

PROPOSED SITE PLAN DOCUMENTS

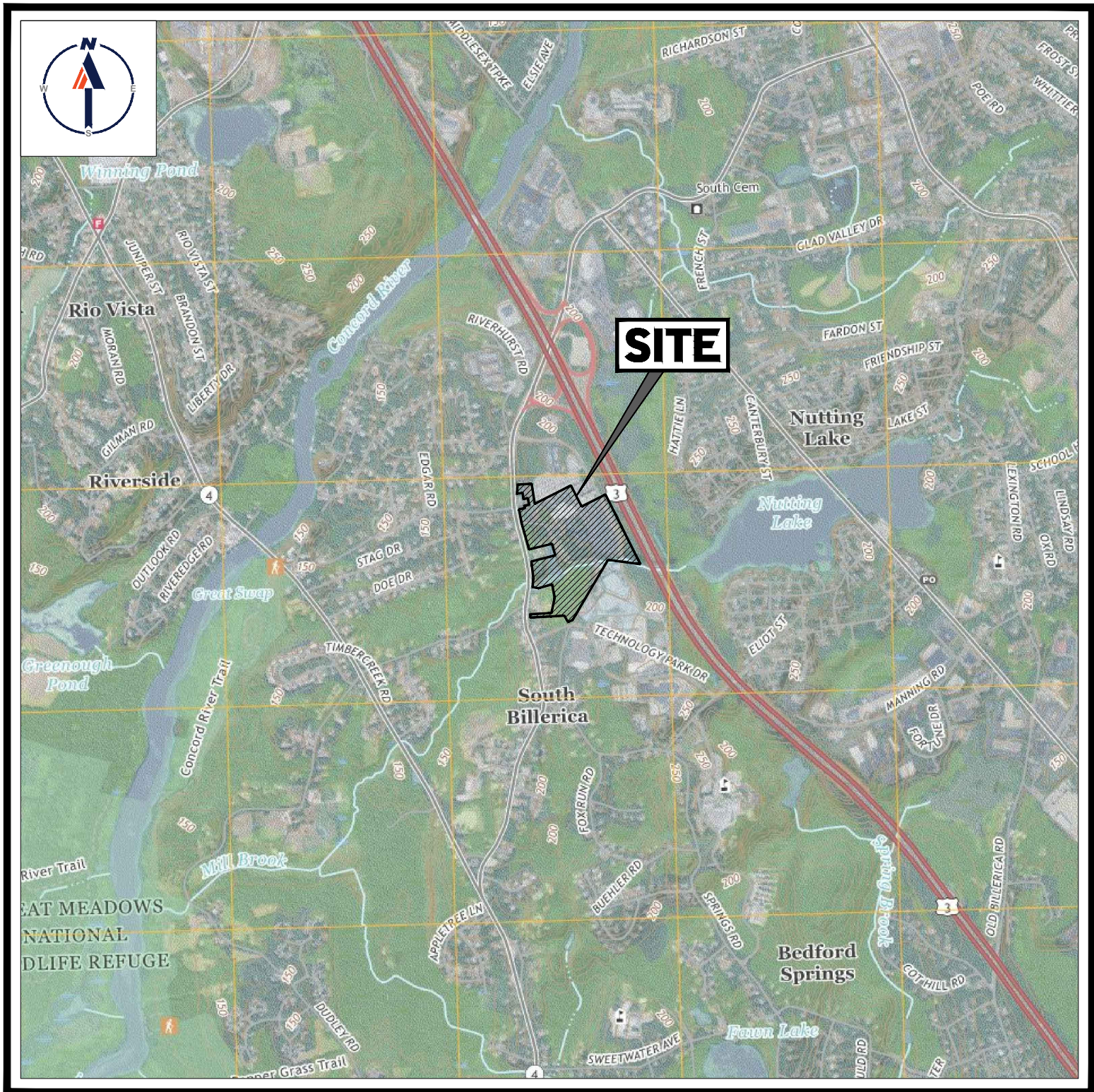
FOR

KS Partners owned & managed

PROPOSED

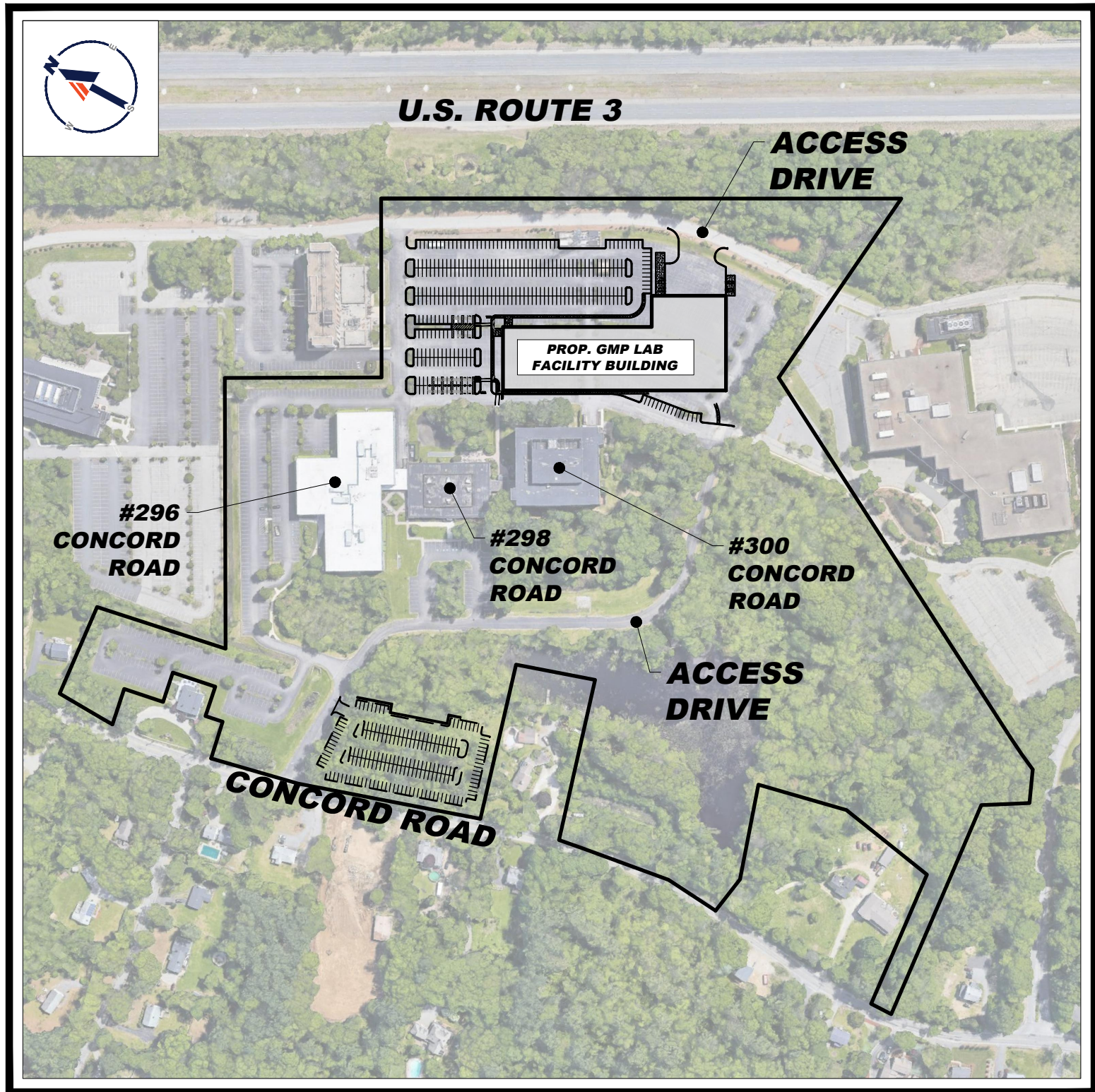
GMP LAB FACILITY

LOCATION OF SITE:
300 CONCORD ROAD
TOWN OF BILLERICA
MIDDLESEX COUNTY, MASSACHUSETTS
MAP 86, BLOCK 108, LOT 5



USGS MAP

SCALE: 1" = 2,000'
SOURCE: USGS BILLERICA, MA QUADRANGLE



SITE MAP

SCALE: 1" = 300'
SOURCE: GOOGLE EARTH

DRAWING SHEET INDEX

| SHEET TITLE | SHEET NUMBER |
|--|--------------|
| COVER SHEET | C-101 |
| GENERAL NOTES SHEET | C-102 |
| OVERALL SITE LAYOUT PLAN | C-301 |
| SITE LAYOUT PLAN | C-302 |
| GRADING AND DRAINAGE PLAN | C-401 |
| UTILITY PLAN | C-501 |
| SOIL EROSION AND SEDIMENT CONTROL PLAN | C-601 |
| EROSION AND SEDIMENT CONTROL NOTES AND DETAILS | C-602 |
| LANDSCAPE PLAN | L-101 |
| LIGHTING PLAN | L-201 |
| LANDSCAPE NOTES & DETAILS | L-301 |
| DETAIL SHEET | C-901 |
| DETAIL SHEET | C-902 |
| BOUNDARY, PARTIAL TOPOGRAPHIC & UTILITY SURVEY (BY OTHERS) | 1-4 OF 4 |

PREPARED BY

BOHLER //

| REVISIONS | | | |
|-----------|----------|-----------------------|----------|
| REV | DATE | COMMENT | DRAWN BY |
| 0 | 05/14/21 | INITIAL SUBMISSION | JW |
| 1 | 09/28/21 | PEER REVIEW RESPONSES | ZLR |

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

PERMIT SET

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PROJECT No.: M211009
DRAWN BY: JW
CHECKED BY: ZLR
DATE: 09/28/2021
CAD I.D.: M211009-DTL

SITE DEVELOPMENT PLANS

FOR

KS Partners (municipal engineering)

PROPOSED
GMP LAB FACILITY
MAP 86, BLOCK 108, LOT 5
300 CONCORD ROAD
TOWN OF BILLERICA
MIDDLESEX COUNTY,
MASSACHUSETTS

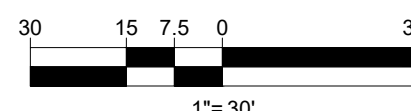
BOHLER //
45 FRANKLIN STREET, 5th FLOOR
BOSTON, MA 02110
Phone: (617) 849-8040
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SHEET TITLE:
COVER SHEET

SHEET NUMBER:
C-101

REVISION 1 - 09/28/2021



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SITE CIVIL AND CONSULTING ENGINEERING

LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

| REVISIONS | | | |
|------------------|----------|--------------------------|------------------|
| REV | DATE | COMMENT | DRAWN CHECKED |
| 0 | 05/14/21 | INITIAL SUBMISSION | JW ZLR |
| 1 | 09/28/21 | PEER REVIEW RESPONSES | JW ZLR |



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PROJECT No.: M211009-CA
DRAWN BY: JN
CHECKED BY: ZL
DATE: 09/28/2021
CAD I.D.: M211009-CA

PROJECT

SITE DEVELOPMENT PLANS

_____ FOR _____

KS Partners owned & managed

**PROPOSED
GMP LAB FACILITY**
**MAP 86, BLOCK 108, LOT 10
300 CONCORD ROAD
TOWN OF BILLERICA
MIDDLESEX COUNTY
MASSACHUSETTS**

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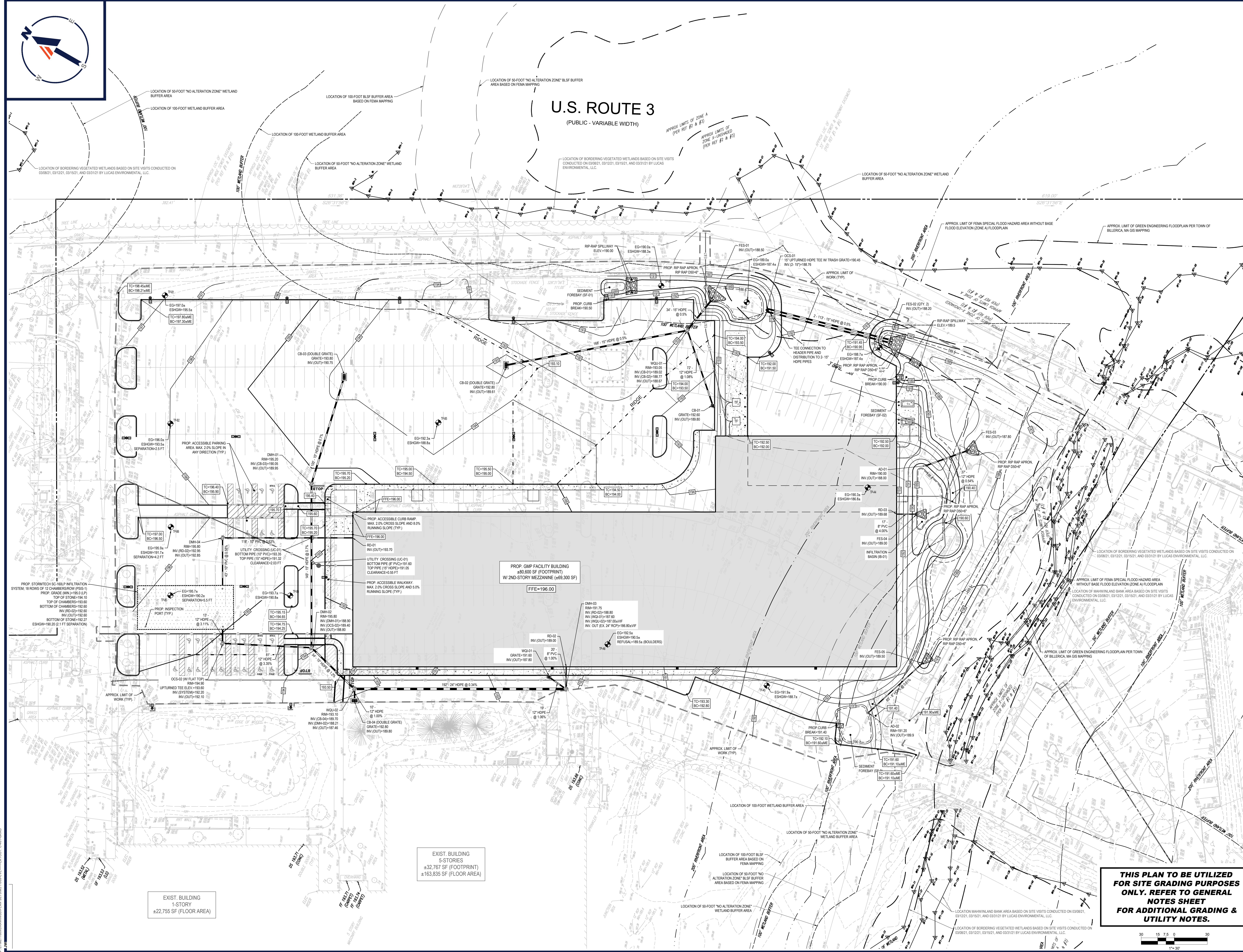
SHEET TITLE:

SITE LAYOUT PLAN

SHEET NUMBER:

C-302

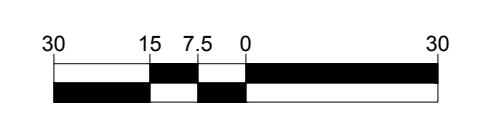
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EXIST. BUILDING
1-STORY
±22,755 SF (FLOOR AREA)

EXIST. BUILDING
5-STORIES
±32,767 SF (FOOTPRINT)
±163,835 SF (FLOOR AREA)

**THIS PLAN TO BE UTILIZED
FOR SITE GRADING PURPOSES
ONLY. REFER TO GENERAL
NOTES SHEET
FOR ADDITIONAL GRADING &
UTILITY NOTES.**



| REVISIONS | | | |
|-----------|----------|-----------------------|----------|
| REV | DATE | COMMENT | DRAWN BY |
| 0 | 05/14/21 | INITIAL SUBMISSION | JLW |
| 1 | 09/28/21 | PEER REVIEW RESPONSES | JLW |

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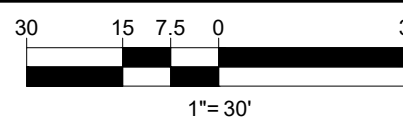
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PROJECT NO.: M211009
DRAWN BY: JLV
CHECKED BY: ZLR
DATE: 09/28/2021
CAD I.D.: M211009-CVL

SITE DEVELOPMENT PLANS
FOR
KSPartners
PROPOSED
GMP LAB FACILITY
MAP 86, BLOCK 108, LOT 5
300 CONCORD ROAD
TOWN OF BILLERICA
MIDDLESEX COUNTY,
MASSACHUSETTS

BOHLER
45 FRANKLIN STREET, 5th FLOOR
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SHEET TITLE:
**GRADING
AND
DRAINAGE
PLAN**
SHEET NUMBER:
C-401
REVISION 1 - 09/28/2021



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SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

| REVISIONS | | | |
|------------------|----------|--------------------------|----------|
| REV | DATE | COMMENT | DR CH |
| 0 | 05/14/21 | INITIAL SUBMISSION | J Z |
| 1 | 09/28/21 | PEER REVIEW RESPONSES | J Z |



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PROJECT No.: M21
DRAWN BY:
CHECKED BY:
DATE: 09/28/
CAD I.D.: M211009

PROJECT

SITE DEVELOPMENT PLANS

_____ FOR



**PROPOSED
GMP LAB FACILITY**

**MAP 86, BLOCK 108, LOT 5
300 CONCORD ROAD
TOWN OF BILLERICA
MIDDLESEX COUNTY,
MASSACHUSETTS**

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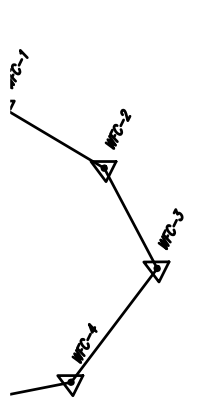
SHEET TITLE:

UTILITY PLAN

SHEET NUMBER:

C-501

REVISION 1 - 09/28/2021



APPROX LIMITS OF ZONE A
(PER REF #2 & #3)

APPROX LIMITS OF
ZONE X-UNSHADED
(PER REF #2 & #3)

PROP. STABILIZED
CONSTRUCTION
ENTRANCE (MIN. 24x50)

TEMP. SOIL STOCKPILE AREA
SURROUNDED BY HAYBALES OR
COMPOST FILTER SOCK AND SILT
FENCE TO SERVE AS A SILTATION
BARRIER AND/OR CONSTRUCTION
MATERIAL LAYDOWN AREA (TYPE

| | |
|------|------|
| 50.0 | 24.0 |
|------|------|

WATER SOCK CONTROL

PROP. INLET
PROTECTION (TYP.)

PROP. COMPOST FILTER
SOCK SEDIMENT
CONTROL BARRIER (TYP.)

PROTECTION (TYP.)

PROP. SILT FENCE SEDIMENT
CONTROL BARRIER (TYP.)

PROP. SILT FENCE SEDIMENT
CONTROL BARRIER (TYP.)

W/POST FILTER SOCK
AND SILT FENCE
TRANSITION POINT

APPROX. LIMIT OF
WORK (TYP.)

REFER TO SOIL EROSION CONTROL NOTES & DETAIL SHEET FOR EROSION NOTES AND DETAILS

**DAY ONE CONDITIONS SHOWN.
CONTRACTOR RESPONSIBLE FOR
ADJUSTMENTS AND MEANS &
METHODS THROUGHOUT TO
ENSURE PROPER SOIL EROSION &
SEDIMENT CONTROL.**

| REVISIONS | | | |
|------------------|----------|--------------------------|------------------|
| REV | DATE | COMMENT | DRAWN CHECKED |
| 0 | 05/14/21 | INITIAL SUBMISSION | JW ZLR |
| 1 | 09/28/21 | PEER REVIEW RESPONSES | JW ZLR |
| | | | |

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DOCUMENT UNLESS INDICATED OTHERWISE.

| | |
|--------------|------------|
| PROJECT No.: | M211009 |
| DRAWN BY: | JUL |
| CHECKED BY: | ZL |
| DATE: | 09/28/2021 |
| CAD I.D.: | M211009-CV |

PROJECT:

SITE DEVELOPMENT PLANS

_____ FOR _____

KS Partners owned & managed

**PROPOSED
GMP LAB FACILITY
MAP 86, BLOCK 108, LOT 5
300 CONCORD ROAD
TOWN OF BILLERICA
MIDDLESEX COUNTY,
MASSACHUSETTS**

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SHEET TITLE:

SOIL EROSION AND SEDIMENT CONTROL PLAN

SHEET NUMBER: _____

C-601

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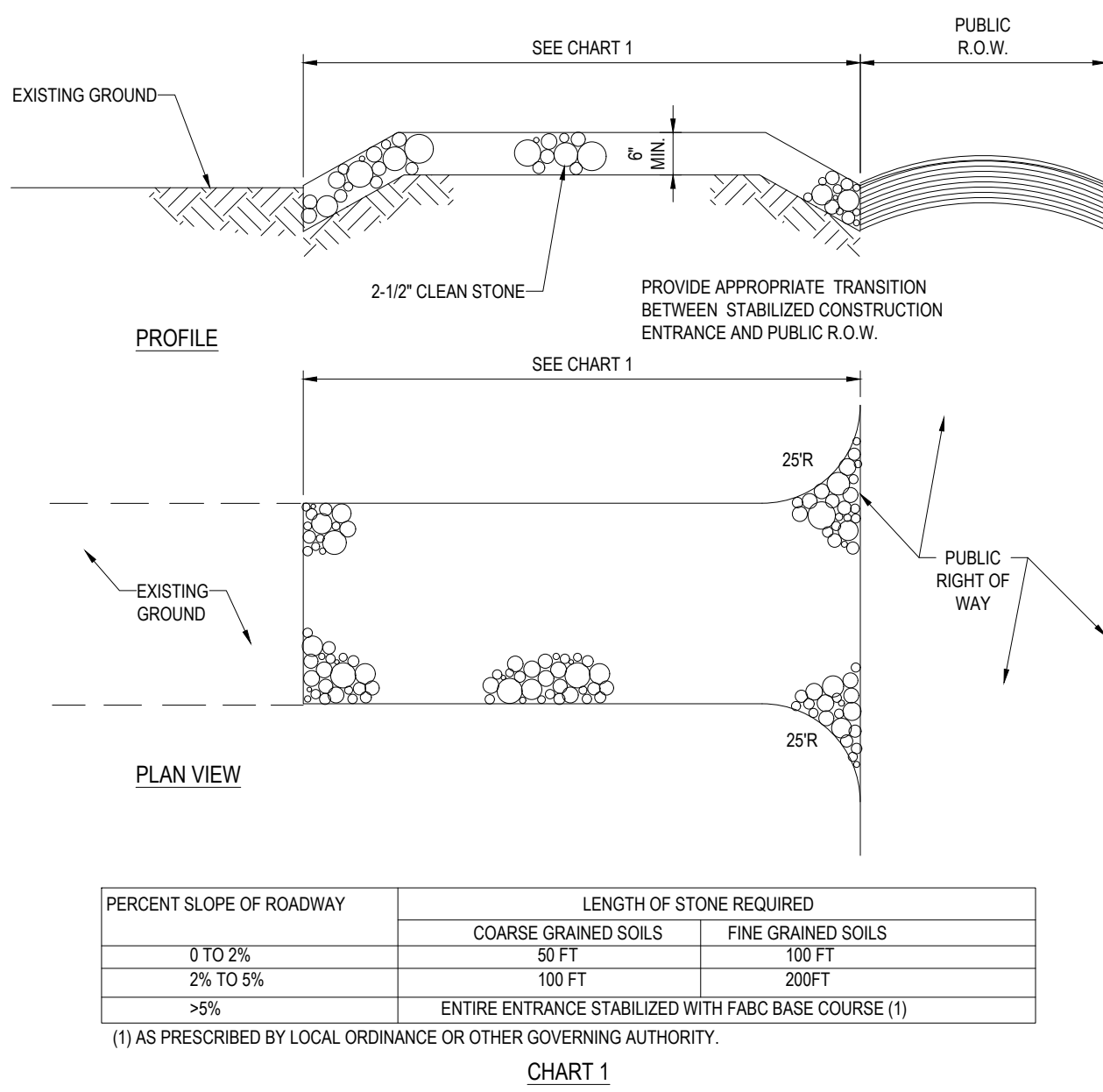
...:21M211008DRAWINGS:PLAN SET\$M211009-CVL----->LAYOUT-C-601-EROS

EROSION AND SEDIMENT CONTROL NOTES

- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE AS SET FORTH IN THE MOST CURRENT STATE SEDIMENT AND EROSION CONTROL MANUAL.
 - THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 100 FEET OF A STREAM OR POND, THE AREA SHALL BE STABILIZED WITHIN 7 DAYS OR PRIOR TO ANY STORM EVENT (THIS WOULD INCLUDE WETLANDS).
 - SEDIMENT BARRIERS (SILT FENCE, STRAW BARRIERS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
 - INSTALL SILTATION BARRIER AT TOE OF SLOPE TO FILTER SILT FROM RUNOFF. SEE SILTATION BARRIER DETAILS FOR PROPER INSTALLATION. SILTATION BARRIER WILL REMAIN IN PLACE PER NOTE #5.
 - ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY TURF.
 - NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO TO ONE (2:1).
 - IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST, USE TEMPORARY MULCH (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
 - TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TO PROTECT FROM SPRING RUNOFF PROBLEMS.
 - DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS.
 - REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND PREPARED FOR FINAL SEEDING AS FOLLOWS:
 - SIX INCHES OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
 - APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 LB PER ACRE OR 18.4 LB PER 1,000 SF USING 10-20-20 OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SF).
 - FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEED TO A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEED TO A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUE GRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYEGRASS. SEEDING RATE IS 1.03 LBS PER 1,000 SF LAWN QUALITY SOY MAY BE SUBSTITUTED FOR SEED.
 - STRAW MULCH AT THE RATE OF 70-90 LBS PER 1,000 SF. A HYDRO-APPLICATION OF WOOD OR PAPER FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SUCH AS CURASOL OR RMB PLUS WILL BE USED ON STRAW MULCH FOR WIND CONTROL.
 - ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.
 - WETLANDS WILL BE PROTECTED W/ STRAW, COMPOST, AND/OR SILT FENCE BARRIERS INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
 - ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL HAVE AN EXPOSURE WINDOW OF NOT MORE THAN 7 DAYS.
 - ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IF NOT BEING ACTIVELY WORKED.
- MULCH
- | LOCATION | MULCH | RATE (1000 SF) |
|--|---|------------------------------|
| PROTECT AREA | STRAW | 100 POUNDS |
| WINDY AREA | SHREDDED OR CHOPPED CORNSTALKS STRAW (ANCHORED)* | 185-275 POUNDS 100 POUNDS |
| MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES GREATER THAN 3:1 | JUTE MESH OR EXCELSIOR MAT | AS REQUIRED |
- * A HYDRO-APPLICATION OF WOOD, OR PAPER FIBER MAY BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SUCH AS CURASOL OR RMB PLUS SHALL BE USED ON STRAW MULCH FOR WIND CONTROL.
- MULCH ANCHORING
- ANCHOR MULCH WITH PEG AND TWINE (1 SO, YDIBLOCK). MULCH NETTING (AS PER MANUFACTURER); WOOD CELLULOSE FIBER (750 LBS/ACRE), CHEMICAL TACK AS PER MANUFACTURERS SPECIFICATIONS). USE OF A SERRATED STRAIGHT DISK, WETTING FOR SMALL AREAS AND ROAD DITCHES MAY BE PERMITTED.

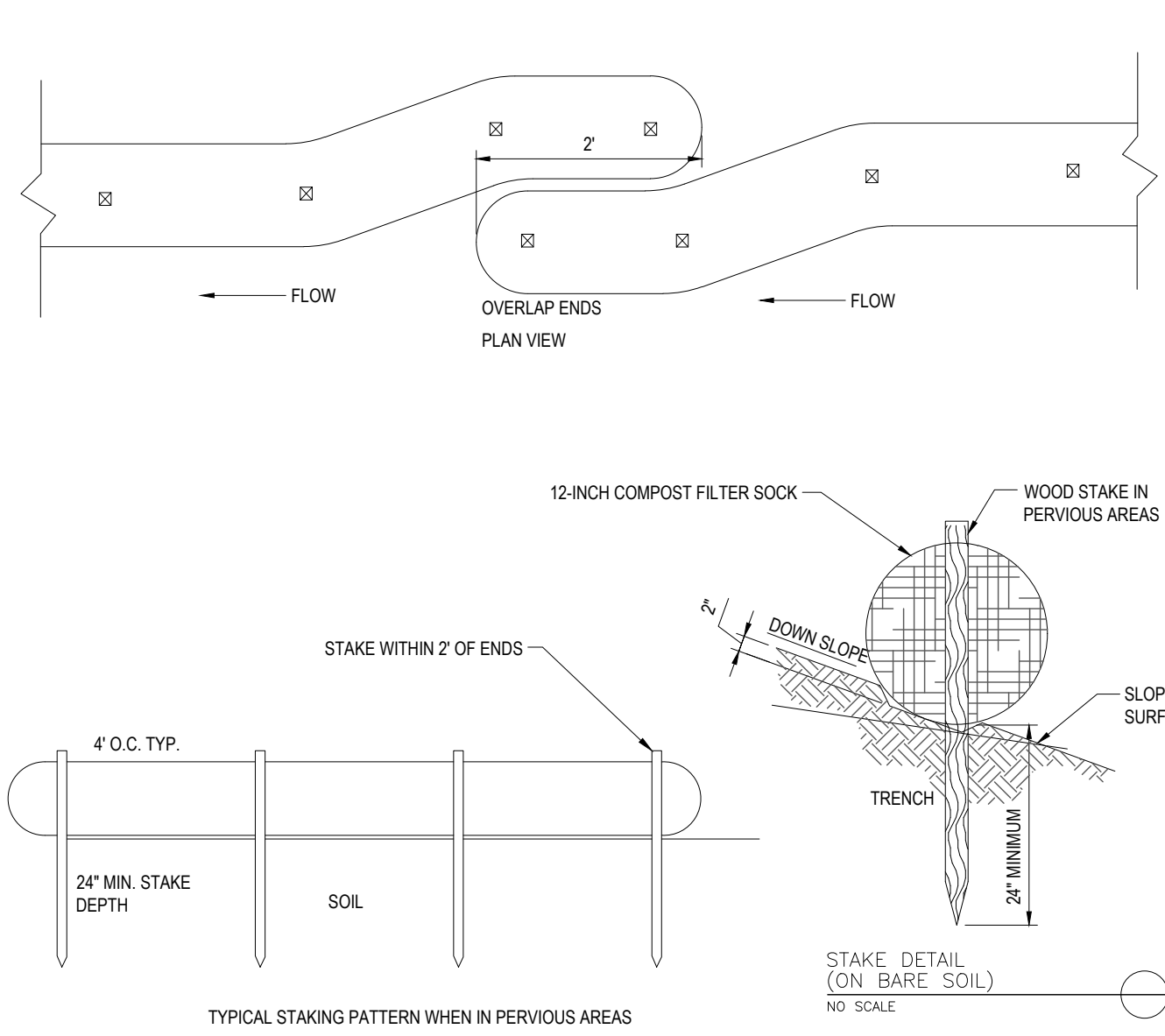
EROSION CONTROL NOTES DURING WINTER CONSTRUCTION

- WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15.
- WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
- EXPOSED AREA SHOULD BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.
- CONTINUATION OF EARTHWORK OPERATION ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
- AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR STRAW AT A RATE OF 100 LB PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE.
- BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED, DURING PERIODS OF ABOVE FREEZING TEMPERATURES THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 200 - 300% HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE CONTINUOUSLY GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT UNEXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF STRAW OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
- MULCHING REQUIREMENTS:
 - BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING OR WOOD CELLULOSE FIBER.
 - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPE EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.
 - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
- AFTER NOVEMBER 1ST THE CONTRACTOR SHALL APPLY DORMANT SEEDING OR MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
- DURING THE WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.
- STOCKPILING OF MATERIALS (DIRT, WOOD, CONSTRUCTION MATERIALS, ETC.) MUST REMAIN COVERED AT ALL TIMES TO MINIMIZE ANY DUST PROBLEMS THAT MAY OCCUR WITH ADJACENT PROPERTIES AND TO PROVIDE MAXIMUM PROTECTION AGAINST EROSION RUNOFF.
- EXISTING CATCH BASIN STRUCTURES SHALL BE PROTECTED UNTIL SUCH TIME AS THEY ARE REMOVED.



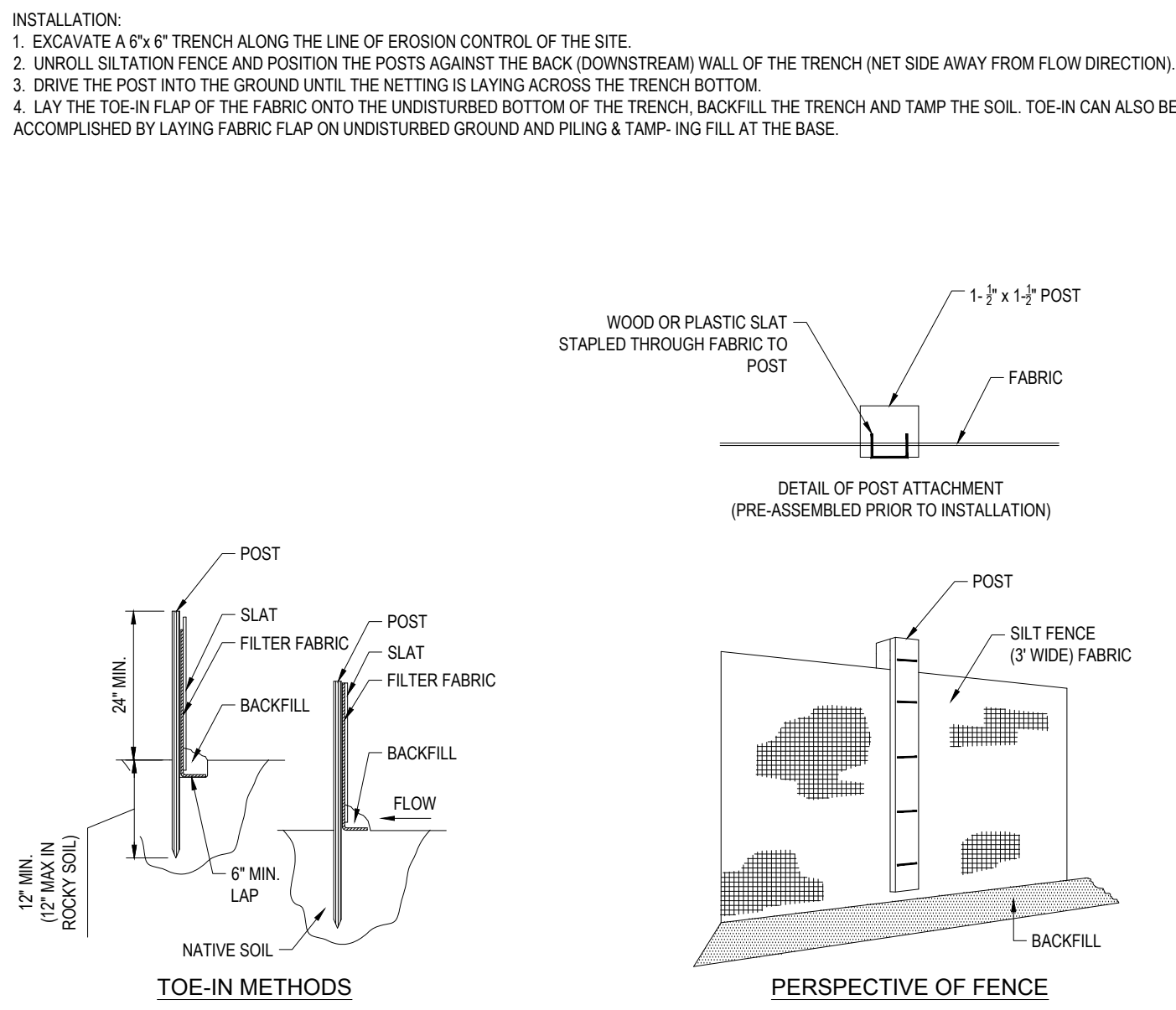
STABILIZED CONSTRUCTION ENTRANCE

N.T.S.



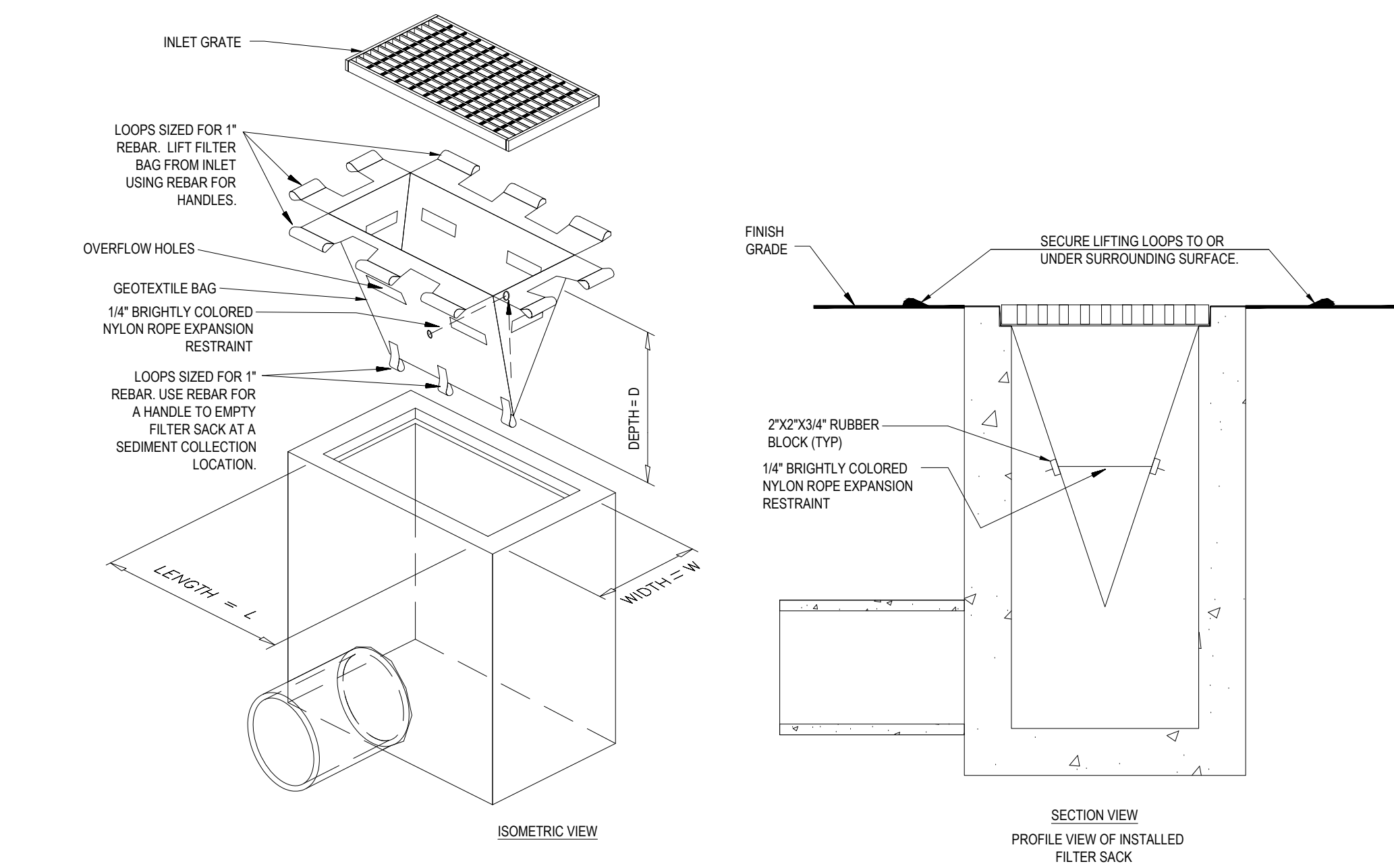
COMPOST FILTER SOCK

N.T.S.



TYPICAL SILTATION FENCE DETAIL

N.T.S.



FILTER SACKS (GRADED INLETS)

| LOW TO MODERATE FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE | | |
|--|-------------|------------------|
| PROPERTIES | TEST METHOD | UNITS |
| GRAB TENSILE STRENGTH | ASTM D-4632 | 300 LBS |
| GRAB TENSILE ELONGATION | ASTM D-4632 | 20% |
| PUNCTURE | ASTM D-4632 | 120 LBS |
| MULLEN BURST | ASTM D-3786 | 800 PSI |
| TRAPEZOID TEAR | ASTM D-4333 | 120 LBS |
| UV RESISTANCE | ASTM D-4355 | 80% |
| APPARENT OPENING SIZE | ASTM D-4751 | 40 US SIEVE |
| FLOW RATE | ASTM D-4461 | 40 GAL/MIN/SQ FT |
| PERMITTIVITY | ASTM D-4461 | 0.55 SEC -1 |

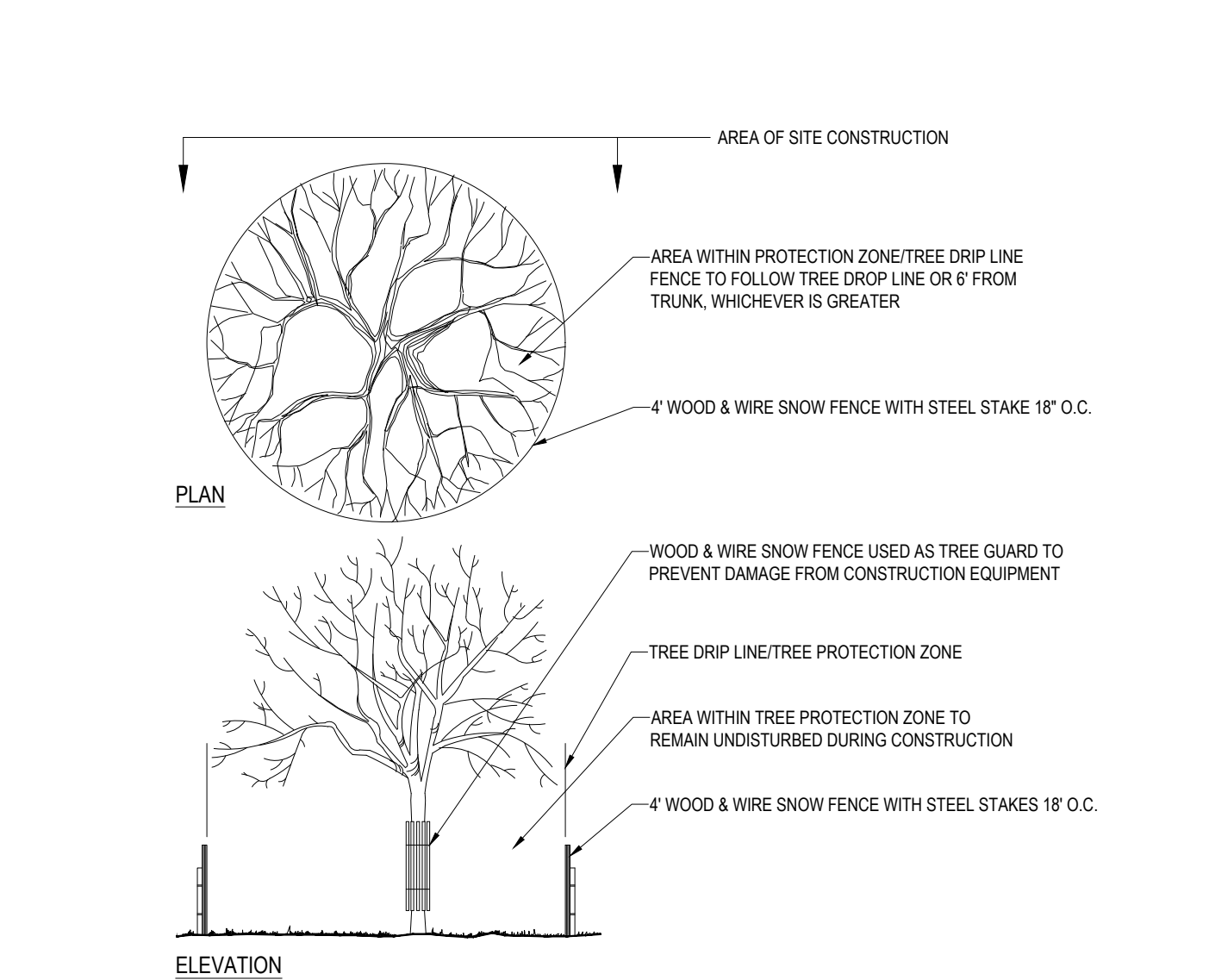
| MODERATE TO HIGH FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE | | |
|---|-------------|-------------------|
| PROPERTIES | TEST METHOD | UNITS |
| GRAB TENSILE STRENGTH | ASTM D-4632 | 265 LBS |
| GRAB TENSILE ELONGATION | ASTM D-4632 | 20% |
| PUNCTURE | ASTM D-4632 | 135 LBS |
| MULLEN BURST | ASTM D-3786 | 420 PSI |
| TRAPEZOID TEAR | ASTM D-4333 | 45 LBS |
| UV RESISTANCE | ASTM D-4355 | 90% |
| APPARENT OPENING SIZE | ASTM D-4751 | 20 US SIEVE |
| FLOW RATE | ASTM D-4461 | 200 GAL/MIN/SQ FT |
| PERMITTIVITY | ASTM D-4461 | 1.5 SEC -1 |

- REMOVE TRAPPED SEDIMENT WHEN BRIGHTLY COLORED EXPANSION RESTRAINT CAN NO LONGER BE SEEN
- GEOTEXTILE SHALL BE A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS REQUIREMENTS IN THE SPECIFICATIONS TABLE.
- PLACE AN OIL ABSORBENT PAD OR PILLOW OVER INLET GRATE WHEN OIL SPILLS ARE A CONCERN.
- INSPECT PER REGULATORY REQUIREMENTS.
- THE WIDTH "W" OF THE FILTER SACK SHALL MATCH THE INSIDE WIDTH OF THE GRATED INLET BOX.
- THE DEPTH "D" OF THE FILTER SACK SHALL BE BETWEEN 18 INCHES AND 36 INCHES.
- THE LENGTH "L" OF THE FILTER SACK SHALL MATCH THE INSIDE LENGTH OF THE GRATED INLET BOX.

DO NOT USE IN PAVED AREAS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

TO BE USED IN EXISTING RIGHT OF WAY

N.T.S.



TREE PROTECTION DURING SITE CONSTRUCTION

N.T.S.

THE FOLLOWING CONSTRUCTION SEQUENCE IS RECOMMENDED:

- INSTALLATION OF STABILIZED CONSTRUCTION ENTRANCE/EXIT (AS SHOWN)
- INSTALLATION OF EROSION CONTROL BARRIER (COMPOST FILTER SOCKS AND SILT FENCE) (AS SHOWN)
- INSTALLATION OF INLET PROTECTION ON-SITE (AS SHOWN)
- DEMOLITION OF EXISTING SITE STRUCTURES
- DEMOLITION OF EXISTING SITE PAVEMENT AND AMENITIES
- CLEARING AND GRUBBING
- EARTHWORK AND EXCAVATION/FILLING AS NECESSARY
- CONSTRUCTION OF UTILITIES & STORMWATER FEATURES (ABOVE GROUND STORMWATER FEATURES TO REMAIN 6" ABOVE FINISH GRADE)
- STABILIZE PERMANENT LAWN AREAS AND SLOPES WITH TEMPORARY SEEDING
- INSTALLATION OF INLET PROTECTION OF PROPOSED ON-SITE UTILITIES
- CONSTRUCTION OF BUILDINGS
- CONSTRUCTION OF ALL CURBING AND LANDSCAPE ISLANDS AS INDICATED ON THE PLANS
- PAVE PARKING LOT
- COMPLETE EXCAVATION OF ABOVE GROUND STORMWATER FEATURES TO FINISH GRADE (REMOVE & DISPOSE OF ACCUMULATED SEDIMENT)
- PLACE 6" TOPSOIL ON SLOPES AFTER FINAL GRADING COMPLETED. FERTILIZE, SEED, AND MULCH SEED MIXTURE TO BE INSTALLED AS REQUIRED.
- LANDSCAPING AND LIGHTING PER LANDSCAPING AND LIGHTING PLANS
- REMOVE EROSION CONTROLS AS DISTURBED AREAS BECOME STABILIZED TO 70% STABILIZATION OR GREATER.

CONSTRUCTION SEQUENCE

N.T.S.



REVISIONS

| REV | DATE | COMMENT | INITIAL | DATE | INITIAL |
|-----|----------|-----------------------|---------|------|---------|
| 0 | 05/14/21 | INITIAL SUBMISSION | JW | | |
| 1 | 09/28/21 | PEER REVIEW RESPONSES | JW | | |



It's fast. It's free. It's the law.

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| PROJECT NO.: | M211009 |
| DRAWN BY: | JW |
| CHECKED BY: | ZL |
| DATE: | 09/28/2021 |
| CAD I.D.: | M211009-DTL |

SITE DEVELOPMENT PLANS

FOR

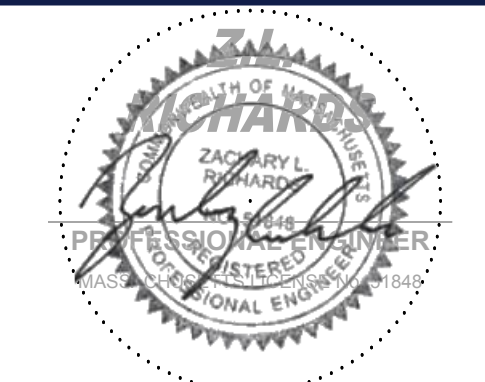
KS Partners

PROPOSED
GMP LAB FACILITY
MAP 86, BLOCK 108, LOT 5
300 CONCORD ROAD
TOWN OF BILLERICA
MIDDLESEX COUNTY,
MASSACHUSETTS

BOHLER

45 FRANKLIN STREET, 5th FLOOR
BOSTON, MA 02110
Phone: (617) 849-8040

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SHEET TITLE:
**EROSION AND
SEDIMENT
CONTROL NOTES
AND DETAILS**

SHEET NUMBER:
C-602

REVISION 1 - 09/28/2021



U.S. ROUTE 3
(PUBLIC - VARIABLE WIDTH)

| LANDSCAPE SCHEDULE | | | | | |
|--------------------|------|---|----------------------------------|---------------|-----------|
| KEY | QTY. | BOTANICAL NAME | COMMON NAME | SIZE | CONT. |
| SHADE TREES | | | | | |
| AR | 4 | ACER RUBRUM | RED MAPLE | 2 1/2" CAL. | B+B |
| AROG | 5 | ACER RUBRUM 'OCTOBER GLORY' | OCTOBER GLORY RED MAPLE | 2 1/2" CAL. | B+B |
| GTS | 11 | GLEDTSA TRACANTHOS VAR. NERIAS SHADENMASTER | SHADENMASTER HONEYLOCUST | 2 1/2" CAL. | B+B |
| LT | 2 | LIRIODENDRON TULIPIFERA | TULIP POPLAR | 2 1/2" CAL. | B+B |
| QBC | 1 | QUERCUS BICOLOR | SWAMP WHITE OAK | 2 1/2" CAL. | B+B |
| QR | 7 | QUERCUS RUBRA | RED OAK | 2 1/2" CAL. | B+B |
| TA | 4 | TILIA AMERICANA | BASWOOD | 2 1/2" CAL. | B+B |
| SUBTOTAL: | 34 | | | | |
| ORNAMENTAL TREES | | | | | |
| AC | 4 | AMELANCHIER CANADENSIS | MULTI STEM SHADBLOW SERVICEBERRY | 8-10' | B+B |
| AXGA | 6 | AMELANCHIER X GRANDIFLORA AUTUMN BRILLIANCE | SERVICEBERRY | 8-10' | B+B |
| BN | 6 | BETULA NIGRA | MULTI STEM RIVER BIRCH | 12-14' | B+B |
| CC | 10 | CERCIS CANADENSIS | EASTERN REDBUD | 2-2 1/2" CAL. | B+B |
| CV | 14 | CHOMANTHUS VIRGINICUS | WHITE FRINGETREE | 6-8' | B+B |
| SUBTOTAL: | 40 | | | | |
| EVERGREEN TREES | | | | | |
| IO | 6 | ILEX OPACA | AMERICAN HOLLY | 6-8' | B+B |
| TOE | 18 | THUJA OCCIDENTALIS 'EMERALD' | EMERALD GREEN ARBORVITAE | 5-6' | B+B |
| SUBTOTAL: | 24 | | | | |
| DECIDUOUS SHRUBS | | | | | |
| CA | 18 | CLETHRA ALNIFOLIA | SUMMERSWEET CLETHRA | 24-30" | CONTAINER |
| CAMO | 14 | CORNUS AMOMUM | SKY DOGWOOD | 3-4' | B+B |
| CLF | 16 | CALYCANTHUS FLORIDUS | SWEETSHRUB | 24-30" | CONTAINER |
| LB | 18 | LINDERA BENSOD | SPICEBUSH | 30-36" | CONTAINER |
| MP | 14 | MYRTICA PENNSYLANICA | NORTHERN BAYBERRY | 30-36" | B+B |
| RAGL | 30 | RHUS AROMATICA 'GRDLOW' | GRADLOW SUMAC | 1 GAL. | CONTAINER |
| VIN | 9 | VIBURNUM NUDUM | POSSOWAW VIBURNUM | 3-4' | B+B |
| SUBTOTAL: | 119 | | | | |
| EVERGREEN SHRUBS | | | | | |
| RPJM | 10 | RHOODENDRON CAROLINANA X PJM | PJM RHOODENDRON | 24-30" | B+B |
| SUBTOTAL: | 10 | | | | |
| PERENNIALS | | | | | |
| ANA | 12 | ASTER NOVAE-ANGLIAE | NEW ENGLAND ASTER | 2 GAL. | CONTAINER |
| NFO | 62 | NERITA X FASSENTI 'DROMORE' | DROMORE CAT MINT | 2 GAL. | CONTAINER |
| RFG | 33 | RUDECKIA FLAUIDA 'GOLDSTURM' | GOLDSTURMBLACKEYED SUSAN | 2 GAL. | CONTAINER |
| SUBTOTAL: | 107 | | | | |
| ORNAMENTAL GRASSES | | | | | |
| PVS | 20 | PANICUM VIRGATUM 'SHENADOAH' | SHENADOAH SWITCH GRASS | 2 GAL. | CONTAINER |
| SSTB | 30 | SCHIZACHYRIUM SCOPARIUM 'THE BLUES' | LITTLE BLUE STEM | 2 GAL. | CONTAINER |
| SUBTOTAL: | 50 | | | | |

| TOWN OF BILLERICA, MA LANDSCAPE REQUIREMENTS | | |
|---|---|---|
| SECTION | REQUIREMENTS | CALCULATIONS/PROPOSED |
| GREEN STRIP | <p>GREEN STRIPS SHALL CONSIST OF PLANTED OR NATURAL VEGETATION, INCLUDING TREES, SHRUBS, GRASSES, GROUND COVER, AND FLOWERS. AT LEAST 1 NATIVE TREE WITH A MIN. DIAM. OF 3" AT CHEST HEIGHT AND 1 SHRUB PER 50' OF GREEN STRIP ARE REQUIRED. IF THERE IS A 10' GREEN STRIP AROUND A BUILDING UP TO 50% OF THE TREES MAY BE REPLACED WITH 2 SHRUBS FOR EACH GROUND COVER SHOULD ALSO BE SPECIFIED AND IF NON-VEGETATIVE (BARK DUST, MULCH, STONES LARGER THAN 1" IN DIA., ETC.) THE DEPTH MUST BE ADEQUATE TO ASSURE PROPER COVER. THE GREEN STRIP SHALL NOT BE BUILT ON, PAVED, OR PARKED ON, EXCEPT AS OTHERWISE PROVIDED IN THIS ZONING BY-LAW.</p> <p>GREEN STRIPS MAY BE INTERRUPTED BY SIDEWALKS OR WALKWAYS PARALLEL TO THE ADJACENT BUILDING UP TO 6' IN WIDTH FOR THE PURPOSE OF ACCESSING A BUILDING. IF A GREEN STRIP CONTAINS A SIDEWALK OR WALKWAY THE GREEN STRIP SHALL BE WIDENED BY THE WIDTH OF THE SIDEWALK OR WALKWAY PARALLEL TO THE ADJACENT BUILDING IN ORDER TO COMPENSATE FOR THE RESULTING GREEN STRIP REDUCTION.</p> <p>GREEN STRIPS SHALL BE PROVIDED AROUND THE PERIMETER OF ALL LOTS, EXCEPT IN THE LOCATION OF CURB CUTS. LOT PERIMETER GREEN STRIPS MAY NOT BE BUILT ON, PAVED, OR PARKED ON.</p> <p>GREEN STRIPS SHALL BE MAINTAINED ON EACH LOT AROUND THE PERIMETER OF ALL BUILDINGS. BUILDING PERIMETER GREEN STRIPS MAY NOT BE USED FOR OFF-STREET PARKING AND OUTDOOR STORAGE IF PERMITTED.</p> <p>THE PROVISIONS OF THIS SECTION MAY BE REDUCED OR WAIVED AS PART OF AND IN CONJUNCTION WITH THE SITE PLAN SPECIAL PERMIT PROCESS DESCRIBED UNDER SECTION 6, IN WHICH CASE THE SPGA SHALL MAKE A FINDING THAT DOING SO DOES NOT EFFECTIVELY DETRACT FROM THE ENHANCEMENT OF THE NATURAL, SCENIC, AND AESTHETIC QUALITIES OF THE DEVELOPMENT.</p> | <p>THE PROPOSED SITE LAYOUT HAS BEEN DESIGNED SUCH THAT 80% OF THE BUILDING PERIMETER MEETS THE REQUIRED GREEN STRIP DESIGN REQUIREMENTS AS DEFINED IN SECTION 7.G. OF THE TOWN'S ZONING BY-LAWS. THE APPLICANT IS REQUESTING RELIEF FOR THE ADDITIONAL 15% OF THE BUILDING PERIMETER THAT WOULD BE REQUIRED TO SATISFY THE BUILDING PERIMETER REQUIREMENT PER DIMENSIONAL TABLE (TABLE L) OF THE TOWN'S ZONING BY-LAWS. THIS WAIVER IS SOUGHT IN AN EFFORT TO MAINTAIN THE ADEQUATE SPACING IN BOTH THE LOADING BAY AREA AND THE DEPTH OF THE BUILDING FOOTPRINT REQUIRED FOR A STANDARD GMP LAB FACILITY BUILDING USE. FURTHERMORE, THE 20-FOOT GREEN STRIP REQUIREMENT FOR THE LOT PERIMETER IS FULLY MET FOR THIS SITE.</p> |
| MIN. GREEN SPACE | <p>IN ALL DISTRICTS, EXCEPT RESIDENTIAL, EACH LOT, OR THAT PORTION OF THE LOT WITHIN THE DISTRICT, SHALL SET ASIDE 20% OF ITS AREA AS A GREEN SPACE WHICH CANNOT BE USED FOR DRIVEWAYS, ROADWAYS, PARKING AREAS, PAVED AREAS OR FOR VEHICULAR TRAVEL OF ANY SORT.</p> | <p>A TOTAL OF APPROXIMATELY 456.0% GREEN SPACE WILL BE ACHIEVED ACROSS THE OVERALL PROPERTY. THE PROJECT WILL ALSO RESULT IN AN INCREASE IN GREEN SPACE COMPARED TO EXISTING CONDITIONS.</p> |
| PARKING AND LOADING LANDSCAPED AREAS | <p>ALL PARKING AND LOADING AREAS SHALL BE SUITABLY LANDSCAPED. SUCH LANDSCAPING SHALL BE DESIGNED TO MINIMIZE THE IMPACT OF THE PARKING AREA UPON ADJACENT PROPERTY AND WITHIN THE LOT BY THE USE OF EXISTING VEGETATION TO THE EXTENT PRACTICABLE AND NEW TREES, SHRUBS, WALLS, FENCES, OR OTHER LANDSCAPING ELEMENTS. IN THE CASE OF PARKING AREAS FOR MORE THAN 50 SPACES, AT LEAST 1% OF THE AREA WITHIN THE LIMITS OF PARKING AREA SHALL BE SET ASIDE FOR LANDSCAPED AREAS, AND SUCH AREAS SHALL BE PROVIDED WITH A MIN. WIDTH OF 10' THROUGH USE OF CURBS AND SHADE TREES OR OTHER LANDSCAPING AREAS PROVIDED TO SATISFY THE GREEN STRIP REQUIREMENTS AS SET FORTH IN THE DIMENSIONAL PROVISIONS OF THIS ZONING BY-LAW CANNOT BE USED TO SATISFY THIS REQUIREMENT.</p> | <p>THE REQUIREMENT OF A MINIMUM OF 5% OF THE AREA WITHIN THE LIMITS OF THE PARKING ON-SITE WILL BE MET VIA LANDSCAPE ISLANDS THROUGHOUT THE PROVIDED PARKING AND LOADING AREAS. APPROXIMATELY 5.5% OF THE AREA WITHIN PARKING AND LOADING AREAS IS DEDICATED TO LANDSCAPE AREAS.</p> |

THIS PLAN TO BE UTILIZED FOR
LANDSCAPE PURPOSES ONLY.
REFER TO LANDSCAPE NOTES &
DETAILS SHEET FOR LANDSCAPE
RELATED NOTES AND DETAILS

30 15 7.5 0
1"= 30'



| REVISIONS | | | |
|-----------|----------|-----------------------|----------|
| REV | DATE | COMMENT | DRAWN BY |
| 0 | 05/14/21 | INITIAL SUBMISSION | JW |
| 1 | 09/28/21 | PEER REVIEW RESPONSES | ZLR |



| PERMIT SET | |
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| PROJECT No.: | M211009 |
| DRAWN BY: | JW |
| CHECKED BY: | ZLR |
| DATE: | 09/28/2021 |
| CAD I.D.: | M211009-LND-1 |

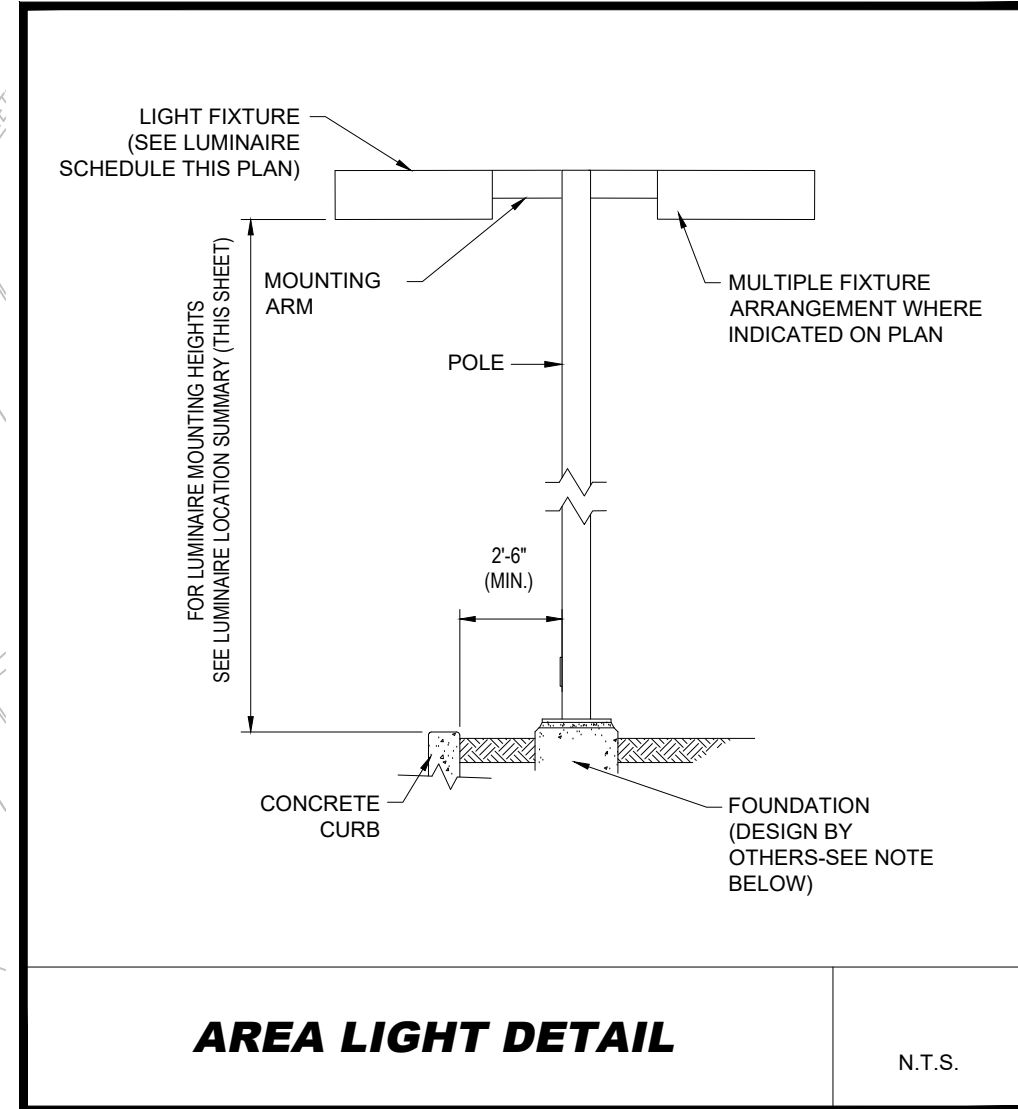
| SITE DEVELOPMENT PLANS | |
|------------------------|--|
| FOR | |
| KSPartners | |

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|---|
| PROPOSED GMP LAB FACILITY |
| MAP 86, BLOCK 108, LOT 5 300 CONCORD ROAD TOWN OF BILLERICA MIDDLESEX COUNTY, MASSACHUSETTS |

| |
|---|
| BOHLER |
| 45 FRANKLIN STREET, 5th FLOOR BOSTON, MA 02110 Phone: (617) 849-8040 www.BohlerEngineering.com |



| | |
|-------------------------|-----------------------|
| SHEET TITLE: | LANDSCAPE PLAN |
| SHEET NUMBER: | L-101 |
| REVISION 1 - 09/28/2021 | |



| Lumpo | Label | X | Y | Z | Orient | Tilt |
|-------|---------|------------|------------|----|---------|------|
| 1 | VP-3AC | 040537.5 | 040900.5 | 25 | 208.81 | 0 |
| 2 | VP-32BC | 040600.75 | 040900.75 | 25 | 114.887 | 0 |
| 3 | VP-32BC | 041026.75 | 040307.625 | 25 | 114.887 | 0 |
| 4 | VP-4AC | 041058.75 | 040739.875 | 25 | 105.81 | 0 |
| 5 | VP-32BC | 041453.25 | 040770.25 | 25 | 114.887 | 0 |
| 6 | VP-4AC | 041503.25 | 040738.875 | 25 | 26.903 | 0 |
| 7 | VP-32BC | 041633.33 | 040717.5 | 25 | 114.887 | 0 |
| 8 | VP-4AC | 041660.75 | 040703.875 | 25 | 205.81 | 0 |
| 9 | VP-32BC | 041668.75 | 040607.5 | 25 | 26.949 | 0 |
| 10 | VP-2AC | 041937.875 | 040650.625 | 25 | 117.242 | 0 |
| 11 | VP-3AC | 042054.75 | 040626.75 | 25 | 28.003 | 0 |
| 12 | VP-3-AC | 042055.625 | 040604.75 | 25 | 202.616 | 0 |
| 13 | VP-32BC | 042056.875 | 040557.75 | 25 | 26.949 | 0 |
| 14 | VP-32BC | 042057.625 | 040557.5 | 25 | 206 | 0 |
| 15 | VP-4AC | 042130.75 | 040490 | 25 | 200.556 | 0 |
| 16 | VP-32BC | 042026.875 | 040441.125 | 25 | 26.949 | 0 |
| 17 | VP-32BC | 042026.875 | 040441.125 | 25 | 26.949 | 0 |
| 18 | VP-32BC | 042038.75 | 040428.5 | 25 | 206 | 0 |
| 19 | VP-4 | 042075.75 | 040381 | 25 | 249.467 | 0 |
| 20 | TRV2 | 042046.5 | 040327.625 | 25 | 206 | 0 |
| 21 | VP-4AC | 042063.125 | 040286 | 25 | 116.555 | 0 |
| 22 | TRV2 | 042040.75 | 040215.25 | 25 | 206 | 0 |

This LIGHTING PLAN depicts PROPOSED SUSTAINED ILLUMINATION LEVELS USING DATA FROM THE FIELD MEASUREMENT OF EXISTING LIGHTING AND THE CALCULATION OF THE PERFORMANCE OF LUMINAIRES MAY VARY DUE TO VARIATIONS IN WEATHER, ELECTRICAL, TOLERANCE IN LUMENS, THE SERVICE LIFE OF EQUIPMENT AND LUMINAIRES AND OTHER RELATED FACTORS.

THE LIGHT LOSS FACTORS USED IN THESE LIGHTING CALCULATIONS ARE 0.90 FOR ALL LED LUMINAIRES, 0.80 FOR ALL HIGH PRESSURE SODIUM LUMINAIRE OR 0.72 FOR ALL METAL HALIDE LUMINAIRES UNLESS OTHERWISE SPECIFIED. THESE FACTORS ARE INDICATIVE OF ACTUAL LIGHTING MODELING STANDARDS.

THE LIGHTING VALUES AND CALCULATION POINTS DEPICTED ON THIS PLAN ARE ALL ANALYZED ON HORIZONTAL GEOMETRIC PLANE AT ELEVATION ZERO (GROUND LEVEL) UNLESS OTHERWISE NOTED.

THE LUMINAIRE CAMPS AND LENSES MUST BE REGULARLY INSPECTED TO ENSURE THAT THEY FUNCTION PROPERLY. THIS WORK SHOULD INCLUDE, BUT NOT BE LIMITED TO, FREQUENT VISUAL INSPECTIONS, CLEANING OF LENSES, AND REPLACING IF NECESSARY AT LEAST ONCE EVERY SIX (6) MONTHS. THE CONTRACTOR SHALL ADVISE THEIR CLIENT AS THE LUMINAIRES, LAMPS AND FIXTURES APPROACH END OF LIFE.

WHERE APPLICABLE, THE EXISTING CONDITION LIGHT LEVELS ILLUSTRATED ARE REPRESENTATIVE OF AN APPROXIMATION UTILIZING LABORATORY DATA FOR SIMILAR FIXTURES, UNLESS ACTUAL FIELD MEASUREMENTS HAVE BEEN OBTAINED. THE CONTRACTOR SHALL CONSIDER THE EFFECTS OF DIFFERENCES SUCH AS FUTURE MAINTENANCE, EQUIPMENT TOLERANCES, WEATHER CONDITIONS, TOYOTA, AND OTHER FACTORS WHICH MAY AFFECT. EXISTING LIGHT LEVELS DERIVED ON THIS PLAN SHOULD BE CONSIDERED APPROXIMATE.

THIS LIGHTING PLAN IS INTEND TO SHOW THE LOCATIONS AND TYPE OF LUMINAIRES, ONLY. POWER SYSTEM, CONDUTS, WIRING, VOLTAGES AND OTHER ELECTRICAL COMPONENTS ARE THE RESPONSIBILITY OF THE DESIGN ARCHITECT. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE CONSTRUCTION CONTRACT DOCUMENTS. THESE STRUCTS MUST BE INSTALLED AS REQUIRED BY STATE REGULATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF THE LIGHTING ENGINEER, AS INDICATED IN THE CONSTRUCTION CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR INSTALLING LIGHTING FIXTURES AND APPROPRIATEMENTS IN ACCORDANCE WITH ALL APPLICABLE NATIONAL, LOCAL, COUNTY AND ALL OTHER APPLICABLE RULES, REGULATIONS, LAWS AND STATUTES.

CONTRACTOR MUST BRING TO DESIGNERS ATTENTION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ANY LIGHT LOCATIONS THAT CONFLICT WITH DRAINAGE, UTILITIES, OR OTHER CONSTRUCTION FEATURES.

IF IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE PROJECT ARCHITECT OR OWNER REGARDING THE POWER SOURCE(S) FROM WITHIN THE BUILDING, AND TRIVING DESIGNED TO PROVIDE THE POWER TO THE LIGHTING.

THE LIGHTING CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CONTRACT REQUIREMENTS INDICATED IN THE SITE PLAN, INCLUDING BUT NOT LIMITED TO: GENERAL NOTES, GRADING AND UTILITY NOTES, SITE SAFETY, AND ALL GOVERNMENTAL, RULES, LAWS, ORDINANCES, REGULATIONS AND THE LIKE.

THE CONTRACTOR MUST VERIFY THAT INSTALLATION OF LIGHTING FIXTURES COMPLIES WITH THE REQUIREMENTS FOR SEPARATION FROM OVERHEAD ELECTRIC LINES, WIRES PER STATE REGULATIONS.

WHEN A BANK CUT IS INCLUDED IN THE PLAN, THE LIGHTING DESIGN REPRESENTS BUILDER'S UNDERSTANDING AND INTERPRETATION OF THE REGULATOR LIGHTING LEVELS INTENDED BY THE ARCHITECT.

LUPON OWNER'S ACCEPTANCE OF THE COMPLETED PROJECT, THE OWNER SHALL BE RESPONSIBLE FOR ALL MAINTENANCE, SERVICING, REPAIR AND INSPECTION OF THE LIGHTING SYSTEM AND ALL OF ITS SUBSYSTEMS, TO ENSURE ADEQUATE LIGHTING LEVELS ARE PRESENT AND FUNCTIONING AT ALL TIMES.

| REV | DATE | COMMENT | DRAWN CHECKED |
|-----|----------|--------------------------|------------------|
| 0 | 05/14/21 | INITIAL SUBMISSION | JL ZL |
| 1 | 09/28/21 | PEER REVIEW RESPONSES | JL ZL |



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|--------------|-------------|
| PROJECT No.: | M211009-LNC |
| DRAWN BY: | JL |
| CHECKED BY: | ZL |
| DATE: | 09/28/20 |
| CAD I.D.: | M211009-LNC |

KS Partners owned & managed

**PROPOSED
GMP LAB FACILITY
MAP 86, BLOCK 108, LOT 5
300 CONCORD ROAD
TOWN OF BILLERICA
MIDDLESEX COUNTY,
MASSACHUSETTS**

BOHLER //

45 FRANKLIN STREET, 5th FLOOR
BOSTON, MA 02110
Phone: (617) 849-8040

www.BohlerEngineering.com



SHEET TITLE:

SHEET NUMBER:

L-201

REVISION 1 - 09/28/2021

LANDSCAPE SPECIFICATIONS

1. SCOPE OF WORK:

1.1. THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.

2. MATERIALS

2.1. GENERAL - ALL LANDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

2.2. TOPSOIL - NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5 TO 7.0, IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLODS.

2.3. LAWN - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM 6" THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED ON THE LANDSCAPE PLAN.

2.3.1. LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.

2.3.2. SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/FEST FREE WITH A UNIFORM THICKNESS. SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.

2.4. MULCH - ALL PLANTING BEDS SHALL BE MULCHED WITH A 3" THICK LAYER OF DOUBLE SHREDDED HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN AND/OR LANDSCAPE PLAN NOTES/DETAILS.

2.5. FERTILIZER

2.5.1. FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.

2.5.2. FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT. A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY.

2.6. PLANT MATERIAL

2.6.1. ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1) LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION (FORMERLY THE AMERICAN ASSOCIATION OF NURSERYMEN).

2.6.2. IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.

2.6.3. PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION.

2.6.4. TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 1 1/2" WHICH HAVE NOT BEEN COMPLETELY CALLEDUS, SHALL BE REJECTED. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.

2.6.5. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH, WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.

2.6.6. CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT 12" ABOVE THE NATURAL GRADE.

2.6.7. SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.

2.6.8. TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.

3. GENERAL WORK PROCEDURES

3.1. CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF.

3.2. WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.

4. SITE PREPARATIONS

4.1. BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN.

4.2. ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE BRANCH COLLAR. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE REMAINDER OF THE ROOTS. EXISTING TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY.

4.3. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE.

4.4. CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE BEGINNING OF WORK.

5. TREE PROTECTION

5.1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.

5.2. A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY VISI-FENCE, OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.

5.3. WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.

5.4. AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.

6. SOIL MODIFICATIONS

6.1. CONTRACTOR SHALL ATTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.

6.2. LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS.

6.3. THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISED DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY.

6.3.1. TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS, THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6-12" USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.5.

6.3.2. TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYP-SUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE ADDED TO INCREASE DRAINAGE.

6.3.3. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

7. FINISHED GRADING

7.1. UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.

7.2. LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1").

7.3. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER OR LANDSCAPE ARCHITECT.

7.4. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.

8. TOPSOILING

8.1. CONTRACTOR SHALL PROVIDE A 6" THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.

8.2. ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.

8.3. CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE.

8.4. ALL LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE FILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA - FOR BID PURPOSES ONLY (SEE SPECIFICATION 6.4.3)).

8.4.1. 20 POUNDS "GRO-POWER" OR APPROVED SOIL CONDITIONER/FERTILIZER

8.4.2. 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP OR APPROVED NITROGEN FERTILIZER

8.5. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.

9. PLANTING

9.1. INsofar THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEADED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.

9.2. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.

9.3. ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.

9.4. ALL PLANTING CONTAINERS, BASKETS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.

9.5. POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.

9.6. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL BE RESPONSIBLE FOR THE SEASONAL CONSIDERATIONS IN THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS.

9.6.1. PLANTS: MARCH 15 TO DECEMBER 15

9.6.2. LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1

9.6.3. PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL SUBSTITUTIONS.

9.7. FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE. WITH TRANSPLANT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON.

9.8.1. ACER RUBRUM PLATANUS X ACERIFOLIA

9.8.2. BETULA VARIETIES POPULUS VARIETIES

9.8.3. CARPINUS VARIETIES PRUNUS VARIETIES

9.8.4. CRATAEGUS VARIETIES PYRUS VARIETIES

9.8.5. KOELREUTERIA LIQUIDAMBAR STYRACIOLA

9.8.6. TILIA TOMENTOSA ZELKOVA VARIETIES

9.8.7. LIRIODENDRON TULIPIFERA

9.8. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY.

9.8.1. 1 PART PEAT MOSS

9.8.2. 1 PART COMPOSTED COW MANURE BY VOLUME

9.8.3. 3 PARTS TOPSOIL BY VOLUME

9.8.4. 21 GRAMS AGRIFORM PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:

9.8.4.1. 2 TABLETS PER 1 GALLON PLANT

9.8.4.2. 3 TABLETS PER 1 GALLON PLANT

9.8.4.3. 4 TABLETS PER 15 GALLON PLANT

9.8.4.4. LARGER PLANTS: 2 TABLETS PER 1/2" CALIPER OF TRUNK

9.9. FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.

9.10. ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.

9.11. ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE.

9.12. GROUND COVER AREAS SHALL RECEIVE A 1/2" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEEDED AND TREATED WITH A PRE-EMERGENT CHEMICAL AS PER MANUFACTURER'S RECOMMENDATION.

9.13. NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.

9.14. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.

9.15. ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.

10. TRANSPLANTING (WHEN REQUIRED)

10.1. ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.

10.2. IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEADED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.

10.3. PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.

10.4. UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.

10.5. TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.

10.6. F TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

11. WATERING

11.1. NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.

11.2. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.

11.3. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

12. GUARANTEE

12.1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF 1 YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

12.2. ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.

12.3. TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.

12.4. LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGADING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

13. CLEANUP

13.1. UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.

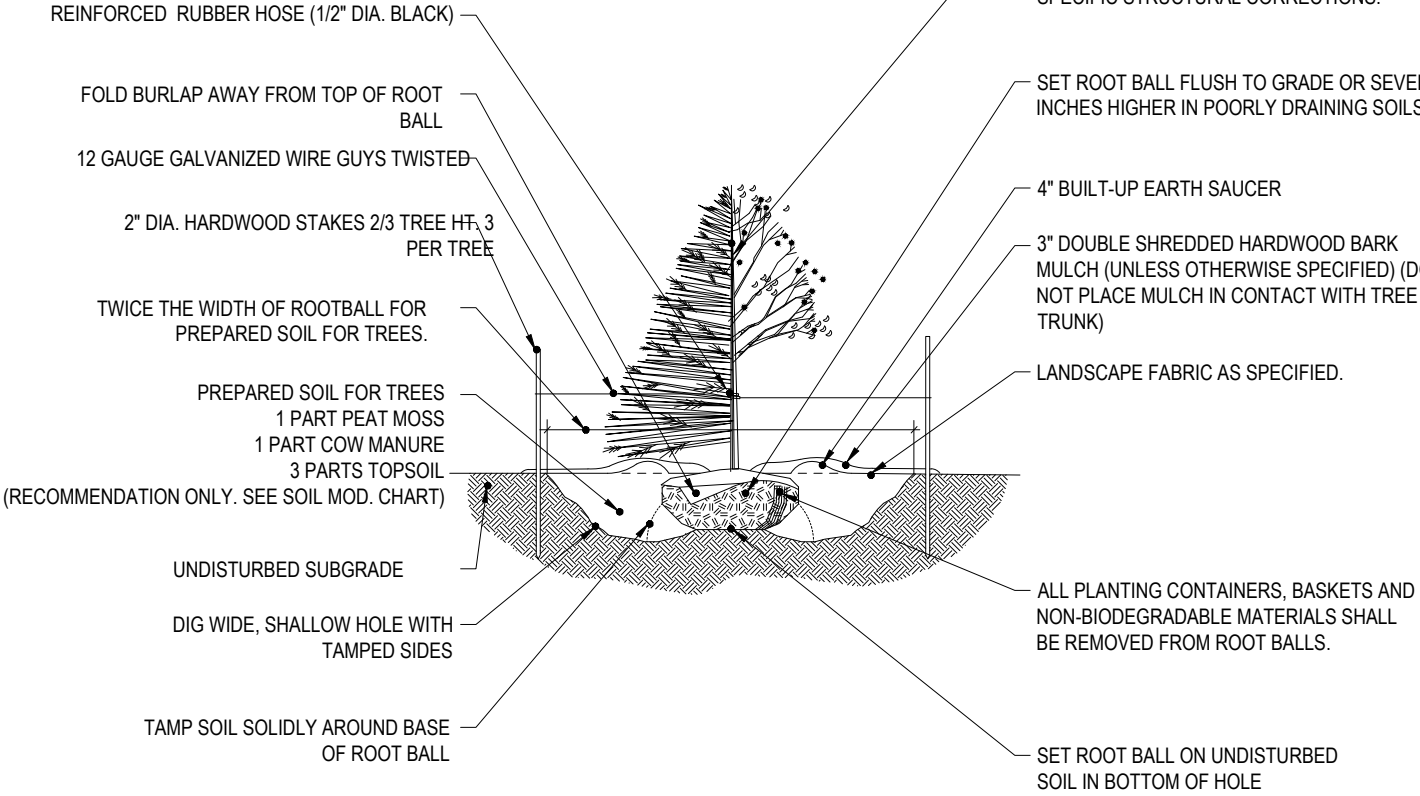
13.2. THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

14. MAINTENANCE (ALTERNATIVE BID)

14.1. A 90 DAY MAINTENANCE PERIOD SHALL COMMENCE AT THE END OF ALL LANDSCAPE INSTALLATION OPERATIONS. THE 90 DAY MAINTENANCE PERIOD ENSURES TO THE OWNER/OPERATOR THAT THE NEWLY INSTALLED LANDSCAPING HAS BEEN MAINTAINED AS SPECIFIED ON THE APPROVED LANDSCAPE PLAN. ONCE THE INITIAL 90 DAY MAINTENANCE PERIOD HAS EXPIRED, THE OWNER/OPERATOR MAY REQUEST THAT BIDDERS SUBMIT AN ALTERNATE MAINTENANCE BID FOR A MONTHLY MAINTENANCE CONTRACT. THE ALTERNATE MAINTENANCE CONTRACT WILL ENCOMPASS ANY WORK THAT IS CONSIDERED APPROPRIATE TO ENSURE THAT PLANT AND LAWN AREAS ARE HEALTHY AND MANICURED TO THE APPROVAL OF THE APPROVING AGENCY.

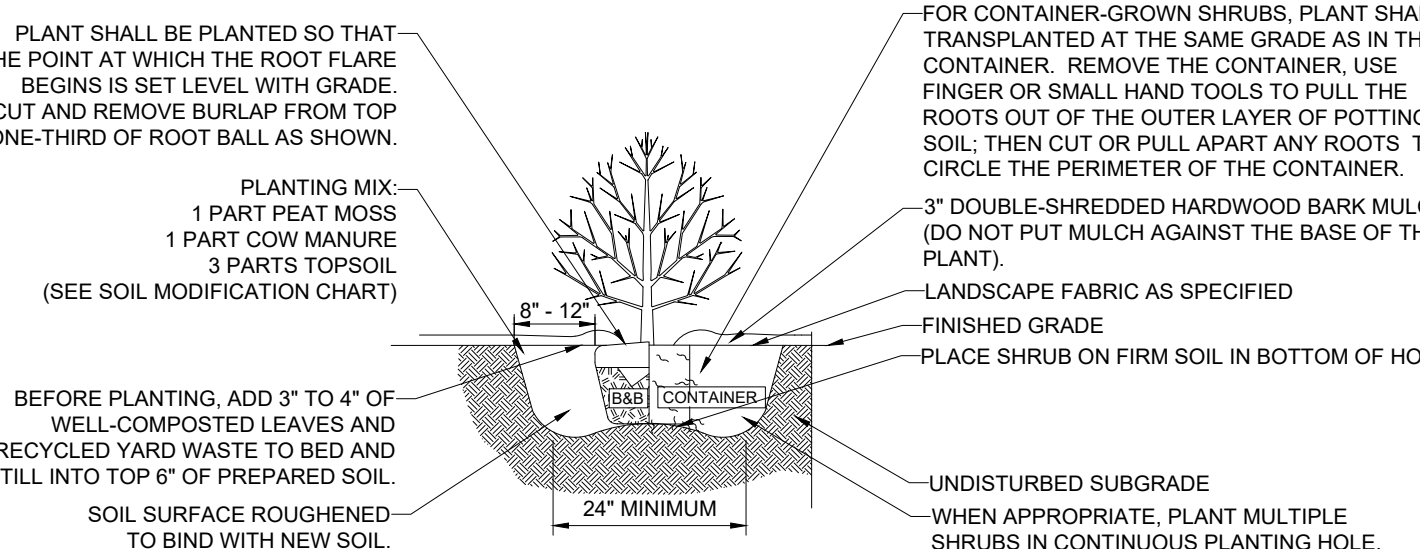
NOTES:

- 1) NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
- 2) REMOVE ALL NON-BIODEGRADABLE MATERIAL AND ROPE FROM TRUNK & TOP OF ROOT BALL. FOLD BURLAP BACK 1/3 FROM ROOT BALL.
- 3) PLANTING DEPTH SHALL BE THE SAME AS GROWN IN NURSERY.
- 4) THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH.
- 5) AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
- 6) THE BOTTOM OF PLANTING PIT EXCAVATIONS SHOULD BE ROUGH TO AVOID MATTING OF SOIL LAYERS AS NEW SOIL IS ADDED. IT IS PREFERABLE TO TILL THE FIRST LIFT (2 TO 3 IN.) OF PLANTING SOIL INTO THE SUBSOIL.
- 7) REFERT TO THE CHART "GENERAL RANGE OF SOIL MODIFICATIONS & VOLUMES FOR VARIOUS SOIL CONDITIONS" TO DETERMINE MINIMUM WIDTH OF PREPARED SOIL.
- 8) SUBSTITUTE ARBORVITAE STAKING SYSTEM WHEN SPECIFIED.



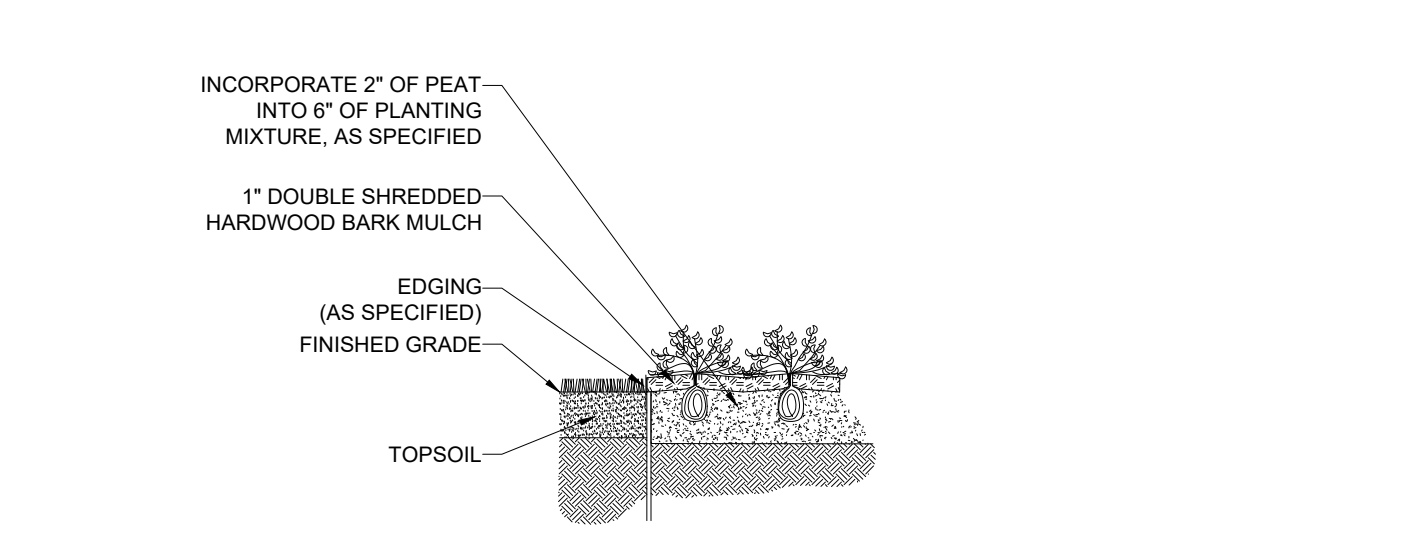
TREE PLANTING DETAIL

N.T.S.



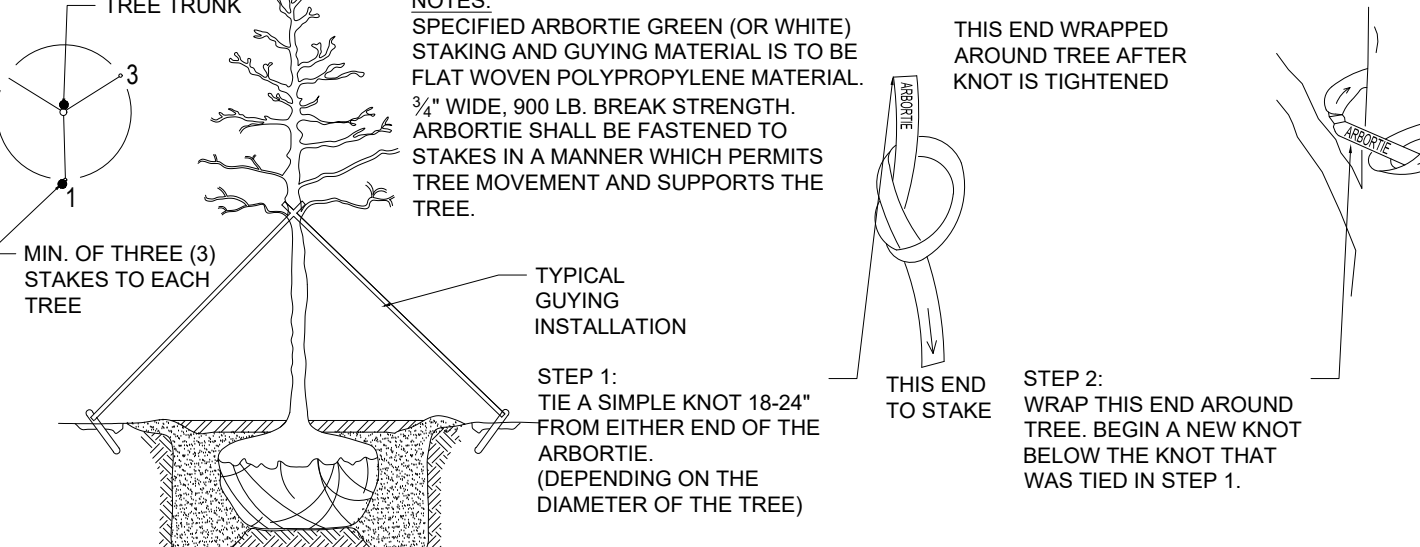
SHRUB PLANTING DETAIL

N.T.S.



GROUNDCOVER PLANTING

N.T.S.



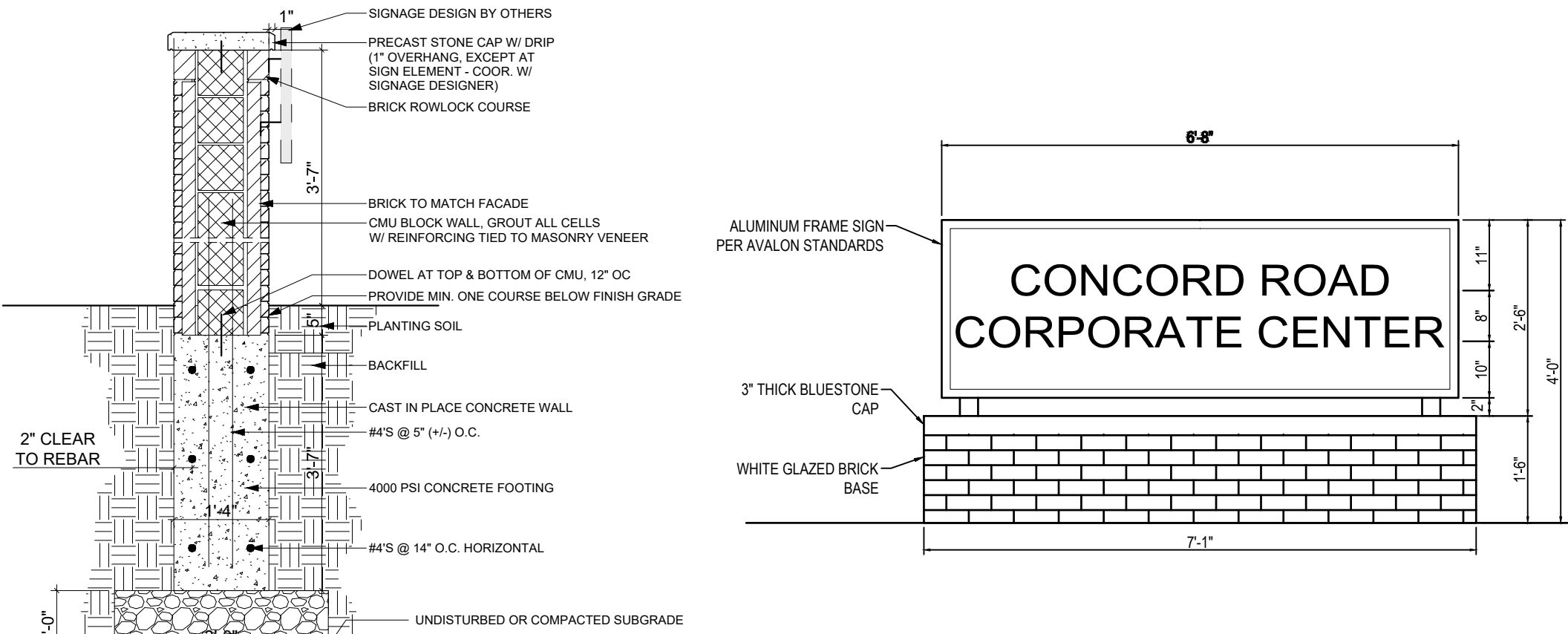
BLACK ALUMINUM EDGING

N.T.S.

ARBORVITAE STAKING DETAIL

N.T.S.

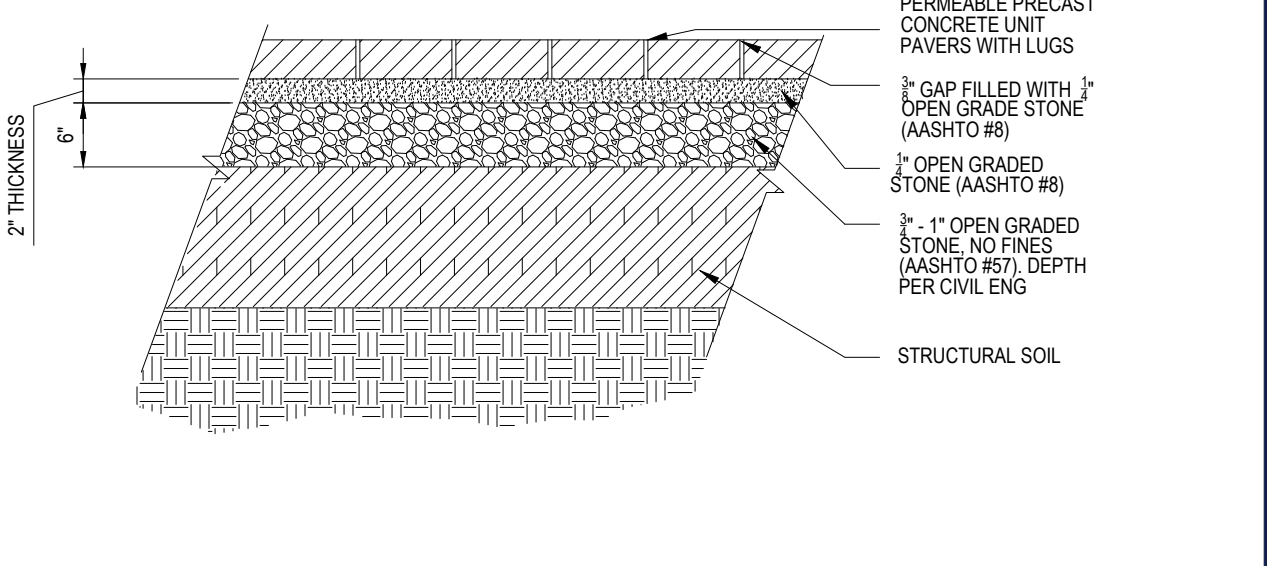
Basin Seed Mix Specifications



MONUMENT SIGN AT ENTRY

N.T.S.

Hydroseed Specifications



PERMEABLE CONC. PAVERS

N.T.S.

BOHLER SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

| REV | DATE | COMMENT | DRAWN BY |
|-----|----------|-----------------------|----------|
| 0 | 05/14/21 | INITIAL SUBMISSION | JWJ |
| 1 | 09/28/21 | PEER REVIEW RESPONSES | ZLR |

PROJECT

PROPOSED GMP LAB FACILITY
MAP 86, BLOCK 108, LOT 5
380 CONCORD ROAD
TOWN OF BILLERICA
MIDDLESEX COUNTY,
MASSACHUSETTS

SITE DEVELOPMENT PLANS

FOR

PERMIT SET

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT. NO FIELD OR OFFICE CHANGES.

PROJECT NO.: M21009
DRAWN BY: JWJ
CHECKED BY: ZLR
DATE: 09/28/2021
CAD I.D.: M21009-LND-1

SITE DEVELOPMENT PLANS

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PROPOSED GMP LAB FACILITY

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380 CONCORD ROAD
TOWN OF BILLERICA
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MASSACHUSETTS

BOHLER

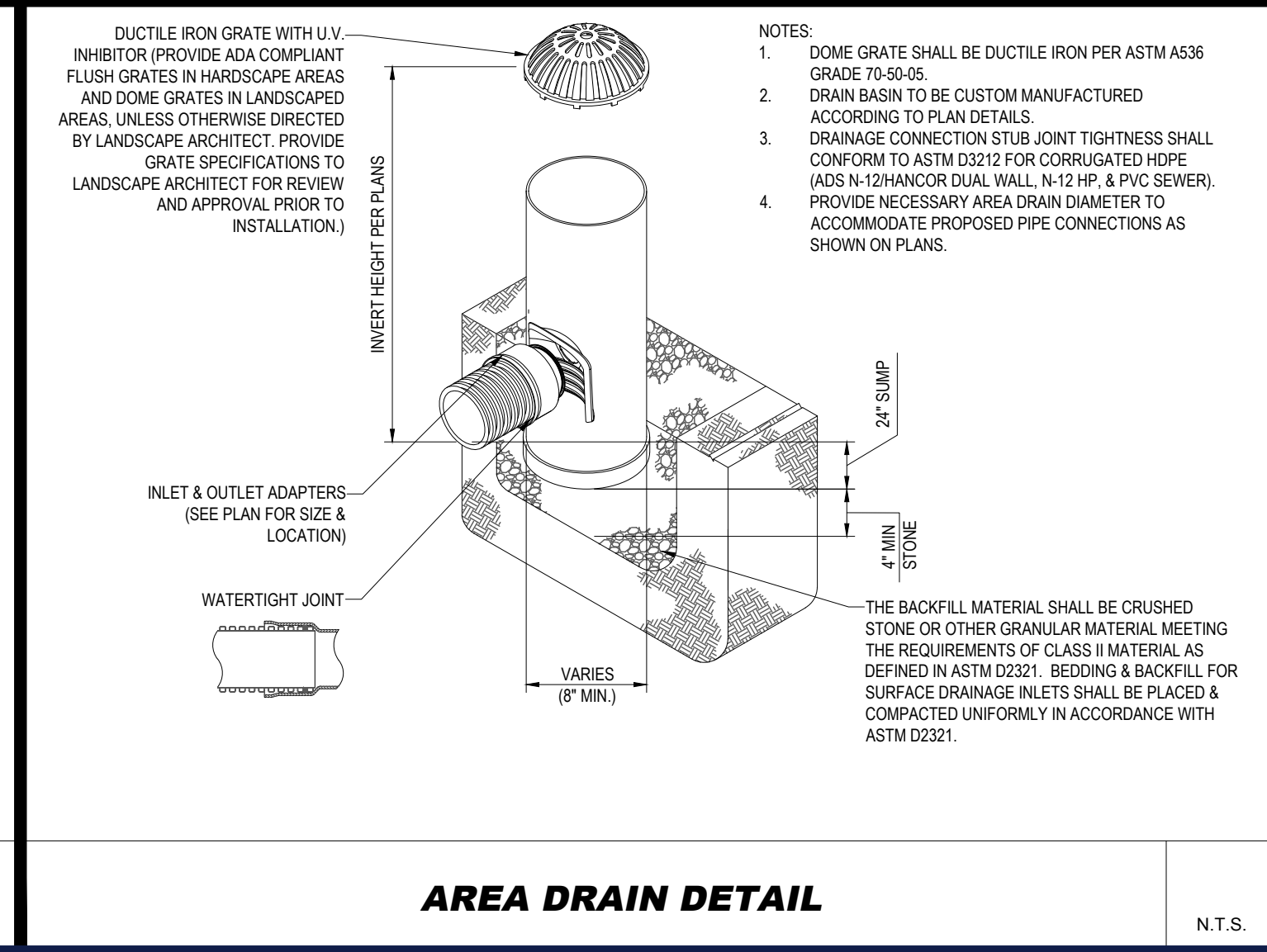
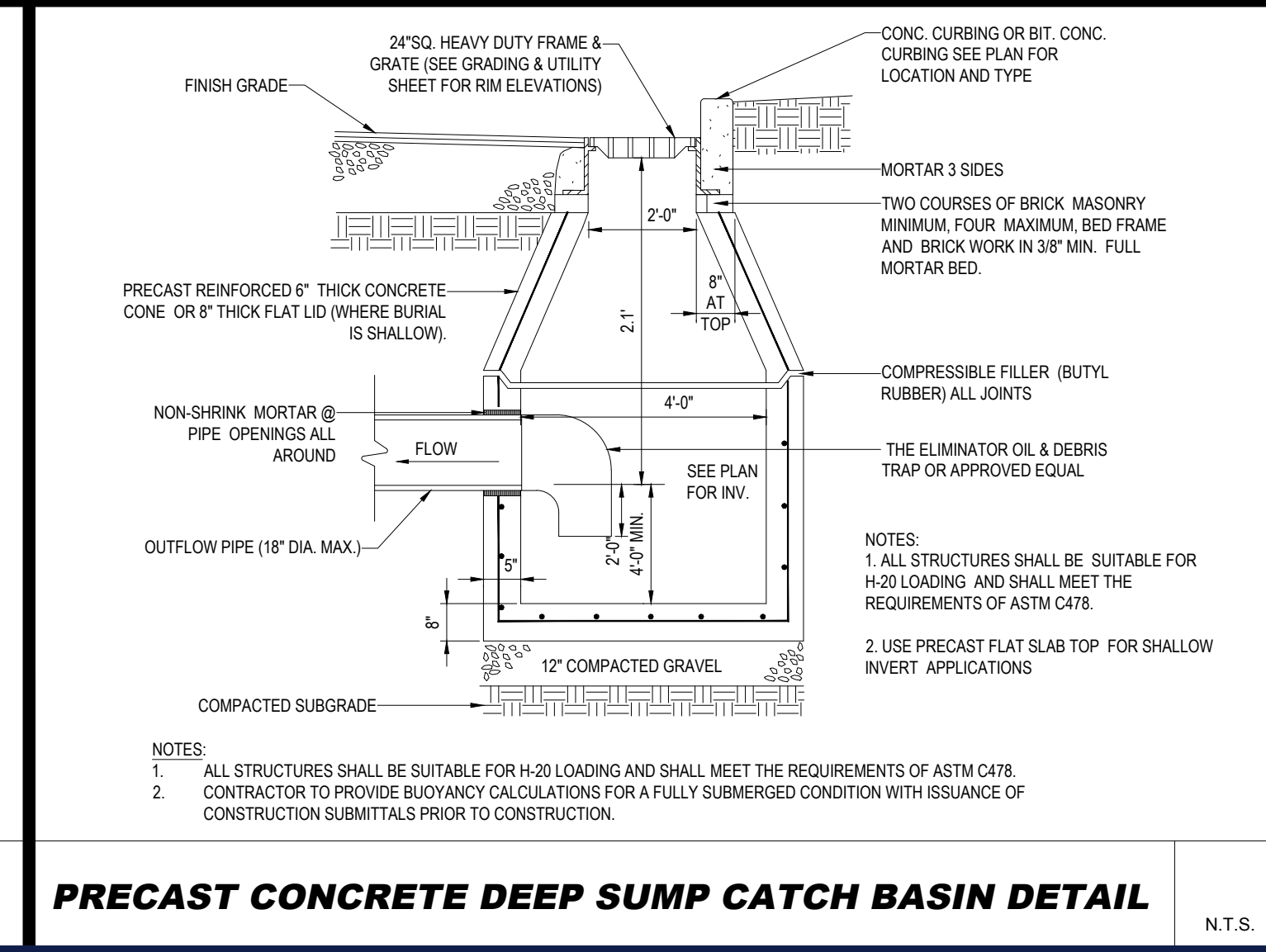
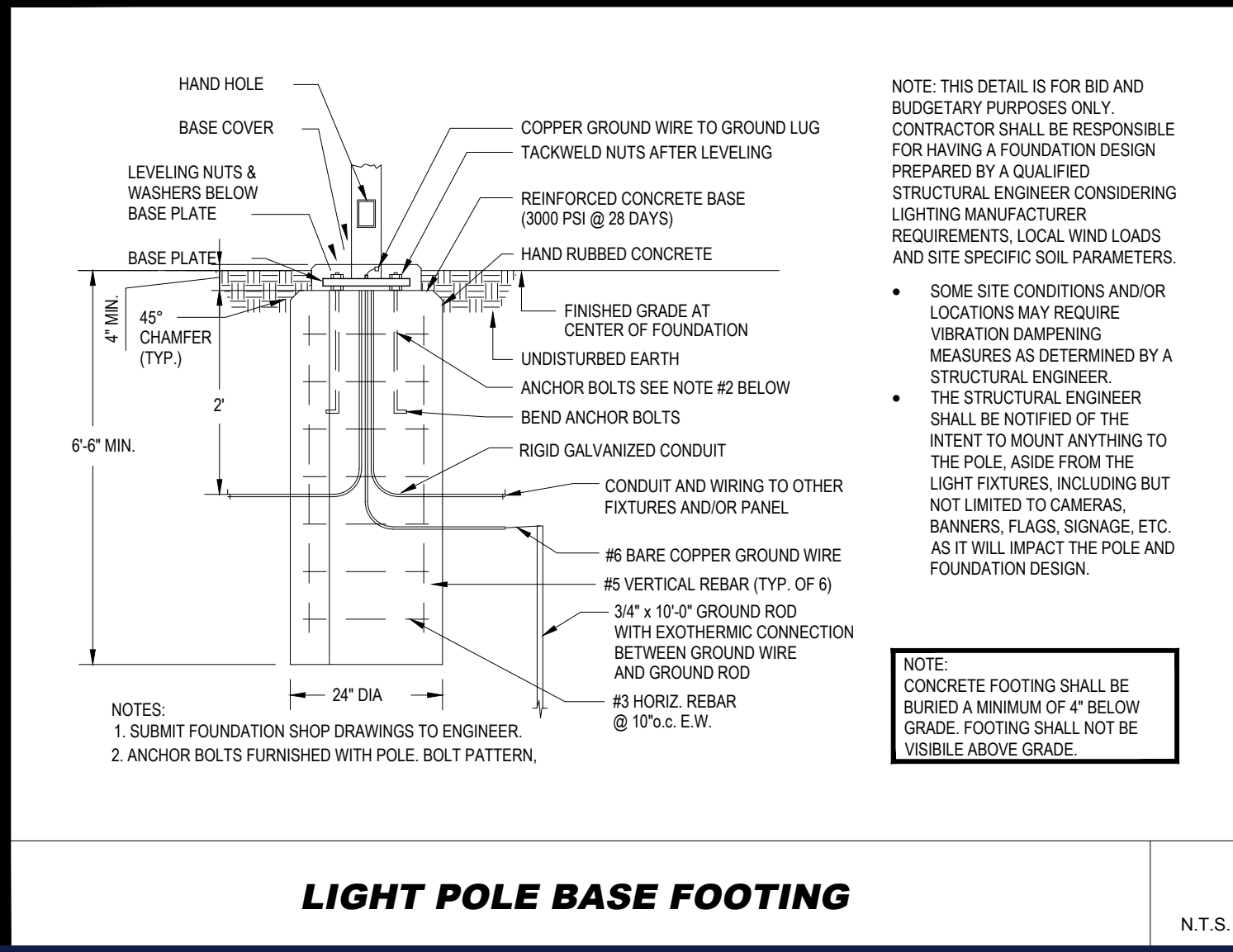
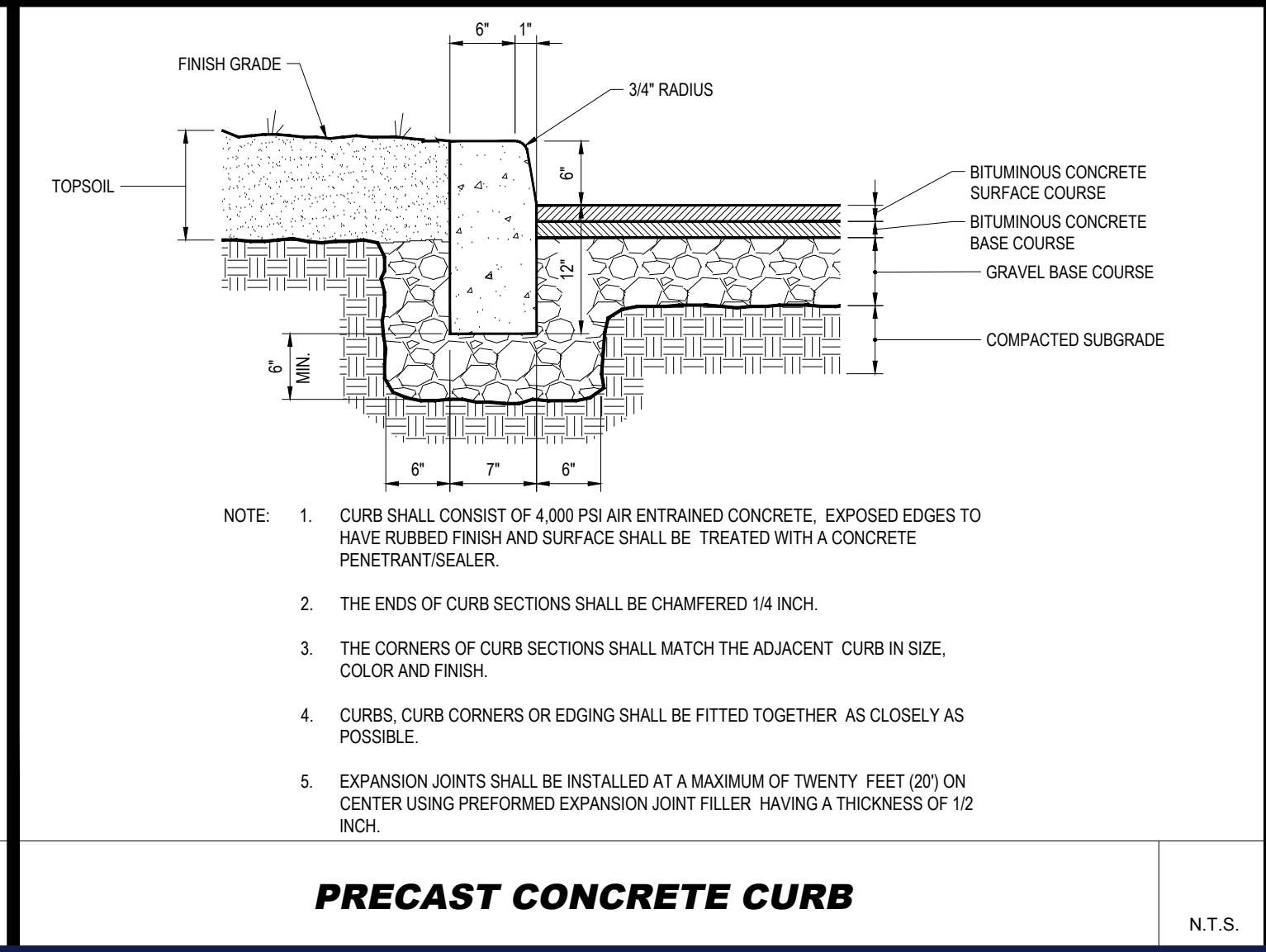
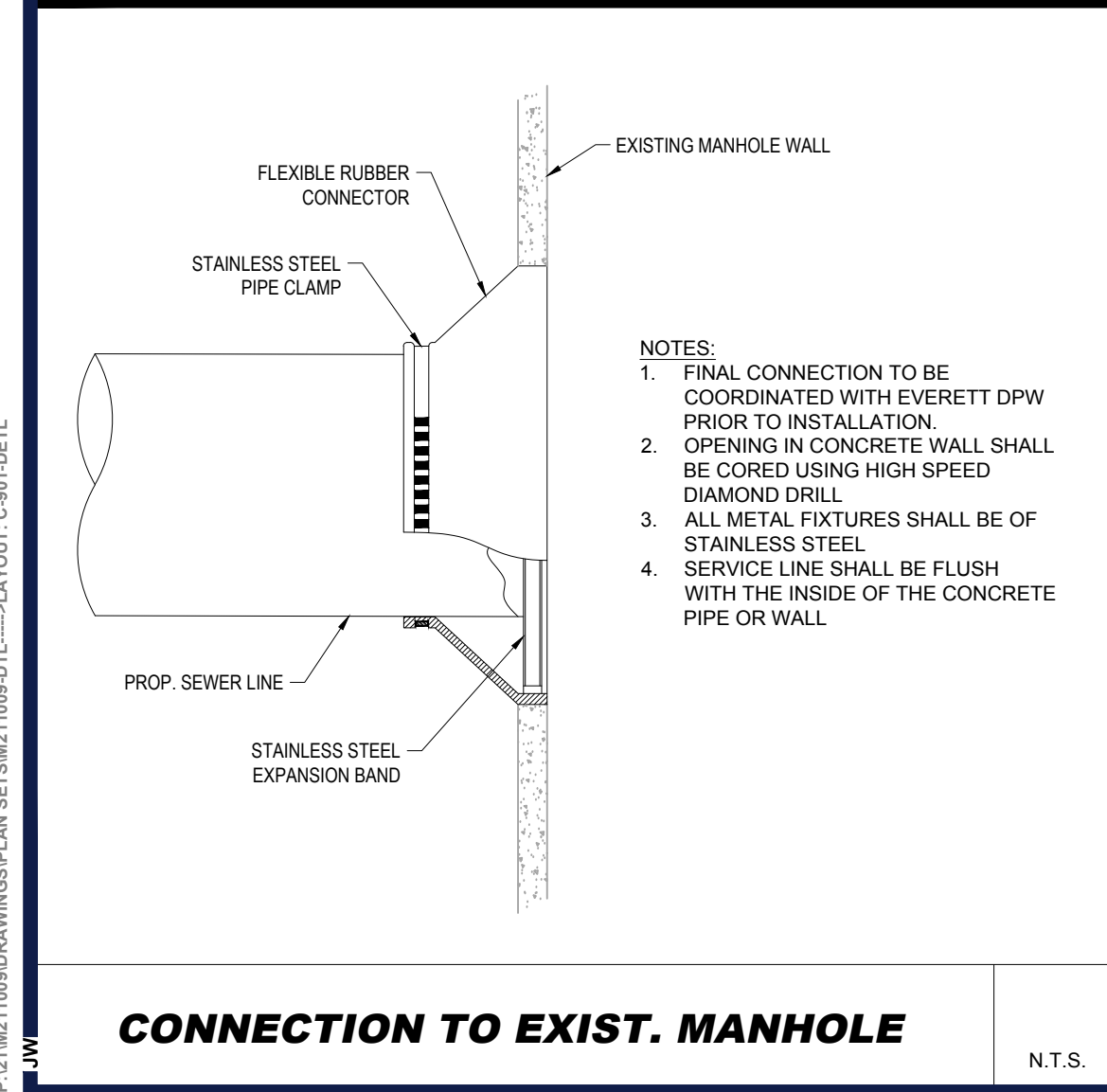
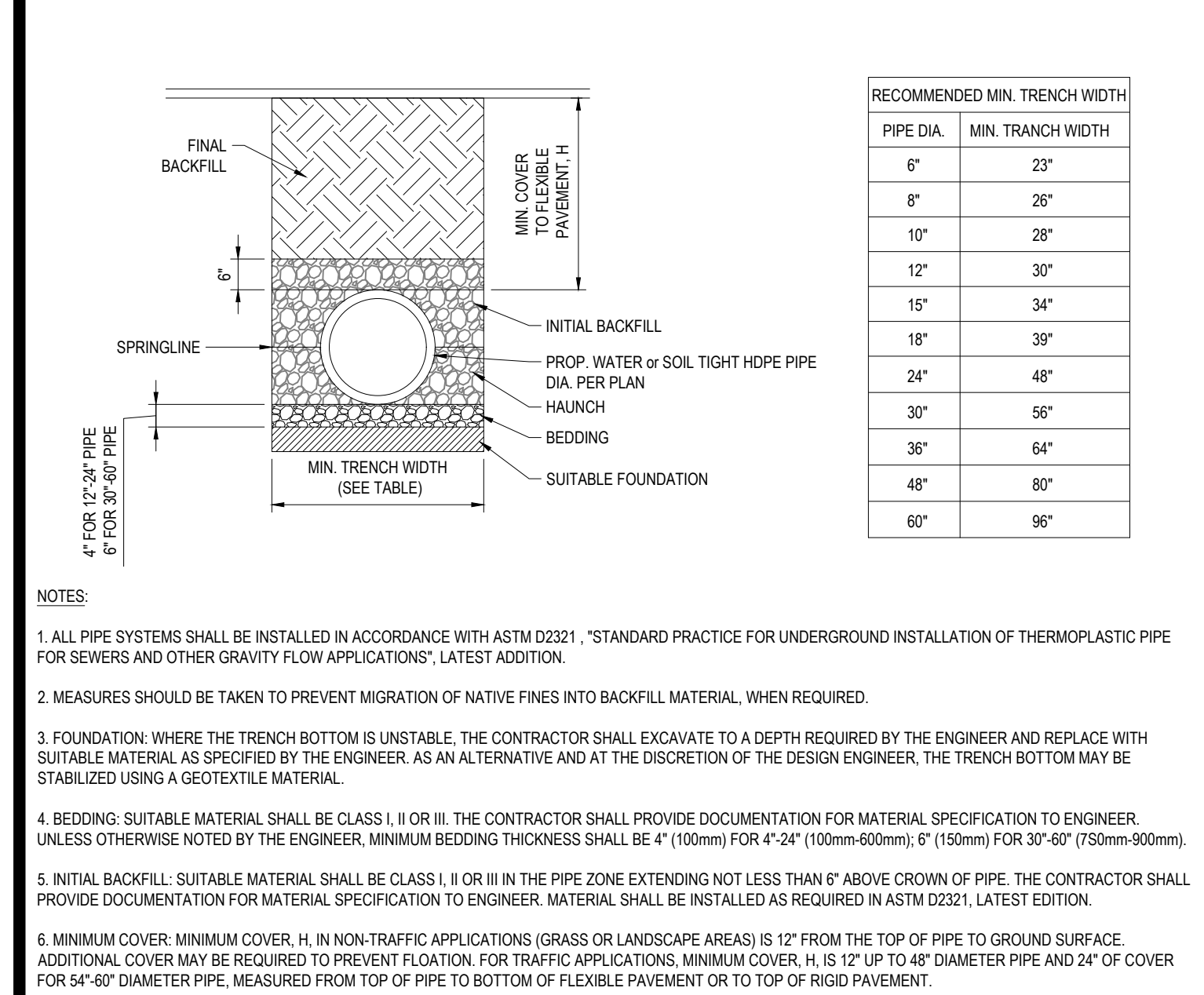
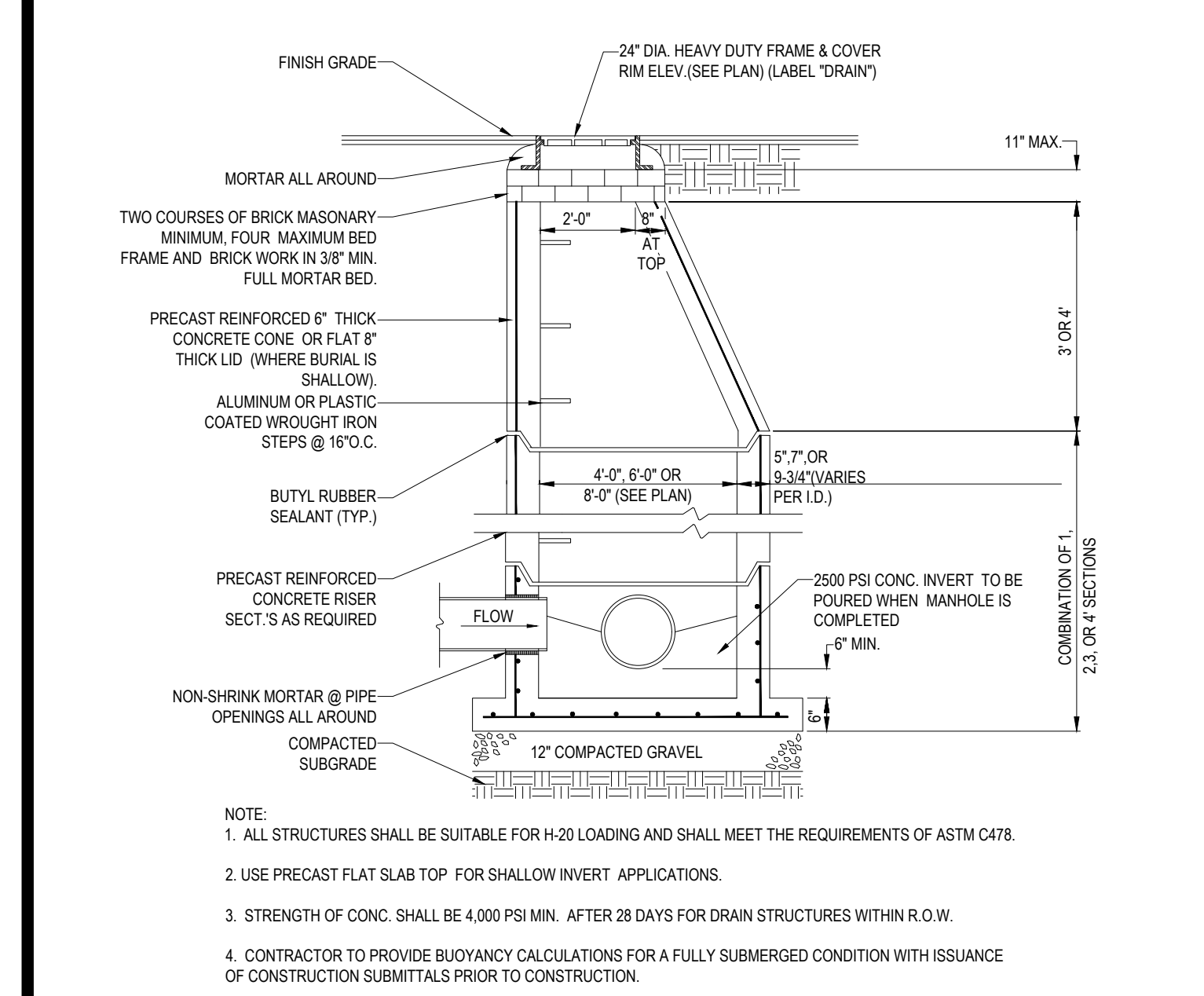
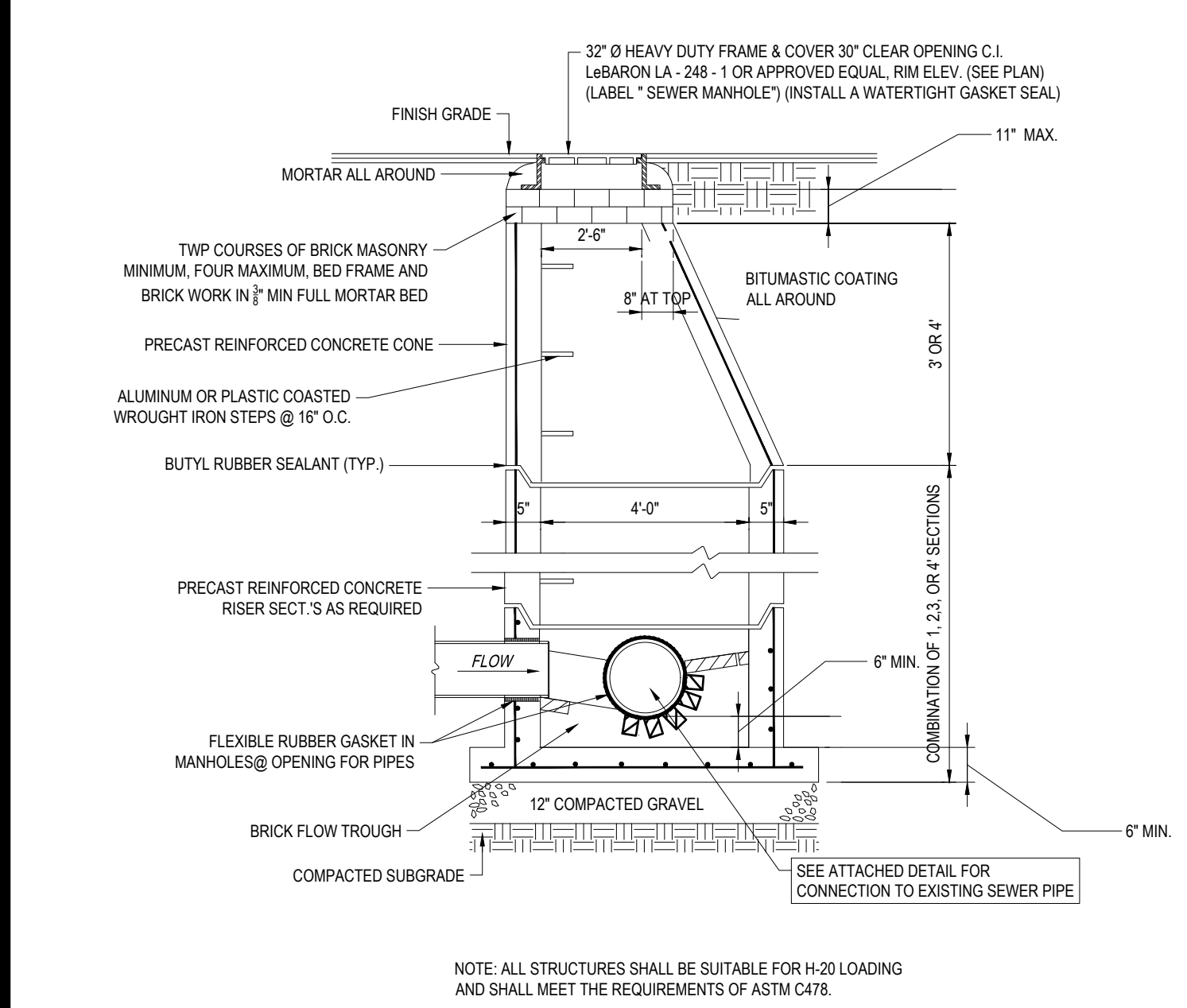
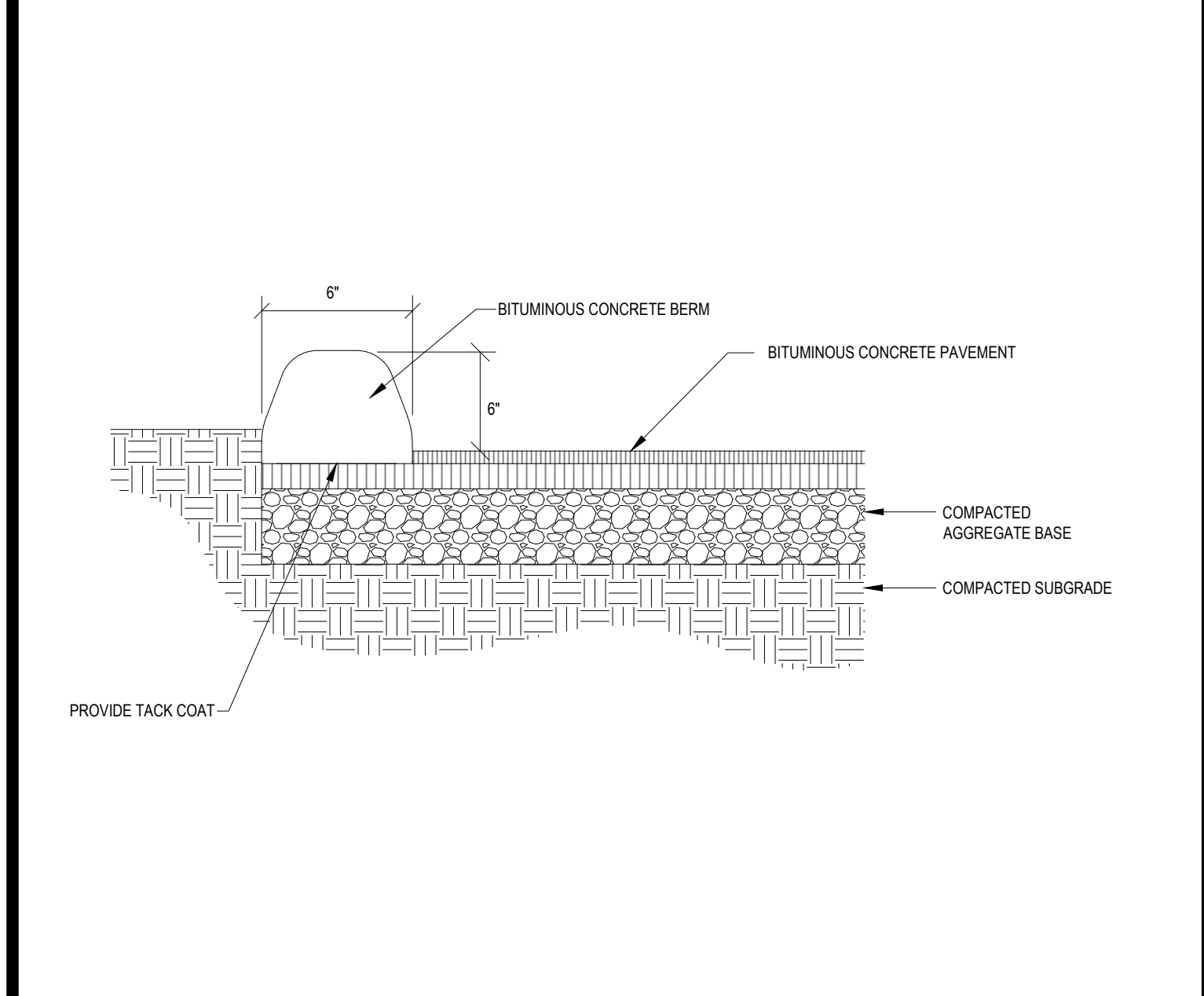
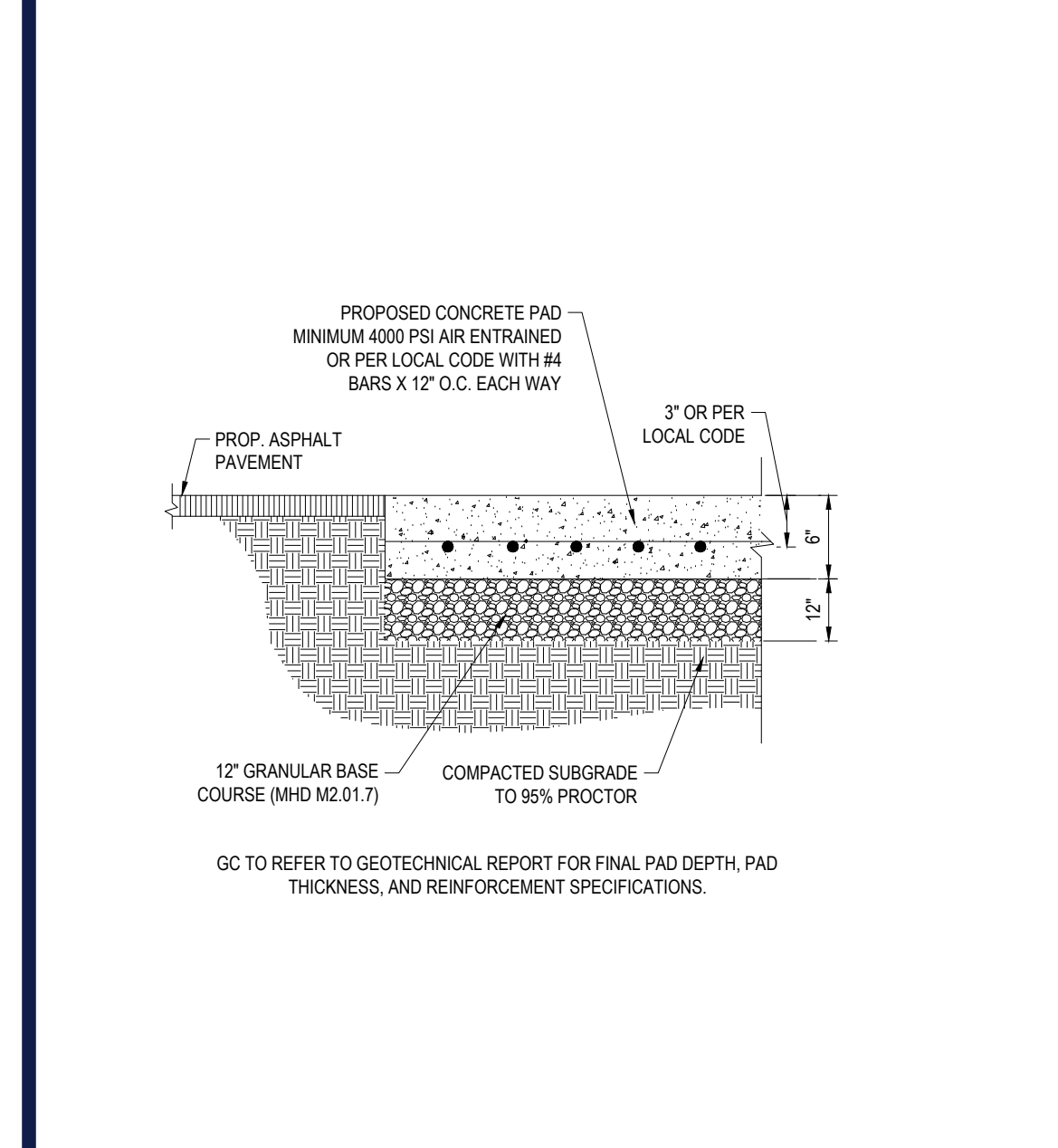
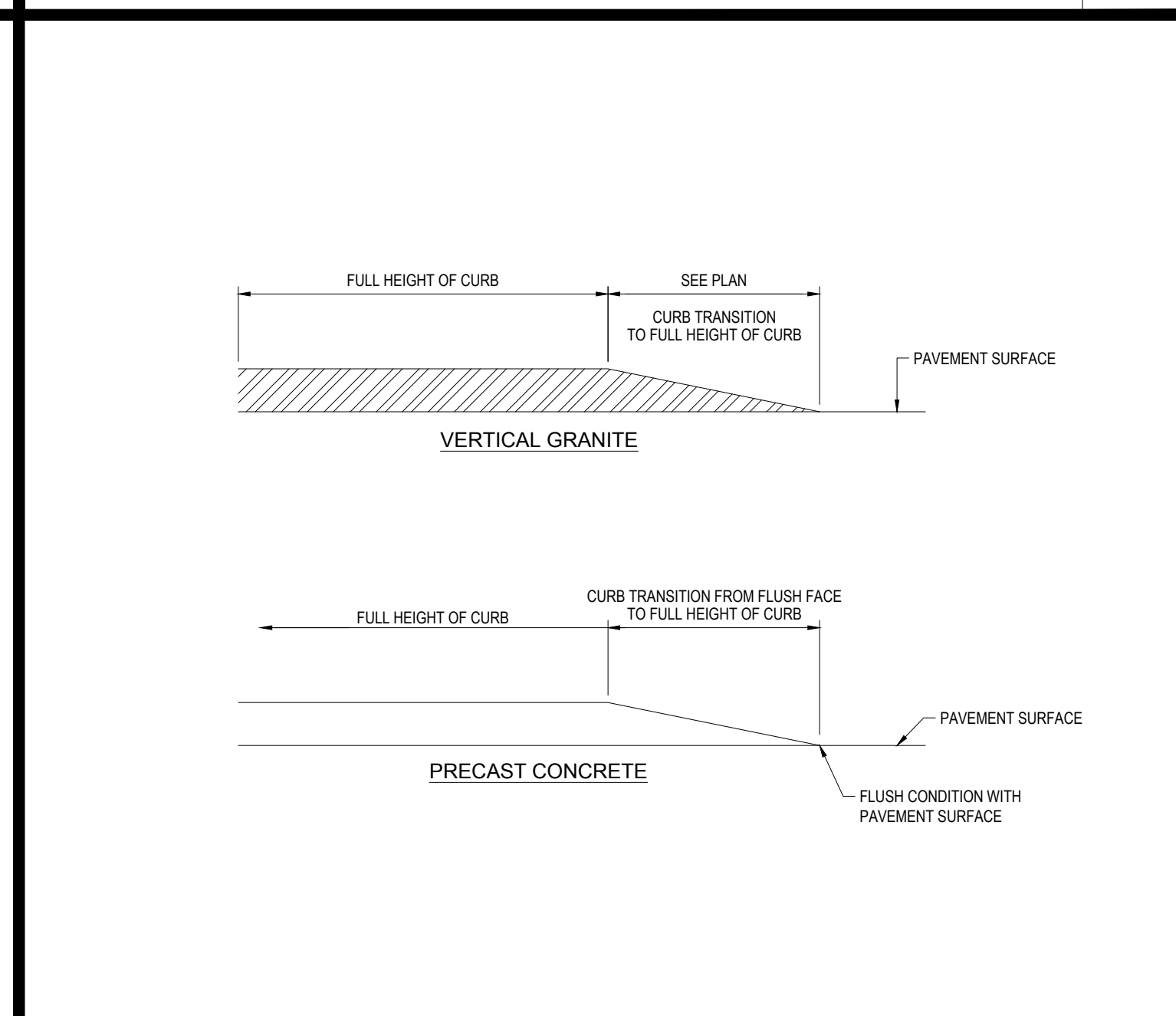
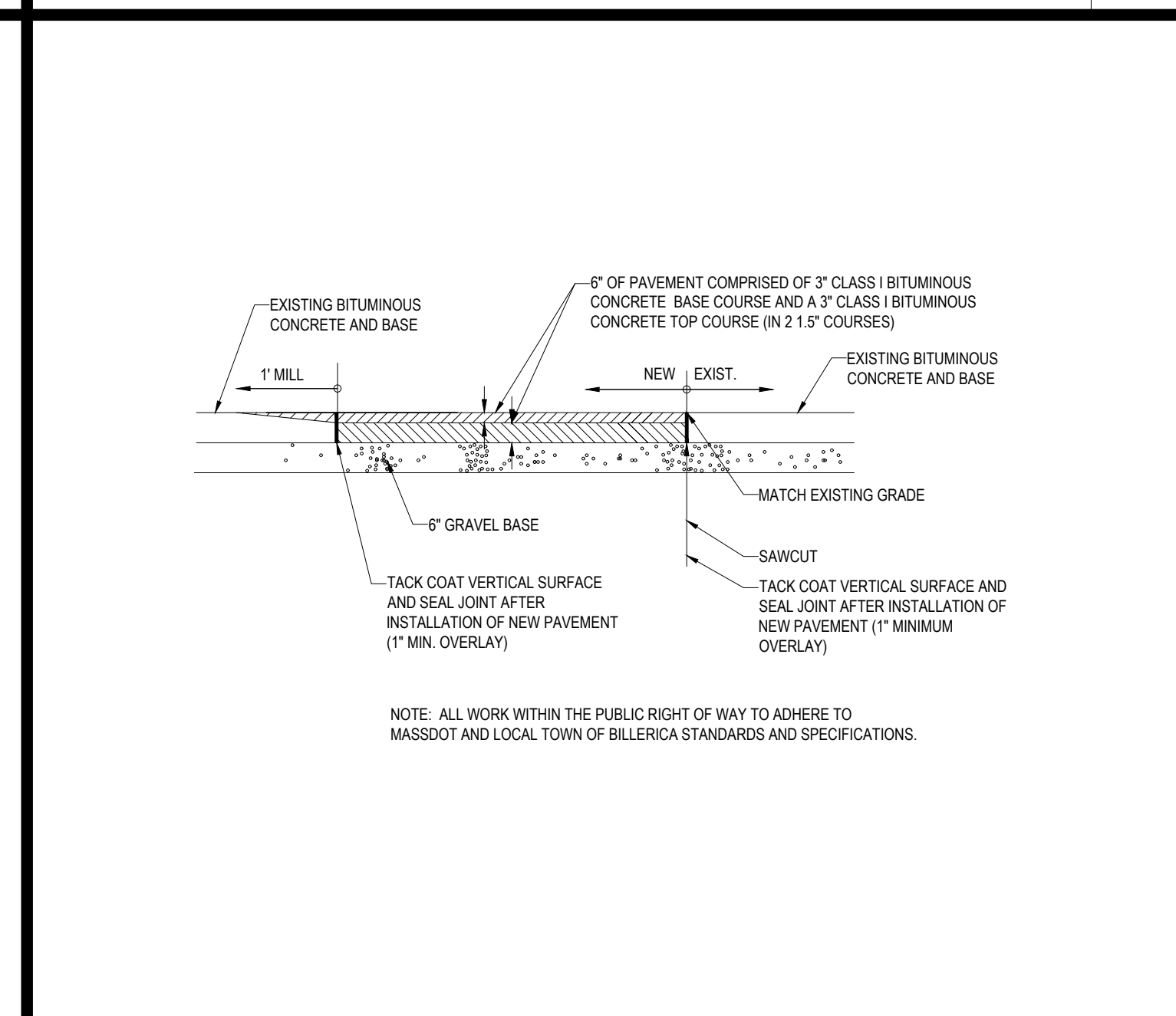
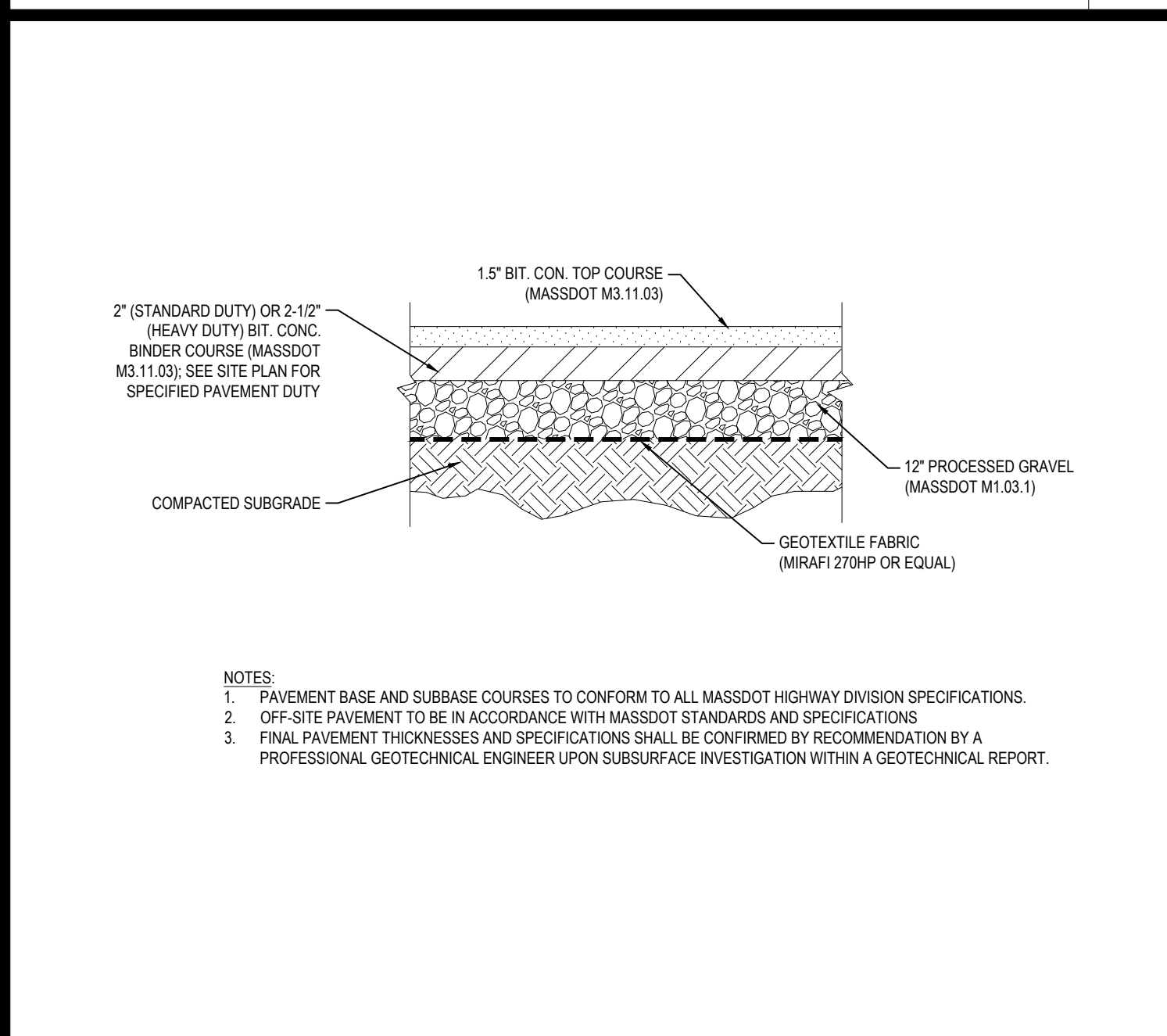
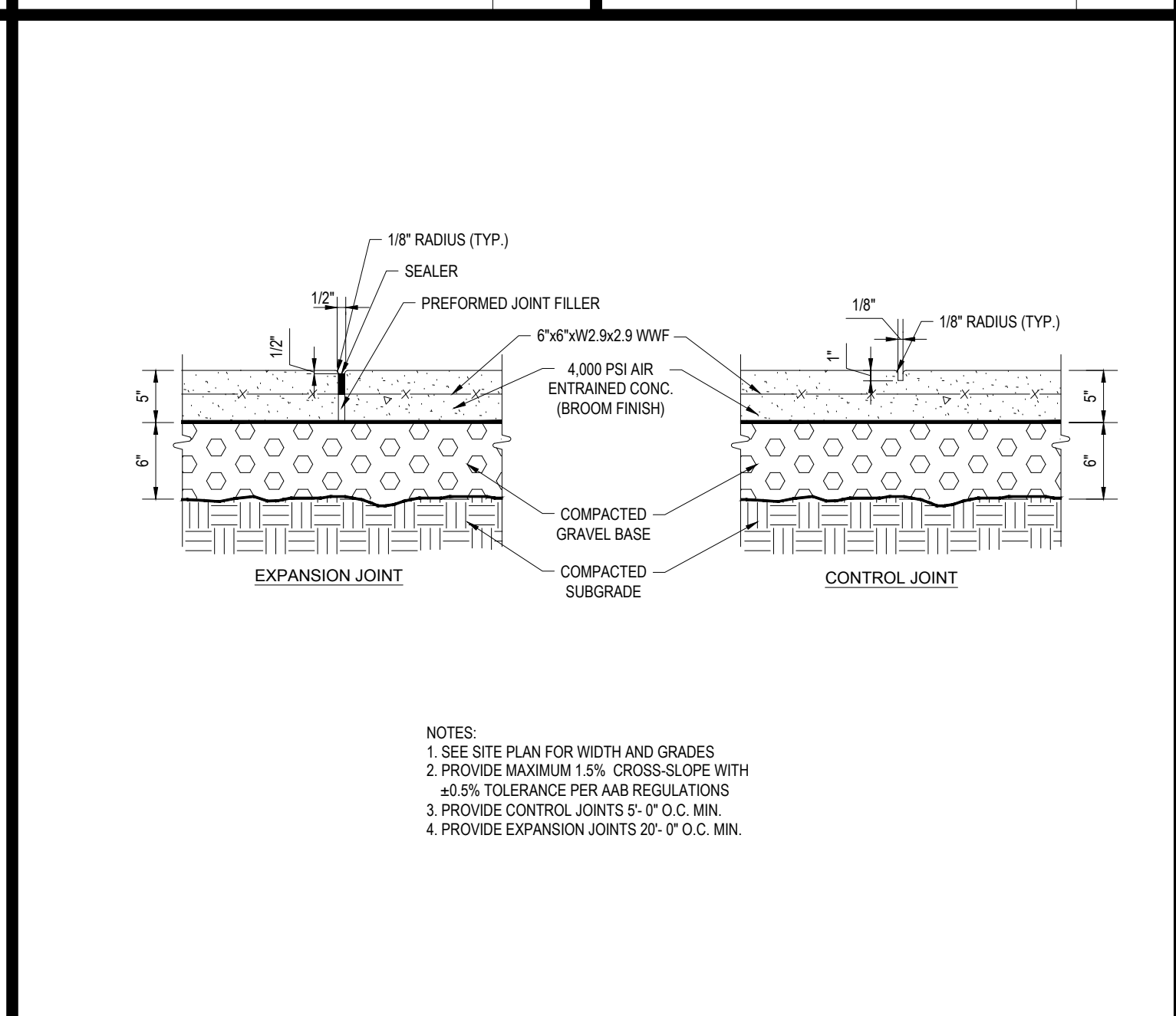
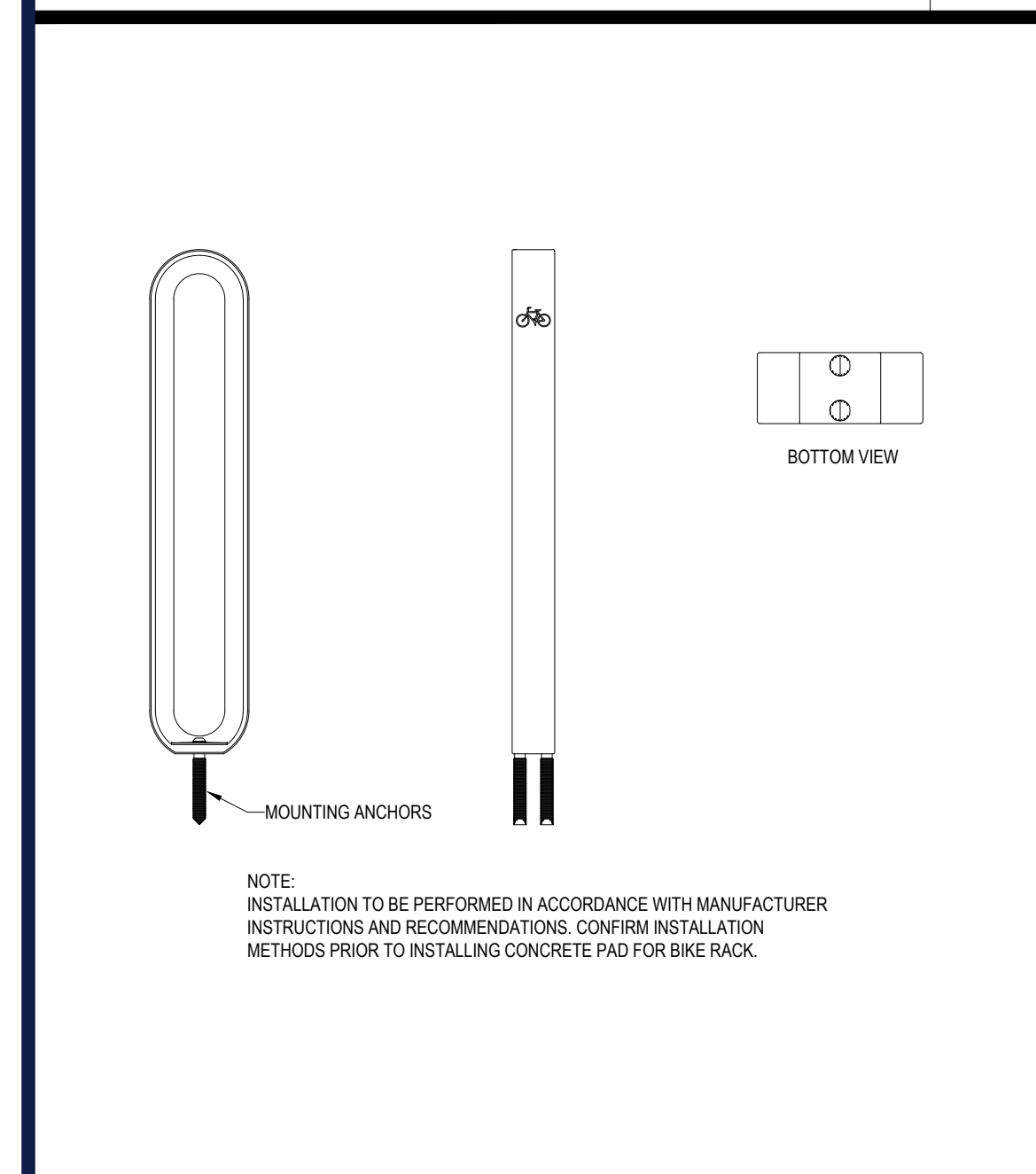
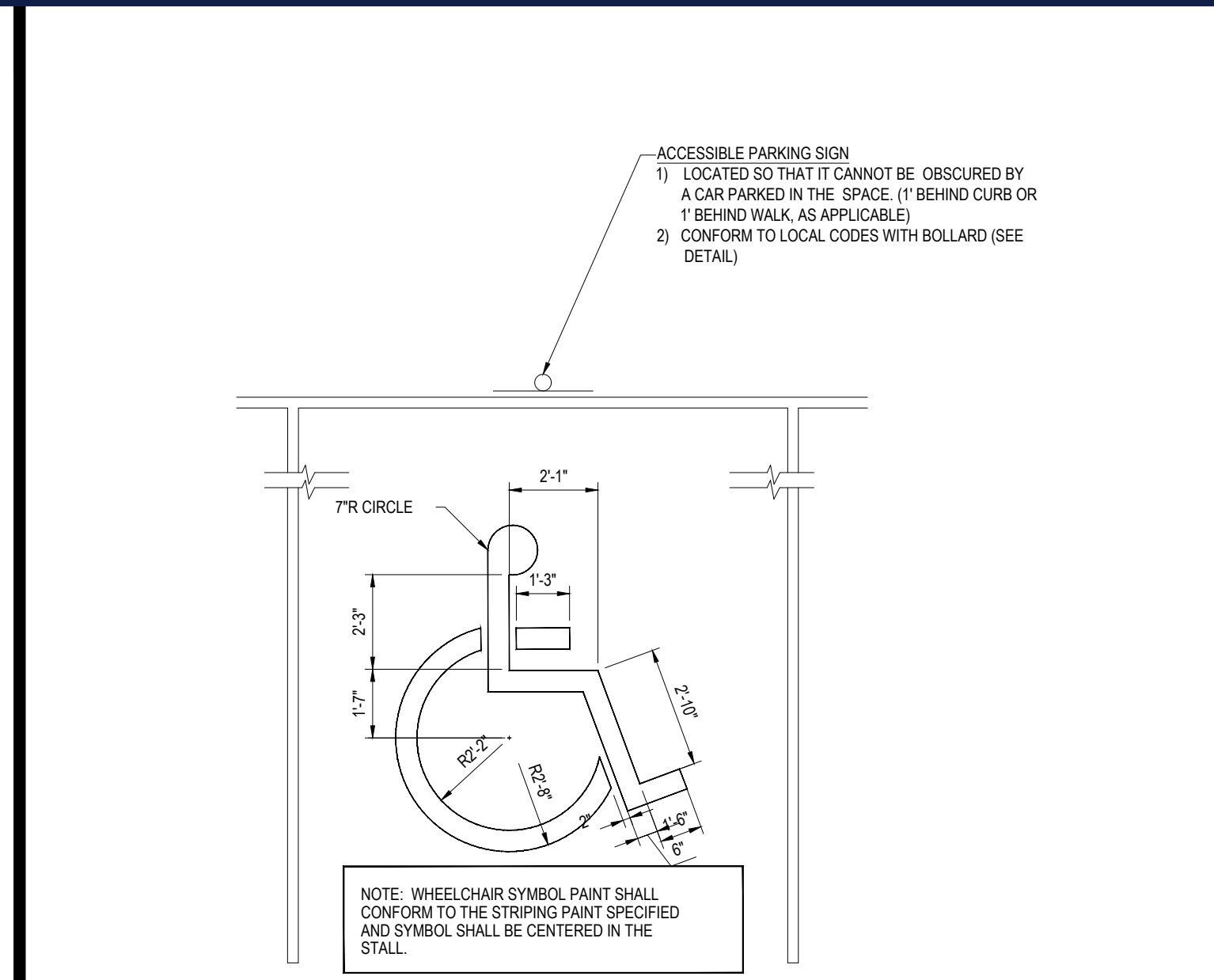
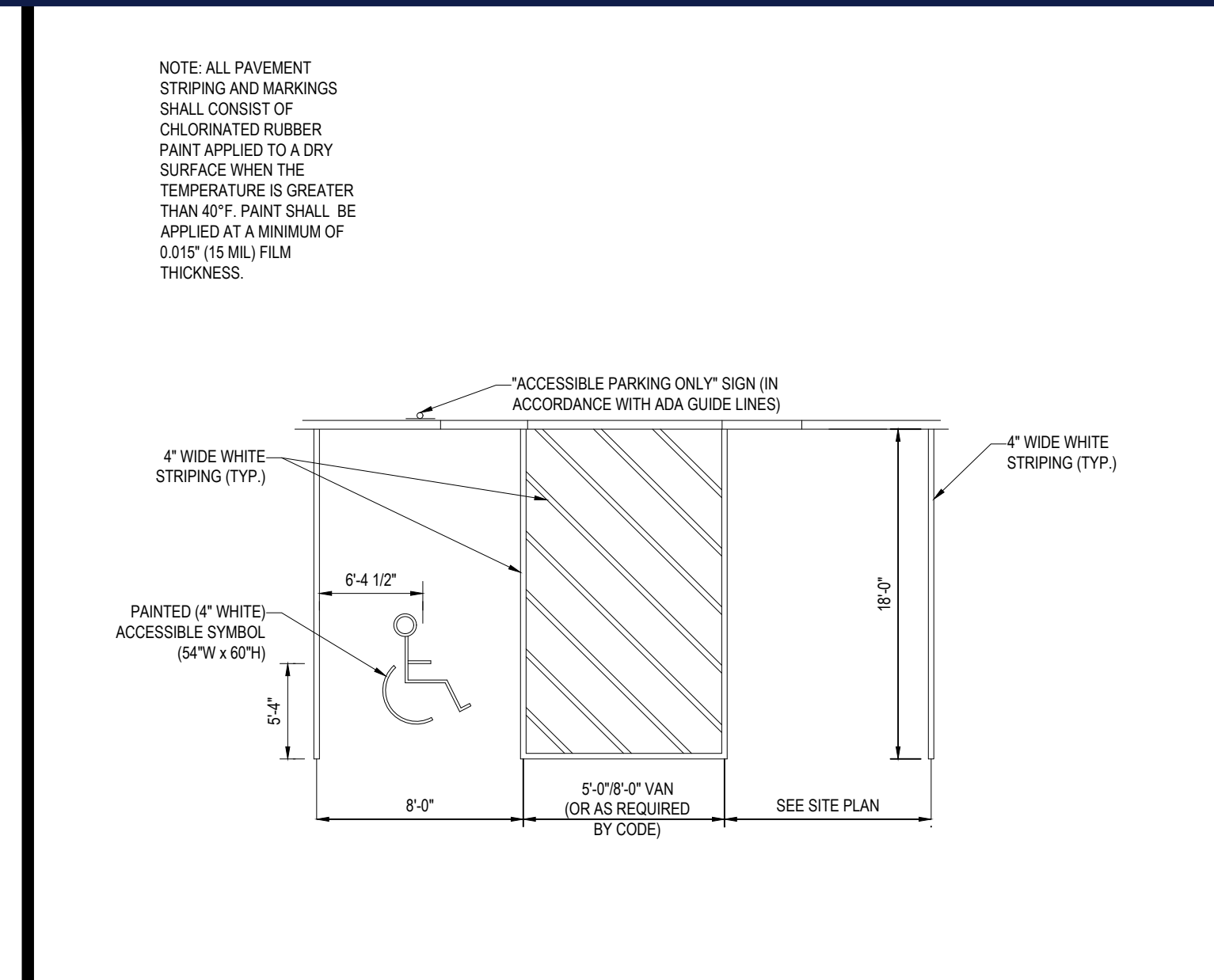
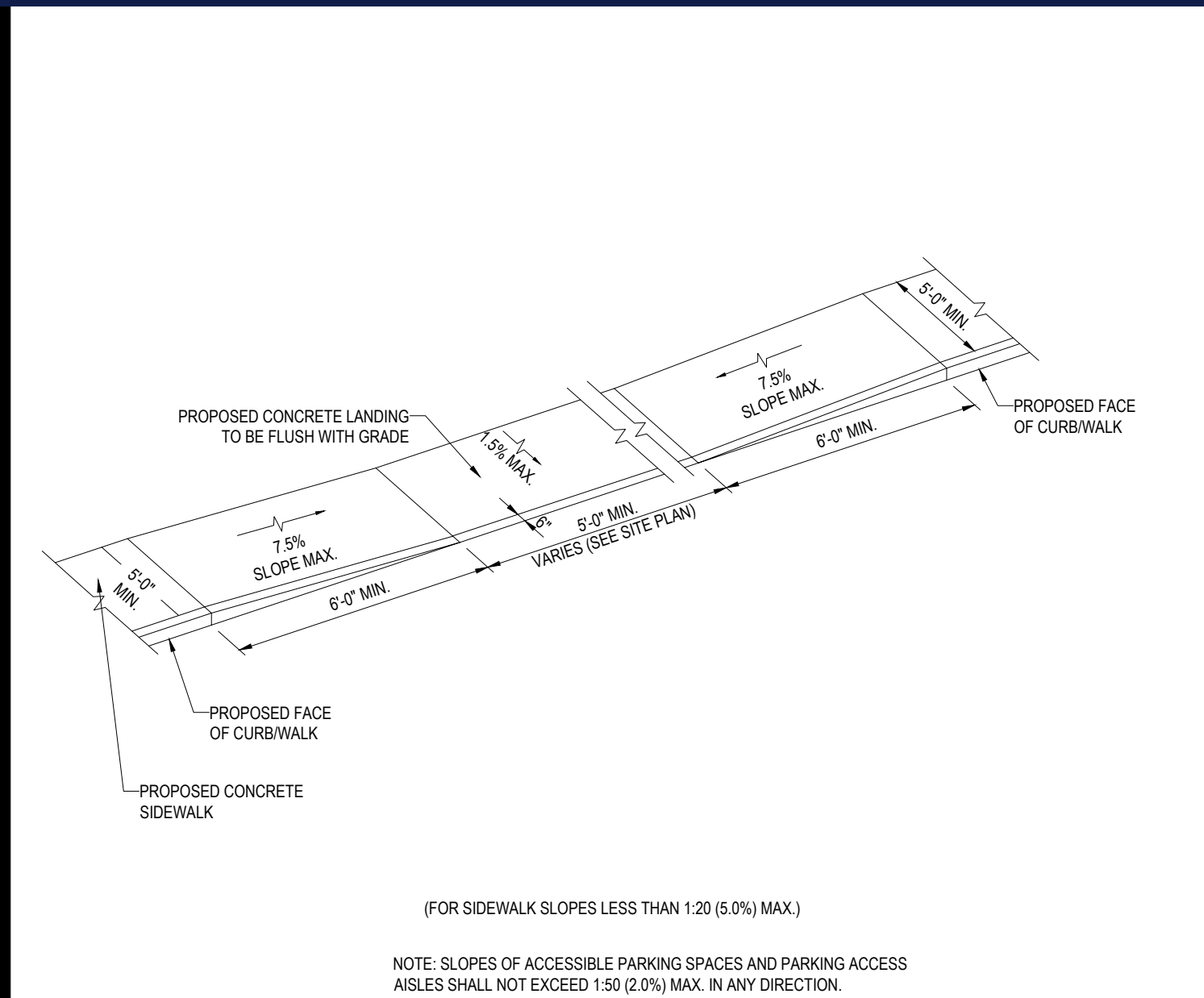
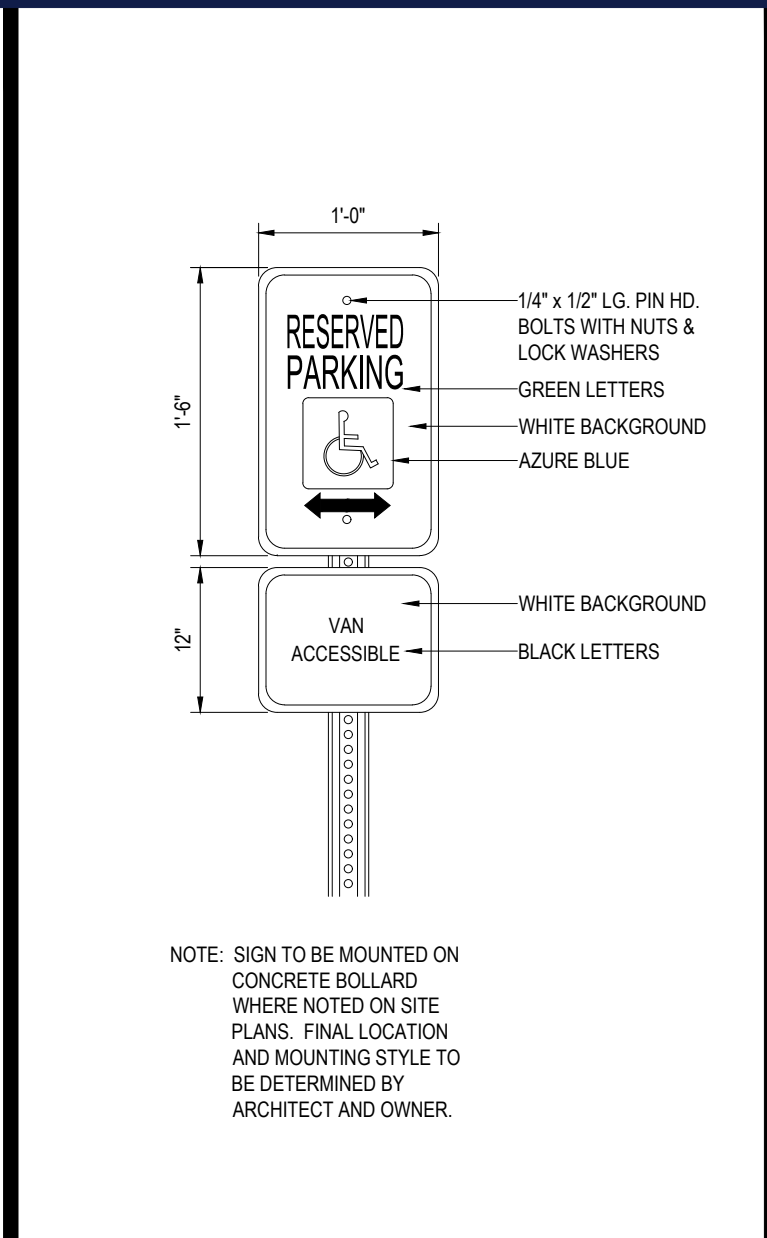
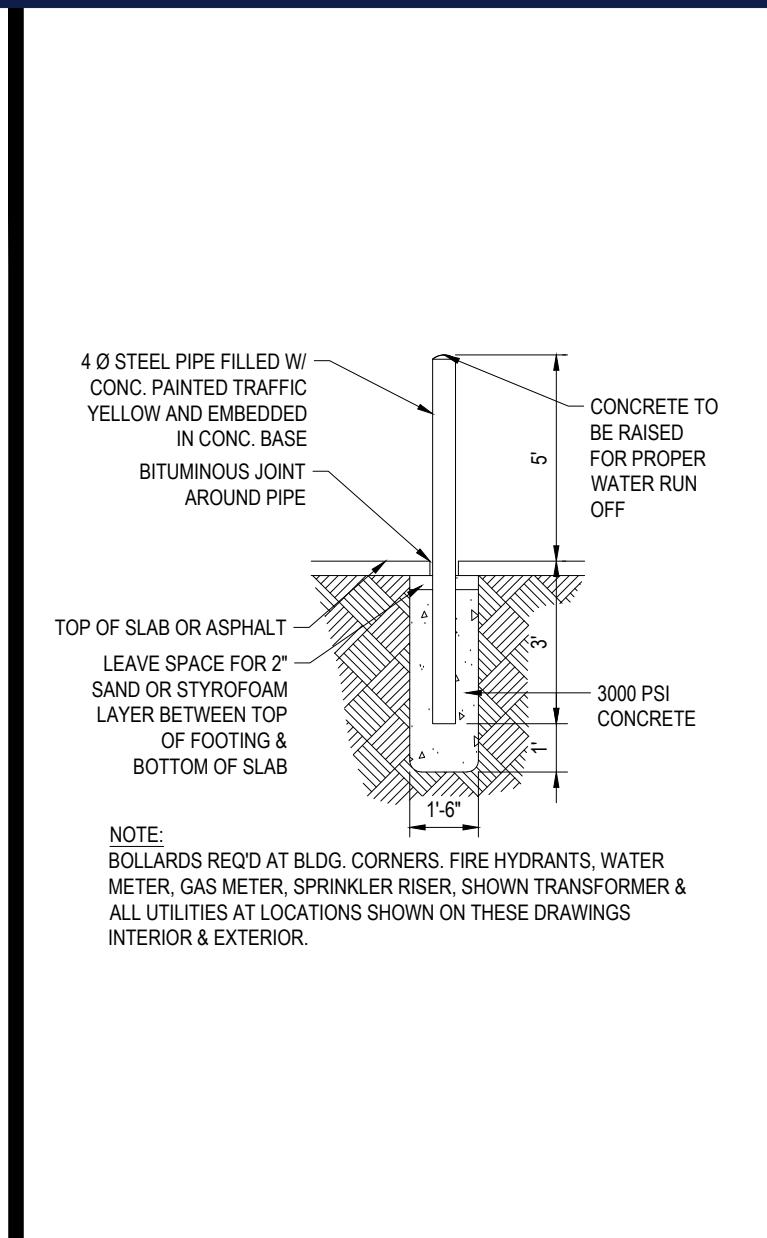
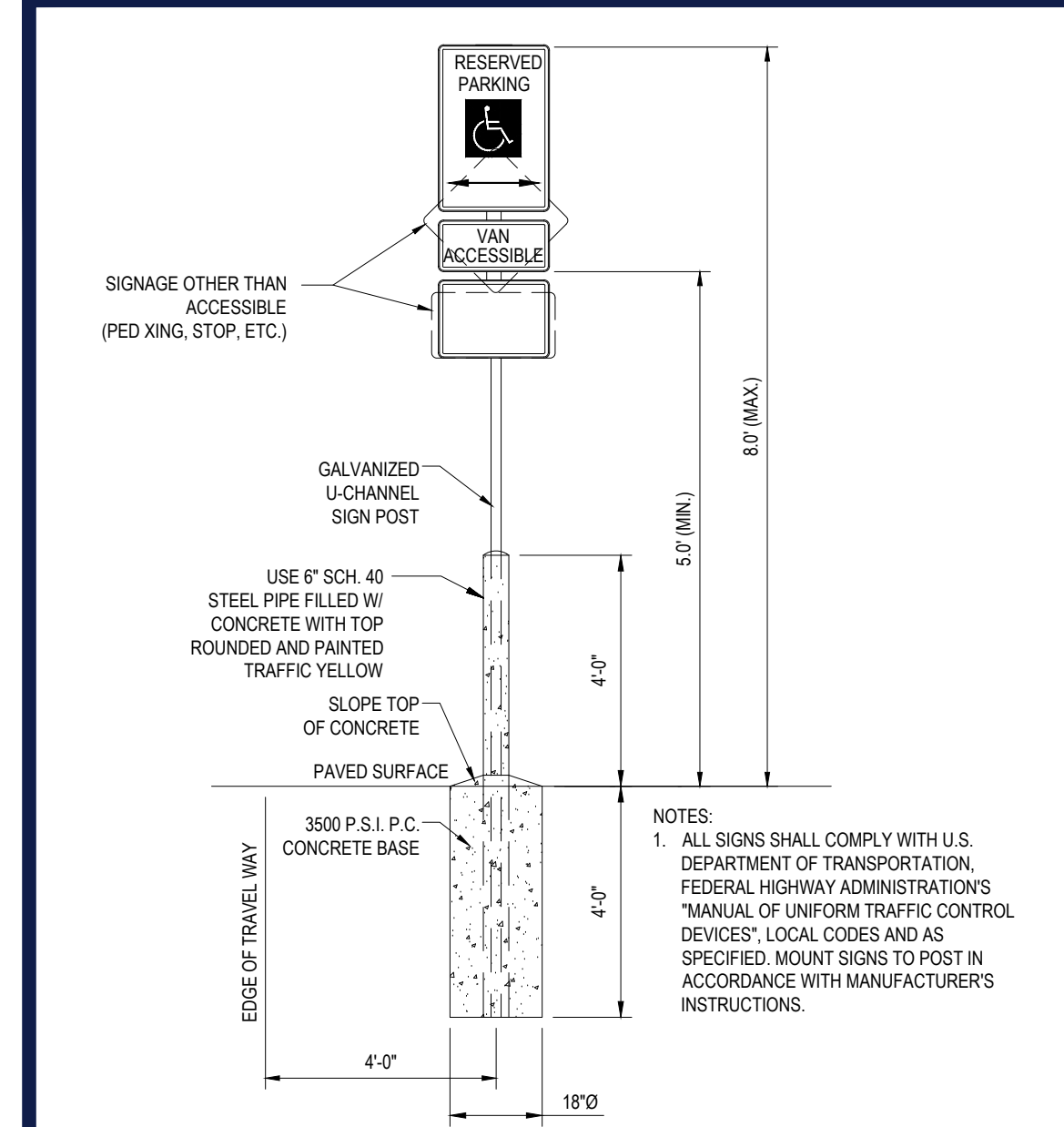
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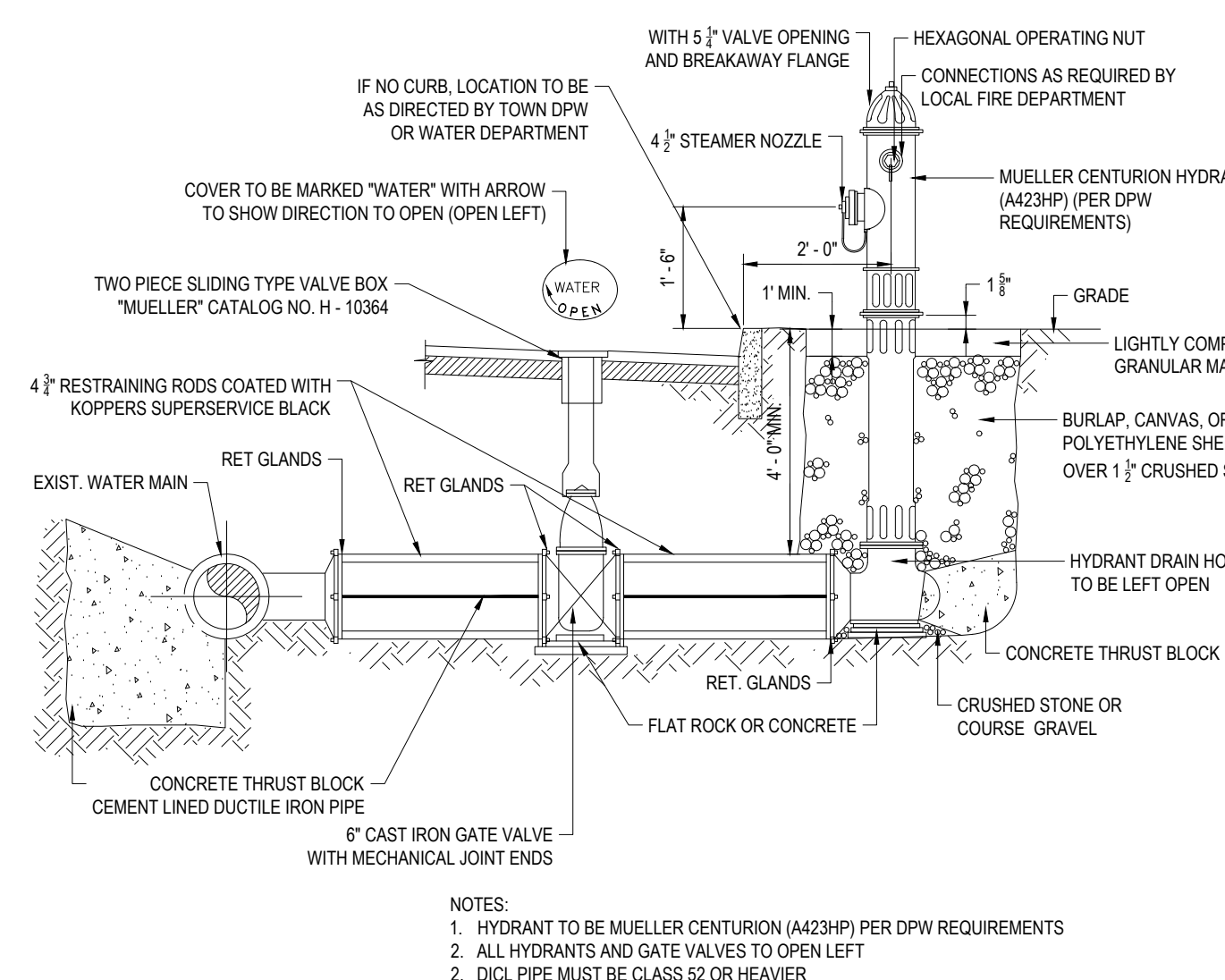
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LANDSCAPE NOTES & DETAILS

SHEET NUMBER: L-301

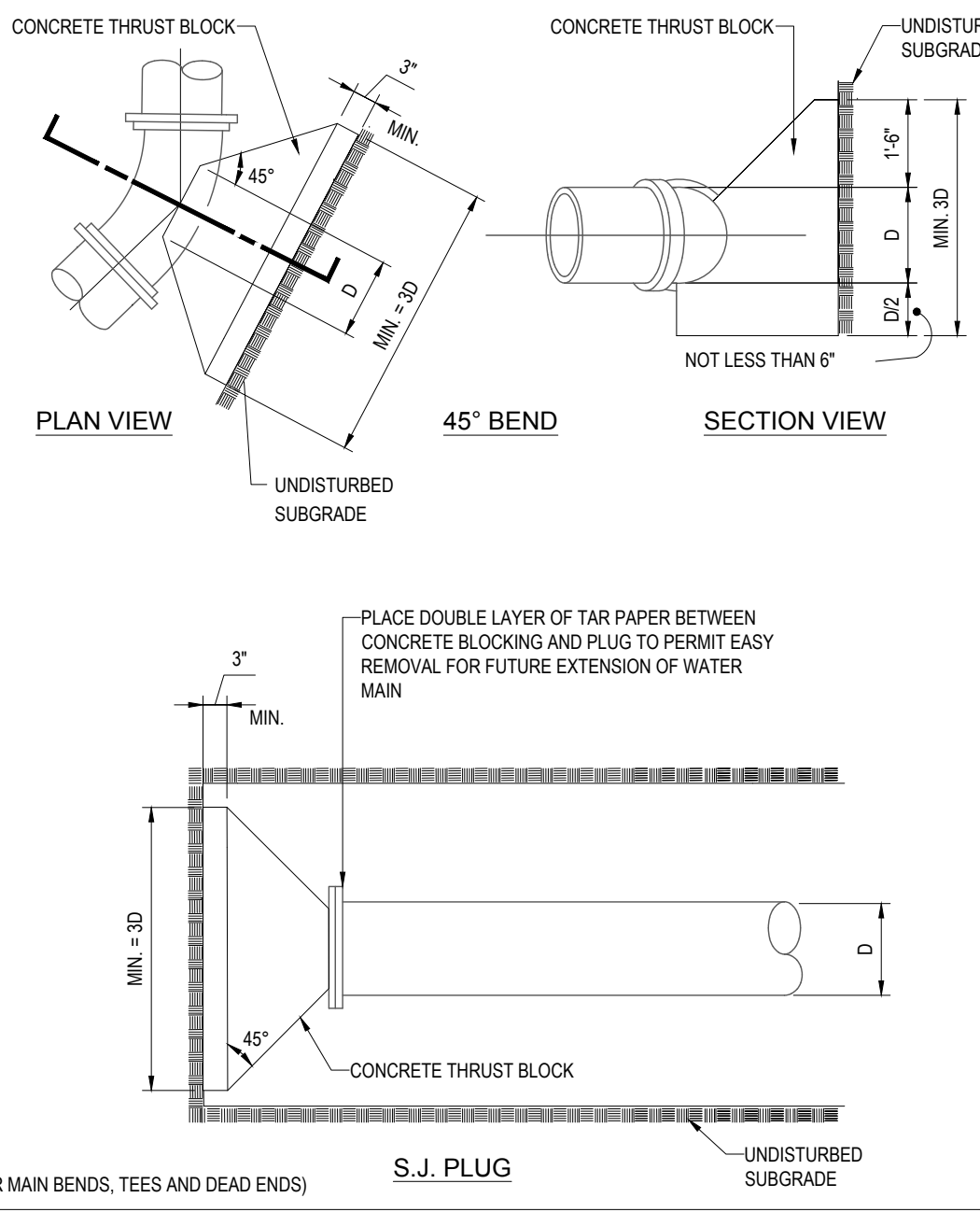
REVISION 1 - 09/28/2021



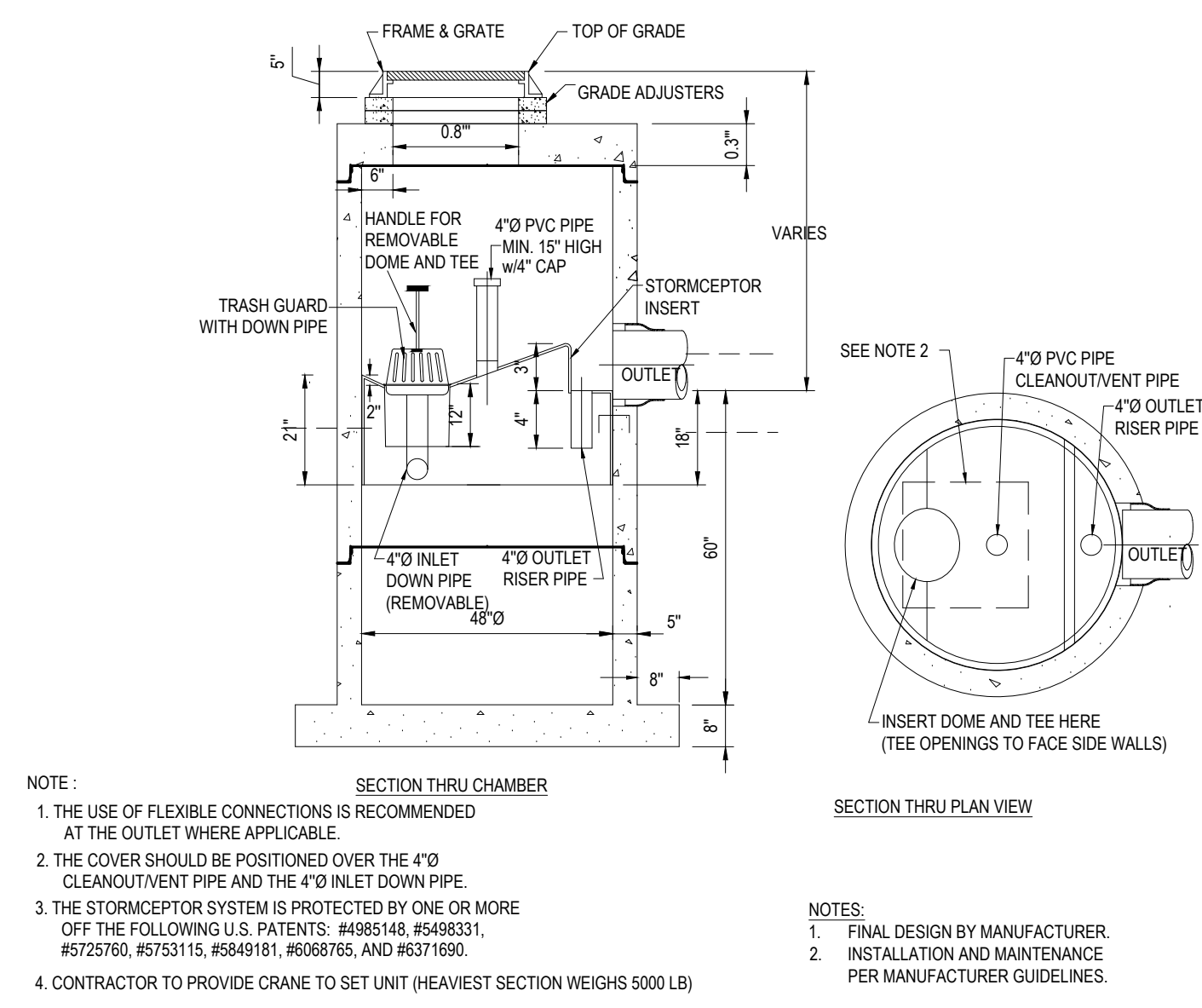
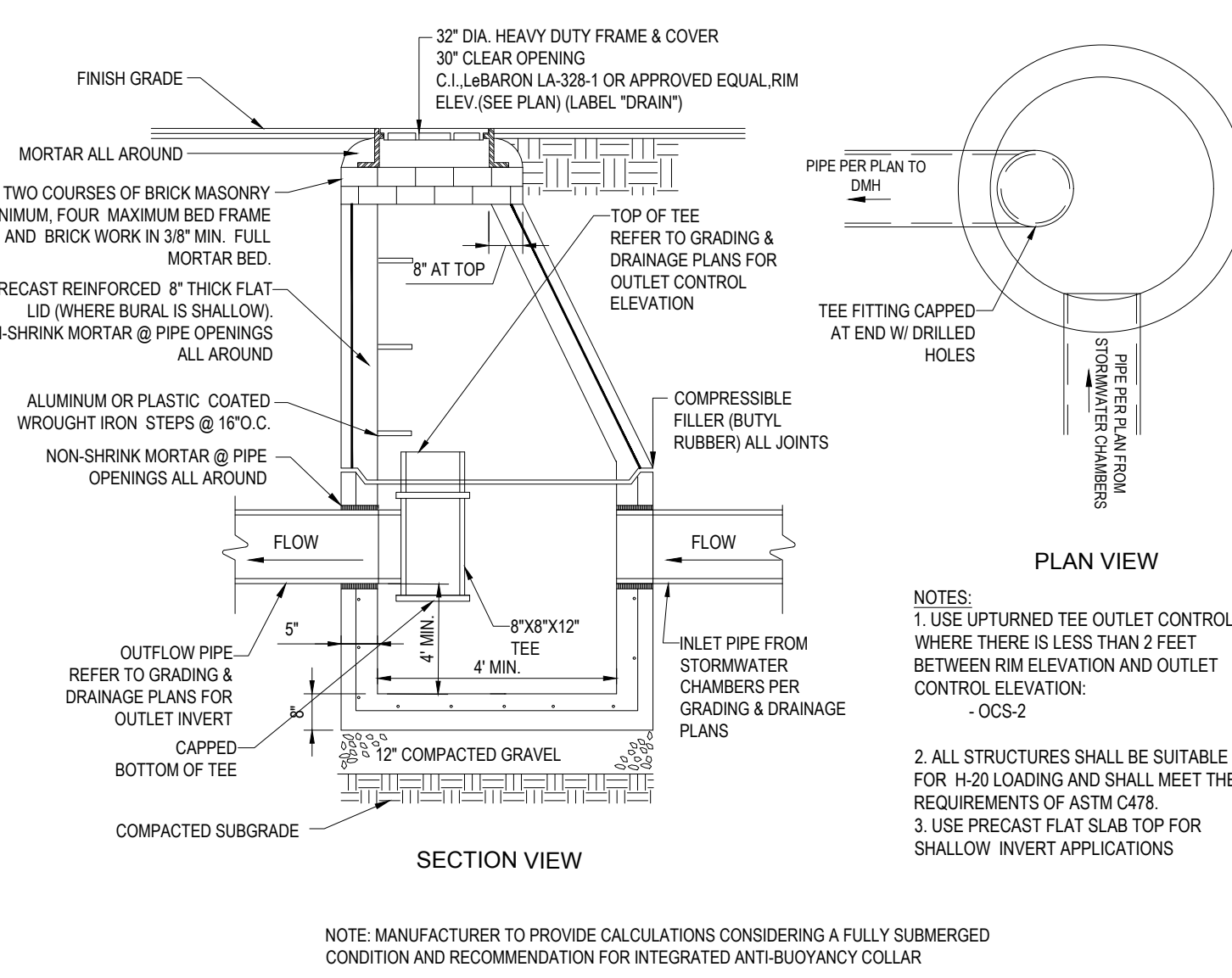
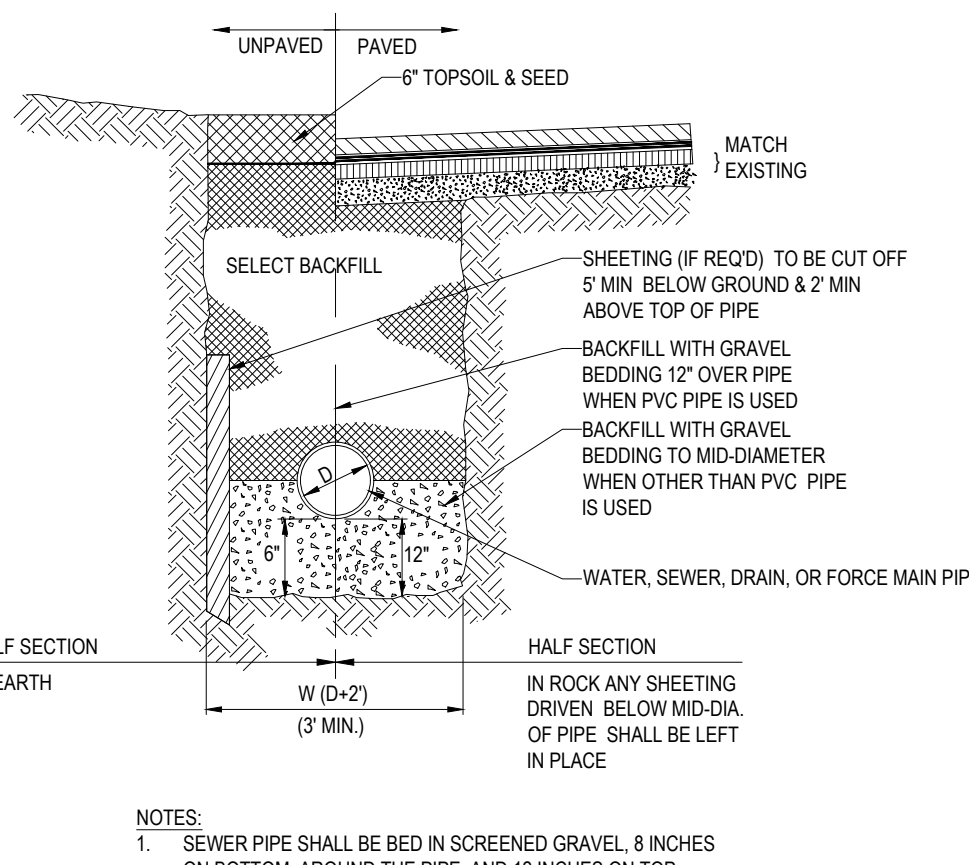
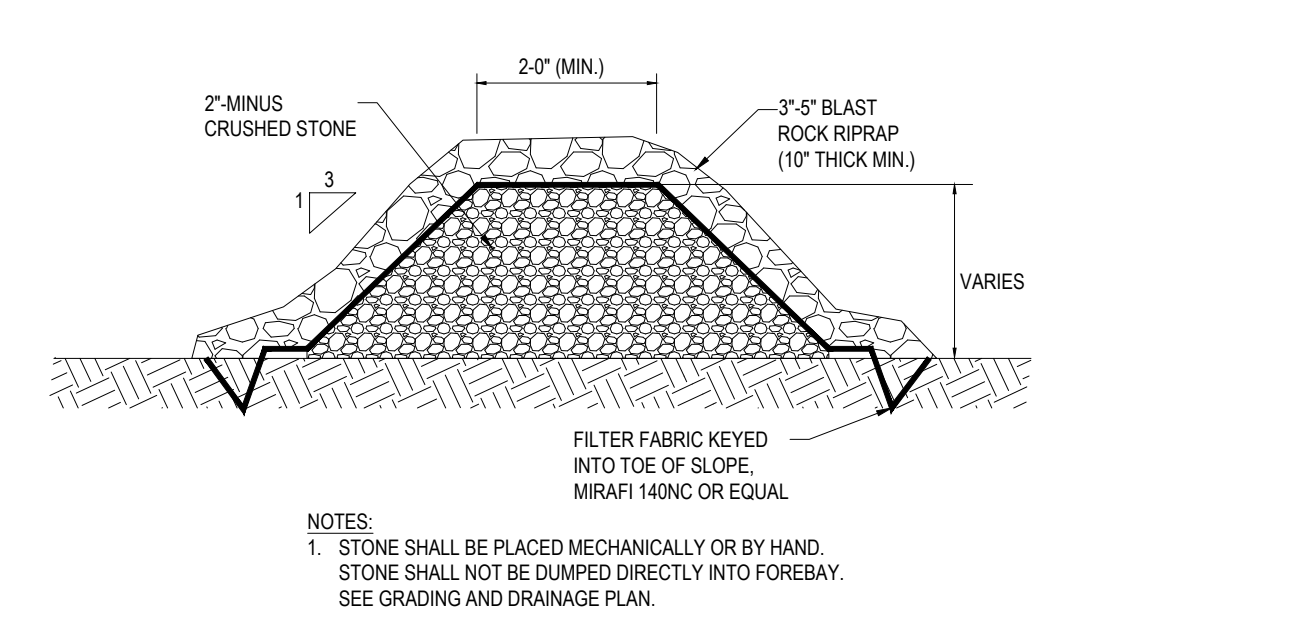


| REVISIONS | | | |
|------------------|----------|--------------------------|------------------------|
| REV | DATE | COMMENT | DRAWN BY CHECKED BY |
| 0 | 05/14/21 | INITIAL SUBMISSION | JJW ZLR |
| 1 | 09/28/21 | PEER REVIEW RESPONSES | JJW ZLR |
| | | | |
| | | | |

HYDRANT & VALVE INSTALLATION



THRUST BLOCK DETAIL

**STORMCEPTOR STC 450i (WQI-01)**

TYPICAL UTILITY TRENCH

| REVISIONS | | | |
|------------------|----------|--------------------------|------------------------|
| REV | DATE | COMMENT | DRAWN BY CHECKED BY |
| 0 | 05/14/21 | INITIAL SUBMISSION | JJW ZLR |
| 1 | 09/28/21 | PEER REVIEW RESPONSES | JJW ZLR |
| | | | |
| | | | |



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PERMIT SET

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REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION
DOCUMENT UNLESS INDICATED OTHERWISE.

| | |
|--------------|-------------|
| PROJECT No.: | M211009 |
| DRAWN BY: | JJW |
| CHECKED BY: | ZLR |
| DATE: | 09/28/2021 |
| CAD I.D.: | M211009-DTL |

SITE DEVELOPMENT PLANS

_____ FOR _____

KS Partners owned & operated by

**PROPOSED
GMP LAB FACILITY**

**MAP 86, BLOCK 108, LOT 5
300 CONCORD ROAD
TOWN OF BILLERICA
MIDDLESEX COUNTY,
MASSACHUSETTS**

BOHLER//

**45 FRANKLIN STREET, 5th FLOOR
BOSTON, MA 02110**
Phone: (617) 849-8040

www.BohlerEngineering.com



SHEET TITLE:

**DETAIL
SHEET**

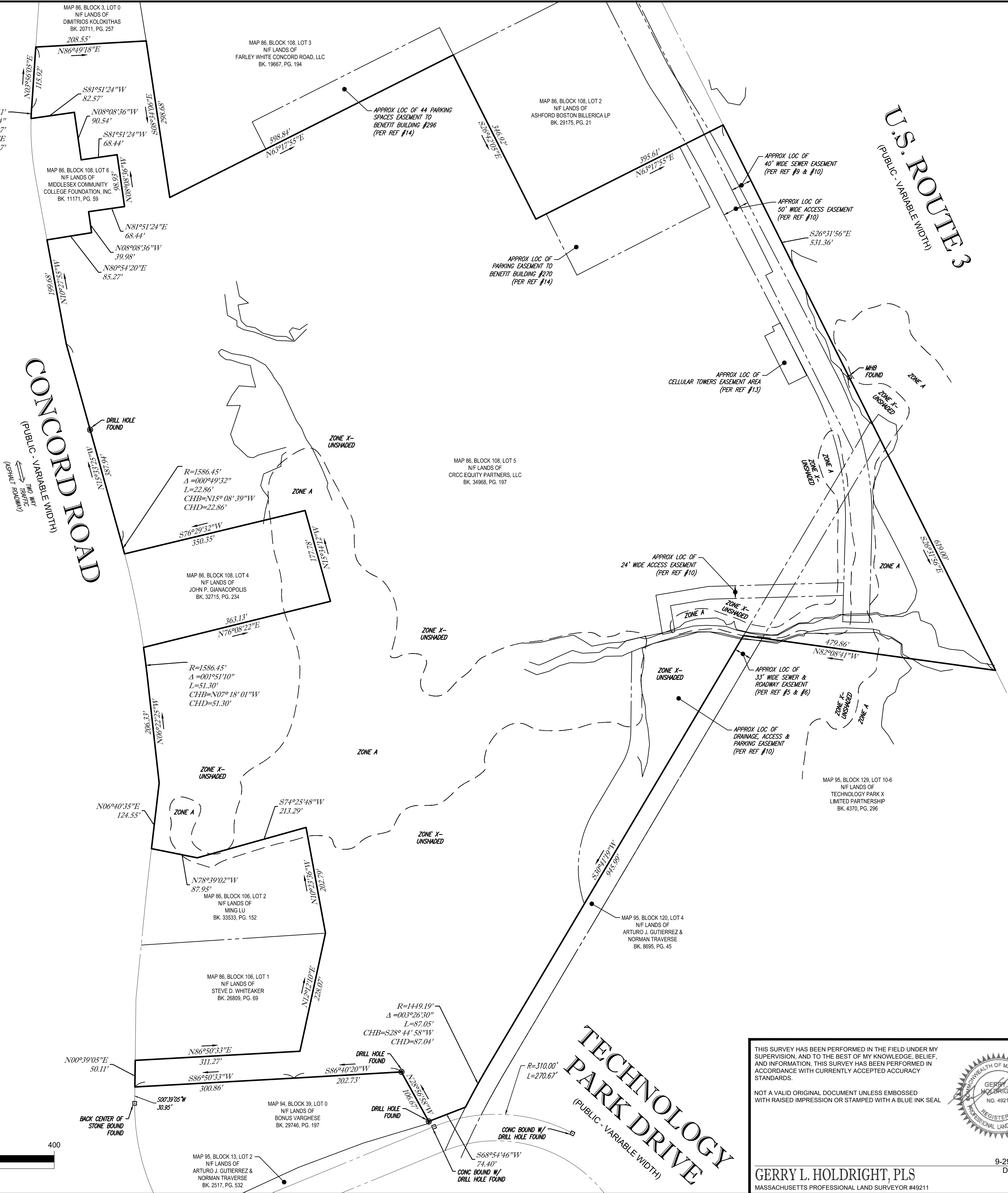
SHEET NUMBER

C-902

REVISION 1 - 09/28/202

REFERENCES:

1. THE TAX ASSESSOR'S MAP OF BILLERICA, MIDDLESEX COUNTY, MAP #86.
2. MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, MIDDLESEX COUNTY, MASSACHUSETTS (ALL JURISDICTIONS) PANEL 266 OF 656," MAP NUMBER 25017C0266F, MAP REVISED: JULY 7, 2014.
3. MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, MIDDLESEX COUNTY, MASSACHUSETTS (ALL JURISDICTIONS) PANEL 267 OF 656," MAP NUMBER 25017C0267F, MAP REVISED: JULY 7, 2014.
4. MAP ENTITLED "PLAN OF LAND IN BILLERICA, MASSACHUSETTS, MIDDLESEX COUNTY, PREPARED FOR LEGGAT MICALL PROPERTIES, 300 CONCORD ROAD, BILLERICA, MASSACHUSETTS," PREPARED BY CONSULTING ENGINEERS & SCIENTISTS, LLC, DATED OCTOBER 20, 1998. RECORDED WITH THE MIDDLESEX COUNTY REGISTRY OF DEEDS AS PLAN BOOK 203, PLAN 76.
5. MAP ENTITLED "DEFINITIVE PLAN, TECHNOLOGY PARK IN BILLERICA, MASS., SUBMITTED BY TECHNOLOGY PARK REALTY TRUST I & II," PREPARED BY FLEMING, BIENVENU & ASSOCIATES, INC., DATED JUNE 4, 1982. TWO SHEETS. RECORDED WITH THE MIDDLESEX COUNTY REGISTRY OF DEEDS AS PLAN BOOK 139, PLAN 29.
6. MAP ENTITLED "PLAN OF LAND, CONCORD ROAD, BILLERICA, MA, PREPARED FOR BULL HN INFORMATION SYSTEMS, INC.," PREPARED BY HOWE SURVEYING ASSOCIATES, INC., DATED DECEMBER 12, 1994. RECORDED WITH THE MIDDLESEX COUNTY REGISTRY OF DEEDS AS PLAN BOOK 187, PLAN 94.
7. MAP ENTITLED "PLANS TO ACCOMPANY MODIFICATION TO SITE PLAN APPROVAL/NOTICE OF INTENT FOR 300 CONCORD ROAD, IN THE TOWN OF BILLERICA, MASSACHUSETTS, PROPOSED GRADING & DRAINAGE PLAN," PREPARED BY BEALS ASSOCIATES, INC., DATED MAY 22, 2007. SHEET 6 OF 7.
8. MAP ENTITLED "GRADING PLAN, 300 CONCORD ROAD, BILLERICA, MA 01821," PREPARED BY BEALS ASSOCIATES, INC., DATED JANUARY 20, 1998. SHEET 5 OF 11.
9. MAP ENTITLED "EASEMENT PLAN FOR HONEYWELL INFORMATION SYSTEMS INC.," PREPARED BY THE GUTIERREZ COMPANY, DATED FEBRUARY 4, 1982. RECORDED WITH THE MIDDLESEX COUNTY REGISTRY OF DEEDS AS PLAN BOOK 137, PLAN 65.
10. MAP ENTITLED "PARKING & ACCESS EASEMENT PLAN IN BILLERICA, MASS. FOR BULL HN INFORMATION SYSTEMS, INC.," PREPARED BY THE GUTIERREZ COMPANY, DATED DECEMBER 11, 1989. RECORDED WITH THE MIDDLESEX COUNTY REGISTRY OF DEEDS AS PLAN BOOK 176, PLAN 12.
11. MAP ENTITLED "PLAN OF LAND, WANG LABORATORIES, 800 TECHNOLOGY PARK DRIVE, BILLERICA, MA, PREPARED FOR KS PARTNERS, LLC," PREPARED BY TAJ ENGINEERING, LLC, DATED MARCH 17, 2021. LAST REVISED MARCH 30, 2021.
12. UNDERGROUND TELECOMMUNICATIONS MAPPING PROVIDED BY T&T.
13. MAP ENTITLED "EASEMENT PLAN CELLULAR TOWERS AREA, 296, 298 & 300 CONCORD RD, BILLERICA, MA, PREPARED FOR KS PARTNERS, LLC," PREPARED BY TAJ ENGINEERING, LLC, DATED MARCH 17, 2021. LAST REVISED MARCH 30, 2021.
14. MAP ENTITLED "ALTANSPS LAND TITLE SURVEY PLAN, 296, 298 & 300 CONCORD RD, BILLERICA, MA, PREPARED FOR KS PARTNERS, LLC," PREPARED BY TAJ ENGINEERING, LLC, DATED OCTOBER 6, 2020. LAST REVISED NOVEMBER 18, 2020. TWO SHEETS.
15. UNDERGROUND ELECTRIC FACILITY MAPPING PROVIDED BY NATIONAL GRID.
16. UNDERGROUND GAS FACILITY MAPPING PROVIDED BY NATIONAL GRID.



NOTES:

1. PROPERTY KNOWN AS LOT 5 AS SHOWN ON THE TOWN OF BILLERICA, MIDDLESEX COUNTY, COMMONWEALTH OF MASSACHUSETTS, MAP NO. 86.
2. AREA = 1,934.411 SQUARE FEET OR 44.408 ACRES
3. LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. LOCATIONS AND SIZES ARE BASED ON UTILITY MARK-OUTS, ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE IN THE FIELD, AND THE MAPS AS LISTED IN THE REFERENCES AVAILABLE AT THE TIME OF THE SURVEY. AVAILABLE AS-BUILT PLANS AND UTILITY MARKOUT DOES NOT ENSURE MAPPING OF ALL UNDERGROUND UTILITIES AND STRUCTURES. BEFORE ANY EXCAVATION IS TO BEGIN, ALL UNDERGROUND UTILITIES SHOULD BE VERIFIED AS TO THEIR LOCATION, SIZE AND TYPE BY THE PROPER UTILITY COMPANIES. CONTROL POINT ASSOCIATES, INC. DOES NOT GUARANTEE THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA EITHER IN SERVICE OR ABANDONED.
4. THIS PLAN IS BASED ON INFORMATION PROVIDED BY A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. AND OTHER REFERENCE MATERIAL AS LISTED HEREON.
5. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO THE RESTRICTIONS, COVENANTS AND/OR EASEMENTS THAT MAY BE CONTAINED THEREIN.
6. BY GRAPHIC PLOTTING ONLY PROPERTY IS LOCATED IN FLOOD HAZARD ZONE X-UNSHADED (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AND FLOOD HAZARD ZONE A (AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD; NO BASE FLOOD ELEVATIONS DETERMINED) PER REF. #2
7. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), BASED ON GPS OBSERVATIONS UTILIZING THE KEYSTONE VRS NETWORK (KEYNETGPS) TAKEN AT THE TIME OF THE FIELD SURVEY.

TEMPORARY BENCH MARKS SET:

TBM-A: X-CUT ON BOLT OVER MAIN OUTLET OF FIRE HYDRANT. ELEVATION = 194.74'

TBM-B: X-CUT ON BOLT OVER MAIN OUTLET OF FIRE HYDRANT. ELEVATION = 196.42'

PRIOR TO CONSTRUCTION IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE BENCHMARKS ILLUSTRATED ON THIS SKETCH HAVE NOT BEEN DISTURBED AND THEIR ELEVATIONS HAVE BEEN CONFIRMED. ANY CONFLICTS MUST BE REPORTED PRIOR TO CONSTRUCTION.

8. THE OFFSETS SHOWN ARE NOT TO BE USED FOR THE CONSTRUCTION OF ANY STRUCTURE, FENCE, PERMANENT ADDITION, ETC.
9. PARTIAL TOPOGRAPHY SHOWN HEREON PER CONTRACTUAL AGREEMENT WITH CLIENT.
10. THE DELINEATION LINE WAS PLACED IN THE FIELD BY LUCAS ENVIRONMENTAL, LLC. ON MARCH 8, 12 & 15, 2021, AND FIELD LOCATED BY CONTROL POINT ASSOCIATES, INC. ON MARCH 17 & 18, 2021.
11. THE EXISTENCE OF UNDERGROUND STORAGE TANKS, IF ANY, WAS NOT KNOWN AT THE TIME OF THE FIELD SURVEY.
12. THIS SURVEY WAS PERFORMED DURING A PERIOD WHEN THE GROUND WAS SNOW COVERED. UTILITY STRUCTURES AND SITE FEATURES HAVE BEEN LOCATED AND IDENTIFIED WHICH WERE VISIBLE ON THE DATE OF THE FIELD SURVEY. REMOVAL OF THIS NOTE FROM THE SURVEY WILL REQUIRE A LATER SITE VISIT AFTER THE SNOW HAS MELTED.

FEATURES SHOWN HEREON WITH HALF-TONED ARE APPROXIMATE PER AERIAL PHOTO RETRIEVED FROM GOOGLE ONLINE MAPS.

| | | | | | |
|---|--|--------|--------|--------|-----------|
| 3 | UPDATED PER ADDITIONAL TOPOGRAPHY | B.S.B. | R.J.K. | G.L.H. | 9-29-2021 |
| 2 | REVISED WETLAND FLAGGING DESIGNATION | - | R.J.K. | G.L.H. | 5-19-2021 |
| 1 | REVISED PER ADDITIONAL UTILITY MAPPING | - | R.J.K. | G.L.H. | 5-10-2021 |

| No. | DESCRIPTION OF REVISION | FIELD CREW | DRAWN | APPROVED | DATE |
|-----|-------------------------|------------|-------|----------|------|
|-----|-------------------------|------------|-------|----------|------|

| | | |
|----------------|----------|--|
| FIELD DATE | 3-5-2021 | BOUNDARY, PARTIAL TOPOGRAPHIC & UTILITY SURVEY |
| FIELD BOOK NO. | 20-19 MA | 300 CONCORD ROAD |
| FIELD BOOK PG. | 55 | MAP 86, BLOCK 108, LOT 5 |
| FIELD CREW | J.S.A. | TOWN OF BILLERICA |
| DRAWN | R.J.K. | MIDDLESEX COUNTY |
| REVIEWED | E.L.O.C. | COMMONWEALTH OF MASSACHUSETTS |

| | |
|--------------------------------|-------------------------|
| CONTROL POINT ASSOCIATES, INC. | ALBANY, NY 518-217-5010 |
| CHALFONTS, PA 215-712-9800 | |
| HAUPPAUGE, NY 631-580-2645 | |
| MANHATTAN, NY 646-780-0411 | |
| MIT LAUREL, NJ 609-571-2999 | |
| WARREN, NJ 908-668-0999 | |



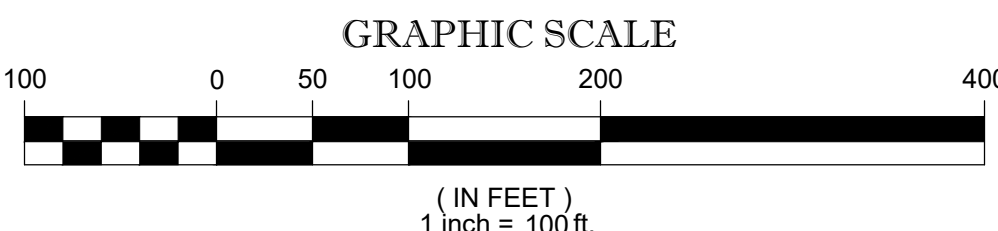
THIS SURVEY HAS BEEN PERFORMED IN THE FIELD UNDER MY SUPERVISION, AND TO THE BEST OF MY KNOWLEDGE, BELIEF, AND INFORMATION, THIS SURVEY HAS BEEN PERFORMED IN ACCORDANCE WITH CURRENTLY ACCEPTED ACCURACY STANDARDS.

NOT A VALID ORIGINAL DOCUMENT UNLESS EMBOSSED WITH RAISED IMPRESSION OR STAMPED WITH A BLUE INK SEAL

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

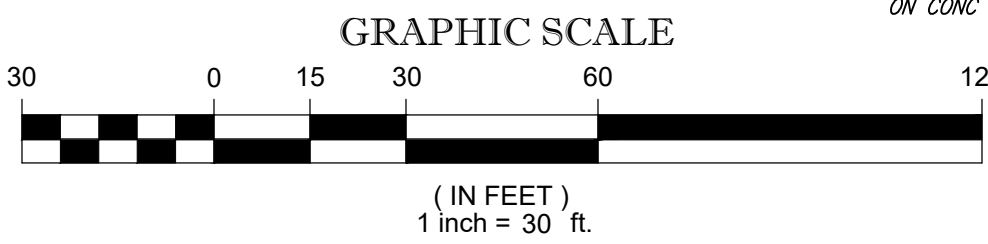


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- LEGEND
- 124 --- EXISTING CONTOUR
--- 125 ---
X 123.45 EXISTING SPOT ELEVATION
X TC 123.45 EXISTING TOP OF CURB ELEVATION
X G 122.95 EXISTING GUTTER ELEVATION
X TW 123.45 EXISTING TOP OF WALL ELEVATION
X BW 122.95 EXISTING BOTTOM OF WALL ELEVATION
X FF 123.45 EXISTING FINISHED FLOOR ELEVATION
X DS 123.45 EXISTING DOOR SILL ELEVATION
X GF 123.45 GARAGE FINISHED FLOOR ELEVATION
HYDRANT
WATER VALVE
IRRIGATION CONTROL VALVE
GAS VALVE
GAS METER
ELECTRIC METER
OVERHEAD WIRES
APPROX. LOC. UNDERGROUND DRAINAGE LINE
APPROX. LOC. UNDERGROUND SANITARY / SEWER LINE
APPROX. LOC. UNDERGROUND TELEPHONE LINE
APPROX. LOC. UNDERGROUND WATER LINE
APPROX. LOC. UNDERGROUND GAS LINE
UTILITY POLE
MONITORING WELL
AREA LIGHT
CLEAN OUT
SIGN
MAIL BOX
BOLLARD
POST
CHAIN LINK FENCE
DEPRESSED CURB
EDGE OF CONCRETE
EDGE OF PAVEMENT
LANDSCAPED AREA
METAL COVER
TYPICAL
DRAINAGE/STORM MANHOLE
ELECTRIC MANHOLE
SANITARY/SEWER MANHOLE
TELEPHONE MANHOLE
CATCH BASIN OR INLET
TREE & TRUNK SIZE
CONIFEROUS TREE & TRUNK SIZE
PARKING SPACE COUNT
SOLID WHITE LINE
SOLID YELLOW LINE
NO VISIBLE PIPE
FULL OF WATER
TOP OF WATER
UNABLE TO OPEN
DELINEATION FLAG



SEE SHEET 1 OF 4 FOR NOTES & REFERENCES

| | | | | | |
|---|--|--------|--------|--------|-----------|
| 3 | UPDATED PER ADDITIONAL TOPOGRAPHY | B.S.B. | R.J.K. | G.L.H. | 9-29-2021 |
| 2 | REVISED WETLAND FLAGGING DESIGNATION | - | R.J.K. | G.L.H. | 5-19-2021 |
| 1 | REVISED PER ADDITIONAL UTILITY MAPPING | - | R.J.K. | G.L.H. | 5-10-2021 |

| No. | DESCRIPTION OF REVISION | FIELD CREW | DRAWN | APPROVED | DATE |
|-----|-------------------------|------------|-------|----------|------|
|-----|-------------------------|------------|-------|----------|------|

THIS SURVEY HAS BEEN PERFORMED IN THE FIELD UNDER MY SUPERVISION, AND TO THE BEST OF MY KNOWLEDGE, BELIEF, AND INFORMATION, THIS SURVEY HAS BEEN PERFORMED IN ACCORDANCE WITH CURRENTLY ACCEPTED ACCURACY STANDARDS.

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GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

9-29-2021
DATE

FIELD DATE
3-5-2021
FIELD BOOK NO.
20-19 MA
FIELD BOOK PG.
55

BOUNDARY, PARTIAL TOPOGRAPHIC & UTILITY SURVEY
300 CONCORD ROAD
MAP 86, BLOCK 108, LOT 5
TOWN OF BILLERICA
MIDDLESEX COUNTY
COMMONWEALTH OF MASSACHUSETTS

FIELD CREW
J.S.A.
DRAWN
R.J.K.

CONTROL POINT ASSOCIATES, INC.
ALBANY, NY 518-217-5010
CHALFONT, PA 215-712-9800
HATSPRINGER, NY 631-580-2645
MANHATTAN, NY 646-780-0411
MT LAUREL, NJ 609-857-2099
WARREN, NJ 908-668-0099

REVIEWED
E.LOC.

APPROVED
G.L.H.

DATE
4-21-2021

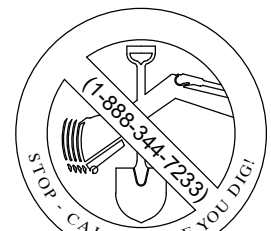
SCALE
1"=30'

FILE NO.
03-210049

DWG. NO.
2 OF 4



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LEGEND

- 124 EXISTING CONTOUR
- 125 EXISTING SPOT ELEVATION
- 123.45 EXISTING TOP OF CURB ELEVATION
- 122.95 EXISTING GUTTER ELEVATION
- 123.45 EXISTING TOP OF WALL ELEVATION
- 122.95 EXISTING BOTTOM OF WALL ELEVATION
- 123.45 EXISTING FINISHED FLOOR ELEVATION
- 123.45 EXISTING DOOR SILL ELEVATION
- 123.45 GARAGE FINISHED FLOOR ELEVATION
- HYDRANT
- WATER VALVE
- IRRIGATION CONTROL VALVE
- GAS VALVE
- GAS METER
- ELECTRIC METER
- OVERHEAD WIRES
- APPROX. LOC. UNDERGROUND DRAINAGE LINE
- APPROX. LOC. UNDERGROUND SANITARY / SEWER LINE
- APPROX. LOC. UNDERGROUND TELEPHONE LINE
- APPROX. LOC. UNDERGROUND WATER LINE
- UTILITY POLE
- MONITORING WELL
- AREA LIGHT
- C/O CLEAN OUT
- SIGN
- MAIL BOX
- BOLLARD
- POST
- CLF CHAIN LINK FENCE
- DC DEPRESSIONED CURB
- EDC EDGE OF CONCRETE
- EOP EDGE OF PAVEMENT
- LSA LANDSCAPED AREA
- MC METAL COVER
- (TYP) TYPICAL
- DMH DRAINAGE/STORM MANHOLE
- EMH ELECTRIC MANHOLE
- SMH SANITARY/SEWER MANHOLE
- TMH TELEPHONE MANHOLE
- CB CATCH BASIN OR INLET
- TS TREE & TRUNK SIZE
- CF CONIFEROUS TREE & TRUNK SIZE
- 10 PARKING SPACE COUNT
- SWL SOLID WHITE LINE
- SYL SOLID YELLOW LINE
- NVP NO VISIBLE PIPE
- FWW FULL OF WATER
- TOW TOP OF WATER
- UTO UNABLE TO OPEN
- DEL DELINEATION FLAG

3 UPDATED PER ADDITIONAL TOPOGRAPHY B.S.B. R.J.K. G.L.H. 9-29-2021

2 REVISED WETLAND FLAGGING DESIGNATION - R.J.K. G.L.H. 5-19-2021

1 REVISED PER ADDITIONAL UTILITY MAPPING - R.J.K. G.L.H. 5-10-2021

| No. | DESCRIPTION OF REVISION | FIELD CREW | DRAWN | APPROVED | DATE |
|-----|-------------------------|------------|-------|----------|------|
| | | | | | |

THIS SURVEY HAS BEEN PERFORMED IN THE FIELD UNDER MY SUPERVISION, AND TO THE BEST OF MY KNOWLEDGE, BELIEF, AND INFORMATION, THIS SURVEY HAS BEEN PERFORMED IN ACCORDANCE WITH CURRENTLY ACCEPTED ACCURACY STANDARDS.

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GERRY L. HOLDRIGHT, PLS

MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

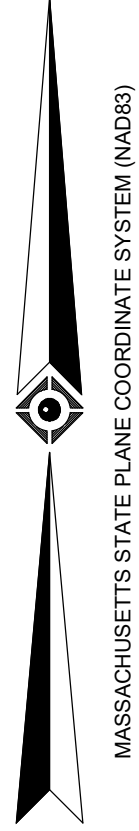
9-29-2021
DATE

| FIELD DATE | BOUNDARY, PARTIAL TOPOGRAPHIC & UTILITY SURVEY |
|-----------------|--|
| 3-5-2021 | 300 CONCORD ROAD |
| FIELD BOOK NO. | MAP 86, BLOCK 108, LOT 5 |
| 20-19 MA | TOWN OF BILLERICA |
| FIELD BOOK PGS. | MIDDLESEX COUNTY |
| 55 | COMMONWEALTH OF MASSACHUSETTS |

CONTROL POINT ASSOCIATES, INC.

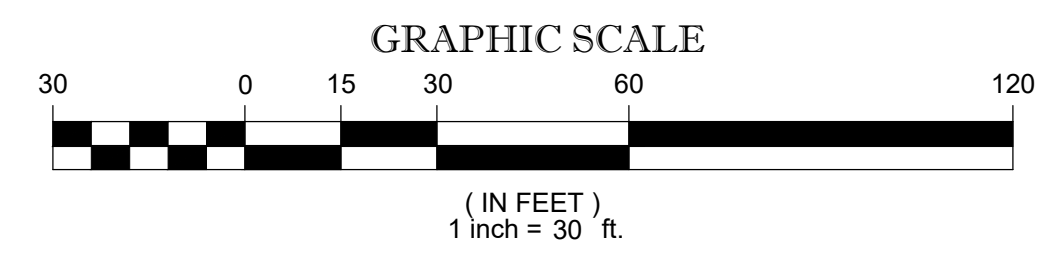
ALBANY, NY 518-217-5010
CHALFONT, PA 215-712-8800
HAUPPAUGE, NY 631-880-2445
MANHATTAN, NY 646-780-0411
MIT LAUREL, NJ 908-557-2999
WARREN, NJ 908-668-0099

| FIELD CREW | J.S.A. | ALBANY, NY 518-217-5010 |
|------------|--|--|
| DRAWN | R.J.K. <td>352 TURNPIKE ROAD SOUTH BOKROUCH, MA 01772 508.948.3000 - 508.948.3003 FAX</td> | 352 TURNPIKE ROAD SOUTH BOKROUCH, MA 01772 508.948.3000 - 508.948.3003 FAX |
| REVIEWED | G.L.H. <td>DATE 4-21-2021</td> | DATE 4-21-2021 |
| SCALE | 1"=30' | FILE NO. 03-210049 |
| DWG. NO. | 3 | OF 4 |



- LEGEND
- 124 --- EXISTING CONTOUR
 - 125 --- EXISTING SPOT ELEVATION
 - × TC 123.45 EXISTING TOP OF CURB ELEVATION
 - × G 122.95 EXISTING GUTTER ELEVATION
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 - × BW 122.85 EXISTING BOTTOM OF WALL ELEVATION
 - × FF 123.45 EXISTING FINISHED FLOOR ELEVATION
 - × DS 123.45 EXISTING DOOR SILL ELEVATION
 - × GF 123.45 GARAGE FINISHED FLOOR ELEVATION
 - HYDRANT
 - WV WATER VALVE
 - ICV IRRIGATION CONTROL VALVE
 - GV GAS VALVE
 - GM GAS METER
 - EM ELECTRIC METER
 - OH OVERHEAD WIRES
 - D --- APPROX. LOC. UNDERGROUND DRAINAGE LINE
 - S --- APPROX. LOC. UNDERGROUND SANITARY / SEWER LINE
 - T --- APPROX. LOC. UNDERGROUND TELEPHONE LINE
 - W --- APPROX. LOC. UNDERGROUND WATER LINE
 - UP # + UTILITY POLE
 - MW ⊙ MONITORING WELL
 - AREA LIGHT
 - C/O • CLEAN OUT
 - SIGN
 - MAIL BOX
 - BOLLARD
 - Po POST
 - CLF CHAIN LINK FENCE
 - DC DEPRESSED CURB
 - EOC EDGE OF CONCRETE
 - EOP EDGE OF PAVEMENT
 - LSA LANDSCAPED AREA
 - MC METAL COVER
 - (TYP) TYPICAL
 - ① DMH DRAINAGE/STORM MANHOLE
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 - FT CONIFEROUS TREE & TRUNK SIZE
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 - SYL SOLID YELLOW LINE
 - NVP NO VISIBLE PIPE
 - FWW FULL OF WATER
 - TOW TOP OF WATER
 - UTO UNABLE TO OPEN
 - △ DELINEATION FLAG

SEE SHEET 1 OF 4 FOR NOTES & REFERENCES



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GERRY L. HOLDRIGHT, PLS

MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

9-29-2021
DATE

FIELD DATE: 3-5-2021
FIELD BOOK NO: 20-19 MA
FIELD BOOK PG: 55

BOUNDARY, PARTIAL TOPOGRAPHIC & UTILITY SURVEY
300 CONCORD ROAD
MAP 86, BLOCK 108, LOT 5
TOWN OF BILLERICA
MIDDLESEX COUNTY
COMMONWEALTH OF MASSACHUSETTS

FIELD CREW: J.S.A.
DRAWN: R.J.K.REVIEWED: E.LOC.
APPROVED: G.L.H.
DATE: 4-21-2021
SCALE: 1"=30'
FILE NO: 03-210049
DWG. NO: 4 OF 4

ALBANY, NY 518-217-5010
CHALFONT, PA 215-712-9800
HAUPPAUGE, NY 631-580-2645
MANHATTAN, NY 646-780-0411
MT LAUREL, NJ 609-857-2099
WARREN, NJ 908-668-0099

