- THE TOPOGRAPHIC DATA AS SHOWN HEREON IS BASED ON A FIELD SURVEY
- SYSTEM DATUMS: HORIZONTAL = NAD83/91 (2011) AND VERTICAL = NAVD 88.
- LOCATION AND ELEVATIONS OF EXISTING SITE FEATURES, UTILITIES AND REQUIRED FIELD MEASUREMENTS TO VERIFY EXISTING AND CONTRACT INTERFACE DIMENSIONS, LOCATIONS, AND OTHER CONDITIONS. FINAL
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ACTUAL SITE CONDITIONS PRIOR TO THE START OF ANY WORK. THERE IS NO WARRANTY O GUARANTEE ON THE COMPLETENESS OR CORRECTNESS OF EXISTING TO THE IMMEDIATE ATTENTION OF THE OWNER AND FACILITY OPERATIONS PRIOR TO THE START OF ANY CONSTRUCTION WORK.
- DAMAGES WHICH OCCUR BY HIS/HER FAILURE TO NOT LOCATE AND SAME TYPE OF MATERIAL THAT WAS REMOVED OR DAMAGED DURING
- CONTRACTOR FROM ALL DAMAGE UNLESS IN DIRECT CONFLICT WITH NEW
- ALL EXISTING UTILITIES AND FEATURES ON THE SITE WHICH SHALL INCLUDE BUT NOT BE LIMITED TO, FENCES, TREES, SHRUBS, ETC. SHALL BE MAINTAINED
- EXISTING UTILITIES INCURRED SHALL BE IMMEDIATELY REPAIRED TO THE SATISFACTION OF THE OWNER AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL OBSERVE EXTREME CAUTION WORKING NEAR THE
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, SAFETY PRECAUTIONS
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE DEPARTMENT OF NATURAL RESOURCES (DNREC) SEDIMENT AND MULCHING SHALL BE IN ACCORDANCE WITH DELAWARE EROSION AND SEDIMENT CONTROL STANDARD DETAILS AND SPECIFICATIONS FOR ALL
- SAFETY ON THE JOBSITE. GUIDELINES FOR CONSTRUCTION SAFETY SHALL BE IN ACCORDANCE WITH, BUT NOT LIMITED TO, THE CONSTRUCTION INDUSTRY OSHA SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION (PART 1926

3703 OAKRIDGE ROAD CULVERT REPLACEMENT **CONSTRUCTION PLAN**

NEW CASTLE COUNTY, DELAWARE JUNE 2024

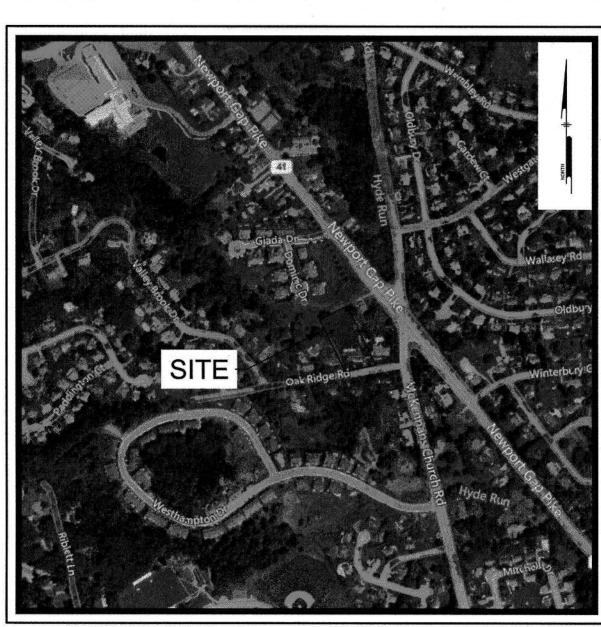
PREPARED FOR:

NEW CASTLE COUNTY CONSERVATION DISTRICT

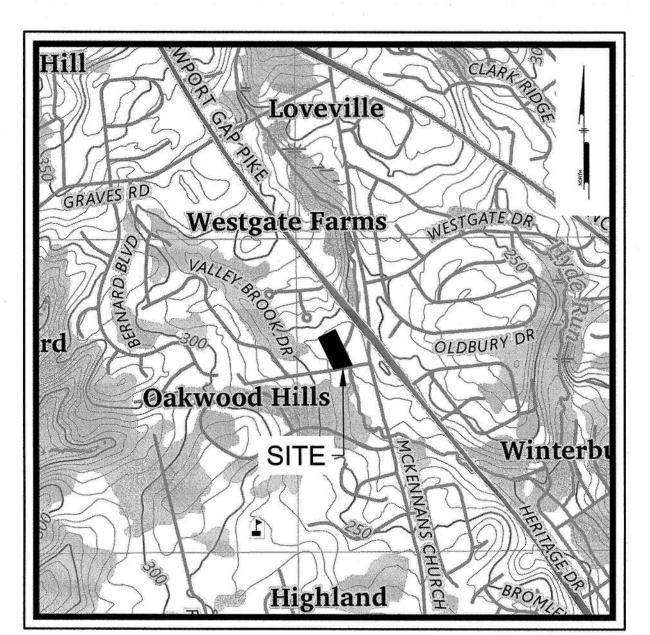
2430 OLD COUNTY ROAD **NEWARK, DE 19702**

(302) 365-8970

LEGEND DESCRIPTION COMMUNICATIONS MANHOLE COMMUNICATION LINE **EDGE OF PAVEMENT** GAS LINE **GUY WIRE** UTILITY POLE BUILDING MAIL BOX SANITARY SEWER MANHOLE SANITARY SEWER LINE STORM SEWER INLET STORM SEWER HEADWALL STORM SEWER MANHOLE MAJOR CONTOUR WATER VALVE ----- LOD ------ LIMIT OF DISTURBANCE STABILIZED CONSTRUCTION MATTING



LOCATION MAP Scale: 1" = 600'



USGS MAP Scale: 1" = 2000'

PREPARED BY: PENNONI ASSOCIATES INC.



Christiana Executive Campus 121 Continental Drive, Suite 207 Newark, DE 19713-4310 **T** 302.655.4451 **F** 302.654.2895



SHEET INDEX SHT. DWG. TITLE **COVER SHEET** 2 | CS0201 | EXISTING CONDITIONS AND DEMO PLAN 3 CS1001 SITE PLAN CONSTRUCTION DETAILS **EROSION & SEDIMENT CONTROL PLAN** CS8501 | EROSION & SEDIMENT CONTROL DETAILS CS8502 | EROSION & SEDIMENT CONTROL DETAILS

ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTE THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER

OR ADAPTATION BY PENNONI ASSOCIATES FOR THE

INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATE

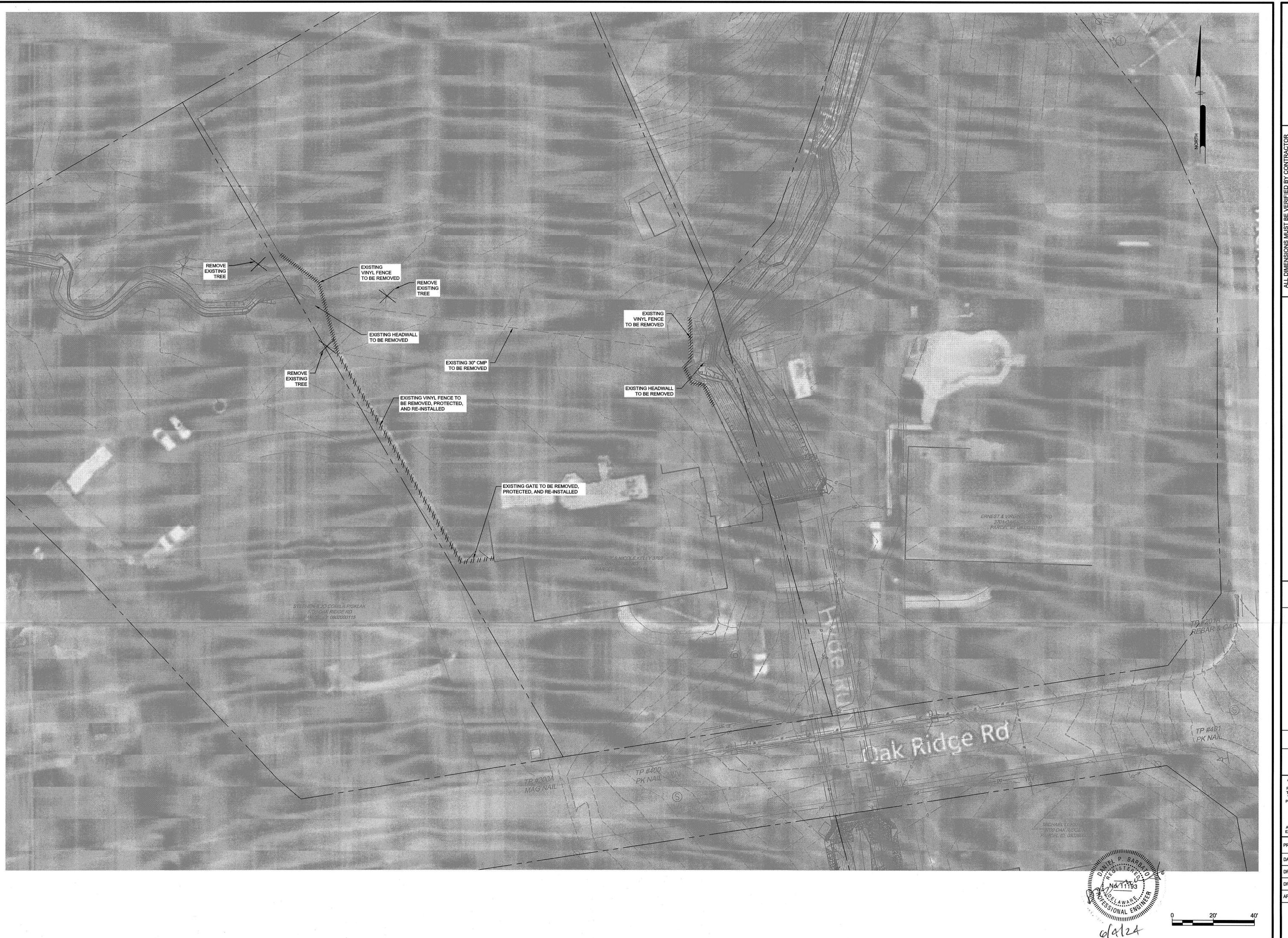
ARISING OUT OF OR RESULTING THEREFROM

CS0001

NCCDS23001

AS NOTED

CALL BEFORE YOU DIG Call Miss Utility of Delmarva 800-282-8555 Ticket Number(s): 232481025



EXISTING

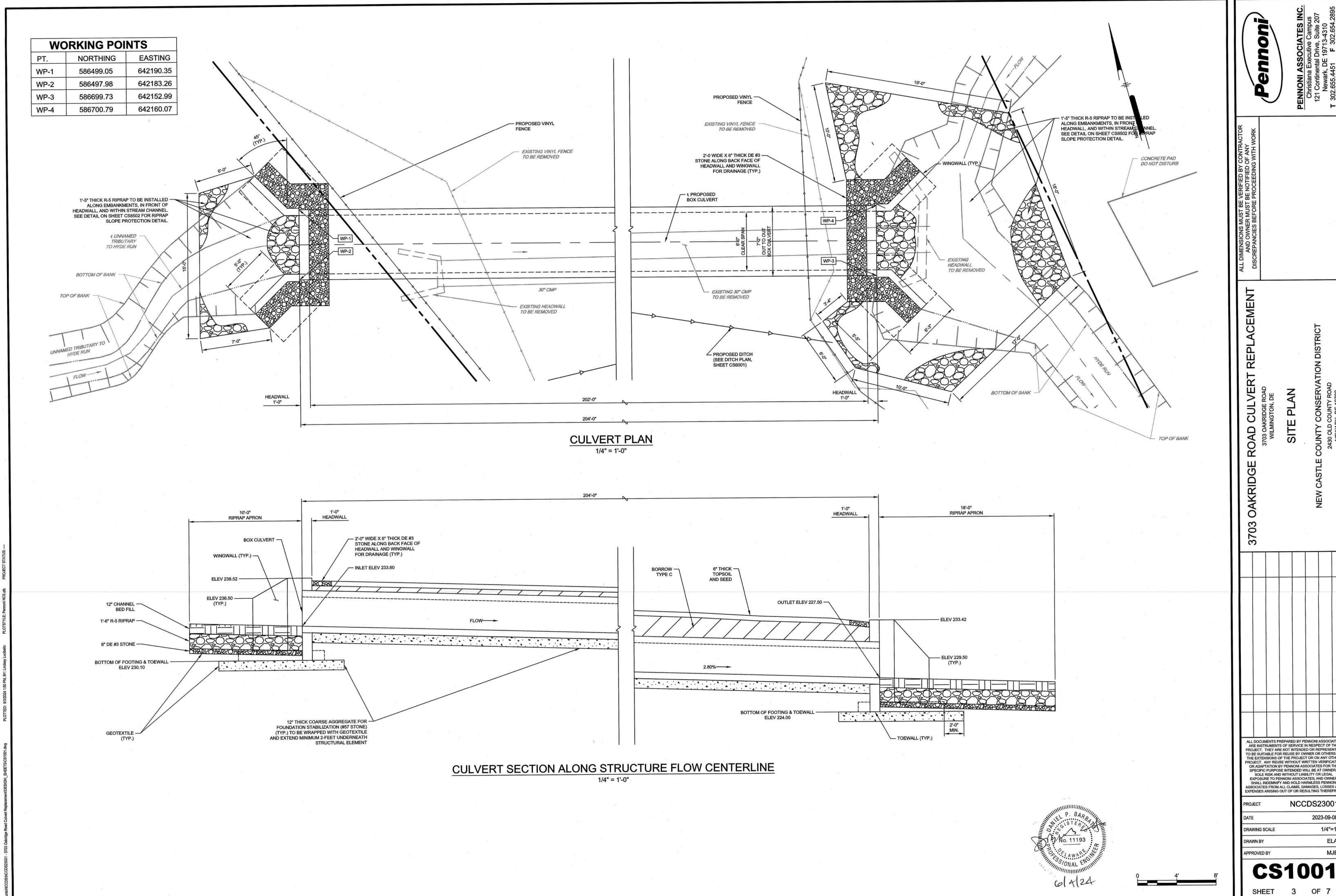
3703

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES
ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE
PROJECT. THEY ARE NOT INTENDED OR REPRESENTED
TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON
THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER
PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION
OR ADAPTATION BY PENNONI ASSOCIATES FOR THE
SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS
SOLE RISK AND WITHOUT LIABILITY OR LEGAL
EXPOSURE TO PENNONI ASSOCIATES; AND OWNER
SHALL INDEMNIFY AND HOLD HARMLESS PENNONI
ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND
EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

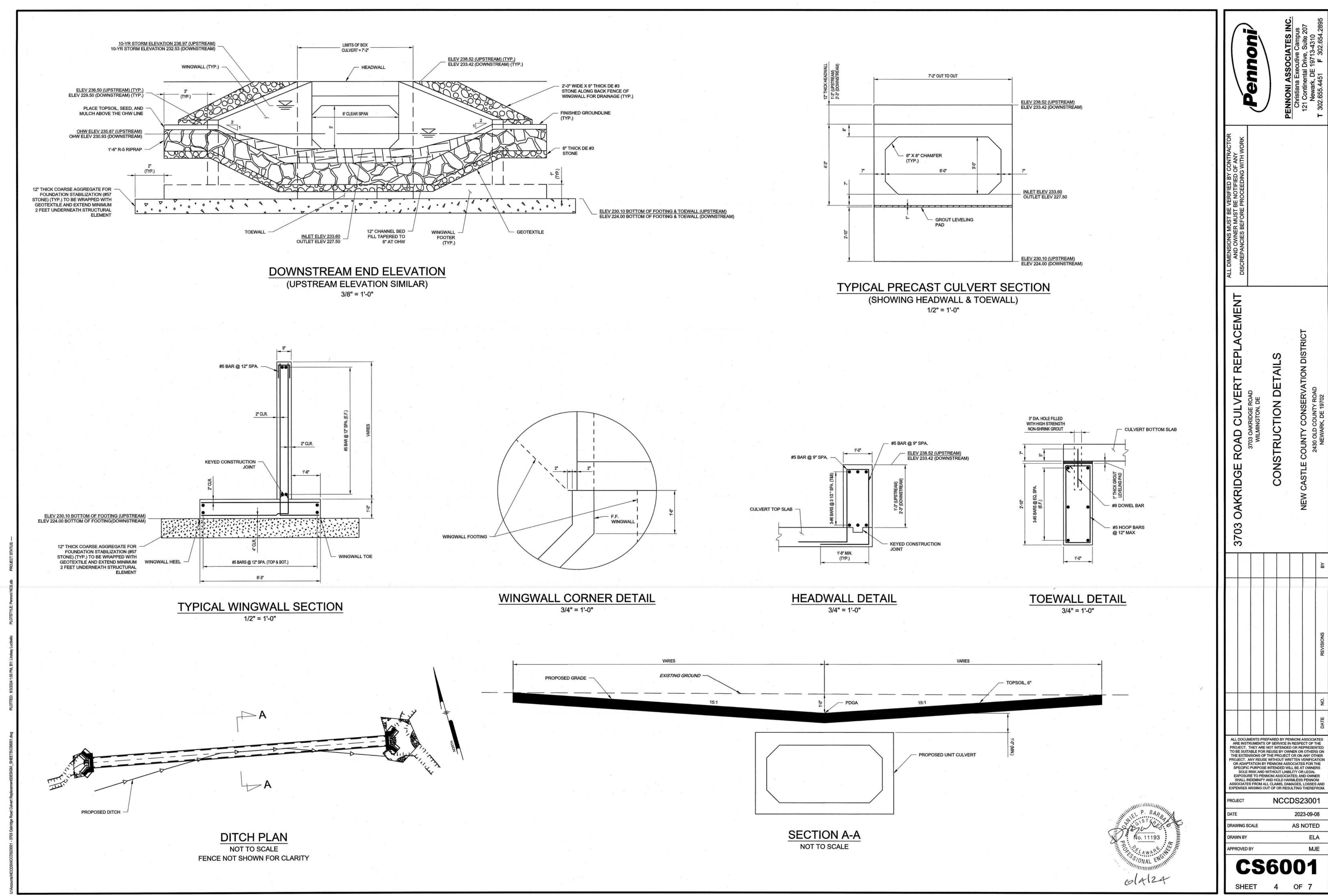
NCCDS23001 2023-09-08 DRAWING SCALE

MJE APPROVED BY

SHEET 2 OF 7

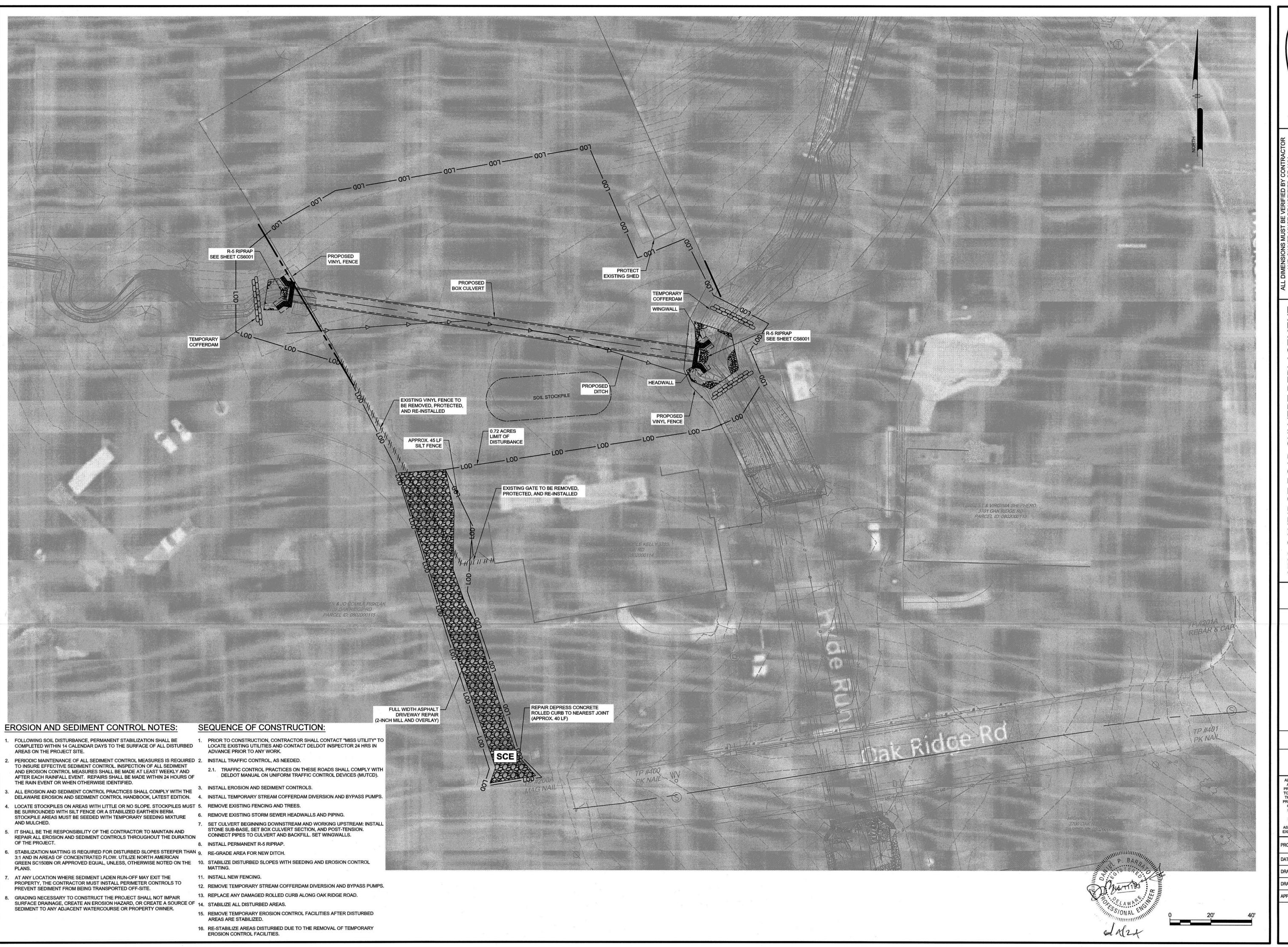


OAD 3703 OAI WILMI ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES
ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE
PROJECT. THEY ARE NOT INTENDED OR REPRESENTED
TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON
THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER
PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION
OR ADAPTATION BY PENNONI ASSOCIATES FOR THE
SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS
SOLE RISK AND WITHOUT LIABILITY OR LEGAL
EXPOSURE TO PENNONI ASSOCIATES: AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM. NCCDS23001 PROJECT 2023-09-08 DRAWING SCALE



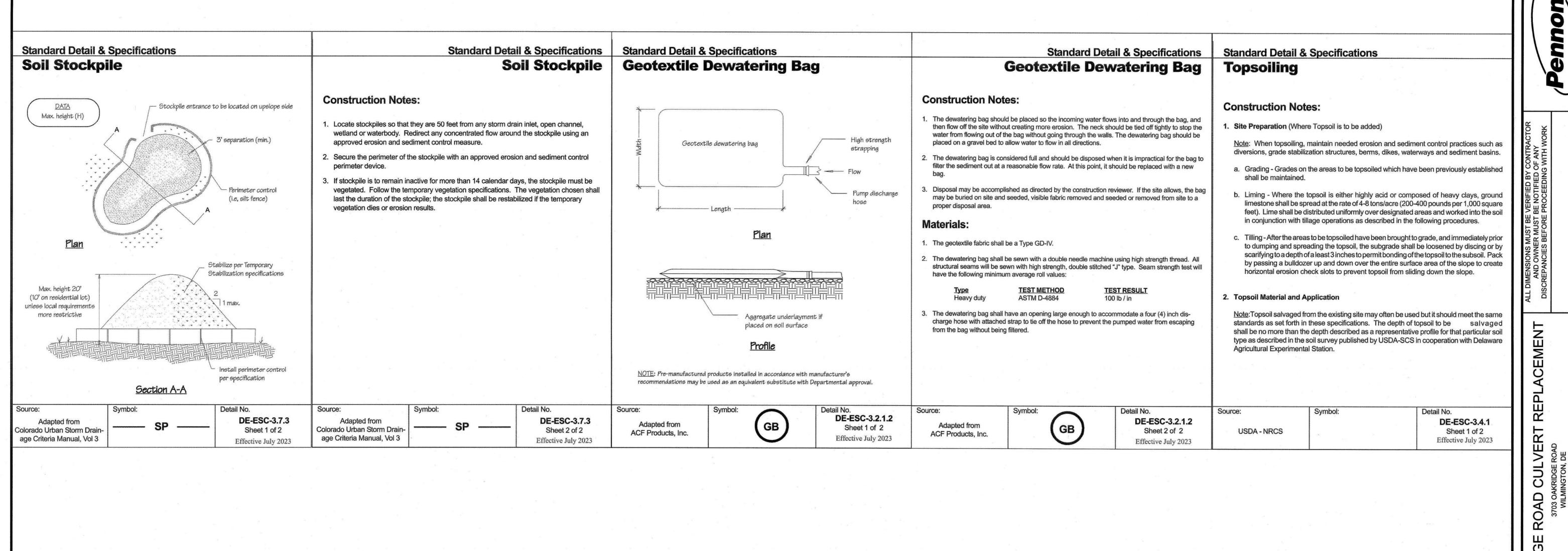
NCCDS23001 2023-09-08 AS NOTED

CS6001



ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATIO OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATES; AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI

EXPENSES ARISING OUT OF OR RESULTING THEREFROM NCCDS23001 **PROJECT**



Standard Detail & Specifications **Topsoiling Vegetative Stabilization Vegetative Stabilization Vegetative Stabilization Vegetative Stabilization Construction Notes:** Construction Notes (cont.) 1. Site Preparation TEMPORARY SEEDING BY RATES, DEPTHS AND DATES PERMANENT SEEDING AND SEEDING DATES PERMANENT SEEDING AND SEEDING DATES (cont.) a. Materials - Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, a. Prior to seeding, install needed erosion and sediment control practices such as diversions, loamy sand or other soil as approved by an agronomist or soil scientist. It shall not have grade stabilization structures, berms, dikes, grassed waterways, and sediment basins. **Optimum Seeding Dates** Seeding Mixtures Seeding Mixtures a mixture of contrasting textured subsoil and contain no more than 5 percent by volume Optimum Seeding Dates 1 Final grading and shaping is not necessary for temporary seedings. of cinders, stones, slag, coarse fragment, gravel, sticks, roots, trash or other extraneous Mix # Seeding Rate = Optimum Planting Period; A = Acceptable Planting Wix No. Certified Seed³ Mix No. Certified Seed³ materials larger than 1-1/2 inches in diameter. Topsoil must be free of plants or plant parts Seedbed Preparation Well Drained 3oils **Poorly Drained Soils** of bermudagrass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistles, or others as specified. All topsoil shall be tested by a reputable laboratory for organic matter Tolerant of low fertility soil It is important to prepare a good seedbed to ensure the success of establishing vegetation. The disturbed sites and waterway **Certified Seed** anada Wild Rye Good for droughty sites content, pH and soluble salts. A pH of 6.0 to 7.5 and an organic content of not less than seedbed should be well prepared, loose, uniform, and free of large clods, rocks, and other Rough Bluegrass 1.5 percent by weight is required. If pH value is less than 6.0 lime shall be applied and objectionable material. The soil surface should not be compacted or crusted. Deertongue Sheep Fescue White Clover Good erosion control, wildlife Tolerant of low fertility soil 2-3" sandy soils incorporated with the topsoil to adjust the pH to 6.5 or higher. Topsoil containing soluble gume that fixes atmospheri Residential La Soil Amendments N into soil salts greater than 500 parts per million shall not be used. 2-3" sandy soils Tall Fescue (Turf-type) or High value, high maintenance, Good erosion control mix Strong Creeping Red Fescu Perennial Ryegrass a. Lime - Apply liming materials based on the recommendations of a soil test in accordance with Tall Fescue for droughty 2-3" sandy soils Note: No sod or seed shall be placed on soil which has been treated with soil sterilant or Perennial Ryegrass conditions. Creeping Re Well drained soils, full sun the approved nutrient management plan. If a nutrient management plan is not required, apply escue for heavy shade. Flatpe chemicals used for weed control until sufficient time has elapsed to permit dissipation of toxic dolomitic limestone at the rate of 1 to 2 tons per acre. Apply limestone uniformly and incorporate to suppress woody vegetation. Strong Creeping Red Kentucky Bluegrass materials. Suitable waterway mix. Canada Bluegrass more Moderate value, into the top 4 to 6 inches of soil. Perennial Ryegrass 1-2" sandy soils Perennial Ryegrass or Sheep Fescue traffic tolerant drought tolerant. b. Fertilizer - Apply fertilizer based on the recommendations of a soil test in accordance with the Use Redtop for increase Creeping Red Fescue approved nutrient management plan. If a nutrient management plan is not required, apply a 2-3" sandy soils Chewings Fescue drought tolerance. moderate traffic tolerance. b. Grading - The topsoil shall be uniformly distributed and compacted to a minimum of four Rough Bluegrass formulation of 10-10-10 at the rate of 600 pounds per acre. Apply fertilizer uniformly and oxtall Mille moderate maintenance. Switchgrass^{6,7} or Coastal Panicgrass Kentucky Bluegra (4) inches. Spreading shall be performed in such a manner that sodding or seeding can 1-2[™] sandy soils incorporate into the top 4 to 6 inches of soils. Shade tolerant, Tolerant of low fertility soils proceed with a minimum of additional soil preparation and tillage. Any irregularities in the 0.5 inches Big Bluestem Little Bluestem Rough Bluegrass or Drought tolerant. Poor shade tolerance surface resulting from topsoiling or other operations shall be corrected in order to prevent 15 K-31 Tall Fescue dian Grass fertilizer discouraged - weed oculture, but performs well the formation of depressions or water pockets. Topsoil shall not be placed while in a Tail Fescue (turf-type 1. Winter seeding requires 3 tons per acre of straw mulch for proper stabilization. alone in lawns. Discouraged a. For temporary stabilization, select a mixture from Sheet 1. For a permanent stabilization, (Blend of 3 cultivars frozen or muddy condition, when the subgrade is excessively wet, or in a condition that nutrient uptake. 2. May be planted throughout summer if soil moisture is adequate or seeded area can be irrigated. select a mixture from Sheet 2 or Sheet 3 depending on the conditions. Alternative seed mixes When hydroseeding is the chosen method of application, the total rate of seed should be increased by 25%. Three cultivars of Kentucky may otherwise be detrimental to proper grading and seedbed preparation. 2. Winter seeding requires 3 tons per acre of straw mulch. Planting dates listed above are average for Delaware. These dates may require 3. Applicable on slopes 3:1 or less. Ky. Bluegrass (Blend) may be used with prior approval from the Department or Delegated Agency. Bluegrass. Traffic tolerant Perennial Ryegrass 4. Use varieties currently recommended for Delaware. Contact a County Extension Office for information. 3. All seed shall meet the minimum purity and minimum germination percentages recommended by the Delaware Department of Agriculture. The All species are native. b. Apply seed uniformly with a broadcast seeder, drill, cultipacker seeder or hydroseeder. All maximum % of weed seeds shall be in accordance with Chapter 15, Title 3 of the Delaware Code. 5. Warm season grasses such as Millet may be used between 5/1 and 9/1 if desired. Seed at 3-5 lbs. Indian Grass⁷ ndian Grass and Bluestem have Turf-type species may be planted throughout summer if soil moisture is adequate or seeded area can be irrigated. seed will be applied at the recommended rate and planting depth. Note: Topsoil substitutes or amendments as approved by a qualified agronomist or soil per acre. Good on low fertility and acid areas. Seed after frost through summer at a depth of 0.5". Little Bluestem7 fluffy seeds. Plant with a 5. It is recommended that all leguminous seed be inoculated. Creeping Red Fescue pecialized native seed dri Warm season grass mix and Switchgrass cannot be moved more than 4 times per year. scientist, may be used in lieu of natural topsoil. Compost material used to improve the c. Seed that has been broadcast should be covered by raking or dragging and then lightly tamped plus one of: Partridge Pea Bush Clover . Warm season grasses require a soil temperature of at least 50 degrees in order to germinate and will remain dormant until then. into place using a roller or cultipacker. If hydroseeding is used and the seed and fertilizer is Creeping Red Fescue will percentage of organic matter shall be provided by a certified supplier. provide erosion protection while mixed, they will be mixed on site and the seeding shall be done immediately and without ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES ANI EXPENSES ARISING OUT OF OR RESULTING THEREFROM NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency. Wild Indigo the warm season grasses interruption. Compost amendments that are intended to meet specific post-construction stormwater management goals shall further meet the requirements of Appendix 3.06.2 Post Construction NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency 5. Mulching NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency. PROJECT Stormwater Management BMP Standards and Specifications, Section 14.0 Soil Amend-All mulching shall be done in accordance with detail DE-ESC-3.4.5. Detail No. Symbol: Detail No. Detail No. Symbol: Source: Source: Symbol: Source: Symbol: Detail No. DE-ESC-3.4.1 DE-ESC-3.4.3 Delaware ESC Handbook Delaware ESC Handbook **DE-ESC-3.4.3** Delaware ESC Handbook DE-ESC-3.4.3 Delaware ESC Handbook DE-ESC-3.4.3 USDA - NRCS Sheet 2 of 2 DRAWN BY Sheet 1 of 4 Sheet 2 of 4 Sheet 3 of 4 Sheet 4 of 4 Effective July 2023 Effective July 2023 Effective July 2023 0.11193 Effective July 2023 Effective July 2023 JANOIZ

 \Box SION

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS O PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATI OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNER SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATES: AND OWNE SHALL INDEMNIFY AND HOLD HARMLESS PENNONI

NCCDS23001 2023-09-08 RAWING SCALE AS NOTED APPROVED BY

