

PRELIMINARY & FINAL MAJOR SITE PLAN
FOR

KML BUILDING CORPORATION NJ

CARPENTERS UNION CENTER

3301 SOUTH WHITE HORSE PIKE

(STATE ROUTE 30- MP: 33.50)

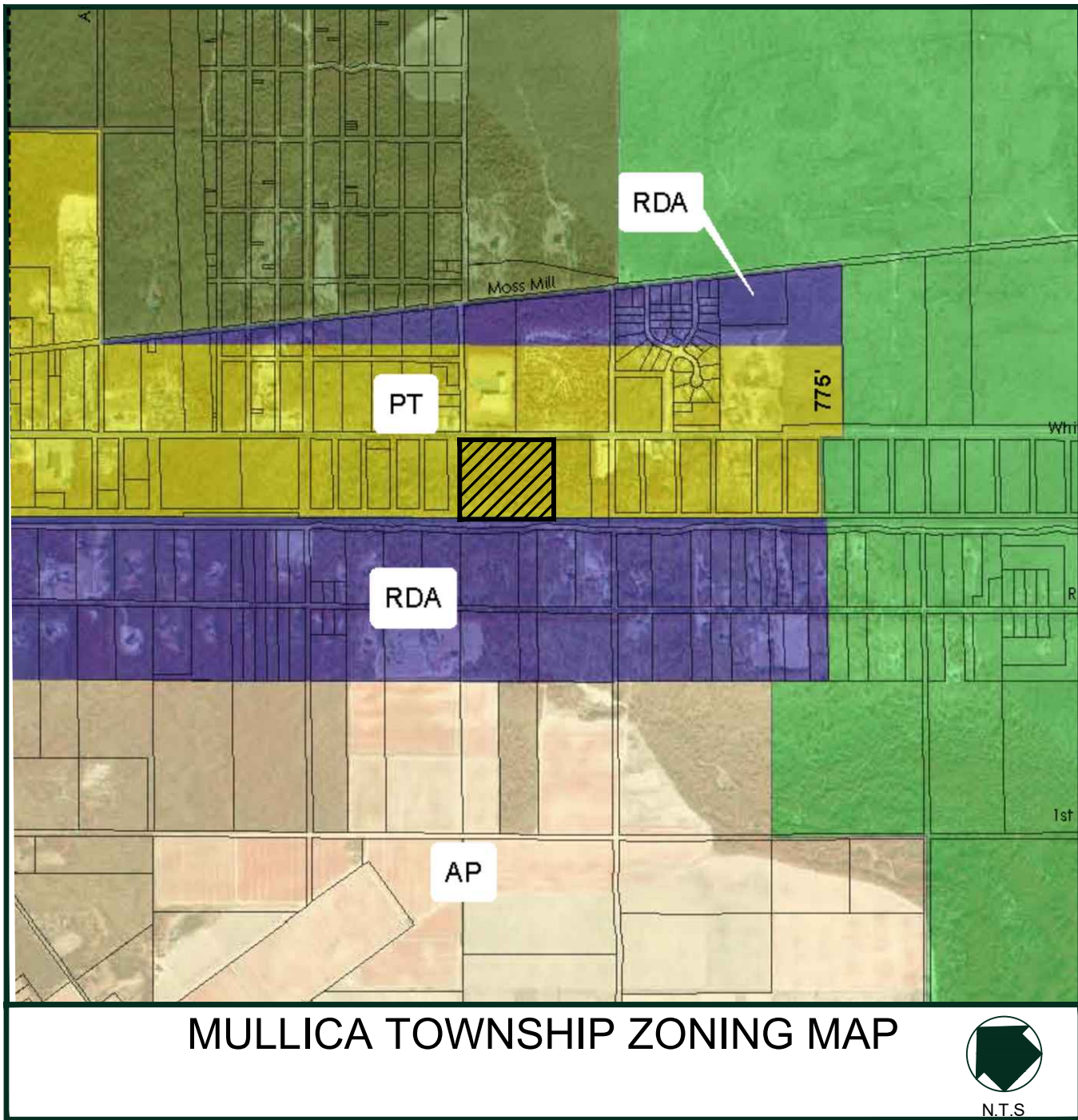
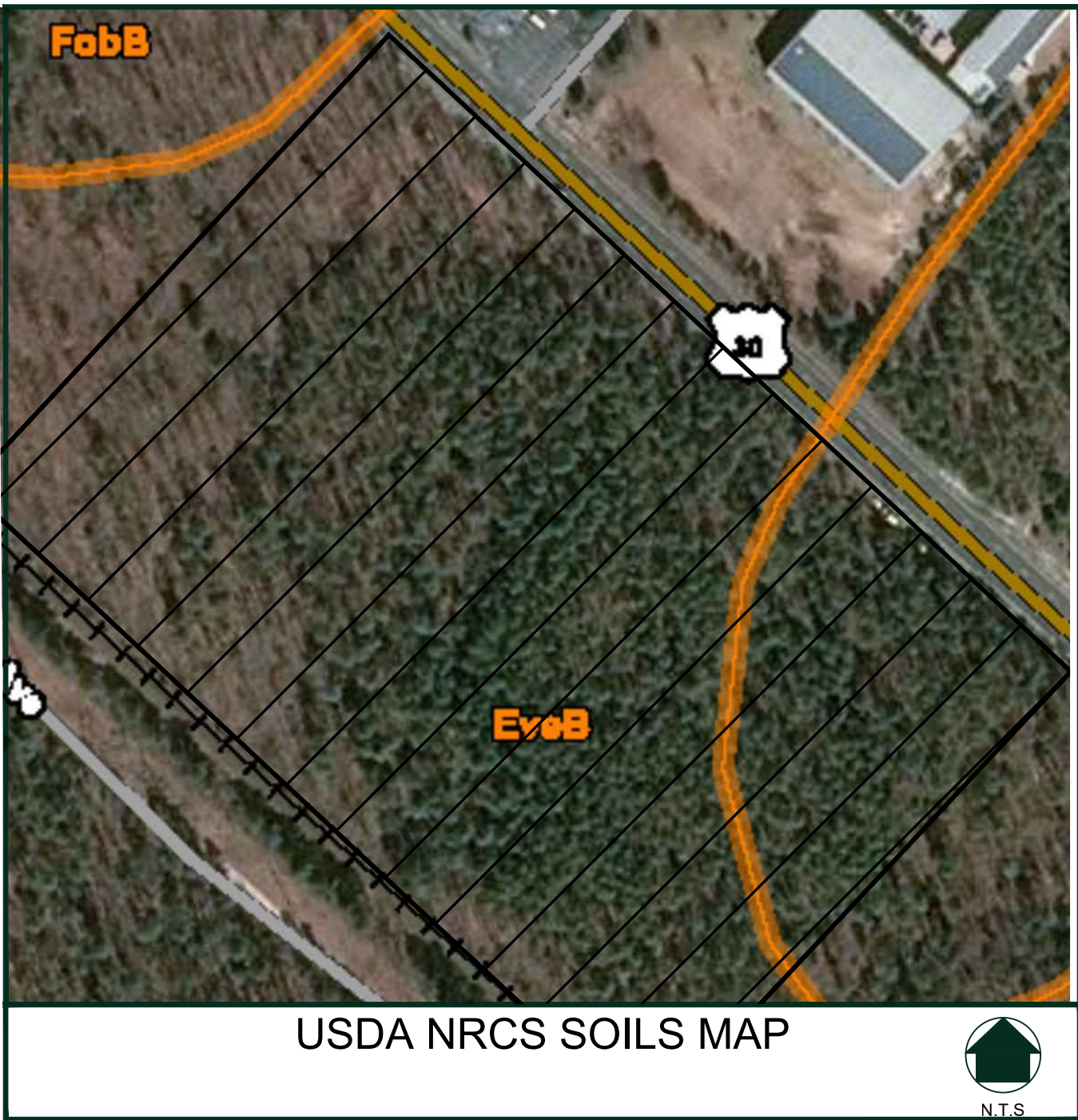
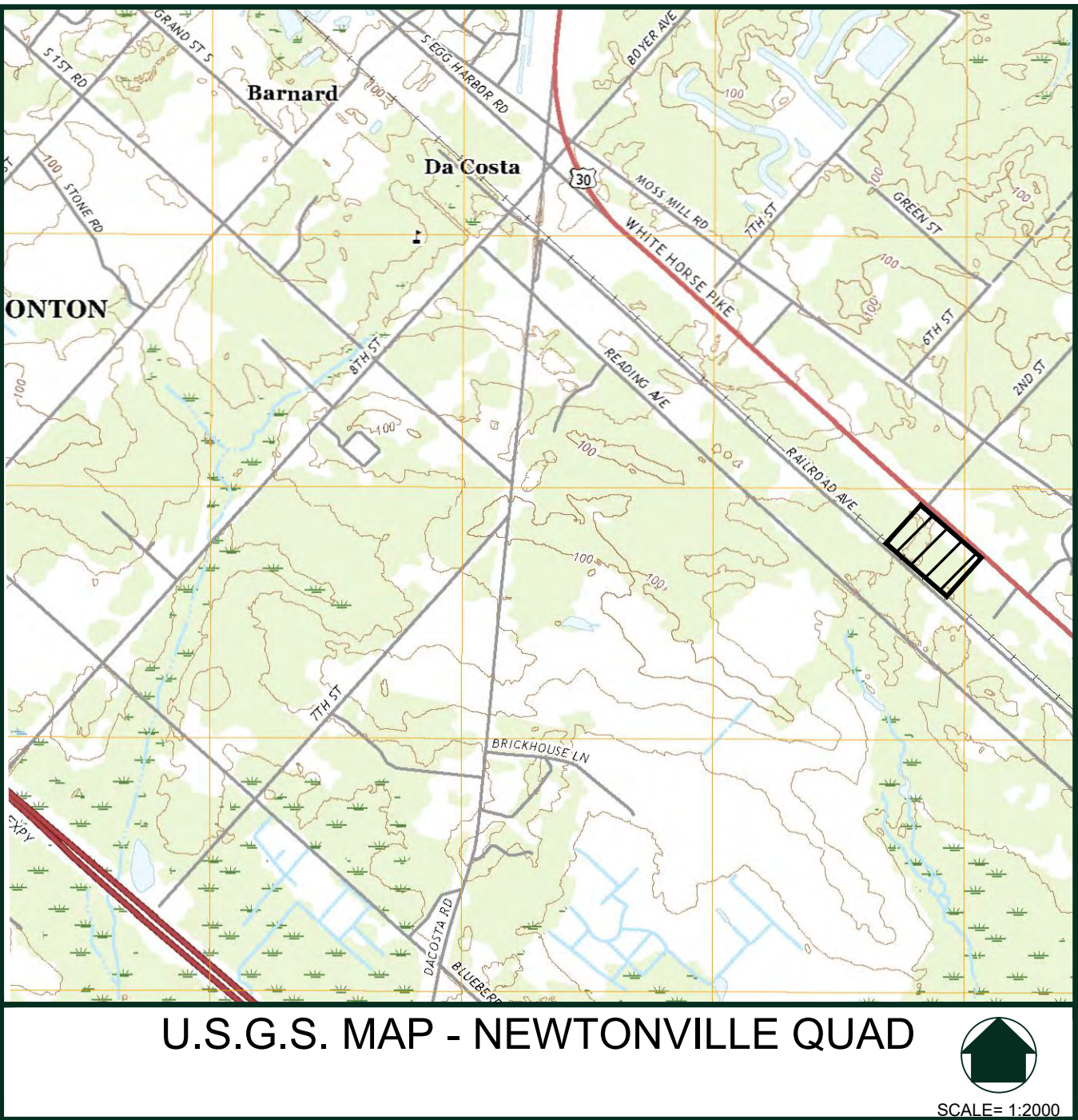
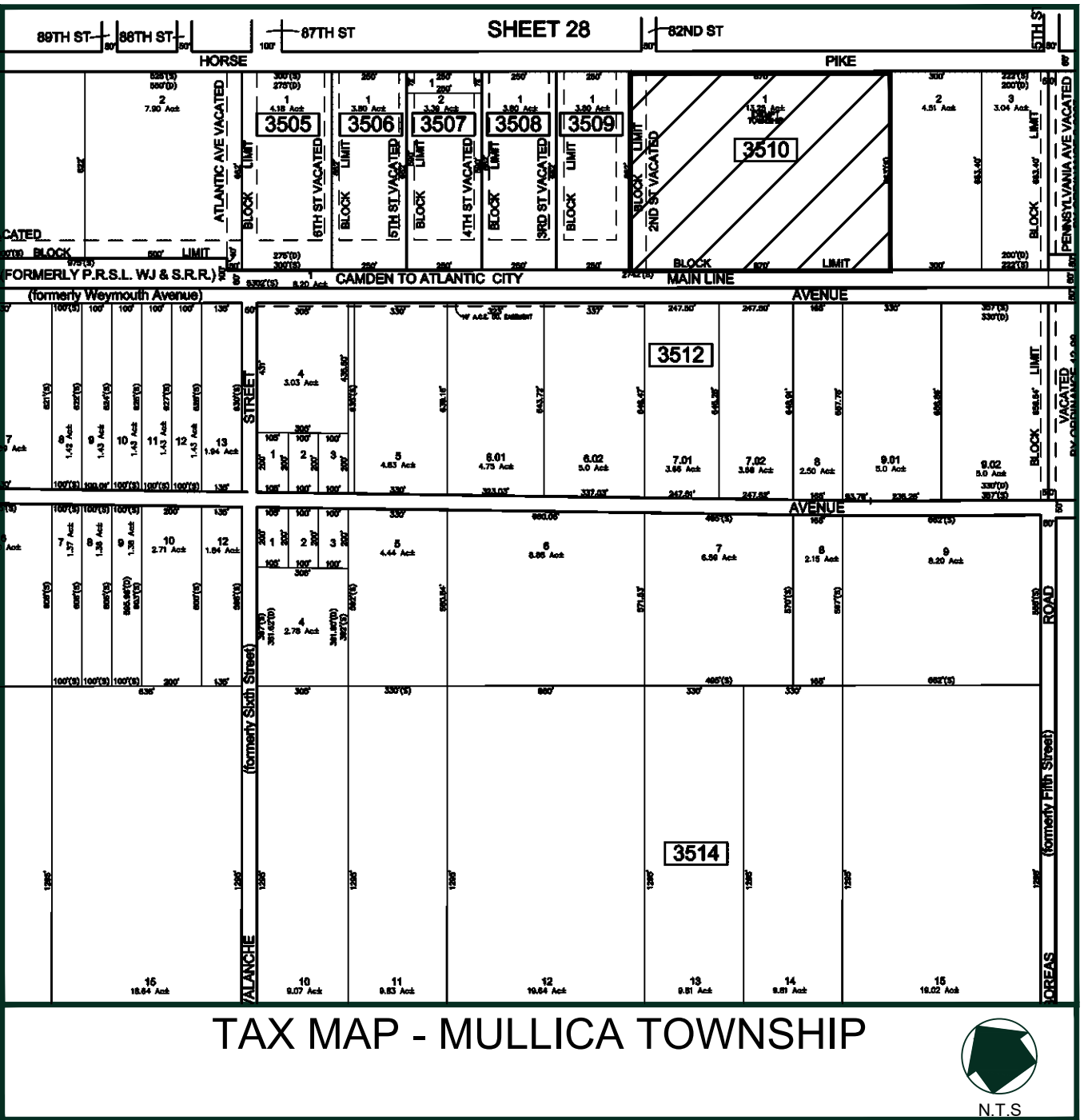
TAX MAP SHEET #35

BLOCK 3510, LOT 1

TOWNSHIP OF MULLICA ATLANTIC COUNTY NEW JERSEY

TOTAL LOT AREA: 12.869AC

SHEET INDEX		
SHEET NO.	DESCRIPTION	LATEST REVISION DATE
1	COVER	12/4/2020
2	INFORMATION SHEET	12/4/2020
3	INFORMATION SHEET	12/4/2020
4	EXISTING CONDITIONS/ DEMOLITION SHEET	12/4/2020
5	SITE PLAN	12/4/2020
6	GRADING PLAN	12/4/2020
7	DRAINAGE AND UTILITY PLAN	12/4/2020
8	SOIL EROSION AND SEDIMENT CONTROL PLAN	12/4/2020
9	LANDSCAPING PLAN	12/4/2020
10	LIGHTING PLAN	12/4/2020
11	NJDOT SITE PLAN	12/4/2020
12	NJDOT TRAFFIC CONTROL	12/4/2020
13	CONSTRUCTION DETAILS	12/4/2020
14	CONSTRUCTION DETAILS	12/4/2020
15	DRAINAGE AND UTILITY DETAILS	12/4/2020
16	SOIL EROSION AND SEDIMENT CONTROL NOTES	12/4/2020
17	SOIL EROSION AND SEDIMENT CONTROL DETAILS	12/4/2020



NOTE TO CONTRACTORS:

ALL CONTRACTORS MUST CALL THE NJ ONE-CALL SYSTEM AT 1-800-272-1000 PRIOR TO ANY DIGGING, EXCAVATION, CONSTRUCTION, OR TESTING. UTILITIES SHOWN ON THESE PLANS MAY BE APPROXIMATE AND INCOMPLETE.

AUGUST 13TH, 2020
REV. DECEMBER 4TH, 2020

PREPARED FOR
KML BUILDING CORPORATION, NJ
1803 SPRING GARDEN STREET
PHILADELPHIA, PA 19130
PREPARED BY



ADAMS, REHMANN & HEGGAN
ASSOCIATES, INC.
215 BELLEVUE AVENUE
PO BOX 579
HAMMONTON, NJ 08037-2019
TEL (609) 561-0482
FAX (609) 567-6909

[illegible]

SOIL BORING LOG

7.55	Date: 7/9/2020	GW: Not Found at 10.5' (Estimated at 11.55' (Elev
2-5 (Septic)	Time: 12:00pm	ESHWT: Not Found at 10.5' (Estimated at 11.05' (Elev
upland Forest)	Wx: Sunny, Hot, 90 degrees - No Rain in Past 48 Hours	

[illegible][illegible]

CRAIG TESTING LABORATORIES
Mays Landing, NJ • a Division of Maser Consulting P.A. • (609) 625-1700

1	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990	1000
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SOIL PERMEABILITY CLASS RATING DATA

(Standards for Individual Subsurface Sewage Disposal Systems (NIAC 79A-6.3))

PERMEABILITY CLASS RATING - TR

[illegible]

LABORATORIES
Consulting P.A. • (609) 625-1700

[illegible]

SOIL PERMEABILITY CLASS RATING DATA

(Standards for Individual Subsurface Sewage Disposal Systems (NUAC 7:9A-6.3))

OPTIC PERMEABILITY CLASS RATING - TR[illegible]

625-1700

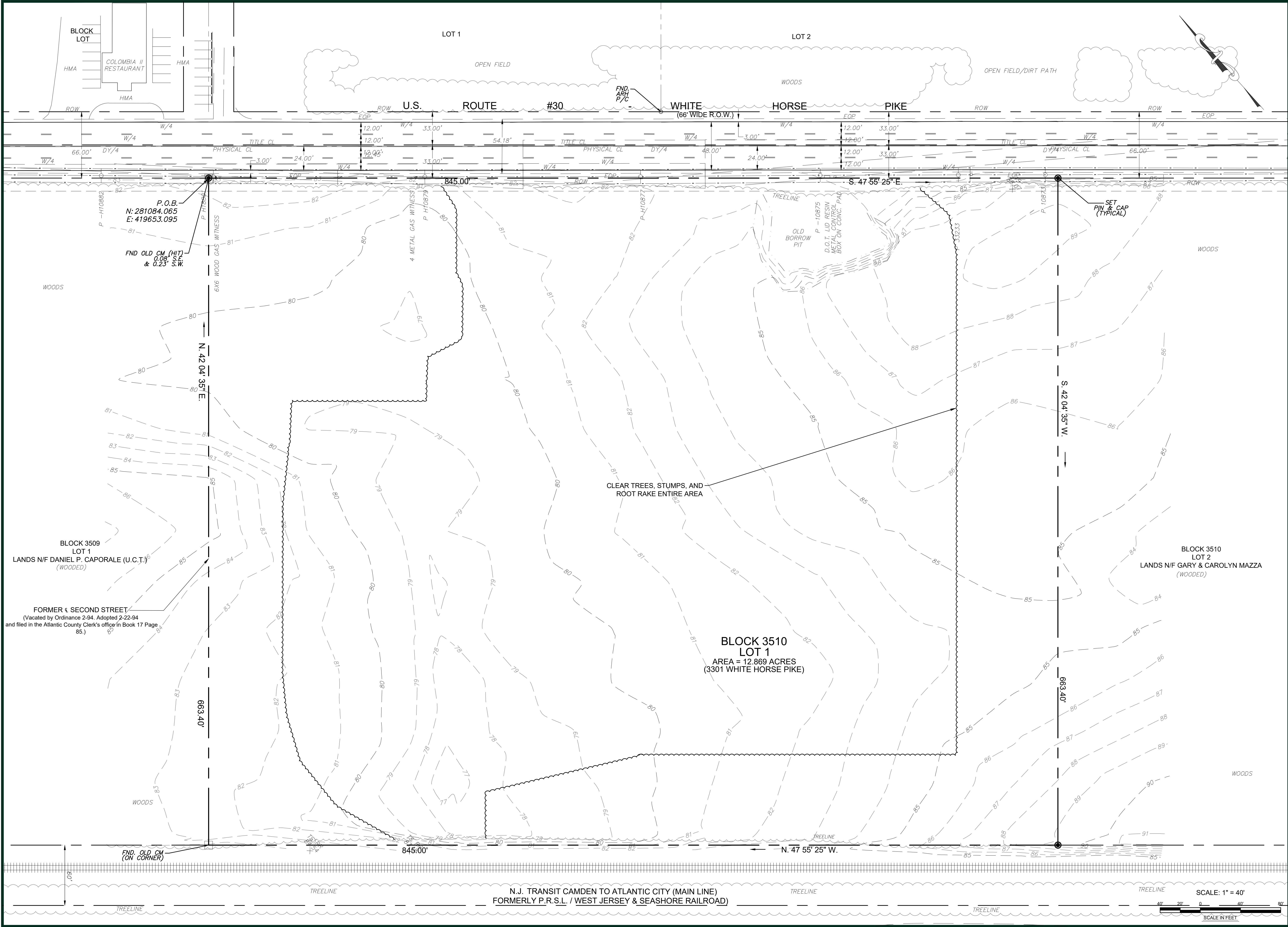
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0.108	16.9	21.92	1.028	22.52
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SOIL PERMEABILITY CLASS RATING DATA

(Standards for Individual Subsurface Sewage Disposal Systems (NIAC 73A-6.3))

SEPTIC PERMEABILITY CLASS RATING - TR

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LAST DATE SAVED	12/4/2020
LAST SAVE BY	awwrb



DATE	AUGUST 13TH 2020
SCALE	1"=40'
DRAWN BY	AJW
CHECKED	TW
PROJ. NO.	50-52714

EXISTING CONDITIONS / DEMOLITION PLAN
FOR
KML BUILDING COPORATION NJ
CARPENTERS UNION CENTER
BLOCK 3510 LOT 1
TOWNSHIP OF MULLICA
NEW JERSEY

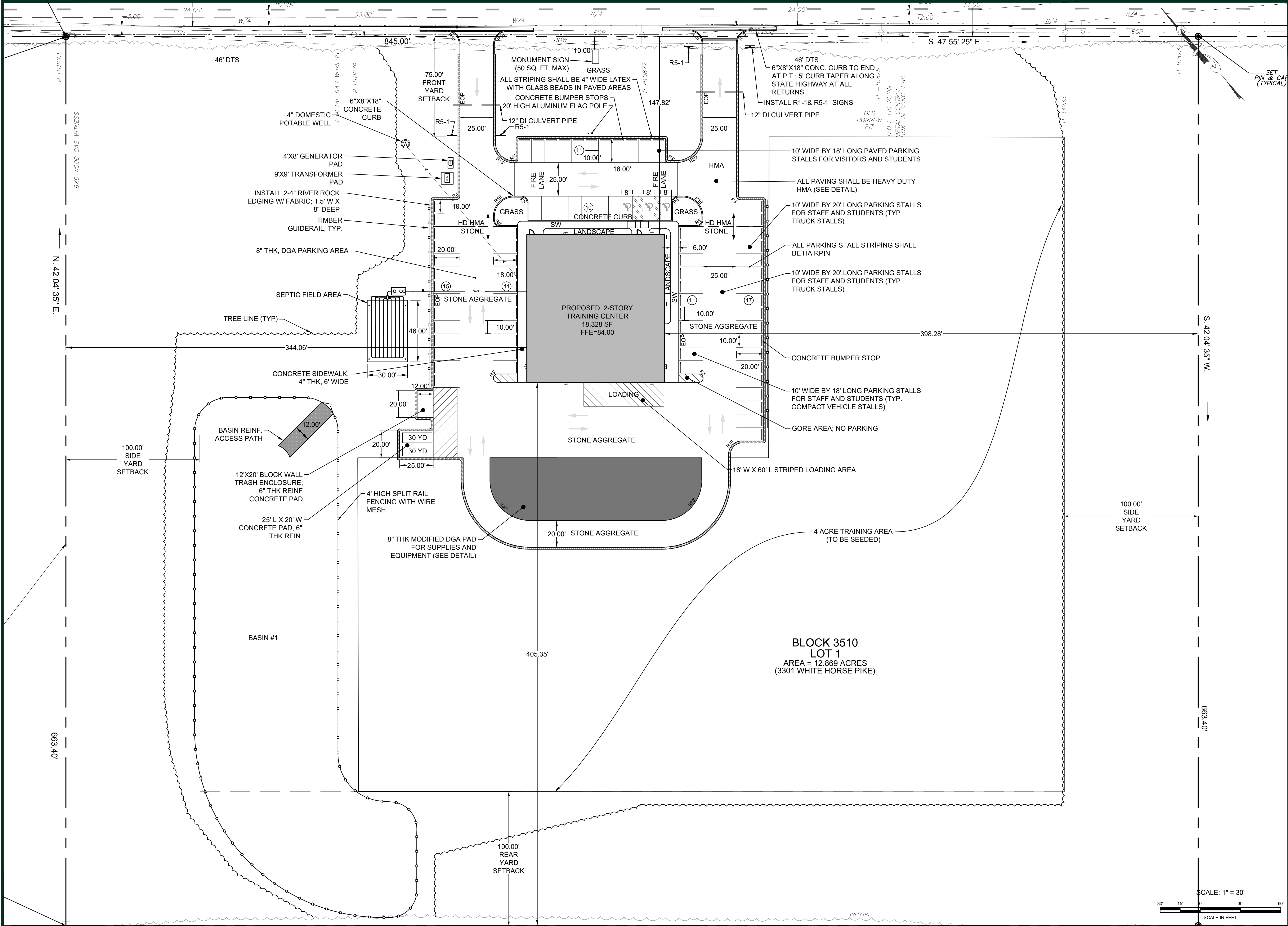
REVISIONS
12/04/2020 REV PER PINELANDS / TOWNSHIP COMMENTS



ADAMS, REHMANN & HEGGAN
ASSOCIATES, INC.
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PO BOX 579
HAMMONTON, NJ 08037-2019
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DAVID J. CELLA
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 47269

DRAWING LOCATION	W:\FILEROOM\HQ\5052714\ENCL\DWG\5052714 DESIGN.dwg
LAST DATE SAVED	12/4/2020
LAST SAVE BY	awwrb



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drawn by	J.W.
checked	J.W.
proj. no.	50-52714

KML BUILDING CORPORATION NJ
CARPENTERS UNION CENTER
BLOCK 3510 LOT 1
TOWNSHIP OF MULTICA
NEW JERSEY

12/04/2020	REV PER PINELANDS/ TOWNSHIP COMMENTS
10/20/2020	REVISED PER NJDOT COMMENTS

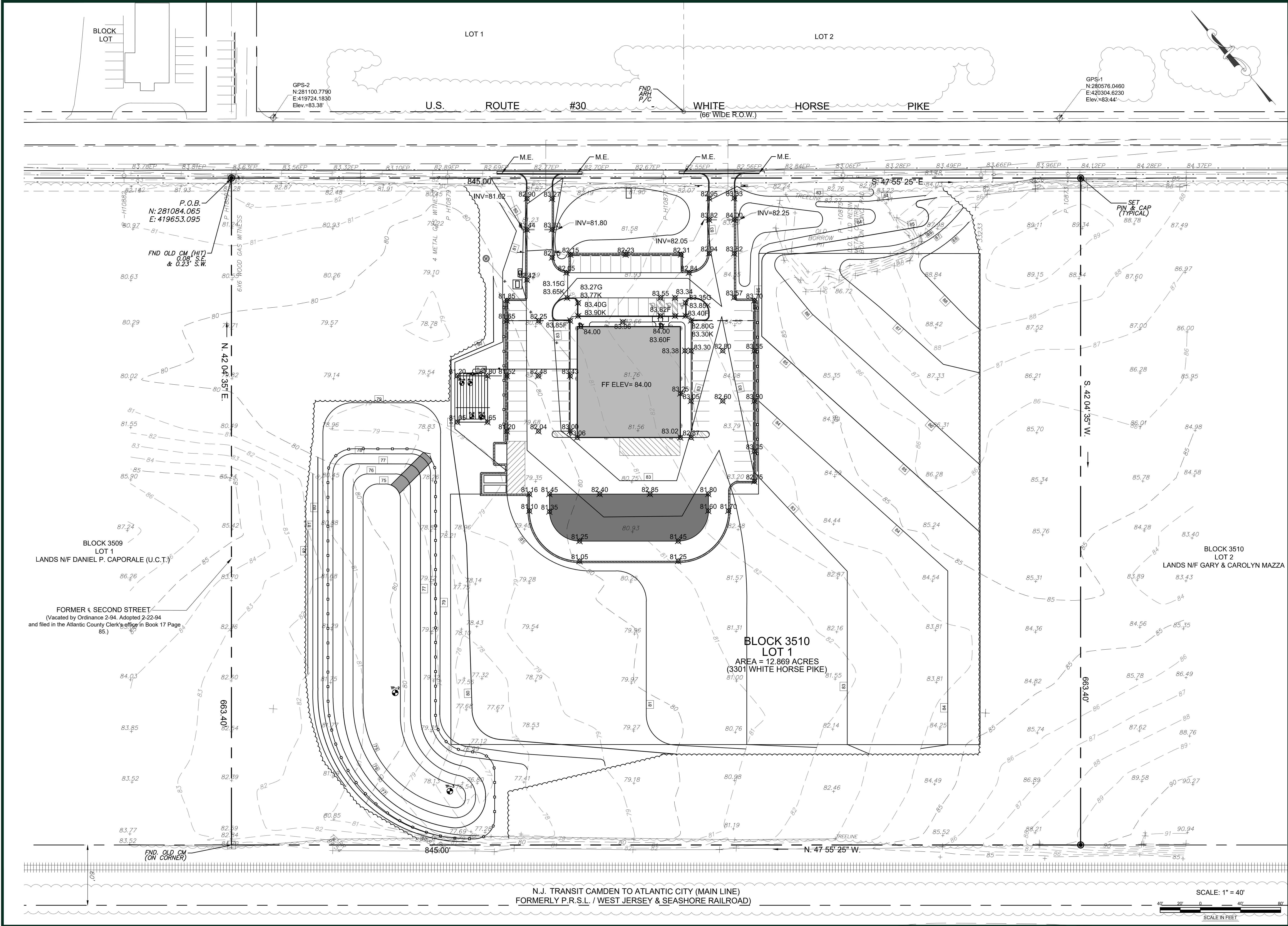


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IF THIS PLAN OR DOCUMENT IS USED FOR ANY PURPOSE OTHER THAN THAT SPECIFICALLY INTENDED, THE USER ASSUMES ALL LIABILITY FOR ANY DAMAGE, LOSS, OR INJURY THAT MAY BE SUSTAINED. THE ENGINEER AND ARCHITECT ASSUME NO LIABILITY FOR SUCH DAMAGE, LOSS, OR INJURY.

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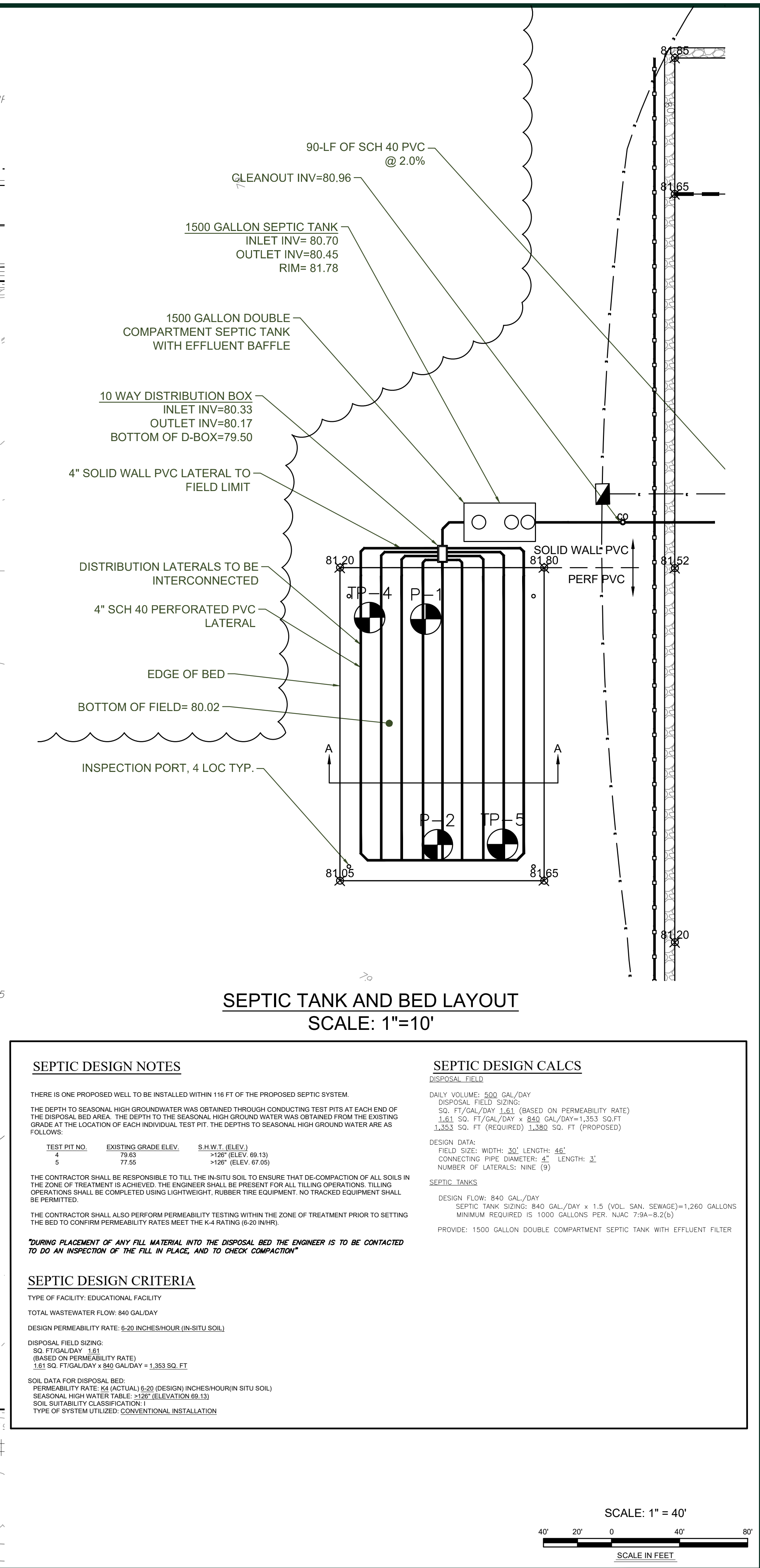
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SCALE	1"=40'
DRAWN BY	AJW
CHECKED	TW
PROJ. NO.	50-52714

GRADING PLAN
FOR
KML BUILDING COPORATION NJ
CARPENTERS UNION CENTER
BLOCK 3510 LOT 1
TOWNSHIP OF MULLICA
NEW JERSEY



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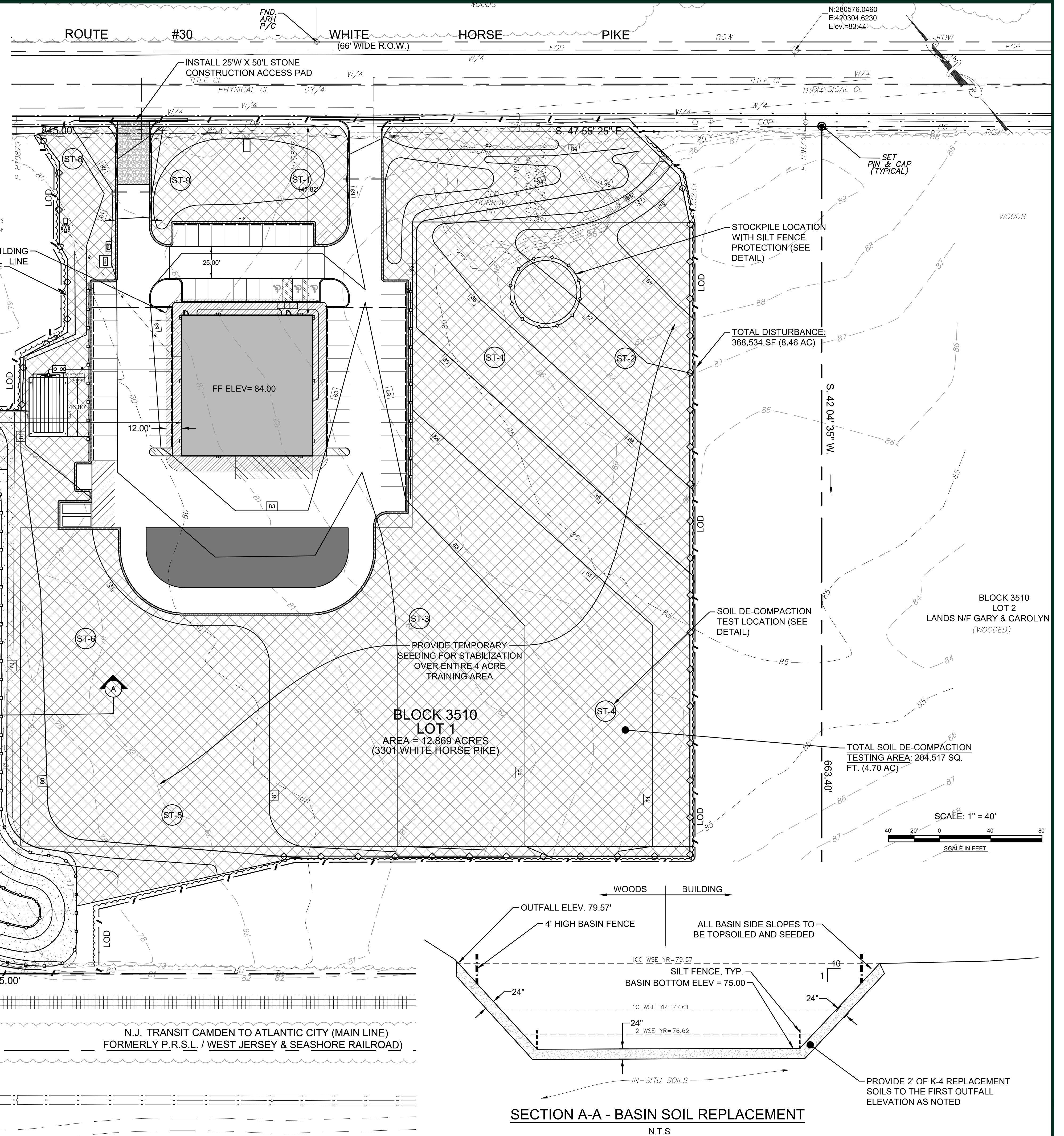


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7
of
17

[illegible]

1. A REPORT OF COMPLIANCE MUST BE OBTAINED FROM THE DISTRICT PRIOR TO RECEIVING A CERTIFICATE OF OCCUPANCY FROM THE MUNICIPALITY. A REQUEST FOR DISTRICT INSPECTION AND FOR A RELEASE OF THE REPORT OF COMPLIANCE MUST BE MADE 5 WORKING DAYS IN ADVANCE. THIS APPLIES TO BOTH 'COMPLETE' (FINAL) AND CONDITIONAL (TEMPORARY) CERTIFICATES. ALL STREETS AND UNITS MUST BE PROPERLY IDENTIFIED. A REPORT OF COMPLIANCE WILL NOT BE RELEASED FOR A UNIT IF IT CAN NOT BE IDENTIFIED.
2. REMOVE ANY SEDIMENT THAT MAY BE SPILLED, DROPPED, OR TRACKED OFF THE PROJECT SITE. ALL PAVED ROW'S ADJACENT TO THE PROJECT SITE MUST BE MAINTAINED IN A CLEAN SWEEP CONDITION THROUGH CONSTRUCTION. IT MAY BE NECESSARY TO INSTALL CRUSHED STONE PADS TO REDUCE TRACKING OFF SITE OF SEDIMENT.
3. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ANY SEDIMENTATION OR EROSION THAT MAY OCCUR BELOW STORMWATER OUTFALLS OR OFFSITE AS A RESULT OF THE CONSTRUCTION OF THE PROJECT.
4. ALL ENTRY AND EXIT FROM THE SITE MUST BE AT THE STONE CONSTRUCTION ENTRANCE.
5. THE SOIL EROSION INSPECTOR MAY REQUIRE ADDITIONAL SOIL EROSION MEASURES TO BE INSTALLED IN ACCORDANCE WITH THE STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.



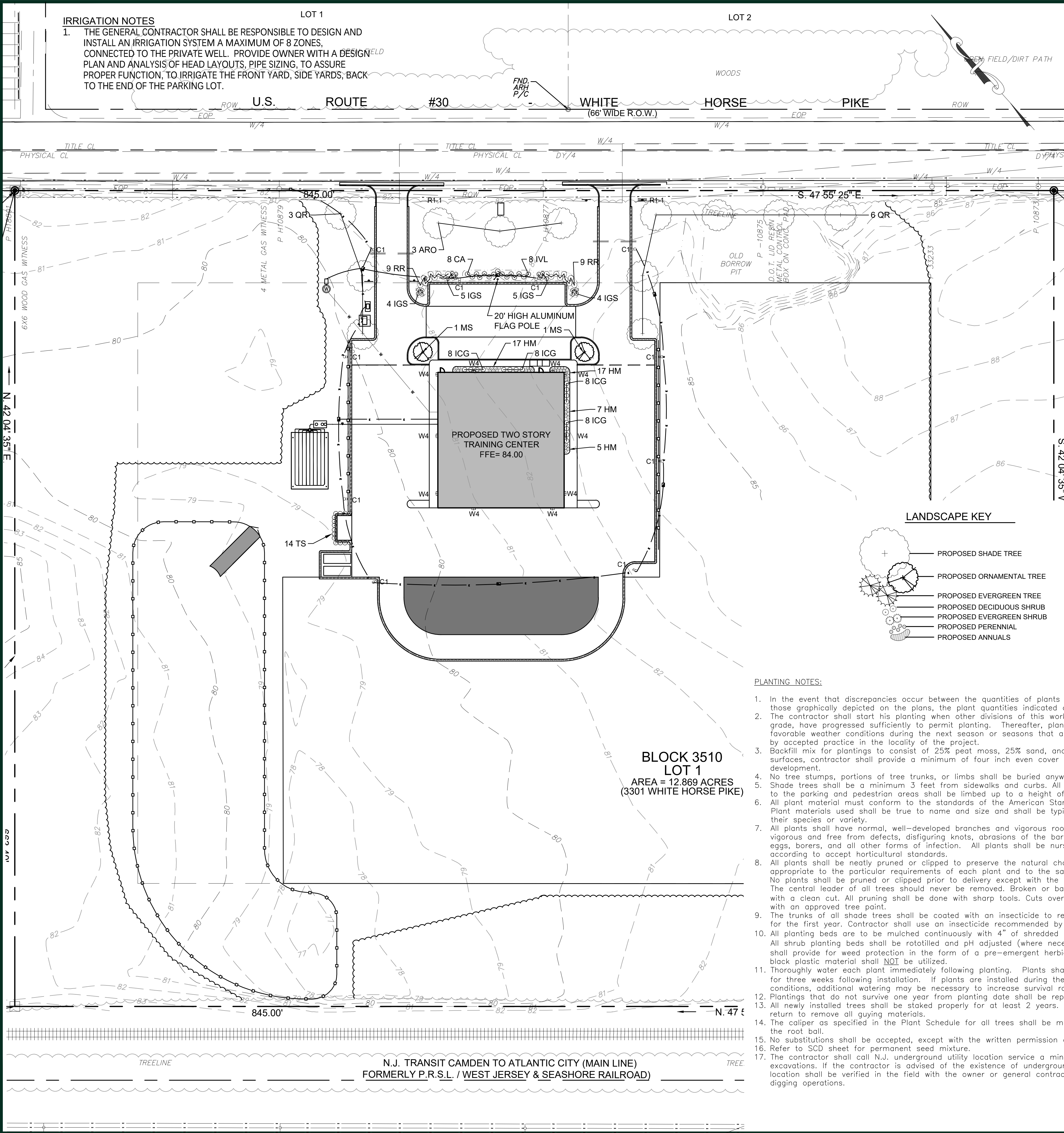
ADAMS, REHMANN & HEGGAN
ASSOCIATES, INC.
2115 BELLEVUE AVENUE
PO BOX 579
HAMMONTON, NJ 08037-2019
TEL (609) 561-0482
FAX (609) 567-9609

ARH ASSOCIATES
certificate of authorization
NJ no. 24GA27973300, DE no. 216

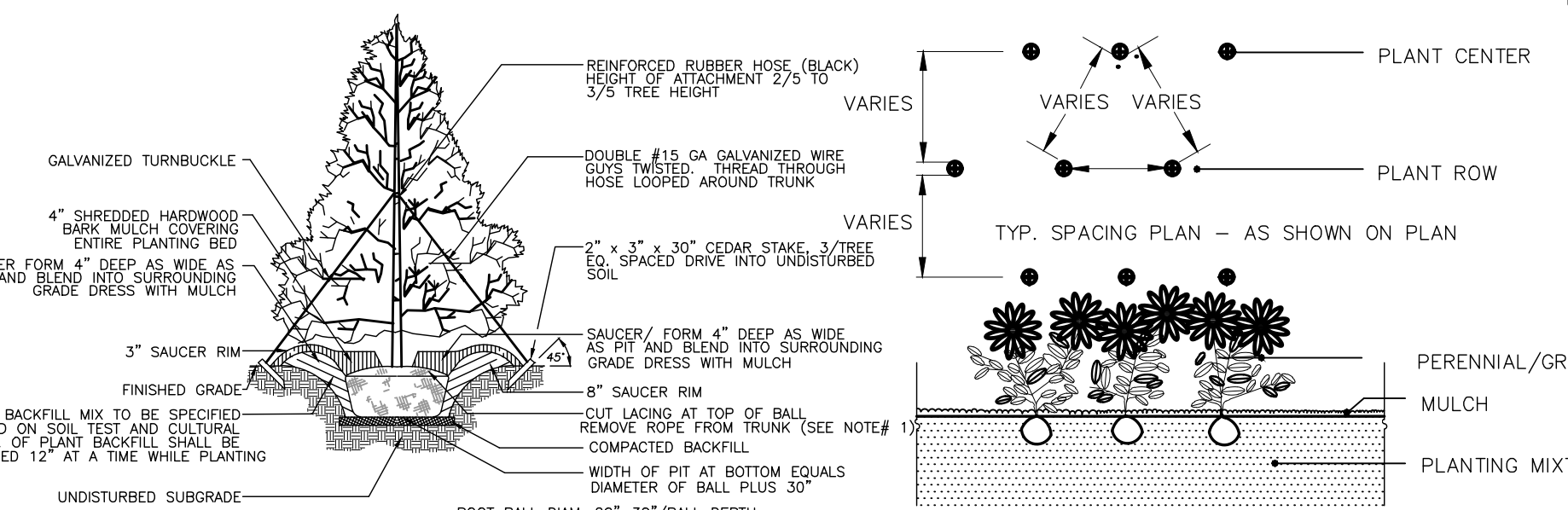
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REV PER PINELANDS COMMENTS	12-02-2020
REV PER PINELANDS COMMENTS	11-16-2020
REV PER PINELANDS COMMENTS	10-15-2020
10/20/2020 REVISED PER NJDOT COMMENTS	
revisions	

FOR
KML BUILDING COPORATION NJ
CARPENTERS UNION CENTER
BLOCK 3510 LOT 1
MULLICA ~ ATLANTIC COUNTY ~ NEW JERSEY

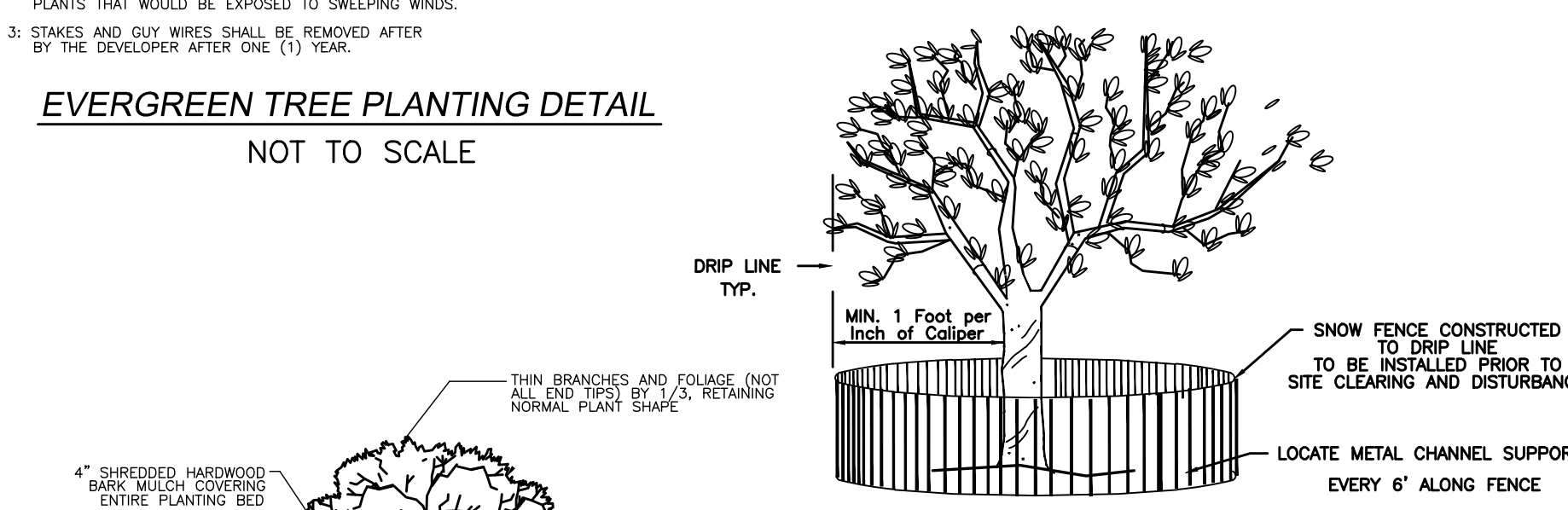
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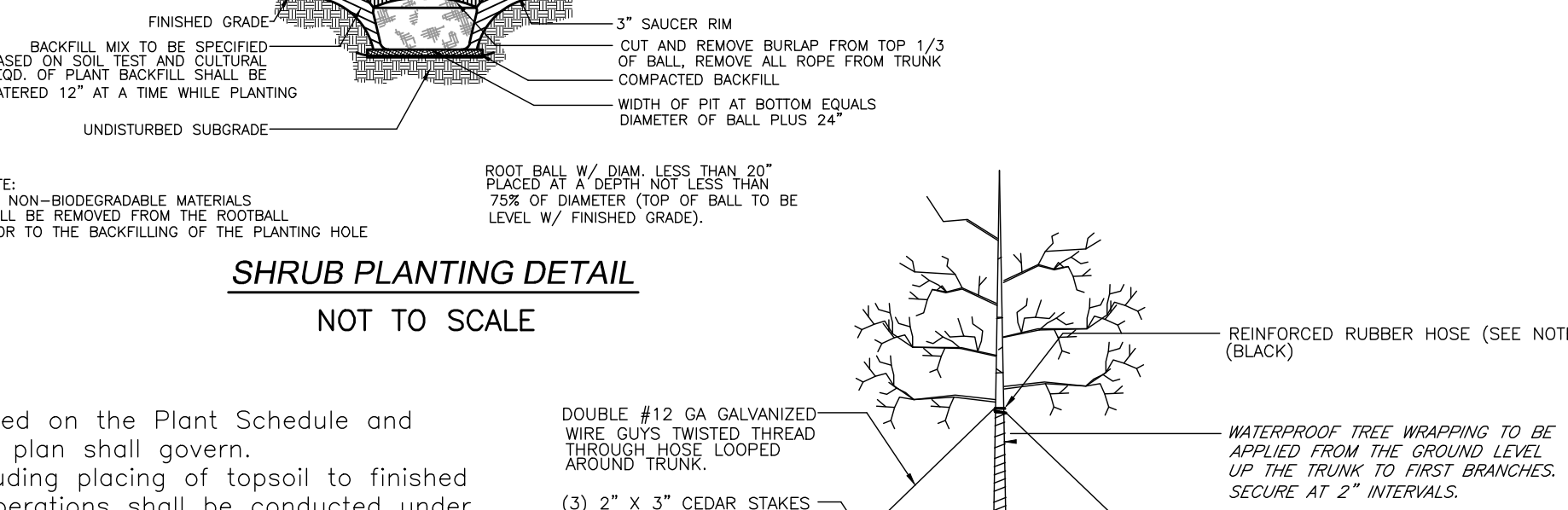
LANDSCAPE SCHEDULE								
KEY	QTY	BOTANICAL	COMMON NAME	CAL.	SIZE	MATURE SIZE	ROOT	COMMENTS
SHADE TREES								
ARO	3	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2.5 - 3"	12 - 14'	40-60'	B & B	No Fall Digging
QR	9	QUERCUS RUBRA	NORTHERN RED OAK	2.5 - 3"	12 - 14'	60-75'	B & B	
ORNAMENTAL TREES								
MS	2	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA		8-10'	15-20'	B & B	SINGLE LEADER
SHRUBS								
CA	8	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	HUMMINGBIRD SWEET PEPPERBUSH		24 - 30"	3-4'	3 GAL. CONT.	FULL AND MATCHED
ICG	32	ILEX CRENATA 'GREEN LUSTER'	GREEN LUSTER JAPANESE HOLLY		24 - 30"	3-4'	3 GAL. CONT.	FULL AND MATCHED
IGS	18	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY		24 - 30"	3-4'	3 GAL. CONT.	FULL AND MATCHED
IVL	8	ITEA VIRGINIANA 'LITTLE HENRY'	LITTLE HENRY SWEETSPIRE		18 - 24"	3-4'	3 GAL. CONT.	
RR	18	RHOODODENDRON CAT. ROSEUM'ELEGANS'	ROSEBAY RHODODENDRON		24 - 30"	6-8'	3 GAL. CONT.	FULL AND MATCHED
TS	14	THUJA OCCIDENTALIS 'SMARGED'	EMERALD GREEN ARBORVITAE		24 - 36"		#5 CAN	3' O.C.
PERENNIALS/GRASSES								
HM	46	HAKONECHLOE MACRA 'AUROLEA'	GOLDEN JAPANESE FOREST GRASS		12 - 18"	18"	1 GAL. CONT.	



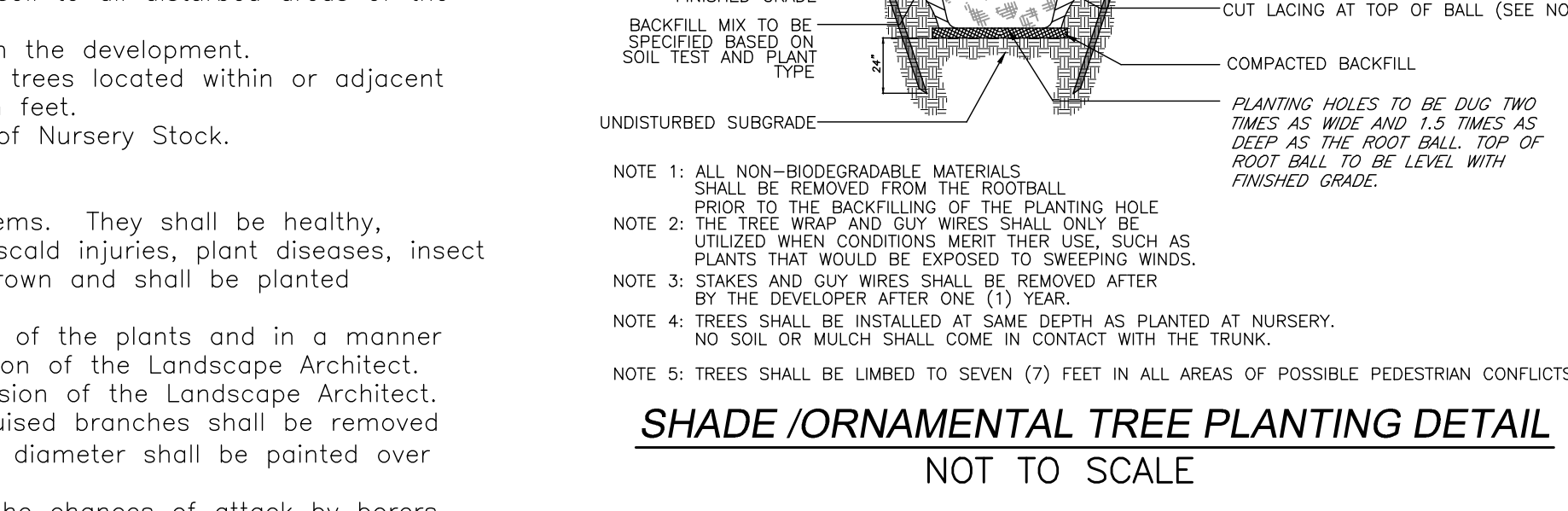
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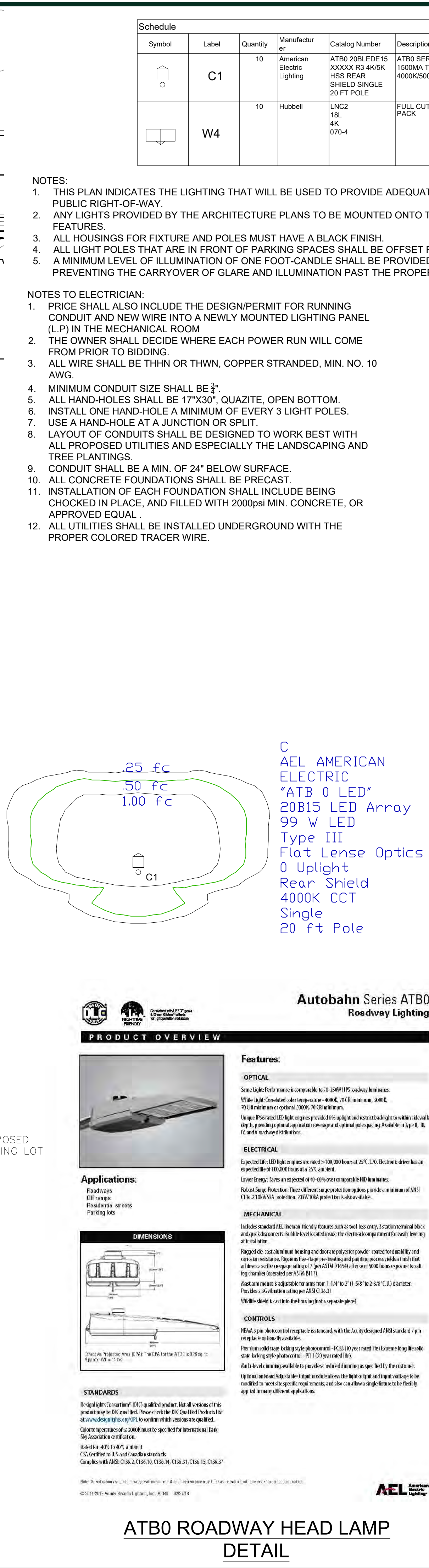
EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



SHRUB PLANTING DETAIL
NOT TO SCALE



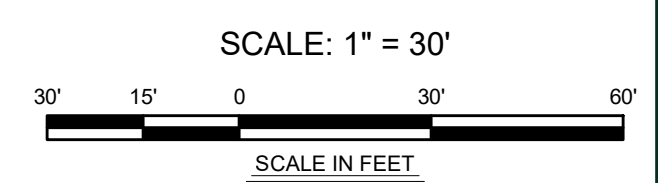
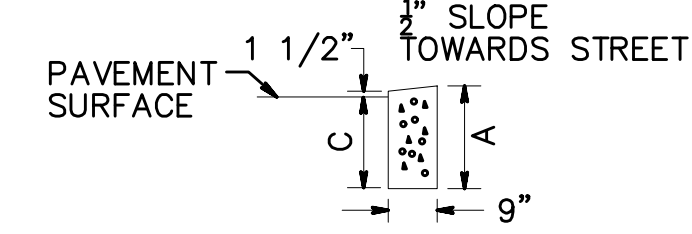
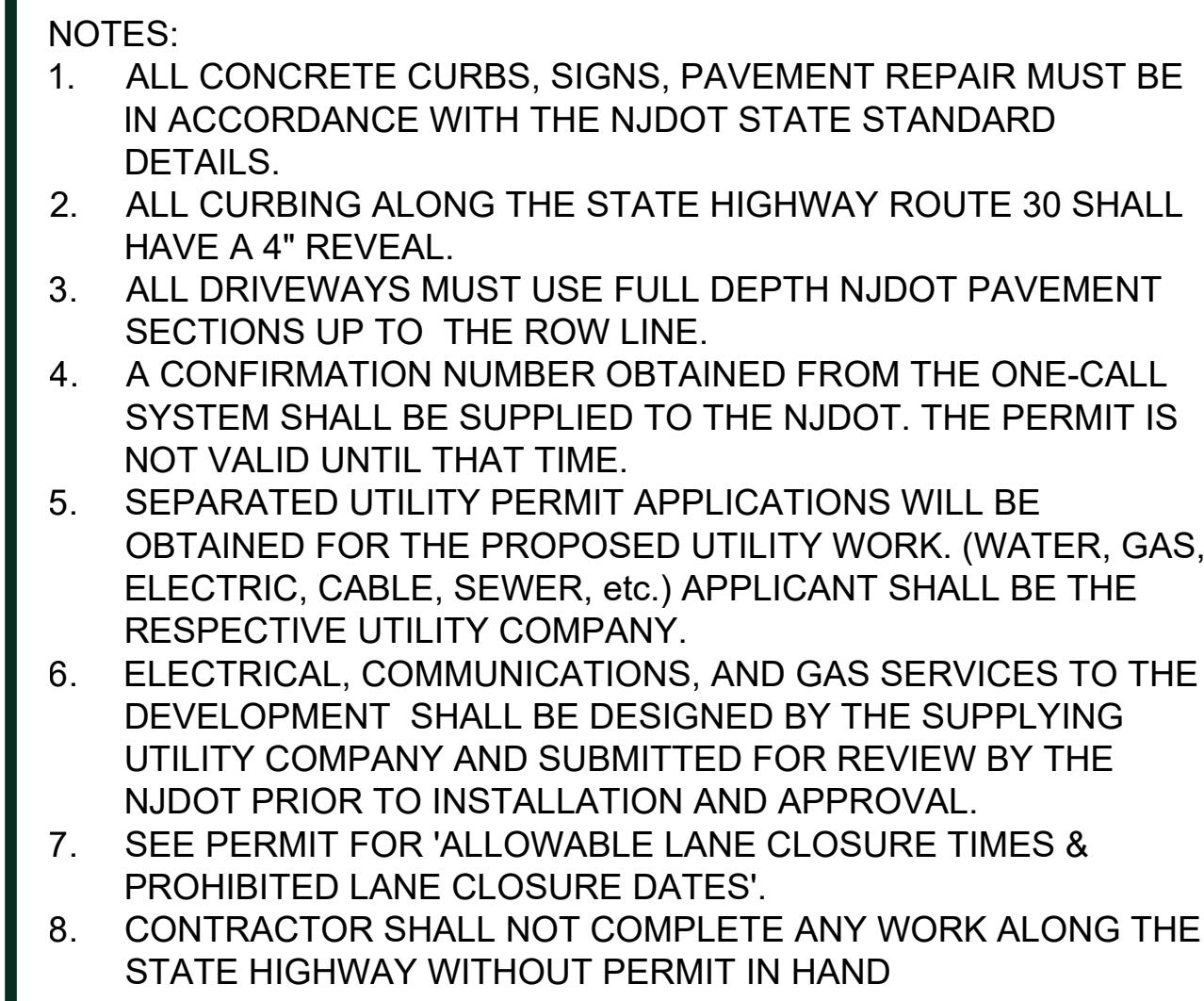
SHADE /ORNAMENTAL TREE PLANTING DETAIL
NOT TO SCALE



LIGHTING PLAN FOR KML BUILDING COPORATION NJ CARPENTERS UNION CENTER BLOCK 3510 LOT 1 TOWNSHIP OF MULLICA - ATLANTIC COUNTY - NEW JERSEY	
date: AUGUST 13TH 2020	scale: 1"=40'
drawn by:	AJW
checked:	TW
proj. no.	50-52714

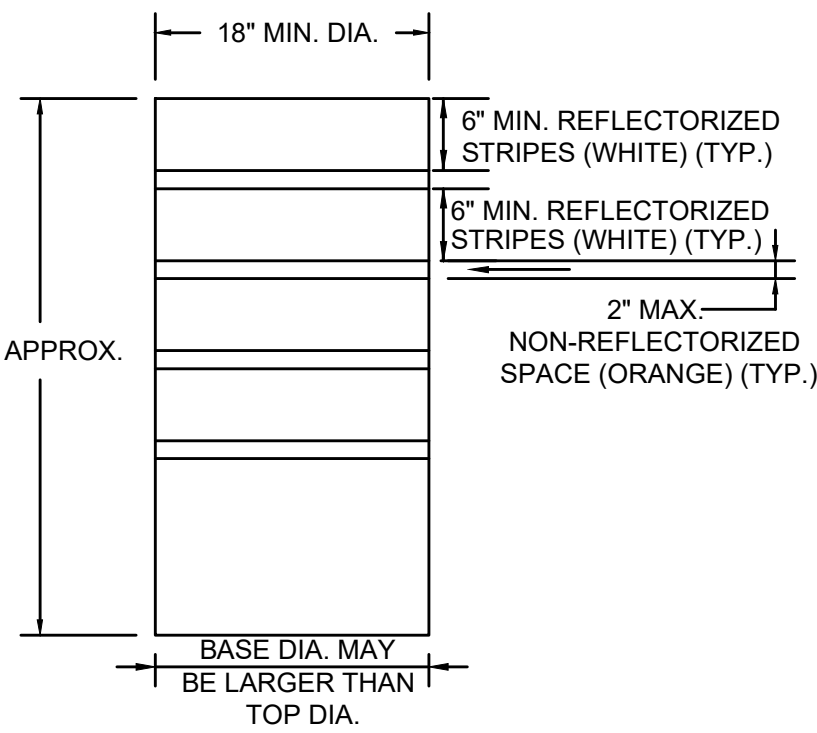
10 of 17

10 of 17



LEGEND

-  - WORK ZONE
-  - BUFFER/TAPPER
-  - TEMPORARY CONSTRUCTION SIGN
-  - BARREL
-  - FLAGGER/ FLAGGER LOCATION
-  - BARRICADE



DRUM SHALL BE MADE OF ORANGE PLASTIC WITH A MINIMUM OF FOUR ALTERNATE ORANGE AND WHITE REFLECTORIZED STRIPES. IF THERE ARE NON-REFLECTIVE SPACES BETWEEN STRIPES, THEY SHOULD BE NO MORE THAN 2" WIDE. STRIPES SHALL BE REFLECTIVE SHEETING, TYPE II. THE TOP OF THE DRUM SHALL NOT BE OPEN.

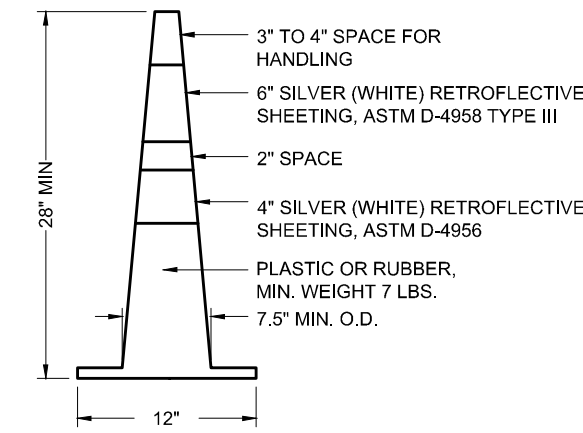
DRUM SHALL BE CONSTRUCTED TO INHIBIT ROLLING IF KNOCKED OVER.

THE REFLECTORIZED AREA OF THE DRUM SHALL BE ROUND EXCEPT THAT OTHER SHAPES, WHICH PROVIDE THE SAME VISIBILITY AS AN 18" DIAMETER ROUND DRUM REGARDLESS OF ORIENTATION, MAY BE USED IF APPROVED BY THE BUREAU OF MATERIALS.

WHEN BALLAST IS REQUIRED BY THE ENGINEER, SAND SHALL BE USED. THE MAXIMUM WEIGHT OF THE BALLAST SHALL BE 50LBS. AND BE LOCATED APPROXIMATELY OF GROUND LEVEL.

DRUM DETAIL

N.T.S.



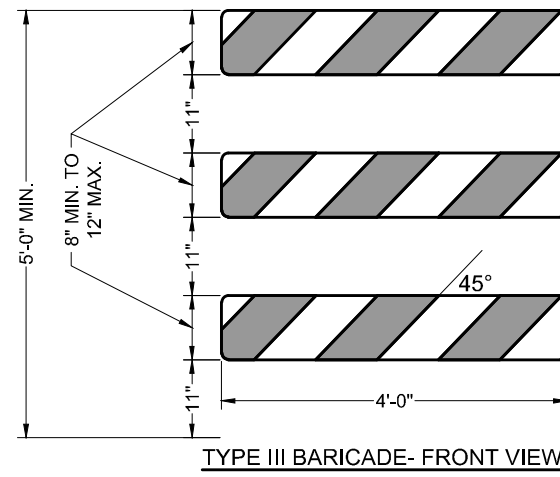
TRAFFIC CONES

NOTES:

TRAFFIC CONES MUST BE PREDOMINATELY ORANGE IN COLOR

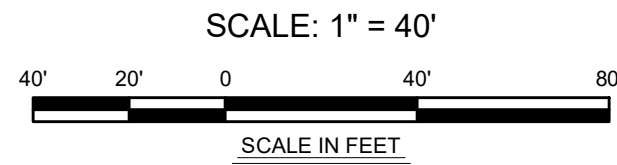
BASES MAY BE OF BREAKAWAY BALLASTED TYPE

MINOR MANUFACTURER'S VARIATIONS MAY BE ACCEPTABLE UPON APPROVAL OF THE RE.



- ENSURE THE 8" MIN. x 48", TO 12" MAX. x 48" BARRICADE RAILS TO BE ATTACHED ACCORDING TO THE MANUFACTURER'S RECOMMENDATION.
- ENSURE ORANGE AND SILVER (WHITE) STRIPES TO BE RETROREFLECTIVE SHEETING, ASTM D4958 TYPE III, ALTERNATE ORANGE AND SILVER (WHITE) STRIPES 6" WIDE SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION OF TRAVEL IS TO PASS.
- THE FRAMING RAILS, AND BALLAST FOR BREAKAWAY BARRICADE TO BE NCRR-350 CRASHED TESTED AND FHWA APPROVED.
- IF NECESSARY, FABRICATE THE BALLAST AND PLACE ACCORDING TO THE MANUFACTURER'S RECOMMENDATION.

BREAKAWAY BARRICADES



FOR
NJDOT TRAFFIC CONTROL PLAN
KML BUILDING COPORATION NJ
CARPENTERS UNION CENTER
BLOCK 3510 LOT 1
TOWNSHIP OF MULLICA
ATLANTIC COUNTY
NEW JERSEY

DATE: AUGUST 13TH 2020
SCALE: 1" = 40'
DRAWN BY: AJW
CHECKED: TW
PROJ. NO.: 50-52714



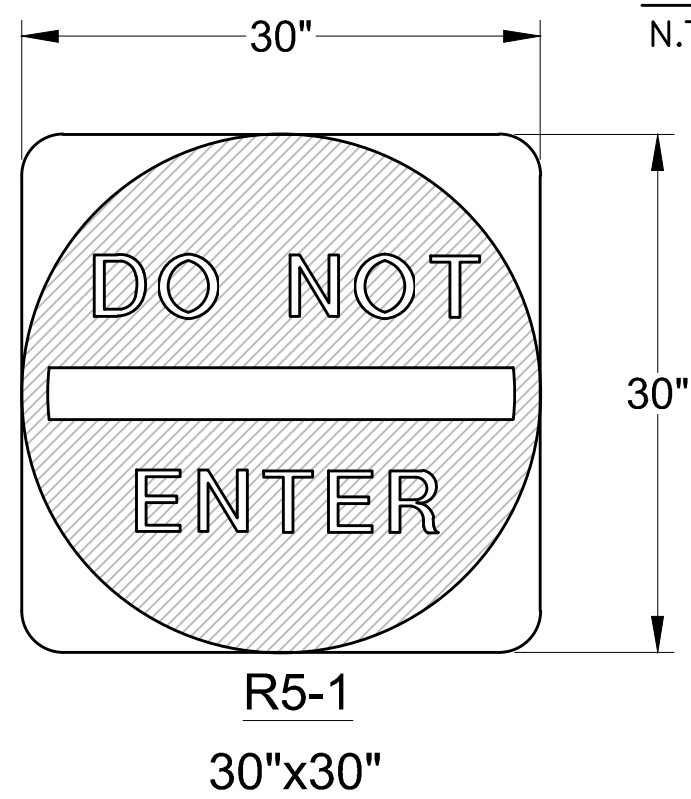
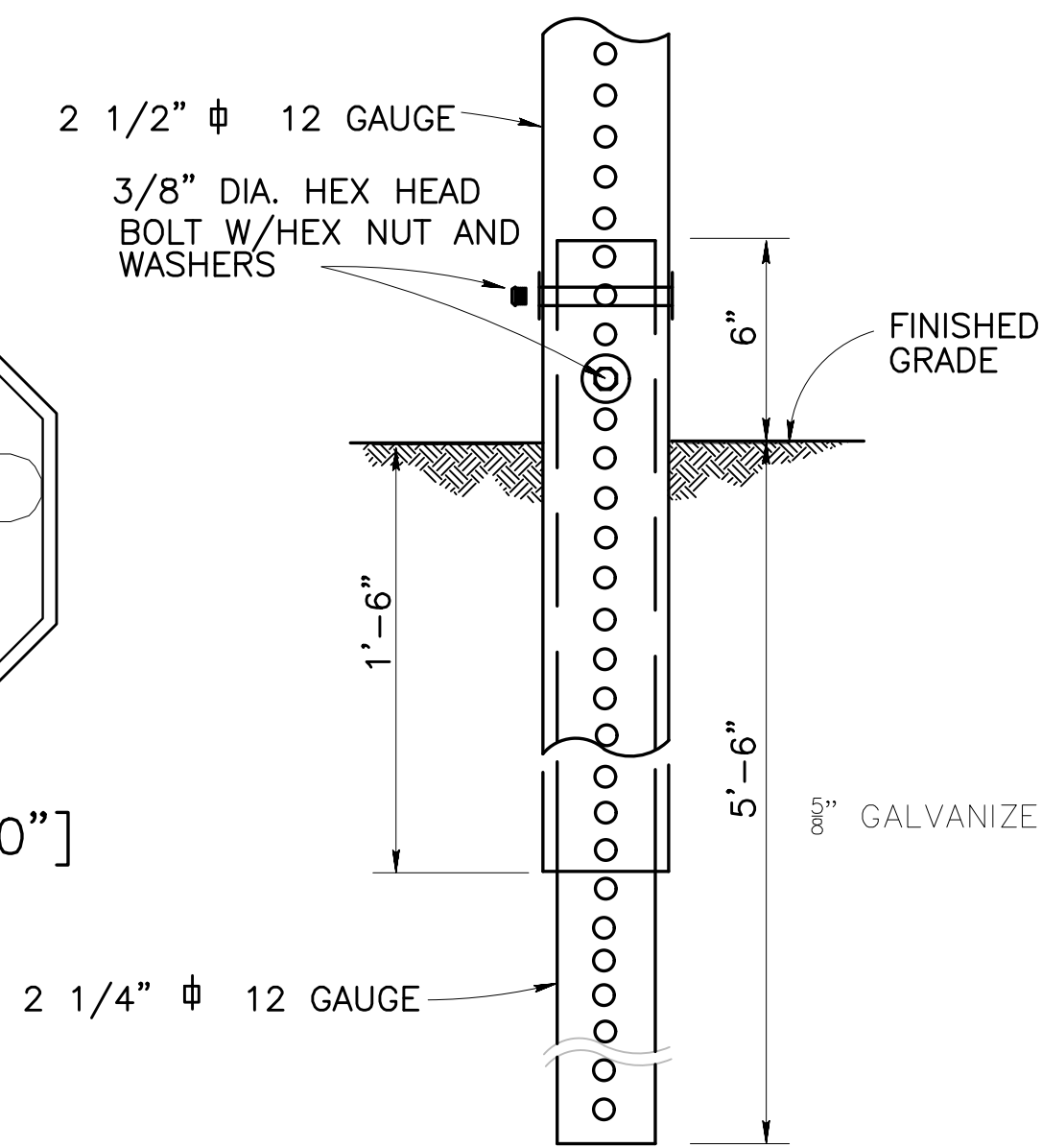
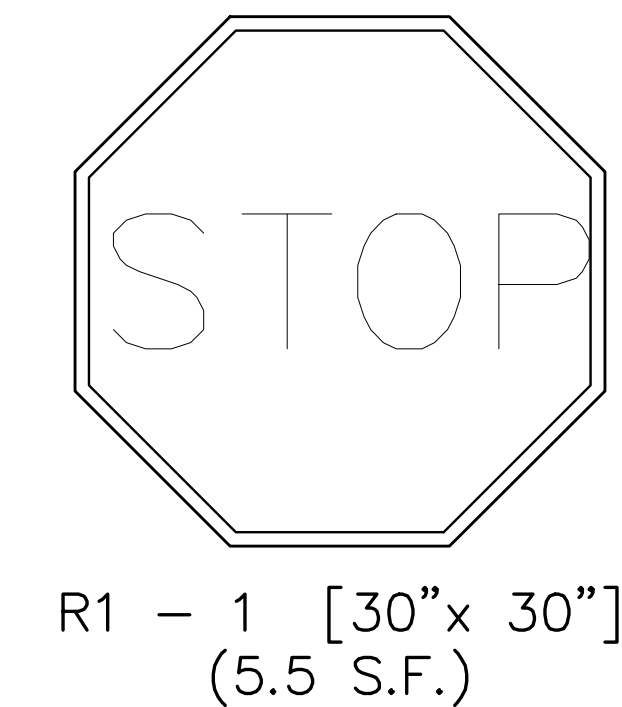
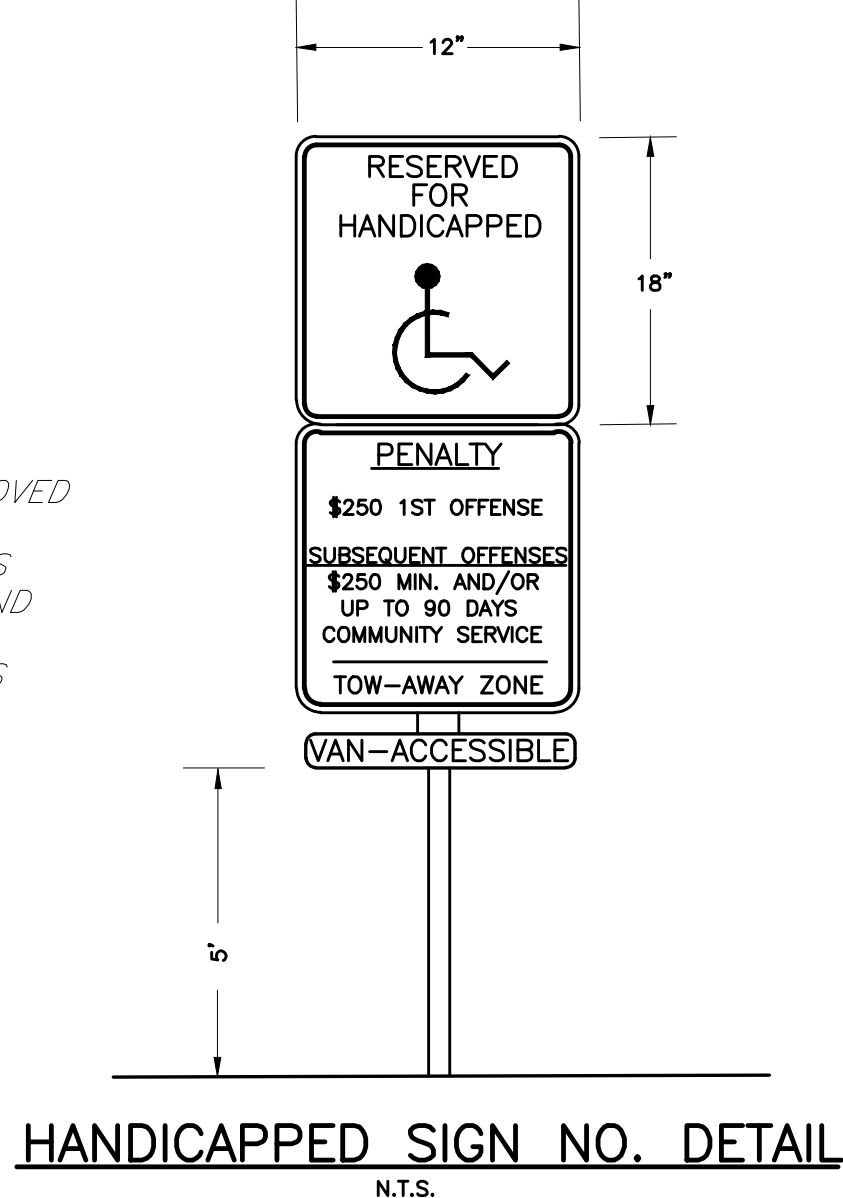
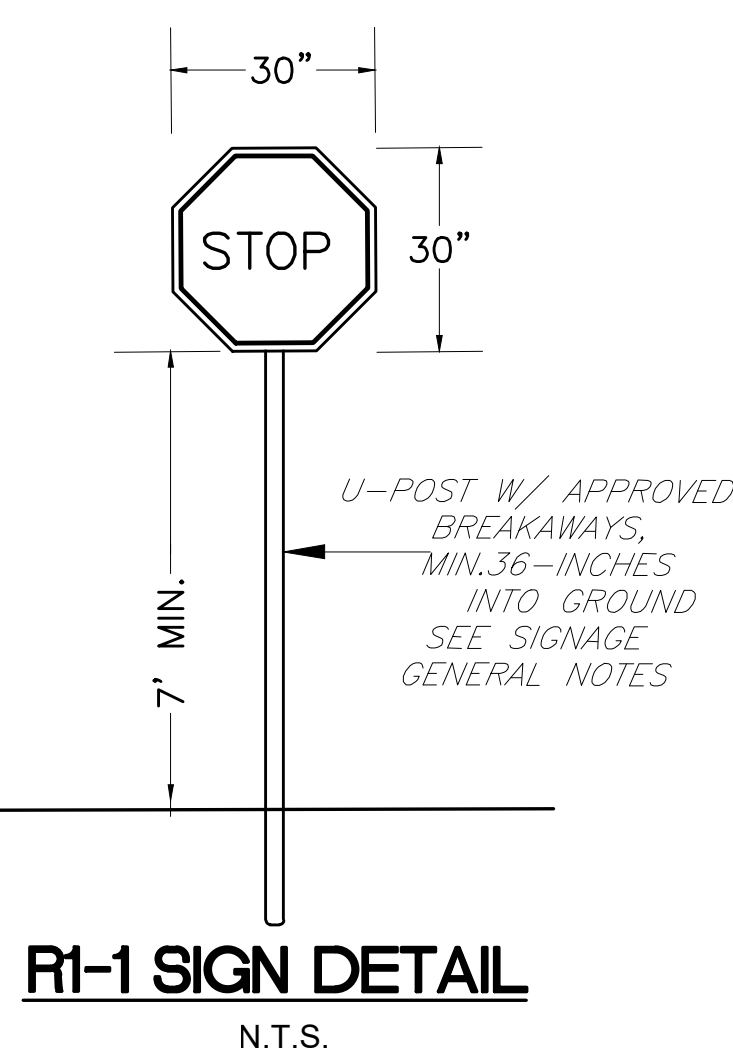
ADAMS, REHMANN & HEGGAN
ASSOCIATES, INC.
215 BELLEVUE AVENUE
PO BOX 579
HAMMONTON, NJ 08037-2019
TEL (609) 561-0482
FAX (609) 561-8809

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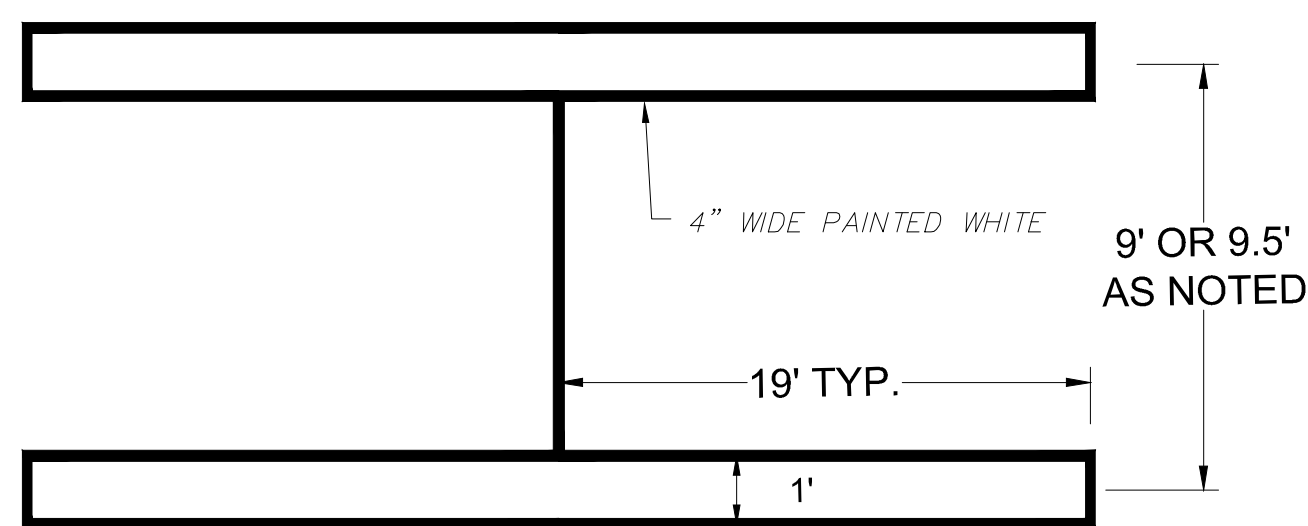
DAVID J. CELLA
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 47269

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12/02/2020	9/26/20
DRAWING LOCATION	LAST DATE SAVED
LAST SAVE BY	

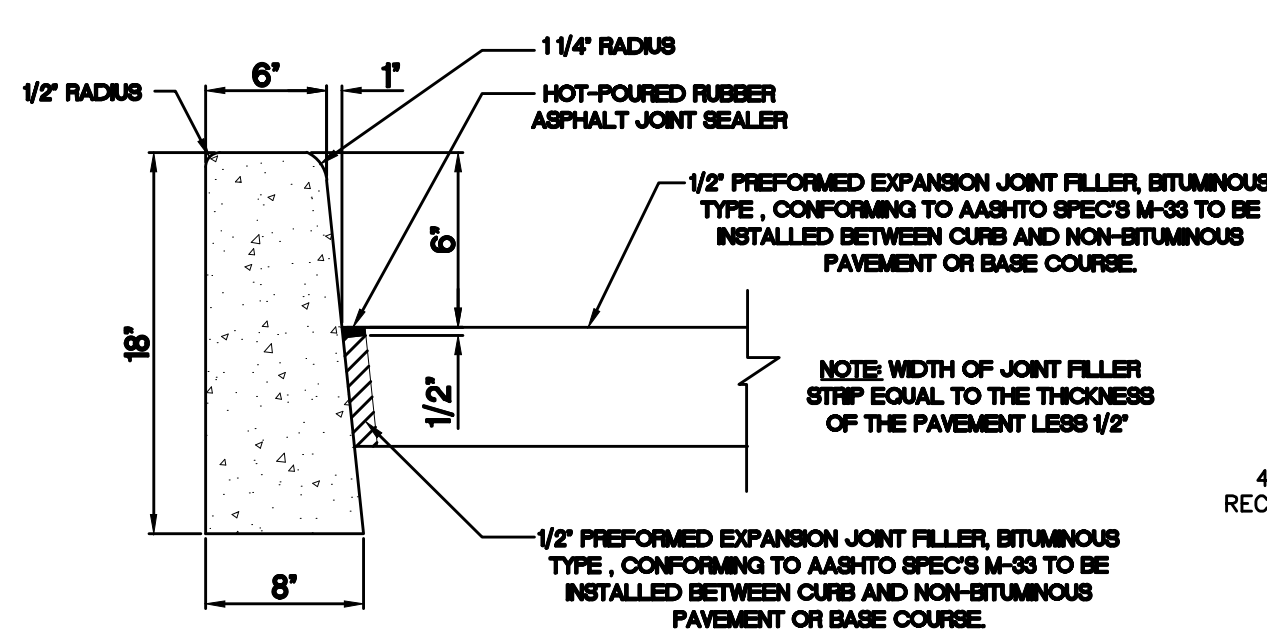


DO NOT ENTER SIGN
N.T.S.



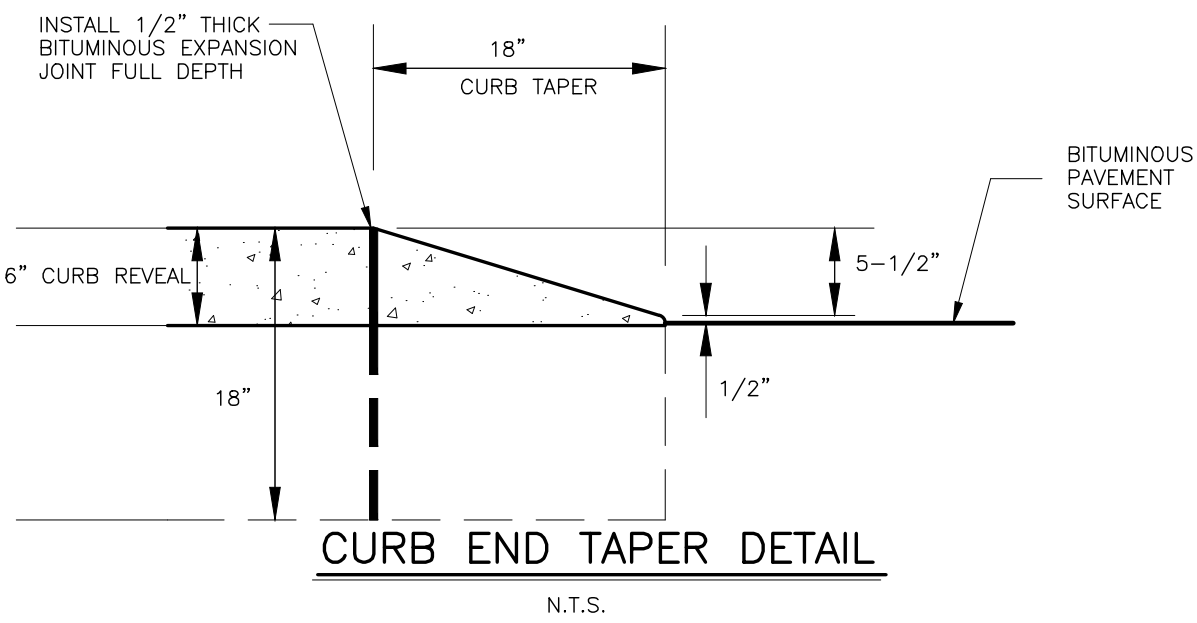
ALL STRIPING ON THIS SITE SHALL BE HAIR-PIN. SITE PLAN ONLY DRAWS A SINGLE LINE FOR GEOMETRY REASONS ONLY.

12" HAIRPIN STRIPING DETAIL
N.T.S.

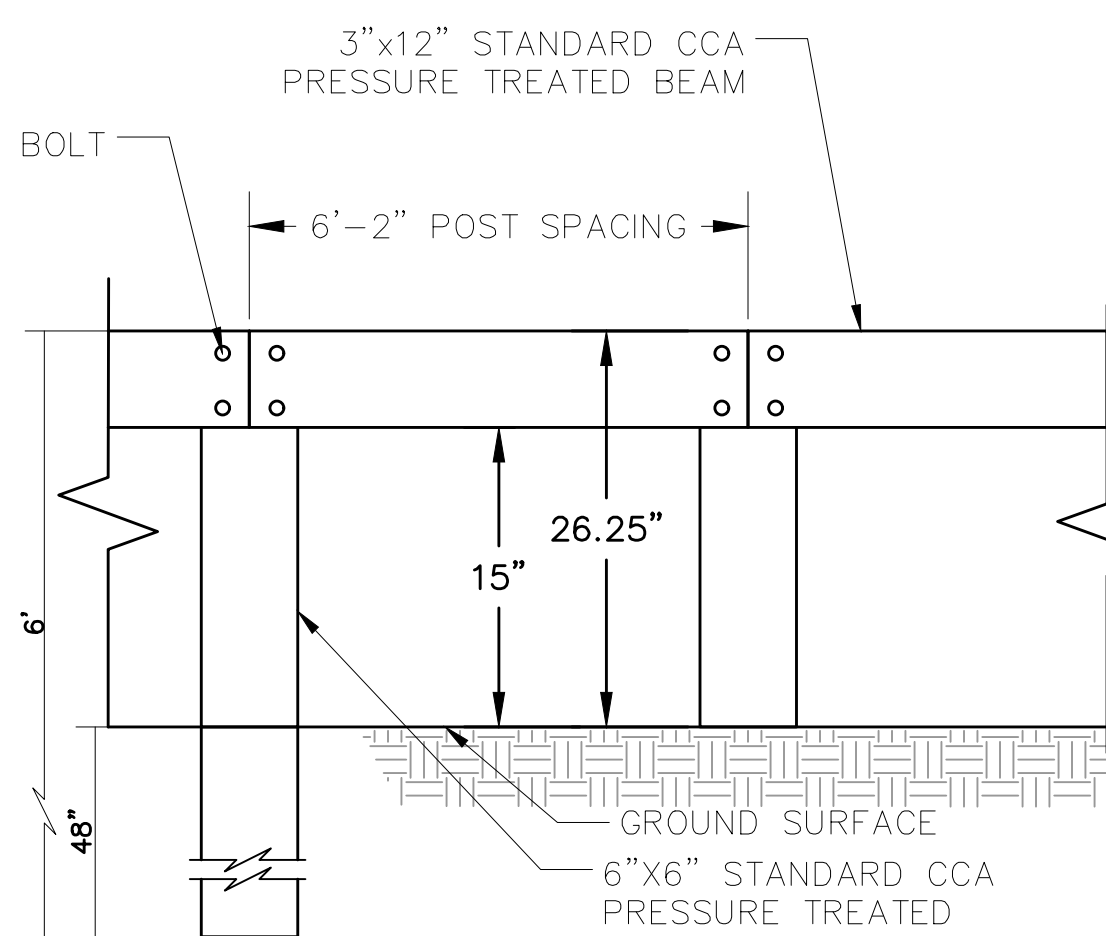


- NOTES:
- CONCRETE TO BE N.J.D.O.T. CLASS "B" (AIR ENTRAINED).
 - TRANSVERSE JOINTS 12" WIDE SHALL BE IN STALLED IN THE CURB 20'-0" APART AND SHALL BE FILLED WITH PREFORMED, BITUMINOUS-IMPREGNATED FIBER JOINT FILLER, COMPLYING WITH THE REQUIREMENTS OF AASHTO M-213, RECESSED 1/4" FROM THE FRONT FACE AND TOP OF THE CURB.
 - DUMMY JOINTS (FORMED) SHALL BE INSTALLED MIDWAY BETWEEN EXPANSION JOINTS.

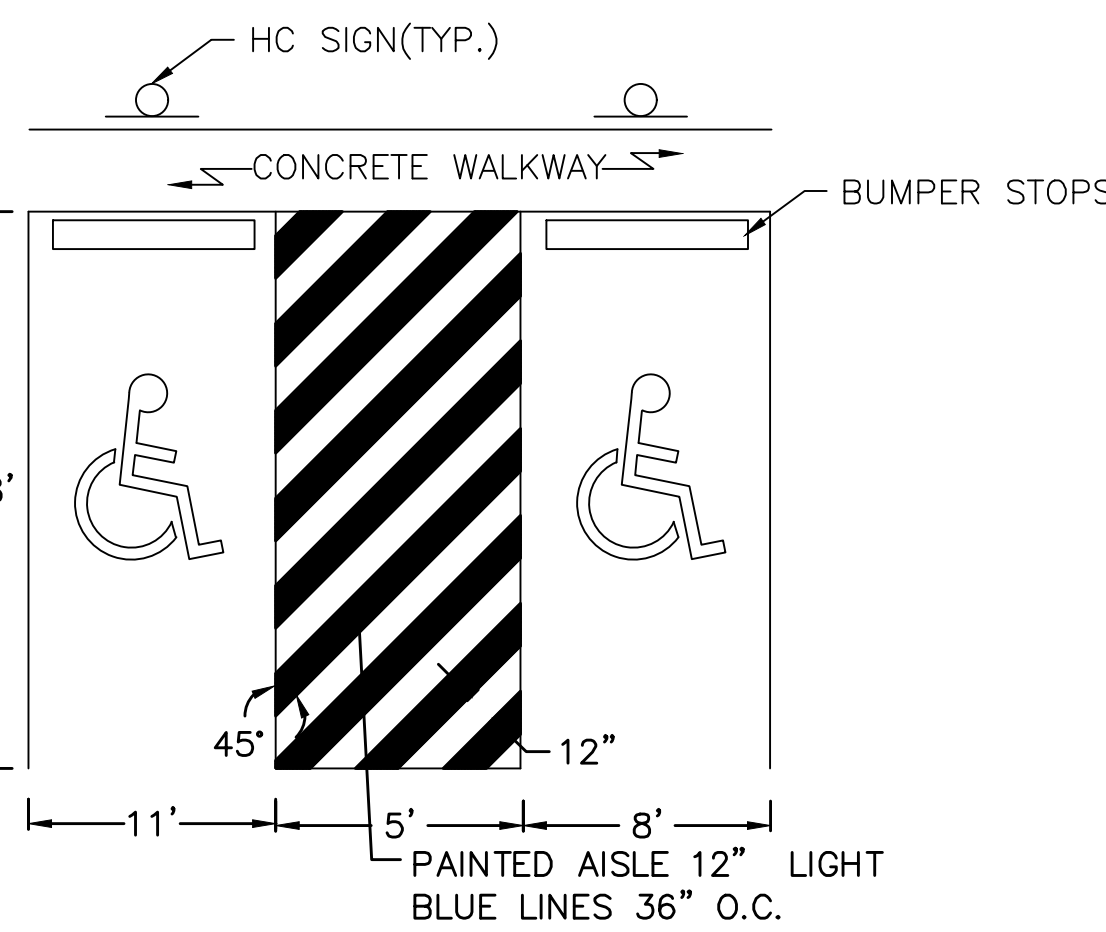
LOCAL CONCRETE VERTICAL CURB
N.T.S.



- NOTES:
- CONTRACTOR SHALL USE A TAPER LENGTH OF 18" w/ A VARIABLE END REVEAL THAT WILL MATCH EXISTING WHEN A 6" REVEAL BUTTS UP TO A LESSER EXISTING REVEAL.

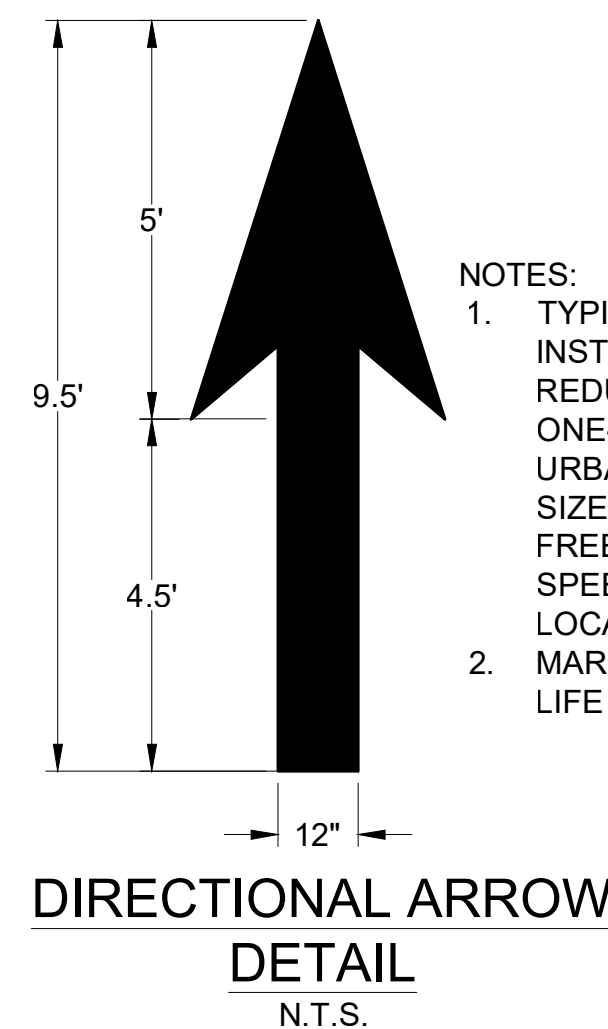
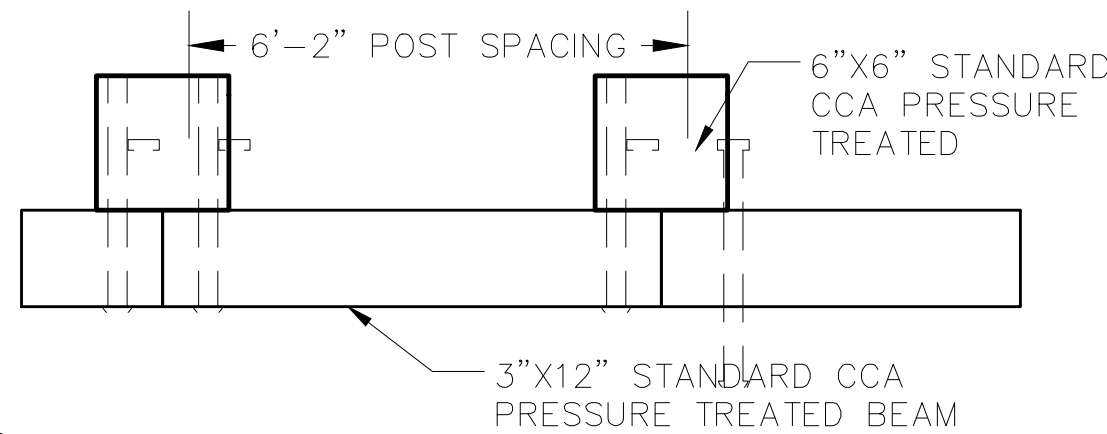
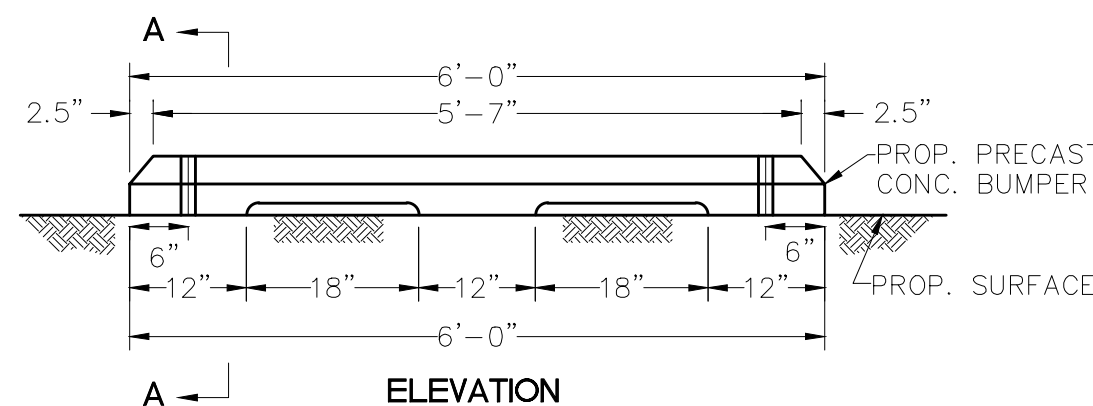
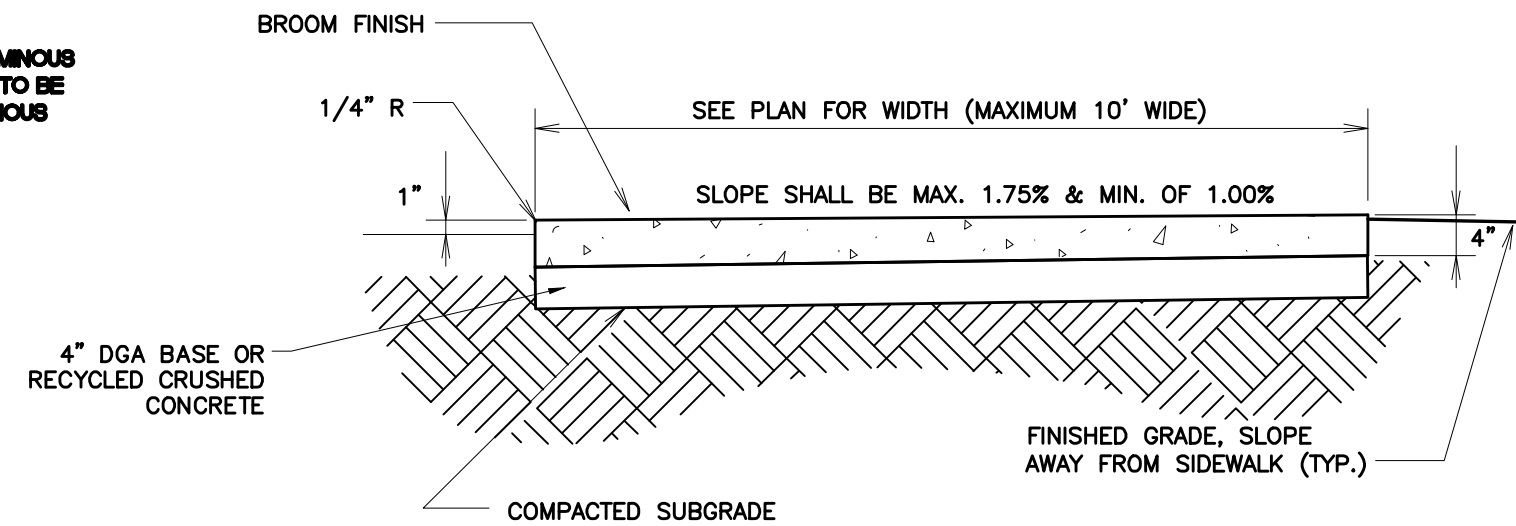


- NOTE:
- CONTRACTOR SHALL USE DUBELL LUMBER CO. OR APPROVED EQUAL FOR LUMBER MATERIALS.
 - EVERY 25'-FT, INSTALL ONE 8"x12" YELLOW CHEVRON ON TIMBER RAIL.

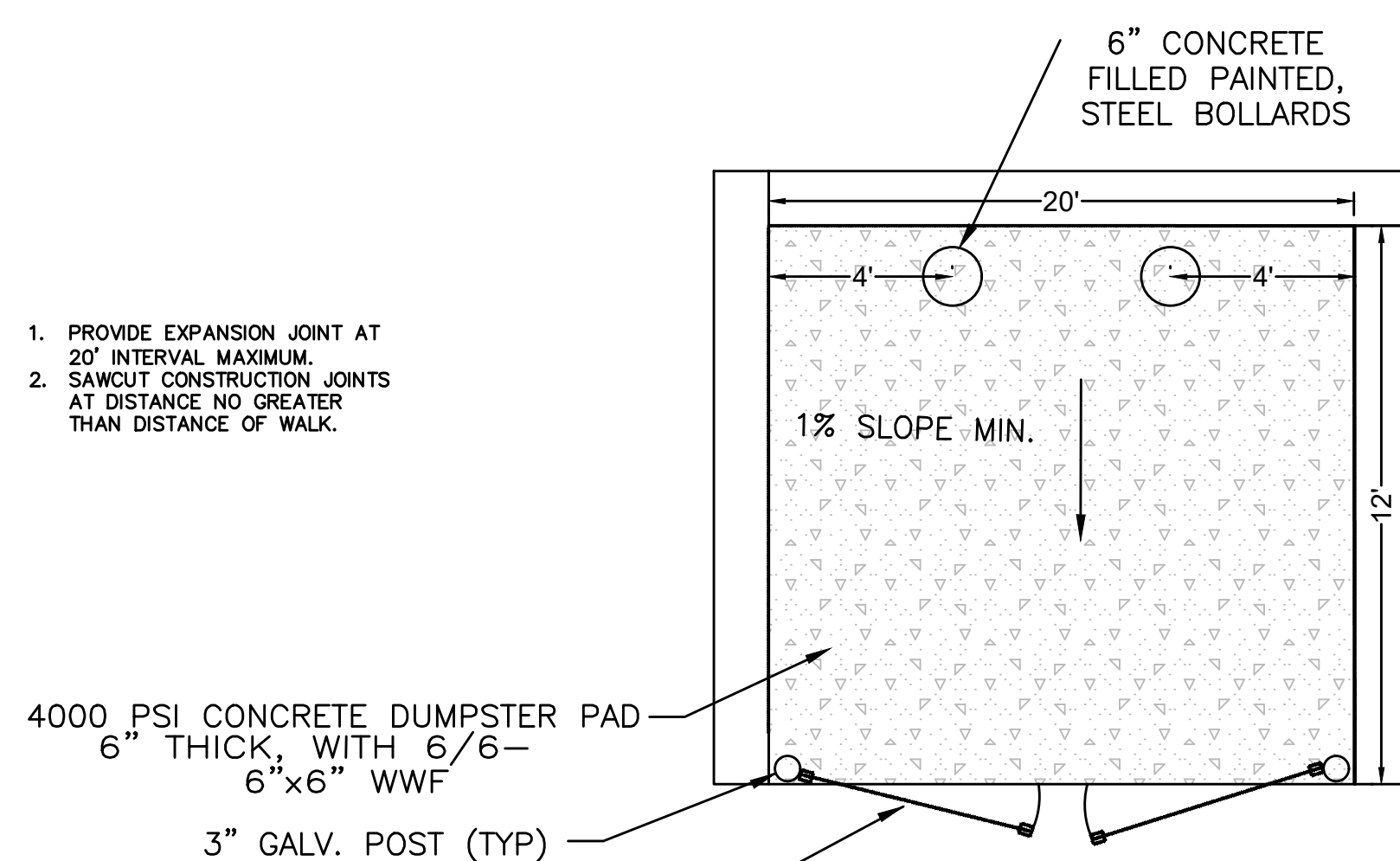


- *ALL PAINTED LINES SHALL BE LIGHT BLUE
*ALL SLOPES WITHIN HANDICAP SPACES SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION

HANDICAP PARKING LAYOUT
N.T.S.



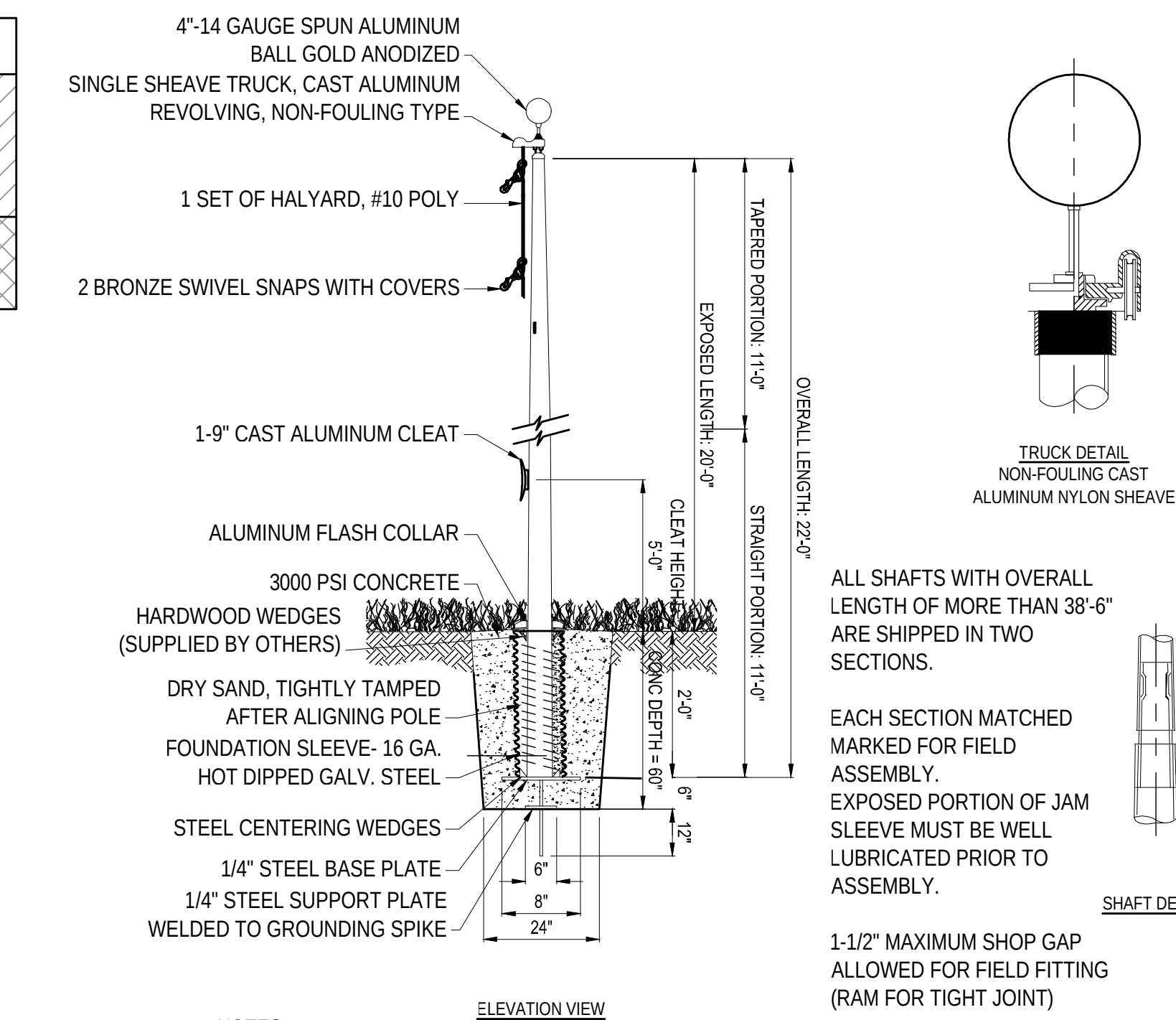
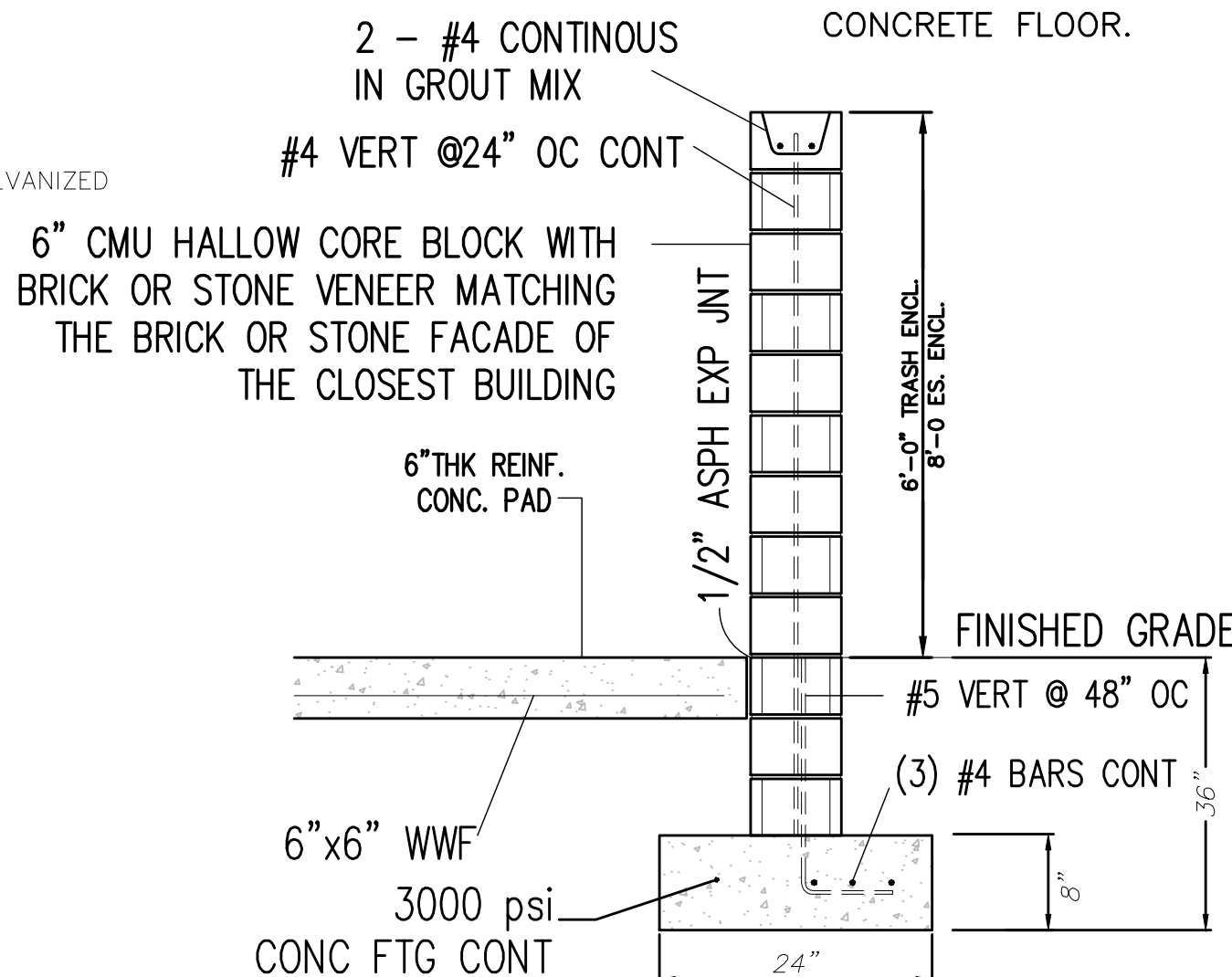
- NOTES:
- TYPICAL SIZE FOR NORMAL INSTALLATION; SIZES MAY BE REDUCED APPROXIMATELY ONE-THIRD FOR LOW SPEED URBAN CONDITIONS; LARGER SIZES MAY BE NEEDED FOR FREEWAYS, ABOVE AVERAGE SPEEDS, AND OTHER CRITICAL LOCATIONS.
 - MARKINGS SHALL BE LONG LIFE EPOXY-RESIN



- 4000 PSI CONCRETE DUMPSTER PAD
6" THICK, WITH 6/6-6"x6" WWF
3" GALV. POST (TYP.)

CONCRETE TRASH ENCLOSURE PAD DETAIL
N.T.S.

- NOTES:
- CONTRACTOR SHALL PLACE A 6" COMPACTED DENSE GRADED AGGREGATE UNDERNEATH THE CONCRETE FLOOR.



ALL SHAFTS WITH OVERALL LENGTH OF MORE THAN 38'-6" ARE SHIPPED IN TWO SECTIONS.

EACH SECTION MATCHED MARKED FOR FIELD ASSEMBLY. EXPOSED PORTION OF JAM SLEEVE MUST BE WELL LUBRICATED PRIOR TO ASSEMBLY.

1-1/2" MAXIMUM SHOP GAP ALLOWED FOR FIELD FITTING (RAM FOR TIGHT JOINT)

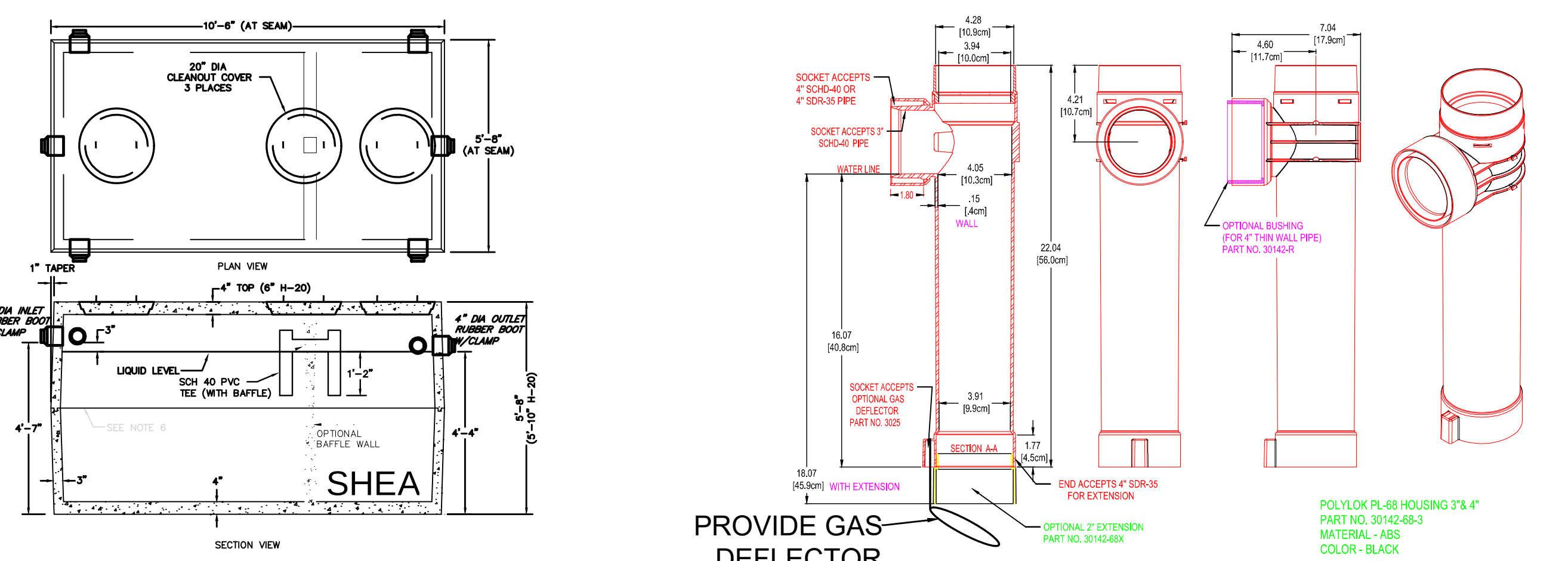


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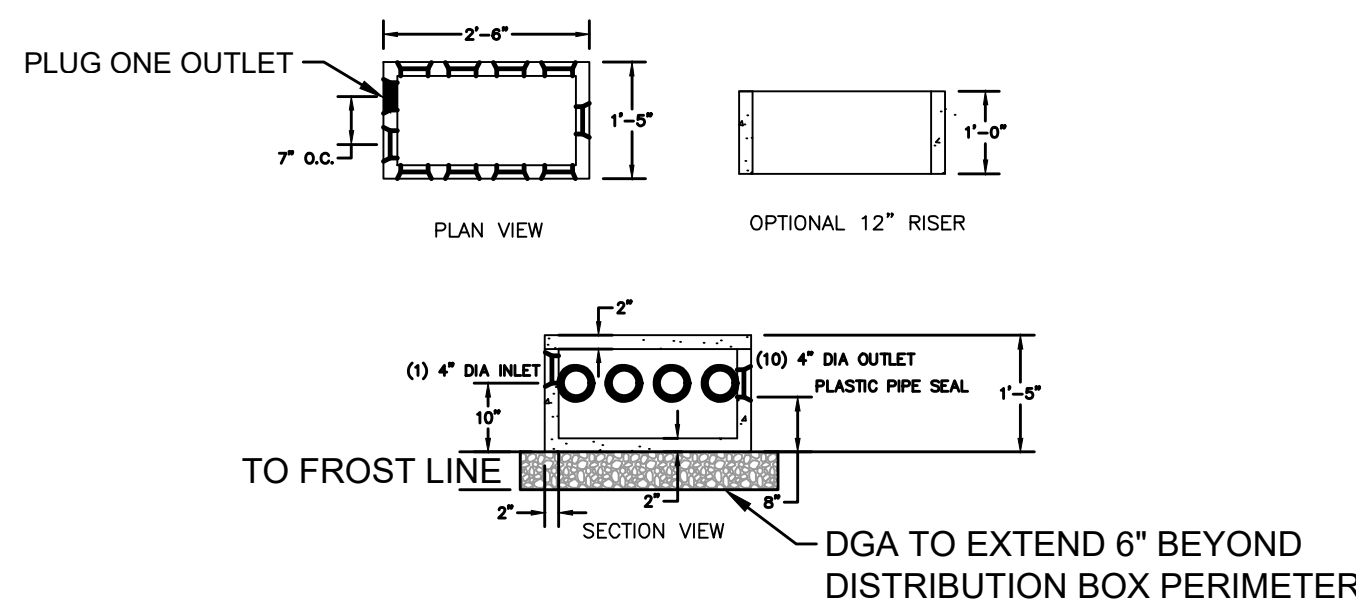
ARH ASSOCIATES
1204/2020 REV PER PINELANDS/ TOWNSHIP COMMENTS
10/20/2020 REVISED PER NDOT COMMENTS

SITE DETAILS FOR
KML BUILDING COPORATION NJ
CARPENTERS UNION CENTER
BLOCK 3510 LOT 1
TOWNSHIP OF MULICA ATLANTIC COUNTY NEW JERSEY

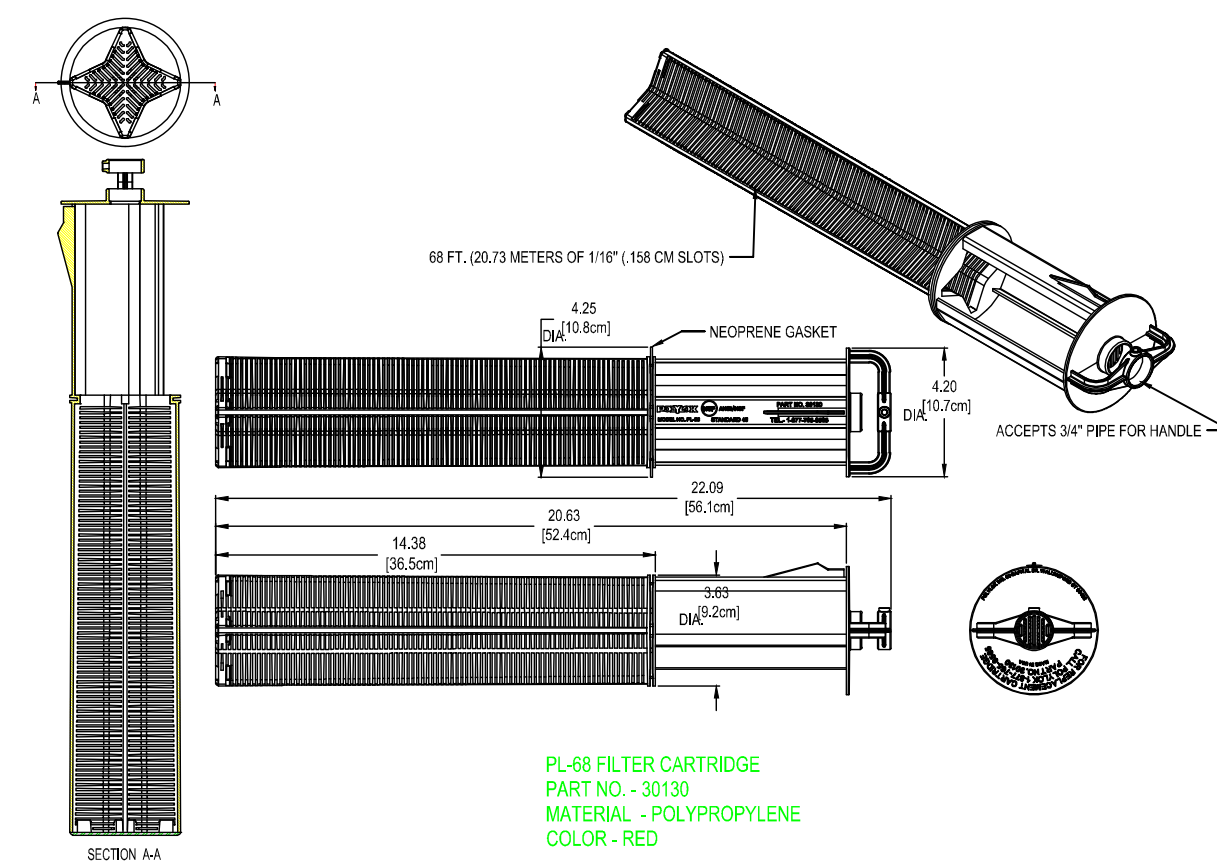
DATE	AUGUST 13TH 2020
SCALE	NTS
DRAWN BY	AJW
CHECKED	TW
PROJ. NO.	50-52714



NOTES:
1. CONTRACTOR SHALL ORDER THE SEPTIC TANK WITH THE
BAFFLE WALL AND TEE
1500 GALLON DOUBLE COMPARTMENT SEPTIC TANK
(NOT TO SCALE)



POLYLOK EFFLUENT FILTER WITH 4" ADAPTER



NOTES:

- GAS/ SLUDGE DEFLECTOR SHALL BE PROVIDED ON THE EFFLUENT FILTER BOTTOM.
- HANDLE MUST BE INCLUDED ON THE FILTER; NO EXCEPTIONS

Specific Requirements for Conventional Field Installations

- d. Excavation shall be carried out in a manner that will avoid unnecessary compaction of the disposal field bottom and sidewalls. Heavy equipment, such as bulldozers or front loaders, shall not be used over the exposed infiltrative surface of the disposal field.
- e. Excavation shall be carried out with a backhoe operating from between disposal trenches or from outside the perimeter of previously excavated portions of the disposal bed. If it becomes necessary to walk on the disposal field bottom, a suitable board shall be laid over the soil to avoid trampling.
- f. Any smeared or compacted soil surfaces which have been produced on the bottom or sidewalls of the excavation shall be removed to expose a fresh soil surface which is rough and uneven.
- g. Work should be scheduled so that the bottom and sidewalls of the excavation will not be exposed to rainfall or wind-blown silt between the time of excavation and the time of final inspection and backfilling.
- h. Any loose soil or debris which is washed into or otherwise deposited within the excavation as a result of the excavation remaining open to the elements shall be carefully removed prior to backfilling.
- The construction of the distribution network shall be in accordance with N.J.A.C. 7:29A-9.5.
- When drainage fabric or untreated building paper is used, the following requirements shall be met:
- Edges of adjacent sheets shall be overlapped by a minimum of six inches.
 - Drainage fabric shall be specified in the engineering plan and shall have adequate tensile strength to prevent ripping during installation and backfilling, adequate air permeability to allow free passage of gases, and adequate particle retention to prevent downward migration of soil particles into the filter material.
 - Use of waterproof paper is prohibited.
5. Backfill and final grading shall be carried out in accordance with the following requirements:
- A minimum of nine inches and no more than 18 inches of backfill shall be placed over the top of the disposal field filter material.
 - Backfill material shall be of earth similar to that found at the site and free of large stones, tree stumps, broken masonry or other waste construction material.
 - In no case shall the backfill material be more permeable than the surrounding soil.
 - Backfill shall completely cover the entire disposal bed or each of the disposal trenches and shall be graded smoothly into the surrounding topography on all sides.
6. The following construction practice shall be used for the placement, grading, compaction, and stabilization of the area over the disposal field:
- Heavy machinery, rubber-tired vehicles or other vehicles exerting a ground pressure in excess of eight pounds per square inch shall not be permitted to pass over the disposal field after the filter material and distribution network have been installed.
 - Tracked equipment may be used for the purpose of backfilling and final grading provided that this equipment does not exert a pressure on the underlying soil in excess of eight pounds per square inch.
 - Final grading shall be completed in accordance with the approved engineering design and in such a manner that surface water will not collect over the disposal field.
 - After completion of backfilling and final grading, the backfilled area over the disposal field shall be seeded or sodded to establish a vegetative cover or otherwise stabilized against erosion in a manner acceptable to the administrative authority.

1. A conventional installation shall be made by placing the disposal bed or each individual disposal trench in an excavation made directly within the natural soil.
2. All rough-grading shall be in accordance with the following requirements:
 - a. Disturbance of the soil surface by vibration, groundability testing, this re-grading shall be carried out in conformance with an engineering design which has been approved by the administrative authority.
3. Excavation of the disposal field shall be in accordance with the following procedures:
 - a. Adequate measures shall be used to insure that the bottom of the disposal bed or each individual trench is level.
 - b. IN soil textures other than sands or loamy sands, excavation which exposes the infiltrative surface of the disposal bed or trench shall be limited to a maximum depth of 12 inches below the limit. This means that when a small lump of soil, taken from the depth of the proposed excavation, can be rolled out with the fingers to form a wire or rod, one-eighth of an inch in thickness, and does not crumble when the fingers are pulled apart, the excavation is within the 12 inch limit.
 - c. Excavation shall be carried out in a manner that will avoid unnecessary compaction of the disposal bed or trench and of the heavy equipment shall be used to compact the disposal bed or trench. The driver of the excavator shall be instructed to operate the disposal field. Excavation shall be carried out with a backhoe operating from disposal trenches or from outside the perimeter of previously excavated disposal trenches. The disposal field shall be excavated in a series of disposal trenches, a suitable board shall be laid over the soil to avoid tramping.
 - d. Any exposed or compacted soil surface which has been produced on the bottom or sidewalls of the excavation shall be covered with a fresh soil surface which is rough and uneven.
 - e. Work should be scheduled so that the bottom and sidewalls of the excavation will not be exposed to the elements for a substantial period of time. The exposed surface of the disposal field shall be backfilling. Any loose soil or debris which is washed into or otherwise deposited within the excavation as a result of the excavation remaining open to the elements shall be removed prior to backfilling.
4. The construction of the distribution network shall be in accordance with NIAC 79A-9.5, when gravity flow or gravity distribution is used. Additional requirements for gravity distribution are:
 - a. Disposal trenches or beds are given in (d)1, and 2 below, respectively.
 - b. Disposal trenches shall be constructed in accordance with the following requirements:
 - 4.1.1. The maximum spacing between distribution lines for gravity distribution shall be three feet.
 - 4.1.2. The minimum width of trenches shall be 1.5 feet
 - 4.1.3. The maximum width of the trenches shall be three feet
 - 4.1.4. There shall be one distribution line per trench
 - c. Disposal beds shall be constructed in conformance with the following requirements:
 - 4.2.1. There shall be a minimum of two distribution lines per disposal bed
 - 4.2.2. The maximum distance from edge of bed to nearest distribution line shall be three feet
 - 4.2.3. The maximum distance from edge of bed to nearest distribution line shall be three feet
 - 4.2.4. The maximum spacing between distribution lines for gravity distribution shall be three feet.
 - 4.2.5. The required spacing between distribution lines for pressure distribution shall be $\frac{1}{2}$ to 1 of the hole spacing.
 - d. The spacing between all distribution lines shall be equal and uniform and
 - e. Holes in pressure distribution lines shall be aligned so that holes in adjacent laterals shall be offset by one-half the hole spacing.
5. Backfill and final grading shall be carried out in accordance with the following requirements:
 - a. A minimum of 12 inches of backfill shall be placed over the top of the disposal field or the disposal field filter material.
 - b. Backfill material shall be of earth similar to that found at the site and free of large stones, tree stumps, roots, or other waste construction material.
 - c. In no case shall the backfill material be more permeable than the surrounding soil.
 - d. Backfill shall be placed in a continuous layer over the disposal trenches and shall be graded smoothly into the surrounding topography on all sides.
6. The following practices shall be followed:
 - a.5.1. Backfilling shall be completed prior to or before vehicles exerting a ground pressure in excess of eight pounds per square inch shall not be permitted to pass over the disposal field after the filter material and disposal trench material have been placed.
 - b.5.2. Tracked equipment may be used for the purpose of backfilling and final grading provided that this equipment does not exert a pressure on the underlying soil in excess of eight pounds per square inch.
 - c.5.3. Final grading shall be completed in accordance with the approved engineering design and in such a manner that the surface of the disposal field is level.
7. After completion of backfilling and final grading, the backfilled area over the disposal field shall be seeded or sodded to establish a vegetative cover or otherwise stabilized against erosion in a manner suitable to the site.

1. The distribution laterals shall consist of lengths of rigid perforated pipe connected with tight joints.
2. Perforation shall be evenly spaced along two rows running the length of the pipe, on each side, midway between the invert and the pipes' horizontal centerlines.
3. Perforations shall be between three-eighths inch and three-quarter inch in diameter.
4. Each individual distribution line shall be approximately level.
5. The maximum slope for the distribution laterals shall be two inches per one hundred feet.
6. Inspection ports shall be provided near the four corners of the disposal bed.
7. Inspection ports shall consist of a perforated pipe with a removable cap extending from the level of infiltration to the finished grade.
8. The following materials are acceptable for distribution laterals:
 - a. Clay pipe, standard and extra strength perforated (ASTM C-211)
 - b. Plastic - Acrylonitrile-Butadiene-Styrene (ABS) (ASTM D-2751)
 - c. Plastic - Polyvinyl Chloride (PVC)(ASTM D-2729, D-3033, D-3034)
 - d. Plastic - Styrene Rubber (ASTM D-2852, D-3298)
 - e. Polyethylene, straight wall (ASTM D-1248)
9. The disposal field shall be installed directly within the native soil or suitable fill material and the level of infiltration shall be from one to three feet below the existing ground surface unless otherwise noted.
10. The lateral lines for a gravity distribution system must abide by the standards as prescribed in N.J.A.C. 7:9A-9.5.

Operation and Maintenance

The system use, inspection, and maintenance work must be conducted as per subchapter §12 of N.J.A.C. 7:9A.

[illegible]

A. **Conditions Where Practice Applies:** This practice is applicable to areas subject to dust blowing and movement where on-site and off-site damage is likely without treatment. Consult with local municipal ordinances on any restrictions.

B. **Water Quality Enhancement:** Sediments deposited as "dust" are often fine colloidal material which is extremely difficult to remove. The practice is designed to stabilize the sediment and prevent it from being blown to contribute to the generation of dust.

C. **Planning Criteria:** The following methods should be considered for controlling dust:

1. **Mulches** – See Standard of Stabilization with Mulches Only.
2. **Vegetative Cover** – Temporary Vegetative Cover, Permanent Vegetative Cover for Soil Stabilization and Permanent Stabilization with Sod.
3. **Spray-On Adhesives** – On mineral soils (not effective on muck soils). Keep traffic off these areas.

MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS/ACRE
Anionic Asphalt Emulsion	7:1	Coarse Spray	1200
Latex Emulsion	12.5:1	Fine Spray	235
Resin in Water	4:1	Fine Spray	300
Polycarlimide (PAM)—spray on Polycarlimide (PAM)—dry spread	Apply according to manufacturer's instructions. May also be used as an additive to sediment basins to flocculate and precipitate suspended solids.		
Acidulated Soy Bean Seed Slurk	None	Coarse Spray	1200

4. **illage** - To roughen surface and bring clods to the surface. This is temporary emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart and spring-toothed harrows are examples of equipment which may produce the desired effect.
5. **Spinning** - Site is sprinkled until the surface is wet.
6. **Barriers** - Solid board fences or fences, barrip fences, crates which may produce the desired effect.
7. **Control** - To control or currents and soil blowing.
8. **Goldium Chloride** - Shall be in the form of loose, dry granules or flakes fine enough to feed through commonly used spreaders at a rate that will keep surface moist but not cause pollution or plant damage. If used on steep slopes, there should be a windbreak when it rains to prevent erosion or accumulation around plants.
9. **Stone** - Cover surface with crushed stone or coarse gravel.

Conditions Where Practice Applies: A stabilized construction exit applies to locations of construction ingress and egress where sediment may be tracked, or flow off, the construction site.

B. Design Criteria:

1. **Stone Size:** Use ASTM C-33, size 2 (2 1/2" to 1 1/2" in) or 3 (2 to 1 in). Use clean crushed angular material. Crushed concrete nominal size similar size may be substituted but will require more frequent upkeeping and maintenance.
2. **Thickness:** not less than six (6) inches.
3. **Width:** not less than full width of paths of ingress or egress.
4. **Length:** 50 feet minimum where the soils are coarse grained (sands or gravels) or 100 feet minimum where soils are fine grained (clays or silts), except where the traveled length is less than 50 or 100 feet respectively. These lengths may be increased where field conditions dictate. Stormwater from up-slope areas shall be diverted away from the stabilized pad. Where diversion is not possible, the length of the stabilized pad shall be as shown in Table 27-1. Where the length of the access is less than 25', a stabilization exit with Hot Mix Asphalt Roadbase, Wix or Aggregate Sub-base shall be installed. The type and thickness of the base course and use of a dense graded aggregate sub-base should be as prescribed by local municipal ordinance or other governing authority.
5. At poorly drained locations, subsurface drainage gravel filter or geotextile shall be installed before installing the stabilized construction entrance.

Table 27-1: Lengths of Construction Exits on Sloping Roadbeds

Percent Slope of Roadway	Length of Stone Required
	Coarse Grained Soils Fine Grained Soils
0 to .2%	50 FT 100 FT
.2 to .5%	50 FT 100 FT
>.5%	Entire surface stabilized with Hot Mix Asphalt Base Course, Wix or Aggregate Sub-base

A. As prescribed by local ordinance or other governing authority.

Percent Slope of Roadway	Length of Stone Required	
	Coarse Grained Solls	Fine Grained Solls
0 to 2%	50 FT	100 FT
2 to 5%	100 FT	200 FT
>5%	Entire surface stabilized with Hot Mix Asphalt Base Course, Mix 1-2'	

6. Where a stabilized construction exit transverse between two buildings, it shall be stabilized the entire length of the right-of-way. Mountable stone berms placed across the width of the exit may also be required to stabilize the exit. Stabilization shall be maintained until the exit is no longer used for the purpose of stormwater flowing along the curbline.
7. Individual lot entrance and egress - After interior roadways are paved, individual lot ingress/egress points shall be stabilized with stone. The stabilization consisting of no. 3 stone (1" to 2" in diameter) to prevent or minimize tracking of sediments. Width of the stone ingress/egress shall be equal to lot entrance width and shall be 10 feet wide for lots less than 1/4 acre.
8. The washing - If space is limited, vehicle tires may be washed with clean water before entering a paved roadway. The washing shall be done in such a way that wash water will not flow onto paved roadways or into any unprotected storm drainage systems.
9. When the construction access exits onto a major roadway, a paved transition area may be installed between the major roadway and the construction site. The transition area shall be paved with stone from the roadway by heavy equipment entering or leaving the site.
10. Maintenance -
 - a. The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto the roadway. Sediment shall be removed from the entrance area by sweeping or blowing. Sediment shall be removed and repaired and/or cleaned up of any measured used to trap sediment. All sediment spilled, dropped, washed, or tracked onto roadways (public or private) or other impervious surfaces must be removed.
 - b. Where accumulation of dust/sediment is inadequately cleaned or removed by conventional methods, a vacuum or air stream shall be used to clean paved or impervious surfaces. All other access points which are not stabilized shall be blocked off.

A. Conditions Where Practice Applies:

1. A storm sewer drainage area is 3 acres or less.
2. A storm sewer or the outlet channel of a storm sewer needs protection from sediment.
3. A storm sewer or the outlet channel of a storm sewer needs maintenance of the storm sewer inlet protection.
4. A traffic hazard will not be created.

B. Conditions Where Practice Does Not Apply:

1. A storm sewer inlet is not required.

B. Water Quality Enhancement – The primary benefit to water quality is the removal of sediment from runoff. Sediment removal is accomplished by the use of the storm sewer inlet protection. Other floatable debris, such as vegetative matter and litter may also be filtered out of the runoff.

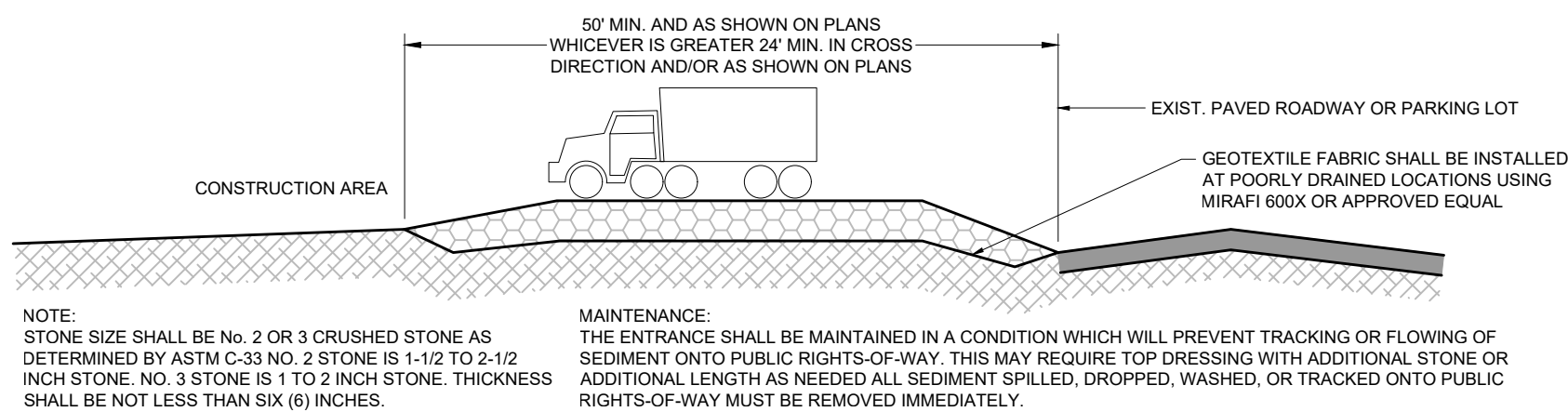
C. Design and Construction:

1. The storm sewer inlet protection must be designed to prevent sediment from entering the storm sewer.
2. Must slow the storm water, provide the coarse sediment particles a chance to settle, and provide an outlet for the water.
3. In all cases, inlet protection should not completely close off the inlet. Provision must be made to allow water to flow through the inlet protection.
4. The protection device will be designed to capture or filter runoff from the 1 year, 24 hour storm event. The inlet protection will be designed to allow the storm sewer to pass the 10 year, 24 hour storm event.
5. Other methods that accomplish the purpose of storm sewer inlet protection may be used if approved by the local authority.
6. Inspections shall be frequent. Maintenance, repair, and replacement shall be made promptly, as needed, to ensure the barrier is effective.

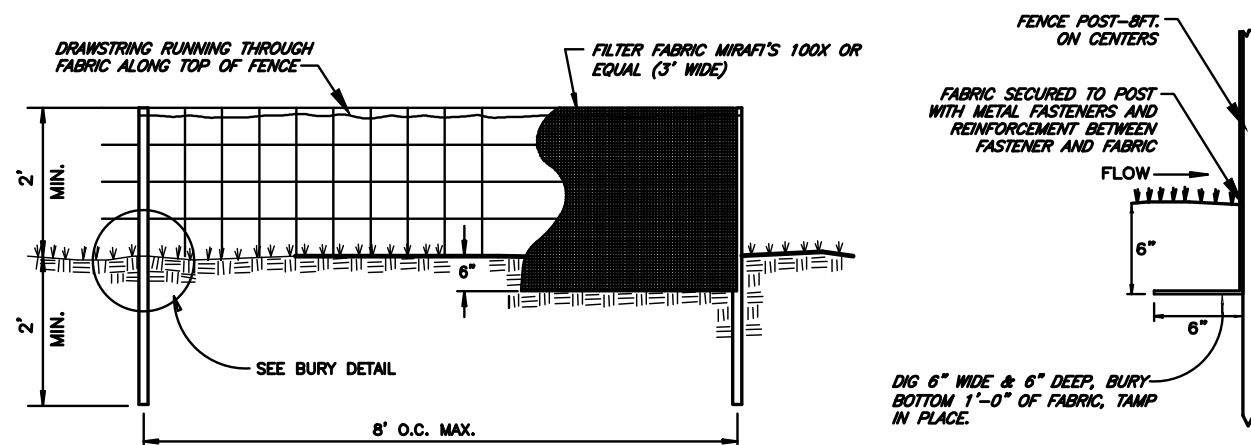
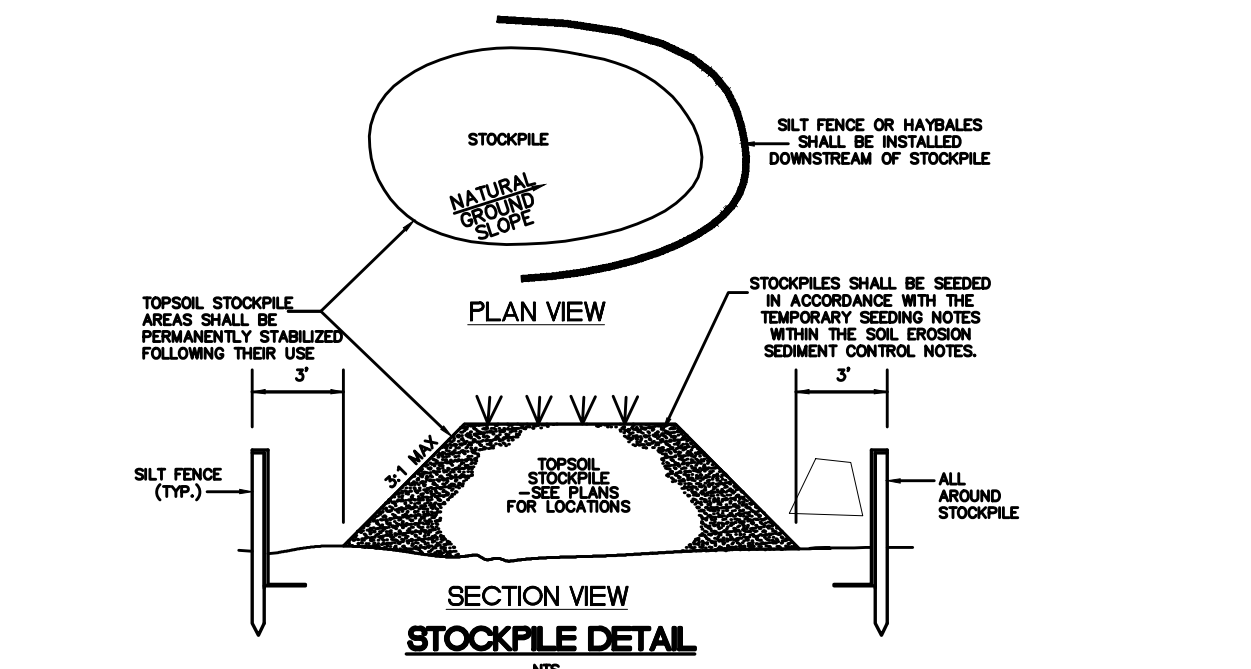
- A. Where Applicable:
 - 1. Any deep where vehicular traffic disturbs the land to the extent of reducing protective vegetation, compacted soils or otherwise deteriorating the environment.
- B. Water Quality Enhancement:
 - 1. Construction of traffic to minimize the degree and loss of protective vegetative cover and minimize the compaction of soils will help to minimize off-site erosion and transportation of associated pollutants.
- C. Planning Criteria:
 - 1. Restrict construction traffic to predetermined routes according to stations and number of vehicles.
 - 2. Use of flagmen or temporary fencing may be helpful.
 - 3. Avoid damage to waterways by construction of suitable crossing facilities and avoid traffic in or along waterways.
 - 4. Predetermine steep banks and vegetative areas to be avoided by traffic.
 - 5. Stop during wet weather should be minimized.
 - 6. Sediment from the wet washing should be retained on site. Water shall be conveyed to a stable outlet.
 - 7. Soil compaction resulting from construction traffic can impact the infiltration rate of the soil. Restoration of compacted soils through deep tilling (6" to 12") and addition of organic matter may be required, in accordance with the standards for topsoil on Land Use Planning, in planned areas to ensure that the disturbed area is restored to its original condition.

Name	Common name	Growth habit	Soil Drainage Tolerance	Height	Seeding rate lbs./acre
Non-Roadside Pinelands Mixture					
<i>Schizachyrium scoparium</i>	Little bluestem	PIB	EXDR-WD	2-3'	5
<i>Dichanthelium clandestinum</i>	Deertongue	PIB	EXDR-SWPD	1-3'	5
<i>Panicum virgatum</i>	Switchgrass	PIB	EXDR-PD	4-6'	5
<i>Chamaecrista fasciculata</i>	Partridge pea	AB	EXDR-WD	3'	5
Recommended Optional Addition (See recommended Pinelands species for mixture augmentation. Not for Roadsides)					
<i>Andropogon virginicus</i>	Broomsedge	PIB	EXDR-SWPD	18"-3'	5
<i>Solidago bicolor</i>	White (Silver rod) Goldenrod	P	EXDR-WD	1-4'	5
<i>Lespedeza capitata</i>	Roundheaded bushclover	PIB	EXDR-WD	2-4'	2
<i>Baptisia tinctoria</i>	Wild indigo	PIB	EXDR	1-3'	5
<i>Carex pensylvanica</i>	Pennsylvania sedge	PIS	EXDR-WD	16"	Plugs
Temporary Seeding/Nurse Crops (choose one as a nurse crop where quick germination is needed)					
<i>Hordeum vulgare</i>	Barley	AsB	EXDR-WD	8"-3'	30
<i>Avena sativa</i>	Oats	AB	EXDR-WD	1-3'	30
<i>Elymus canadensis</i>	Canada wildrye	PsB	WD-MWD	3-6'	30
Roadside Native Seed Mixture					
<i>Schizachyrium scoparium</i>	Little bluestem	PIB	EXDR-WD	2-3'	5
<i>Dichanthelium clandestinum</i>	Deertongue	PIB	EXDR-SWPD	1-3'	5
<i>Chamaecrista fasciculata</i>	Partridge pea	AB	EXDR-WD	3'	5
Cool Season Turf Mixture					
<i>Festuca longifolia</i>	Hard fescue	PIB	EXWD-WD	2-3'	50
<i>Festuca rubra ssp. rubra</i>	Strong Creeping red fescue	PIB	EXWD-WD	1-2'	50
<i>Festuca rubra ssp. fallax</i>	Chewings fescue	PIB	EXWD-MWD	1-2'	50
<i>Lolium perenne</i>	Turf-type perennial ryegrass	PsB	EXWD-WD	1-2'	50

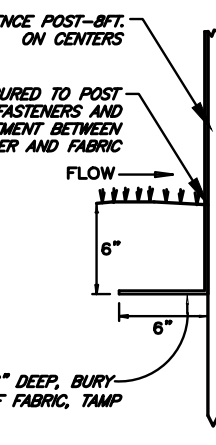
Growth Habit	Soil Drainage Tolerance
A-Annual	EXDR-Excessively drained
P-Perennial	WD-Well-drained
L-Long lived	MWD-Moderately well-drained
S-short lived	SWPD-Somewhat poorly drained
R-rhizomatous	PD-Poorly drained
S-stoloniferous	
B-bunch	



N.T.S.



2.2



1. SOIL COMPACTION TESTING REQUIREMENTS

A. SUBGRADE SOILS PRIOR TO THE APPLICATION OF TOPSOIL (SEE PERMANENT SEEDING AND STABILIZATION NOTES FOR TOPSOIL APPLICATION) SHALL BE FREE OF EXCESSIVE COMPACTION TO A DEPTH OF 6.0 INCHES TO ENHANCE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.

B. AREAS OF THE SITE WHICH ARE SUBJECT TO COMPACTION TESTING AND/OR MITIGATION ARE GRAPHICALLY DENOTED ON THE CERTIFIED SOIL EROSION CONTROL PLAN.

C. COMPACTION TESTING SHALL BE DENIED ON THE PLAN. LOCATION IT'S SHALL BE USED TO COMPLETE THE COMPACTION REMEDIATION FORM AVAILABLE FROM THE LOCAL SOIL COMPACTION DISTRICT. THIS FORM MUST BE FILLED IN AND SUBMITTED TO THE DISTRICT WITHIN 10 BUSINESS DAYS OF THE TESTING.

D. IN THE EVENT THAT TESTING INDICATES COMPACTION IN EXCESS OF THE MAXIMUM THRESHOLDS INDICATED FOR THE SIMULATED TESTING METHODS (SEE DETAILS BELOW), THE CONTRACTOR/OWNER SHALL HAVE THE OPTION TO: (1) PROVIDE ANOTHER MITIGATION AREA DETERMINED BY THE DISTRICT, (2) PROVIDE ANOTHER MITIGATION AREA (EXCLUDING EXEMPT AREAS), OR (3) PERFORM ADDITIONAL MORE DETAILED TESTING TO ESTABLISH THE LIMITS OF EXCESSIVE COMPACTION. ADDITIONAL DETAILED TESTING SHALL BE PERFORMED BY A TRAINED, LICENSED PROFESSIONAL COMPACTION MITIGATION SPECIALIST.

2. COMPACTION TESTING METHODS

A. PROBING WIRE TEST (SEE DETAIL).

B. HAND-HELD PENETROMETER TEST (SEE DETAIL).

C. TUBE BULK DENSITY TEST (LICENSED PROFESSIONAL REQUIRED).

D. NUCLEAR DENSITY TEST (LICENSED PROFESSIONAL REQUIRED).

E. NOTE: ADDITIONAL TESTING METHODS WHICH CONFORM TO ASTM STANDARDS AND SPECIFICATIONS, AND WHICH PROVIDE A DRY WEIGHT, SOIL BULK DENSITY MEASUREMENT MAY BE ALLOWED SUBJECT TO DISTRICT APPROVAL.

F. DETAILED REQUIREMENTS FOR EACH COMPACTION TESTING METHOD CAN BE FOUND IN SECTION 19, "STANDARD FOR SOIL GRADATION AND COMPACTION" STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION.

G. SOIL COMPACTION TESTING IS NOT REQUIRED IF/ WHEN SUBSOIL COMPACTION REMEDIATION (OCCASIONARY/ TILLAGE [3" MINIMUM DEPTH] OR SIMILAR) IS PROPOSED AS PART OF THE SEQUENCE OF CONSTRUCTION.

1. PROCEDURES SHALL BE USED TO MITIGATE EXCESSIVE SOIL COMPACTION PRIOR TO PLACEMENT OF TOPSOIL AND ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.

2. RESTORATION OF COMPACTED SOILS SHALL BE THROUGH DEEP SCARIFICATION / TILLAGE (6" MINIMUM DEPTH) WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.). IN THE ALTERNATIVE, ANOTHER METHOD AS SPECIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER MAY BE SUBSTITUTED SUBJECT TO DISTRICT APPROVAL.

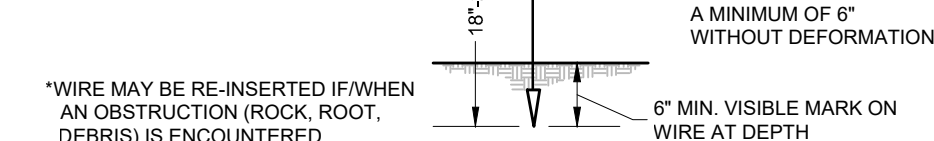
NOTE: SOIL SHOULD BE MOIST BUT NOT SATURATED. DO NOT TEST WHEN SOIL IS EXCESSIVELY DRY OR SUBJECT TO FREEZING TEMPERATURES. SLOW, STEADY DOWNWARD PRESSURE USED TO ADVANCE THE WIRE.



21"

HOLD WIRE HERE:

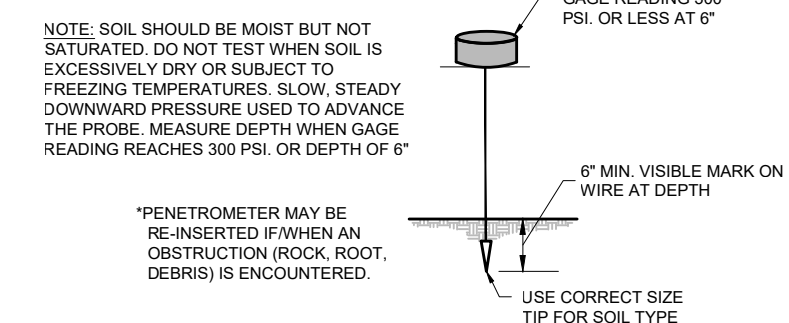
WIRE MUST PENETRATE



*WIRE MAY BE RE-INSERTED IF/W
AN OBSTRUCTION (ROCK, ROOT
DEBRIS) IS ENCOUNTERED

15.5 GA. STEEL WIRE (SURVEY FLAG)
N.T.S.

NOTE: SOIL SHOULD BE MOIST BUT NOT SATURATED. DO NOT TEST WHEN SOIL IS EXCESSIVELY DRY OR SUBJECT TO FREEZING TEMPERATURES. SLOW, STEADY DOWNWARD PRESSURE USED TO ADVANCE THE PROBE. MEASURE DEPTH WHEN GAGE READING REACHES 300 PSI. OR DEPTH OF



*PENETROMETER MAY BE RE-INSERTED IF/WHEN AN OBSTRUCTION (ROCK, ROOT DEBRIS) IS ENCOUNTERED.

NOTE: DETAIL TO BE USED
FOR ANY DISTURBED
AREA THAT IS NOT
BEING IMPROVED WITH
IMPERVIOUS COVER

MATCH EXISTING CONDITIONS
OR PROPOSED FINISHED GRADES
AS APPLICABLE

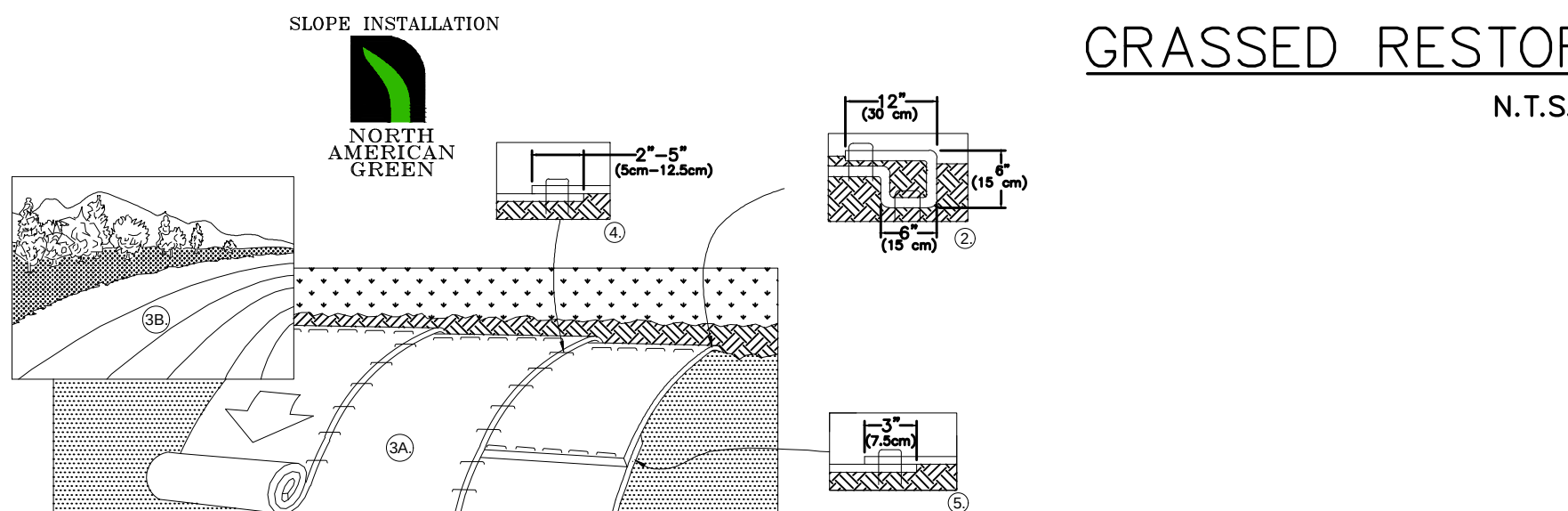
- LIME, FERTILIZE AND SEED
IN ACCORDANCE WITH THE
PERMANENT SEEDING MIXTURE
ON THE SCD NOTES EXCEPT
AT LANDSCAPE AREAS(SEE N

— PLACE 5" THICK
TOP SOIL LAYER

— NATURAL UNDISTURBED
SUBGRADE OR COMPACTED
SUBBASE MATERIAL

AS PER SCD PERMIT AND DE-COMPACTION RULES, TILL ALL AREAS AND COURTYARDS DOWN EIGHT (8) INCHES, COMPLETE COMPACTION TESTING, AND THEN PLACE A LAYER OF 5-INCHES OF TOPSOIL, LOOSE, WITHOUT COMPACTION.

N.T.S.



*2"-5" (5cm-12.5cm) → || ← ← || ← *2"-5" (5cm-12.5cm)

- [illegible]

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

*Location of Seam Stitch™ will vary depending on North American Green product type

NTS

GENERAL SOIL EROSION NOTES:

- All soil erosion vegetative & structural standard noted on this sheet are portions of the complete standards found in the manual entitled, "The Standards for Soil Erosion and Sediment Control in New Jersey," 7th Edition dated January 2014*. For the entirety of the standard, the contractor shall refer to this manual. The above Standards are being referenced in these notes where the "7th Edition Manual" is noted.
- All soil erosion and sediment control details shall be constructed and maintained in accordance with the manual entitled, "The Standards for Soil Erosion and Sediment Control in New Jersey," 7th Edition dated January 2014* and each specific plan detail. If there are any discrepancies between the detail and the standards, the standard shall govern.

SOIL EROSION VEGETATION STANDARD NOTES:

STANDARD FOR HIGH MANAGEMENT OF ACID-PRODUCING SOILS

Where Applicable

This practice is applicable to any high acid-producing soil materials. Such materials have been found in the Coastal Plain areas of Burlington, Camden, Cumberland, Gloucester, Mercer, Middlesex, Monmouth, Ocean, Salem and Somerset Counties.

Planting Criteria

Early recognition and burial, removal or disposal of high acid-producing soils is essential for limiting the amount of acidic material produced. Review a surface geology map for the proposed site to investigate the presence of geologic formations which commonly contain high acid-producing deposits.

Contact the local Soil Conservation District to determine the historical presence of high acid-producing soils in the vicinity of the proposed development site.

High acid-producing soils may be present in undisturbed soils at varying depths, including near the soil surface to excavation or deep disturbances. Its presence on a site may be obvious or limited in the soil profile. High acid-producing soils are commonly black, dark brown, gray or greenish with silvery gray or maroonish ruggles or flakes. Alternatively, sandy soils are reddish, yellowish or light to medium brown soil materials are usually free of high acid-producing deposits.

Methods and Materials

- Limit the excavation area and exposure time when high acid-producing soils are encountered.
- Topsoil stripped from the site shall be stored separately from temporally stockpiled high acid producing soils.
- Stockpiles of high acid-producing soil shall be located on level land to minimize its movement, especially when it is exposed to high wind or heavy rain.
- Temporarily stockpiled high acid-producing soil material to be stored more than 48 hours should be covered with properly selected, heavy grade soil or other material. Stockpiles shall be covered with a minimum of 6 inches of material. The material shall be covered with a minimum of 3 to 6 inches of wood chips to minimize erosion of the stockpile. Silt fence shall be installed at the toe of the slope to contain movement of the stockpiled material. Topsoil shall not be applied to the stockpiles to prevent topsoil contamination with high acid-producing soil.
- High acid-producing soils with a pH of 4.0 or less or containing iron sulfide (including brown from cuts or dredged sediment) shall be ultimately placed or buried with limestone applied at the rate of 10 tons per acre or (450 pounds per 1,000 square feet of surface area) and covered with a minimum of 12 inches of mulch and other management practices as described as follows:
 - Areas where trees or shrubs are to be planted shall be covered with a minimum of 24 inches of soil with a pH of 5.0 or more.
 - Disposal area shall not be located within 24 inches if any surface of a slope or bank, such as berms, stream banks, ditches, and others, to prevent potential lateral leaching damages.
- Equipment used for moving soils of high acid-producing soils should be cleaned at the end of each day to prevent spreading of high acid-producing soil materials to other parts of the site, into streams or stormwater conveyances, and to protect machinery from accelerated rusting.
- Non-vegetative erosion control practices (stone tracking pads, strategically placed limestone check dam, sediment barrier, wood chips) should be installed to limit the movement of high acid-producing soils from, around, or off the site.
- Following burial or removal of high acid-producing soil from the site (see Temporary Vegetative Cover for Soil Stabilization, Permanent Vegetative Cover and Soil Stabilization, and Topsoiling), monitoring must continue for a minimum of 6 months to ensure there is adequate stabilization and that no high acid-producing soil problems emerge. If problems still exist, the affected area must be treated as indicated above to correct the problem.

STANDARD FOR DUNE STABILIZATION

Where Applicable

This practice is applicable along ocean and bay shorelines where blowing sands and storm waves may cause erosion damage. Sand at least one hundred feet (horizontal distance) from mean high tide line (MHT)

Methods and Materials

- Sand dunes form on barrier islands, shorelines exposed directly to the ocean, and inland sand deposits. The source of the sand is from the sand in the ocean or its bays. These parallel ridges of sand form perpendicular to prevailing winds and grow toward the source of sand. Periodic storm events and human activity continually alter their development and original configuration. Once developed, the sand dunes provide protection from moderate storms and tides. The existence and maintenance of vegetation on dunes provides a network of root and foliage which holds unconsolidated sand in place. American beachgrass is dominant, naturally the natural vegetation of the barrier islands of Jersey. When beachgrass is established with structural resources and other dune species, a formidable well anchored storm barrier is established. Refer to the Standards for Soil Erosion and Sediment Control in New Jersey (7th Edition, January 2014) for additional information regarding vegetation stabilization and sand fencing.
- Preventative maintenance program anticipates requirements and accomplishes what can be done with least effort and expense to insure adequate cover.
- Maintenance should occur on a regular basis, consistent with significant plant growth, soil, and climatic conditions. This involves regular seasonal work for mowing, fertilizing, lining, watering, pruning, fire control, weed and pest control, reseedling, and timely repairs.
- The degree of preventative maintenance needed depends upon the type of vegetation and its proposed function or use.

- Mowing is a recurring practice and its intensity depends upon the function of the ground cover. On high to moderate (A to B) maintenance areas, such as lawns, certain recreation areas, mowing will be frequent (2 to 7 day intervals) and typically at a height of 2.5 to 3 inches. Return clippings from mowing (mowing) must be left to the turf to reduce the amount of fertilizer needed to maintain the turf by as much as 50%. Some turf mixtures can be managed as naturalized areas requiring only one (one) mowing per year. Mowing of naturalized areas is typically done at heights no less than 4 inches and should not be less than between April 1st and July 15th to avoid disturbing root nesting and soil erosion. Mowing of naturalized areas is typically done at heights no less than 4 inches and should not be less than between April 1st and July 15th to avoid disturbing root nesting and soil erosion. Mowing of naturalized areas is typically done at heights no less than 4 inches and should not be less than between April 1st and July 15th to avoid disturbing root nesting and soil erosion.
- Incorporation of organic matter (compost) into the soil will substantially reduce the need for fertilizer and irrigation inputs.
- Fertilizer and lime should be applied as needed to maintain a dense stand of desirable species. Frequently mowed areas and those on sandy soils will require more frequent fertilization but at a lower nutrient rate per application.
- Lime requirement should be determined by soil testing every 2 or 3 years. Fertilization may increase the need for lime. Contact the local county office for details on soil testing and fertilization and pest control recommendations online at <http://nj.rutgers.edu/cu/>.
- Fertilization and additions of other amendments are not recommended for managing native vegetation such as in the Pinelands National Reserve. The Standards for Soil Stabilization for specific requirements in the PNR.
- Weed invasion may result from abusive mowing and from inadequate fertilizing and liming. Many newly established grasses will not survive if mowed at heights below 2.5 inches and an intervals greater than 7 days. Brush invasion is a common consequence of lack of mowing. The amount of weeds or brush that can be tolerated in any vegetated area depends upon the intended use of the land. Drainage ways are subject to rapid infestation by weed and woody plants. These should be controlled as they often reduce drainage way efficiency. Control of weeds or brush is accomplished by using herbicides or mechanical methods.
- Fire hazard is greater where dry vegetation has accumulated. The taller the vegetation, the greater the hazard.
- Prune trees and shrubs to remove dead limbs. Remove undesirable or invasive plants to maintain integrity of the landscape and enhance quality of permanent vegetation cover.

STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

* See Seeding Chart on Sheet 16 for type and rate for seed placement**

Methods and Materials (Areas other than Pinelands National Reserve)

- Site Preparation:
 - Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and much anchoring. All grading should be done in accordance with Standard for Land Grading (see 7th Edition Manual).
 - Immediately prior to seeding and topsoil application, the subsoil shall be evaluated for compaction in accordance with the Standard for Land Grading (see 7th Edition Manual).
 - Topsoil shall 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. See Standards 11 through 42.
- Seeded Preparation:
 - Uniformly apply ground limestone and fertilizer to which have been spread and firm, according to soil test recommendations such as offered by Rutgers Co-operative Extension Soil sample materials are available from the local Rutgers Co-operative Extension. 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 nutrient 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 for seedbed preparation and repeat the 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-tongue harrow, or other suitable equipment. The final harrowing or disk operation should be on the general contour. Continue tillage until a reasonably uniform seedbed is prepared.
 - High acid producing soil. Soil having a pH of 4.0 or less or containing iron sulfide shall be covered with a minimum of 12 inches of soil having a pH of 5.0 or more before installing seeded preparation. See Standard for Management of High Acid-Producing Soils for specific requirements.
- Seeding:
 - Select a mixture from Table 4-3 in the 7th Edition Manual or use a mixture recommended by Rutgers Cooperative Extension and Natural Resources Conservation Service which is approved by the Soil Conservation District. Seed germination shall have been tested within 12 months of the planting date. No seed shall be accepted with a germination test date more than 12 months old unless retested. See applicable USDA Plant Hardiness Zone Map for New Jersey for planting dates.
 - Seeding rates specified are required when a report of compaction is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in rates may be used when permanent vegetation is established prior to a report of compaction. These rates apply to all methods of seeding. Establishing permanent vegetation means 80% vegetative coverage with the specified seed mixture for the seeded area and moved once.
 - Warm-season mixtures are grasses and legumes which maximize growth at high temperatures, generally 85°F and above. See Table 4-3 mixtures 1 to 7. Planting rates for warm-season shall be the amount of Pure Live Seed (PLS) as determined by germination testing results.
 - Cool-season mixtures are grasses and legumes which maximize growth at temperatures below 65°F. Warm-season grasses become active at 65°F. See Table 4-3, mixtures 8-20. Adjustment of planting rates to compensate for the amount of PLS is not required for cool season grasses.
 - Conventional Seeding is performed by applying seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or cultipacker seeder. Except for drilled, hydroseeded or cultipacked seedings, seed shall be incorporated into the soil within 24 hours of seedbed 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, firming the soil with a corrugated roller will assure seed-to-soil contact, restore capillarity, and improve seeding 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 usually involving a truck, or trailer-mounted tank, with an agitation system and hydraulic pump for forcing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short-bored mulch may be applied with a hydroseeder 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 in 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: Untreated small grain straw, hay free of seeds, to be 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 crimper is used instead of a liquid mulch-binder (backfilling or adhesive agent), a 3 tons per acre. Much chopper-blowers must not be used to apply straw. Straw shall be applied in a criss-cross and a square pattern. Secure twine around each peg with two or more turn rounds.
 - Plastic Netting: Staple paper, cotton, or plastic netting over mulch. Use a minimum of 24 inches of netting in areas to be mowed. Netting is usually available in rolls 4 feet wide and up to 300 feet long.
 - Crimper Mulch Anchoring Coupler Tool: A tractor-drawn implement especially designed to punch and anchor mulch into the soil surface. This practice affords maximum erosion control, but its use is limited to those slopes upon which the tractor can operate safely. Soil penetration should be about 3 to 4 inches. On sloping land, the operation should be on the contour.
 - Liquid Mulch Binders: May be used to anchor salt hay, hay or straw mulch.
 - Applications should be heavier at edges where wind catches the mulch in valleys, and at crests of banks. The remainder of the area should be uniform in appearance.
 - (b) Use of the following:
 - (i) Organic and Vegetable Based Binders - Naturally occurring, powder-based, hydrophilic materials when mixed with water formulates a gel and when applied to much under satisfactory curing conditions will form a membrane network of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in phytotoxic effect or impede growth of turf grass. Use at rates and weather/conditions as recommended by the manufacturer to anchor mulch materials. Many new products are available, some of which may need further evaluation for use in this state.
 - (ii) Synthetic Binders: High polymer synthetic emulsion, miscible with water when diluted and following application of mulch, drying and curing, shall no longer be soluble or dispersible in water. Binder shall be applied at rates recommended by the manufacturer and remain tacky until germination of grass. Note: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products.
 - (c) Organic and Vegetable Based Binders - Naturally occurring, powder-based, hydrophilic materials when mixed with water formulates a gel and when applied to much under satisfactory curing conditions will form a membrane network of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turf grass. Use at rates and weather/conditions as recommended by the manufacturer.
 - (d) Synthetic Binders: High polymer synthetic emulsion, miscible with water when diluted and following leave part standing upright. The technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 tons per acre. No tackifying or adhesive agent is required.

STANDARD FOR PERMANENT STABILIZATION WITH MULCH ONLY

Where Applicable

- This practice is applicable to areas subject to erosion, where the season and other conditions may not be suitable for growing an erosion-resistant cover where stabilization is needed for a short period until more suitable protection can be applied.
- Methods and Materials:
 - Site Preparation:
 - Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and much anchoring. All grading should be done in accordance with Standard for Land Grading (see 7th Edition Manual).
 - 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, in the 7th Edition Manual.
 - Protection Materials:
 - Straw or Hay: Untreated small grain straw, hay free of seeds, to be 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 crimper is used instead of a liquid mulch-binder (backfilling or adhesive agent), a 3 tons per acre. Much chopper-blowers must not be used to apply straw. Straw shall be applied in a criss-cross and a square pattern. Secure twine around each peg with two or more turn rounds.
 - Plastic Netting: Staple paper, cotton, or plastic netting over mulch. Use a minimum of 24 inches of netting in areas to be mowed. Netting is usually available in rolls 4 feet wide and up to 300 feet long.
 - Crimper Mulch Anchoring Coupler Tool: A tractor-drawn implement especially designed to punch and anchor mulch into the soil surface. This practice affords maximum erosion control, but its use is limited to those slopes upon which the tractor can operate safely. Soil penetration should be about 3 to 4 inches. On sloping land, the operation should be on the contour.
 - Liquid Mulch Binders:
 - Applications should be heavier at edges where wind catches the mulch in valleys, and at crests of banks. The remainder of the area should be uniform in appearance.
 - (b) Use of the following:
 - (i) Organic and Vegetable Based Binders - Naturally occurring, powder-based, hydrophilic materials when mixed with water formulates a gel and when applied to much under satisfactory curing conditions will form a membrane network of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turf grass. Use at rates and weather/conditions as recommended by the manufacturer.
 - (ii) Synthetic Binders: High polymer synthetic emulsion, miscible with water when diluted and following leave part standing upright. The technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 tons per acre. No tackifying or adhesive agent is required.

STANDARD FOR PERMANENT STABILIZATION WITH MULCH ONLY

Where Applicable

- This practice is applicable to areas subject to erosion, where the season and other conditions may not be suitable for growing an erosion-resistant cover where stabilization is needed for a short period until more suitable protection can be applied.
- Methods and Materials:
 - Site Preparation:
 - Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and much anchoring. All grading should be done in accordance with Standard for Land Grading (see 7th Edition Manual).
 - 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, in the 7th Edition Manual.
 - Protection Materials:
 - Straw or Hay: Untreated small grain straw, hay free of seeds, to be 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 crimper is used instead of a liquid mulch-binder (backfilling or adhesive agent), a 3 tons per acre. Much chopper-blowers must not be used to apply straw. Straw shall be applied in a criss-cross and a square pattern. Secure twine around each peg with two or more turn rounds.
 - Plastic Netting: Staple paper, cotton, or plastic netting over mulch. Use a minimum of 24 inches of netting in areas to be mowed. Netting is usually available in rolls 4 feet wide and up to 300 feet long.
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 - Liquid Mulch Binders:
 - Applications should be heavier at edges where wind catches the mulch in valleys, and at crests of banks. The remainder of the area should be uniform in appearance.
 - (b) Use of the following:
 - (i) Organic and Vegetable Based Binders - Naturally occurring, powder-based, hydrophilic materials when mixed with water formulates a gel and when applied to much under satisfactory curing conditions will form a membrane network of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turf grass. Use at rates and weather/conditions as recommended by the manufacturer.
 - (ii) Synthetic Binders: High polymer synthetic emulsion, miscible with water when diluted and following leave part standing upright. The technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 tons per acre. No tackifying or adhesive agent is required.

- Pelletized 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. Pelletized 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 weedseed free mulch is desired, or on sites where straw mulch and tackifier agent are not practical or desirable. Applying the 0.2 to 0.4 inches of water after spreading pelletized mulch on the seed bed is extremely important for sufficient activation and expansion of the mulch to proper coverage.

VIII. STANDARD FOR TOPSOILING

- Definition:

Topsoiling entails the distribution of suitable quality soil on areas to be vegetated.
- Purpose:

To improve the soil medium for plant establishment and maintenance.
- Water Quality Enhancement:

Growth and establishment of a vigorous vegetative cover is facilitated by topsoil, preventing soil loss by wind and rain runoff and into streams and other stormwater conveyances.
- Where Applicable:

Topsoil shall be used where soils are to be disturbed and will be re-vegetated.
- Methods and Materials:
 - Materials:

Topsoil should be friable, loamy, free of debris, objectionable weeds and stones, and contain no toxic substance or adverse chemical or physical condition that may be harmful to plant growth. Suitable soils shall not be excessive (conductivity less than 1500 micro mhos per centimeter. More than 0.5 millimhos may indicate seedlings and adversely impact growth.) Imported topsoil shall have a minimum organic matter content of 2.5 percent. Organic matter content may be raised by additives.
 - Substrate is a soil material which may have been amended with wood, silt, clay, organic matter, fertilizer or lime and has the appearance of topsoil. Topsoil substitutes may be utilized on sites with insufficient topsoil for establishing permanent vegetation. All topsoil substitute materials shall meet the requirements of topsoil noted above. Soil tests shall be performed for used conditions, subsoil should be tested for lime requirement (pH), and topsoil should be tested for pH level.
 - Strippling and Stockpiling:

Field exploration should be made to determine whether quantity and/or quality of surface soil justifies strippling.

Strippling shall be confined to the immediate construction area.

Where feasible, lime may be applied before strippling at a rate determined by soil tests to bring the soil pH to approximately 6.0.
 - A 4-6 inch strippling depth is common, but may vary depending on the particular soil.
 - Stockpiles of topsoil should be situated so as to not obstruct natural drainage or cause off-site environmental damage.
 - Employ needed erosion control practices such as diversions, grade stabilization structures, channel stabilization measures, sedimentation basins, and waterways. See Standards 11 through 42.
 - Site Preparation:

Immediately proceed to establish vegetative cover in accordance with the specified seed mixture. Time is of the essence.
 - Topsoil should be handled only when it is dry enough to work without damaging soil structure, i.e., less than field capacity (see glossary).
 - Apply topsoil to a depth of 5.0 inches, minimum of 4 inches, firmed in place is required. Alternative depths may be considered where special regulatory and/or industry design standards are appropriate such as golf courses, sports fields, landfill capping, etc. Soils with a pH of 4.0 or less or containing iron sulfide shall be covered with a minimum depth of 12 inches of soil having a pH of 5.0 or more before topsoiling. See Standard for Management of High Acid-Producing Soils for specific requirements.
 - Pursuant to the requirements in Section 7 of the Standard for Permanent Vegetative Stabilization, the contractor is responsible to ensure that permanent vegetative cover develops and establishes at a minimum of 80% of the seeded area. Failure to establish permanent vegetative cover may require additional work to be performed by the contractor to include some or all of the following: supplemental seeding, re-application of lime and fertilizers, and/or the addition of additional topsoil. The same technique can be used to anchor mulch in water-carrying channels and other critical areas. Wire staples must be used to anchor netting in channel work.
 - Immediately following installation, should be watered until water penetrates the soil layer beneath soil to a depth of 1 inch. Maintain optimum water for at least two weeks.
 - Topdressing:
 - Since soil organic matter and slow release nitrogen fertilizer (where insoluble) are prescribed in Sections 1 and 2 in this standard, a follow-up topdressing is not mandatory, except where group nutrient deficiency exists in the soil to the extent that turf failure may develop, topdressing shall then be applied. Topdress with 10-10-10 or equivalent at 400 pounds per acre or 7 pounds per 1,000 square feet every 3 to 5 weeks until the gross nitrogen deficiency in the turf is ameliorated.

- Work lime and fertilizer into the topsoil as nearly as practical to a depth of 4 inches with a disc, spring-tongue harrow, or other suitable equipment. The final harrowing or disk operation should be on the general contour. Continue tillage until a reasonably uniform seedbed is prepared.
- Remove from the surface any material that would prevent good soil to topsoil contact and remove all other debris, such as wire, cable, tree roots, pieces of concrete, clods, lumps, or other unsuitable material.
- Inspect site just before seeding. If traffic has left the soil compacted, the area must be re-limed and firmed in accordance with the above.
- Site Preparation:
 - Soil strips should be laid on the contour, never up and down the slope, starting at the bottom of the slope and working up. On steep slopes, the use ofadders will facilitate the work and prevent damage to the seed. During periods of high temperature, lightly irrigate the soil immediately prior to sowing the seed.
 - Place soil strips with angles even joints (seams) that are staggered. Open spaced inside erosion.
 - Lightly roll or tamp soil immediately following placement to insure solid contact of root mat and soil surface. Do not overlap soil. All joints should be butt-jointed to prevent voids which would cause drainage of the roots and invasion of weeds.
 - On slopes greater than 3 to 1, secure soil to surface soil with wood pegs, wire staples biodegradable plastic strips, or split shingles (8 to 10 inches long by 1/4 inch wide).
 - Surface water control always be directed away from the face of the slope, but a capping strip of heavy clay or plastic netting, properly secured, along the crown of the slope and edges will provide extra protection against lifting and undercutting of the soil. The same technique can be used to anchor mulch in water-carrying channels and other critical areas. Wire staples must be used to anchor netting in channel work.
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 - Topdressing:
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 - Immediately following installation, should be watered until water penetrates the soil layer beneath soil to a depth of 1 inch. Maintain optimum water for at least two weeks.
 - Topdressing:
 - Since soil organic matter and slow release nitrogen fertilizer (where insoluble) are prescribed in Sections 1 and 2 in this standard, a follow-up topdressing is not mandatory, except where group nutrient deficiency exists in the soil to the extent that turf failure may develop, topdressing shall then be applied. Topdress with 10-10-10 or equivalent at 400 pounds per acre or 7 pounds per 1,000 square feet every 3 to 5 weeks until the gross nitrogen deficiency in the turf is ameliorated.

IX. STANDARD FOR LAND GRADING

- Definition:

Grading is the ground surface by grading to planned elevations which are determined by topographic survey and layout.
- Purpose:

The practice is for one or more of the following: Provide more suitable sites for land development; improve surface drainage and control erosion.
- Conditions Where Practice Applies:

This practice is applicable where the grading to planned elevations is practical and it is determined that grading is needed. Grading that involves the disturbances of vegetation over large areas shall be avoided. It may be necessary to provide for temporary stabilization of large areas.
- Water Quality Enhancement:

Proper grading of disturbed sites will protect against soil loss from erosion, enhance establishment of permanent vegetative cover and help to properly manage stormwater runoff all of which will reduce off-site discharge of pollutants.
- The grading plan and installation shall be based upon adequate topographic surveys and investigations. The plan is to show the location, slope, cut, fill and final elevation of the surface to be graded. The plan should also include auxiliary practices for erosion control. The same technique can be used to anchor mulch in water-carrying channels and other critical areas. Wire staples must be used to anchor netting in channel work.
- Immediately following installation, should be watered until water penetrates the soil layer beneath soil to a depth of 1 inch. Maintain optimum water for at least two weeks.
- Topdressing:
 - Since soil organic matter and slow release nitrogen fertilizer (where insoluble) are prescribed in Sections 1 and 2 in this standard, a follow-up topdressing is not mandatory, except where group nutrient deficiency exists in the soil to the extent that turf failure may develop, topdressing shall then be applied. Topdress with 10-10-10 or equivalent at 400 pounds per acre or 7 pounds per 1,000 square feet every 3 to 5 weeks until the gross nitrogen deficiency in the turf is ameliorated.

- Work lime and fertilizer into the topsoil as nearly as practical to a depth of 4 inches with a disc, spring-tongue harrow, or other suitable equipment. The final harrowing or disk operation should be on the general contour. Continue tillage until a reasonably uniform seedbed is prepared.
- Remove from the surface any material that would prevent good soil to topsoil contact and remove all other debris, such as wire, cable, tree roots, pieces of concrete, clods, lumps, or other unsuitable material.
- Inspect site just before seeding. If traffic has left the soil compacted, the area must be re-limed and firmed in accordance with the above.
- Site Preparation:
 - Soil strips should be laid on the contour, never up and down the slope, starting at the bottom of the slope and working up. On steep slopes, the use ofadders will facilitate the work and prevent damage to the seed. During periods of high temperature, lightly irrigate the soil immediately prior to sowing the seed.
 - Place soil strips with angles even joints (seams) that are staggered. Open spaced inside erosion.
 - Lightly roll or tamp soil immediately following placement to insure solid contact of root mat and soil surface. Do not overlap soil. All joints should be butt-jointed to prevent voids which would cause drainage of the roots and invasion of weeds.
 - On slopes greater than 3 to 1, secure soil to surface soil with wood pegs, wire staples biodegradable plastic strips, or split shingles (8 to 10 inches long by 1/4 inch wide).
 - Surface water control always be directed away from the face of the slope, but a capping strip of heavy clay or plastic netting, properly secured, along the crown of the slope and edges will provide extra protection against lifting and undercutting of the soil. The same technique can be used to anchor mulch in water-carrying channels and other critical areas. Wire staples must be used to anchor netting in channel work.
 - Immediately following installation, should be watered until water penetrates the soil layer beneath soil to a depth of 1 inch. Maintain optimum water for at least two weeks.
 - Topdressing:
 - Since soil organic matter and slow release nitrogen fertilizer (where insoluble) are prescribed in Sections 1 and 2 in this standard, a follow-up topdressing is not mandatory, except where group nutrient deficiency exists in the soil to the extent that turf failure may develop, topdressing shall then be applied. Topdress with 10-10-10 or equivalent at 400 pounds per acre or 7 pounds per 1,000 square feet every 3 to 5 weeks until the gross nitrogen deficiency in the turf is ameliorated.

X. STANDARD FOR LAND GRADING

- Definition:

Grading is the ground surface by grading to planned elevations which are determined by topographic survey and layout.
- Purpose:

The practice is for one or more of the following: Provide more suitable sites for land development; improve surface drainage and control erosion.
- Conditions Where Practice Applies:

This practice is applicable where the grading to planned elevations is practical and it is determined that grading is needed. Grading that involves the disturbances of vegetation over large areas shall be avoided. It may be necessary to provide for temporary stabilization of large areas.
- Water Quality Enhancement:

Proper grading of disturbed sites will protect against soil loss from erosion, enhance establishment of permanent vegetative cover and help to properly manage stormwater runoff all of which will reduce off-site discharge of pollutants.
- The grading plan and installation shall be based upon adequate topographic surveys and investigations. The plan is to show the location, slope, cut, fill and final elevation of the surface to be graded. The plan should also include auxiliary practices for erosion control. The same technique can be used to anchor mulch in water-carrying channels and other critical areas. Wire staples must be used to anchor netting in channel work.
- Immediately following installation, should be watered until water penetrates the soil layer beneath soil to a depth of 1 inch. Maintain optimum water for at least two weeks.
- Topdressing:
 - Since soil organic matter and slow release nitrogen fertilizer (where insoluble) are prescribed in Sections 1 and 2 in this standard, a follow-up topdressing is not mandatory, except where group nutrient deficiency exists in the soil to the extent that turf failure may develop, topdressing shall then be applied. Topdress with 10-10-10 or equivalent at 400 pounds per acre or 7 pounds per 1,000 square feet every 3 to 5 weeks until the gross nitrogen deficiency in the turf is ameliorated.

- Work lime and fertilizer into the topsoil as nearly as practical to a depth of 4 inches with a disc, spring-tongue harrow, or other suitable equipment. The final harrowing or disk operation should be on the general contour. Continue tillage until a reasonably uniform seedbed is prepared.
- Remove from the surface any material that would prevent good soil to topsoil contact and remove all other debris, such as wire, cable, tree roots, pieces of concrete, clods, lumps, or other unsuitable material.
- Inspect site just before seeding. If traffic has left the soil compacted, the area must be re-limed and firmed in accordance with the above.
- Site Preparation:
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 - Place soil strips with angles even joints (seams) that are staggered. Open spaced inside erosion.
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 - Immediately following installation, should be watered until water penetrates the soil layer beneath soil to a depth of 1 inch. Maintain optimum water for at least two weeks.
 - Topdressing:
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 -