensselaer Technology Park
300 Jordan Road
Troy,NY 12180

consultant information

issuance
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key plan

drawing information
drawing by: SL
drawing checked by: AD
drawing scale: AS SHOWN
drawing date: 04 SEPTEMBER 2020
project number: 19021.00
drawing revisions:

| No. | Description | Date |
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registration
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DETAILS

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C-506

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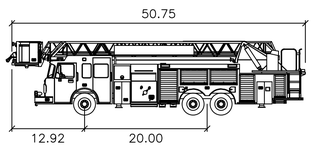
drawing name:
VEHICLE MOVEMENT PLAN

drawing number:
C-601

BUILDING 8
(7 GARAGE BAYS+1MAINTENANCE BAY)
BUILDING 9
(12 GARAGE BAYS)
BUILDING 10
(12 GARAGE BAYS)
BUILDING 11
(12 GARAGE BAYS + 1 BOOSTER PUMP BAY)
BUILDING 1
4/5 STORY
76 UNITS
BUILDING 2
4/5 STORY
80 UNITS
BUILDING 3
(CLUB HOUSE)
BUILDING 4
(6 UNITS)
BUILDING 5
(6 UNITS)
BUILDING 6
(6 UNITS)
BUILDING 7
(6 UNITS)
COMMUNITY GARDEN
25' SIDEYARD SETBACK
30' REARYARD SETBACK
LOADING/ SERVICE
LOADING/SERVICE
SIGN
STOP
BOCCE
BOCCE
PICKLE BALL
Dog Park
30.0'
RTD-AR
RTD-A
ONE
ONE




feet

| | |
|---|---|
| Width | : 8.33 |
| Track | : 6.79 |
| Lock to Lock Time | : 6.0 |
| Steering Angle | : 44.2 |

GRAPHIC SCALE
30 0 15 30 60 120
( IN FEET )
1 inch = 30 ft.

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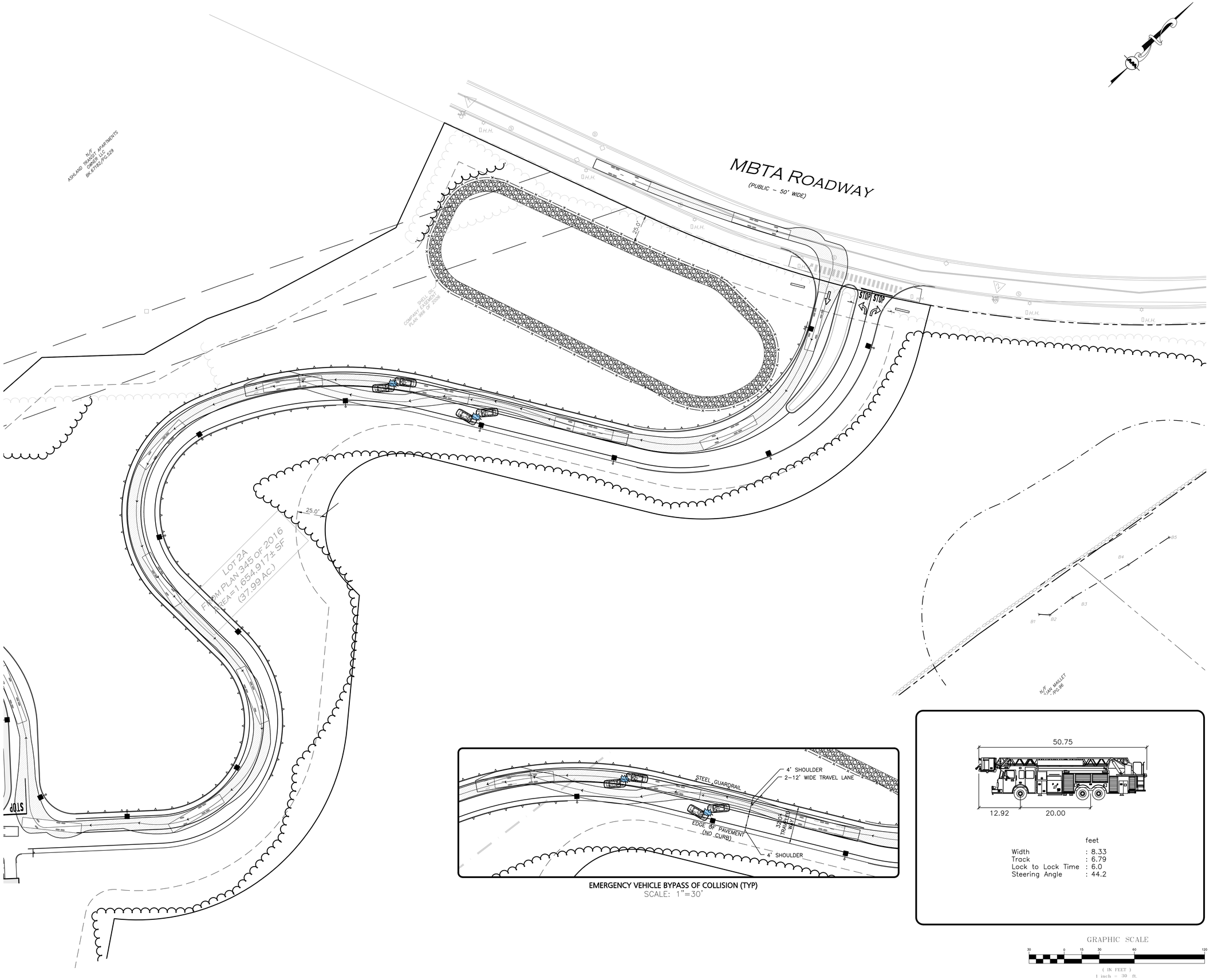





EMERGENCY VEHICLE BYPASS OF COLLISION (TYP)
SCALE: 1"=30'




| feet | |
|---|---|
| Width | : 8.33 |
| Track | : 6.79 |
| Lock to Lock Time | : 6.0 |
| Steering Angle | : 44.2 |

GRAPHIC SCALE
30 0 15 30 60 120
( IN FEET )
1 inch = 30 ft.

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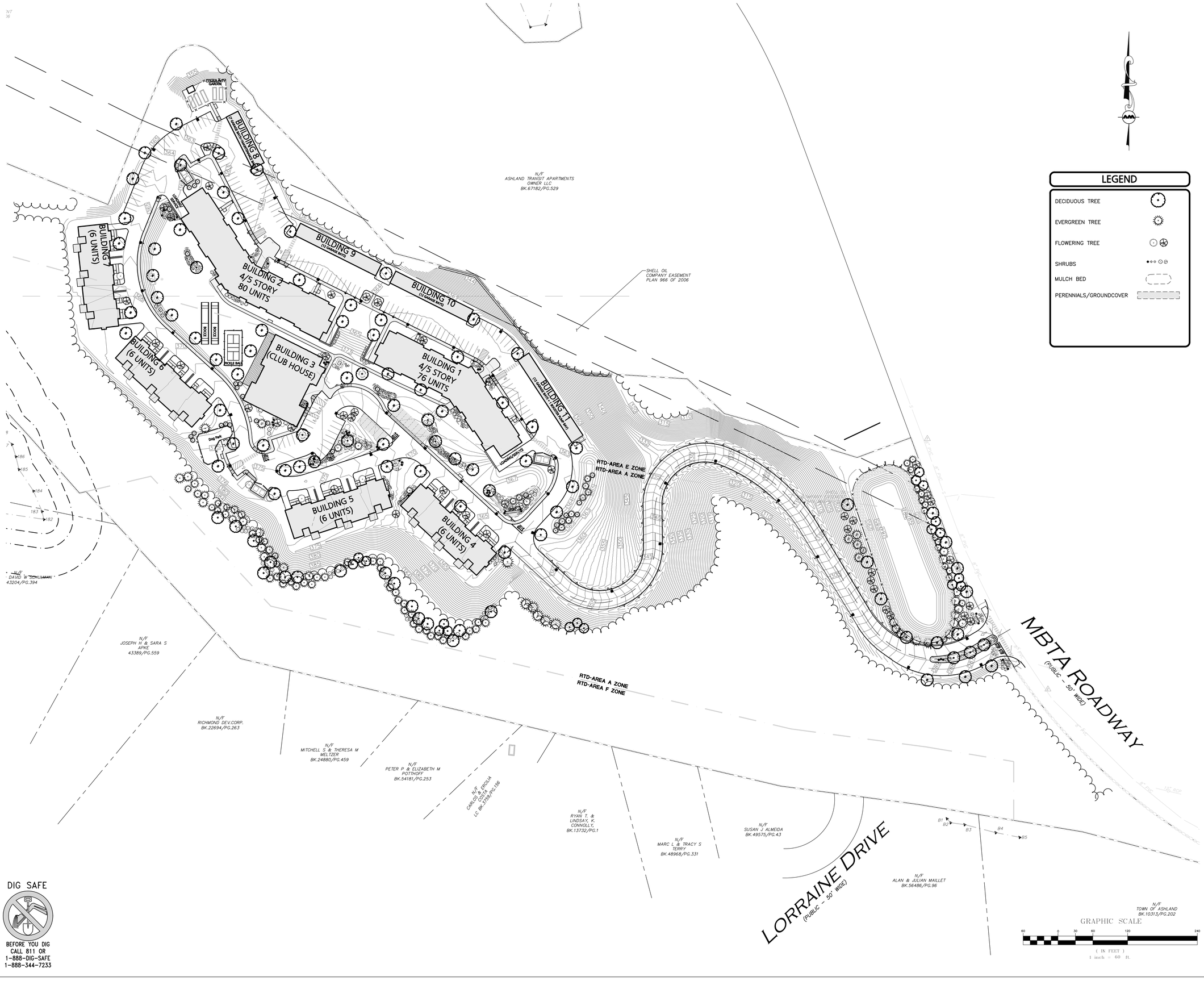


## LEGEND

- DECIDUOUS TREE
- EVERGREEN TREE
- FLOWERING TREE
- SHRUBS
- MULCH BED
- PERENNIALS/GROUNDCOVER

GRAPHIC SCALE

60 0 30 60 120 240

( IN FEET )

1 inch = 60 ft.

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OVERALL LANDSCAPE PLAN

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| project number: | 19021.00 |

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registration:
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drawing name:
LANDSCAPE PLAN

drawing number:
L-102

BUILDING 8
(7 GARAGE BAYS+1MAINTENANCE BAY)
BUILDING 9
(12 GARAGE BAYS)
BUILDING 10
(12 GARAGE BAYS)
BUILDING 11
(12 GARAGE BAYS + 1 BOOSTER PUMP BAY)
BUILDING 1
4/5 STORY
76 UNITS
BUILDING 2
4/5 STORY
80 UNITS
BUILDING 3
(CLUB HOUSE)
BUILDING 4
(6 UNITS)
BUILDING 5
(6 UNITS)
BUILDING 6
(6 UNITS)
BUILDING 7
(6 UNITS)
COMMUNITY GARDEN
LOADING/ SERVICE
LOADING/ SERVICE
BOCCE
BOCCE
PICKLE BALL
Dog Park
STOP
STOP
STOP
SIGN
RTD-AR
RTD-A
ONE
ZONE

DIG SAFE
BEFORE YOU DIG
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GRAPHIC SCALE
30 0 15 30 60 120
( IN FEET )
1 inch = 30 ft.

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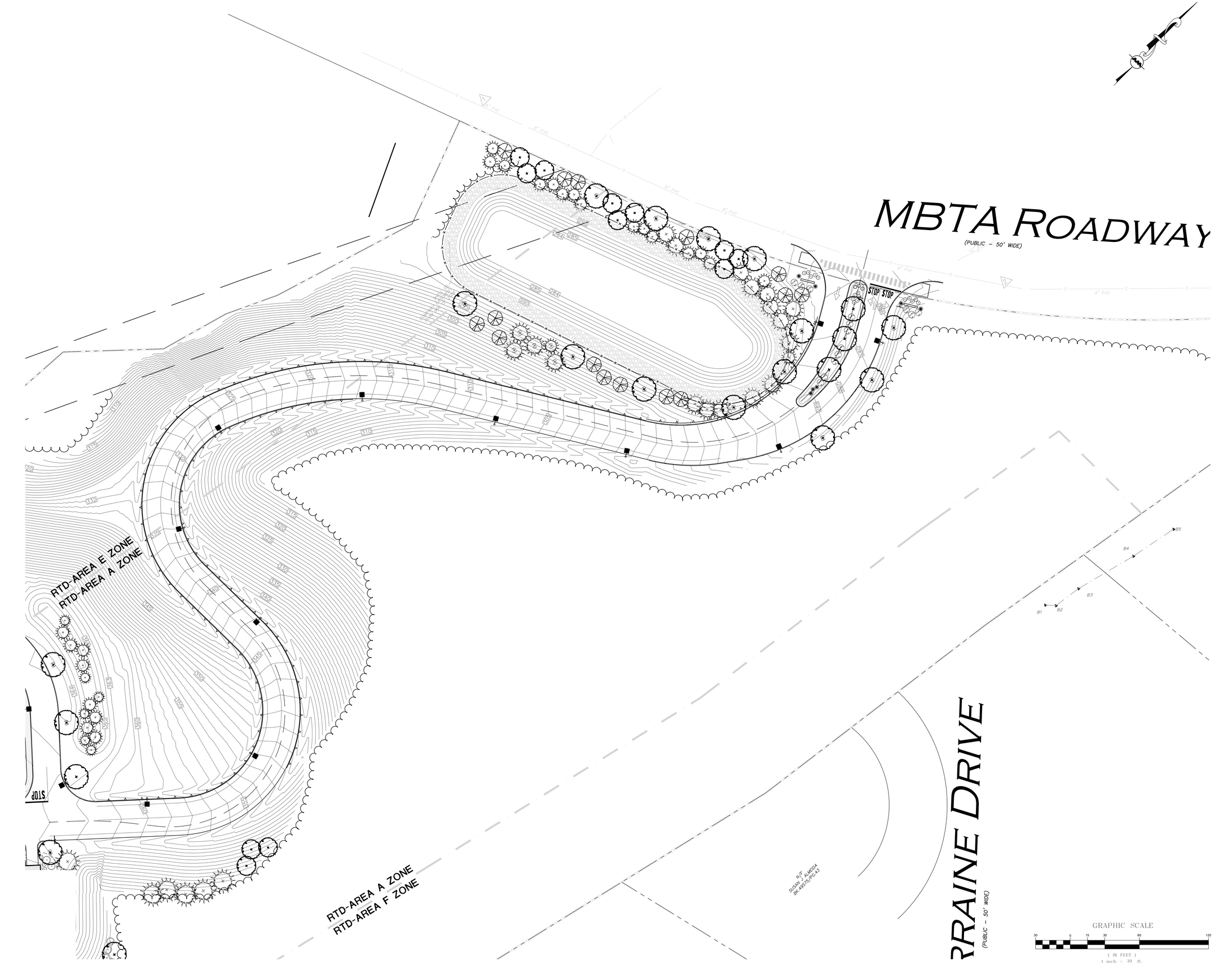


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drawing name:
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PLAN

drawing number:
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