

STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

- SITE PREPARATION
 - GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING.
 - IMMEDIATELY PRIOR TO SEEDING AND TOPSOIL APPLICATION, THE SURFACE SHALL BE EVALUATED FOR COMPACTION IN ACCORDANCE WITH THE STANDARD FOR LAND GRADING.
 - TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES. TOPSOIL SHALL BE AMENDED WITH ORGANIC MATTER, AS NEEDED, IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING.
 - INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE-STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS.
- SEEDBED PREPARATION
 - UNIFORMLY APPLY GROUND LIMESTONE AND FERTILIZER TO TOPSOIL WHICH HAS BEEN SPREAD AND FIRMED, ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS COOPERATIVE EXTENSION OFFICES (HTTP://NAJES.RUTGERS.EDU/COUNTY/).
 - FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF 10-10-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE AND INCORPORATED INTO THE SURFACE 4 INCHES. IF FERTILIZER IS NOT INCORPORATED, APPLY ONE-HALF THE RATE DESCRIBED ABOVE DURING SEEDBED PREPARATION AND REPEAT ANOTHER ONE-HALF RATE APPLICATION OF THE SAME FERTILIZER WITHIN 3 TO 5 WEEKS AFTER SEEDING.
 - WORK LIME AND FERTILIZER INTO THE TOPSOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING-TOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.
 - HIGH ACID PRODUCING SOILS HAVING A PH OF 4 OR LESS OR CONTAINING ION SULFIDE SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A PH OF 5 OR MORE BEFORE INITIATING SEEDBED PREPARATION. SEE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS FOR SPECIFIC REQUIREMENTS.

- SEEDING
 - PERMANENT VEGETATIVE MIXTURES & PLANTING RATES

(1) HARD FESCUE -	175 LBS/ACRE	4 LBS/1000 SQ.FT.
(2) CHEWING FESCUE -	175 LBS/ACRE	4 LBS/1000 SQ.FT.
(3) STRONG CREEPING RED FESCUE -	175 LBS/ACRE	4 LBS/1000 SQ.FT.
(4) PERENNIAL PREGRASS -	45 LBS/ACRE	1 LBS/1000 SQ.FT.
(5) KY. BLUEGRASS -	45 LBS/ACRE	1 LBS/1000 SQ.FT.
 - CONVENTIONAL SEEDING IS PERFORMED BY APPLYING SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR OUTPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDER OR OUTPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL WITHIN 24 HOURS OF SEEDING PREPARATION TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE-TEXTURED SOIL.
 - AFTER SEEDING, FIRING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDLING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.
 - HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK, OR TRAILER-MOUNTED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORTERED MULCH MAY BE APPLIED FOLLOWING SEEDING (ALSO SEE SECTION 4-MULCHING BELOW). HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. WHEN POOR SEED TO SOIL CONTACT OCCURS, THERE IS A REDUCED SEED GERMINATION AND GROWTH.
- MULCHING
 - MULCHING IS REQUIRED ON ALL SEEDING. MULCH WILL PROTECT AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND WILL PROMOTE FASTER AND EARLIER ESTABLISHMENT. THE EXISTENCE OF VEGETATION SUFFICIENT TO CONTROL SOIL EROSION SHALL BE DEEMED COMPLIANCE WITH THIS MULCHING REQUIREMENT.

- STRAW OR HAY. UNROTTED SMALL GRASS STRAW, HAY FREE OF SEEDS, APPLIED AT THE RATE OF 1.5 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRUMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF WEED SEED.

APPLICATION: SPREAD MULCH UNIFORMLY BY HAND OR MECHANICALLY SO THAT APPROXIMATELY 85% OF THE SOIL SURFACE WILL BE COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION.

- ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS IN ACCORDANCE WITH THE STATE STANDARDS, DEPENDING UPON THE SIZE OF THE AREA, STEEPNESS OF SLOPES, AND COST.
- PEG AND TWINE
 - MULCH NETTINGS
 - CRUMPER MULCH ANCHORING COULTER TOOL
 - LIQUID MULCH-BINDERS
- B. WOOD-FIBER OR PAPER-FIBER MULCH - SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT THE RATE OF 1,500 POUNDS PER ACRE (OR AS RECOMMENDED BY THE PRODUCT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEEDER. MULCH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.
- C. PELLETED MULCH - COMPRESSED AND EXTRUDED PAPER AND/OR WOOD FIBER PRODUCT, WHICH MAY CONTAIN CO-POLYMERS, TACKIFIERS, FERTILIZERS, AND COLORING AGENTS, THE DRY PELLETS, WHEN APPLIED TO A SEEDED AREA AND WATERED, FORM A MULCH MAT. PELLETED MULCH SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MULCH MAY BE APPLIED BY HAND OR MECHANICAL SPREADER AT THE RATE OF 60-75 LBS/1,000 SQUARE FEET AND ACTIVATED WITH 0.2 TO 0.4 INCHES OF WATER. THIS MATERIAL HAS BEEN FOUND TO BE BENEFICIAL FOR USE ON SMALL LAWN OR RENOVATION AREAS. SEEDED AREAS WHERE NEEDED FREE MULCH IS DESIRED, OR ON SITES WHERE STRAW MULCH AND TACKIFYING AGENT ARE NOT PRACTICAL OR DESIRABLE. APPLYING THE FULL 0.2 TO 0.4 INCHES OF WATER AFTER SPREADING PELLETED MULCH ON THE SEED BED IS EXTREMELY IMPORTANT FOR SUFFICIENT ACTIVATION AND EXPANSION OF THE MULCH TO PROVIDE SOIL COVERAGE.

STANDARD FOR STABILIZATION WITH MULCH ONLY

- SITE PREPARATION
 - GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING.
 - INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS. SEE STANDARDS 11 THROUGH 42.
- PROTECTIVE MATERIALS
 - UNROTTED SMALL-GRAIN STRAW, AT 2.0 TO 2.5 TONS PER ACRE, IS SPREAD UNIFORMLY AT 90 TO 115 POUNDS PER 1,000 SQUARE FEET AND ANCHORED WITH A MULCH ANCHORING TOOL, LIQUID MULCH-BINDERS, OR NETTING. OTHER SUITABLE MATERIALS MAY BE USED IF APPROVED BY THE SOIL CONSERVATION DISTRICT. THE APPROVED RATES ABOVE HAVE BEEN MET WHEN THE MULCH COVERS THE GROUND COMPLETELY UPON VISUAL INSPECTION, I.E. THE SOIL CANNOT BE SEEN BELOW THE MULCH.
 - SYNTHETIC OR ORGANIC SOIL STABILIZERS MAY BE USED UNDER SUITABLE CONDITIONS AND IN QUANTITIES AS RECOMMENDED BY THE MANUFACTURER.
 - WOOD-FIBER OR PAPER-FIBER MULCH AT THE RATE OF 1,500 POUNDS PER ACRE (OR ACCORDING TO THE MANUFACTURER'S REQUIREMENTS) MAY BE APPLIED BY A HYDROSEEDER.
 - MULCH NETTING, SUCH AS PAPER JUTE, ECTELOSOR, COTTON, OR PLASTIC, MAY BE USED.
 - WOODCHIPS APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 2 INCHES MAY BE USED. WOODCHIPS WILL NOT BE USED ON AREAS WHERE FLOWING WATER COULD WASH THEM INTO AN INLET AND PLUG IT.
 - GRAVEL, CROCHED STONE, OR SLUG AT THE RATE OF 9 CUBIC YARDS PER 1,000 SQ. FT. APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 3 INCHES MAY BE USED. SIZE 2 OR 3 (ASTM C-33) IS RECOMMENDED.
- MULCH ANCHORING - SHOULD BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT OF HAY OR STRAW MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS IN ACCORDANCE WITH THE STATE STANDARDS, DEPENDING UPON THE SIZE OF THE AREA AND STEEPNESS OF SLOPES.
 - PEG AND TWINE
 - MULCH NETTINGS
 - CRUMPER MULCH ANCHORING COULTER TOOL
 - LIQUID MULCH-BINDERS

SEQUENCE OF CONSTRUCTION:

- INSTALL STONE ANTI-TRACKING PAD AND OTHER SOIL EROSION AND SEDIMENT CONTROL MEASURES INCLUDING DOWN SLOPE PERIMETER HAYBALES, SILT FENCING AND TREE PROTECTION FENCING.
- CLEAR AND ROUGH GRADE FOR NEW BUILDING SITE AND OTHER STRUCTURES REQUIRING EXCAVATION.
- STORM SEWERS MUST BE IN PLACE AND ONLINE ALONG PERIMETER OF BUILDING ENVELOPE AND THROUGHOUT THE SITE PRIOR TO BUILDING CONSTRUCTION.
- EXCAVATE FOR BUILDING FOUNDATION.
- COMPLETE BUILDING CONSTRUCTION.
- EXCAVATE AND INSTALL ON-SITE IMPROVEMENTS INCLUDING CURBING, UNDERGROUND PIPING, AND DRAINAGE STRUCTURES.
- FINAL GRADING ON SITE.
- INSTALL PAVING, CONCRETE, AND FINAL VEGETATION INCLUDING SEEDING AND LANDSCAPING.
- REMOVE SOIL EROSION AND SEDIMENT CONTROL MEASURES INCLUDING DOWN SLOPE PERIMETER HAYBALES, SILT FENCING AND TREE PROTECTION FENCING.

STANDARD FOR TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION

- SITE PREPARATION
 - GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING, PG. 19-1.
 - INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS. SEE STANDARDS 11 THROUGH 42.
 - IMMEDIATELY PRIOR TO SEEDING, THE SURFACE SHOULD BE SCARIFIED 4" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).
- SEEDBED PREPARATION
 - APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS COOPERATIVE EXTENSION OFFICES.
 - FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE.
 - LIMESTONE SHALL BE APPLIED AT THE RATE OF 2 TONS/ACRE UNLESS SOIL TESTING INDICATES OTHERWISE. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE AMOUNT OF LIMING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES.
 - WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING-TOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.
 - INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILED IN ACCORDANCE WITH THE ABOVE.
 - SOILS HIGH IN SULFIDES OR HAVING A PH OF 4 OR LESS REFER TO STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, PG. 1-1.

- SEEDING
 - TEMPORARY VEGETATIVE STABILIZATION GRASSES, SEEDING RATES, DATES AND DEPTHS
 - COOL SEASON GRASSES:
 - (1)PERENNIAL RYEGRASS - 100 LBS / ACRE; PLANT BETWEEN MARCH 1 AND MAY 15 BETWEEN AUGUST 15 AND OCTOBER 1; AT A DEPTH OF 0.5 INCHES.
 - (2)SPRING OATS - 86 LBS / ACRE; PLANT BETWEEN MARCH 1 AND MAY 15 BETWEEN AUGUST 15 AND OCTOBER 1; AT A DEPTH OF 1.0 INCHES.
 - (3)WINTER BARLEY - 96 LBS / ACRE; PLANT BETWEEN AUGUST 15 AND OCTOBER 1; AT A DEPTH OF 1.0 INCHES.
 - (4)WINTER PREGRASS - 100 LBS / ACRE; PLANT BETWEEN MARCH 15 AND JUNE 1 BETWEEN AUGUST 1 AND SEPTEMBER 15; AT A DEPTH OF 0.5 INCHES.
 - (5)WINTER CEREAL RYE - 112 LBS / ACRE; PLANT BETWEEN AUGUST 1 AND NOVEMBER 15; AT A DEPTH OF 1.0 INCHES.
 - WARM SEASON GRASSES:
 - (1)TYPE I MALET - 20 LBS / ACRE; PLANT BETWEEN MAY 15 AND AUGUST 15; AT A DEPTH OF 1.0 INCHES.
 - (2)MALET (GERMAN OR HUNGARIAN) - 30 LBS / ACRE; PLANT BETWEEN MAY 15 AND AUGUST 15; AT A DEPTH OF 1.0 INCHES.
 - CONVENTIONAL SEEDING, APPLY SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR OUTPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDER OR OUTPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE TEXTURED SOIL.
 - HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK OR TRAILER MOUNTED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORT FIBERED MULCH MAY BE APPLIED WITH A HYDROSEEDER FOLLOWING SEEDING. (ALSO SEE SECTION IV MULCHING HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. POOR SEED TO SOIL CONTACT OCCURS REDUCING SEED GERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL EQUIPMENT TO TRAVERSE OR TOO OBTUSIFIED WITH ROCKS, STUMPS, ETC.
 - AFTER SEEDING, FIRING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDLING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.

- STRAW OR HAY. UNROTTED SMALL GRASS STRAW, HAY FREE OF SEEDS, APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRUMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF WEED SEED.

APPLICATION: SPREAD MULCH UNIFORMLY BY HAND OR MECHANICALLY SO THAT APPROXIMATELY 95% OF THE SOIL SURFACE WILL BE COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION.

- ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS IN ACCORDANCE WITH THE STATE STANDARDS, DEPENDING UPON THE SIZE OF THE AREA, STEEPNESS OF SLOPES, AND COST.
- PEG AND TWINE
 - MULCH NETTINGS
 - CRUMPER MULCH ANCHORING COULTER TOOL
 - LIQUID MULCH-BINDERS
- B. WOOD-FIBER OR PAPER-FIBER MULCH SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT THE RATE OF 1,500 POUNDS PER ACRE (OR AS RECOMMENDED BY THE PROJECT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEEDER. THIS MULCH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.
- C. PELLETED MULCH - COMPRESSED AND EXTRUDED PAPER AND/OR WOOD FIBER PRODUCT, WHICH MAY CONTAIN CO-POLYMERS, TACKIFIERS, FERTILIZERS AND COLORING AGENTS, THE DRY PELLETS, WHEN APPLIED TO A SEEDED AREA AND WATERED, FORM A MULCH MAT. PELLETED MULCH SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MULCH MAY BE APPLIED BY HAND OR MECHANICAL SPREADER AT THE RATE OF 60-75 LBS/1,000 SQUARE FEET AND ACTIVATED WITH 0.2 TO 0.4 INCHES OF WATER. THIS MATERIAL HAS BEEN FOUND TO BE BENEFICIAL FOR USE ON SMALL LAWN OR RENOVATION AREAS. SEEDED AREAS WHERE NEEDED FREE MULCH IS DESIRED, OR ON SITES WHERE STRAW MULCH AND TACKIFYING AGENT ARE NOT PRACTICAL OR DESIRABLE.

STANDARD FOR STABILIZATION WITH MULCH ONLY

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 - INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS. SEE STANDARDS 11 THROUGH 42.
- PROTECTIVE MATERIALS
 - UNROTTED SMALL-GRAIN STRAW, AT 2.0 TO 2.5 TONS PER ACRE, IS SPREAD UNIFORMLY AT 90 TO 115 POUNDS PER 1,000 SQUARE FEET AND ANCHORED WITH A MULCH ANCHORING TOOL, LIQUID MULCH-BINDERS, OR NETTING. OTHER SUITABLE MATERIALS MAY BE USED IF APPROVED BY THE SOIL CONSERVATION DISTRICT. THE APPROVED RATES ABOVE HAVE BEEN MET WHEN THE MULCH COVERS THE GROUND COMPLETELY UPON VISUAL INSPECTION, I.E. THE SOIL CANNOT BE SEEN BELOW THE MULCH.
 - SYNTHETIC OR ORGANIC SOIL STABILIZERS MAY BE USED UNDER SUITABLE CONDITIONS AND IN QUANTITIES AS RECOMMENDED BY THE MANUFACTURER.
 - WOOD-FIBER OR PAPER-FIBER MULCH AT THE RATE OF 1,500 POUNDS PER ACRE (OR ACCORDING TO THE MANUFACTURER'S REQUIREMENTS) MAY BE APPLIED BY A HYDROSEEDER.
 - MULCH NETTING, SUCH AS PAPER JUTE, ECTELOSOR, COTTON, OR PLASTIC, MAY BE USED.
 - WOODCHIPS APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 2 INCHES MAY BE USED. WOODCHIPS WILL NOT BE USED ON AREAS WHERE FLOWING WATER COULD WASH THEM INTO AN INLET AND PLUG IT.
 - GRAVEL, CROCHED STONE, OR SLUG AT THE RATE OF 9 CUBIC YARDS PER 1,000 SQ. FT. APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 3 INCHES MAY BE USED. SIZE 2 OR 3 (ASTM C-33) IS RECOMMENDED.
- MULCH ANCHORING - SHOULD BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT OF HAY OR STRAW MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS IN ACCORDANCE WITH THE STATE STANDARDS, DEPENDING UPON THE SIZE OF THE AREA AND STEEPNESS OF SLOPES.
 - PEG AND TWINE
 - MULCH NETTINGS
 - CRUMPER MULCH ANCHORING COULTER TOOL
 - LIQUID MULCH-BINDERS

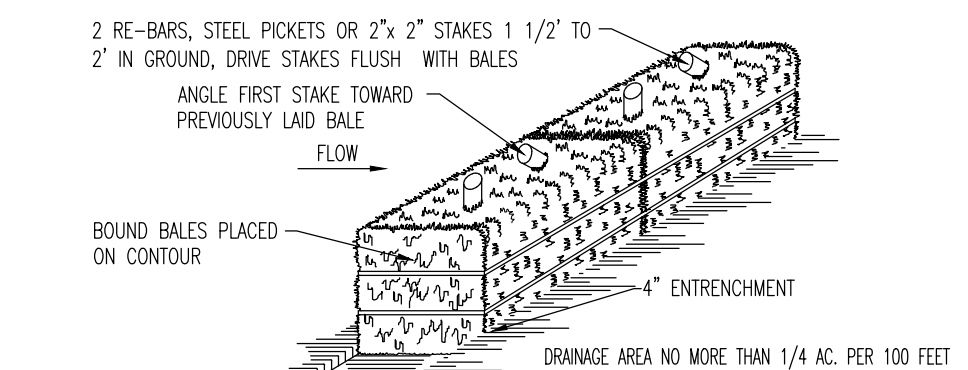
SEQUENCE OF CONSTRUCTION:

- INSTALL STONE ANTI-TRACKING PAD AND OTHER SOIL EROSION AND SEDIMENT CONTROL MEASURES INCLUDING DOWN SLOPE PERIMETER HAYBALES, SILT FENCING AND TREE PROTECTION FENCING.
- CLEAR AND ROUGH GRADE FOR NEW BUILDING SITE AND OTHER STRUCTURES REQUIRING EXCAVATION.
- STORM SEWERS MUST BE IN PLACE AND ONLINE ALONG PERIMETER OF BUILDING ENVELOPE AND THROUGHOUT THE SITE PRIOR TO BUILDING CONSTRUCTION.
- EXCAVATE FOR BUILDING FOUNDATION.
- COMPLETE BUILDING CONSTRUCTION.
- EXCAVATE AND INSTALL ON-SITE IMPROVEMENTS INCLUDING CURBING, UNDERGROUND PIPING, AND DRAINAGE STRUCTURES.
- FINAL GRADING ON SITE.
- INSTALL PAVING, CONCRETE, AND FINAL VEGETATION INCLUDING SEEDING AND LANDSCAPING.
- REMOVE SOIL EROSION AND SEDIMENT CONTROL MEASURES INCLUDING DOWN SLOPE PERIMETER HAYBALES, SILT FENCING AND TREE PROTECTION FENCING.

SOMERSET-UNION SOIL CONSERVATION DISTRICT SOIL EROSION & SEDIMENT CONTROL NOTES:

- ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCES, OR IN THEIR PROPER SEQUENCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
- ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO NJ STATE STANDARDS.
- PERMANENT VEGETATION SHALL BE SEEDED OR SOODED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. MULCH WILL BE USED FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NJ STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, 7TH EDITION LAST REVISED JANUARY 2014
- A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZE STREETS, ROADS, DRIVEWAYS AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN 15 DAYS OR PRELIMINARY GRADING.
- IMMEDIATELY FOLLOWING INTIAL DISTURBANCE OR ROUGH GRADING ALL CRITICAL AREAS SUBJECT TO EROSION (I.E.: STEEP SLOPES, ROADWAY EMBANKMENTS) WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO THE NJ STATE STANDARDS.
- ANY STEEP SLOPES REQUIRING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (I.E.: SLOPES GREATER THAN 3:1)
- TRAFFIC CONTROL STANDARDS REQUIRE THE INSTALLATION OF A 50X30X6"PAD OF 1 1/2" OR 2" STONE, AT ALL CONSTRUCTION DRIVEWAYS, IMMEDIATELY AFTER INTIAL SITE DISTURBANCE.
- THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 48 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.
- AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER, SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES.
- IN THAT NUSA 4-24-39 ET SEQ., REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE THE PROVISIONS OF THE CERTIFIED PLAN FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES. ALL SITE WORK FOR SITE PLANS AND ALL WORK AROUND INDIVIDUAL LOTS IN SUBDIVISIONS, WILL HAVE TO BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.
- CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
- ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT NJ STATE SOIL EROSION & SEDIMENT CONTROL STANDARDS.
- THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES IN OWNERSHIP.
- MULCHING TO THE NJ STANDARDS IS REQUIRED FOR OBTAINING A CONDITIONAL REPORT OF COMPLIANCE. CONDITIONALS ARE ONLY ISSUED WHEN THE SEASON PROHIBITS SEEDING.
- CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ADJACENT ROADS CLEAN DURING LIFE OF CONSTRUCTION PROJECT.
- THE DEVELOPER SHALL BE RESPONSIBLE FOR REMEDIATING ANY EROSION OR SEDIMENT PROBLEMS THAT ARISE AS A RESULT OF ONGOING CONSTRUCTION AT THE REQUEST OF THE SOMERSET-UNION SOIL CONSERVATION DISTRICT.
- HYDRO SEEDING IS A TWO-STEP PROCESS. THE FIRST STEP INCLUDES SEED, FERTILIZER, LIME, ETC., ALONG WITH MINIMAL AMOUNTS OF MULCH TO PROMOTE CONSISTENCY. GOOD SEED TO SOIL CONTACT, AND GIVE A VISUAL INDICATION OF COVERAGE. UPON COMPLETION OF SEEDING OPERATION, HYDRO-MULCH SHOULD BE APPLIED AT A RATE OF 1500 LBS. PER ACRE IN SECOND STEP. THE USE OF HYDRO-MULCH, AS OPPOSED TO STRAW, IS LIMITED TO OPTIMUM SEEDING DATES AS LISTED IN THE NJ STANDARDS.

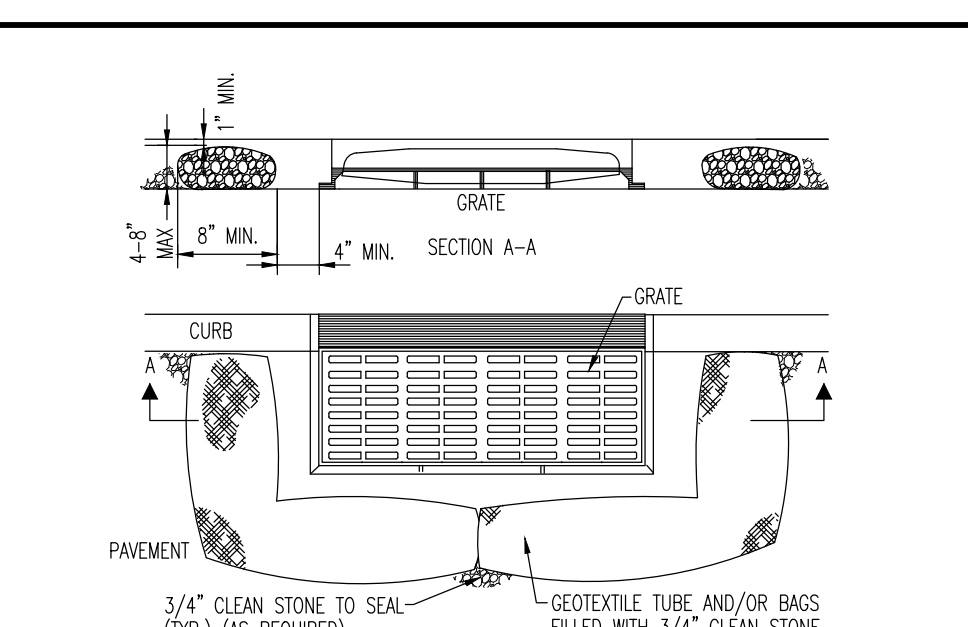
NOTE: ALL PERMANENT OUTLET CONTROL STRUCTURE OPENINGS BELOW THE 2-YEAR STORM EVENT WATER SURFACE ELEVATION SHOULD BE PLUGGED DURING THE BASIN'S SEDIMENTATION PHASE.



- NOTES:
- BALES SHALL BE PLACED AT THE TOP OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
 - EACH BALE SHALL BE PLACED SO THE BANNINGS ARE HORIZONTAL.
 - BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY Laid BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
 - INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE PROMPTLY AS NEEDED.
 - BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

HAYBALE SEDIMENT BARRIER DETAIL

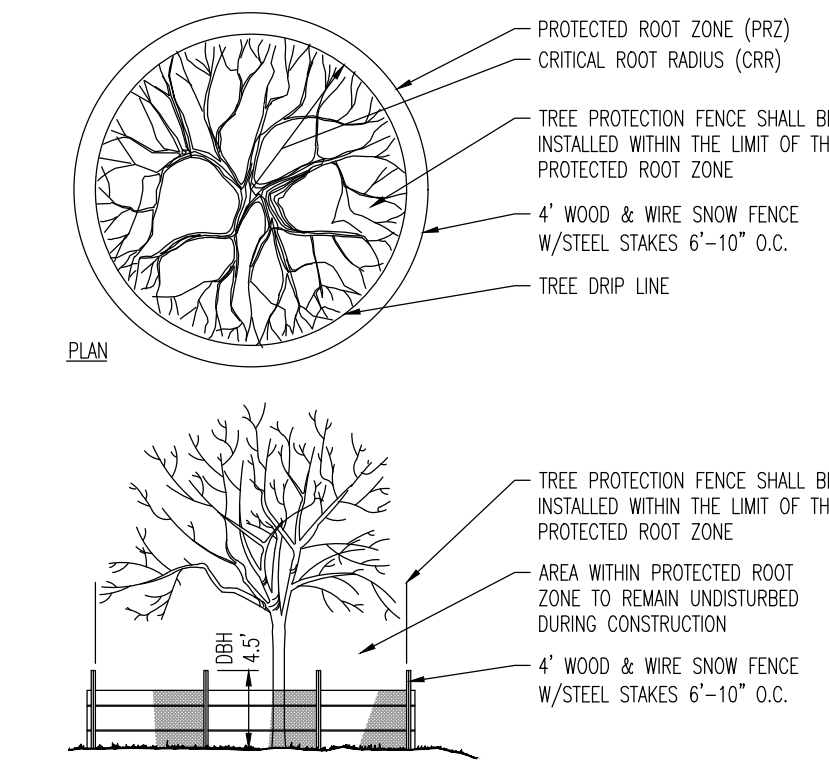
NOT TO SCALE



- NOTES:
- GEOTEXTILE TO BE WOVEN POLYPROPYLENE PRODUCT 117F, BY SYNTHETIC INDUSTRIES INC., OR TERRATEX SC, BY WETEC INC., OR APPROVED EQUAL.
 - 3/4" CLEAN STONE CORE SHALL BE COMPLETELY CONTAINED WITHIN GEOTEXTILE. SCAMS SHALL BE SEWN OR CLOSED BY SUITABLE MECHANICAL MEANS TO PREVENT LEAKAGE OF STONE.
 - WHERE AND CURBS IS PRESENT, BARRIER SHALL COMPLETELY ENCLOSE THE DRAIN INLET.
 - INLET CURB SHOULD BE KEPT CLEAR OF OBSTRUCTIONS AT ALL TIMES.
 - THE PROTECTION DEVICE WILL BE DESIGNED TO CAPTURE OR FILTER RUNOFF FROM THE 1 YEAR, 24 HOUR STORM EVENT AND SHALL SPECIFICALLY HOVER ALONG DRAINAGE INTO THE STORM SEWER SYSTEM.
 - OTHER METHODS THAT ACCOMPLISH THE PURPOSE OF STORM SEWER INLET PROTECTION MAY BE USED IF APPROVED BY THE SOIL CONSERVATION DISTRICT.
 - INSPECTIONS SHALL BE FREQUENT. MAINTENANCE, REPAIR, AND REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED. THE BARRIER SHALL BE REMOVED WHEN THE AREA DRAINING TOWARDS THE INLET HAS BEEN STABILIZED.

INLET FILTER DETAIL

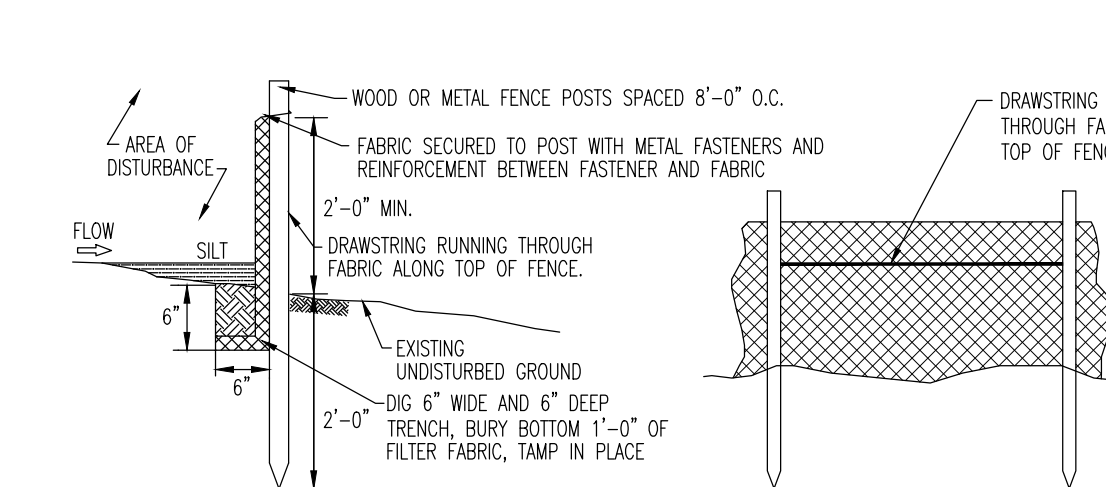
NOT TO SCALE



- ESTIMATE A TREE'S PROTECTED ROOT ZONE (PRZ) BY CALCULATING THE CRITICAL ROOT RADIUS (CRR).
- MEASURE THE DBH (DIAMETER OF TREE AT BREAST HEIGHT, 4.5' ABOVE GROUND ON THE UPHILL SIDE OF TREE) IN INCHES.
 - MULTIPLY MEASURED DBH BY 1.5 OR 1.0, DEPENDING THE RESULT IN FEET
- DBH x 1.5: CRITICAL ROOT RADIUS FOR OLDER, UNHEALTHY, OR SENSITIVE SPECIES.
DBH x 1.0: CRITICAL ROOT RADIUS FOR YOUNGER, HEALTHY OR TOLERANT SPECIES.

TREE PROTECTION DURING SITE CONSTRUCTION DETAIL

NOT TO SCALE



- PLACE SILT FENCE AT LOCATIONS AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN.
- THE SLOPE OF THE LAND FOR AT LEAST 30 FEET AWAY FROM ANY SILT FENCE SHALL NOT EXCEED 5 PERCENT.
- SILT FENCE SHALL BE INSTALLED SO WATER CANNOT BYPASS THE FENCE AROUND THE SIDES.
- INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE AS PROMPTLY AS POSSIBLE.
- SILT FENCE SHALL REMAIN IN PLACE FOR THE DURATION OF THE PROJECT UNLESS OTHERWISE INSTRUCTED BY THE TOWNSHIP ENGINEER OR SOIL CONSERVATION DISTRICT.
- THE BARRIER SHALL BE REMOVED WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
- FENCE POSTS SHALL BE SPACED 8 FEET CENTER-TO-CENTER OR CLOSER. THEY SHALL EXTEND AT LEAST 2 FEET INTO THE GROUND AND EXTEND AT LEAST 2 FEET ABOVE GROUND. POSTS SHALL BE CONSTRUCTED OF HARDWOOD A MIN. DIAMETER THICKNESS OF 1 1/2 INCHES.
- A WEAIR FENCE WITH 6 INCH OR SMALLER OPENINGS AND AT LEAST 2 FEET HIGH MAY BE UTILIZED, FASTENED TO THE FENCE POSTS TO PROVIDE REINFORCEMENT AND SUPPORT TO THE GEOTEXTILE FABRIC WHERE SPACE FOR OTHER PRACTICES IS LIMITED AND HEAVY SEDIMENT LOADING IS EXPECTED.
- A GEOTEXTILE FABRIC, RECOMMENDED FOR SUCH USE BY THE MANUFACTURER, SHALL BE BURIED AT LEAST 6 INCHES DEEP IN THE GROUND. THE FABRIC SHALL EXTEND AT LEAST 2 FEET ABOVE GROUND. FABRIC MUST BE SECURELY FASTENED TO THE POSTS USING A SYSTEM CONSISTING OF METAL FASTENERS (NAILS OR STAPLES) AND HIGH STRENGTH REINFORCEMENT MATERIALS (WIRE MESHING, CROCHETS, WEDGES ETC.) PLACED BETWEEN THE FASTENER AND THE GEOTEXTILE FABRIC. THE FASTENING SYSTEM SHALL RESIST TEARING AWAY FROM THE POST. THE FABRIC SHALL INCORPORATE A DRAWSTRING IN THE TOP PORTION OF THE FENCE FOR ADDED STRENGTH.

SILT FENCE DETAIL

NOT TO SCALE

IN CASE OF DISCREPANCY, TOWNSHIP STANDARD DETAILS SHALL HOLD

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Allen, Texas: 1-972-234-2100 | Austin, Texas: 1-512-246-2444 | Houston, Texas: 1-281-789-6400 | Denver, Colorado: 1-303-751-9170
Newport News, Pennsylvania: 1-717-685-0276 | Philadelphia, Pennsylvania: 1-215-253-4868 | Bethlehem, Pennsylvania: 1-610-976-4400

TITLE: **SOIL EROSION & SEDIMENT CONTROL NOTES & DETAILS**

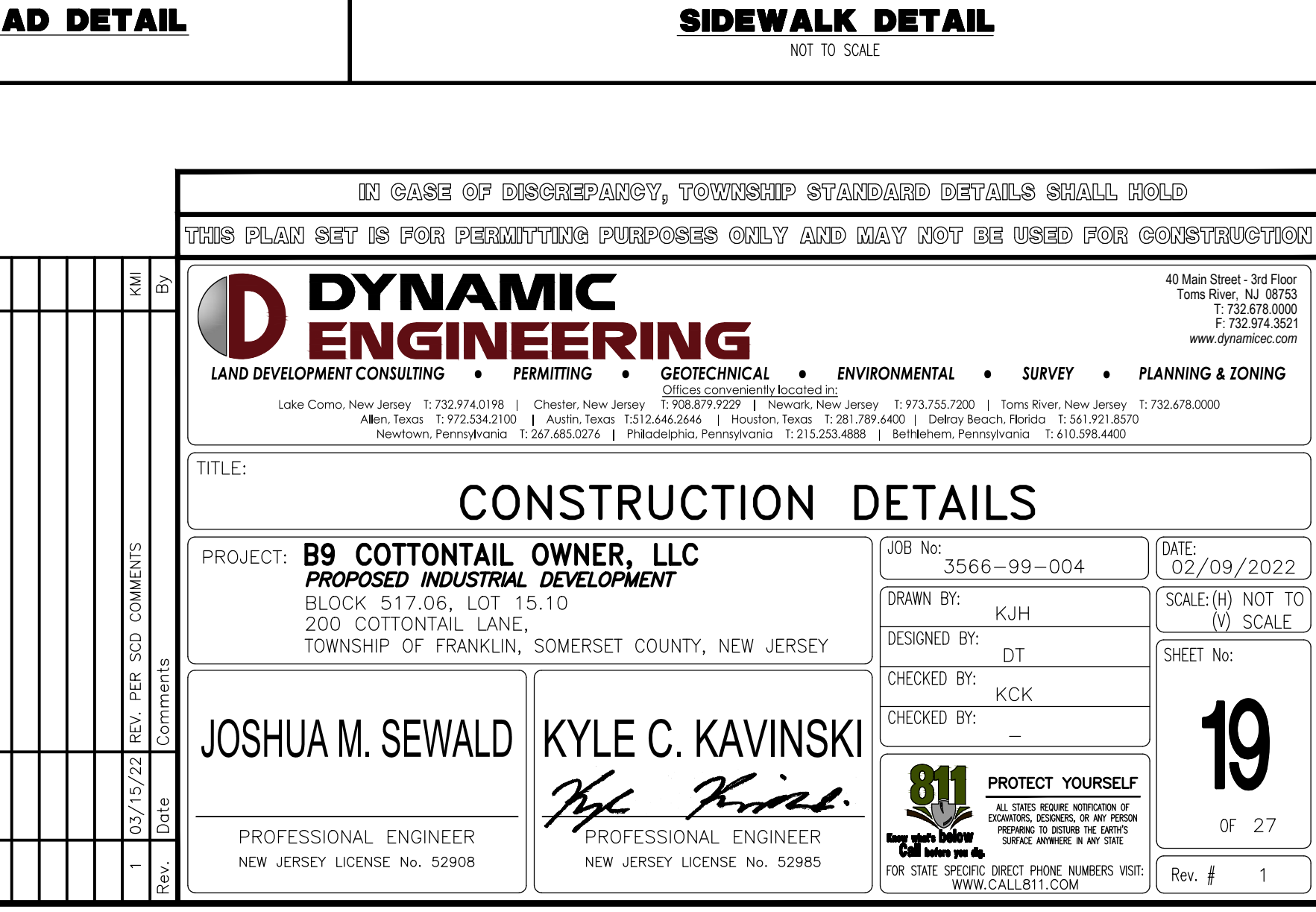
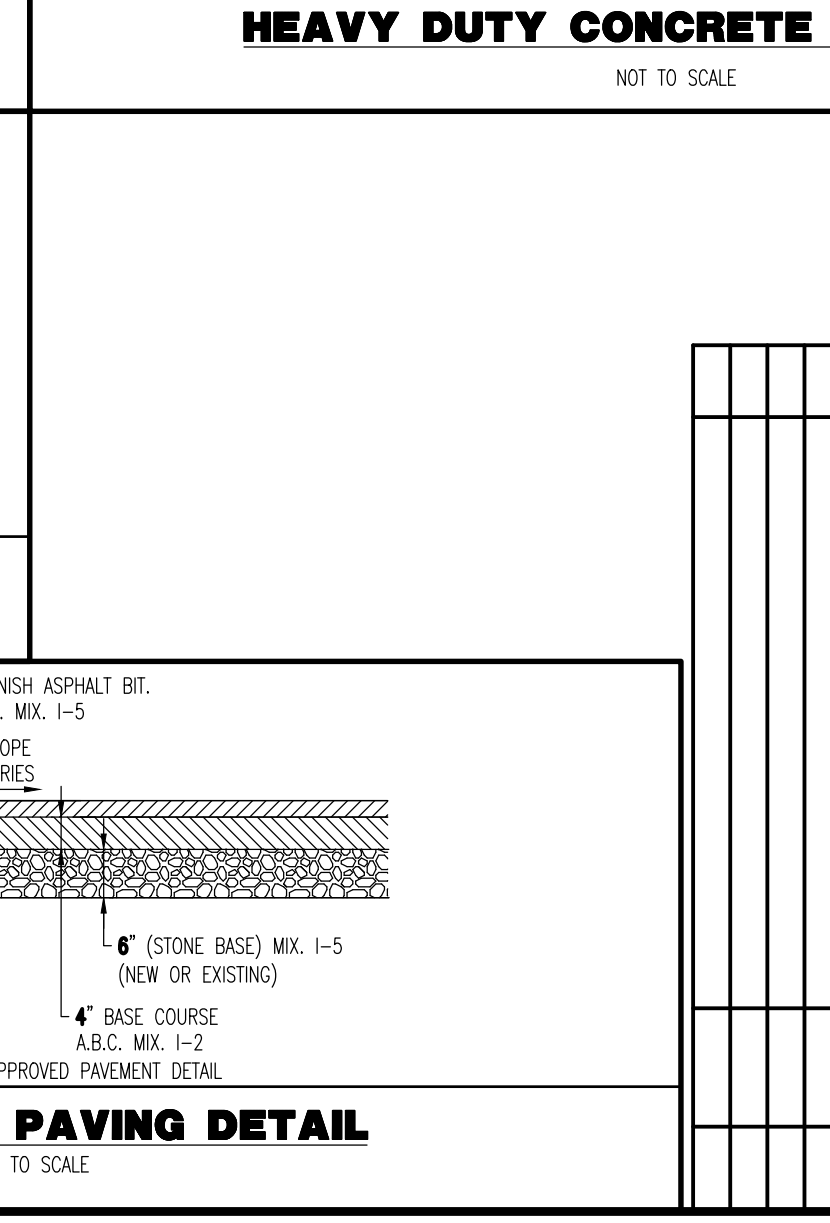
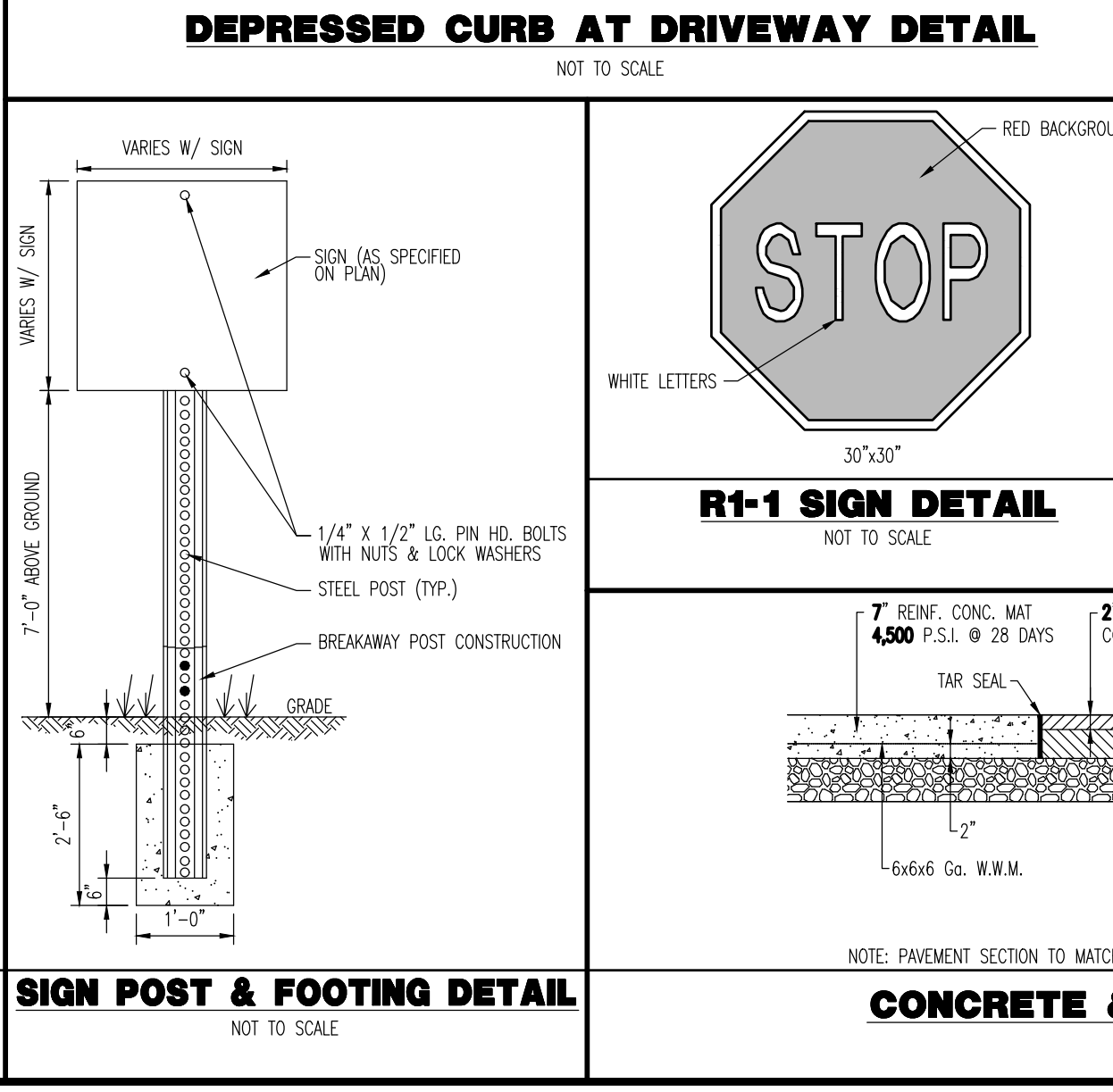
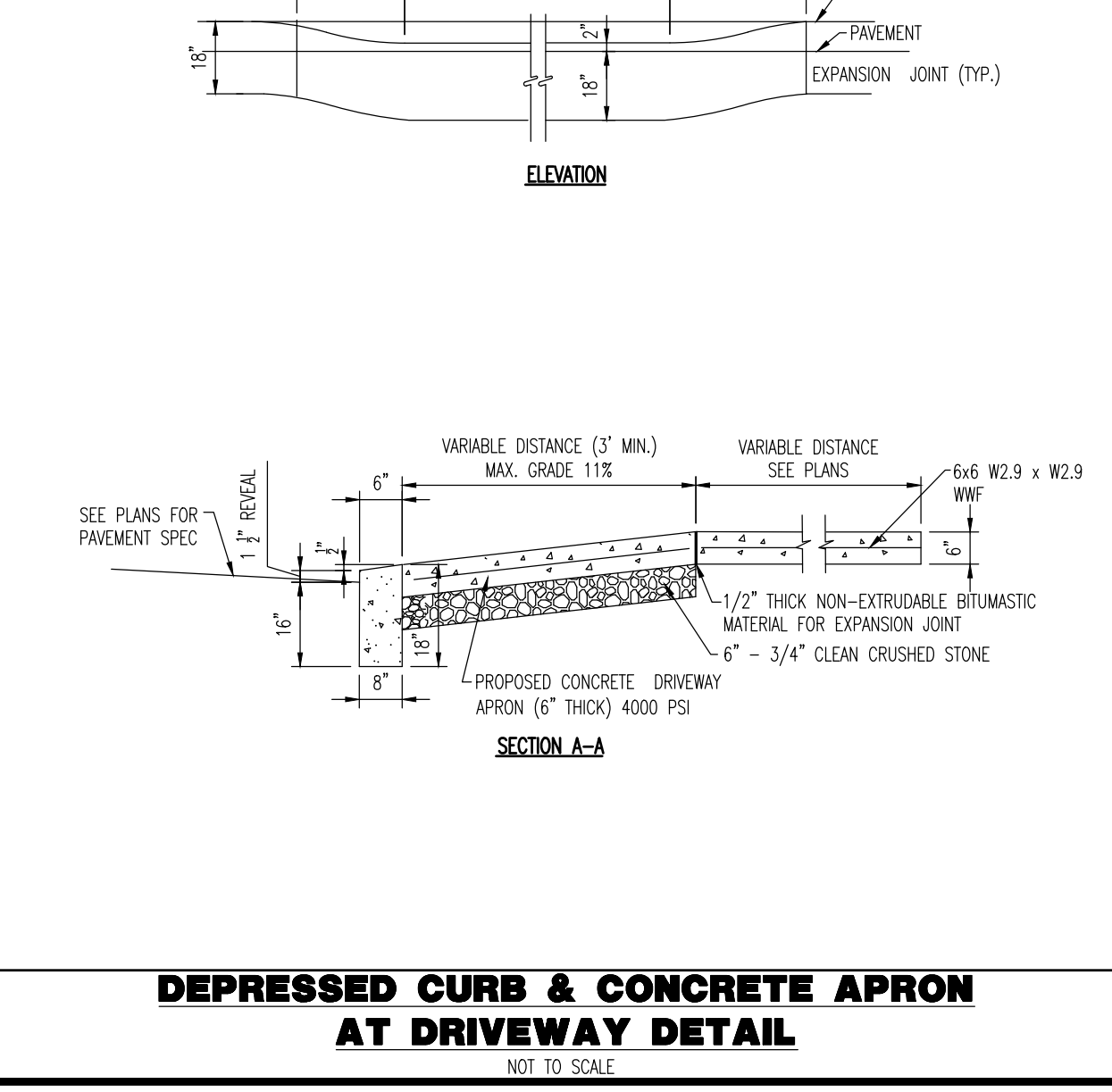
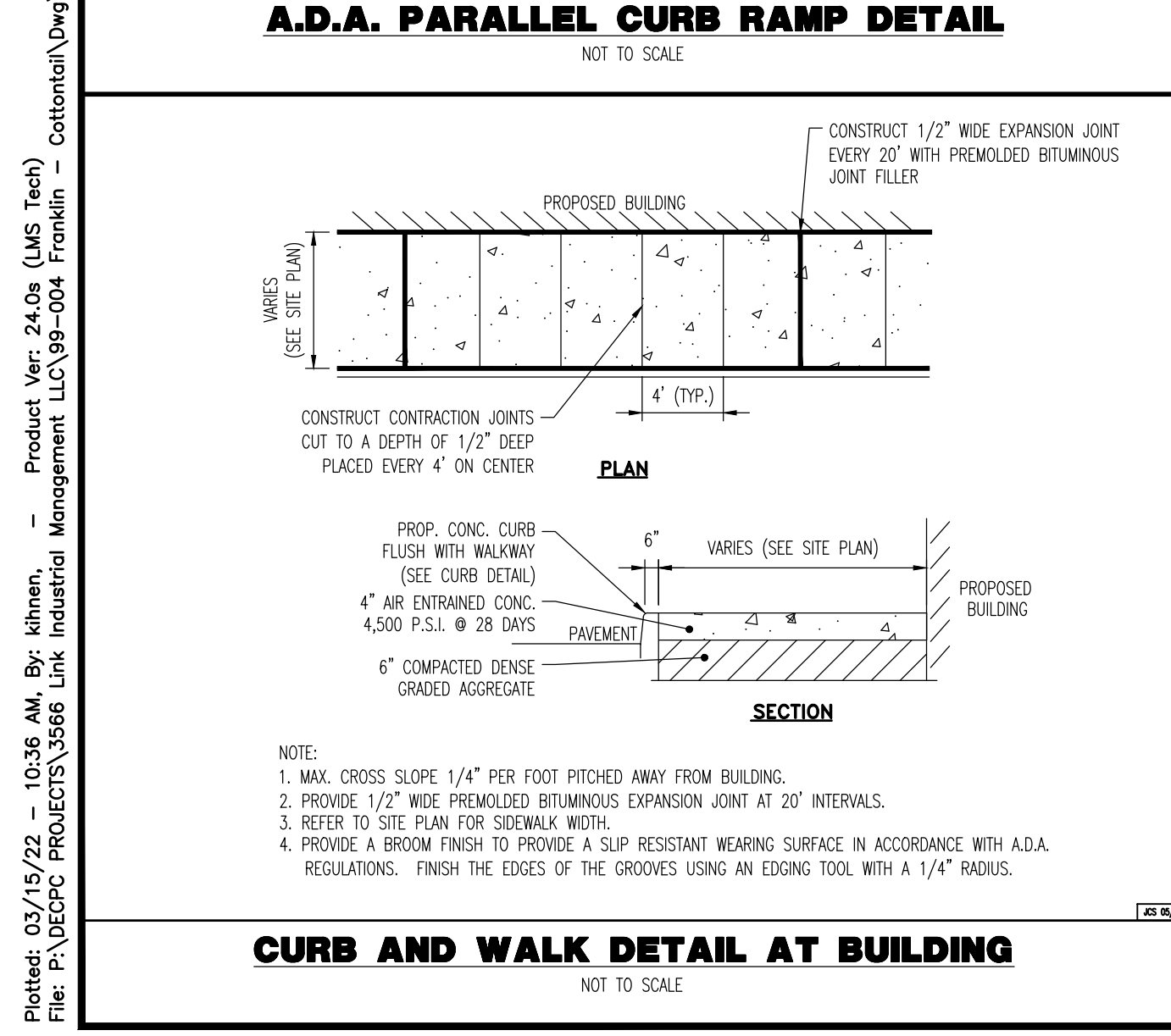
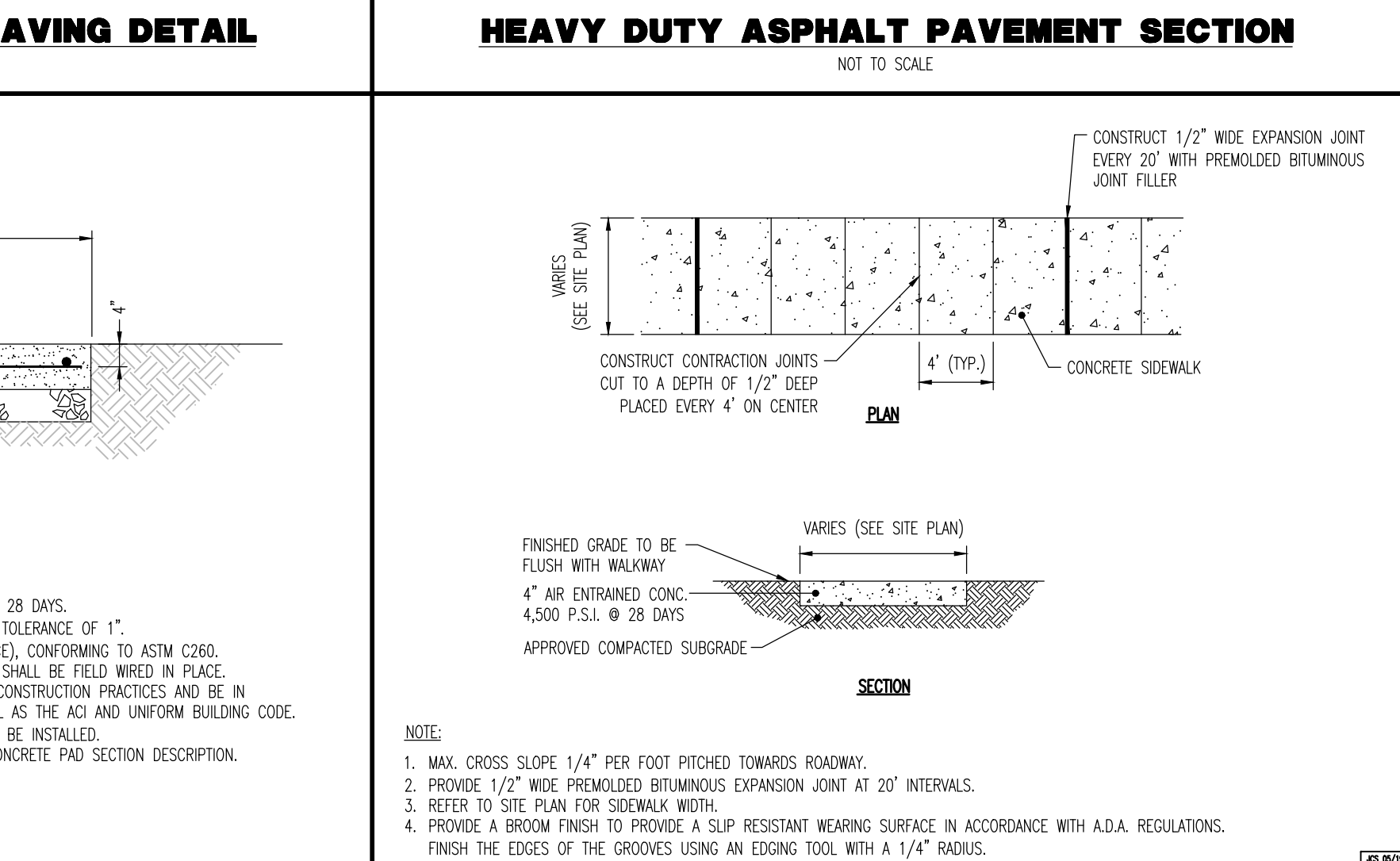
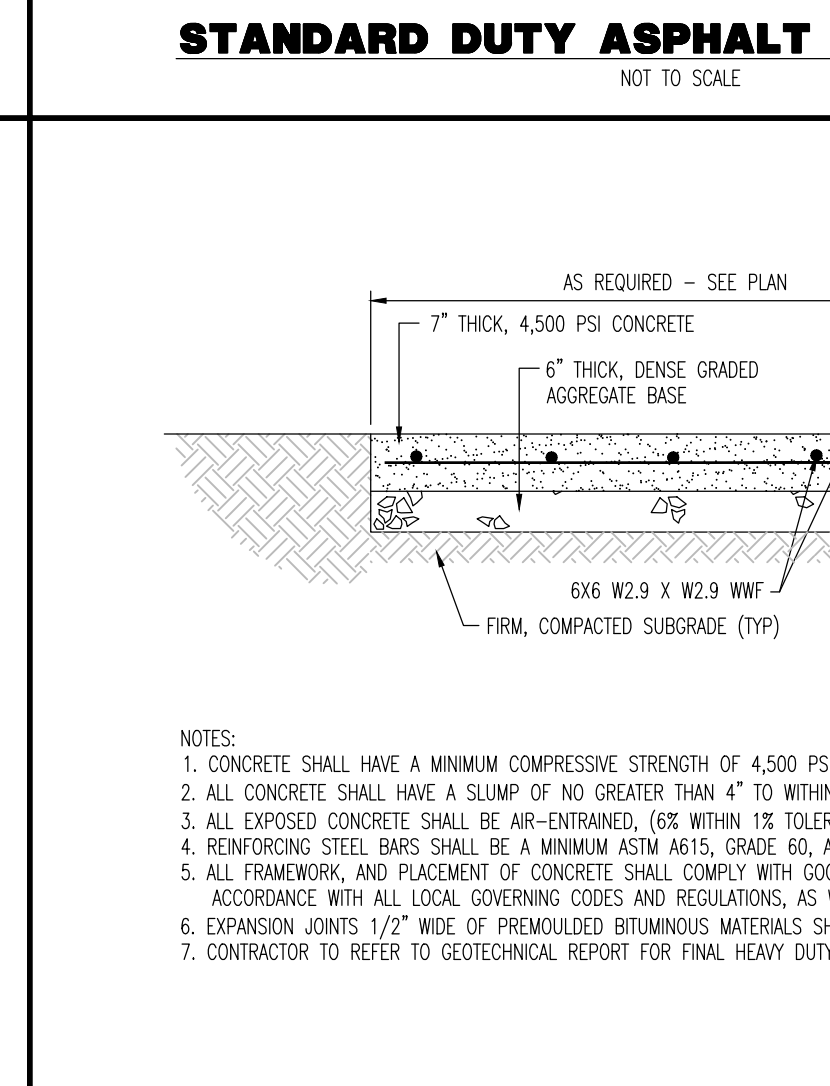
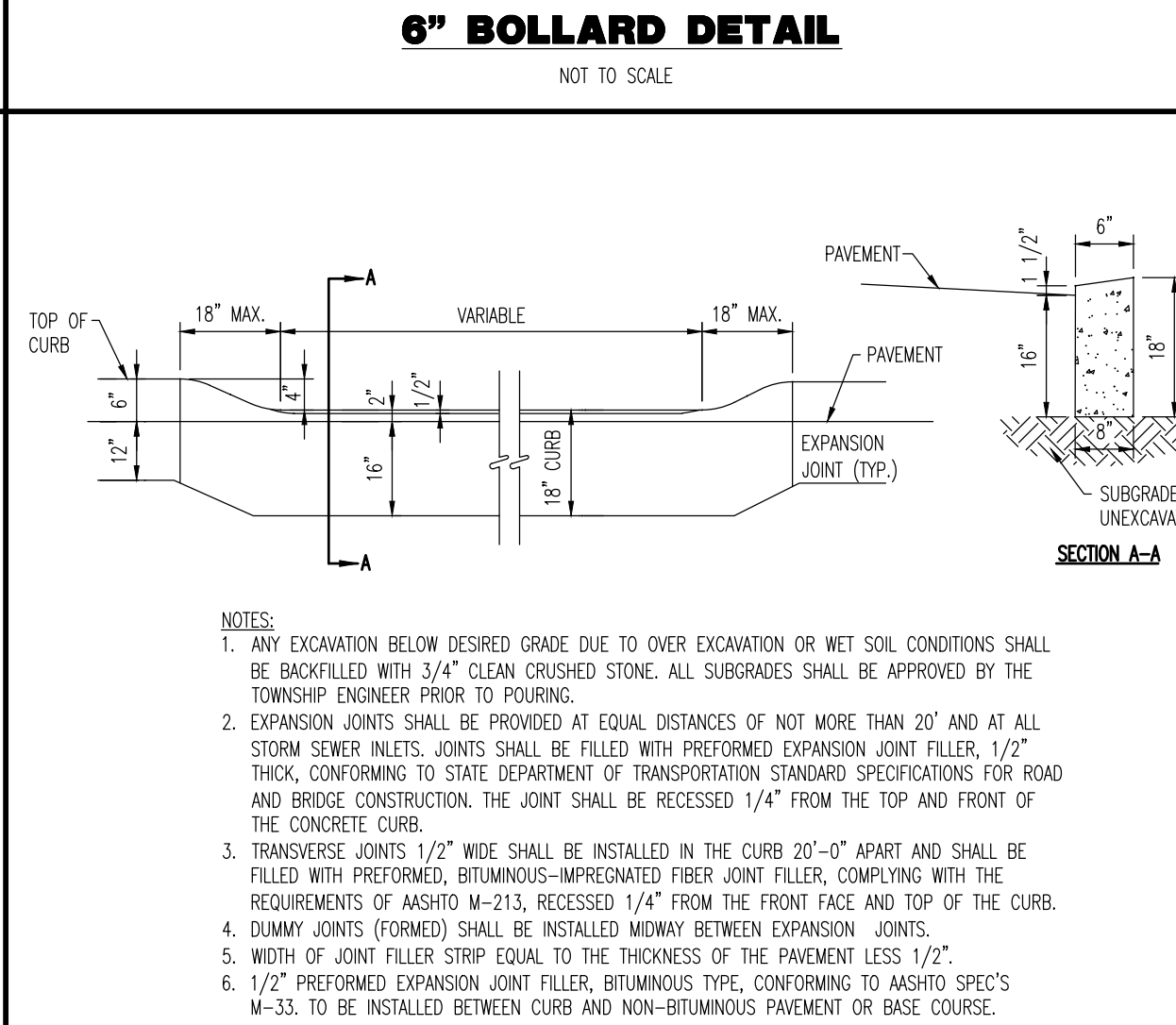
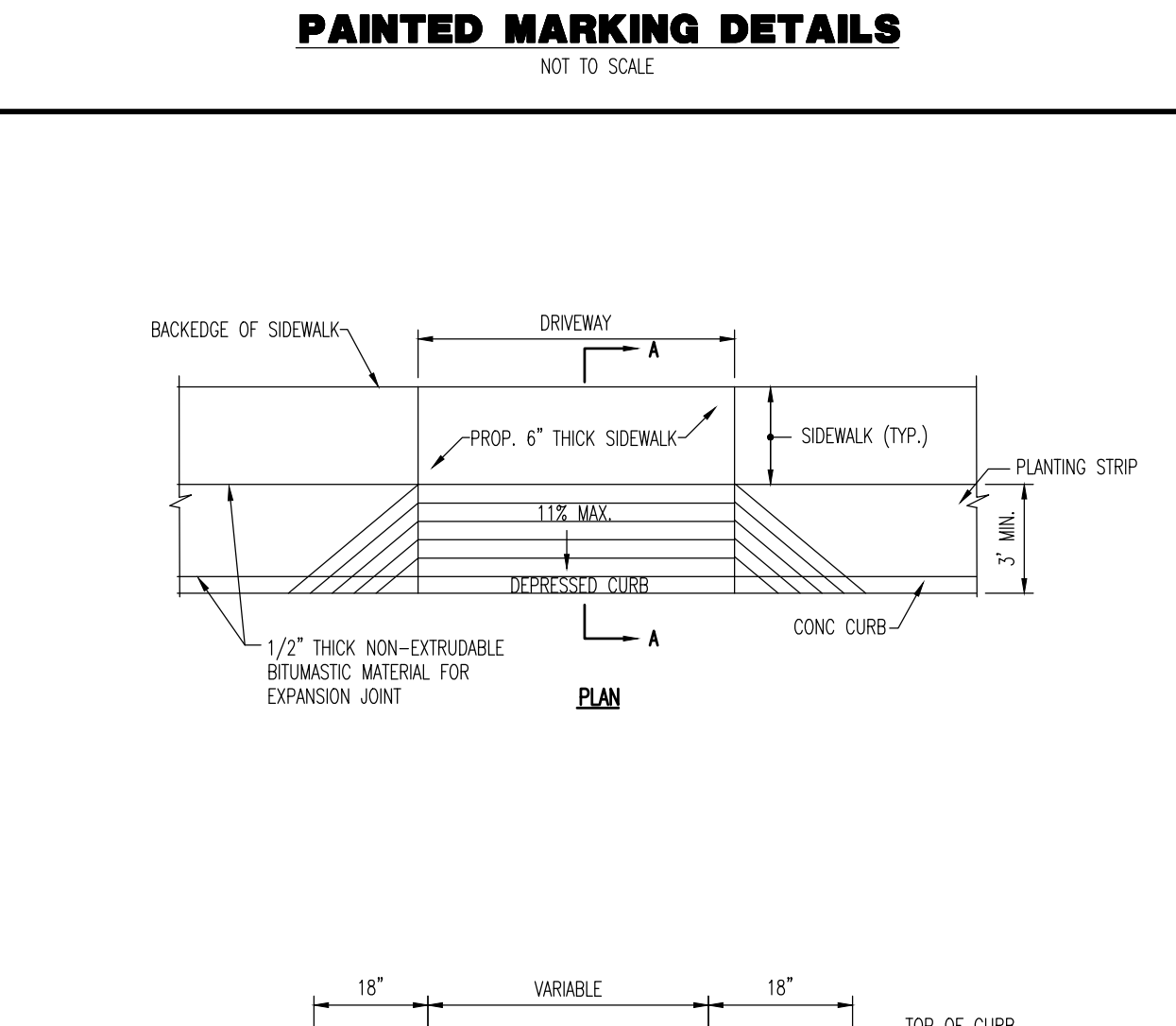
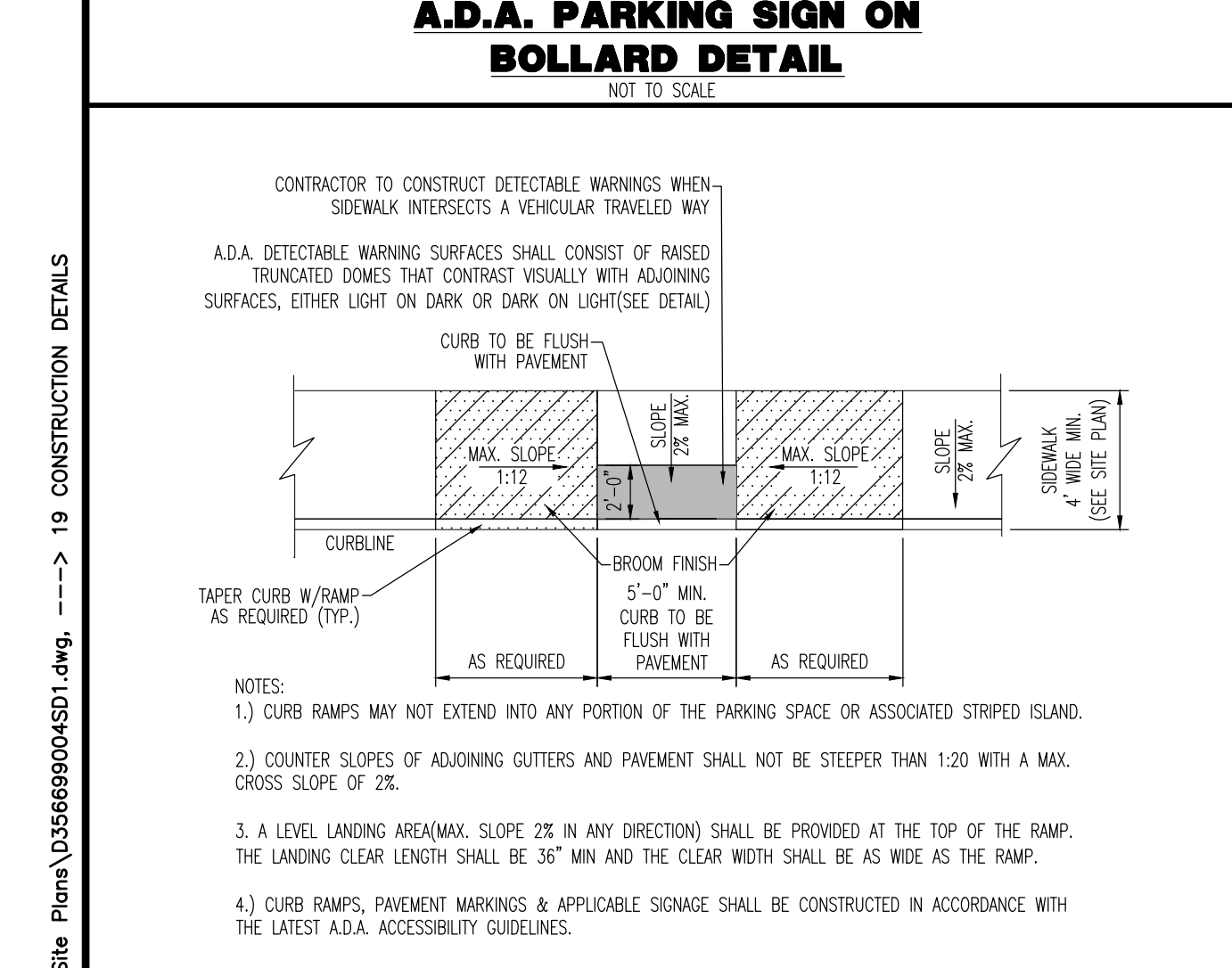
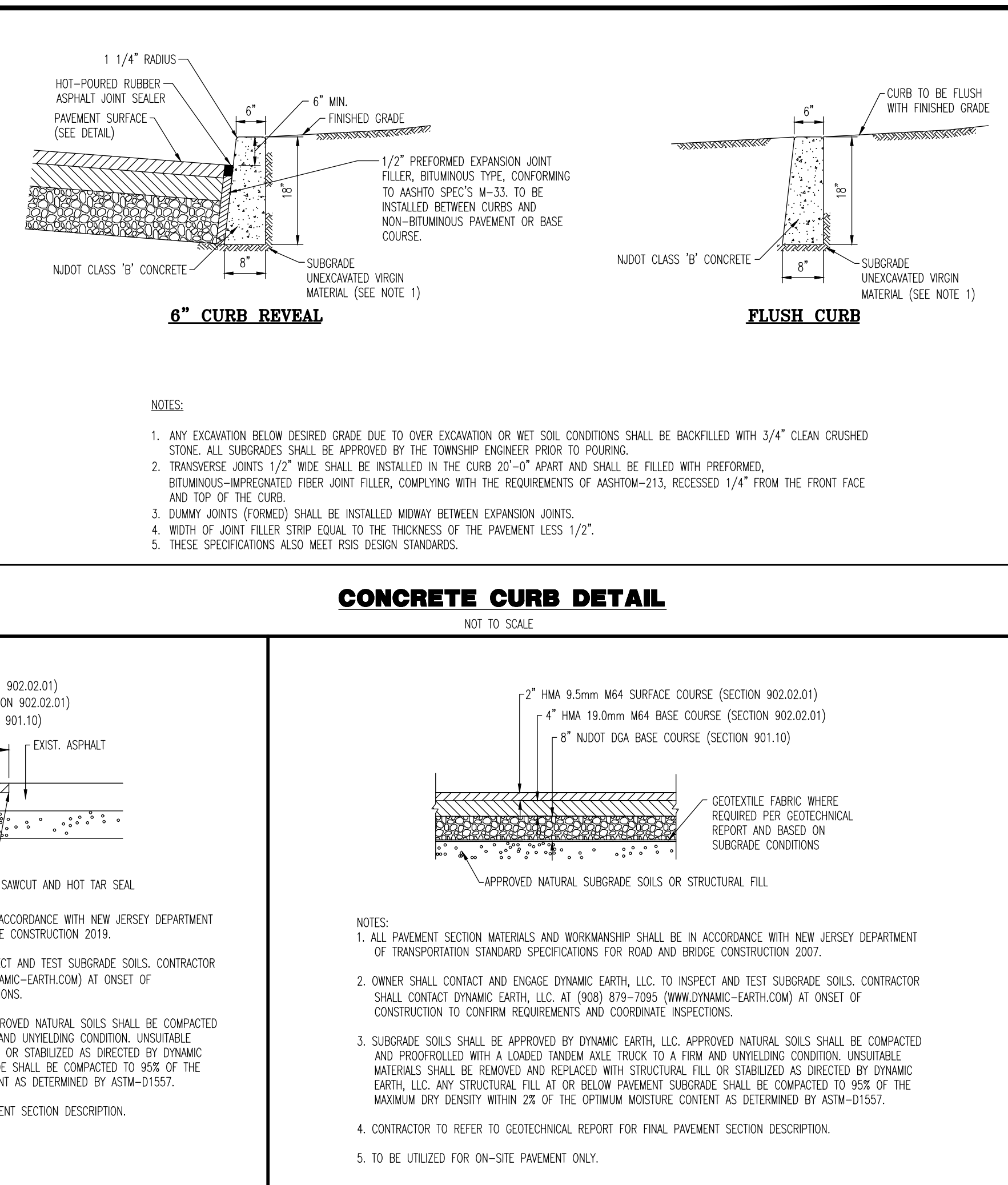
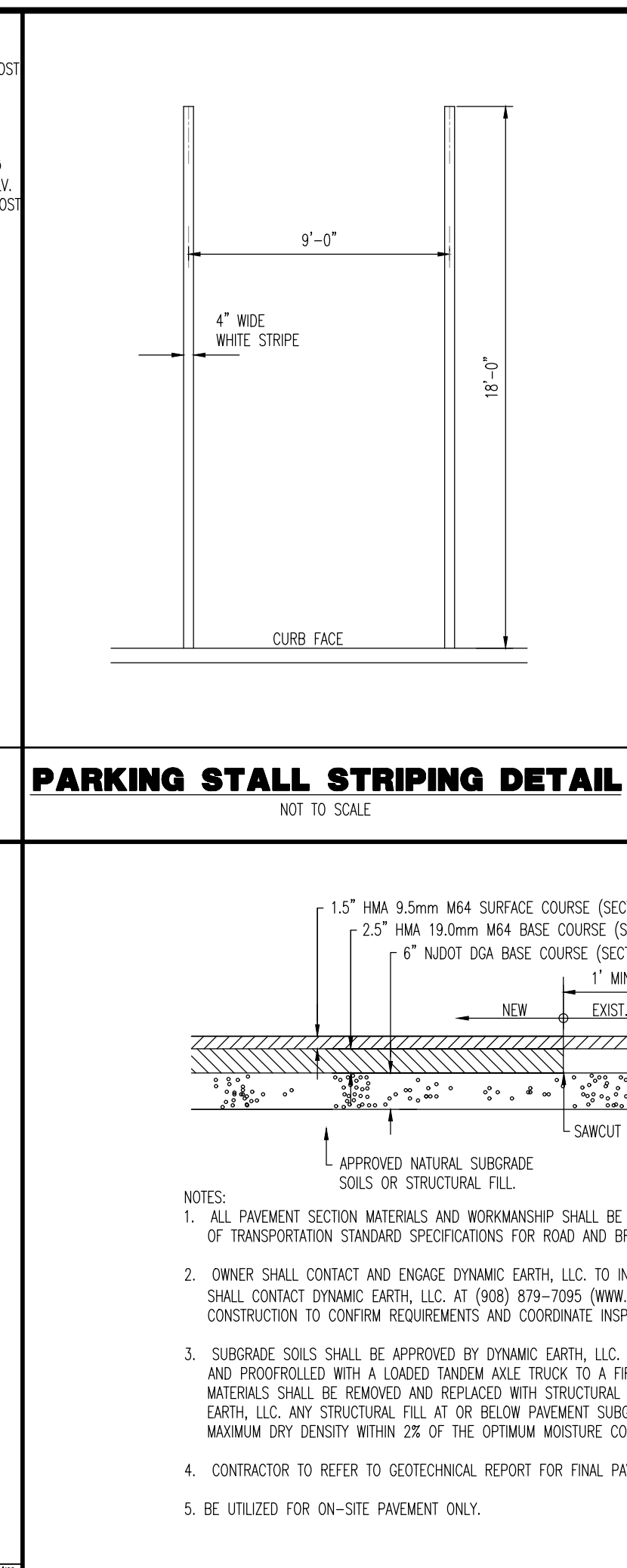
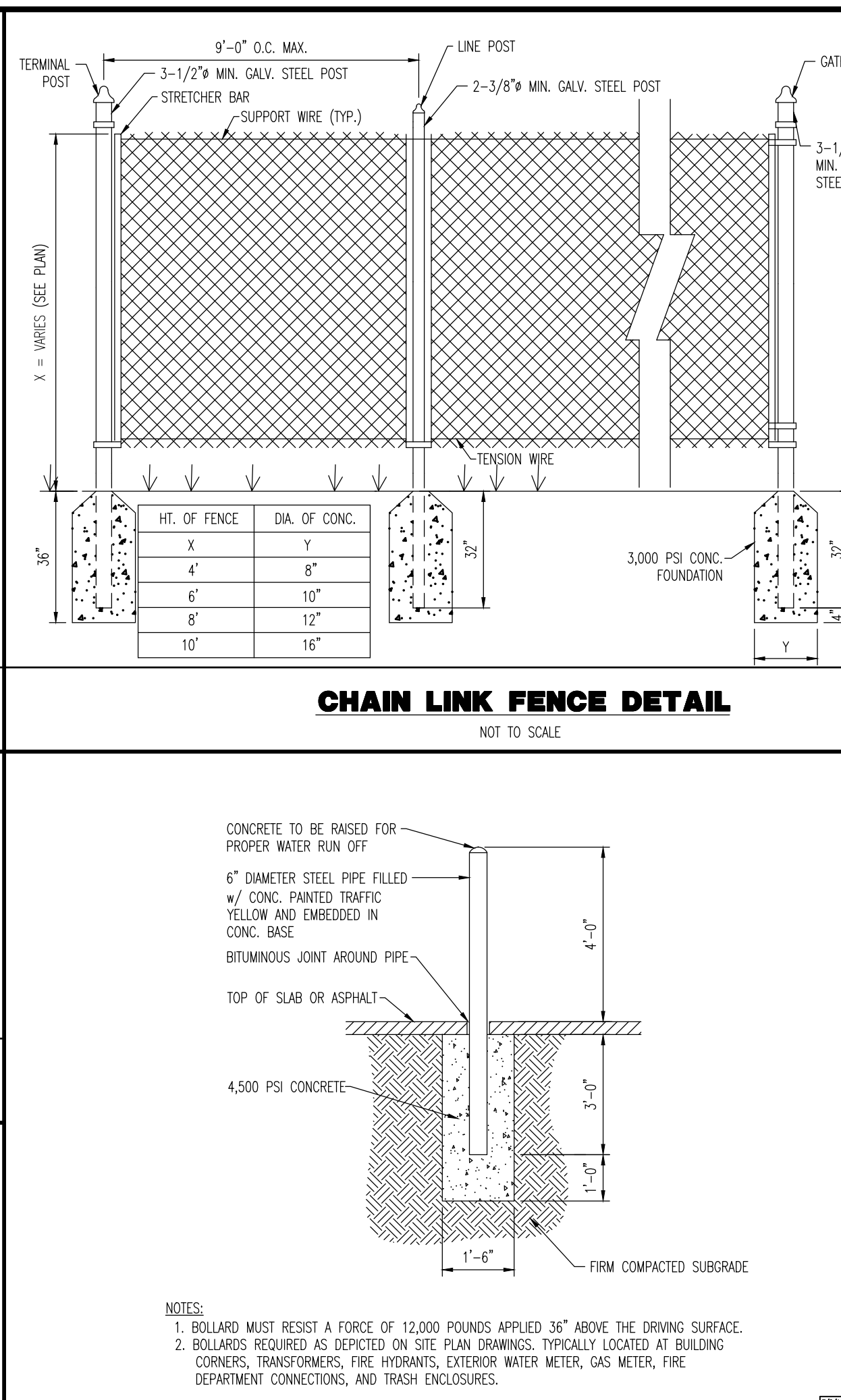
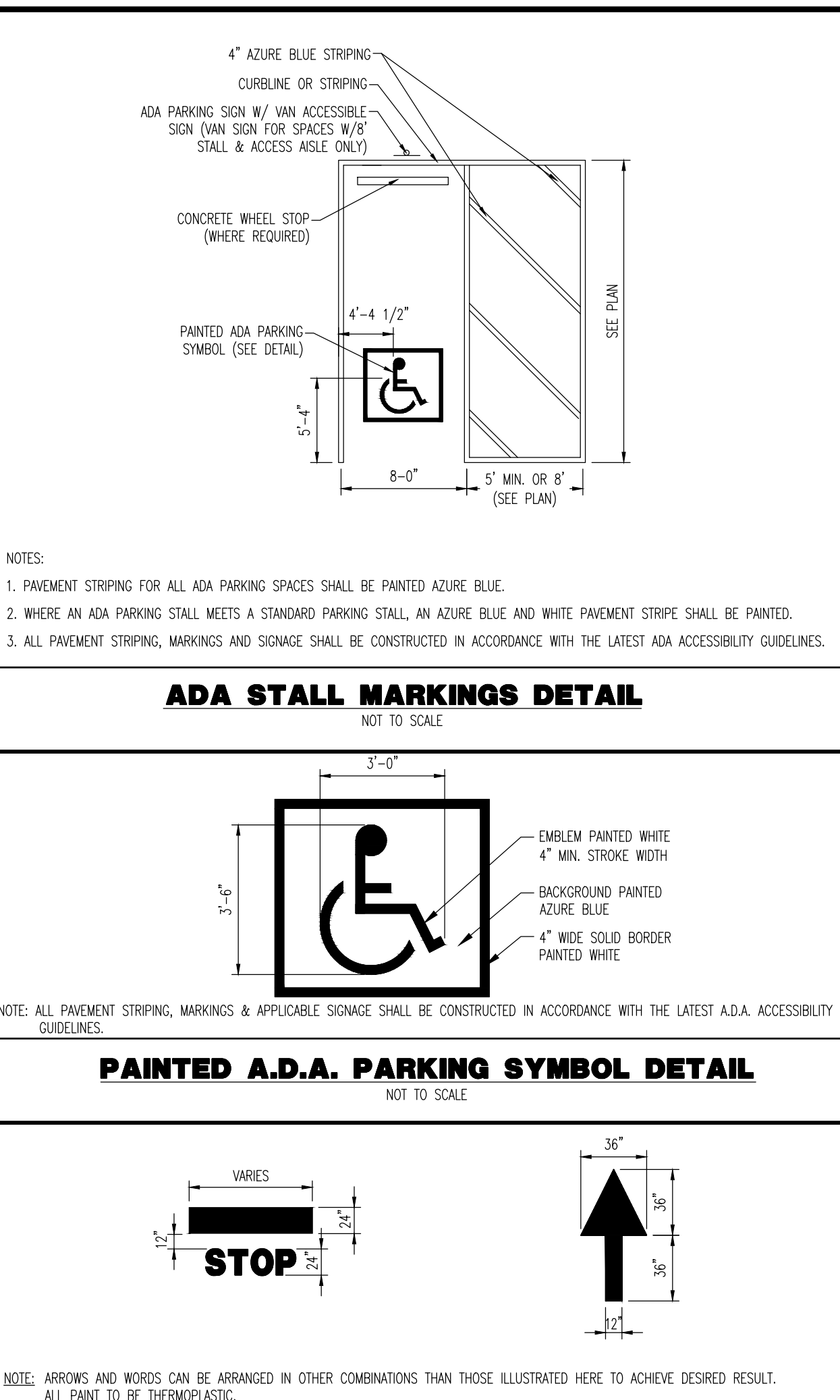
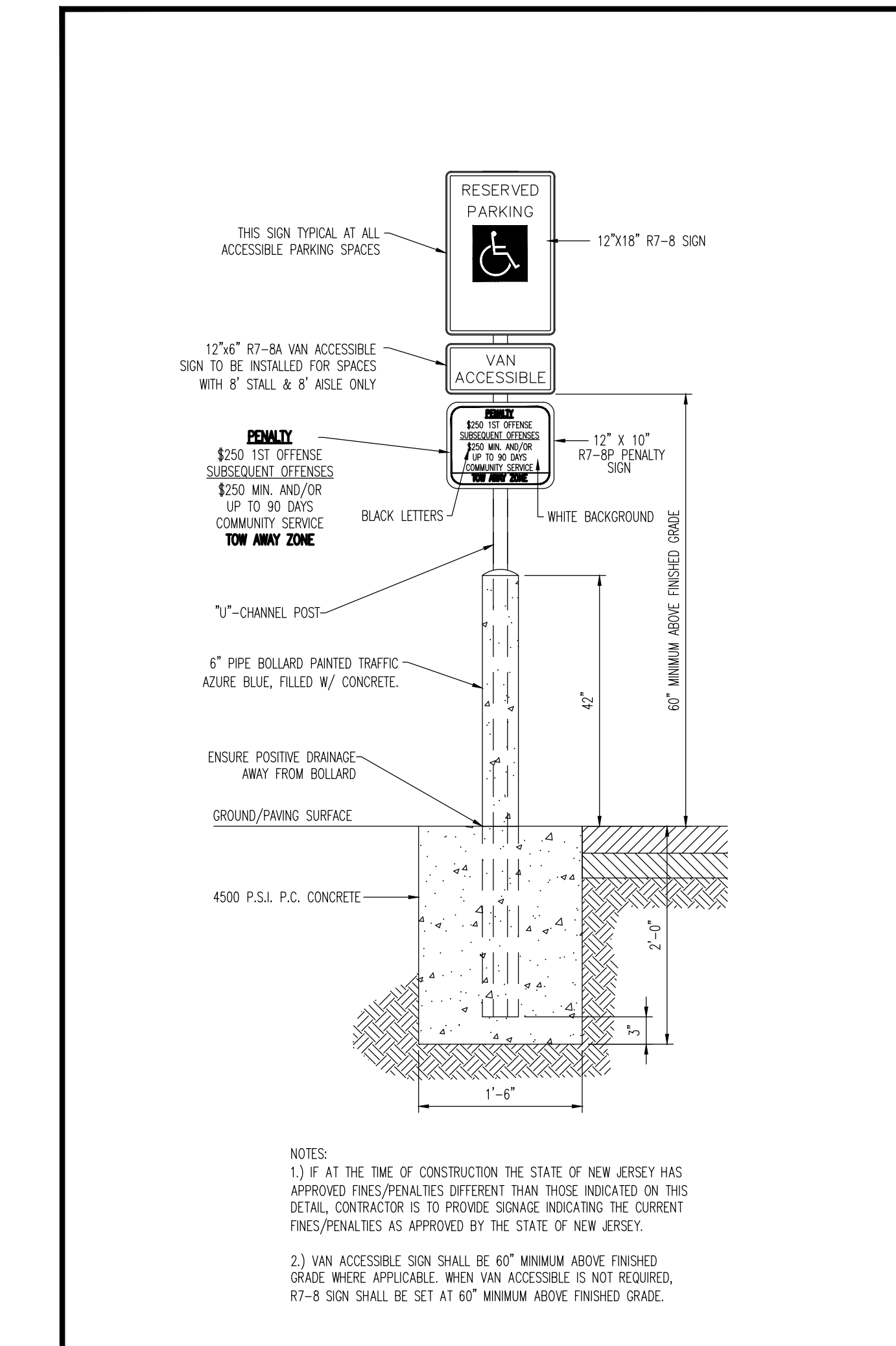
PROJECT: **B9 COTTONTAIL OWNER, LLC PROPOSED INDUSTRIAL DEVELOPMENT**

BLK/CK: 517.06 LOT: 5.10
200 COTTONTAIL LANE, TOWNSHIP OF FRANKLIN, SOMERSET COUNTY, NEW JERSEY

JOSHUA M. SEWALD
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 52908

KYLE C. KAVINSKI
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 52985

JOB No: 3566-99-004
DATE: 02/09/2022
DRAWN BY: KJH
DESIGNED BY: DT
CHECKED BY: KCK
SCALE: (H) NOT TO SCALE (V) SCALE
SHEET No: 17



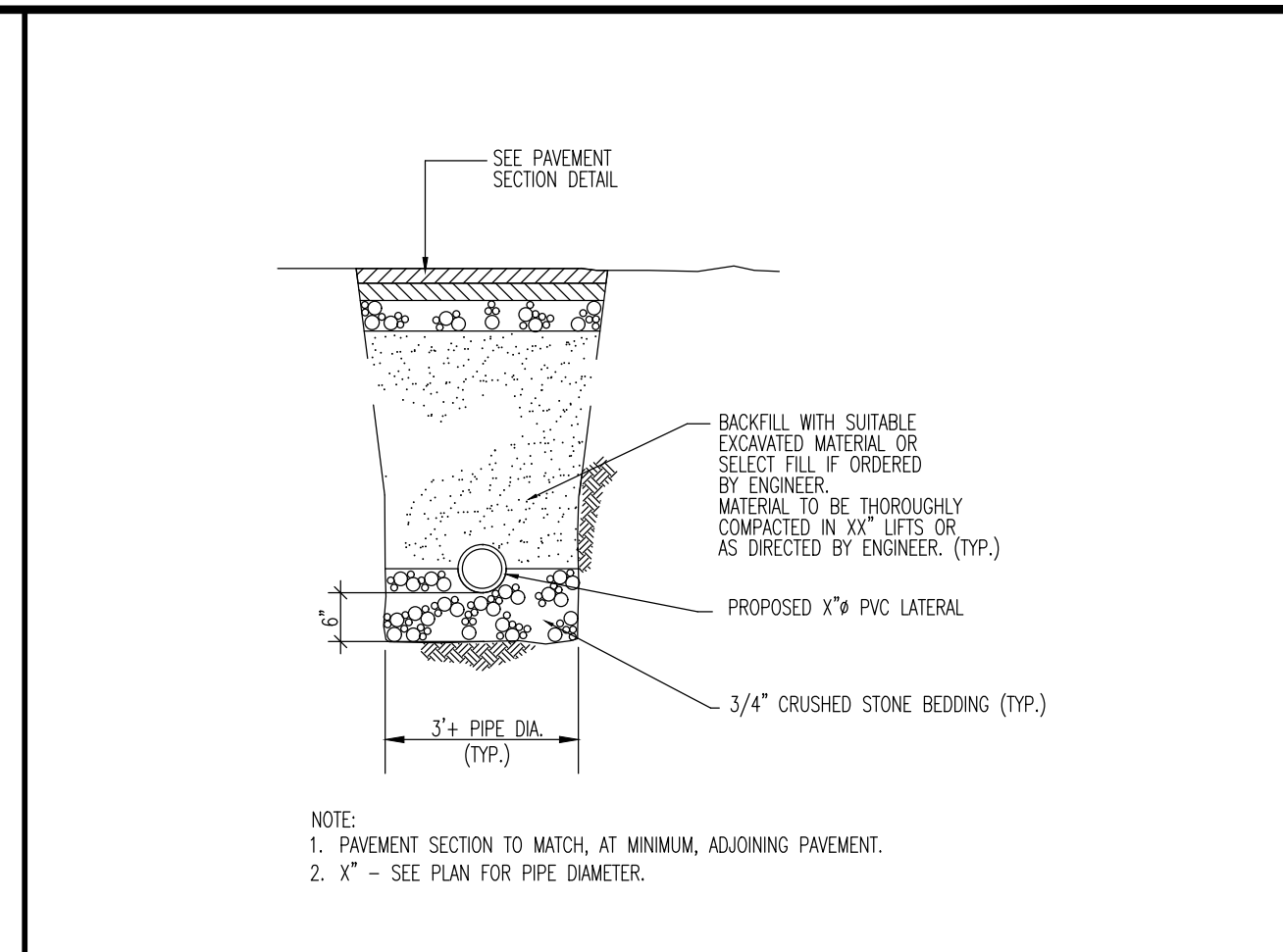
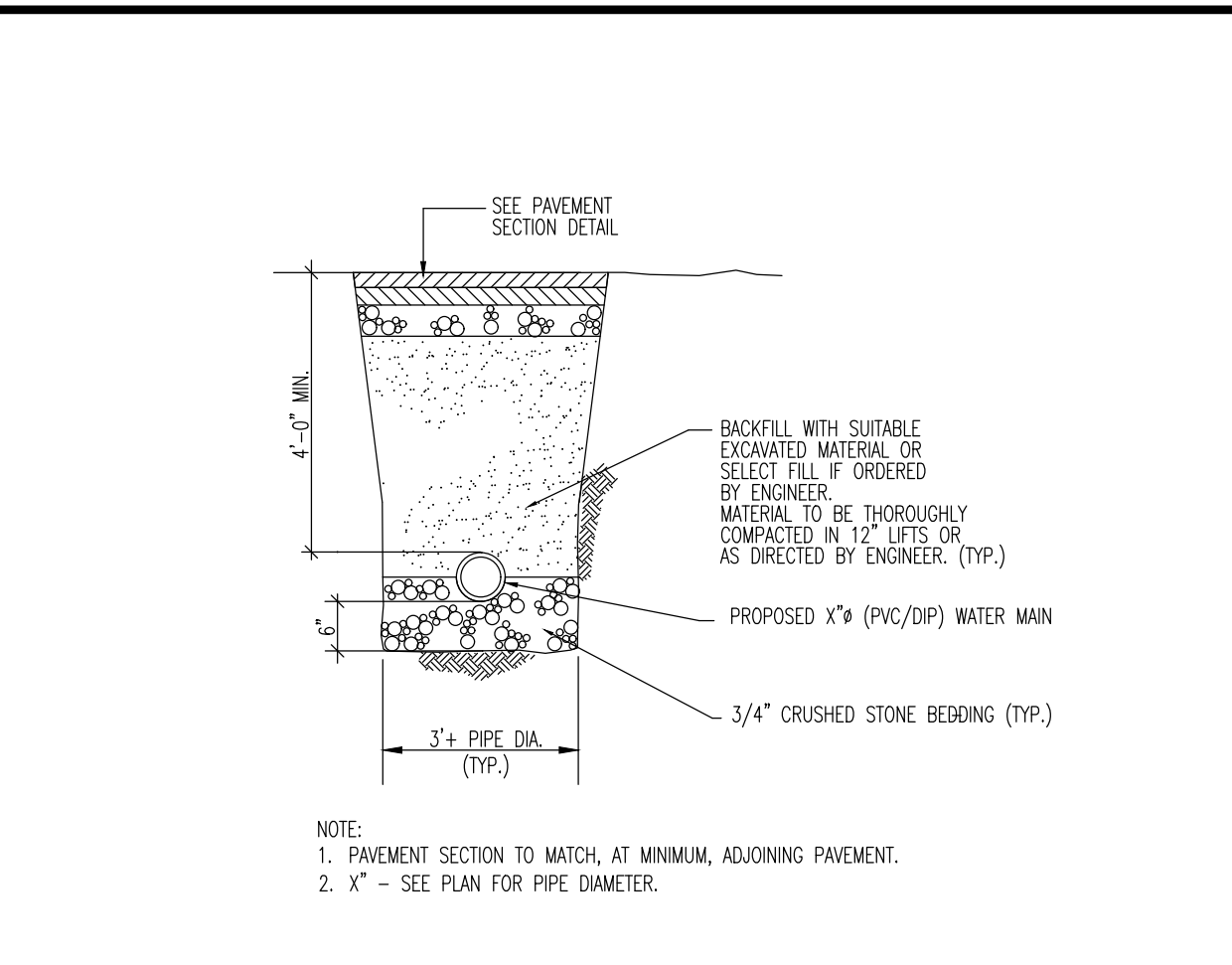
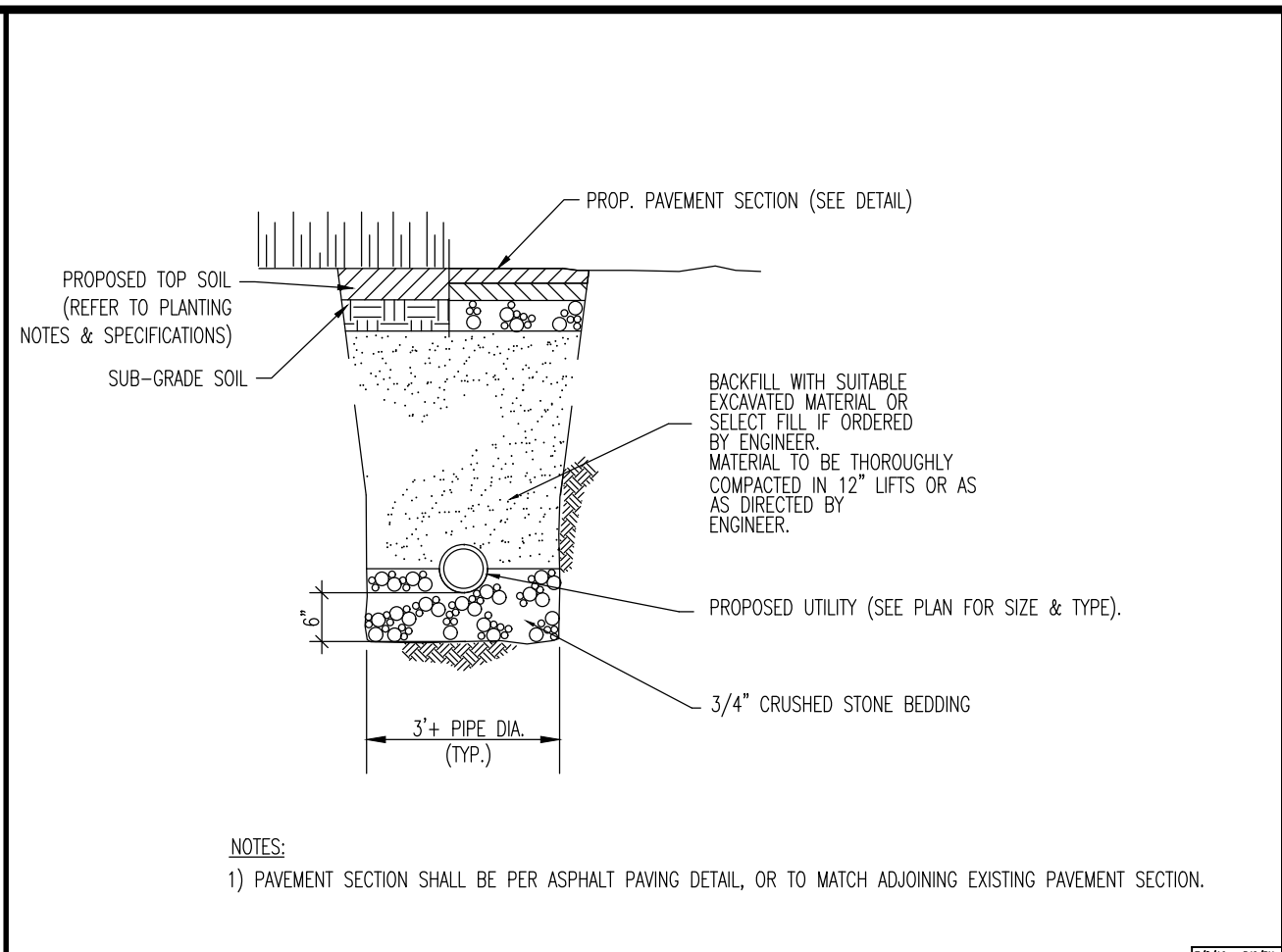
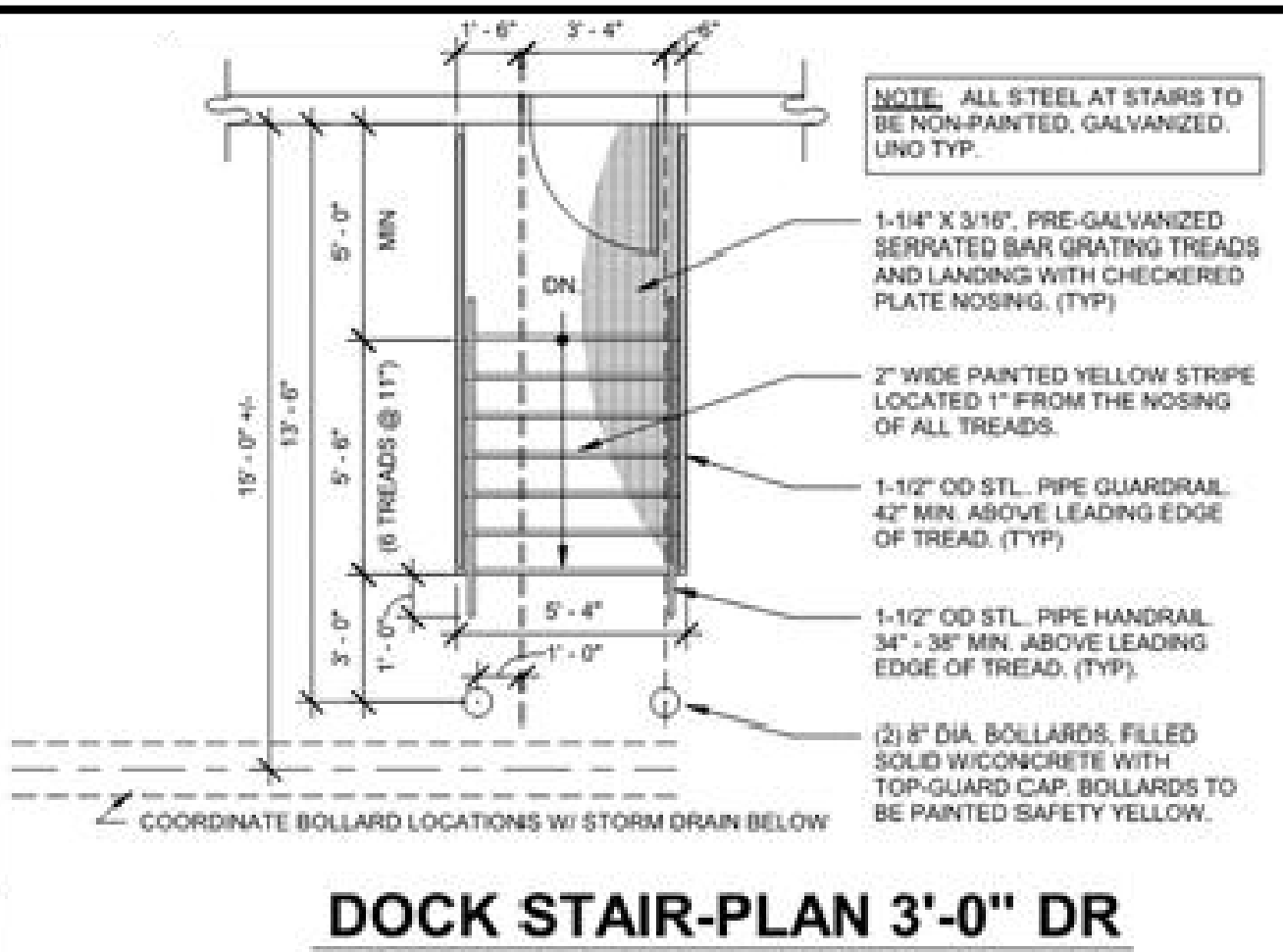
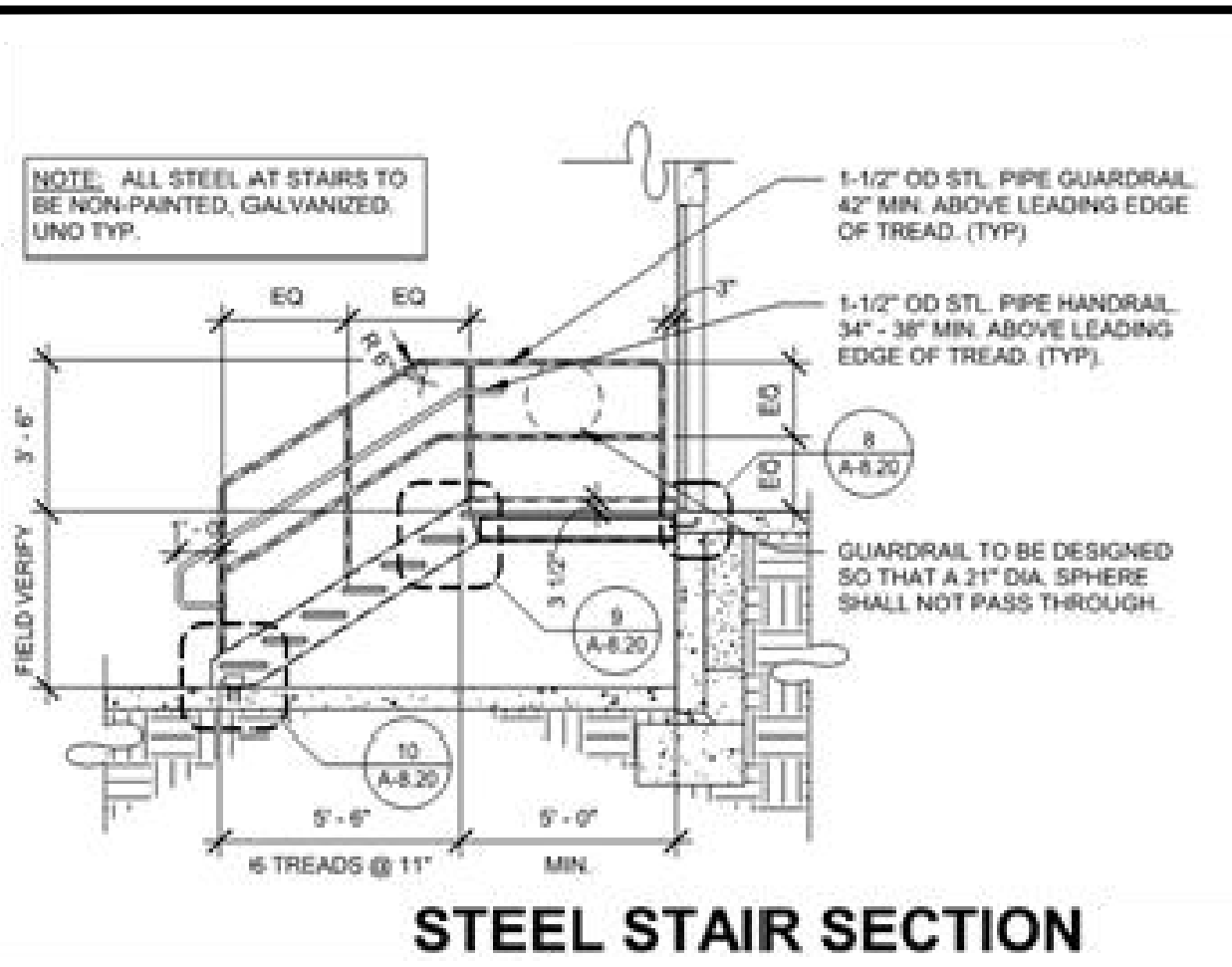
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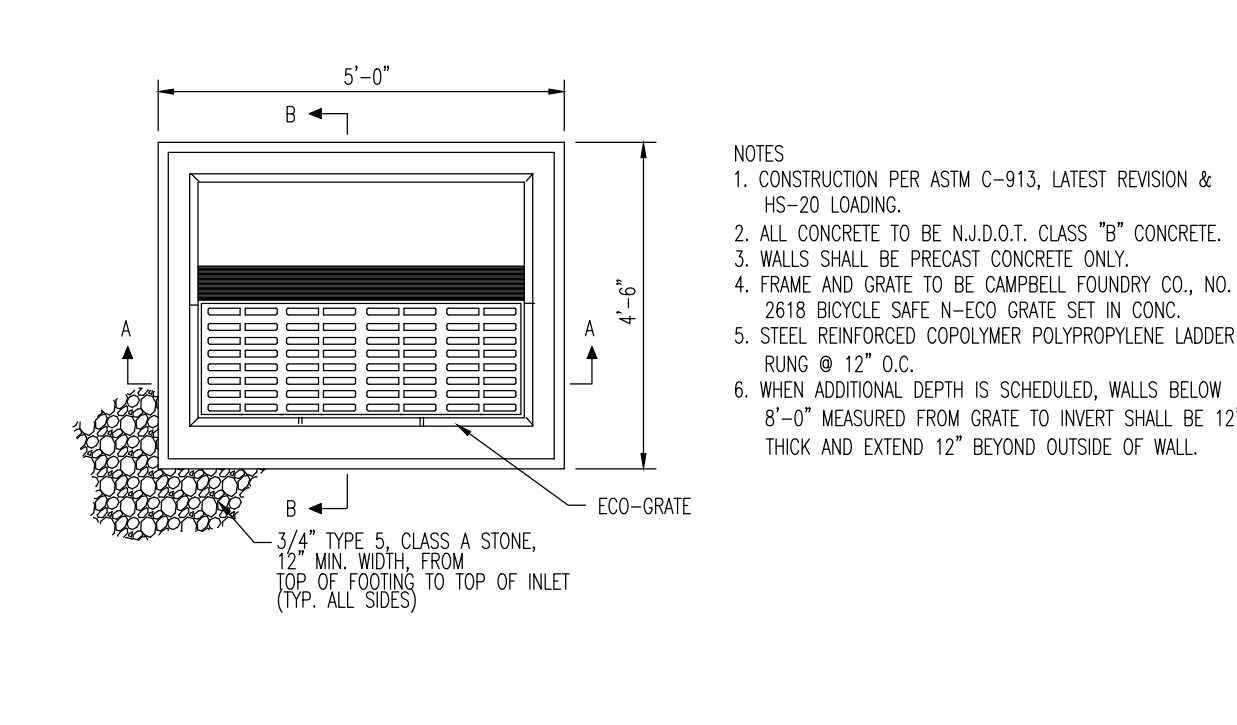
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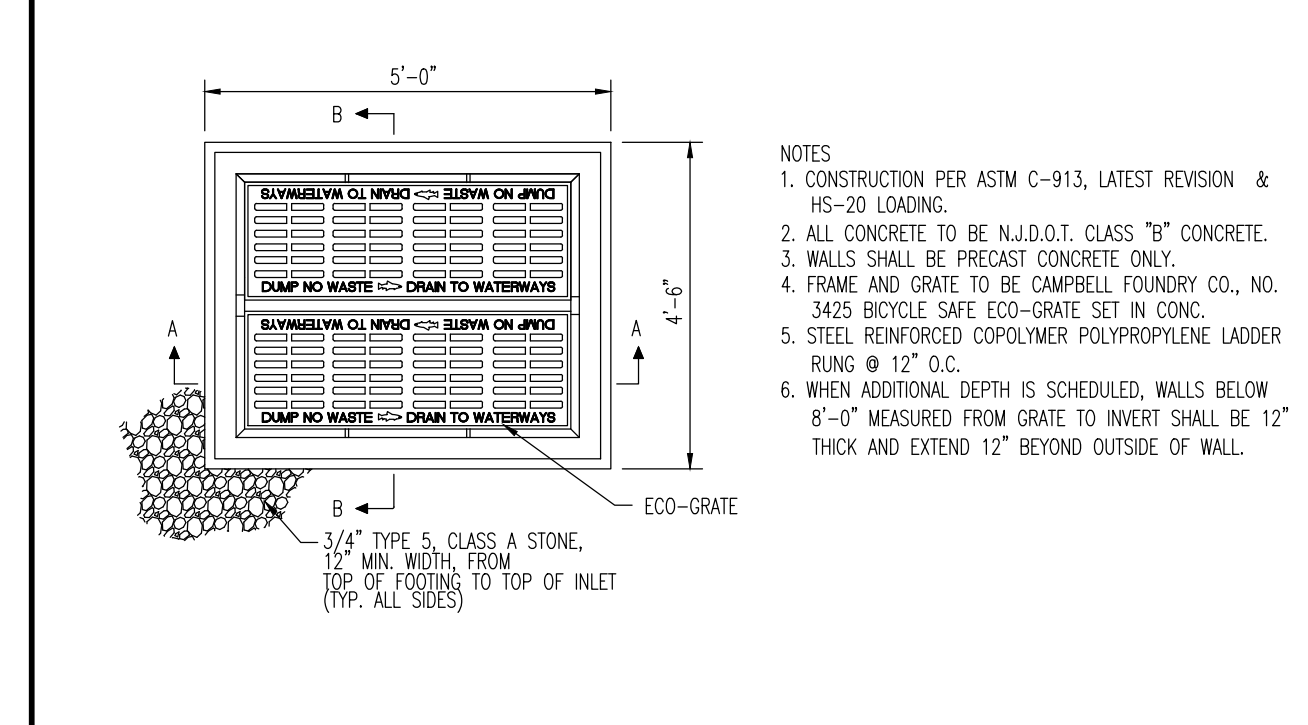
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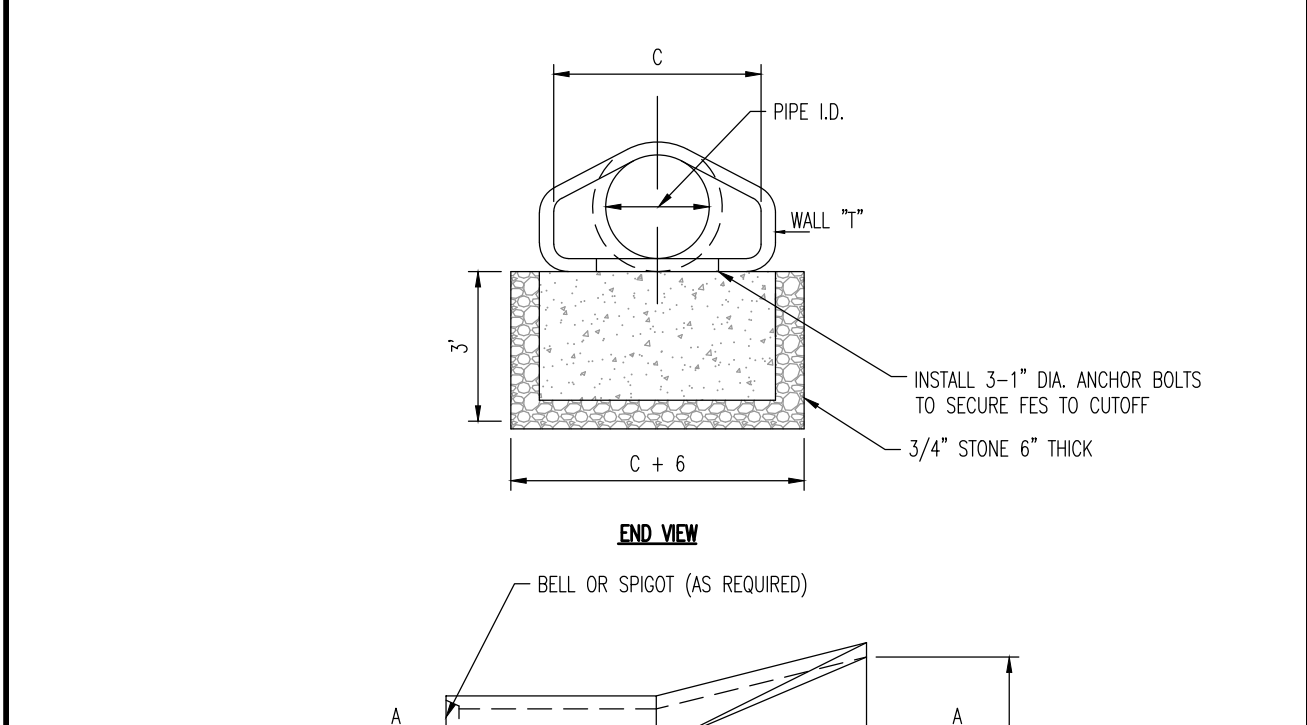
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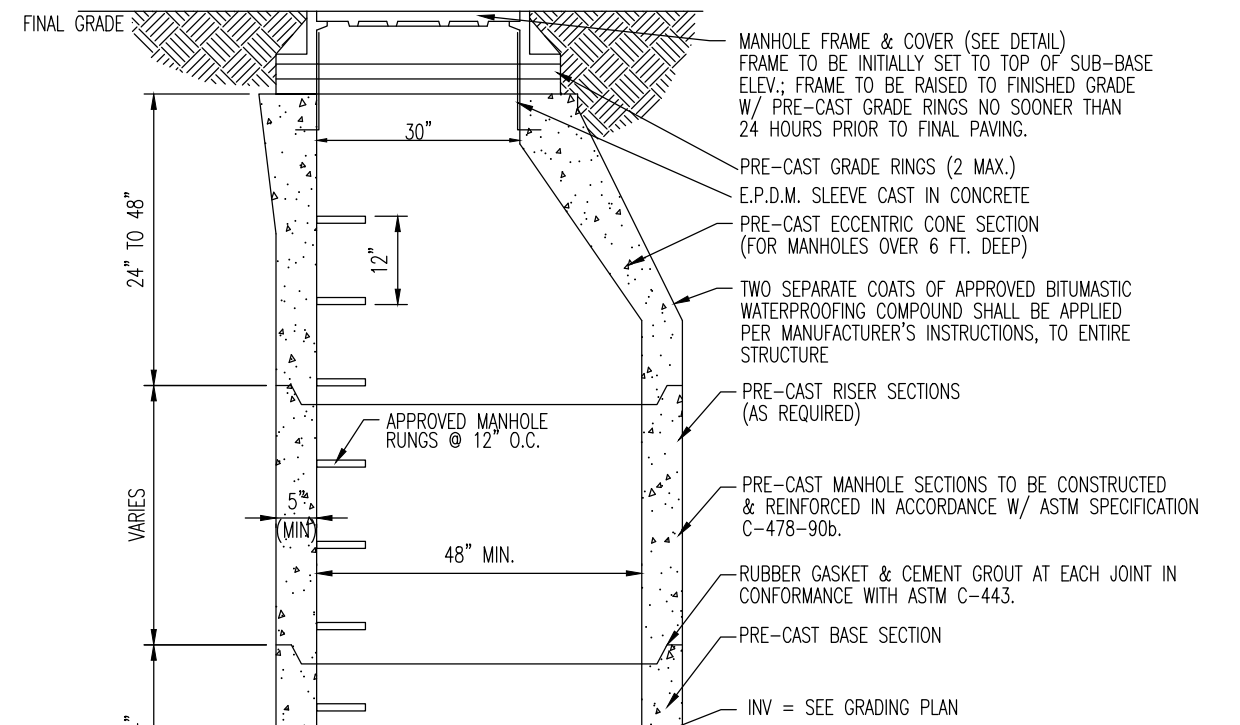
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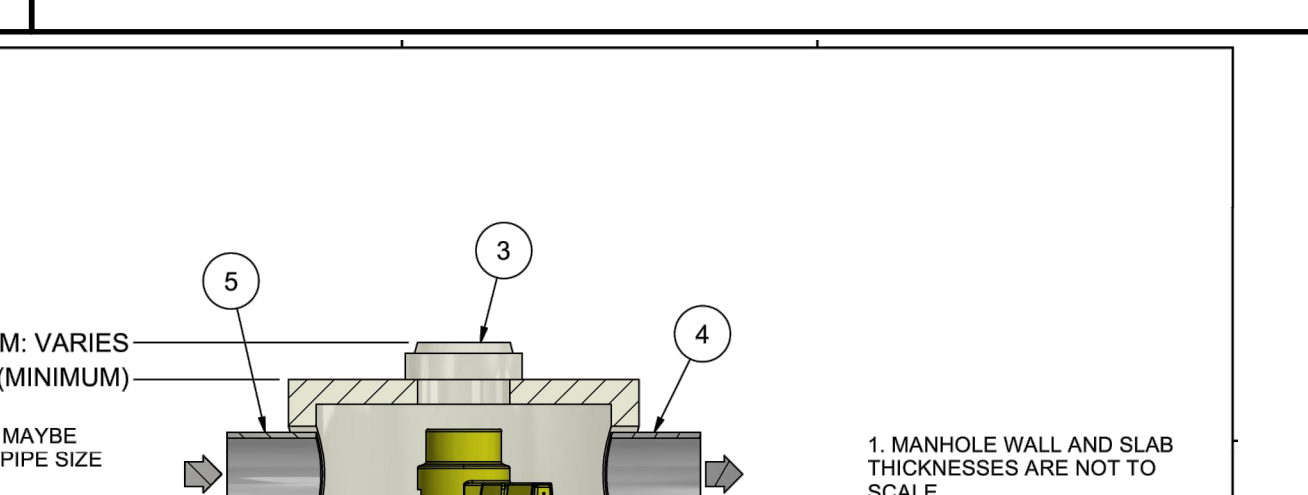
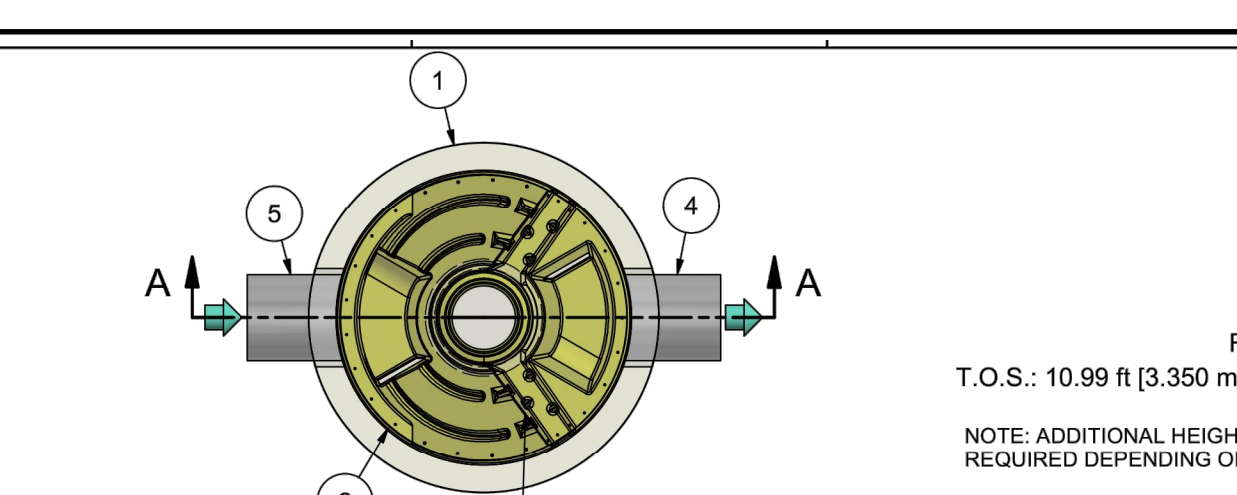
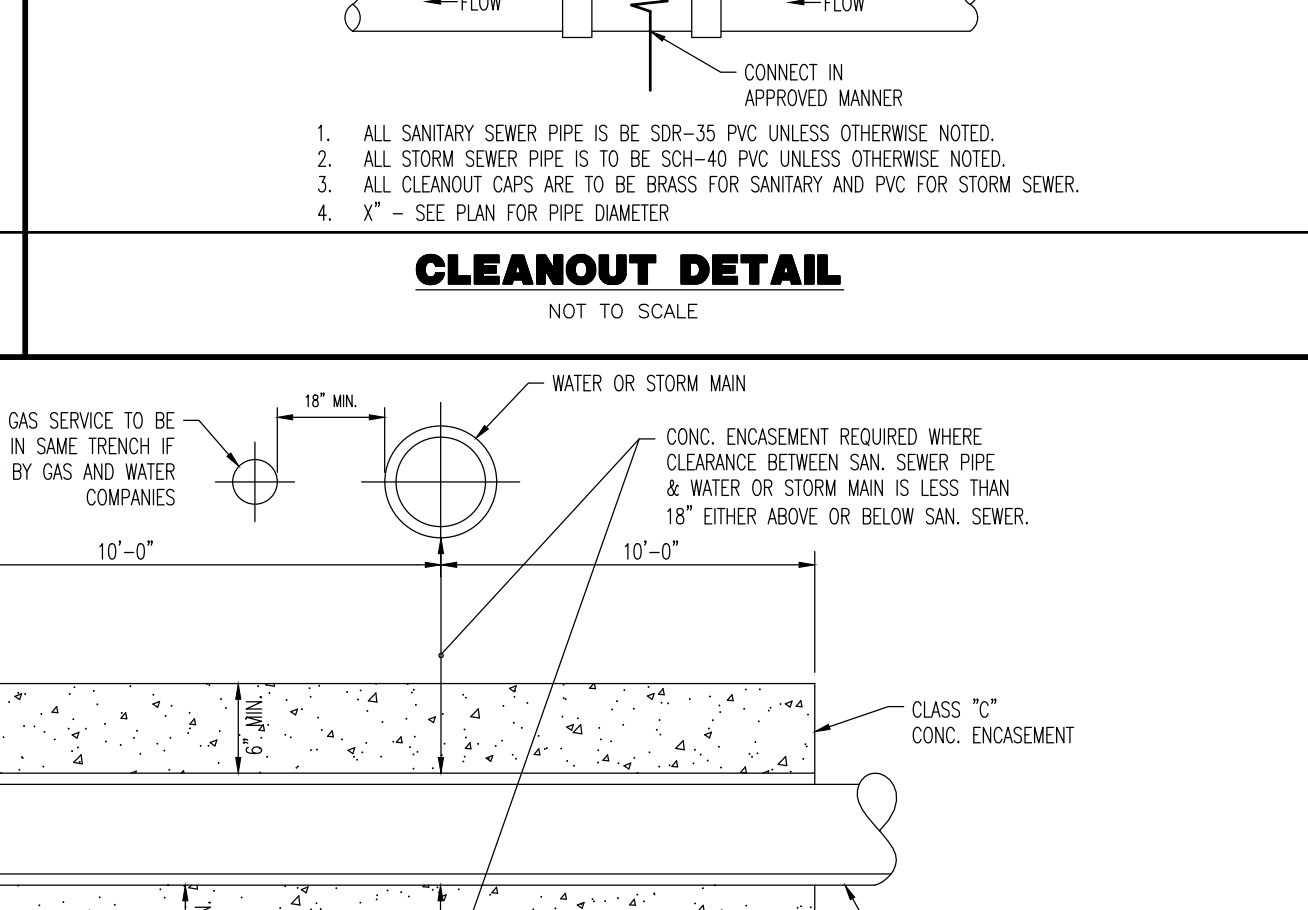
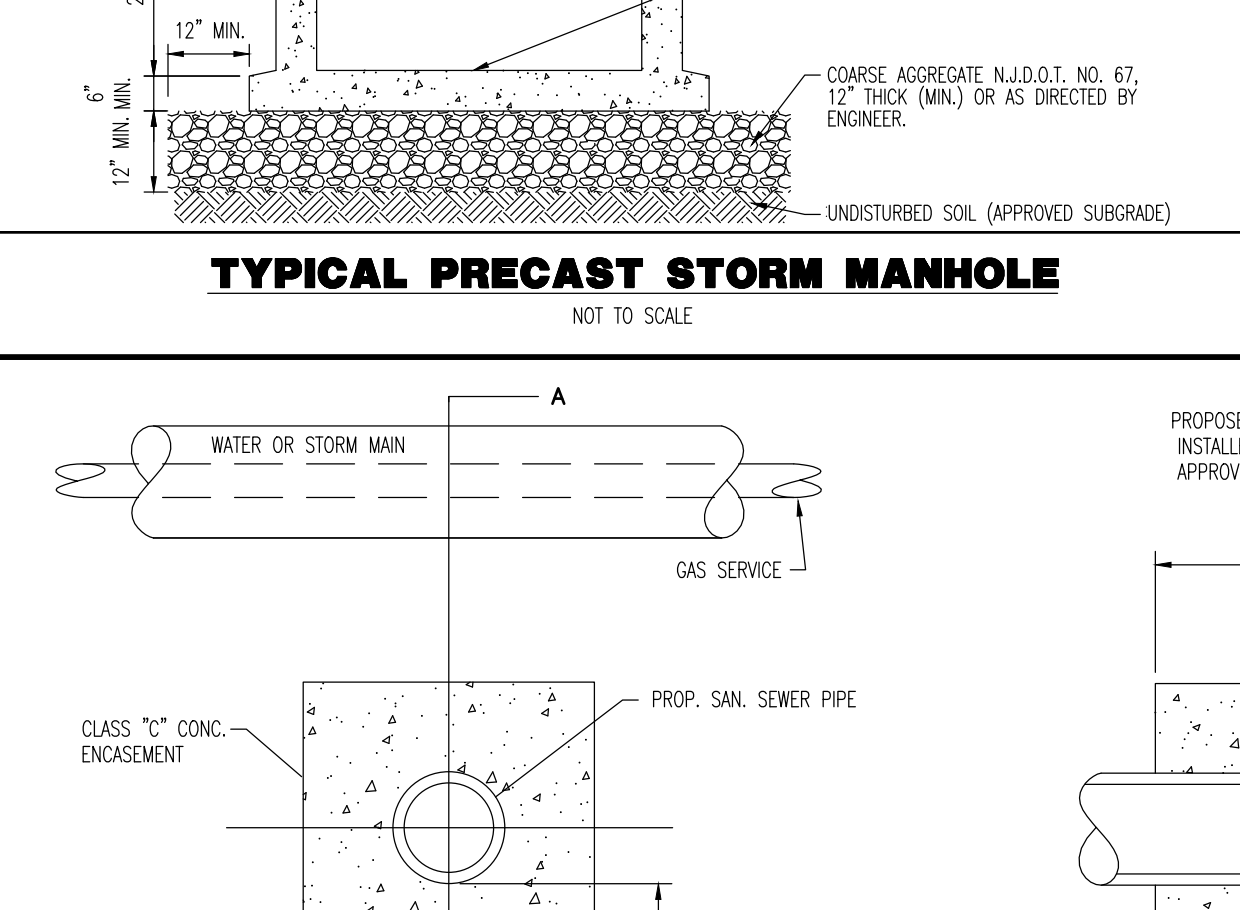
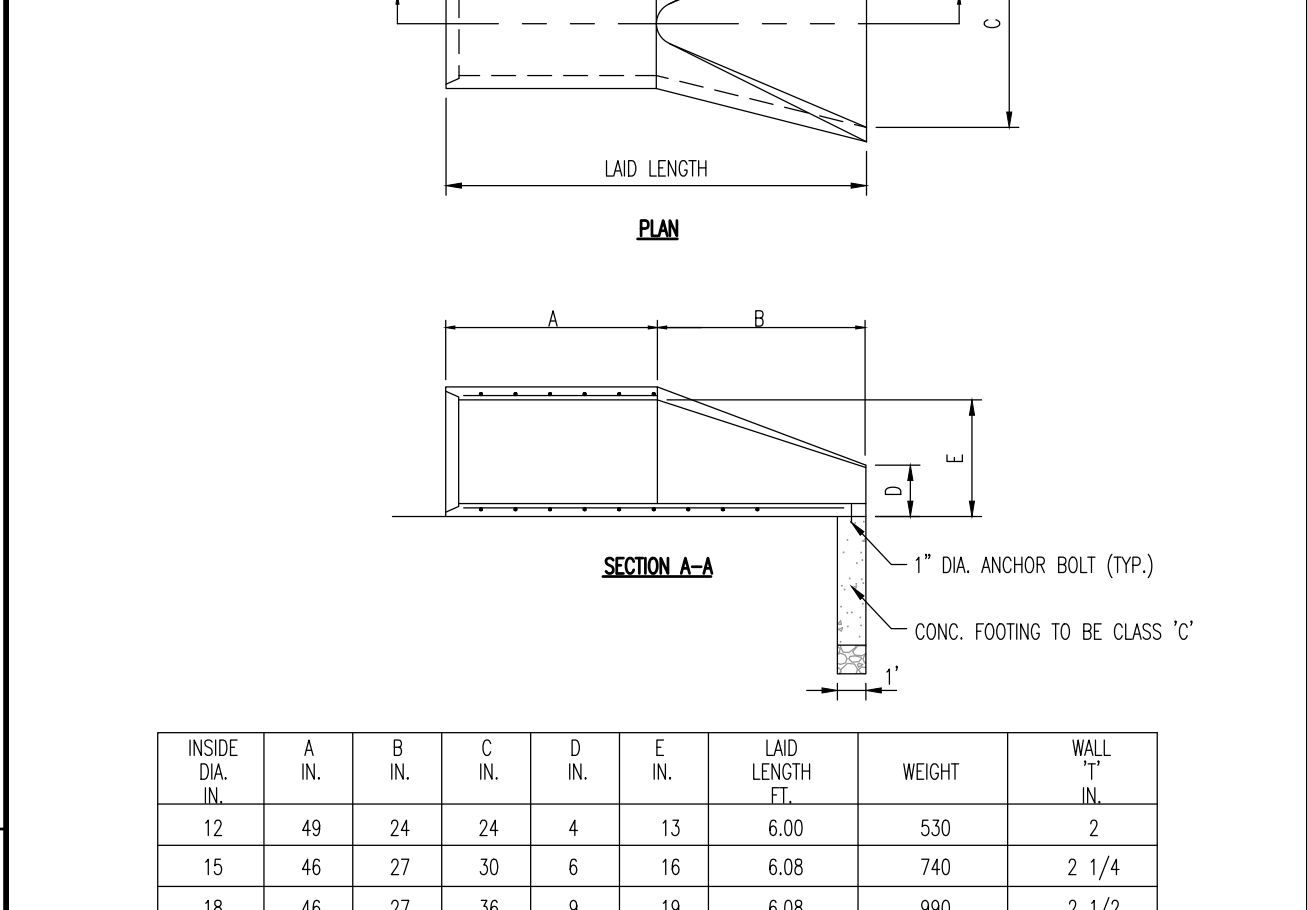
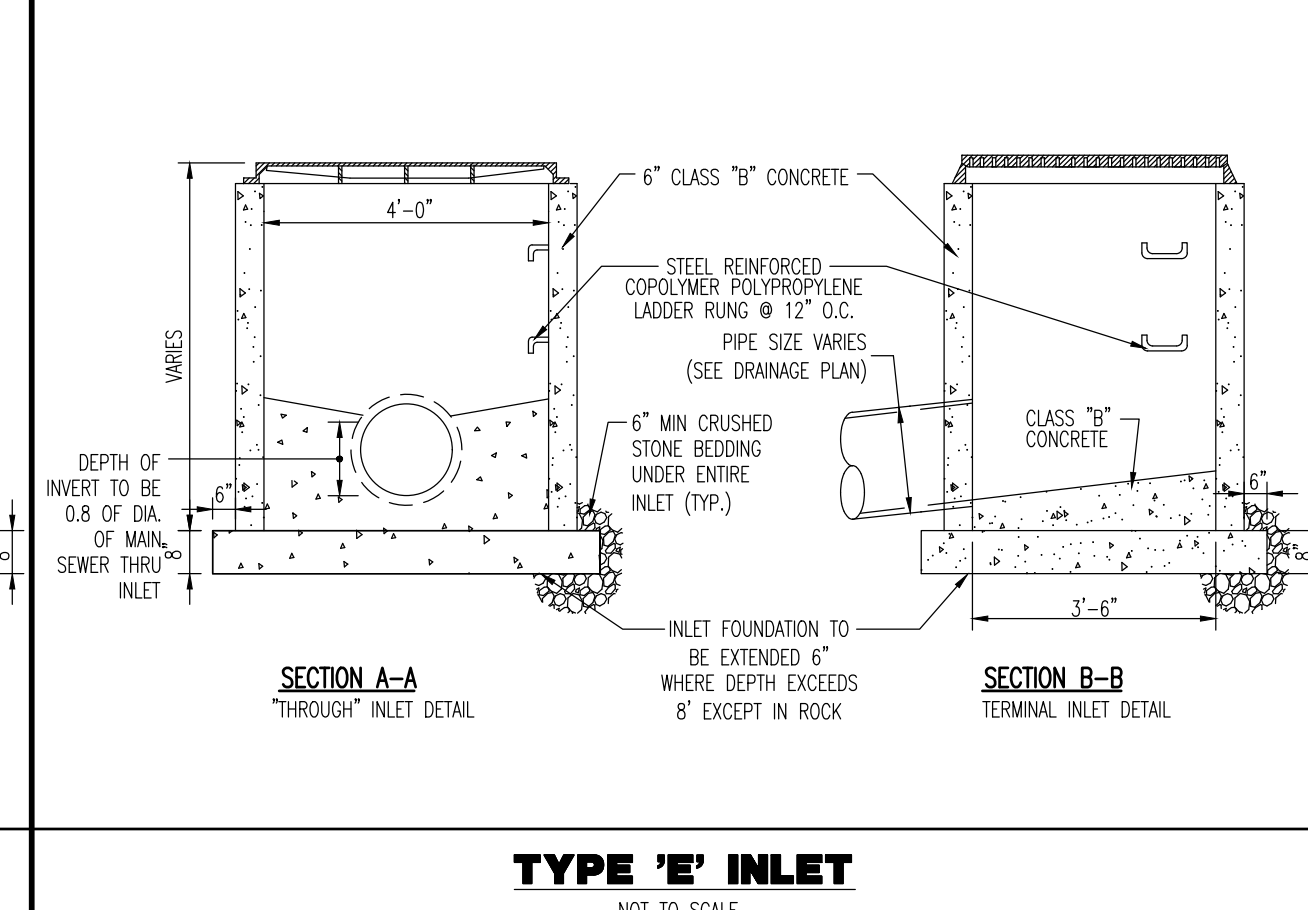
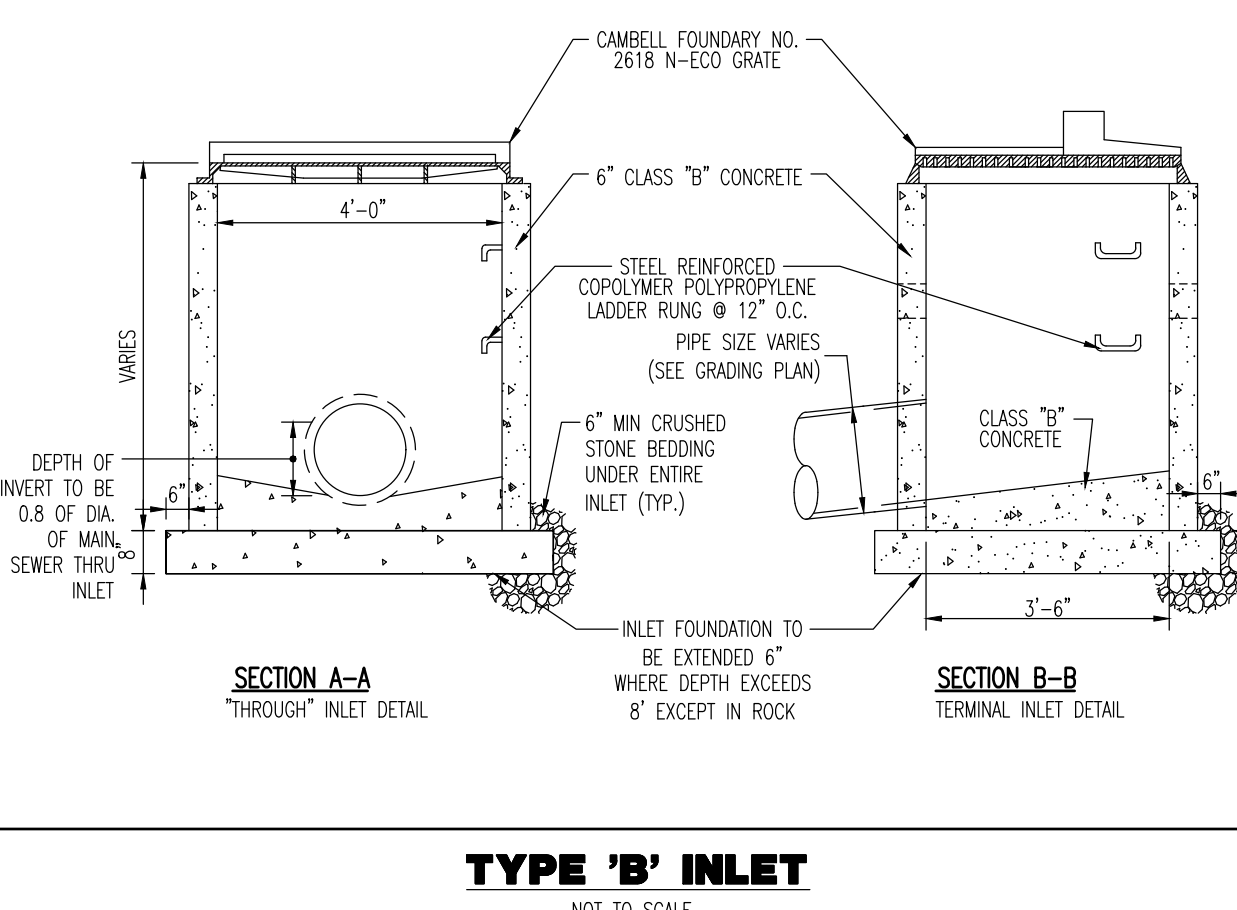
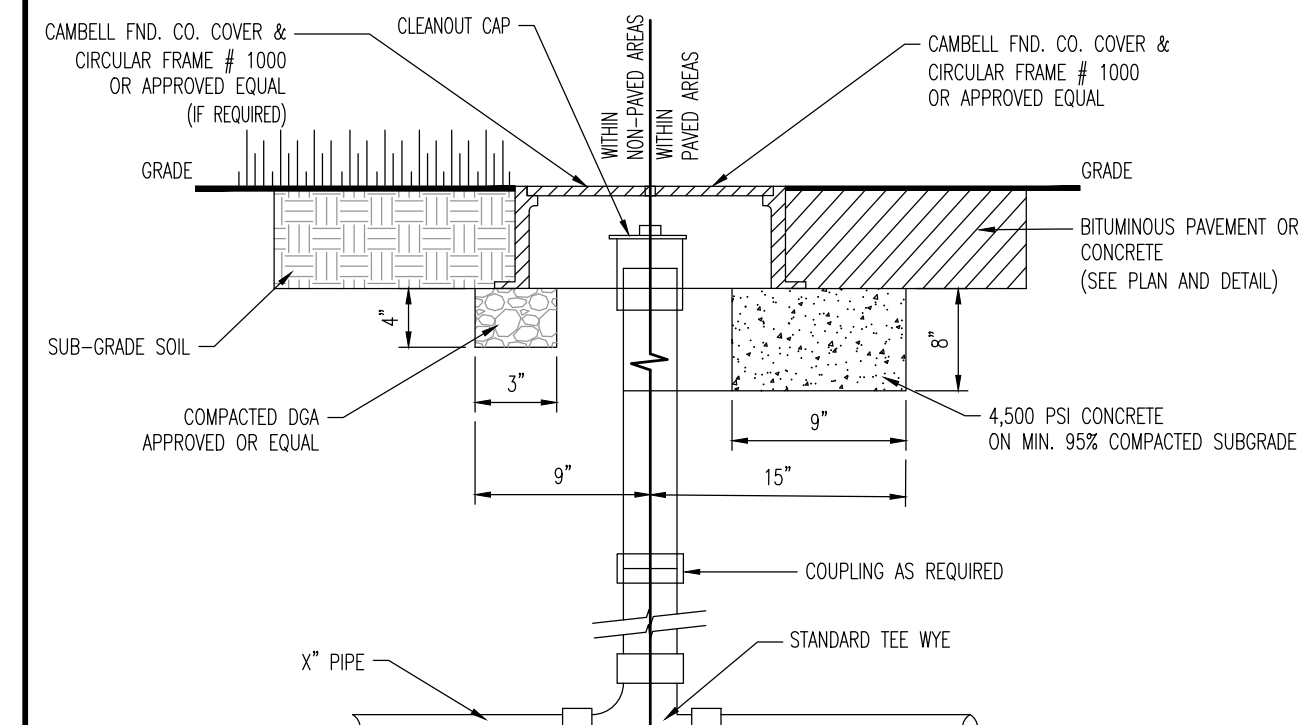
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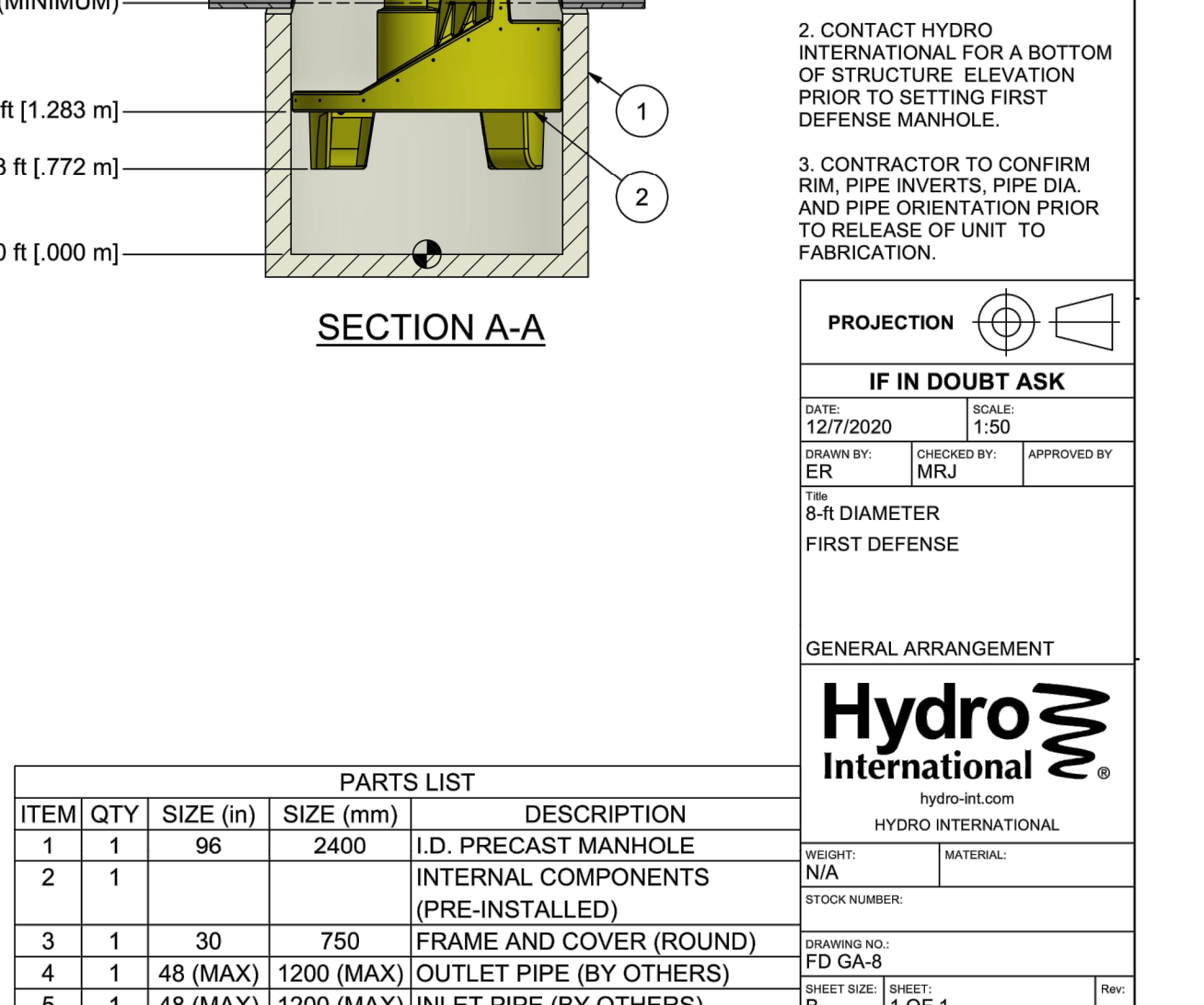
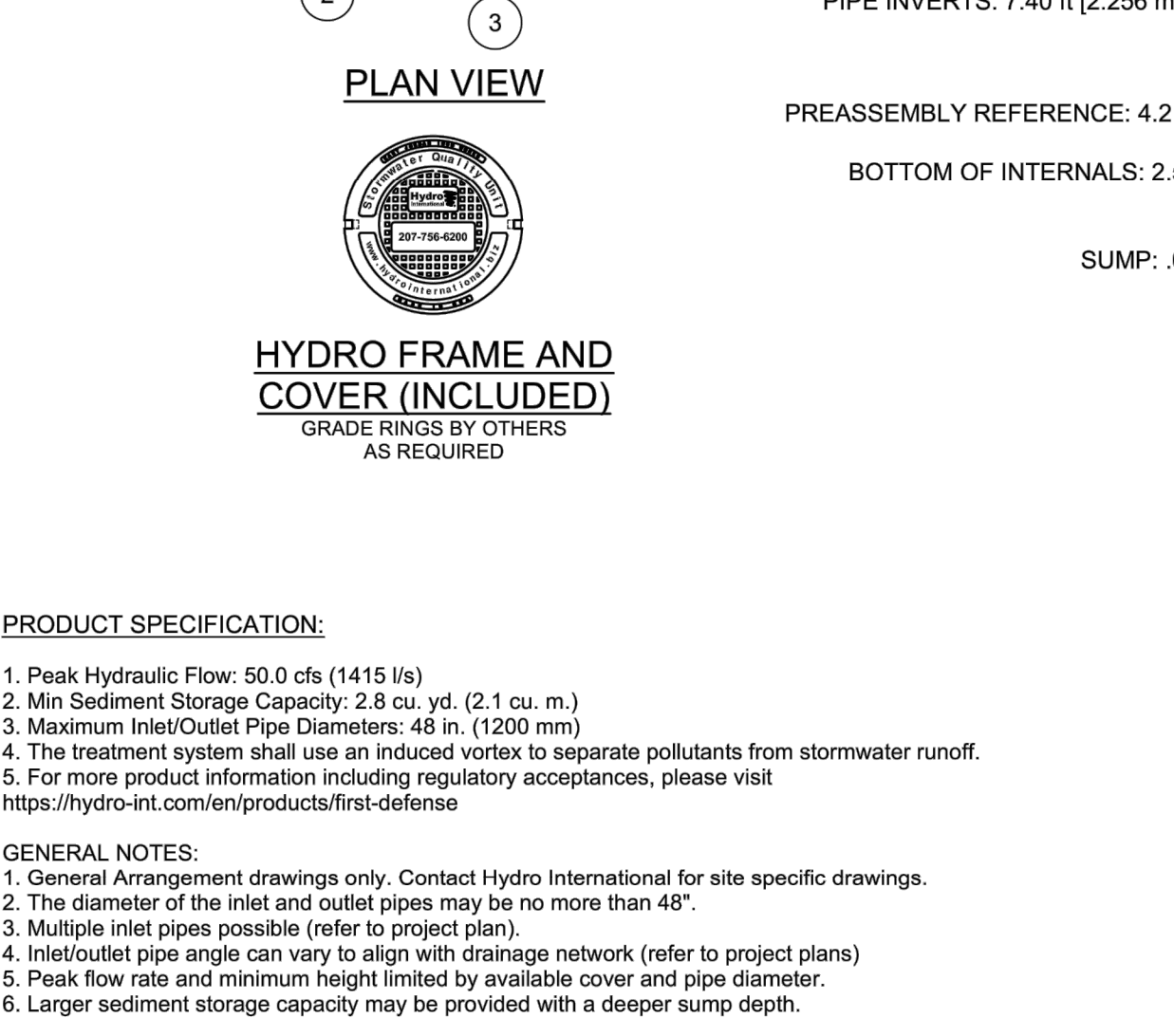
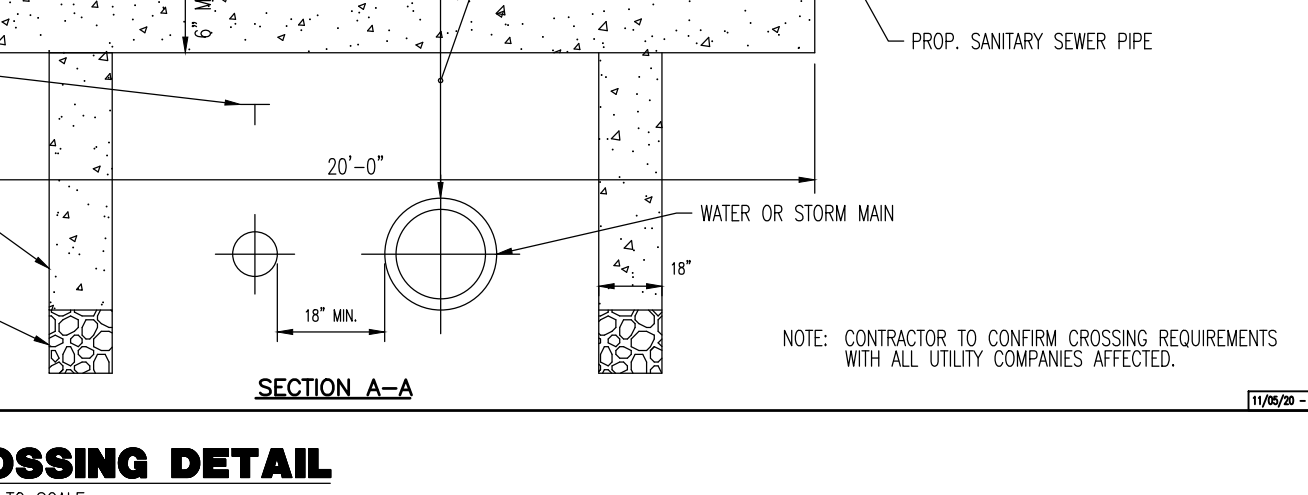
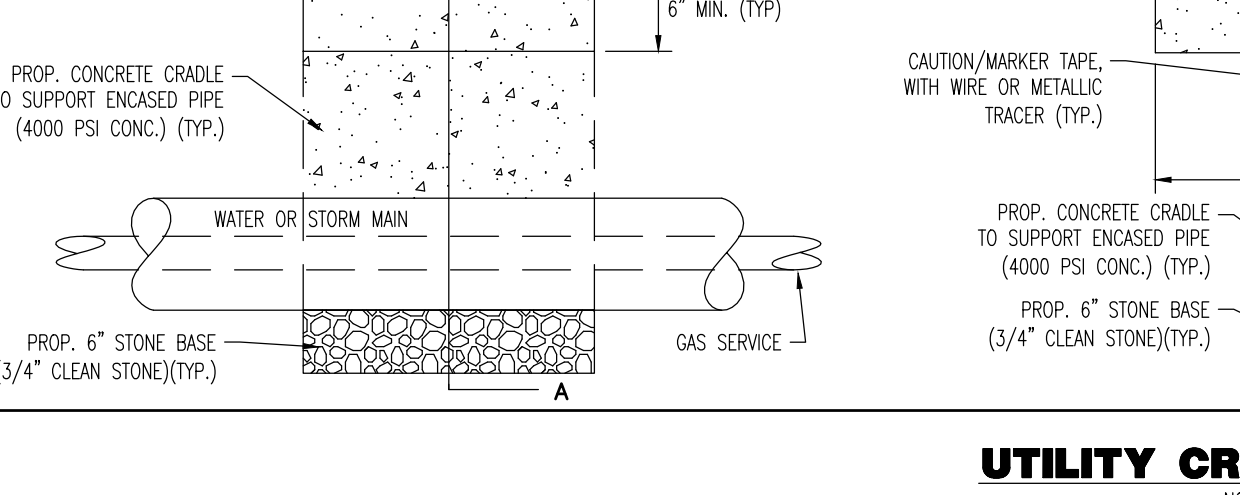
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SANITARY SEWER TRENCH DETAIL
NOT TO SCALE



INSIDE DIA. IN.	A IN.	B IN.	C IN.	D IN.	E IN.	LAD LENGTH FT.	WEIGHT	WALL THICK IN.
12	49	24	24	4	13	6.00	530	2
15	46	27	30	6	16	6.08	740	2 1/4
18	46	27	36	9	19	6.08	990	2 1/2
21	38	35	42	9	22	6.08	1280	2 3/4
24	30	44	48	9 1/2	25	6.17	1520	3
27	26	48	54	10 1/2	28	6.17	1930	3 1/4
30	20	54	60	12	31	6.17	2190	3 1/2
36	35	63	72	15	37	8.17	4100	4
42	35	63	72	21	43	8.17	5380	4 1/2
48	26	72	84	24	49	8.17	6550	5
54	35	65	90	27	55	8.33	8040	5 1/2
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CONCRETE FLARED END SECTIONS
NOT TO SCALE

PROJECTION

IF IN DOUBT ASK

DATE: 12/7/2020 SCALE: 1:50

DRAWN BY: ER CHECKED BY: MRJ APPROVED BY: [Signature]

THE: 8-R DIAMETER FIRST DEFENSE

GENERAL ARRANGEMENT

Hydro International
hydro-int.com

HYDRO INTERNATIONAL

WEIGHT: N/A MATERIAL: [Blank]

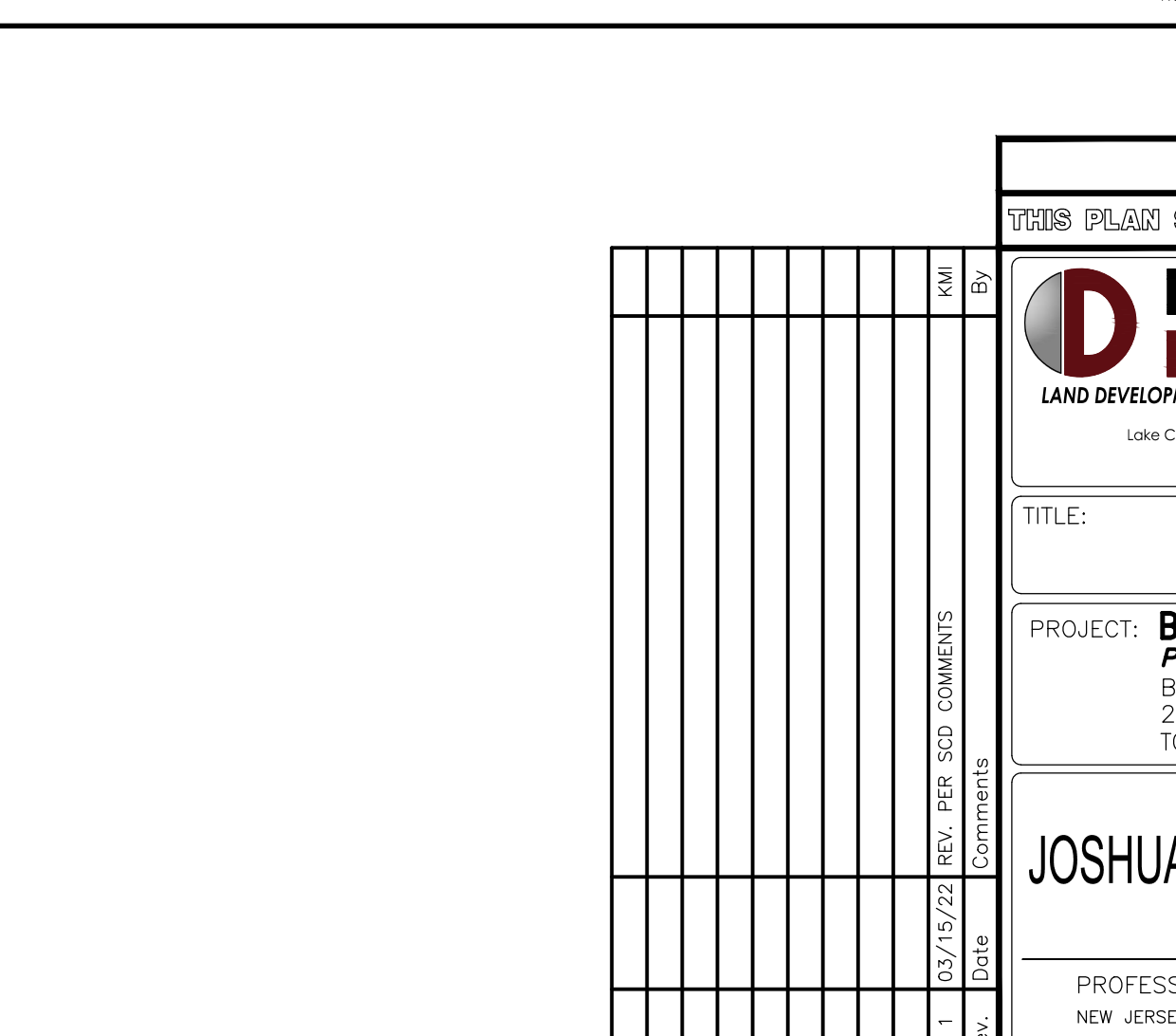
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DRAWING NO: FD CA-B

SHEET SIZE: 11x17 SHEET: 1 OF 1

REVISIONS:

NO.	DATE	DESCRIPTION
1	03/12/22	REV. PER SCD COMMENTS



IN CASE OF DISCREPANCY, TOWNSHIP STANDARD DETAILS SHALL HOLD

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Newtown, PA: 1-287-685-0276 | Philadelphia, PA: 1-215-253-4868 | Bethlehem, PA: 1-610-998-4400

TITLE: [Blank]

PROJECT: **B9 COTTONTAIL OWNER, LLC**
PROPOSED INDUSTRIAL DEVELOPMENT
BLOCK 517.06, LOT 15.10
200 COTTONTAIL LANE,
TOWNSHIP OF FRANKLIN, SOMERSET COUNTY, NEW JERSEY

JOB No: 3566-99-004 DATE: 02/09/2022

DRAWN BY: KJH SCALE: (H) NOT TO (V) SCALE

DESIGNED BY: DT SHEET No: [Blank]

CHECKED BY: KCK

CHECKED BY: [Blank]

JOSHUA M. SEWALD PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 52908

KYLE C. KAVINSKI PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 52985

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20 OF 27

Rev. # 1

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 C:\Program Files\Foxit Software\Foxit Reader\Foxit Reader.exe

FRANKLIN TOWNSHIP ENGINEERING DEPARTMENT

STANDARD NOTES APPLICABLE TO ALL PROJECTS

ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION FOR SITE IMPROVEMENTS SHOWN HEREON SHALL BE IN ACCORDANCE WITH THE FOLLOWING, AS APPLICABLE:

- A. New Jersey Department of Transportation "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION".
- B. Current prevailing Municipal and/or County Specifications, Standards and Requirements.
- C. Current prevailing Utility Company/Authority Specifications, Standards and Requirements.
- D. State of New Jersey B.O.C.A. Code and Barrier-Free Design Regulations as Currently Amended.
- E. Current ANSI/AWWA Standards, Specifications and Requirements for the Water Supply System material.
- F. Water line testing to be performed to Utility Company standard of 200 p.s.i. for two hours without any leakage or pressure drop.

As-Built plans of the entire site prepared by a New Jersey Licensed Land Surveyor, in accordance with Township requirements, are to be provided to the Township prior to the release of the performance bond.

No soil may be imported to or removed from the site until a soil importation or exportation permit is obtained from the Engineering Department.

The subgrade of all streets and parking areas must be proof-rolled using a tri-axle tandem dump truck with a minimum certified weight of 70,000 lbs. fully loaded. The proof-roll is to be conducted under the direct supervision of the Township Engineer or his representative.

Construction Castings:

Note that all castings shall be of United States manufacture and NJDOT approved. If other than Campbell, Neenah, Bridgestate, Emporia, Quirin or East Jordan Ironworks castings are planned to be used, complete data must be submitted including, but not necessarily limited to, an affidavit certifying that the castings were made in the U.S.; load capacity based on the standard highway loading; weights and configurations of the castings and metallurgical analysis. All grates are to be "bicycle safe". Curb pieces for Type "B" inlets are to be Type "N-Eco" for all new and replacement structures.

210-45. TRENCHES

All trenches or ditches which cross an existing street or which are dug for sewers, water mains, gas mains or other utilities, including the house connections for these utilities, shall be filled with Quarry Process Stone. The stone shall be placed in layers not exceeding twelve (12) inches in depth and shall be sprinkled with water and mechanically compacted. All soft spots and depressions in a surface, which has been graded, will be removed and filled with stone of a size to be determined by the Township Engineer. All trenches which are dug in a future street or existing R.O.W., on which no subbase or pavement has been constructed shall be backfilled as indicated above or maybe backfilled with suitable on-site excavated materials or imported fill.

Prior to using any on-site and/or imported soil materials the contractor or any individual or firm shall employ a recognized soils laboratory to secure soil samples; perform the necessary laboratory analysis and establish the compaction and other criteria necessary for the proper placement of the backfill. A report of the laboratory findings, including the compaction specifications, shall be submitted to the Township Engineer for review and approval prior to commencing any backfill operations using on-site and/or imported soil materials.

During the backfilling operations, the contractor or any individual or firm engaged in backfilling operations shall employ a Professional Engineer, Licensed in the State of New Jersey, or his representative, who is regularly engaged in the practice of geotechnical engineering and who is trained in soil mechanics, to observe the placement of the backfill. The soils engineer shall file daily reports, with the Township Engineer indicating the results of the compaction and upon the conclusion of the project file a final certification indicating that the backfill material has been placed and compacted in accordance with the recommendations contained in the approved laboratory report.

Backfill in trenches in field or lawn areas shall comply with the requirements for on-site or imported soil materials, as indicated above.

PIPING

All storm sewer, sanitary sewer, and water main piping shall maintain a minimum of ten (10) feet from building foundations or other structures

DRIVEWAYS

Driveway connections to street right-of-ways shall maintain a perpendicular alignment and comply with Article XI - Off Street Parking and Loading

COLD WEATHER PAVING RESTRICTIONS

DURING THE COLD WEATHER MONTHS FRANKLIN TOWNSHIP ENGINEERING WILL ENFORCE THE FOLLOWING REGULATIONS TAKEN FROM N.J. STATE STANDARDS.

- 1.) The surface upon which the bituminous concrete is to be placed shall be clean of all foreign and loose material, dry and free from ice when the paving operations are about to start and shall be maintained in that condition.
- 2.) Bituminous concrete mixtures shall be placed when the combinations of laydown and base surface temperatures are within the limits shown in the table below, when the weather is not rainy, and when the roadbed is in satisfactory condition.
- 3.) Temperature testing equipment shall be supplied by the contractor. Laydown temperature will be measured in the receiving hopper of the paver.

Minimum Laydown Temperature (Degrees F) Pavement Thickness (Inches)

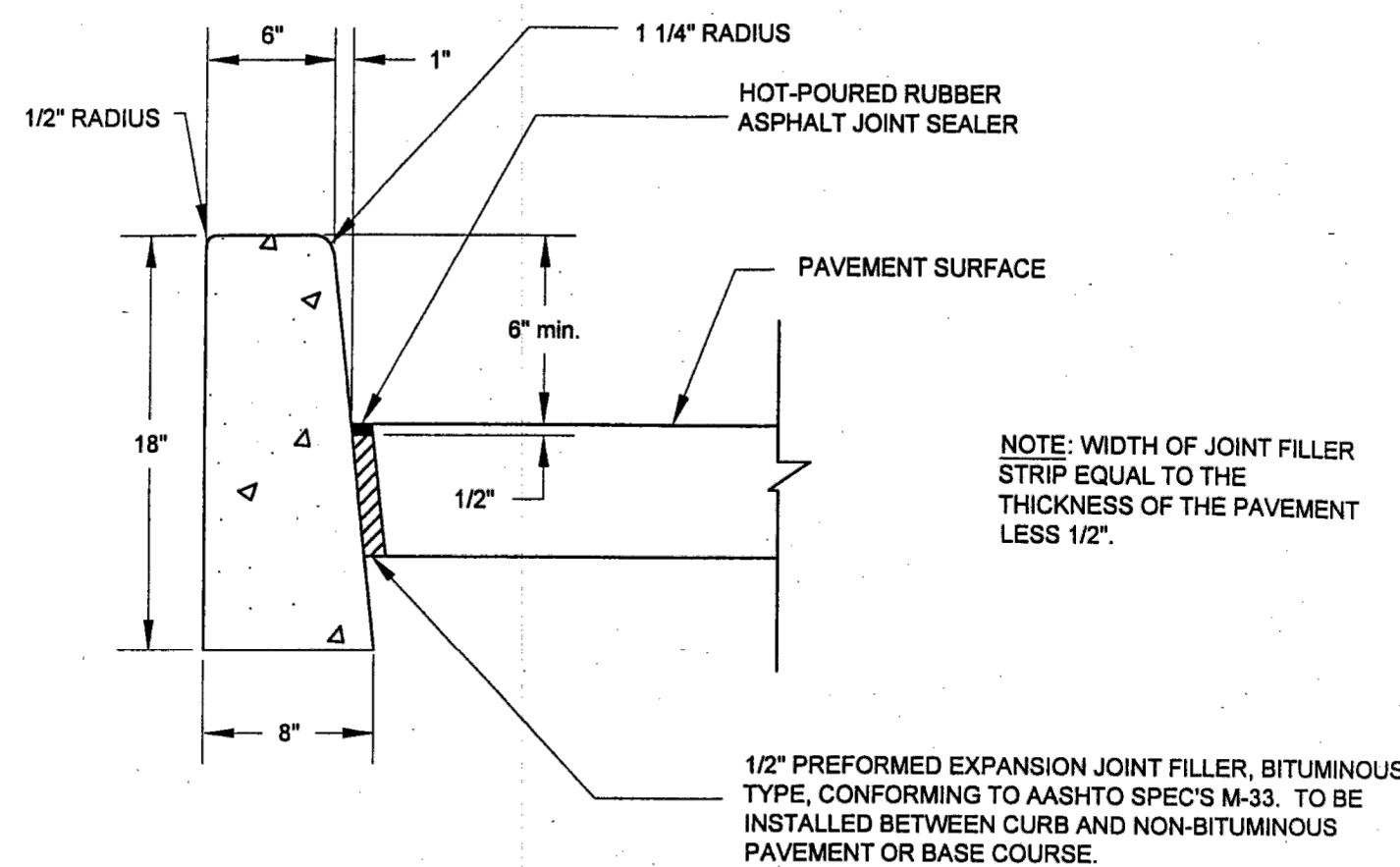
Base Temp	1/4	3/4	1	1 1/2	2	3 and Greater
20-30	(1)	(1)	(1)	310	300	285
31-40	(1)	(1)	(1)	305	295	280
41-50	(1)	(1)	(1)	310	300	285
51-60	(1)	310	300	295	280	270
61-70	310	300	290	285	275	265
71-80	300	290	285	280	270	265
81-90	290	280	275	270	265	260
91 and over	280	275	270	265	260	255

Note 1—No paving permitted.

COLD WEATHER CONCRETE RESTRICTIONS

DURING THE COLD WEATHER MONTHS FRANKLIN TOWNSHIP ENGINEERING WILL ENFORCE THE FOLLOWING REGULATIONS TAKEN FROM ACI, PCA, AND N.J. STATE STANDARDS:

- 1.) No concrete shall be placed unless the ambient temperature is 40 degrees F, on a rising thermometer or if the interior of the forms and any surface adjacent to the new concrete are preheated to that temperature or higher.
- 2.) Heating of forms shall be by forced air or radiation, no open flame heating will be allowed.
- 3.) The minimum temperature of fresh concrete as placed and maintained shall be 55°F.
- 4.) The duration of recommended concrete temperature shall be six (6) days for conventional concrete and three (3) days for high-early-strength concrete.
- 5.) Calcium Chloride is not allowed as a concrete accelerator. Accel-Guard 80 is acceptable.
- 6.) Adequate acceptable insulating materials shall be provided to maintain the recommended temperature. Blankets, or dry salt hay covered with tarpaulins or polyethylene film are acceptable.



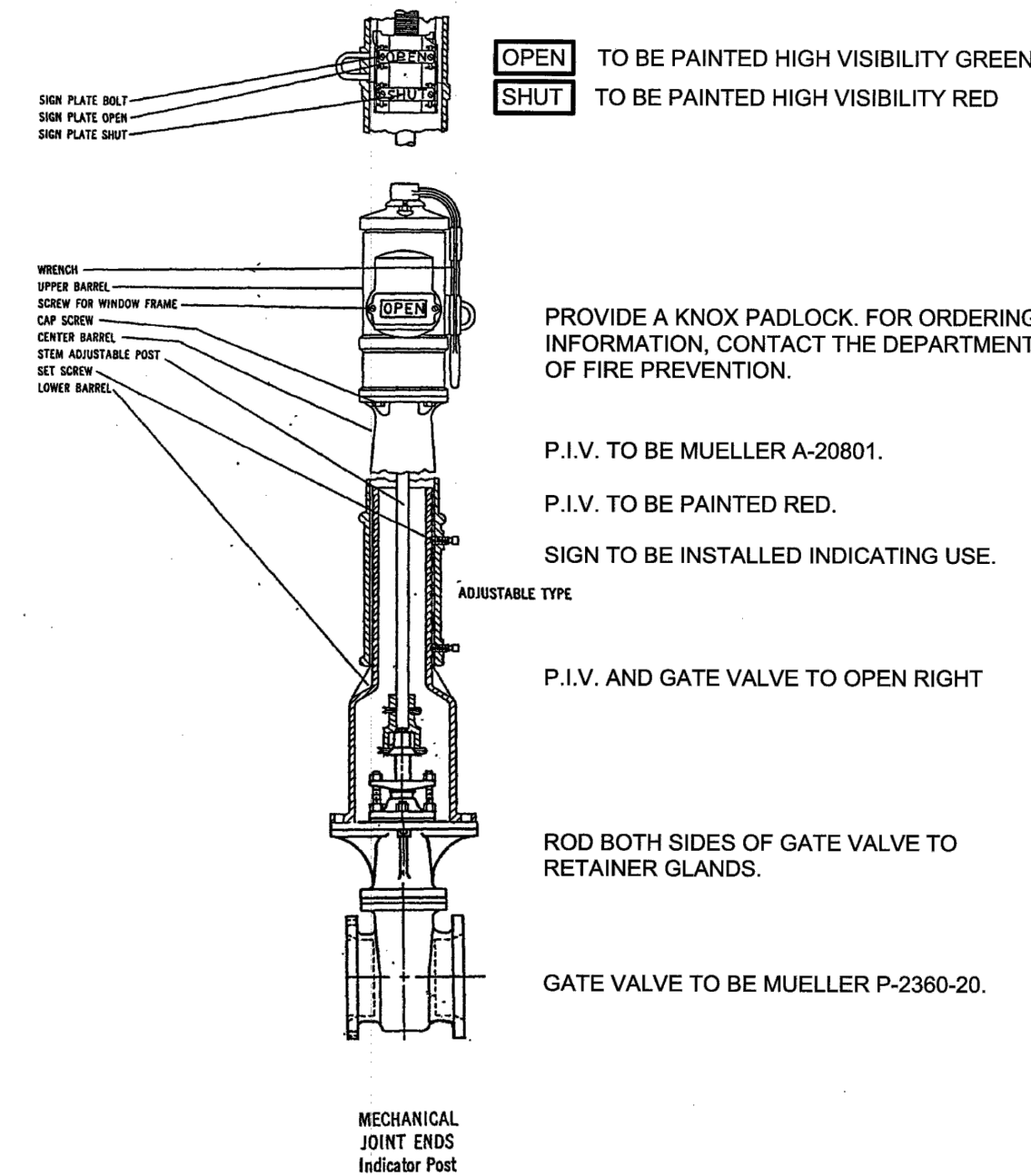
NOTE: WIDTH OF JOINT FILLER STRIP EQUAL TO THE THICKNESS OF THE PAVEMENT LESS 1/2".

N.T.S.

- NOTES: 1. CONCRETE TO BE NJDOT CLASS "B" (AIR ENTRAINED).
 2. TRANSVERSE JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB 20' - 0" APART AND SHALL BE FILLED WITH PREFORMED, BITUMINOUS-IMPREGNATED FIBER JOINT FILLER, COMPLYING WITH THE REQUIREMENTS OF AASHTO M-213, RECESSED 1/4" FROM THE FRONT FACE AND TOP OF THE CURB.
 3. DUMMY JOINTS (FORMED) SHALL BE INSTALLED MIDWAY BETWEEN EXPANSION JOINTS.

CONCRETE VERTICAL CURB

NOT TO SCALE

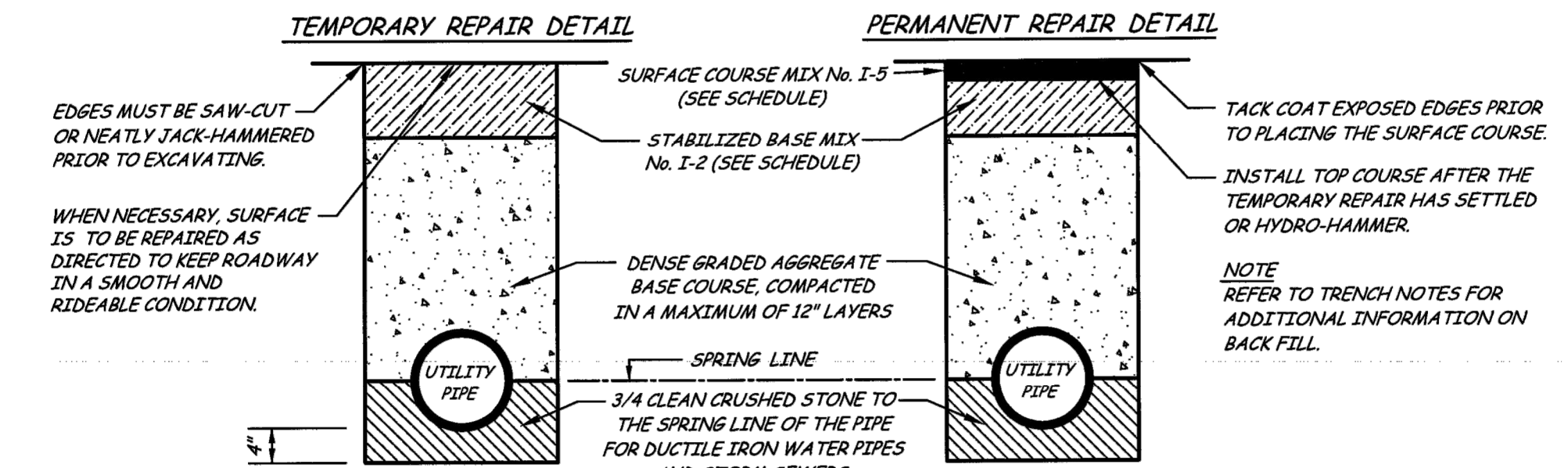


POST INDICATOR VALVE SCHEMATIC DETAIL

NOT TO SCALE

THE FRANKLIN TOWNSHIP DEPARTMENT OF PUBLIC WORKS MUST BE NOTIFIED 24 HOURS BEFORE THE START OF ANY WORK IN THE PUBLIC RIGHT-OF-WAY.

A TOWNSHIP ROAD OPENING PERMIT IS TO BE OBTAINED FROM THE FRANKLIN TOWNSHIP PUBLIC WORKS DEPARTMENT PRIOR TO THE INSTALLATION OF ANY UTILITY SERVICES. THE ROADWAY IS TO BE RESTORED IN ACCORDANCE WITH THE CONDITIONS OUTLINED IN THE PERMIT.

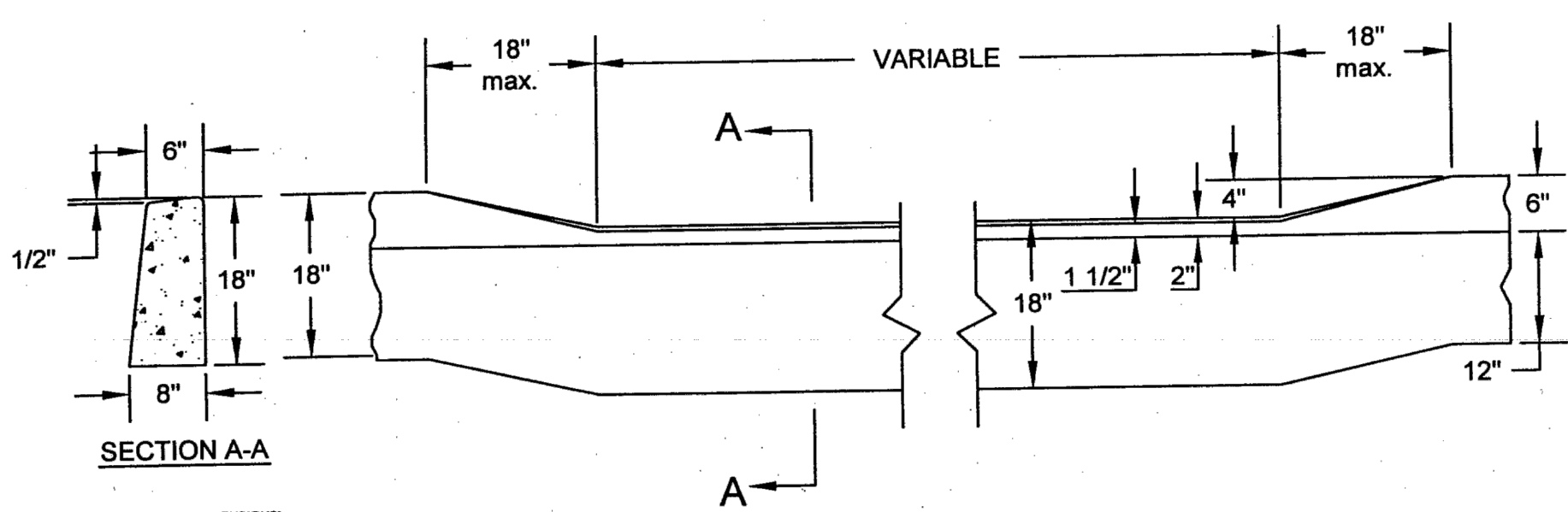


SCHEDULE:

ROAD CLASS	USUAL PAV'T WIDTH	R.O.W. WIDTH	STABILIZED BASE	SURFACE COURSE	USE
LOCAL RESIDENTIAL	30 FEET	60 FEET	4"	1 1/2"	
LOCAL NONRESIDENTIAL	40 FEET	60 FEET	6"	1 1/2"	
COLLECTOR RESIDENTIAL	36 FEET	60 FEET	6"	2"	
COLLECTOR NONRESIDENTIAL	42 FEET	66 FEET	6"	2"	
MAJOR COLLECTOR	48 FEET	72 FEET	7"	2"	
ARTERIAL	60 FEET	80 - 100 FEET	7"	2"	

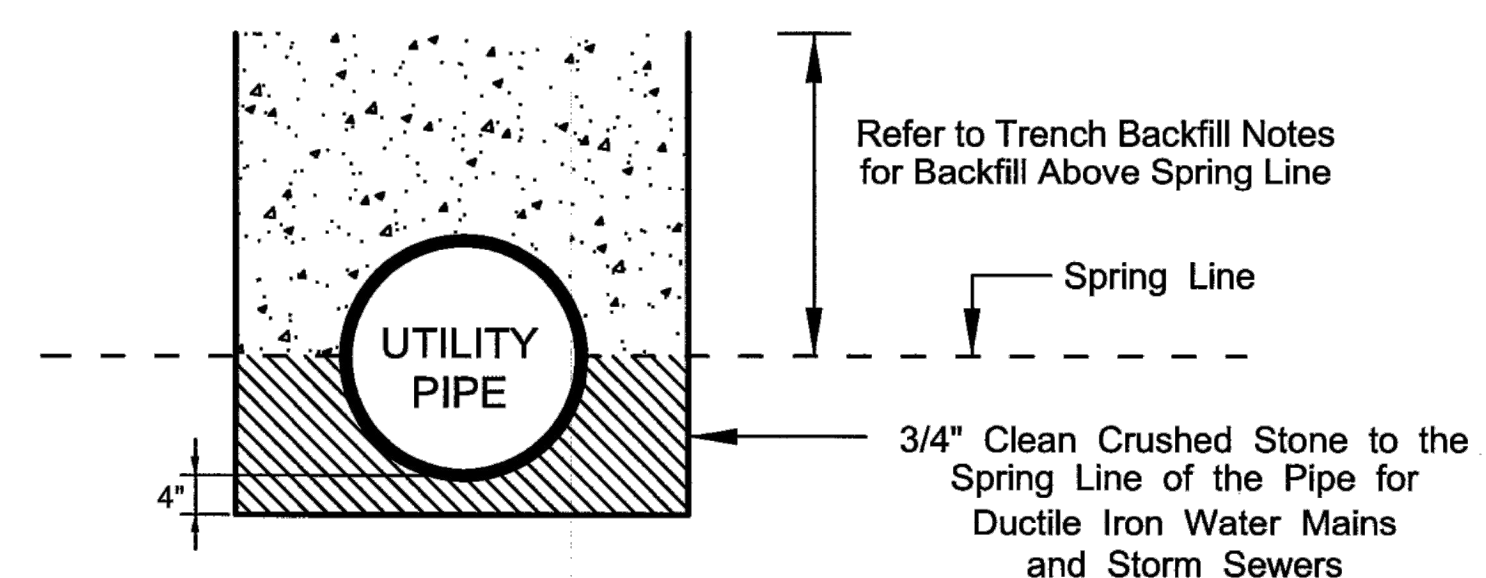
RESTORATION OF STREET OPENINGS

NOT TO SCALE



DROP CURB AT DRIVEWAYS DETAIL

NOT TO SCALE



UTILITY PIPE BEDDING DETAIL

NOT TO SCALE

IN CASE OF DISCREPANCY, TOWNSHIP STANDARD DETAILS SHALL HOLD

THIS PLAN SET IS FOR PERMITTING PURPOSES ONLY AND MAY NOT BE USED FOR CONSTRUCTION

DYNAMIC ENGINEERING
 LAND DEVELOPMENT CONSULTING • PERMITTING • GEOTECHNICAL • ENVIRONMENTAL • SURVEY • PLANNING & ZONING

40 Main Street - 3rd Floor
 Toms River, NJ 08753
 T: 732.978.0000
 F: 732.974.3521
 www.dynancc.com

TITLE: **FRANKLIN TOWNSHIP CONSTRUCTION DETAILS**

PROJECT: **B9 COTTONTAL OWNER, LLC PROPOSED INDUSTRIAL DEVELOPMENT**
 BLOCK 517.06, LOT 15.10
 200 COTTONTAL LANE,
 TOWNSHIP OF FRANKLIN, SOMERSET COUNTY, NEW JERSEY

JOB No: 3566-99-004 DATE: 02/09/2022
 DRAWN BY: KJH SCALE: (H) NOT TO (V) SCALE
 DESIGNED BY: DT SHEET No:
 CHECKED BY: KCK
 CHECKED BY: -

JOSHUA M. SEWALD PROFESSIONAL ENGINEER
 NEW JERSEY LICENSE No. 52908

KYLE C. KAVINSKI PROFESSIONAL ENGINEER
 NEW JERSEY LICENSE No. 52985

PROTECT YOURSELF
 ALL UTILITIES REQUIRE VERIFICATION BY AN ENGINEER. PROVIDE A COPY OF THIS PERMIT TO ALL UTILITIES TO VERIFY THE SERVICE LOCATIONS AND DEPTHS.

FOR STATE SPECIFICATIONS VISIT: WWW.CALL811.COM

Rev. # 1

Plotted: 03/15/22 - 10:36 AM, By: Kihnen, Product: Ver. 24.0s (LMS Tech) File: P:\BECPC PROJECTS\3566 Link Industrial Management LLC\99-004 Franklin - Cottontal\Dwg Site Plans\35669904SD.dwg, ---> 21 FRANKLIN TOWNSHIP CONSTRUCTION DETAILS