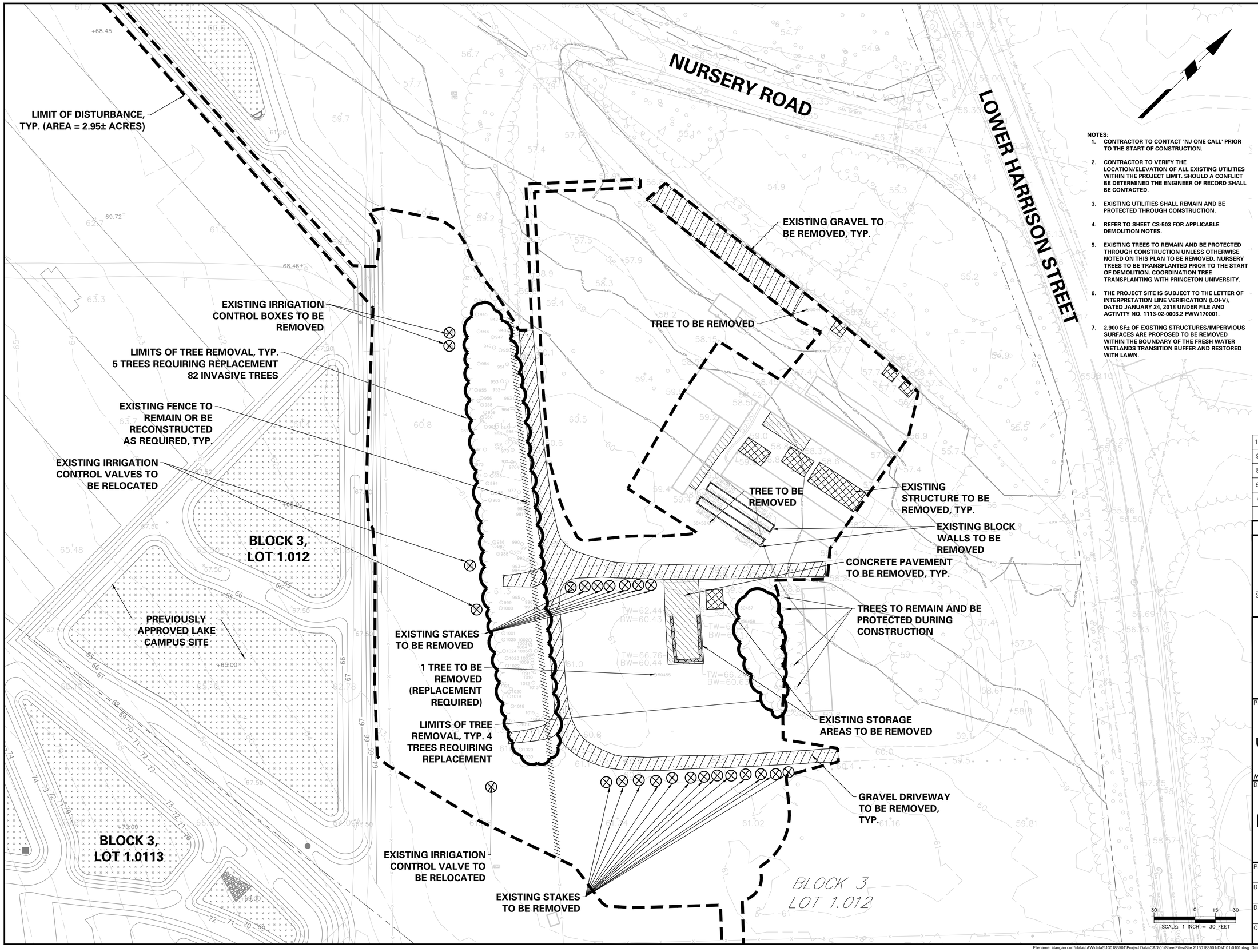

DEMOLITION PLAN LEGEND

- BUILDING TO BE REMOVED
- CONCRETE PAVEMENT TO BE REMOVED
- GRAVEL DRIVEWAY TO BE REMOVED
- FENCE TO BE REMOVED
- LIMIT OF DISTURBANCE
- SITE FEATURE TO BE REMOVED
- LIMITS OF TREE REMOVAL

CONSTRAINTS LEGEND

- WETLAND TRANSITION BUFFER
- FRESHWATER WETLANDS
- 100-YEAR FLOODPLAIN
- NJ FLOOD HAZARD BOUNDARY
- DRCC STREAM CORRIDOR
- GREENBELT BOUNDARY
- STATE OPEN WATER
- RIPARIAN ZONE

NOTES:

1. CONTRACTOR TO CONTACT 'NJ ONE CALL' PRIOR TO THE START OF CONSTRUCTION.
2. CONTRACTOR TO VERIFY THE LOCATION/ELEVATION OF ALL EXISTING UTILITIES WITHIN THE PROJECT LIMIT. SHOULD A CONFLICT BE DETERMINED THE ENGINEER OF RECORD SHALL BE CONTACTED.
3. EXISTING UTILITIES SHALL REMAIN AND BE PROTECTED THROUGH CONSTRUCTION.
4. REFER TO SHEET CS-503 FOR APPLICABLE DEMOLITION NOTES.
5. EXISTING TREES TO REMAIN AND BE PROTECTED THROUGH CONSTRUCTION UNLESS OTHERWISE NOTED ON THIS PLAN TO BE REMOVED. NURSERY TREES TO BE TRANSPLANTED PRIOR TO THE START OF DEMOLITION. COORDINATION TREE TRANSPLANTING WITH PRINCETON UNIVERSITY.
6. THE PROJECT SITE IS SUBJECT TO THE LETTER OF INTERPRETATION LINE VERIFICATION (LOI-V), DATED JANUARY 24, 2018 UNDER FILE AND ACTIVITY NO. 1113-02-0003.2 FWW170001.
7. 2,900 SF± OF EXISTING STRUCTURES/IMPERVIOUS SURFACES ARE PROPOSED TO BE REMOVED WITHIN THE BOUNDARY OF THE FRESH WATER WETLANDS TRANSITION BUFFER AND RESTORED WITH LAWN.

APPROVED
File No.: 1113-22-0004.1
Activity No.: LUP220001
Date: 11-30-2022
State of New Jersey
Department of Environmental Protection
Watershed and Land Management

No.	Description	Date
5.	NJDEP FHA SUBMISSION #4	11/11/2022
4.	NJDEP FHA SUBMISSION #3	9/16/2022
3.	NJDEP FHA SUBMISSION #2	8/10/2022
2.	DESIGN DEVELOPMENT FINAL	6/30/2022
1.	NJDEP FHA SUBMISSION	6/9/2022

REVISIONS

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SIGNATURE CHRISTIAN ROCHE 8/10/2022
PROFESSIONAL ENGINEER NJ Lic. No. 24GE04988100

LANGAN
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NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

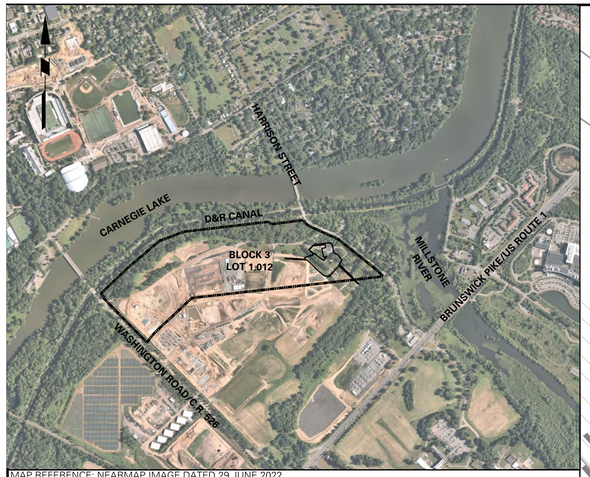
Project
CAMPUS OPERATIONS BUILDING - PRINCETON UNIVERSITY LAKE CAMPUS
PRINCETON UNIVERSITY
WEST WINDSOR TOWNSHIP (BLOCK 3, LOT 1.012)
MERCER COUNTY NEW JERSEY

Drawing Title
DEMOLITION PLAN

Project No.	130183501
Date	06/09/2022
Drawn By	CJS
Checked By	CMR
Drawing No.	DM-101
Sheet	1 of 14

LANGAN
PROJECT NO. 130183501

Filename: \\langan.com\data\LAW\data5\130183501\Project Data\CAD\01\SheetFiles\Site 2\130183501-DM101-0101.dwg Date: 11/10/2022 Time: 16:31 User: mkohut Style Table: Langan.stb Layout: DM-101 (DD)



MAP REFERENCE: NEARMAP IMAGE DATED 29 JUNE 2022

SITE LOCATION

SCALE: 1" = 1000'

1000 0 500 1000

SCALE IN FEET

NURSERY ROAD

LOWER HARRISON STREET

STORMWATER MANAGEMENT AREA

DEMO AREA TO BE RESTORED TO GRASS (SEED MIX 2), TYP. REFER TO LANDSCAPE PLAN.

DEMO AREA TO BE RESTORED TO GRASS (SEED MIX 1), TYP. REFER TO LANDSCAPE PLAN.

REGRADED GRAVEL ACCESS DRIVE (EXISTING LIMITS SHALL BE MAINTAINED)

BLOCK 3, LOT 1.012

BLOCK 3, LOT 1.0113

PREVIOUSLY APPROVED LAKE CAMPUS SITE

GRAVEL PARKING AREA (9 SPACES)

GRAVEL ACCESS DRIVE LINED WITH REINFORCED TURF

PROPOSED BUILDING 5,733 S.F.

91'

168'

10'

12'

8'

6'

CONCRETE WALK

6" WIDE CROSSWALK STRIPING, TYP.

DOOR, TYP.

BICYCLE BOLLARD

CONCRETE APRON

DEPRESSED CONCRETE CURB

REGRADED GRAVEL ACCESS DRIVE (EXISTING LIMITS SHALL BE MAINTAINED)

GRAVEL ACCESS DRIVE LINED WITH REINFORCED TURF

ADA PARKING SPACES

CONCRETE CURB, TYP.

PROPERTY LINE, TYP.

PROPOSED "MAKE READY" EV CHARGING LOCATION, SIGNAGE TO BE IN ACCORDANCE WITH MUNICIPAL AND STATE STANDARDS

PARKING SPACE DELINEATION, TYP., SEE NOTE 2 THIS SHEET

GRAVEL PARKING AREA (26 SPACES)

R=20'
R=15'
R=30'
R=48'
R=4'
R=5'
R=3'
78'
112'
90'

1 STORY FRAME

1 STORY BLOCK

GREENHOUSE

EMERGENCY SPILLWAY (SEE DETAIL)

RAP APRON (SEE L FOR DIMENSIONS AND STONE SIZE)

RIP-RAP APRON (SEE

SITE PLAN LEGEND

- BUILDING
- CONCRETE PAVEMENT
- GRAVEL DRIVEWAY
- REINFORCED TURF
- LAWN (SEED MIX 1)
- LAWN (SEED MIX 2)
- DOOR
- STORMWATER MANAGEMENT BASIN
- PROPERTY LINE
- LIMIT OF DISTURBANCE
- ACCESS GATE

CONSTRAINTS LEGEND

- WTB — WETLAND TRANSITION BUFFER
- WET — FRESHWATER WETLANDS
- 100YR — 100-YEAR FLOODPLAIN
- NJFH — NJ FLOOD HAZARD BOUNDARY
- DRCC — DRCC STREAM CORRIDOR
- GREENBELT BOUNDARY
- SOW — STATE OPEN WATER
- RZ — RIPARIAN ZONE

NOTES:

1. THE PROJECT SITE IS SUBJECT TO THE LETTER OF INTERPRETATION LINE VERIFICATION (LOI-V), DATED JANUARY 24, 2018 UNDER FILE AND ACTIVITY NO. 1113-02-0003.2 FWW170001.
2. STANDARD PARKING SPACE STRIPING SHOWN FOR DELINEATION ONLY, NO STRIPING TO BE PAINTED EXCEPT FOR HANDICAP SPACE / LOADING AREA MARKINGS AND PEDESTRIAN CROSSWALK STRIPES.

30 0 15 30

SCALE: 1 INCH = 30 FEET

APPROVED
File No.: 1113-22-0004.1
Activity No.: LUP220001
Date: 11-30-2022
State of New Jersey
Department of Environmental Protection
Watershed and Land Management

Date	Description	No.
11/11/2022	NJDEP FHA SUBMISSION #4	5.
9/16/2022	NJDEP FHA SUBMISSION #3	4.
8/10/2022	NJDEP FHA SUBMISSION #2	3.
6/30/2022	DESIGN DEVELOPMENT FINAL	2.
6/9/2022	NJDEP FHA SUBMISSION	1.

REVISIONS

Digitally signed by Christian M Roche
Date: 2022.11.14 07:26:42-05'00'

SIGNATURE CHRISTIAN ROCHE 8/10/2022
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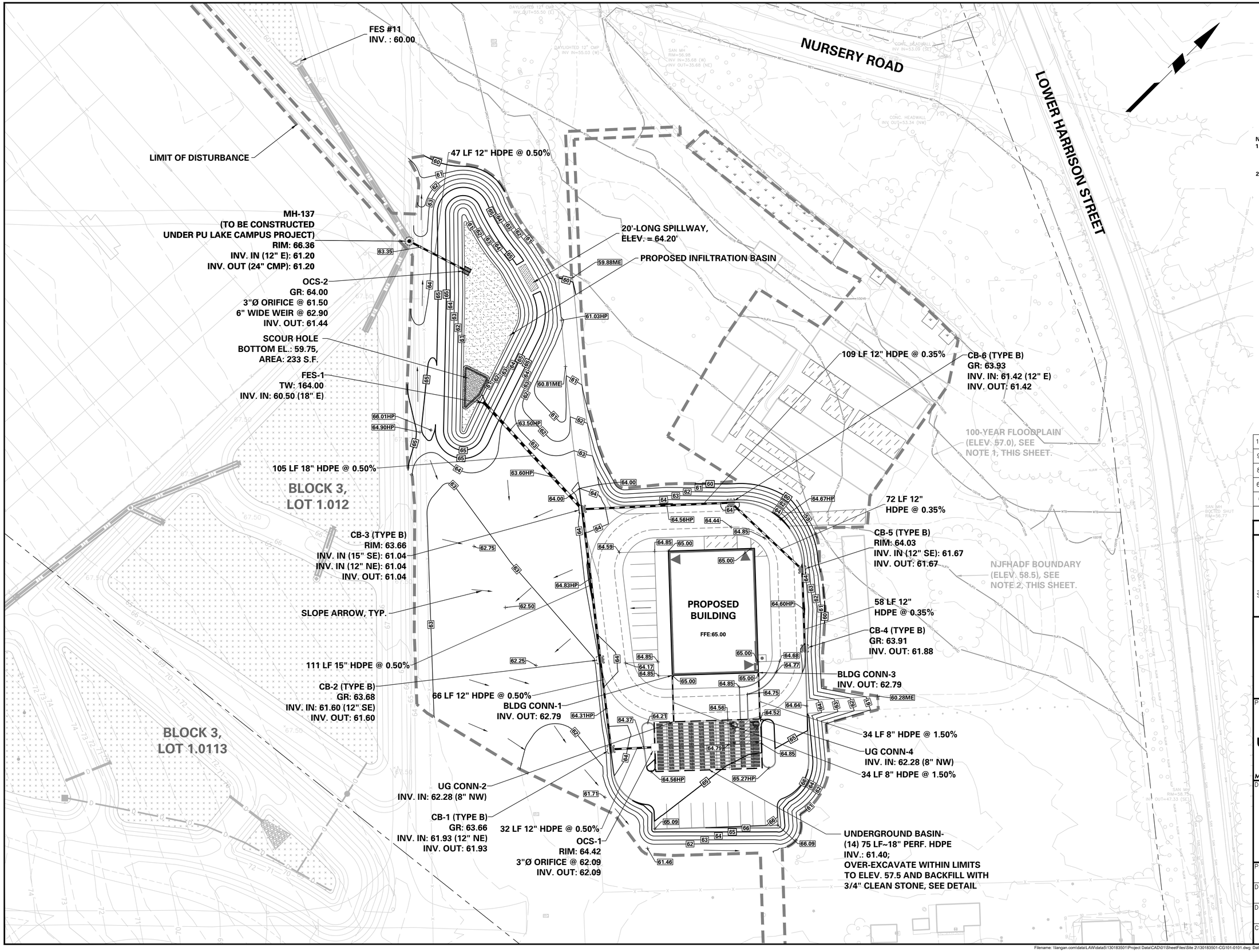
Project
CAMPUS OPERATIONS BUILDING - PRINCETON UNIVERSITY LAKE CAMPUS
PRINCETON UNIVERSITY
WEST WINDSOR TOWNSHIP (BLOCK 3, LOT 1.012)
MERCER COUNTY NEW JERSEY

Drawing Title
SITE PLAN

Project No.	Drawing No.
130183501	CS-101
Date: 06/09/2022	
Drawn By: CJS	
Checked By: CMR	Sheet 2 of 14

LANGAN
PROJECT NO. 130183501



GRADING AND DRAINAGE LEGEND

- CONTOUR
- SPOT GRADE
- CATCH BASIN
- STORM PIPE
- MANHOLE
- HEADWALL
- OUTLET CONTROL STRUCTURE

NOTES:

1. 100-YEAR FLOODPLAIN ELEVATION DETERMINED FROM NJDEP STATE STUDY AND FEMA 100-YEAR FLOODPLAIN. 100-YEAR FLOODPLAIN ELEVATION ON PROJECT SITE IS 57.0 (NAVD 88).
2. NEW JERSEY FLOOD HAZARD AREA DESIGN FLOOD (NJFHADF) BOUNDARY DETERMINED FROM N.J. FLOOD HAZARD CONTROL ACT METHOD 1. NJFHADF BOUNDARY ELEVATION ON PROJECT SITE IS 58.5' (NAVD 88).

30 0 15 30
SCALE: 1 INCH = 30 FEET

APPROVED
File No.: 1113-22-0004.1
Activity No.: LUP220001
Date: 11-30-2022
State of New Jersey
Department of Environmental Protection
Watershed and Land Management

Date	Description	No.
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6/30/2022	DESIGN DEVELOPMENT FINAL	2.
6/9/2022	NJDEP FHA SUBMISSION	1.

REVISIONS

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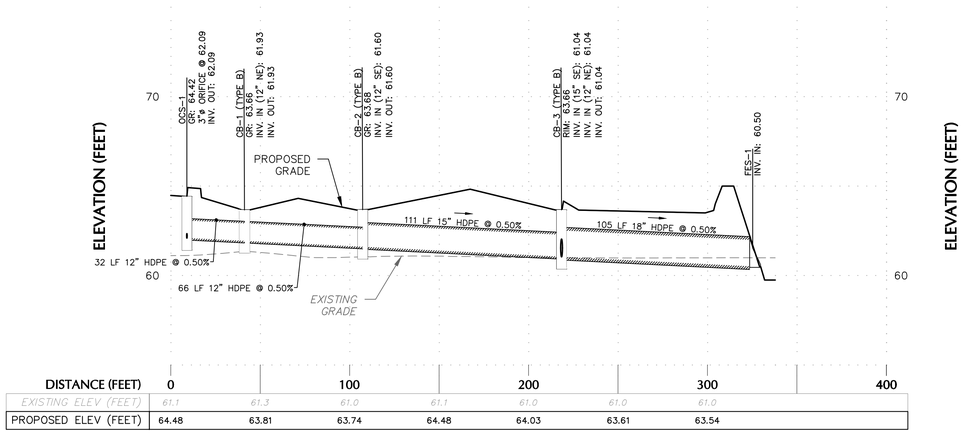
PRINCETON UNIVERSITY
WEST WINDSOR TOWNSHIP (BLOCK 3, LOT 1.012)
MERCER COUNTY NEW JERSEY

Drawing Title
GRADING AND DRAINAGE PLAN

Project No. 130183501	Drawing No. CG-101
Date 06/09/2022	
Drawn By CJS	
Checked By CMR	Sheet 3 of 14

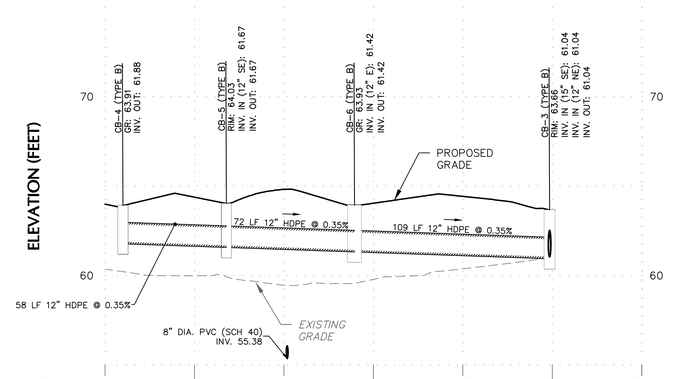
LANGAN
PROJECT NO. 130183501

Filename: \\langan.com\data\LAW\data5\130183501\Project Data\CAD\01\SheetFiles\Site 2\130183501-CG101-0101.dwg Date: 11/10/2022 Time: 16:35 User: mkohut Style Table: Langan.stb Layout: CG-101 (DD)



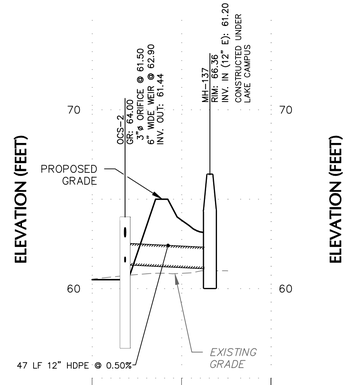
DISTANCE (FEET)	0	100	200	300	400
EXISTING ELEV (FEET)	61.1	61.3	61.0	61.1	61.0	61.0	61.0
PROPOSED ELEV (FEET)	64.48	63.81	63.74	64.48	64.03	63.61	63.54

DRAINAGE PROFILE
(CB-3 - FES-2)



DISTANCE (FEET)	0	100	200	300
EXISTING ELEV (FEET)	60.4	60.0	59.5	59.8	60.4
PROPOSED ELEV (FEET)	63.99	64.38	64.82	64.04	64.43

DRAINAGE PROFILE
(CB-6 - FES-1)



DISTANCE (FEET)	0	100
EXISTING ELEV (FEET)	60.5	60.9
PROPOSED ELEV (FEET)	60.50	63.83

DRAINAGE PROFILE
(OCS-1 - MH-137)

4 0 2 4
VERTICAL SCALE IN FEET

40 0 20 40
HORIZONTAL SCALE IN FEET

Date	Description	No.
11/11/2022	NJDEP FHA SUBMISSION #4	5.
9/16/2022	NJDEP FHA SUBMISSION #3	4.
8/10/2022	NJDEP FHA SUBMISSION #2	3.
6/30/2022	DESIGN DEVELOPMENT FINAL	2.
6/9/2022	NJDEP FHA SUBMISSION	1.

REVISIONS

Digitally signed by Christian M Roche
Date: 2022.11.14 07:29:22-05'00'

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Project
CAMPUS OPERATIONS BUILDING - PRINCETON UNIVERSITY LAKE CAMPUS
PRINCETON UNIVERSITY
WEST WINDSOR TOWNSHIP (BLOCK 3, LOT 1.012)
MERCER COUNTY NEW JERSEY

Drawing Title
STORM PROFILES

Project No.	Drawing No.
130183501	CG-201
Date: 06/09/2022	
Drawn By: DJD	
Checked By: CMR	Sheet 4 of 14

LANGAN
PROJECT NO. 130152601

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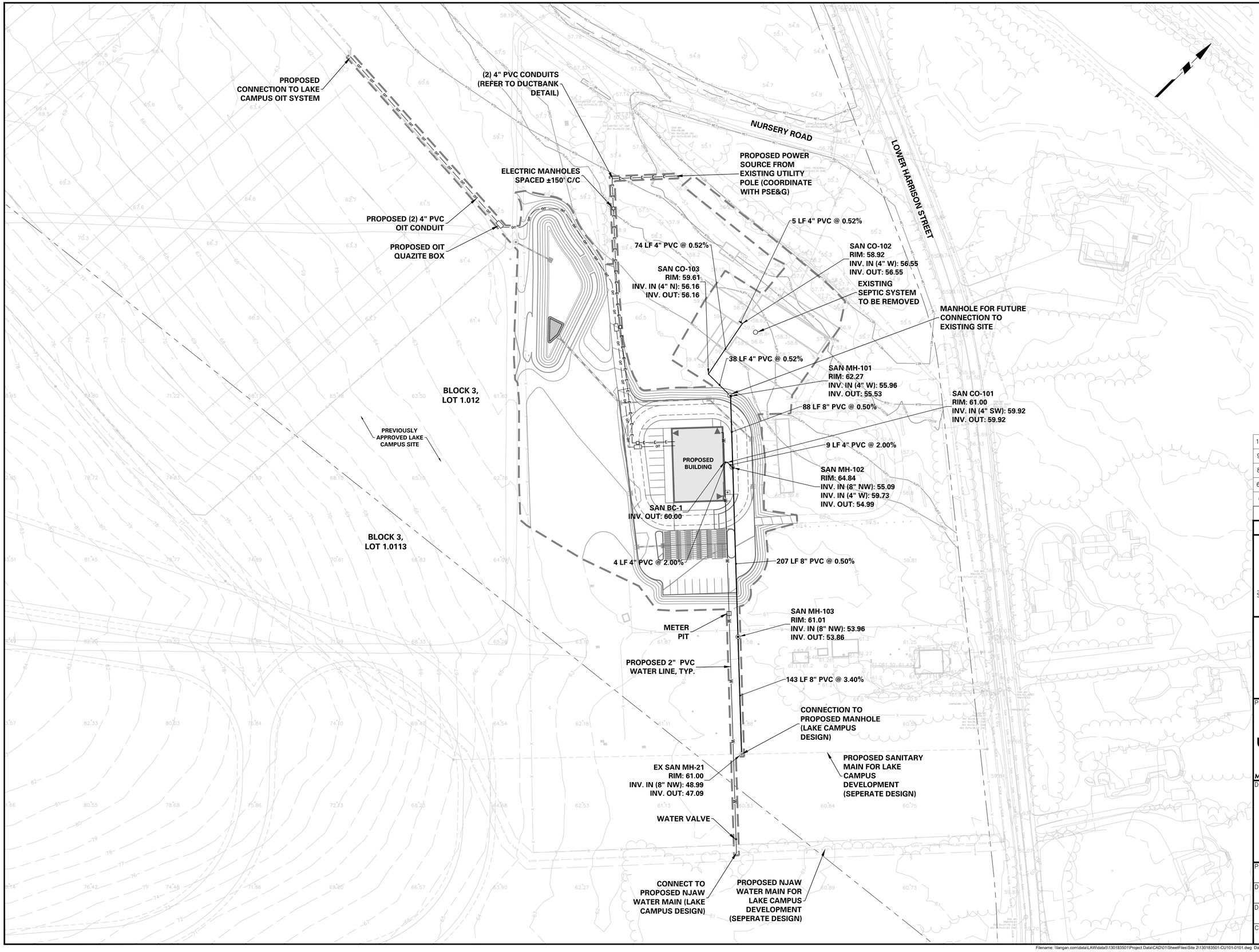

UTILITY PLAN LEGEND

- ELECTRIC LINE
- WATER LINE
- SANITARY LINE
- ELECTRIC HANDHOLE
- SANITARY MANHOLE
- VALVE

APPROVED

File No.: 1113-22-0004.1
Activity No.: LUP220001
Date: 11-30-2022
State of New Jersey
Department of Environmental Protection
Watershed and Land Management

50 0 25 50
SCALE: 1 INCH = 50 FEET

Date	Description	No.
11/11/2022	NJDEP FHA SUBMISSION #4	5.
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8/10/2022	NJDEP FHA SUBMISSION #2	3.
6/30/2022	DESIGN DEVELOPMENT FINAL	2.
6/9/2022	NJDEP FHA SUBMISSION	1.

REVISIONS

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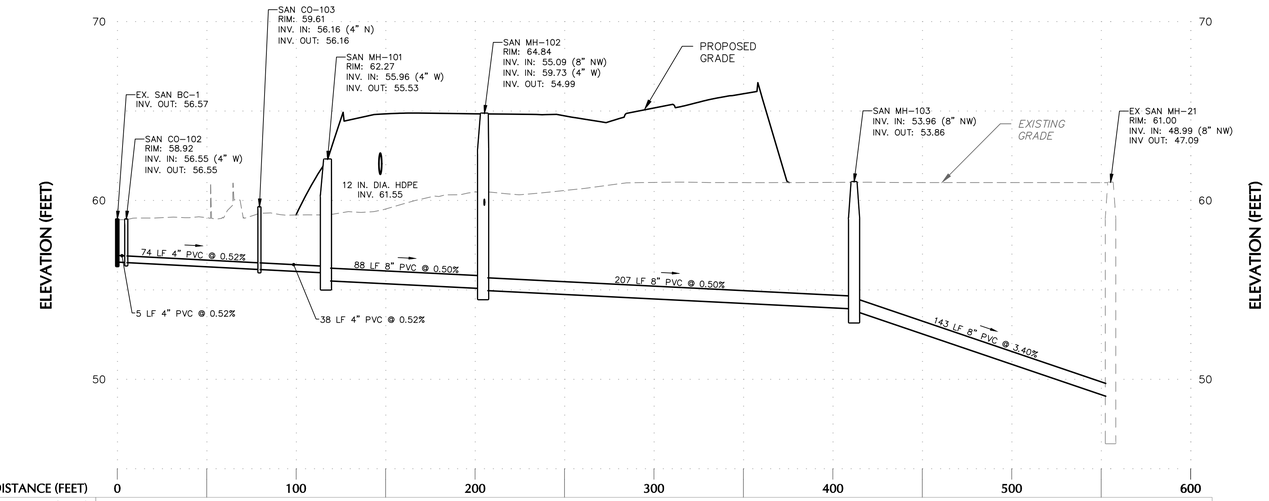
PRINCETON UNIVERSITY
WEST WINDSOR TOWNSHIP (BLOCK 3, LOT 1.012)
MERCER COUNTY NEW JERSEY

Drawing Title
UTILITY PLAN

Project No.	Drawing No.
130183501	CU-101
Date: 06/09/2022	
Drawn By: CJS	
Checked By: CMR	Sheet 5 of 14

PROJECT NO. 130152601



DISTANCE (FEET)	0	100	200	300	400	500	600
EXISTING ELEV (FEET)	58.9	59.0	59.2	59.5	60.5	60.6	61.0	61.0	61.0	61.0	61.0
PROPOSED ELEV (FEET)			59.21	64.84	64.84	64.73	65.17	65.96			

SANITARY SEWER PROFILE
(EX. SAN BC-1 TO EX. SAN MH-101)

4 0 2 4
VERTICAL SCALE IN FEET

40 0 20 40
HORIZONTAL SCALE IN FEET

Date	Description	No.
11/11/2022	NJDEP FHA SUBMISSION #4	5.
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6/9/2022	NJDEP FHA SUBMISSION	1.

REVISIONS

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PRINCETON UNIVERSITY
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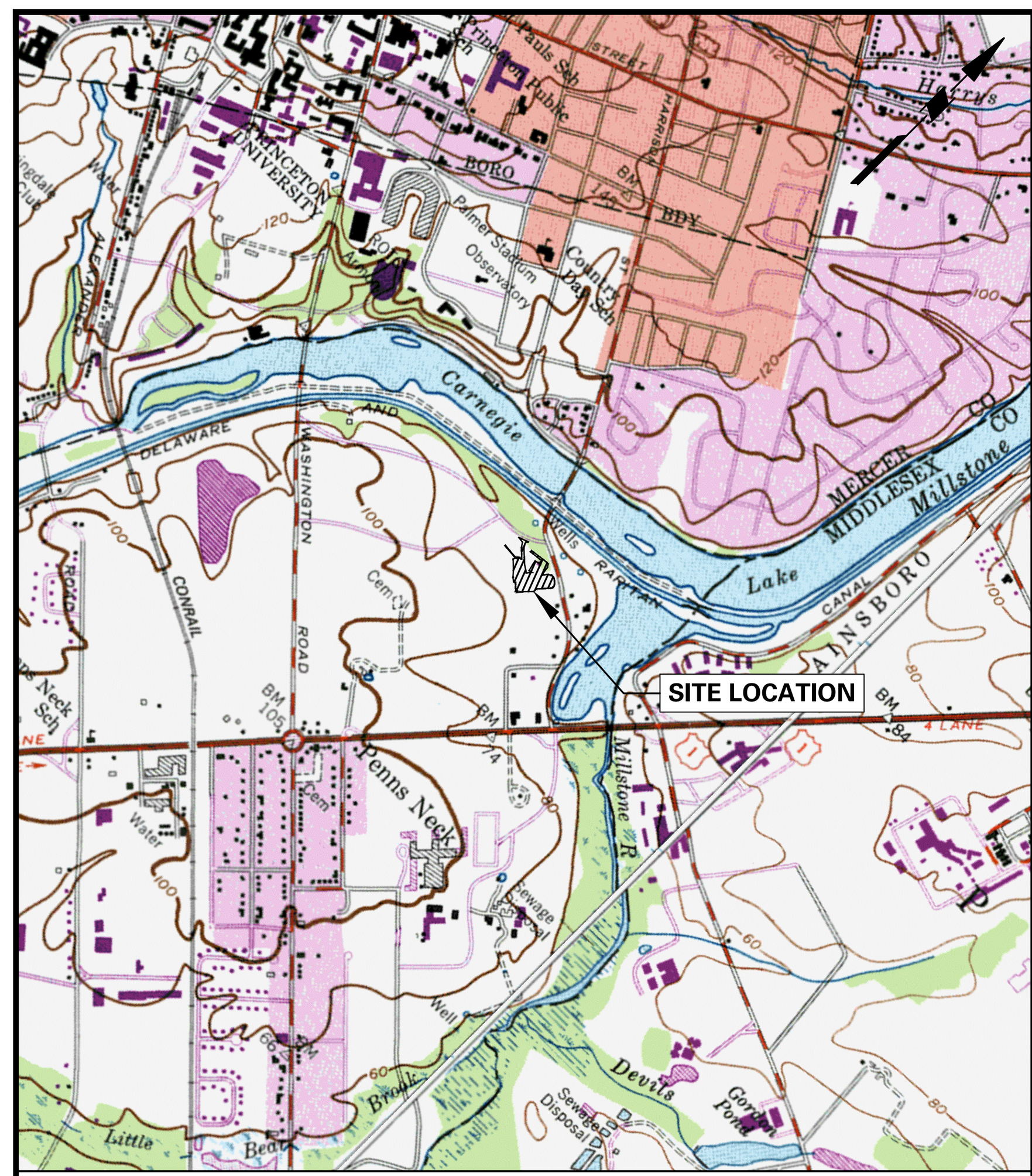
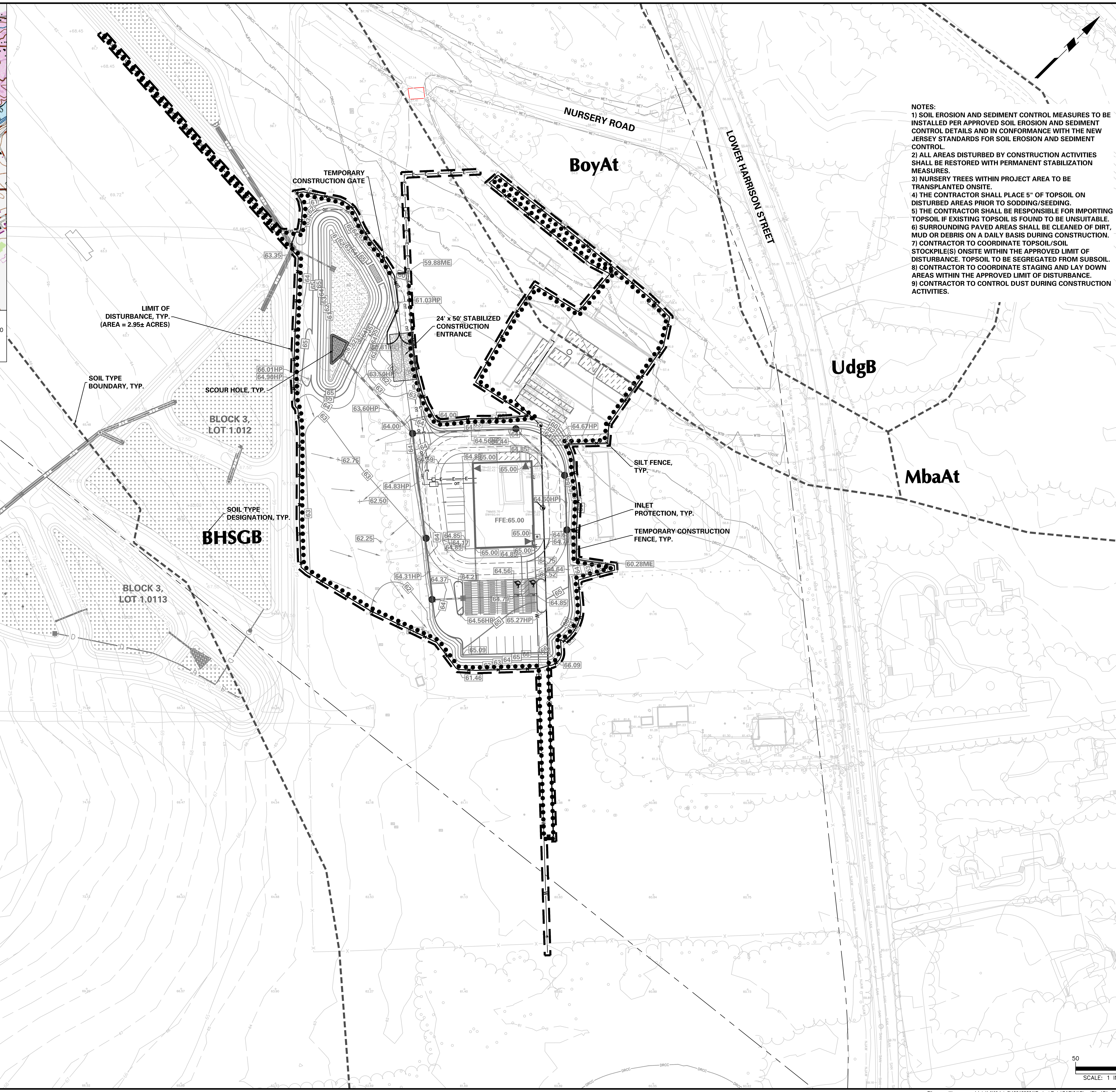
Drawing Title
SANITARY PROFILES

Project No.	Drawing No.
130183501	CU-201
Date: 06/09/2022	
Drawn By: DJD	
Checked By: CMR	Sheet 6 of 14

LANGAN
PROJECT NO. 130152601





NOTES:
1) SOIL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED PER APPROVED SOIL EROSION AND SEDIMENT CONTROL DETAILS AND IN CONFORMANCE WITH THE NEW JERSEY STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL.
2) ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED WITH PERMANENT STABILIZATION MEASURES.
3) NURSERY TREES WITHIN PROJECT AREA TO BE TRANSPLANTED ONSITE.
4) THE CONTRACTOR SHALL PLACE 5" OF TOPSOIL ON DISTURBED AREAS PRIOR TO SODDING/SEEDING.
5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING TOPSOIL IF EXISTING TOPSOIL IS FOUND TO BE UNSUITABLE.
6) SURROUNDING PAVED AREAS SHALL BE CLEANED OF DIRT, MUD OR DEBRIS ON A DAILY BASIS DURING CONSTRUCTION.
7) CONTRACTOR TO COORDINATE TOPSOIL/SOIL STOCKPILE(S) ONSITE WITHIN THE APPROVED LIMIT OF DISTURBANCE. TOPSOIL TO BE SEGREGATED FROM SUBSOIL.
8) CONTRACTOR TO COORDINATE STAGING AND LAY DOWN AREAS WITHIN THE APPROVED LIMIT OF DISTURBANCE.
9) CONTRACTOR TO CONTROL DUST DURING CONSTRUCTION ACTIVITIES.

SOIL EROSION AND SEDIMENT CONTROL PLAN LEGEND

—— ——	LIMIT OF DISTURBANCE
● ● ● ● ●	SILT FENCE
– – – – –	SOIL TYPE BOUNDARY
—×——×—	CONSTRUCTION FENCE
UdgB	SOIL TYPE DESIGNATION
●	INLET PROTECTION
	STABILIZED CONSTRUCTION ENTRANCE
	SCOUR HOLE

SOIL LEGEND

SYMBOL	DESCRIPTION	SLOPES
BHSGB	BIRDSBORO GRAVELLY SOLUM VARIANT SOILS	0-6%
BoyAt	BOWMANSVILLE SILT LOAM	0-2%
MbaAt	MARSH, FRESH WATER	0-2%
UdgB	UDORTHENTS, GRAVELLY SUBSTRATUM	0-8%

LANGAN

PROJECT NO. 130152601

Date	Description	No.
11/11/2022	NJDEP FHA SUBMISSION #4	5.
9/16/2022	NJDEP FHA SUBMISSION #3	4.
8/10/2022	NJDEP FHA SUBMISSION #2	3.
6/30/2022	DESIGN DEVELOPMENT FINAL	2.
6/9/2022	NJDEP FHA SUBMISSION	1.

REVISIONS

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SIGNATURE 8/8/2022
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PRINCETON UNIVERSITY
WEST WINDSOR TOWNSHIP (BLOCK 3, LOT 1.012)
MERCER COUNTY NEW JERSEY

Drawing Title
SOIL EROSION AND SEDIMENT CONTROL PLAN

Project No.	Drawing No.
130183501	CE-101
Date: 06/09/2022	
Drawn By: CJS	
Checked By: CMR	Sheet 7 of 14

MERCER COUNTY SCD REQUIRED SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE MERCER COUNTY SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED 48 HOURS PRIOR TO STARTING LAND DISTURBANCE ACTIVITY. NOTICE MAY BE MAILED, FAXED OR EMAILED TO:
MCSCD, 590 HUGHES DRIVE, HAMILTON SQUARE, NJ 08690
PHONE: 609-586-9603 FAX: 609-586-1117 EMAIL: MERCERSOIL@AOL.COM
2. IF APPLICABLE TO THIS PROJECT, THE OWNER SHOULD BE AWARE OF HIS OR HER OBLIGATION TO FILE FOR A NJPDES CONSTRUCTION ACTIVITY STORMWATER 5G3 PERMIT (NJG0088323) VIA THE NJDEP ONLINE PERMITTING SYSTEM (WWW.NJ.GOV/DEP/ONLINE) AND TO MAINTAIN THE ASSOCIATED BEST MANAGEMENT PRACTICES AND STORMWATER POLLUTION PREVENTION PLAN SELF-INSPECTION LOGBOOK ONSITE AT ALL TIMES. THIS PERMIT MUST BE FILED PRIOR TO THE START OF SOIL DISTURBANCE. THE ONLINE APPLICATION PROCESS WILL REQUIRE ENTRY OF AN SCD CERTIFICATION CODE, WHICH IS PROVIDED BY THE SOIL CONSERVATION DISTRICT UPON CERTIFICATION OF THE SOIL EROSION AND SEDIMENT CONTROL PLAN.
3. THE MERCER COUNTY SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES IN OWNERSHIP.
4. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN, INCLUDING AN INCREASE IN THE LIMIT OF DISTURBANCE, WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RECERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT STATE SOIL EROSION & SEDIMENT CONTROL STANDARDS.
5. A COPY OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON SITE AT ALL TIMES.
6. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCES, OR IN THEIR PROPER SEQUENCE AS OUTLINED WITHIN THE SEQUENCE OF CONSTRUCTION ON THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
7. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NJ. IF LANGUAGE CONTAINED WITHIN ANY OTHER PERMIT FOR THIS PROJECT IS MORE RESTRICTIVE THAN (BUT NOT CONTRADICTORY TO) WHAT IS CONTAINED WITHIN THESE NOTES OR ON THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN, THEN THE MORE RESTRICTIVE PERMIT REQUIREMENTS SHALL BE FOLLOWED.
8. THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A 1½" TO 2½" CLEAN STONE TRACKING PAD AT ALL CONSTRUCTION DRIVEWAYS IMMEDIATELY AFTER INITIAL SITE DISTURBANCE, WHETHER IDENTIFIED ON THE CERTIFIED PLAN OR NOT. THE WIDTH SHALL SPAN THE FULL WIDTH OF EGRESS, AND LENGTH SHALL BE 50 FT. OR MORE, DEPENDING ON SITE CONDITIONS AND AS REQUIRED BY THE STANDARD. THIS SHALL INCLUDE INDIVIDUAL LOT ACCESS POINTS WITHIN RESIDENTIAL SUBDIVISIONS. IF THE EGRESS IS TO A COUNTY ROAD, THEN A 20 FT. LONG PAVED TRANSITION SHALL BE PROVIDED BETWEEN THE EDGE OF PAVEMENT AND THE STONE ACCESS PAD.
9. A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZE STREETS, ROADS, DRIVEWAYS AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN 15 DAYS OF PRELIMINARY GRADING, PROVIDED THAT ALL OTHER REQUIREMENTS RELATED TO DETENTION BASINS, SWALES AND THE SEQUENCE OF CONSTRUCTION HAVE BEEN MET.
10. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 14 DAYS AND NOT SUBJECT TO CONSTRUCTION ACTIVITY WILL IMMEDIATELY RECEIVE TEMPORARY STABILIZATION. IF THE SEASON PREVENTS ESTABLISHMENT OF A TEMPORARY VEGETATIVE COVER, OR IF THE AREA IS NOT TOPSOILED, THEN THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO STATE STANDARDS. SLOPED AREAS IN EXCESS OF 3H:1V SHALL BE PROVIDED WITH EROSION CONTROL BLANKETS. CRITICAL AREAS SUBJECT TO EROSION (I.E. STEEP SLOPES, ROADWAY EMBANKMENTS, ENVIRONMENTALLY SENSITIVE AREAS) WILL RECEIVE TEMPORARY STABILIZATION IMMEDIATELY AFTER INITIAL DISTURBANCE OR ROUGH GRADING.
11. ANY STEEP SLOPES (I.E. SLOPES GREATER THAN 3:1) RECEIVING PIPELINE OR UTILITY INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS.
12. PERMANENT VEGETATION SHALL BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING AND TOPSOILING. ALL AGRONOMIC REQUIREMENTS CONTAINED WITHIN THE STANDARDS AND ON THE CERTIFIED PLAN SHALL BE EMPLOYED. MULCH WITH BINDER, IN ACCORDANCE WITH THE STANDARDS, SHALL BE USED ON ALL SEEDED AREAS. SAVE ALL TAGS AND/OR BAGS USED FOR SEED, LIME AND FERTILIZER, AND PROVIDE THEM TO THE DISTRICT INSPECTOR TO VERIFY THAT MIXTURES AND RATES MEET THE STANDARDS.
13. AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER, SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, THEN NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.
14. DURING THE COURSE OF CONSTRUCTION, SOIL COMPACTION MAY OCCUR WITHIN HAUL ROUTES, STAGING AREAS AND OTHER PROJECT AREAS. IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING, COMPACTED SURFACES SHOULD BE SCARIFIED 6" TO 12" IMMEDIATELY PRIOR TO TOPSOIL APPLICATION. THIS WILL HELP ENSURE A GOOD BOND BETWEEN THE TOPSOIL AND SUBSOIL. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).
15. PRIOR TO SEEDING, TOPSOIL SHALL BE WORKED TO PREPARE A PROPER SEEDBED. THIS SHALL INCLUDE RAKING OF THE TOPSOIL AND REMOVAL OF DEBRIS AND STONES, ALONG WITH OTHER REQUIREMENTS OF THE STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION.
16. IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, ANY SOIL HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE BURIED WITH LIMESTONE IN ACCORDANCE WITH THE STANDARD AND BE COVERED WITH A MINIMUM OF 12" OF SOIL HAVING A PH OF 5 OR MORE PRIOR TO TOPSOIL APPLICATION AND SEEDBED PREPARATION. IF THE AREA IS TO RECEIVE TREE OR SHRUB PLANTINGS, OR IS LOCATED ON A SLOPE, THEN THE AREA SHALL BE COVERED WITH A MINIMUM OF 24" OF SOIL HAVING A PH OF 5 OR MORE.
17. MULCHING TO THE STANDARDS IS REQUIRED FOR OBTAINING A CONDITIONAL REPORT OF COMPLIANCE. CONDITIONAL ROC'S ARE ONLY ISSUED WHEN THE SEASON PROHIBITS SEEDING. PERMANENT STABILIZATION MUST THEN BE COMPLETED DURING THE OPTIMUM SEEDING SEASON IMMEDIATELY FOLLOWING THE CONDITIONAL ROC, OR THE COMPLETION OF WORK IN A GIVEN AREA.
18. HYDROSEEDING IS A TWO-STEP PROCESS. THE FIRST STEP INCLUDES SEED, FERTILIZER, LIME, ETC., ALONG WITH MINIMAL AMOUNTS OF MULCH TO PROMOTE CONSISTENCY, GOOD SEED-TO-SOIL CONTACT, AND GIVE A VISUAL INDICATION OF COVERAGE. UPON COMPLETION OF THE SEEDING OPERATION, HYDROMULCH SHOULD BE APPLIED AT A MINIMUM RATE OF 1500 LBS. PER ACRE IN SECOND STEP. THE USE OF HYDRO-MULCH, AS OPPOSED TO STRAW, IS LIMITED TO OPTIMUM SEEDING DATES AS LISTED IN THE STANDARDS. THE USE OF HYDROMULCH ON SLOPED AREAS IS DISCOURAGED.
19. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ADJACENT ROADS CLEAN DURING LIFE OF THE CONSTRUCTION PROJECT. ALL SEDIMENT WASHED, DROPPED, TRACKED OR SPILLED ONTO PAVED SURFACES SHALL BE IMMEDIATELY REMOVED.
20. THE DEVELOPER SHALL BE RESPONSIBLE FOR REMEDIATING ANY EROSION OR SEDIMENT PROBLEMS THAT ARISE AS A RESULT OF ONGOING CONSTRUCTION, AND FOR EMPLOYING ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AT THE REQUEST OF THE MERCER COUNTY SOIL CONSERVATION DISTRICT.
21. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
22. ALL DETENTION / RETENTION BASINS MUST BE FULLY CONSTRUCTED (INCLUSIVE OF ALL STRUCTURAL COMPONENTS AND LINERS) AND PERMANENTLY STABILIZED PRIOR TO PAVING OR PRIOR TO THE ADDITION OF ANY IMPERVIOUS SURFACES. PERMANENT STABILIZATION INCLUDES, BUT MAY NOT BE LIMITED TO: TOPSOIL, SEED, STRAW MULCH AND BINDERS OR EROSION CONTROL BLANKETS ON ALL SEEDING, ALL AGRONOMIC REQUIREMENTS AS SPECIFIED ON THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN, INSTALLATION OF THE OUTFLOW CONTROL STRUCTURES AND DISCHARGE STORM DRAINAGE PIPING, LOW FLOW CHANNELS, CONDUIT OUTLET PROTECTION, EMERGENCY SPILLWAYS, AND LAP RING PROTECTION.
23. THE RIDING SURFACE OF ALL UTILITY TRENCHES WITHIN PAVED AREAS SHALL BE 3/4" CLEAN STONE OR BASE PAVEMENT UNTIL SUCH TIME AS FINAL PAVEMENT HAS BEEN INSTALLED. TEMPORARY SOIL RIDING SURFACES ARE PROHIBITED.
24. ALL CONSTRUCTION DEWATERING (TRENCHES, EXCAVATIONS, ETC.) MUST BE DONE THROUGH AN INLET OR OUTLET FILTER IN ACCORDANCE WITH THE STANDARD FOR DEWATERING OR AS DEPICTED ON THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN. DISCHARGE LOCATIONS FOR THE DEWATERING OPERATION MUST CONTAIN PERENNIAL VEGETATION OR SIMILAR STABLE SURFACE.
25. ALL SWALES OR CHANNELS THAT WILL RECEIVE RUNOFF FROM PAVED SURFACES MUST BE PERMANENTLY STABILIZED PRIOR TO THE INSTALLATION OF PAVEMENT. IF THE SEASON PROHIBITS THE ESTABLISHMENT OF PERMANENT STABILIZATION, THE SWALES OR CHANNELS MAY BE TEMPORARILY STABILIZED IN ACCORDANCE WITH THE STANDARDS.
26. NJSA 4:24-39 ET SEQ. REQUIRES THAT NO CERTIFICATE OF OCCUPANCY OR TEMPORARY CERTIFICATE OF OCCUPANCY BE ISSUED BY THE MUNICIPALITY BEFORE THE PROVISIONS OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN HAVE BEEN SATISFIED. THEREFORE, ALL SITE WORK FOR SITE PLANS AND ALL WORK AROUND INDIVIDUAL LOTS IN SUBDIVISIONS MUST BE COMPLETED BEFORE THE DISTRICT ISSUES A REPORT OF COMPLIANCE OR CONDITIONAL REPORT OF COMPLIANCE, WHICH MUST BE FORWARDED TO THE MUNICIPALITY PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY OR TEMPORARY CERTIFICATE OF OCCUPANCY, RESPECTIVELY.

SOIL EROSION AND SEDIMENT CONTROL PLAN NOTES

PERMANENT STABILIZATION WITH SOD

PERMANENT SODDING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY." THE FOLLOWING SOD SCHEDULE SHOULD BE USED FOR PERMANENT STABILIZATION:

1. SITE PREPARATION
   A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR LIMING, FERTILIZING, INCORPORATION OF ORGANIC MATTER, AND OTHER SOIL PREPARATION PROCEDURES. ALL GRADING SHALL BE DONE IN ACCORDANCE WITH STANDARD FOR LAND GRADING.
   B. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 6 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES. TOPSOIL SHALL BE AMENDED WITH ORGANIC MATTER, AS NEEDED, IN ACCORDANCE WITH STANDARD FOR TOPSOILING.
   C. INSTALL EROSION CONTROL MEASURES AS INDICATED ON THE "SOIL EROSION AND SEDIMENT CONTROL PLAN," DRAWING CE-101 AND AS DETAILED ON DRAWING CE-502.
2. SOIL PREPARATION
   A. FERTILIZER SHALL BE APPLIED AT A RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET USING 10-10-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE AND INCORPORATED INTO THE SURFACE 4 INCHES. IF FERTILIZER IS NOT INCORPORATED, APPLY ½ THE RATE DESCRIBED ABOVE DURING SEEDBED PREPARATION AND REPEAT ANOTHER ½ RATE APPLICATION OF THE SAME FERTILIZER WITHIN 3 TO 5 WEEKS AFTER SODDING. APPLY LIMESTONE AT THE RATE OF 2 TONS/ACRE UNLESS SOIL TESTING INDICATES OTHERWISE. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE ABILITY OF LIMING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES. THE TABLE BELOW IS A GENERAL GUIDELINE FOR LIMESTONE APPLICATION RATES.

Limestone Application Rate by Soil Texture		
Soil Texture	Tons/Acre	LBS./1000 SQ. FT.
Clay, clay loam, and high organic soil	3	135
Sandy loam, loam, silt loam	2	90
Loamy sand, sand	1	45

   B. WORK LIME, AND FERTILIZER INTO THE TOPSOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED.
   C. REMOVE FROM THE SURFACE ALL OBJECTS THAT WOULD PREVENT GOOD SOD TO TOPSOIL CONTACT AND REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMPS, OR OTHER UNSUITABLE MATERIAL.
   D. INSPECT SITE JUST BEFORE SODDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED AND FIRMED IN ACCORDANCE WITH THE ABOVE.
3. SOD PLACEMENT
   A. SOD 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 OF LADDERS WILL FACILITATE THE WORK AND PREVENT DAMAGE TO THE SOD. DURING PERIODS OF HIGH TEMPERATURE, LIGHTLY IRRIGATE THE SOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
   B. PLACE SOD STRIPS WITH SNUG, EVEN JOINTS (SEAMS) THAT ARE STAGGERED. OPEN SPACES INVITE EROSION.
   C. LIGHTLY ROLL OR TAMP SOD IMMEDIATELY FOLLOWING PLACEMENT TO INSURE SOLID CONTACT OF ROOT MAT AND SOIL SURFACE. DO NOT OVERLAP THE SOD. ALL JOINTS SHOULD BE BUTTED TIGHTLY TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS AND INVASION OF WEEDS.
   D. ON SLOPES GREATER THAN 3 TO 1, SECURE SOD TO SURFACE SOIL WITH WOOD PEGS, WIRE STAPLES BIODEGRADABLE PLASTIC SPIKES, OR SPLIT SHINGLES (* TO 10 INCHES LONG BY ¾ INCH WIDE).
   E. SURFACE WATER CANNOT ALWAYS BE DIVERTED FROM FLOWING OVER THE FACE OF THE SLOPE, BUT A CAPPING STRIP OF HEAVY JUTE OR PLASTIC NETTING, PROPERLY SECURED, ALONG THE CROWN OF THE SLOPE AND EDGES WILL PROVIDE EXTRA PROTECTION AGAINST LIFTING AND UNDERCUTTING OF SOD. THE SAME TECHNIQUE CAN BE USED TO ANCHOR SOD IN WATER-CARRYING CHANNELS AND OTHER CRITICAL AREAS. WIRE STAPLES MUST BE USED TO ANCHOR NETTING IN CHANNEL WORK.
   F. IMMEDIATELY FOLLOWING INSTALLATION, SOD SHOULD BE WATERED UNTIL WATER PENETRATES THE SOIL LAYER BENEATH SOD TO A DEPTH OF 1 INCH. MAINTAIN OPTIMUM WATER FOR AT LEAST TWO WEEKS.
4. TOPDRESSING
   A. SINCE SOIL ORGANIC MATTER AND SLOW RELEASE NITROGEN FERTILIZER (WATER INSOLUBLE) ARE PRESCRIBED IN SECTIONS 1 AND 2, A FOLLOW-UP TOPDRESSING IS NOT MANDATORY, EXCEPT WHERE GROSS NITROGEN DEFICIENCY EXISTS IN THE SOIL TO THE EXTENT THAT TURF FAILURE MAY DEVELOP, TOPDRESSING SHALL THEN BE APPLIED. TOPDRESS WITH 10-0-10 OR EQUIVALENT AT 400 POUNDS PER ACRE OR 7 POUNDS PER 1,000 SQUARE FEET EVERY 3 TO 5 WEEKS UNTIL THE GROSS DEFICIENCY IN THE TURF IS AMELIORATED.

PERMANENT SOD

MANAGEMENT OF HIGH ACID PRODUCING SOIL

HIGH ACID PRODUCING SOILS MAY BE PRESENT IN UNDISTURBED SOILS AT VARYING DEPTHS INCLUDING NEAR THE SOIL SURFACE TO EXCAVATIONS OR DEEP DISTURBANCES. ITS PRESENCE ON A SITE MAY BE SIGNIFICANT OR LIMITED IN THE SOIL PROFILE. HIGH ACID PRODUCING SOILS ARE COMMONLY BLACK, DARK BROWN, GRAY OR GREENISH WITH SILVERY PYRITE OR MARCASITE NUGGETS OR FLAKED. ALTERNATIVELY, SANDY SOILS OR REDDISH, YELLOWISH OR LIGHT TO MEDIUM BROWN SOIL MATERIALS ARE USUALLY FREE OF HIGH ACID PRODUCING DEPOSITS.

METHODS AND MATERIALS:

1. LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID PRODUCING SOILS ARE ENCOUNTERED.
2. TOPSOIL STRIPPED FROM THE SITE SHALL BE STORED SEPARATELY FROM TEMPORARY STOCKPILED HIGH ACID PRODUCING SOILS.
3. STOCKPILES OF HIGH ACID PRODUCING SOIL SHOULD BE LOCATED ON LEVEL LAND TO MINIMIZE ITS MOVEMENT, ESPECIALLY WHEN THIS MATERIAL HAS A HIGH CLAY CONTENT.
4. TEMPORARILY STOCKPILED HIGH ACID PRODUCING SOIL MATERIAL TO BE EXPOSED MORE THAN 30 DAYS SHOULD BE COVERED WITH PROPERLY ANCHORED, HEAVY GRADE SHEETS OF POLYETHYLENE WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES 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.
5. HIGH ACID PRODUCING SOILS WITH A pH OF 4 OR LESS, OR CONTAINING IRON SULFIDE, (INCLUDING BORROW FROM CUTS) SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 6 TONS PER ACRE (OR 275 LBS / 1,000 SF OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12 INCHES OF SETTLED SOIL WITH A pH OF 5 OR MORE EXCEPT AS FOLLOWS:
   A. 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 OR MORE.
   B. DISPOSAL AREAS SHALL NOT BE LOCATED WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OR BANK, SUCH AS BERMS, STREAM BANKS, DITCHES AND OTHERS TO PREVENT POTENTIAL LATERAL LEACHING DAMAGES.
6. EQUIPMENT USED FOR MOVEMENT OF HIGH ACID PRODUCING SOILS SHOULD BE CLEANED AT THE END OF EACH DAY TO PREVENT SPREADING OF HIGH ACID SOIL MATERIALS TO OTHER PARTS OF THE SITE, INTO STREAMS OR STORMWATER CONVEYANCES AND TO PROTECT MACHINERY FROM ACCELERATED RUSTING.
7. NON VEGETATIVE EROSION CONTROL PRACTICES (STONE TRACKING PADS, STRATEGICALLY PLACED LIMESTONE CHECK DAM, SILT FENCE, WOOD CHIPS) SHOULD BE INSTALLED TO LIMIT THE MOVEMENT OF HIGH ACID PRODUCING SOILS FROM, AROUND OR OFF THE SITE.
8. FOLLOWING BURIAL OR REMOVAL OF HIGH ACID PRODUCING SOIL, TOPSOILING AND SEEDING OF THE SITE, MONITORING SHOULD CONTINUE FOR APPROXIMATELY 6 TO 12 MONTHS TO ASSURE THERE IS ADEQUATE STABILIZATION AND THAT NO HIGH ACID SOIL PROBLEMS EMERGE. IF PROBLEMS STILL EXIST THE AFFECTED AREA MUST BE TREATED AS INDICATED ABOVE TO CORRECT THE PROBLEM.
9. MONITORING OF AREAS WHERE HIGH ACID PRODUCING SOIL HAS BEEN PLACED OR BURIED SHOULD BE PERFORMED FOR AT LEAST 2 YEARS OR LONGER IF PROBLEMS OCCUR, TO ASSURE THERE IS NO MIGRATION OF POTENTIAL ACID LEACHATE.

MANAGEMENT OF HIGH ACID PRODUCING SOIL

TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION

DISTURBED AREAS SHALL BE MAINTAINED IN A ROUGH GRADED CONDITION AND TEMPORARILY SEEDED AND HAY MULCHED UNTIL PROPER WEATHER EXISTS FOR THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER. THE FOLLOWING SCHEDULE SHALL BE USED FOR TEMPORARY STABILIZATION:

1. SITE PREPARATION
   A. INSTALL EROSION CONTROL MEASURES AS INDICATED ON THE "SOIL EROSION AND SEDIMENT CONTROL PLAN," DRAWING CE-101 AND AS DETAILED ON DRAWING CE-502.
   B. IMMEDIATELY PRIOR TO SEEDING, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES.
2. SEEDBED PREPARATION
   A. APPLY GROUND LIMESTONE AND FERTILIZER. LIMESTONE SHALL BE APPLIED AT A RATE OF 90 LBS/1,000 SF (2 TONS/ACRE - FOR SANDY LOAM, LOAM, AND SILT LOAM) AS PER TABLE 7-1 OF THE STATE SOIL EROSION STANDARDS. FERTILIZER SHALL BE APPLIED AT A RATE OF 11 LBS/1,000 SF (500 LBS/ACRE) OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN.
   B. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4" WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.
   C. INSPECT SEEDBED JUST PRIOR TO SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED IN ACCORDANCE WITH THE ABOVE.
3. SEEDING
   A. APPLY PERENNIAL RYEGRASS AT A RATE OF 1 LB/1,000 SF (100 LBS/ACRE) TO A DEPTH OF 2" AS PER TABLE 7-2 AND FIGURE 7-1 OF THE STATE SOIL EROSION STANDARDS. PLANT BETWEEN MARCH 1 AND MAY 15 OR BETWEEN AUGUST 15 AND OCTOBER 1. PRIOR TO MARCH 1, STABILIZE WITH MULCH ONLY (SEE SPECIFICATIONS, THIS SHEET).
   B. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DROP SEEDER, DRILL OR CULTIPACKER SEEDER. EXCEPT FOR DRILLED OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL, TO A DEPTH OF 1/4" TO 1/2", BY RAKING OR DRAGGING.
   C. HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL.
   D. AFTER SEEDING, FIRM THE SOIL WITH A CORRUGATED ROLLER TO ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDLING EMERGENCE.
4. MULCHING
   A. MULCHING IS REQUIRED ON ALL SEEDING TO INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND PROMOTE FASTER AND EARLIER ESTABLISHMENT.
   B. UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR SALT HAY SHALL BE APPLIED AT A RATE OF 70 TO 90 LBS/1,000 SF (1-1/2 TO 2 TONS PER ACRE). MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED DUE TO THE PRESENCE OF WEED SEEDS.
   C. SPREAD MULCH UNIFORMLY BY HAND OR MECHANICALLY SO THAT APPROXIMATELY 85% OF THE SOIL SURFACE WILL BE COVERED.
   D. ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. DRIVE 8" TO 10" WOODEN PEGS TO WITHIN 2" TO 3" OF THE SOIL SURFACE EVERY 4' IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRIS-CROSS AND SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.

TEMPORARY SEED MIX

STANDARD FOR DUST CONTROL

DUST CONTROL MEASURES SHALL BE USED TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON-SITE AND OFF-SITE DAMAGE AND HEALTH HAZARDS, AND IMPROVE TRAFFIC SAFETY. ONE OR MORE OF THE FOLLOWING METHODS MAY BE USED FOR DUST CONTROL:

1. MULCH
   A. SEE SPECIFICATIONS, THIS SHEET.
2. VEGETATIVE COVER
   A. SEE SPECIFICATIONS, THIS SHEET.
3. SPRAY-ON ADHESIVES
   A. ANIONIC ASPHALT EMULSION, DILUTED WITH WATER AT 7:1, COARSE SPRAY, APPLY AT A RATE OF 1200 GALLONS/ACRE.
   B. LATEX EMULSION, DILUTED WITH WATER AT 12.5:1, FINE SPRAY, APPLY AT A RATE OF 235 GALLONS/ACRE.
   C. POLYACRYLAMIDE (PAM) SPRAY ON OR DRY SPREAD - APPLY PER MANUFACTURER'S INSTRUCTIONS.
   D. ACIDULATED SOY BEAN SOAP STICK, DO NOT DILUTE, COARSE SPRAY, APPLY AT A RATE OF 1200 GALLONS/ACRE.
4. TILLAGE
   A. ROUGHEN THE SURFACE TO BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING BEGINS. BEGIN PLOWING ON THE WINDWARD SIDE OF THE SITE. USE CHISEL-TYPE PLOWS SPACES APPROXIMATELY 12" APART, OR SPRING-TOOTHED HARROWS.
5. SPRINKLING
   A. SPRINKLE ALL EXPOSED AREAS UNTIL THE SURFACE IS WET.
6. BARRIERS
   A. SOLID BOARD FENCE, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIALS USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.
7. CALCIUM CHLORIDE
   A. LOOSE, DRY GRANULES OR FLAKES SHALL BE FED THROUGH COMMONLY USED SPREADERS AT A RATE THAT WILL KEEP THE SURFACE MOIST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE. IS USED ON STEEP SLOPES, OTHER PRACTICES MUST ALSO BE IMPLEMENTED TO PREVENT WASHING INTO STREAMS OR ACCUMULATION AROUND PLANTS.
8. STONE
   A. COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

STANDARD FOR DUST CONTROL

STANDARD FOR TOPSOILING

TOPSOIL SHALL BE USED WHERE SOILS ARE TO BE DISTURBED AND WILL BE REVEGETATED. THE FOLLOWING SCHEDULE SHALL BE USED FOR MAINTENANCE OF VEGETATION:

1. MATERIALS
   A. 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. SOLUBLE SALTS SHOULD NOT BE EXCESSIVE (CONDUCTIVITY LESS THAN 0.5 MILLIOHMS PER CENTIMETER). MORE THAN 0.5 MILLIOHMS MAY DESICCATE SEEDLINGS AND ADVERSELY IMPACT GROWTH.
   B. TOPSOIL HAULED IN FROM OFFSITE SHOULD HAVE A MINIMUM ORGANIC MATTER CONTENT OF 2.75 PERCENT. ORGANIC CONTENT MAY BE RAISED BY ADDITIVES.
2. STRIPPING AND STOCKPILING
   A. FIELD EXPLORATION SHOULD BE MADE TO DETERMINE WHETHER QUANTITY AND/OR QUALITY OF SURFACE SOIL JUSTIFIES STRIPPING.
   B. STRIPPING SHOULD BE CONFINED TO THE IMMEDIATE CONSTRUCTION AREA.
   C. WHERE FEASIBLE, LIME MAY BE APPLIED BEFORE STRIPPING TO BRING THE SOIL PH OR APPROXIMATELY Y6.5. LIMESTONE SHALL BE APPLIED AT A RATE OF 90 LBS/1,000 SF (2 TONS/ACRE - FOR SANDY LOAM, LOAM, AND SILT LOAM) AS PER TABLE 4-1 OF THE STATE SOIL EROSION STANDARDS.
   D. A 4" TO 6" STRIPPING DEPTH IS COMMON, BUT MAY VARY DEPENDING ON THE PARTICULAR SOIL.
   E. STOCKPILES OF TOPSOIL SHOULD BE SITUATED SO AS NOT TO OBSTRUCT NATURAL DRAINAGE OR CAUSE OFF-SITE ENVIRONMENTAL DAMAGE.
   F. STOCKPILES SHOULD BE VEGETATED AS DESCRIBED IN THE DETAILS ON THIS SHEET. WEEDS SHOULD NOT BE ALLOWED TO GROW ON STOCKPILES.
3. SITE PREPARATION
   A. GRADE AT THE ONSET OF THE OPTIMAL SEEDING PERIOD TO AS TO MINIMIZE THE DURATION AND AREA OF EXPOSURE OF DISTURBED SOIL TO EROSION. IMMEDIATELY PROCEED TO ESTABLISH VEGETATIVE COVER IN ACCORDANCE WITH THE SPECIFIED SEED MIXTURE (SEE DETAIL THIS SHEET).
   B. LIMESTONE, IF REQUIRED, SHOULD BE APPLIED TO BRING SOIL TO A PH OF APPROXIMATELY 6.5 AND INCORPORATED INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4".
   C. IMMEDIATELY PRIOR TO TOPSOILING, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION TO ENSURE A GOOD BOND BETWEEN THE TOPSOIL AND SUBSOIL. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES.
   D. INSTALL EROSION CONTROL MEASURES AS INDICATED ON THE "SOIL EROSION AND SEDIMENT CONTROL PLAN," DRAWING CE-101 AND AS DETAILED ON DRAWING CE-502.
4. APPLYING TOPSOIL
   A. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING SOIL STRUCTURE.
   B. A UNIFORM APPLICATION DEPTH OF 5" (UNSETTLED) IS RECOMMENDED. SOILS WITH A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM DEPTH OF 12" OF SOIL HAVING A PH OF 5.0 OR MORE.

STANDARD FOR TOPSOILING

STABILIZATION WITH MULCH ONLY

NON-GROWING STABILIZATION MEASURES SHALL BE USED WHERE THE SEASON & OTHER CONDITIONS MAY NOT BE SUITABLE FOR GROWING AN EROSION RESISTANT COVER OR WHERE STABILIZATION IS NEEDED FOR A SHORT PERIOD UNTIL MORE SUITABLE PROTECTION CAN BE APPLIED. THE FOLLOWING SCHEDULE SHALL BE USED FOR STABILIZATION MULCH:

1. SITE PREPARATION
   A. INSTALL EROSION CONTROL MEASURES AS INDICATED ON THE "SOIL EROSION AND SEDIMENT CONTROL PLAN," DRAWING CE-101 AND AS DETAILED ON DRAWING CE-502.
2. PROTECTIVE MATERIALS
   A. APPLY UNROTTED SMALL-GRAIN STRAW, OR SALT HAY UNIFORMLY AT A RATE OF 90 TO 115 LBS/1,000 SF (2.0 TO 2.5 TONS/ACRE) AND ANCHOR WITH A MULCH ANCHORING TOOL.
3. MULCH ANCHORING
   A. ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. DRIVE 8" TO 10" WOODEN PEGS TO WITHIN 2" TO 3" OF THE SOIL SURFACE EVERY 4' IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRIS-CROSS AND SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.

STABILIZATION WITH MULCH

CONSTRUCTION OPERATIONS

OPERATION	ANTICIPATED DURATION
1. NOTIFY THE MERCER COUNTY SOIL CONSERVATION DISTRICT AT LEAST 48 HOURS PRIOR TO ANY PROJECT PRE-CONSTRUCTION MEETING OR SITE DISTURBANCE.	2 WEEKS (items 1–2)
2. PLACE AND MAINTAIN THE SEDIMENT BARRIERS AS SHOWN ON THE PLAN. INSTALL INLET PROTECTION AS SHOWN. ALL TRAFFIC MUST USE THE SPECIFIED CONSTRUCTION ENTRANCE AT ALL TIMES.	
3. INSTALL SEDIMENT CONTROL BASIN AS SHOWN ON THE APPROVED SOIL EROSION AND SEDIMENT CONTROL PLAN. PROPOSED BASIN TO BE EXCAVATED WHILE NOT COMPACTED THE SUBSOILS OF THE BASIN BOTTOM. INSTALL SEDIMENT RISERS AND SEDIMENT CONTROL BASINS.	1 WEEK
4. PERFORM SITE DEMOLITION ACTIVITIES. CLEAR AND GRUB AREAS AS REQUIRED.	1 MONTH
5. ROUGH GRADE THE SITE. INSTALL STORM DRAINAGE FROM DOWNSTREAM TO UPSTREAM. INSTALL ALL UTILITY IMPROVEMENTS. APPLY TEMPORARY OR PERMANENT STABILIZATION TO ALL DISTURBED AREAS THAT ARE NO LONGER UNDER ACTIVE CONSTRUCTION. INSTALL INLET FILTER PROTECTION OVER NEW STORM SYSTEM.	6 WEEKS
6. AFTER STORM DRAINAGE SYSTEM IS CONSTRUCTED, CONTRACTOR SHALL CONTINUE TO MONITOR ADJACENT STREETS TO DETERMINE IF INLET PROTECTION IS REQUIRED BEYOND THE SITE LIMITS.	—
7. BEGIN AND CONTINUE SITEWORK AND BUILDING CONSTRUCTION.	2 MONTHS
8. COMPLETE FINAL SITE GRADING. SPREAD 5 INCHES OF TOPSOIL.	2 WEEKS
9. ALL SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL ALL IMPROVEMENTS TO THE SITE ARE COMPLETED.	—
10. PERFORM NECESSARY SOIL RECOMPACTION.	2 WEEKS
11. LANDSCAPE ALL APPROPRIATE AREAS AS INDICATED AND REMOVE ALL TEMPORARY SEDIMENT CONTROL STRUCTURES.	2 WEEKS
12. NOTIFY THE MERCER COUNTY SOIL CONSERVATION DISTRICT AT THE COMPLETION OF CONSTRUCTION.	—
TOTAL	±27 WEEKS (≈7 MONTHS)

SCHEDULE OF CONSTRUCTION OPERATIONS WAS DEVELOPED BY THE ENGINEER AND IS APPROXIMATE. THE CONTRACTOR MAY ALTER THIS SCHEDULE SIGNIFICANTLY. THE SCHEDULE IS FOR CONCEPTUAL PURPOSES ONLY.

SEQUENCE OF CONSTRUCTION OPERATIONS

MAINTENANCE OF VEGETATION

MAINTENANCE SHALL OCCUR ON A REGULAR BASIS, CONSISTENT WITH FAVORABLE PLANT GROWTH, SOIL, AND CLIMATIC CONDITIONS. THIS INVOLVES REGULAR SEASONAL WORK FOR MOWING, FERTILIZING, LIMING, WATERING, PRUNING, FIRE CONTROL, WEED AND PEST CONTROL, RESEEDING, AND TIMELY REPAIRS. THE FOLLOWING SCHEDULE SHALL BE USED FOR MAINTENANCE OF VEGETATION:

1. THE SITE'S VEGETATED AREAS WILL REQUIRE MEDIUM TO LOW LEVELS OF MAINTENANCE. MOWING IS EXPECTED TO BE INFREQUENT TO PERMIT NATURAL SUCCESSION.
2. FERTILIZER AND LIME SHALL BE APPLIED AS NEEDED TO MAINTAIN A DENSE STANDARD OF DESIRABLE SPECIES. FREQUENTLY MOWED AREAS AND THOSE ON SANDY SOILS WILL REQUIRE MORE FERTILIZATION.
3. LIME REQUIREMENT SHALL BE DETERMINED BY SOIL TESTING EVERY 2 TO 3 YEARS. FERTILIZATION INCREASES THE NEED FOR LIMING.
4. WEED INVASION MAY RESULT FROM ABUSIVE MOWING AND FROM INADEQUATE FERTILIZING AND LIMING. 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, SINCE THEY OFTEN REDUCE DRAINAGE WAY EFFICIENCY. CONTROL OF WEEDS OR BRUSH IS ACCOMPLISHED BY USING HERBICIDES OR MECHANICAL METHODS.
5. VEGETATION SHALL BE KEPT PEST AND DISEASE FREE.
6. ACCUMULATED DRY VEGETATION SHALL BE REMOVED TO REDUCE THE FIRE HAZARD.
7. PRUNE TREES AND SHRUBS TO REMOVE DEAD OR DAMAGED BRANCHES. REMOVE UNDESIRABLE OR INVASIVE PLANTS TO MAINTAIN INTEGRITY OF THE LANDSCAPE AND ENHANCE QUALITY OF PERMANENT VEGETATIVE COVER.

MAINTENANCE OF VEGETATION

MERCER COUNTY
SOIL CONSERVATION DISTRICT
590 HUGHES DRIVE
HAMILTON SQUARE, N.J. 08690
PHONE: (609) 586-9603
FAX: (609) 586-1117
MERCERSOIL@AOL.COM

CONTRACTOR MUST NOTIFY DISTRICT 48-HOURS PRIOR TO START OF CONSTRUCTION.

SOIL EROSION CONTACT

PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

(SHOWN FOR REFERENCE ONLY - ALL LAWN AREAS SHALL BE STABILIZED WITH SOD)

PERMANENT SEEDING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY." THE FOLLOWING SEEDING SCHEDULE SHOULD BE USED FOR PERMANENT STABILIZATION:

1. SITE PREPARATION
   A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING.
   B. IMMEDIATELY PRIOR TO SEEDING AND TOPSOIL APPLICATION, THE SUBSOIL SHALL BE EVALUATED FOR COMPACTION IN ACCORDANCE WITH STANDARD FOR LAND GRADING.
   C. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES. TOPSOIL SHALL BE AMENDED WITH ORGANIC MATTER, AS NEEDED, IN ACCORDANCE WITH STANDARD FOR TOPSOILING.
   D. INSTALL EROSION CONTROL MEASURES AS INDICATED ON THE "SOIL EROSION AND SEDIMENT CONTROL PLAN," DRAWING CE-101 AND AS DETAILED ON DRAWING CE-502.
2. SEEDBED PREPARATION
   A. UNIFORMLY APPLY GROUND LIMESTONE AND FERTILIZER TO TOPSOIL WHICH HAS BEEN SPREAD AND FIRMED, ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 LBS PER ACRE OR 11 LBS/1,000 SF OF 10-10-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE AND INCORPORATED INTO THE SURFACE 4 INCHES. IF FERTILIZER IS NOT INCORPORATED, APPLY ONE-HALF THE RATE DESCRIBED ABOVE DURING SEEDBED PREPARATION AND REPEAT ANOTHER ONE-HALF THE RATE APPLICATION OF THE SAME FERTILIZER WITHIN 3 TO 5 WEEKS AFTER SEEDING.
   B. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4" WITH A DISC, SPRING-TOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.
   C. HIGH ACID PRODUCING SOIL - SOILS HAVING A pH OF 4 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH MINIMUM OF 12 INCHES OF SOIL HAVING A pH OF 5 OR MORE BEFORE INITIATING SEEDBED PREPARATION. SEE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOIL.
3. SEEDING
   A. 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.
   B. APPLY 70% TURF TYPE TALL FESCUE, 20% PERENNIAL RYEGRASS, AND 10% KENTUCKY BLUE GRASS. SEED AT A RATE OF 2,000 LBS/ACRE. OPTIMAL PLANTING TIME OCCURS BETWEEN AUGUST 15 AND OCTOBER 15. ACCEPTABLE PLANTING TIME IS BETWEEN MARCH 1 AND APRIL 30 OR BETWEEN MAY 1 THROUGH AUGUST 14.
   C. SEEDING RATE SPECIFIED IS REQUIRED WHEN A REPORT OF COMPLIANCE IS REQUESTED PRIOR TO ACTUAL ESTABLISHMENT OF VEGETATION. UP TO 50% REDUCTION IN RATES MAY BE USED WHEN PERMANENT VEGETATION IS ESTABLISHED PRIOR TO A REPORT OF COMPLIANCE INSPECTION. ESTABLISHING PERMANENT VEGETATION MEANS 80% VEGETATIVE COVERAGE WITH A SPECIFIED SEED MIXTURE FOR THE SEEDED AREA AND MOWED ONCE.
   D. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DROP SEEDER, DRILL OR CULTIPACKER SEEDER. EXCEPT FOR DRILLED OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL, TO A DEPTH OF 1/4" TO 1/2", BY RAKING OR DRAGGING.
   E. HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL.
   F. AFTER SEEDING, FIRM THE SOIL WITH A CORRUGATED ROLLER TO ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDLING EMERGENCE.
   G. WET SEED MIX (IF REQUIRED): APPLY DEERTONGUE AT A RATE OF 0.45 LBS/1,000 SF (20 LBS/ACRE), REDTOP AT A RATE OF 0.05 LBS/1,000 SF (2 LBS/ACRE), WILD RYE (ELYMUS) AT A RATE OF 0.35 LBS/1,000 SF (15 LBS/ACRE), AND SWITCHGRASS AT A RATE OF 0.60 LBS/1,000 SF (25 LBS/ACRE) TO A DEPTH OF 2" AS PER TABLES 4-2 AND 4-3, AND FIGURE 4-1 OF THE STATE SOIL EROSION STANDARDS. PLANT BETWEEN MARCH 1 AND APRIL 30.
4. MULCHING
   A. MULCHING IS REQUIRED ON ALL SEEDING TO INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND PROMOTE FASTER AND EARLIER ESTABLISHMENT.
   B. UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR SALT HAY SHALL BE APPLIED AT A RATE OF 70 TO 90 LBS/1,000 SF (1-1/2 TO 2 TONS PER ACRE). MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED DUE TO THE PRESENCE OF WEED SEEDS.
   C. SPREAD MULCH UNIFORMLY BY HAND OR MECHANICALLY SO THAT APPROXIMATELY 85% OF THE SOIL SURFACE WILL BE COVERED.
   D. ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. DRIVE 8" TO 10" WOODEN PEGS TO WITHIN 2" TO 3" OF THE SOIL SURFACE EVERY 4' IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRIS-CROSS AND SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.
5. IRRIGATION
   A. IF SOIL IS MOISTURE DEFICIENT, AND MULCH IS NOT USED, SUPPLY NEW SEEDLINGS WITH ADEQUATE WATER (A MINIMUM OF 1/4" TWICE A DAY UNTIL VEGETATION IS WELL ESTABLISHED). THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE IN ABNORMALLY DRY OR HOT WEATHER OR ON DROUGHTY SITES.
   B. COORDINATE IRRIGATION OF SEEDED AREAS WITH PROPERTY OWNER AND MAINTENANCE PERSONNEL.
6. TOPDRESSING
   A. SLOW RELEASE NITROGEN FERTILIZER (WATER INSOLUBLE) IS PRESCRIBED IN 2.A. ABOVE, NO FOLLOW-UP OF TOPDRESSING IS MANDATORY. AN EXCEPTION MAY BE MADE WHERE GROSS NITROGEN DEFICIENCY EXISTS TO THE EXTENT THAT TURF FAILURE MAY DEVELOP, IN THAT INSTANCE, TOPDRESS WITH 10-10-10 OR EQUIVALENT AT 7 LBS/1,000 SF (300 LBS/ACRE) EVERY 3 TO 5 WEEKS UNTIL THE GROSS NITROGEN DEFICIENCY IN THE TURF IS AMELIORATED.

PERMANENT SEED MIX

LANGAN

PROJECT NO. 130152601

Date	Description	No.
11/11/2022	NJDEP FHA SUBMISSION #4	5.
9/16/2022	NJDEP FHA SUBMISSION #3	4.
8/10/2022	NJDEP FHA SUBMISSION #2	3.
6/30/2022	DESIGN DEVELOPMENT FINAL	2.
6/9/2022	NJDEP FHA SUBMISSION	1.

REVISIONS

Digitally signed by Christian M Roche
Date: 2022.11.14 07:32:27-05'00'

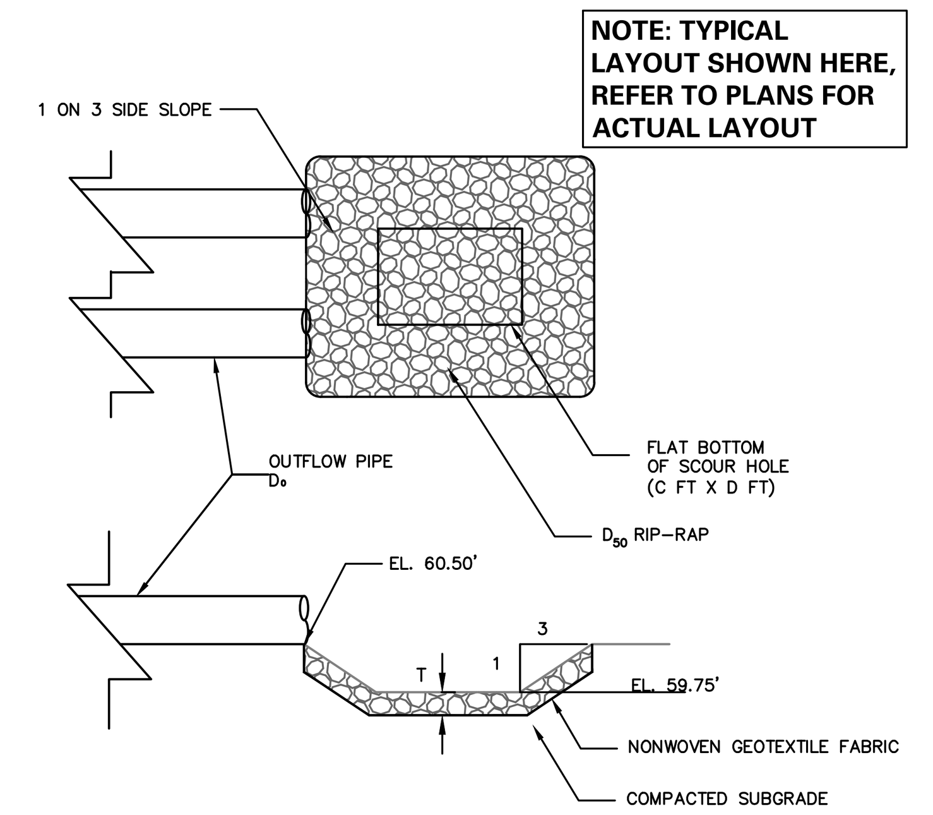
SIGNATURE 8/8/2022
CHRISTIAN ROCHE
PROFESSIONAL ENGINEER NJ Lic. No. 24GE04988100

LANGAN
Langan Engineering and Environmental Services, Inc.
989 Lenox Drive, Suite 124
Lawrenceville, NJ 08648
T: 609.282.8000 F: 609.282.8001 www.langan.com
NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

Project
CAMPUS OPERATIONS BUILDING - PRINCETON UNIVERSITY LAKE CAMPUS
PRINCETON UNIVERSITY
WEST WINDSOR TOWNSHIP (BLOCK 3, LOT 1.012)
MERCER COUNTY NEW JERSEY

Drawing Title
SOIL EROSION AND SEDIMENT CONTROL NOTES

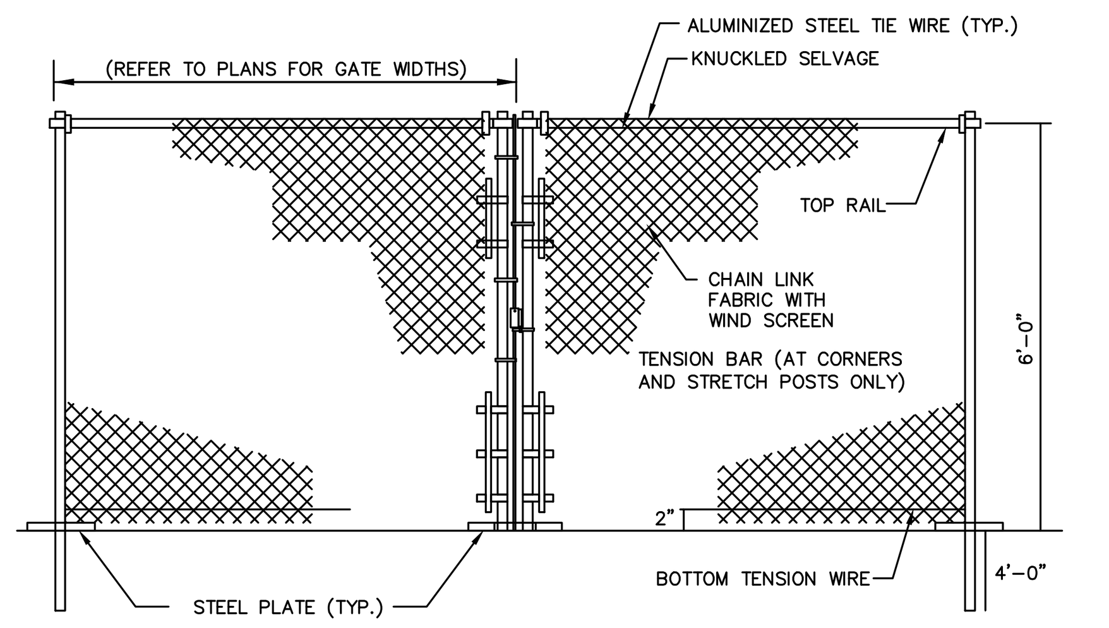
Project No.	Drawing No.
130183501	CE-501
Date: 06/09/2022	
Drawn By: CJS	
Checked By: CMR	Sheet 8 of 14



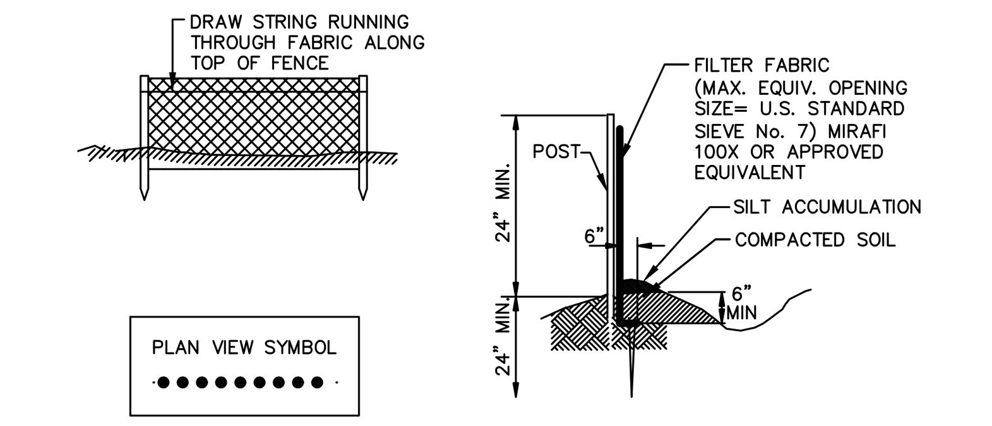
CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AND PROTECT FROM PUNCHING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE.
2. PREPARE THE SUBGRADE FOR THE SCOUR HOLE TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
3. EMBED THE GEOTEXTILE A MINIMUM OF 4 INCHES AND EXTEND THE GEOTEXTILE A MINIMUM OF 6 INCHES BEYOND THE EDGE OF THE SCOUR HOLE.
4. STONE FOR THE SCOUR HOLE MAY BE PLACED BY EQUIPMENT. CONSTRUCT TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. DELIVER AND PLACE THE STONE FOR THE SCOUR HOLE IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE STONE FOR THE SCOUR HOLE IN A MANNER TO PREVENT DAMAGE TO THE GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
5. AT THE SCOUR HOLE OUTLET, PLACE THE STONE SO THAT IT MEETS THE EXISTING GRADE.
6. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

SCOUR HOLE DETAIL



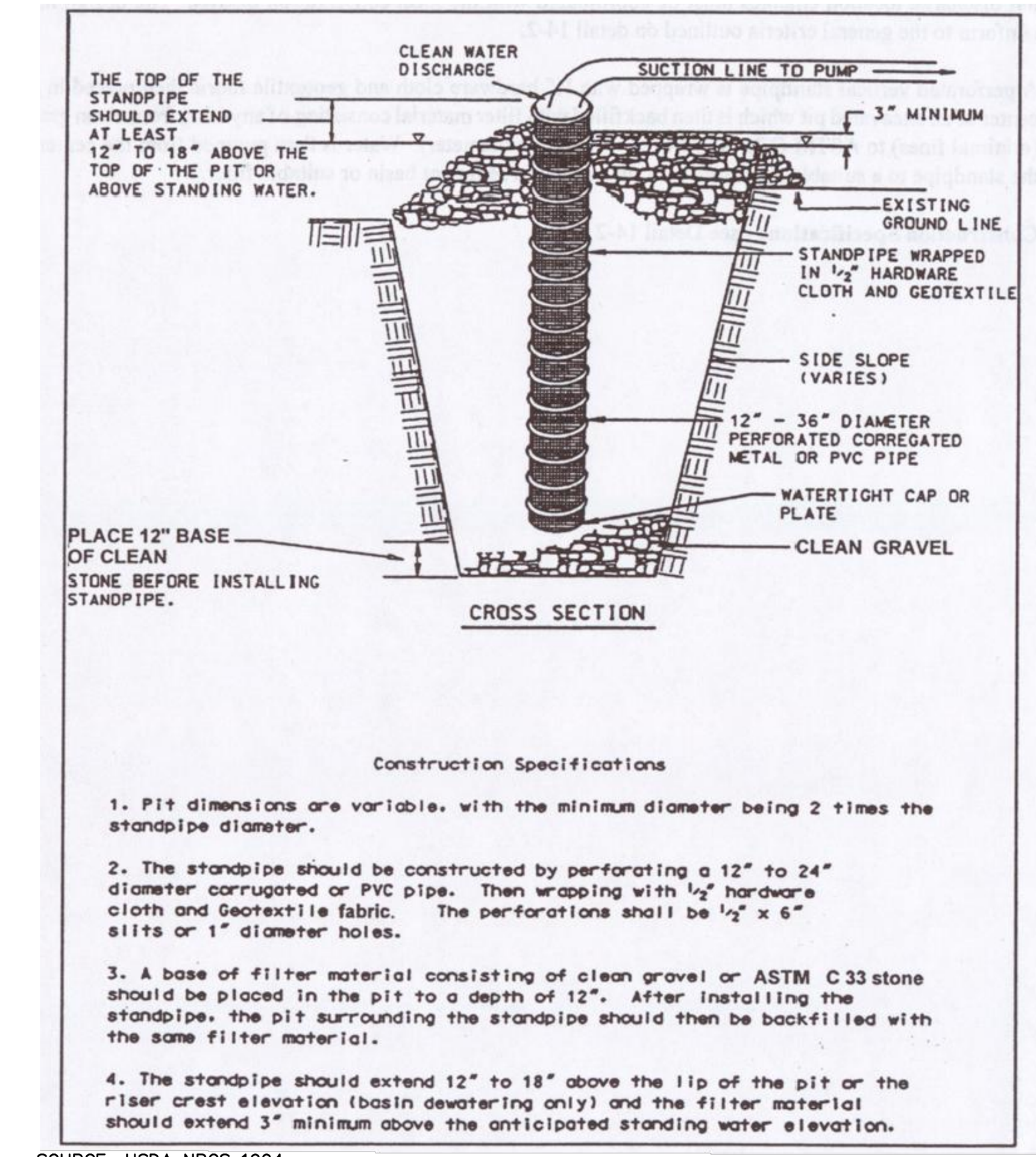
CONSTRUCTION GATE



METHOD OF INSTALLATION:

1. CONTRACTOR TO DIG 6" MIN. TRENCH AND LINE TRENCH WITH FILTER FABRIC PRIOR TO BACKFILL.
2. EXCEPT FOR THE END POST, DRIVE ALL POSTS INTO THE GROUND AT BACK SIDE OF TRENCH SPACED A MAXIMUM OF 8 FT O.C.
3. ATTACH FILTER FABRIC TO POST AND STRETCH BETWEEN POSTS. SECURE FABRIC TO POST WITH METAL FASTENER AND REINFORCEMENT MATERIAL PLACED BETWEEN THE FASTENER AND THE GEOTEXTILE FABRIC.
4. POSTS SHALL BE CONSTRUCTED OF HARDWOOD WITH A MINIMUM DIAMETER THICKNESS OF 1-1/2 INCHES.

24" SILT FENCE



Construction Specifications

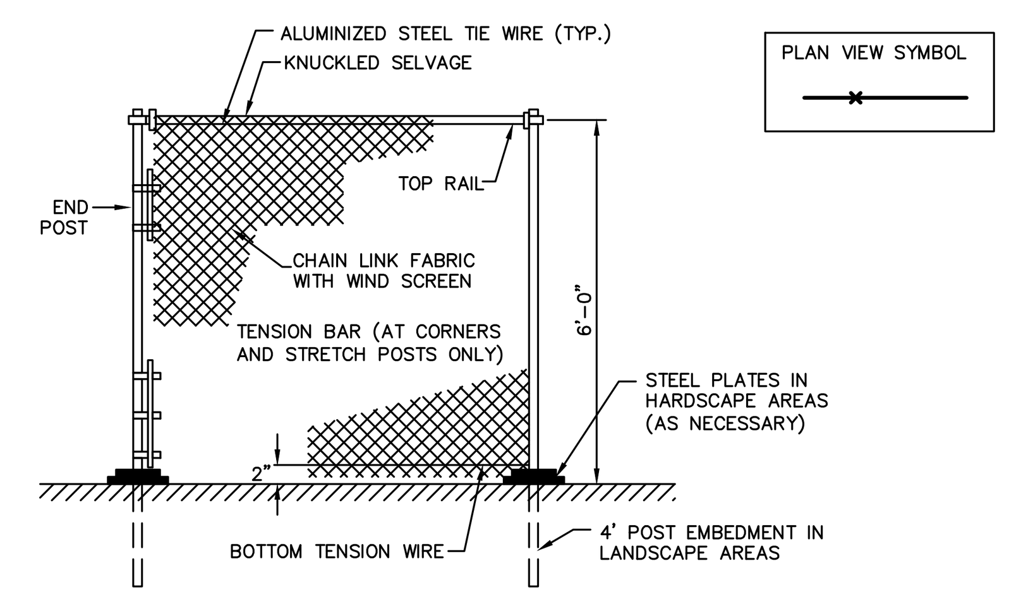
1. Pit dimensions are variable. with the minimum diameter being 2 times the standpipe diameter.
2. The standpipe should be constructed by perforating a 12" to 24" diameter corrugated or PVC pipe. Then wrapping with ½" hardware cloth and Geotextile fabric. The perforations shall be ½" x 6" slits or 1" diameter holes.
3. A base of filter material consisting of clean gravel or ASTM C 33 stone should be placed in the pit to a depth of 12". After installing the standpipe. the pit surrounding the standpipe should then be backfilled with the same filter material.
4. The standpipe should extend 12" to 18" above the lip of the pit or the riser crest elevation (basin dewatering only) and the filter material should extend 3" minimum above the anticipated standing water elevation.

SOURCE: USDA NRCS 1994

NOTE:
ALL CONSTRUCTION DEWATERING TO BE IN CONFORMANCE WITH STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, SIXTH EDITION, SECTION 14 AND APPLICABLE NJDEP PERMITS FOR THE PROJECT.

NEW JERSEY SOIL EROSION AND SEDIMENT CONTROL DETAIL FOR CONSTRUCTION DEWATERING

STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, SECTION 14, SEVENTH EDITION



6-FT TEMPORARY CONSTRUCTION FENCE

EASTCOAST erosion blankets

443 Bricker Road
Bernville, PA 19506
1-800-582-4005
610-488-8496 (office)
610-488-8494 (fax)
www.erosionblankets.com

Material and Performance Specification Sheet

ECC-2 Double Net Coconut Rolled Erosion Control Product

Description: The ECC-2 is made with uniformly distributed 100% coconut fiber and two polypropylene nets securely sewn together with UV stabilized thread. The tightly compressed blankets are placed inside vented bags and include a product label, code and installation guide. The blankets are palletized for easy transportation.

The ECC-2 has functional longevity of approximately 36 months, but will vary depending on soil and climatic conditions and is suitable for slopes 1:1. The ECC-2 meets Type 4 specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.17.

Materials:

Netting - Top and Bottom	Matrix	Thread
Heavyweight UV Stabilized Polypropylene .75" x .75" Opening	100% Coconut Fiber 0.55 lbs/sq yd	UV Stabilized 1.50" stitch spacing

Roll Sizes:

	Standards	
Width:	7.5 ft (2.3 m)	7.5 ft (2.3 m)
Length:	96.0 ft (29.3 m)	120.0 ft (36.6 m)
Weight ±10%:	48.0 lbs(20.4 kg)	60.0 lbs (27.2 kg)
Area:	80 yd² (66.9 m²)	100 yd² (83.6 m²)
#/Pallet:	20	16

Index Value Properties*:

Property	Test Method	Typical
Mass/Unit Area	ASTM D6475	9.45 oz/yd²
Thickness	ASTM D5199	.23 in
Tensile Strength-MD	ASTM D5035	270 lb/ft
Elongation-MD	ASTM D5035	38 %
Tensile Strength-TD	ASTM D5035	170 lb/ft
Elongation-TD	ASTM D5035	30 %
Light Penetration	ECTC Guidelines	14 %
Water Absorption	ASTM D1117	233 %

* May differ depending upon raw material variations

Bench-Scale Testing* (NTPEP):

Test Method	Parameters	Results
ECTC Method 2 Rainfall	50mm (2in) / hr-30 min	SLR**=8.00
	100mm (4in) / hr-30 min	SLR**=11.71
	150mm (6in) / hr-30 min	SLR**=17.41
ECTC Method 3 Shear Resistance	Shear at .50 in soil loss	2.99 lb/ft
ECTC Method 4 Germination	Top soil; Fescue; 21 day incubation	755% improvement

*Bench scale tests should not be used for design purposes.
**Soil Loss Ratio=Soil Loss Bare Soil/Soil Loss with RECP=1/C-Factor (soil loss is based on regression analysis).

Design Values:

Property	Value
Manning's N	.015
RUSLE C-Factor	.09
Maximum Permissible Sheer Stress	3.2 psf (154 Pa)
Maximum Flow Velocity	7.0 ft/sec (2.13 m/sec)

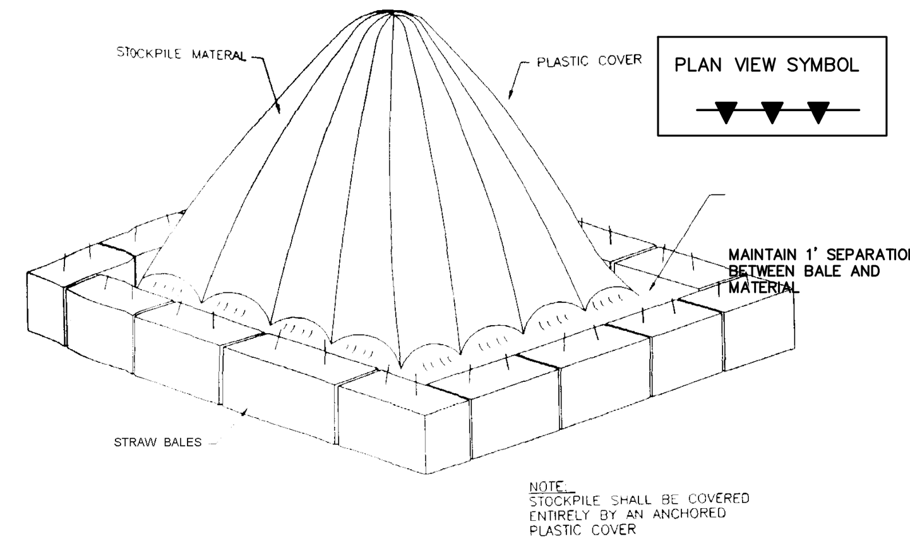
Proud Member of: IECA, ECTC, ASTM International, NAHB

NOTE:
CONTRACTOR TO INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

EROSION CONTROL BLANKET DETAIL

NOTES:

1. DISTURBED AREAS SHALL BE MULCHED WITH STRAW OR HAY IF THE FALL SEEDING PERIOD CANNOT BE SUCCESSFULLY MET.
2. MULCH TO BE APPLIED AT A RATE OF 1.5 TO 2 TONS PER ACRE. TACK MATERIAL TO BE CUTBACK ASPHALT-RAPID CURING (RC-70, PC-250 AND RC-800) OR MEDIUM CURING (MC-250 OR MC-800). APPLY 0.4 GAL/S.Y. OR 194 GAL/ACRE ON FLAT AREAS AND ON SLOPES LESS THAN 8 FEET HIGH. ON SLOPES 8 FEET OR MORE HIGH USE .075 GAL/S.Y. OR 363 GAL/ACRE.



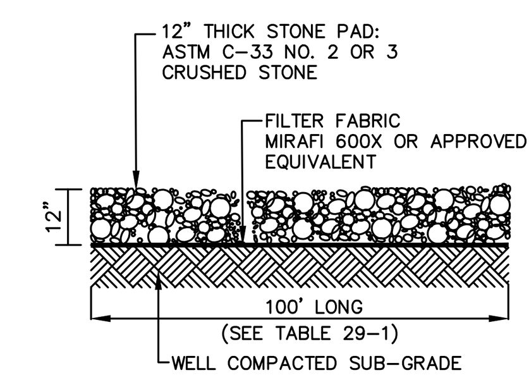
TEMPORARY SOIL STOCKPILE

Table 29-1: Lengths of Construction Exits on Sloping Roadbeds

Percent Slope of Roadway	Length of Stone Required	
	Coarse-Grained Soils	Fine-Grained Soils
2 to 5%	100 ft.	200 ft.

> 5% Entire surface stabilized with Hot Mix Asphalt Base Course, Mix I-2

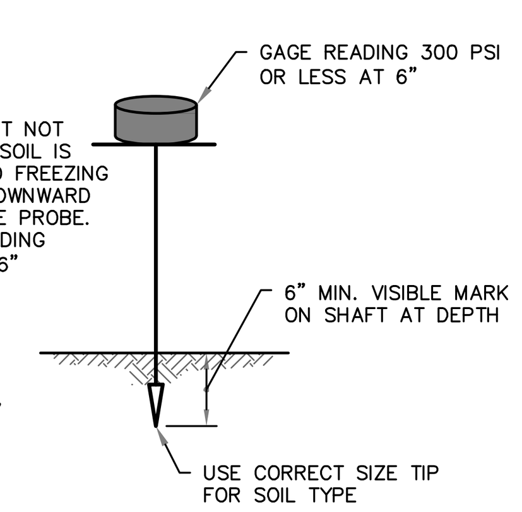
NOTE:
FOR CONSTRUCTION PAD LOCATION SEE SOIL EROSION AND SEDIMENT CONTROL PLAN.



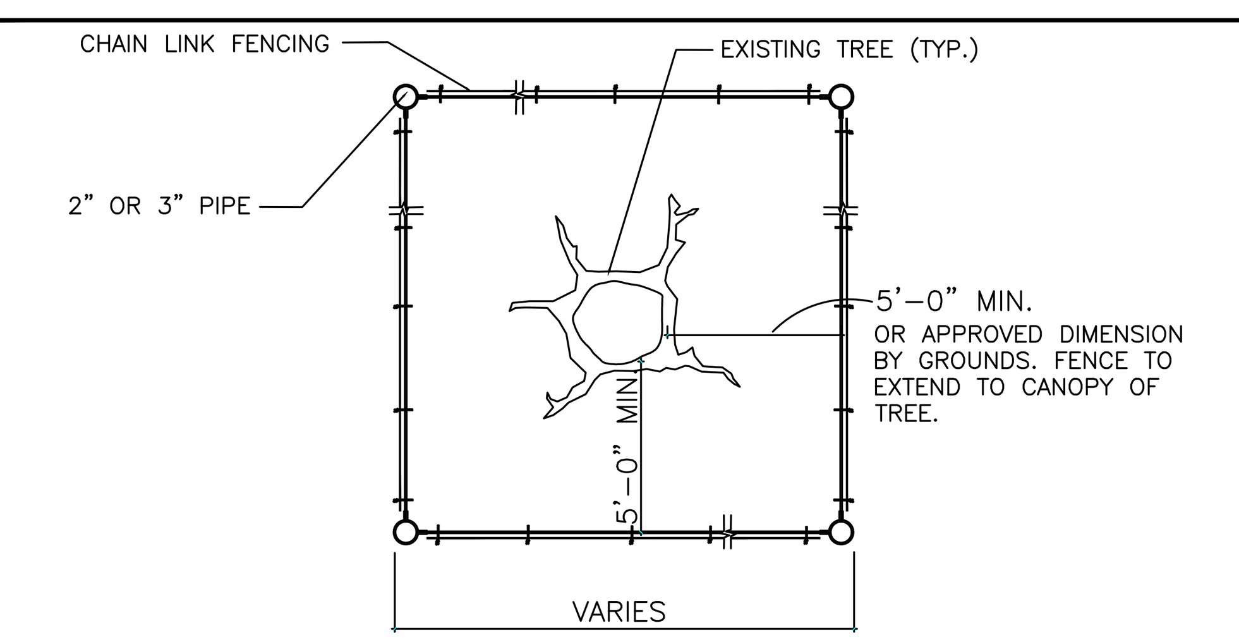
STABILIZED CONSTRUCTION ACCESS

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 6"

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



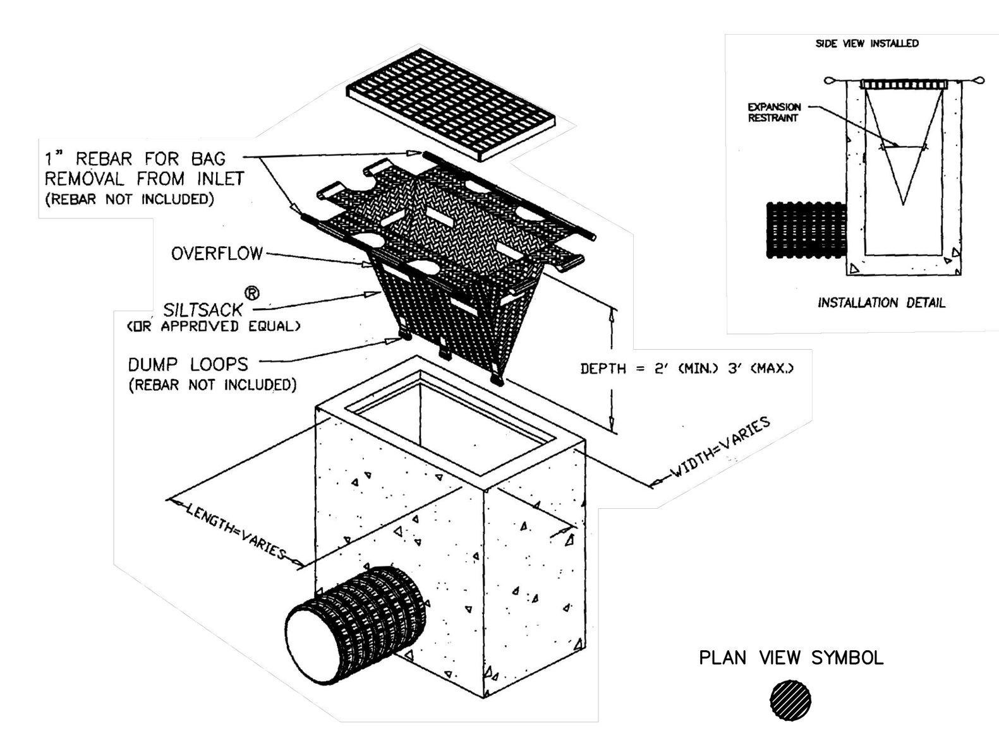
HANDHELD SOIL PENETROMETER TEST



NOTES:
1) ORIENT GUARD TO MINIMIZE INJURY TO TREE ROOTS. SEE SPECIFICATION SECTION 015639 "TEMPORARY TREE AND PLANT PROTECTION" FOR DETAILS.

2) REFER TO SHEET L-101 FOR FINAL TREE PROTECTION LOCATIONS.

TREE PROTECTION



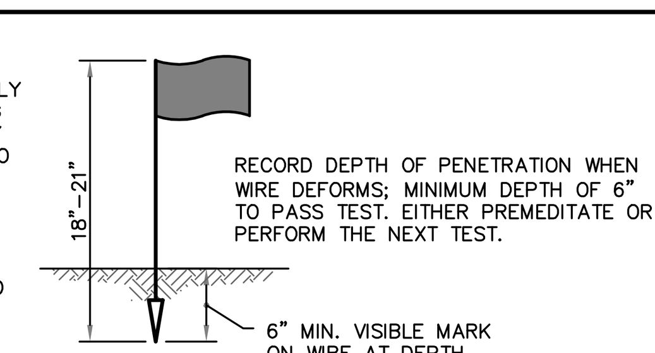
NOTES:

1. SEDIMENT FILTER BAGS ARE FOR USE WITHIN ALL INLETS THAT ARE IN PAVED AREAS BUT ARE NOT ADJACENT TO CURBING.
2. SEDIMENT FILTER BAGS SHALL BE MANUFACTURED BY SILTSACK (REGULAR FLOW MODEL) OR APPROVED EQUAL.
3. LENGTH AND WIDTH OF FILTER BAG VARIES ACCORDING TO INLET SIZE.
4. OVERFLOW HOLES ARE REQUIRED A MINIMUM OF 1 FOOT ABOVE THE BOTTOM OF THE BAG.

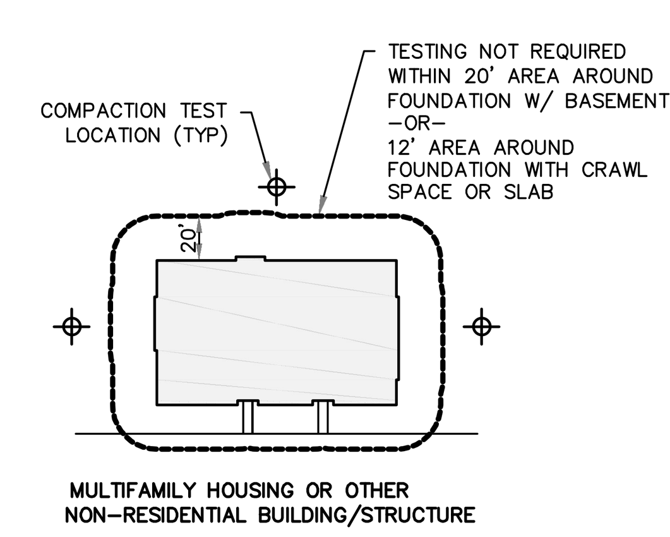
SEDIMENT FILTER BAG INSERT

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.

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



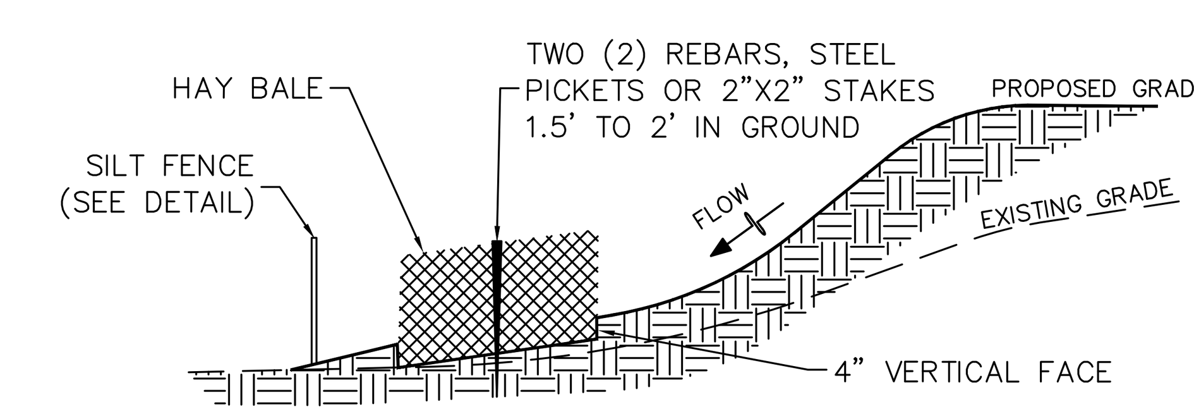
PROBING WIRE TEST 15.5 GA. STEEL WIRE (SURVEY FLAG)



MULTIFAMILY HOUSING OR OTHER NON-RESIDENTIAL BUILDING/STRUCTURE

NOTE: SOIL COMPACTION TESTING LOCATIONS IDENTIFIED ARE RECOMMENDED LOCATIONS FOR GRADED/DISTURBED AREAS WITHIN THE VICINITY OF BUILDINGS AND STRUCTURES OR ON INDIVIDUAL LOTS. FOR GRADED/DISTURBED AREAS WITHIN OPEN OR COMMON SPACES, SOIL COMPACTION TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE FREQUENCY LISTED IN THE LEGEND (THIS SHEET).

TYPICAL SOIL COMPACTION TESTING LOCATIONS



NOTES:
1) SEDIMENT SHALL BE REMOVED FROM THE UPSTREAM FACE OF THE BARRIER WHEN IT HAS REACHED HALF OF THE BARRIER HEIGHT
2) REPAIR OR REPLACE THE BARRIER WHEN DAMAGED.
3) BARRIERS SHALL BE INSPECTED DAILY FOR SIGNED OF DETERIORATION AND SEDIMENT REMOVAL.
4) PLACE HAYBALE/SILT FENCE MEASURE AT THE BOTTOM OF SLOPES AND AT LOCATIONS OF CONCENTRATED FLOW.

STAKED HAY BALE

LANGAN

PROJECT NO. 130152601

Date	Description	No.
11/11/2022	NJDEP FHA SUBMISSION #4	5.
9/16/2022	NJDEP FHA SUBMISSION #3	4.
8/10/2022	NJDEP FHA SUBMISSION #2	3.
6/30/2022	DESIGN DEVELOPMENT FINAL	2.
6/9/2022	NJDEP FHA SUBMISSION	1.

REVISIONS

Digitally signed by Christian M Roche
Date: 2022.11.14 07:32:36-05'00'

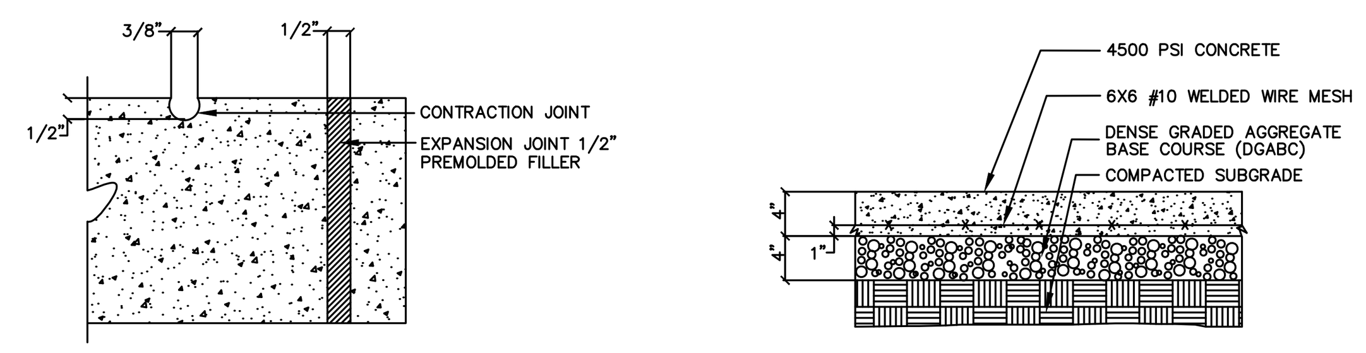
SIGNATURE CHRISTIAN ROCHE 8/8/2022
PROFESSIONAL ENGINEER NJ Lic. No. 24GE04988100

LANGAN
Langan Engineering and Environmental Services, Inc.
989 Lenox Drive, Suite 124
Lawrenceville, NJ 08648
T: 609.282.8000 F: 609.282.8001 www.langan.com
NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

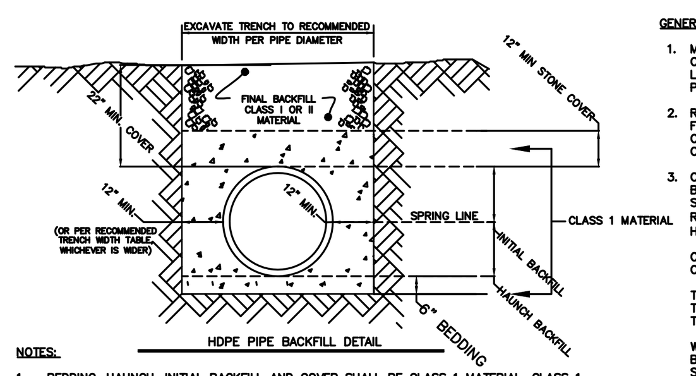
Project
CAMPUS OPERATIONS BUILDING - PRINCETON UNIVERSITY LAKE CAMPUS
PRINCETON UNIVERSITY
WEST WINDSOR TOWNSHIP (BLOCK 3, LOT 1.012)
MERCER COUNTY NEW JERSEY

Drawing Title
SOIL EROSION AND SEDIMENT CONTROL DETAILS

Project No. 130183501
Date 06/09/2022
Drawn By CJS
Checked By CMR
Drawing No. CE-502
Sheet 9 of 14



REINFORCED CONCRETE PAD DETAIL



NOTES:

1. BEDDING, HAUNCH, INITIAL BACKFILL AND COVER SHALL BE CLASS 1 MATERIAL. CLASS 1 MATERIAL MUST BE EVENLY SPREAD INTO THE HAUNCH AND BETWEEN CORRUGATIONS. IF CLASS 1A MATERIAL IS USED, THE CLASS 1A MATERIAL SHOULD BE SPREAD IN 6-INCH-THICK LIFTS AND NOMINALLY COMPACTED USING A HAND-OPERATED COMPACTION EQUIPMENT. IF CLASS 1B MATERIAL IS USED, THE CLASS 1B MATERIAL SHOULD BE SPREAD IN 6-INCH-THICK LIFTS AND COMPACTED TO AT LEAST 95% OF THE MATERIALS MAX DRY DENSITY.
2. FINAL BACKFILL MATERIAL SHALL BE EITHER CLASS I (A OR B) OR CLASS II MATERIAL. THESE MATERIALS CAN EITHER BE IMPORTED OR PROCESSED FROM ONSITE MATERIAL GENERATED DURING ROCK EXCAVATION.
3. FINAL BACKFILL SHALL BE COMPACTED TO AT LEAST 95% OF THE MATERIAL'S MAXIMUM DRY DENSITY AS DETERMINED BY A MODIFIED PROCTOR COMPACTION TEST (ASTM D1557).

GENERAL NOTES:

1. MATERIALS: UNLESS OTHERWISE SPECIFIED ON THE PLANS OR HEREIN, CORRUGATED POLYETHYLENE PIPE SHALL CONFORM TO AASHTO M-294, LATEST EDITION, STANDARD SPECIFICATION FOR CORRUGATED POLYETHYLENE PIPE.
2. RESINS: CORRUGATED POLYETHYLENE PIPE SHALL BE MANUFACTURED FROM HIGH DENSITY POLYETHYLENE VIRGIN COMPOUNDS, AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM D-3350 FOR THE CELL CLASSIFICATION 335400C.
3. COUPLING BANDS: EXCEPT AS OTHERWISE REQUIRED HEREIN, COUPLING BANDS AND OTHER HARDWARE FOR CORRUGATED POLYETHYLENE PIPE SHALL DEMONSTRATE THAT THEY MEET THE SOIL TIGHTNESS REQUIREMENTS OF AASHTO SECTION 26 "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES."

   COUPLING BANDS SHALL LAP EQUALLY ON EACH OF THE PIPES BEING CONNECTED TO FORM A TIGHTLY CLOSED JOINT AFTER INSTALLATION.

   THE CORRUGATIONS IN THE BAND SHALL INDEX THE CORRUGATIONS IN THE PIPE ENDS TO ENGAGE AT LEAST TWO FULL CORRUGATIONS FROM THE END OF EACH PIPE.

   WHEN INFILTRATION OR EXFILTRATION IS A CONCERN, THE COUPLING BANDS MAY BE REQUIRED TO HAVE GASKETS. THE GASKET MATERIAL SHALL BE CLOSED-CELL EXPANDED RUBBER OR NEOPRENE.

   OTHER COUPLINGS MAY BE BELL & SPIGOT AND CONFORM TO THE REQUIREMENTS OF AASHTO M294.
4. DESIGNATION OF TYPE: THE PIPE MAY BE ONE OR BOTH OF THE FOLLOWING TYPE:

   TYPE S: THIS PIPE WILL HAVE A FULL CIRCULAR CROSS- SECTION, WITH AN OUTER CORRUGATED PIPE WALL AND A SMOOTH INNER LINER.

   TYPE D: THIS PIPE SHALL CONSIST OF AN ESSENTIALLY SMOOTH WATERWAY BRACED CIRCUMFERENTIALLY WITH CIRCULAR RIBS WHICH ARE FORMED SIMULTANEOUSLY WITH A SMOOTH OUTER WALL.
5. INSTALLATION: CORRUGATED POLYETHYLENE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH TABLE 1 AND ASTM D-2321, LATEST EDITION, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS."

CLASSES OF EMBEDMENT AND BACKFILL MATERIALS

CLASS	TYPE	SOIL GROUP SYMBOL D 2487	DESCRIPTION	PERCENTAGE PASSING SIEVE SIZES 1 1/2 IN. (40 MM)	NO. 4 (4.75 MM)	NO. 200 (0.075 MM)
IA	MANUFACTURED AGGREGATES OPEN-GRADED, CLEAN.	NONE	ANGULAR, CRUSHED STONE OR ROCK, CRUSHED GRAVEL, BROKEN CORAL, CRUSHED SLAG, CINDERS OR SHELLS: LARGE VOID CONTENT, CONTAIN LITTLE OR NO FINES.	100 %	≤10 %	<5 %
IB	MANUFACTURED, PROCESSED AGGREGATES; DENSE-GRADED, CLEAN	NONE	ANGULAR, CRUSHED STONE (OR OTHER CLASS IA MATERIALS) AND STONE/SAND MIXTURES WITH GRADATIONS SELECTED TO MINIMIZE MIGRATION OF ADJACENT SOILS; CONTAIN LITTLE OR NO FINES (SEE X1.8.).	100 %	≤50 %	<5 %
II	COARSE-GRAINED SOILS, CLEAN	GW	WELL-GRADED GRAVELS AND GRAVEL-SAND MIXTURES; LITTLE OR NO FINES.	100 %	<50 % "COARSE FRACTION"	<5 %
		GP	POORLY-GRADED GRAVELS AND GRAVEL-SAND MIXTURES; LITTLE OR NO FINES.			
		SW	WELL-GRADED SANDS AND GRAVELY SANDS; LITTLE OR NO FINES.		>50 % OF "COARSE FRACTION"	
		SP	POORLY-GRADED SANDS AND GRAVEL SANDS; LITTLE OR NO FINES.			
	COARSE-GRAINED SOILS, BORDERLINE CLEAN TO W/ FINES	E.G. GW-GC, SP-SM.	SANDS AND GRAVELS WHICH ARE BORDERLINE BETWEEN CLEAN AND WITH FINES.	100 %	VARIES	5 % TO 12 %
III	COARSE-GRAINED SOILS, WITH FINES	GM	SILTY GRAVELS, GRAVEL-SAND SILT MIXTURES.	100 %	<50 % OF "COARSE FRACTION"	12 % TO 50 %
		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES.			
		SM	SILTY SANDS, SAND-SILT MIXTURES.		>50 % OF "COARSE FRACTION"	
		SC	CLAYEY SANDS, SAND-CLAY MIXTURES.			

HIGH DENSITY CORRUGATED POLYETHYLENE PIPE HEIGHT OF COVER H-20 AND E-80 LIVE LOADS

NOMINAL DIAMETER IN.	(MM)	MINIMUM COVER IN. & (MM) H-20	E-80
12	(300)	12 (300)	24 (600)
15	(375)	12 (300)	24 (600)
18	(450)	12 (300)	24 (600)
24	(600)	12 (300)	24 (600)
30	(750)	12 (300)	24 (600)
36	(900)	12 (300)	24 (600)
42	(1050)	12 (300)	24 (600)
48	(1200)	12 (300)	24 (600)
60	(1500)	24 (600)	24 (600)

MAXIMUM COVER FOR ADS AND MEGAGREEN PIPES (PER ASTM F2648), FT(MM)

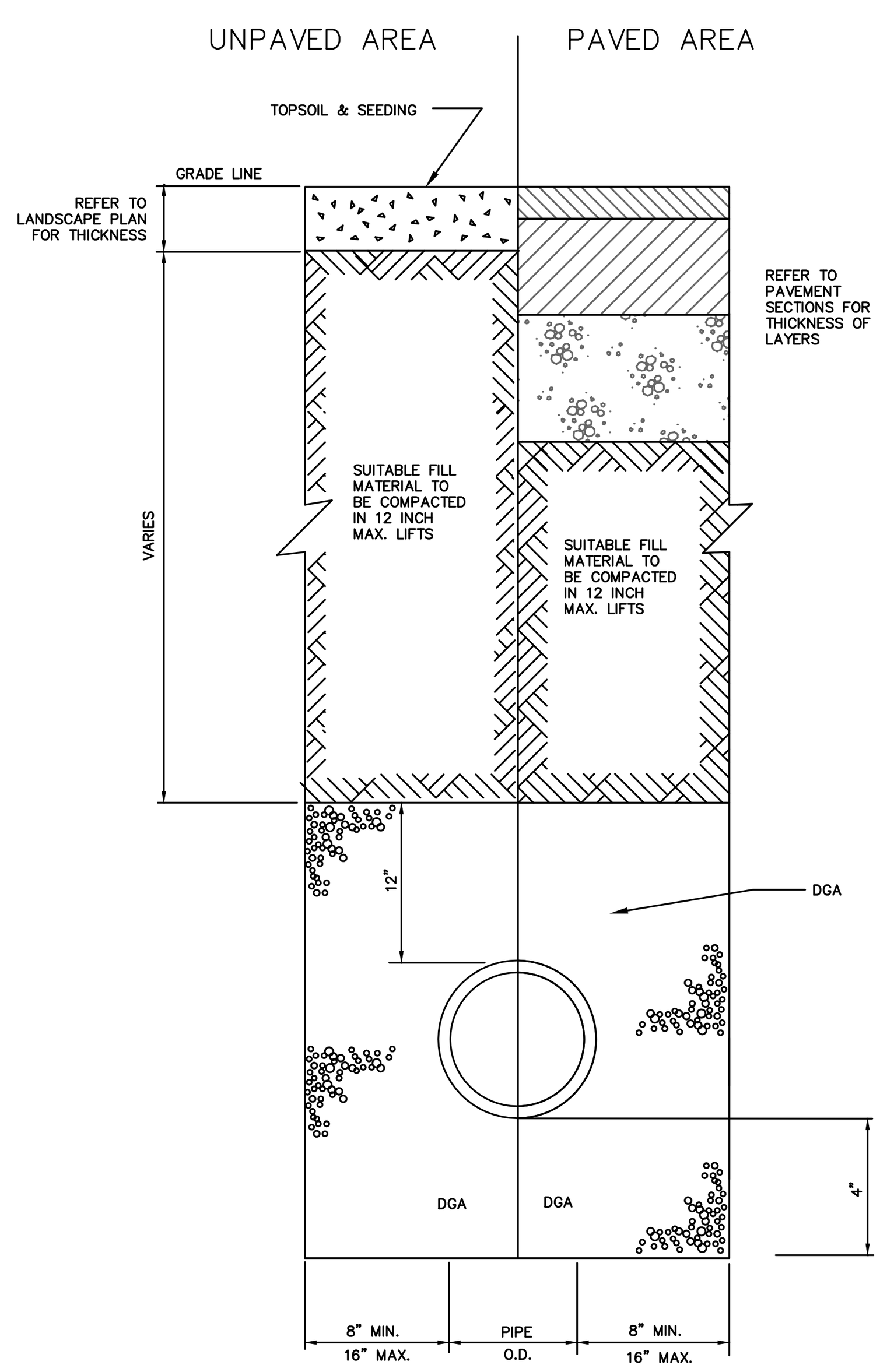
DIAMETER OF PIPE IN.	(MM)	CLASS 1 COMPACTED FT.	(M)	CLASS 2 95% FT.	(M)	CLASS 2 90% FT.	(M)	CLASS 3 95% FT.	(M)
12	(300)	27	(8.2)	21	(6.4)	14	(4.3)	12	(3.6)
15	(375)	27	(8.2)	21	(6.4)	14	(4.3)	13	(3.9)
18	(450)	25	(7.6)	18	(5.5)	13	(3.9)	11	(3.3)
24	(600)	22	(6.7)	16	(4.8)	11	(3.3)	12	(3.6)
30	(750)	16	(4.8)	12	(3.6)	8	(2.4)	6	(1.8)
36	(900)	21	(6.4)	15	(4.5)	10	(3.0)	10	(3.0)
42	(1050)	17	(5.2)	13	(3.9)	9	(2.7)	7	(2.1)
48	(1200)	18	(5.5)	13	(3.9)	9	(2.7)	10	(3.0)
60	(1500)	20	(6.0)	15	(4.5)	10	(3.0)	10	(3.0)

RECOMMENDED TRENCH WIDTH

DIAMETER	O.D.	TRENCH WIDTH
12"	14.45"	31"
15"	17.65"	34"
18"	21.10"	39"
24"	28.30"	48"
30"	36.10"	66"
36"	42.25"	78"
42"	47.00"	83"
48"	53.00"	89"
60"	66.30"	102"

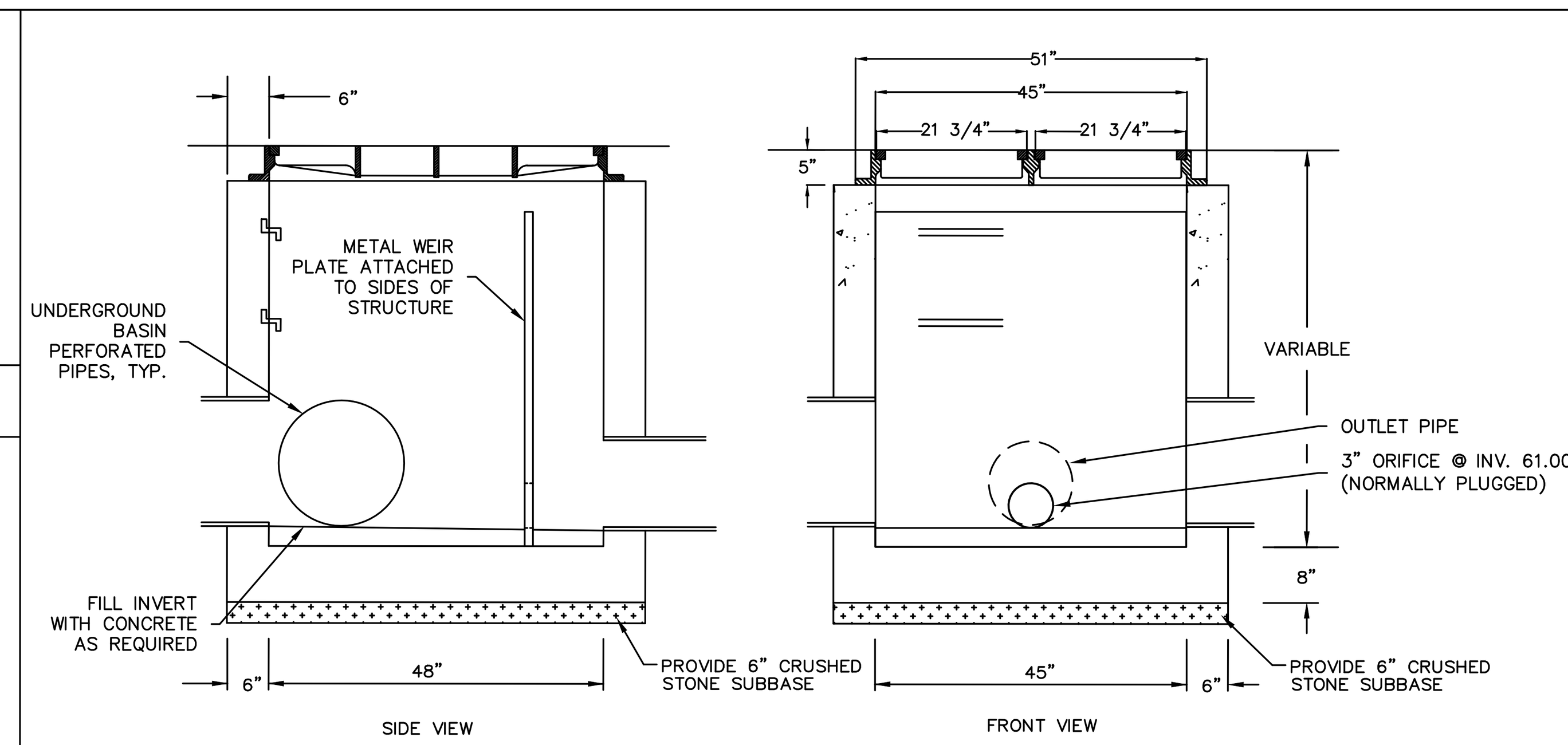
The trench width must be wide enough to accomodate compaction equipment.

HDPE PIPE INSTALLATION DETAIL (STORM)



DOMESTIC AND FIRE WATER MAINS AND SERVICES TO BE INSTALLED WITH MINIMUM OF 4' OF COVER.

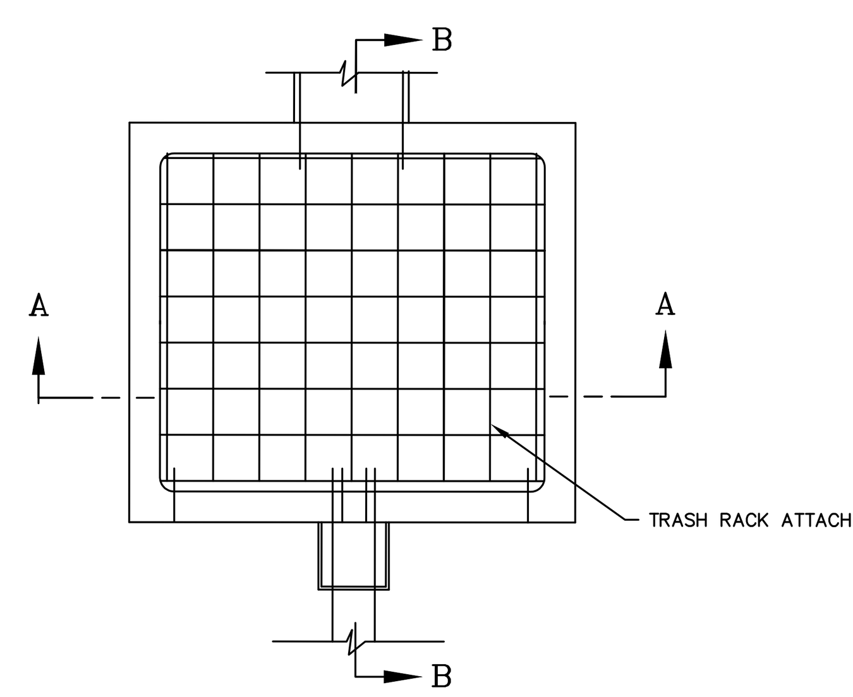
NON-SANITARY SEWER - SITE TRENCH AND BEDDING



NOTES:

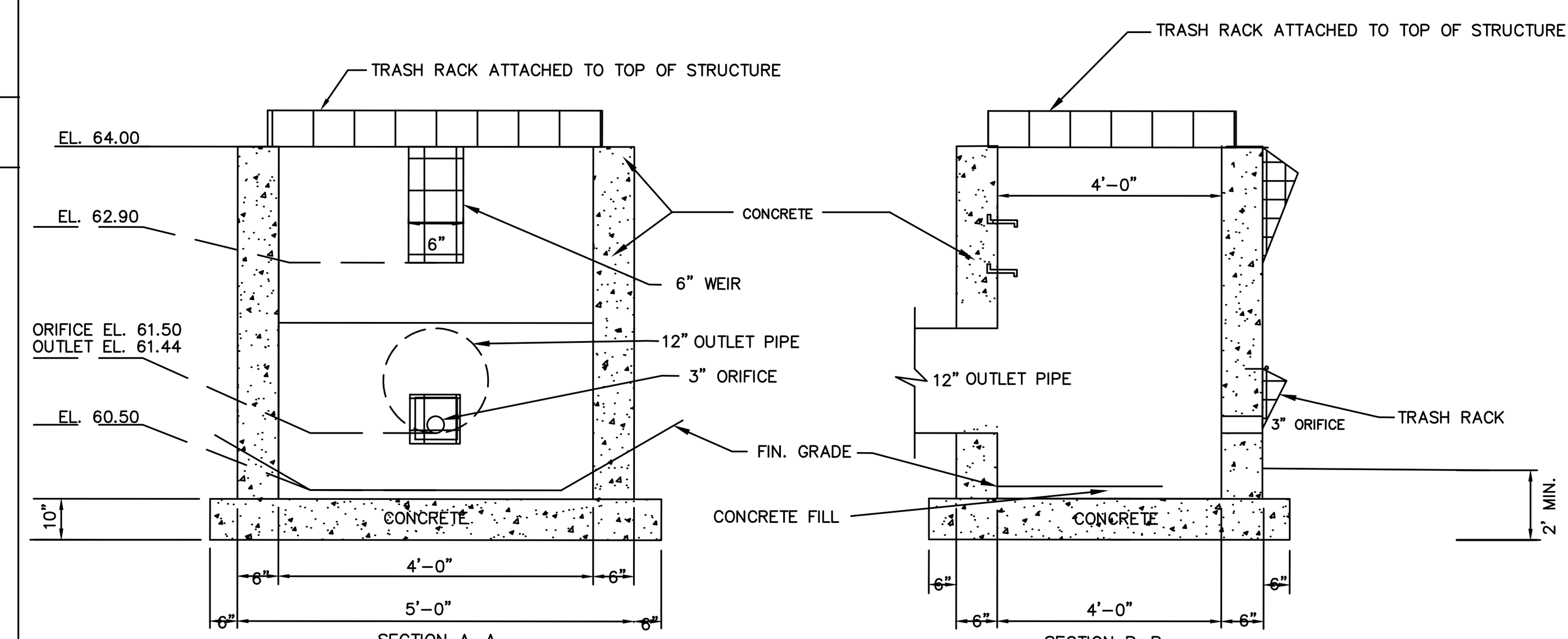
1. FRAME AND GRATE TO BE CAMPBELL FOUNDRY NO. 3425 (TYPE "E") SOLID COVER OR APPROVED EQUAL.
2. FOOTER AND INVERT TO BE NJDOT CLASS "C" CONCRETE.
3. PROVIDE STEPS 12" O.C.
4. CONCRETE STRUCTURE TO BE DESIGNED TO AASHTO HS-20 LOADING.
5. CONCRETE TO TEST TO 4,500 PSI @ 28 DAYS.
6. CONCRETE STRUCTURE REINFORCING AS PER ASTM A-185.
7. BRING FRAME AND GRATE TO GRADE WITH BRICK AND MORTAR.
8. FIRST STEP NOT TO EXCEED 12 INCHES FROM TOP OF GRATE.
9. PROVIDE SHOP DRAWINGS FOR REVIEW.
10. DETAIL INDICATES MINIMUM STRUCTURE DIMENSIONS. LARGER DIMENSIONS MAY BE REQUIRED FOR LARGER PIPES.

UNDERGROUND BASIN OUTLET STRUCTURE (OCS-1)



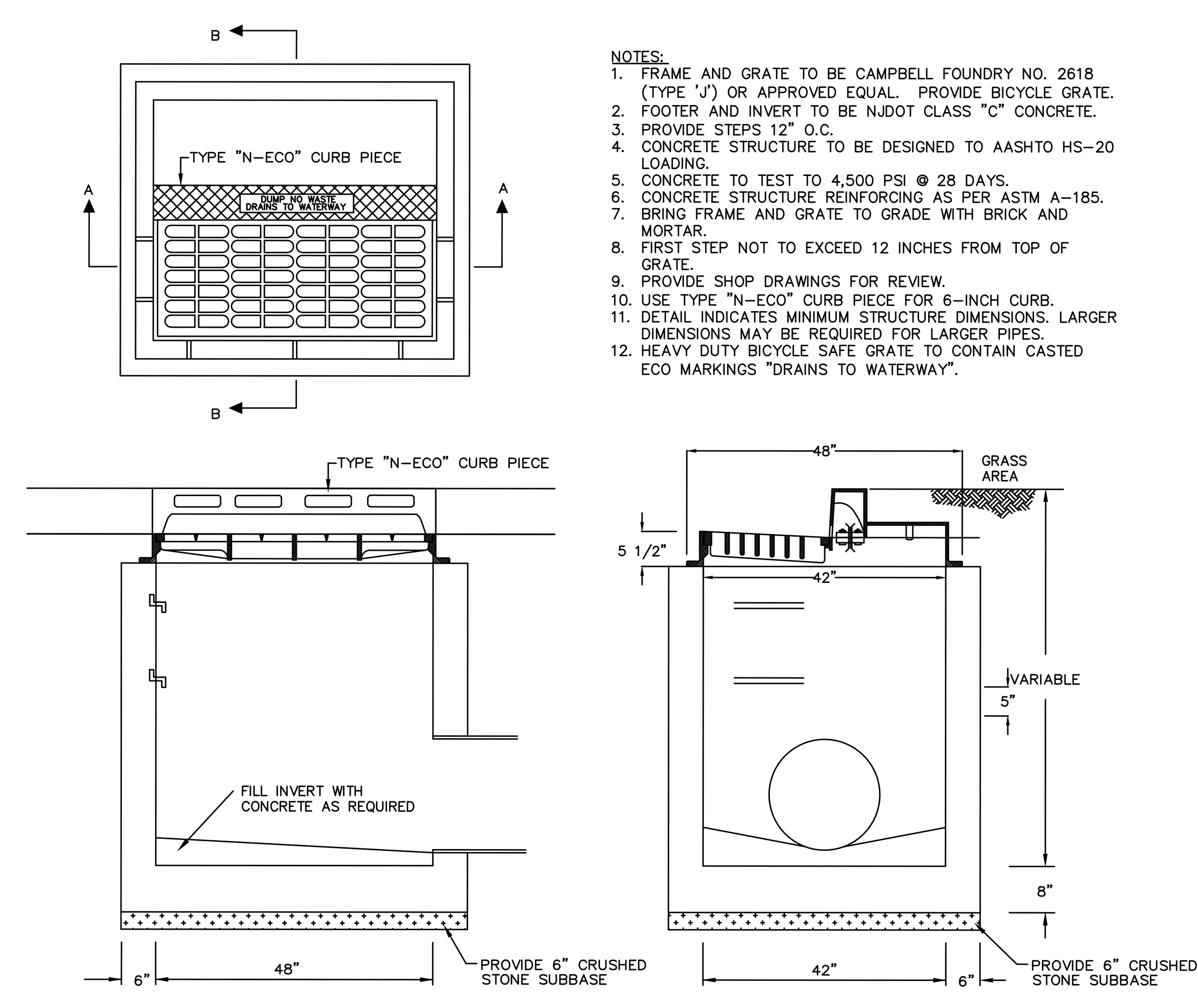
GENERAL NOTES:

1. ALL ANCHOR BOLTS, NUTS AND WASHERS TO BE GALVANIZED.
2. FRAME AND GRATE TO BE CAMPBELL FOUNDRY NO. 3425 OR FABRICATED ALUMINUM GRATE.
3. ORIFICE TRASH RACK FRAME TO BE HINGED.
4. PROVIDE SHOP DRAWINGS FOR STRUCTURES AND APPURTENANCES.



N.T.S.

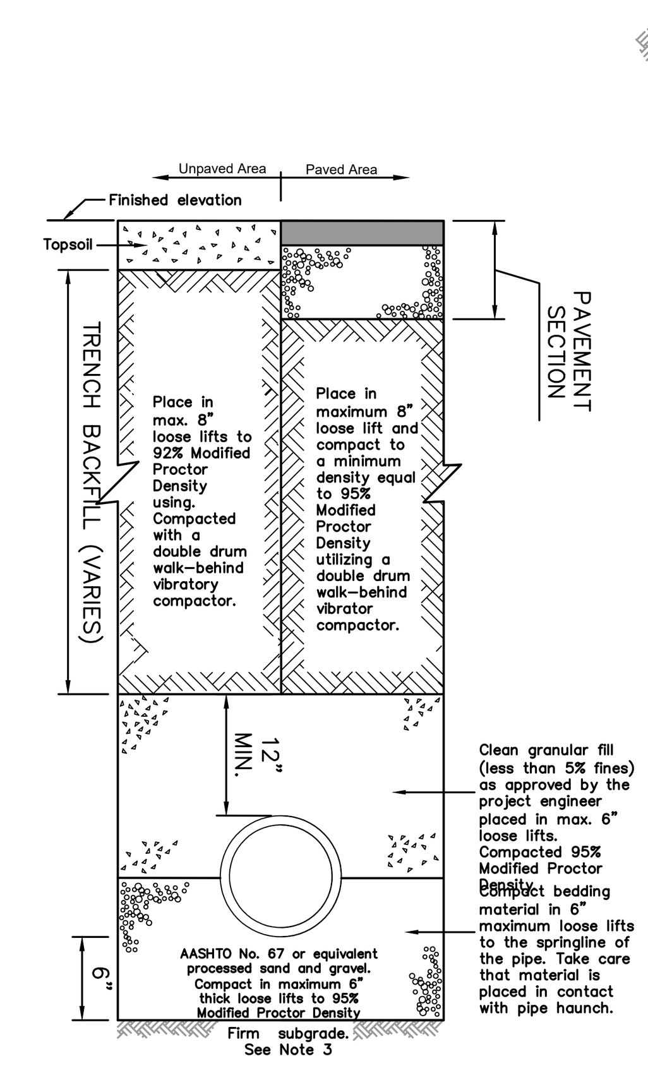
INFILTRATION BASIN OUTLET STRUCTURE (OCS-2)

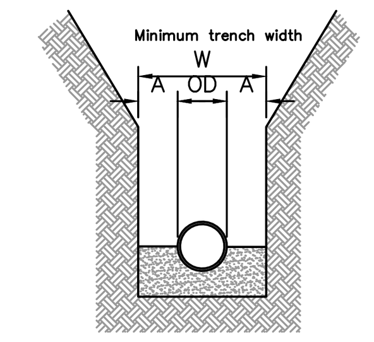


NOTES:

1. FRAME AND GRATE TO BE CAMPBELL FOUNDRY NO. 2618 (TYPE 'J') OR APPROVED EQUAL. PROVIDE BICYCLE GRATE.
2. FOOTER AND INVERT TO BE NJDOT CLASS "C" CONCRETE.
3. PROVIDE STEPS 12" O.C.
4. CONCRETE STRUCTURE TO BE DESIGNED TO AASHTO HS-20 LOADING.
5. CONCRETE TO TEST TO 4,500 PSI @ 28 DAYS.
6. CONCRETE STRUCTURE REINFORCING AS PER ASTM A-185.
7. BRING FRAME AND GRATE TO GRADE WITH BRICK AND MORTAR.
8. FIRST STEP NOT TO EXCEED 12 INCHES FROM TOP OF GRATE.
9. PROVIDE SHOP DRAWINGS FOR REVIEW.
10. USE TYPE "N-ECO" CURB PIECE FOR 6-INCH CURB.
11. DETAIL INDICATES MINIMUM STRUCTURE DIMENSIONS. LARGER DIMENSIONS MAY BE REQUIRED FOR LARGER PIPES.
12. HEAVY DUTY BICYCLE SAFE GRATE TO CONTAIN CASTED ECO MARKINGS "DRAINS TO WATERWAY".

TYPE "B" INLET





Pipe Diameter "D"	Maximum "A"
6" to 15"	8"
16" to 21"	10"
24" to 30"	12"
33" to 42"	15"
48" & Larger	18"

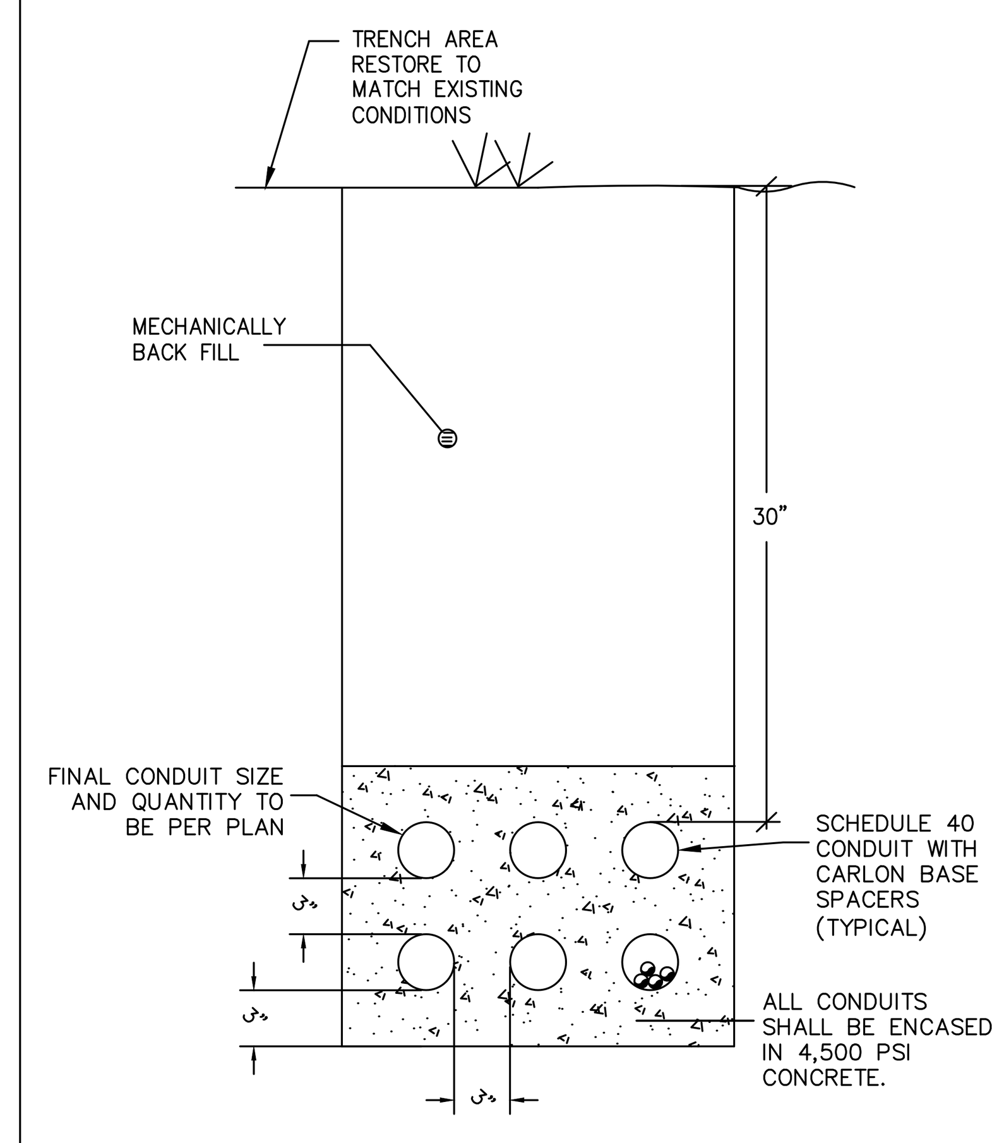
Note:

1. Maximum trench width "W" taken at top of pipe.

Notes:

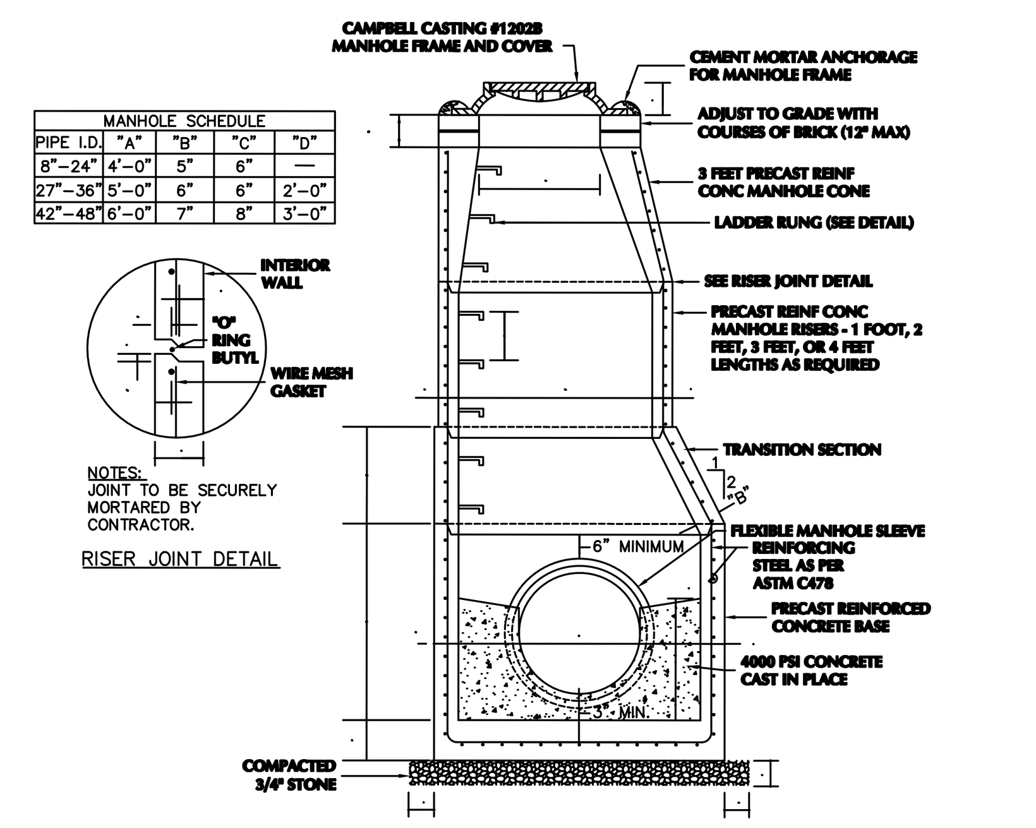
1. All trench excavations are to be done in compliance with OSHA regulations.
2. Minimum trench widths to be in accordance with the chart above.
3. If soft soil is encountered at bedding subgrade, the soft soil is to be removed (to a maximum depth of 2 ft) and replaced with ¾" clean crushed stone.
4. Trench backfill shall be predominantly granular fill material as approved by the project engineer. Material excavated from the trench may be used for backfill provided it is predominately sand and is at water content that the material can be readily compacted to the density required.
5. Within public right of way beneath pavement, the backfill material shall be clean crushed stone equivalent to AASHTO No. 67 or ¾" stone, unless authority having jurisdiction requires otherwise.
6. Magnetic underground marking tape to be provided for plastic water, and sanitary force mains. Bury 18" from finished grade.
7. In areas where there is not sufficient width for a double drum walk behind vibratory compactor the lift thickness shall be decreased as necessary to achieve compaction with appropriate equipment.
8. Maximum particle size for trench backfill shall be 4 inches unless approved otherwise by project engineer.
9. Backfill contain no deleterious or contaminated material.

SANITARY SEWER TRENCH

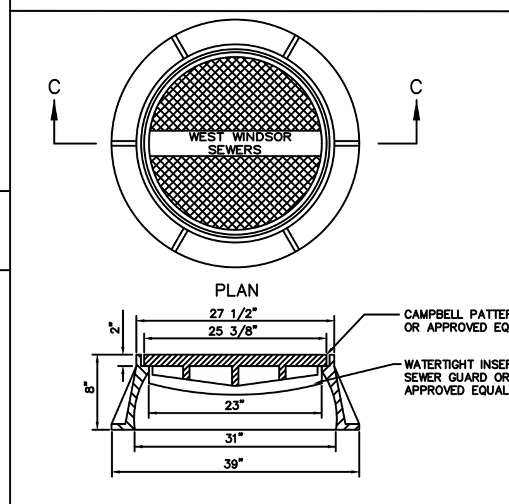


ELECTRIC CONDUIT DUCT BANK

MANHOLE SCHEDULE				
PIPE I.D.	"A"	"B"	"C"	"D"
8"-24"	4'-0"	5"	6"	—
27"-36"	5'-0"	6"	6"	2'-0"
42"-48"	6'-0"	7"	8"	3'-0"

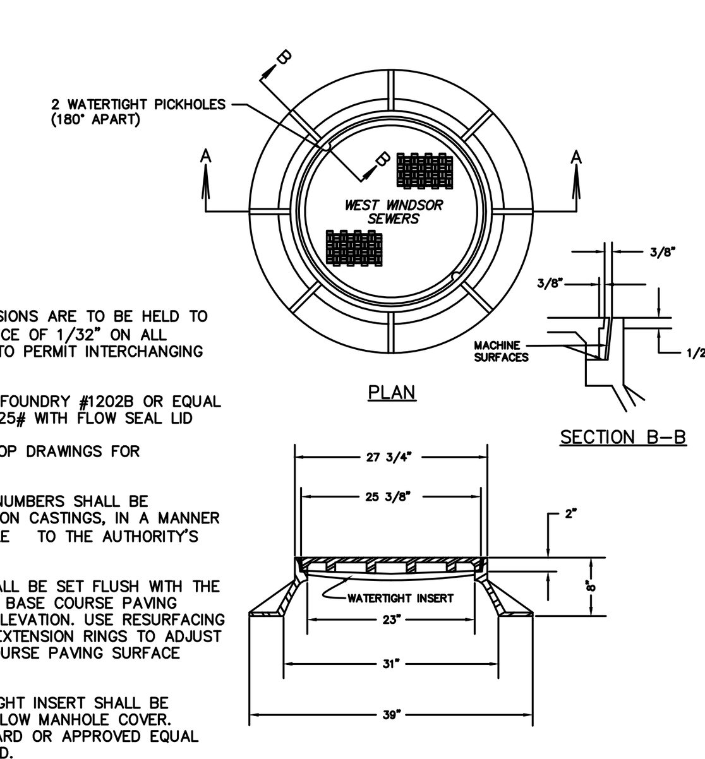


PRECAST CONCRETE SANITARY MANHOLE

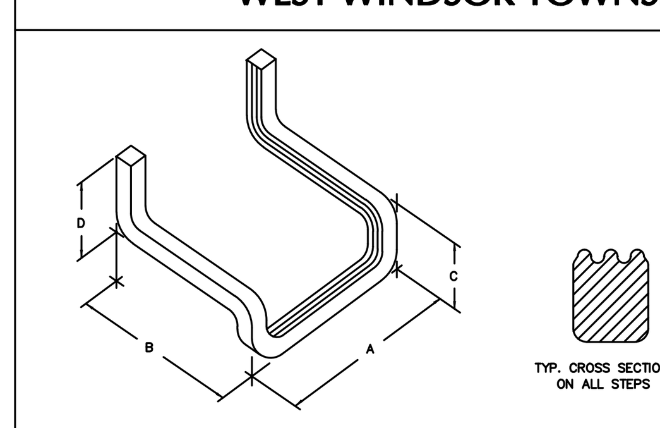


NOTES:

1. ALL DIMENSIONS ARE TO BE HELD TO A TOLERANCE OF 1/32" ON ALL CASTINGS TO PERMIT INTERCHANGING OF PARTS
2. CAMPBELL FOUNDRY #1202B OR EQUAL MIN. WT. 425# WITH FLOW SEAL LID
3. SUBMIT SHOP DRAWINGS FOR APPROVAL
4. MANHOLE NUMBERS SHALL BE INDICATED ON CASTINGS, IN A MANNER ACCEPTABLE TO THE AUTHORITY'S ENGINEER.
5. FRAME SHALL BE SET FLUSH WITH THE STABILIZED BASE COURSE PAVING SURFACE ELEVATION. USE RESURFACING MANHOLE EXTENSION RINGS TO ADJUST TO TOP COURSE PAVING SURFACE ELEVATION.
6. A WATERTIGHT INSERT SHALL BE PLACED BELOW MANHOLE COVER. SEWER GUARD OR APPROVED EQUAL TO BE USED.



WEST WINDSOR TOWNSHIP SANITARY MANHOLE COVER

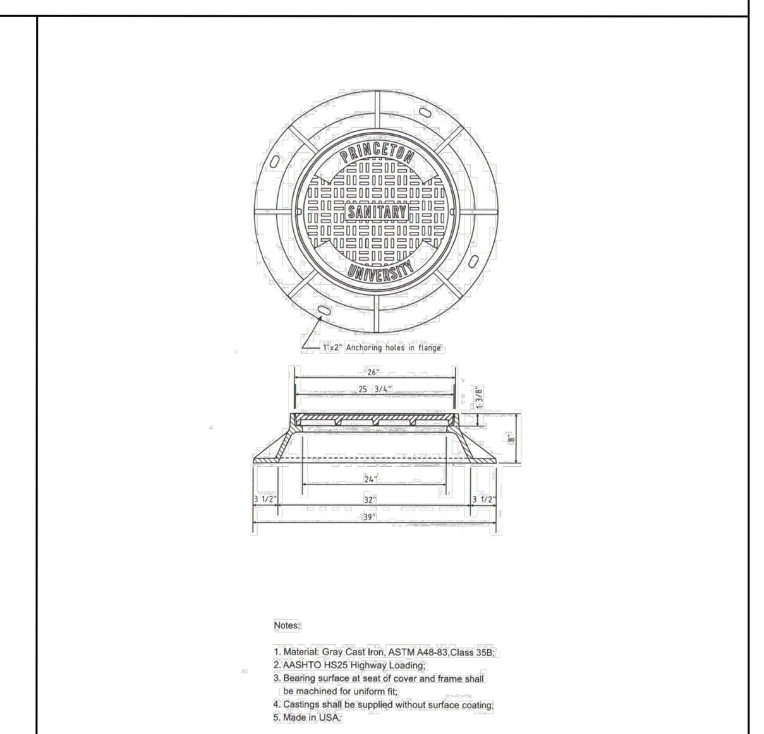


APPLICATION	DIMENSION (IN.) A	B	C	D
BLOCK M.H.	* 13 3/4	9 5/16	3 3/4	2
CAST IN PLACE WALLS	17 3/4	13 13/16	3 3/4	2
PRECAST M.H.	* 13 3/4	11	3 3/4	–

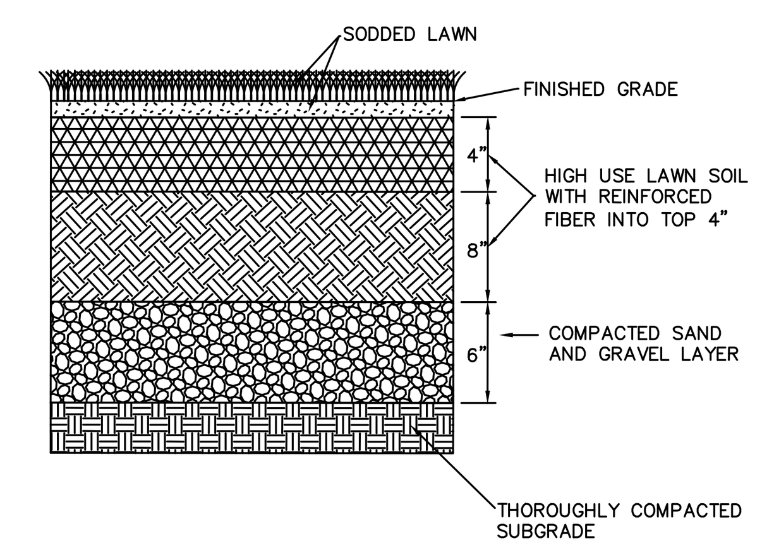
* MIN. 12" AND MUST MEET THE REQUIREMENTS OF ASTM C-478 SPECIFICATIONS.

NOTE :
ALL EMBEDDED PORTIONS OF ALUMINUM SHALL BE COATED WITH ALUMASTIC PAINT OR APPROVED EQUAL.

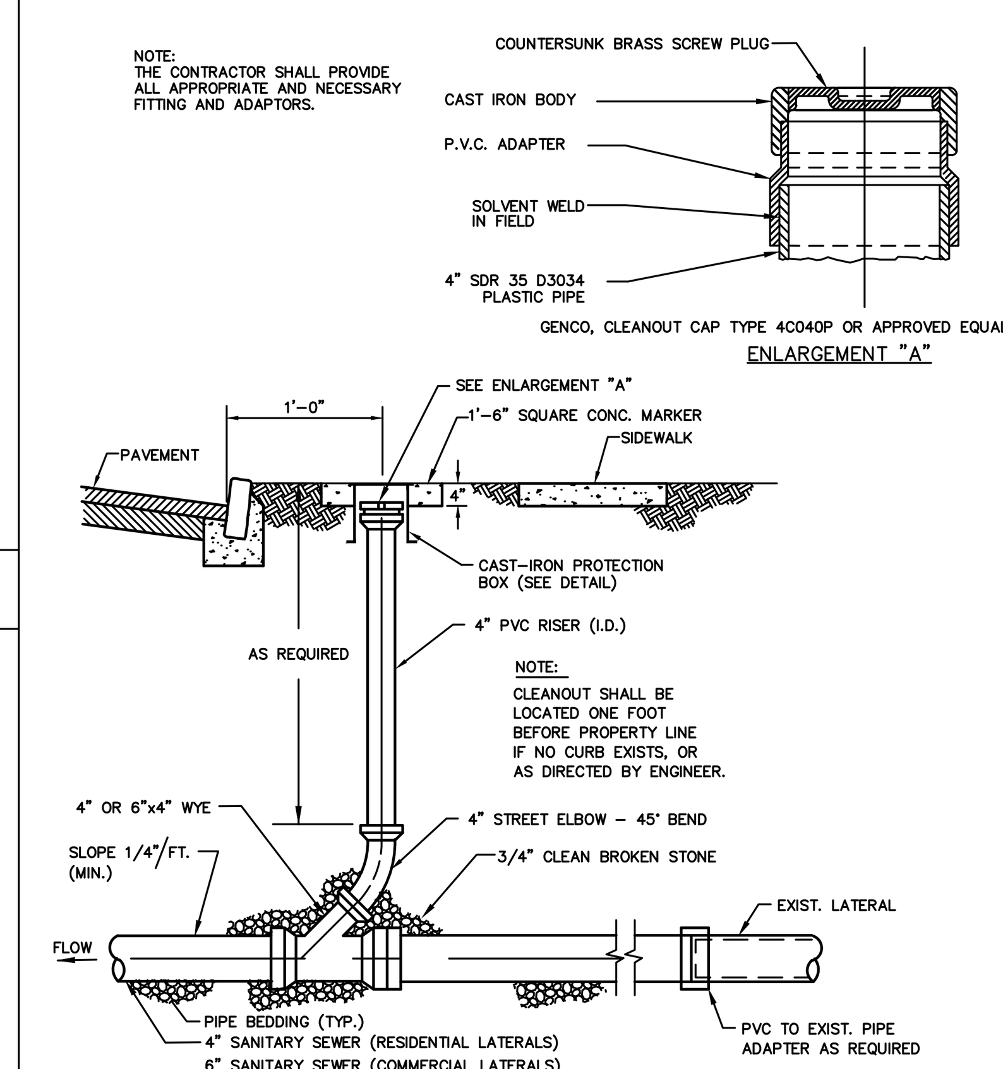
WEST WINDSOR TOWNSHIP MANHOLE STEP



PRINCETON UNIVERSITY SANITARY MANHOLE COVER



REINFORCED TURF



WEST WINDSOR TOWNSHIP SANITARY CLEANOUT

APPROVED
File No.: 1113-22-0004.1
Activity No.: LUP220001
Date: 11-30-2022
State of New Jersey
Department of Environmental Protection
Watershed and Land Management

LANGAN

PROJECT NO. 130183501

Date	Description	No.
11/11/2022	NJDEP FHA SUBMISSION #4	5.
9/16/2022	NJDEP FHA SUBMISSION #3	4.
8/10/2022	NJDEP FHA SUBMISSION #2	3.
6/30/2022	DESIGN DEVELOPMENT FINAL	2.
6/9/2022	NJDEP FHA SUBMISSION	1.

REVISIONS

Digitally signed by Christian M Roche
Date: 2022.11.14 07:32:45-05'00'

SIGNATURE CHRISTIAN ROCHE 8/10/2022
PROFESSIONAL ENGINEER NJ Lic. No. 24GE04988100

LANGAN
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989 Lenox Drive, Suite 124
Lawrenceville, NJ 08648
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NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

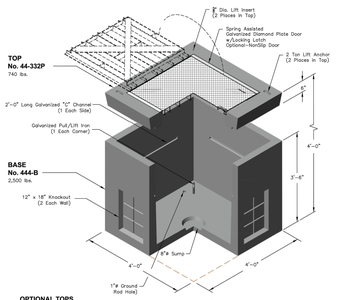
Project
CAMPUS OPERATIONS BUILDING - PRINCETON UNIVERSITY LAKE CAMPUS
PRINCETON UNIVERSITY
WEST WINDSOR TOWNSHIP (BLOCK 3, LOT 1.012)
MERCER COUNTY NEW JERSEY

Drawing Title
CONSTRUCTION DETAILS

Project No. 130183501
Date 06/09/2022
Drawn By CJS
Checked By CMR
Drawing No. CS-501
Sheet 12 of 14

ELECTRIC MANHOLE DETAIL

444-LA



Note: Designed for 0 to 5'-0" of Cover

Oldcastle Precast®	444-LA	444-LA 3 x 3 x 3 POWER / WATER / GAS
PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657	File Name: 020-444LA Issue Date: 2018 oldcastleprecast.com/wilsonville	

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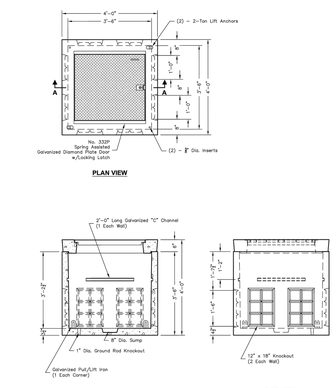
444-LA



Oldcastle Precast®	444-LA	444-LA 3 x 3 x 3 POWER / WATER / GAS
PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657	File Name: 020-444LA Issue Date: 2018 oldcastleprecast.com/wilsonville	

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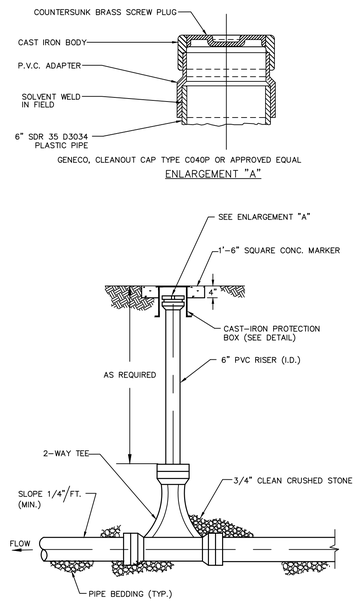
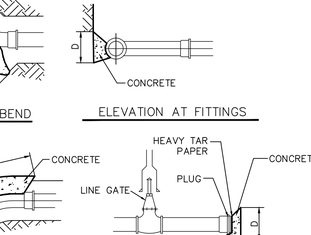
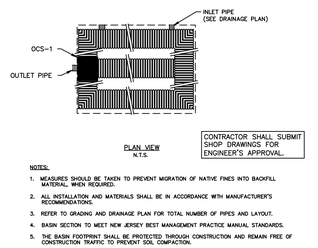
2-WAY CLEANOUT DETAIL



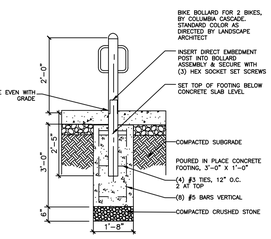
ANTI-SEEP COLLAR



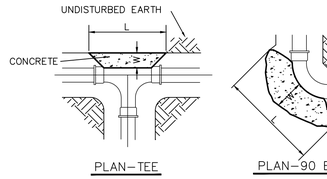
SUBSURFACE INFILTRATION BASIN



BICYCLE BOLLARD



THRUST BLOCKS



THRUST BLOCK SCHEDULE									
PIPE SIZE	TEE		22 1/2		45		90		W
	L	D	L	D	L	D	L	D	
6"	18"	15"	15"	12"	15"	12"	15"	15"	21"
8"	2'	18"	18"	12"	18"	12"	2'	18"	2'
12"	3'	2'	2'	12"	2'	12"	3'	2'	28"
16"	4'	2.5'	2'	12"	2.33'	15"	4'	2.5'	31"
20"	5.25'	3'	2'	18"	3'	2'	5.25'	3'	33"
24"	7.5'	3'	3'	18"	4'	2.5'	7.5'	3'	3'

BASIS:
2,000 LB/SQ.FT. SOIL RESISTANCE 250 PSI WATER PRESSURE CORRECTION FACTORS FOR OTHER SOILS:

SOFT CLAY	4
SAND	2
SAND & GRAVEL	1.33
SHALE	0.4

NOTE:
1. IF SOFT MATERIALS ARE ENCOUNTERED, THE THRUST BLOCKS SIZES SHALL BE ADJUSTED ACCORDINGLY.
2. CONCRETE TO BE 3000 PSI.

GATE VALVE ASSEMBLEY

NOTES:
1. SIZE AND BEARING FOR THRUST BLOCK SHALL CONFORM TO CURRENT A.W.W.A. STANDARDS, OR SHALL BE DESIGNATED ON THE PLANS.
2. CONCRETE FOR THE THRUST BLOCKS TO BE N.J.D.O.T., CLASS "C".
3. ALL CONNECTIONS TO BE MECHANICAL JOINT, OR LOCK RING TYPE JOINTS, AS SPECIFIED.
4. GATE VALVES SHALL BE USED ON MAINS LESS THAN 16" IN DIAMETER.

GRAVEL ACCESS ROAD

INFILTRATION BASIN DETAIL

NOTES:
1. BASIN SECTION TO MEET NEW JERSEY BEST MANAGEMENT PRACTICE MANUAL STANDARDS.
2. THE BASIN FOOTPRINT SHALL BE PROTECTED THROUGH CONSTRUCTION AND REMAIN FREE OF CONSTRUCTION TRAFFIC TO PREVENT SOIL COMPACTION.
3. THE AREA OF THE SITE DRAINING TO THE PROPOSED BASIN MUST BE COMPLETELY STABILIZED PRIOR TO USE OF THE PROPOSED INFILTRATION BASIN.
4. BASIN INLET PIPES SHALL DISCHARGE TO THE PROPOSED SCOUR HOLE THAT SHALL BE CONSTRUCTED WITH A MINIMUM VOLUME OF 235CF TO PROVIDE 10% STORAGE TO THE WATER QUALITY DESIGN STORM EVENT WHICH DRAINS TO THE PROPOSED INFILTRATION BASIN (SEE SCOUR HOLE DETAIL).
5. BASIN SIDE SLOPES SHALL NOT EXCEED 3:1.
6. SAND LAYER:
   - 6.1. TO BE INSTALLED AT A MINIMUM DEPTH OF 6".
   - 6.2. SAND MUST MEET ALL SPECIFICATIONS FOR CLEAN, MEDIUM-AGGREGATE CONCRETE SAND IN ACCORDANCE WITH AASHTO M-6 OR ASTM C-33, AS CERTIFIED BY A LICENSED NJPE.
   - 6.3. THE MAXIMUM PERCENTAGE OF FINES IS 15%.
   - 6.4. THE MINIMUM TESTED PERMEABILITY SHALL BE 20 INCHES/HOUR.

APPROVED

File No.: 1113-22-0004.1
Activity No.: LUP220001
Date: 11-30-2022
State of New Jersey
Department of Environmental Protection
Watershed and Land Management

Date	Description	No.
11/11/2022	NJDEP FHA SUBMISSION #4	5.
9/16/2022	NJDEP FHA SUBMISSION #3	4.
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Project
CAMPUS OPERATIONS BUILDING - PRINCETON UNIVERSITY LAKE CAMPUS
PRINCETON UNIVERSITY
WEST WINDSOR TOWNSHIP (BLOCK 3, LOT 1.012)
MERCER COUNTY NEW JERSEY

Drawing Title
CONSTRUCTION DETAILS

Project No.	Drawing No.
130183501	CS-502
Date: 06/09/2022	
Drawn By: CJS	
Checked By: CMR	Sheet 13 of 14

LANGAN
PROJECT NO. 130183501

SURVEY NOTES:

1. SITE FEATURES AND TOPOGRAPHIC INFORMATION WITHIN THE SURVEY PROJECT LIMIT LINE IS THE RESULT OF A FIELD SURVEY PERFORMED BY VAN NOTE–HARVEY ASSOCIATES INC, NOVEMBER 2019.
2. SITE FEATURES OUTSIDE OF THE SURVEY PROJECT LIMIT LINE HAVE BEEN COMPILED FROM RECORD INFORMATION AND HAVE NOT BEEN FIELD VERIFIED FOR EXISTENCE AND/OR ACCURACY. THIS INFORMATION IS PORTRAYED FOR PICTORIAL PURPOSES ONLY AND CANNOT BE RELIED UPON AS ACCURATE.
3. THE HORIZONTAL DATUM FOR THIS SURVEY IS A MODIFIED GROUND SYSTEM, ESTABLISHED AS VNHA–PU 2017 SURVEY CONTROL NETWORK, BASED ON THE NEW JERSEY STATE PLANE COORDINATE SYSTEM (NJSPCS) NORTH AMERICAN DATUM (NAD 1983), NATIONAL ADJUSTMENT (NA) 2011.
4. THE VERTICAL DATUM FOR THIS SURVEY IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

DEMOLITION NOTES:

1. IF HAZARDOUS MATERIALS ARE ENCOUNTERED DURING DEMOLITION OR REMOVAL OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY STOP WORK AND REPORT SUCH FINDINGS TO THE OWNER.
2. CONTRACTOR SHALL PROTECT EXISTING UTILITIES TO REMAIN DURING SAWCUTTING, DEMOLITION AND SITE CONSTRUCTION.
3. CONTRACTOR SHALL LOCATE EXISTING GAS LINES PRIOR TO ANY WORK. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING NJ ONE CALL PRIOR TO ANY EXCAVATION ON SITE.
4. EXISTING UTILITY SERVICES WITHIN DEMOLITION AREA SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD. WHEN NOTED, UTILITY SERVICES SHALL BE DISCONNECTED & CUT & CAPPED AT THE PROJECT BOUNDARY.
5. THE CONTRACTOR SHALL MAKE PROVISIONS TO ADDRESS UTILITIES AND DRAINAGE DURING CONSTRUCTION SUCH THAT POSITIVE DRAINAGE IS ALWAYS PROVIDED AND MAINTAINED UTILITY SERVICES REMAIN UNINTERRUPTED.
6. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON VARIOUS RECORDS AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING COMPLETE OR EXACT. THE CONTRACTOR MUST NOTIFY ALL APPROPRIATE UTILITY COMPANIES BEFORE ANY DEMOLITION OR EXCAVATION. CONTRACTOR IS RESPONSIBLE FOR CONTACTING NJ ONE CALL PRIOR TO ANY EXCAVATION.
7. ALL DEMOLITION WORK TO BE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
8. ITEMS TO BE SALVAGED SHALL BE COORDINATED WITH PRINCETON UNIVERSITY. THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO, CATCH BASIN AND MANHOLES FRAMES, GRATES AND RIMS, BLUE–STONE, SIGNS, LIGHT POLES, AND RETAINING WALL STONES. ALL REFUSE AS A RESULT OF DEMOLITION SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES.
9. THE CONTRACTOR SHALL INSPECT THE SITE THOROUGHLY AND FIELD–VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES. CONTRACTORS USING THESE PLANS FOR DEMOLITION OR CONSTRUCTION SHALL CONFIRM ALL UTILITIES IN THE FIELD TO ESTABLISH LOCATIONS, SIZES, MATERIALS, AND ELEVATIONS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE OWNER AND THE ENGINEER.
10. THE CONTRACTOR SHALL INCLUDE IN THEIR BID ALL TEMPORARY FACILITIES AND SERVICES NECESSARY TO SATISFY FEDERAL, STATE, AND LOCAL REQUIREMENTS INCLUDING BUT NOT NECESSARILY LIMITED TO BRACING, SHORING, PAVEMENT REPAIR, FENCING, PEDESTRIAN AND VEHICLE ACCESS, ETC.
11. CONTRACTOR TO INSTALL APPROVED SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO THE START OF WORK. CONTRACTOR MUST NOTIFY MCSCD USING THEIR 48–HOUR START OF LAND DISTURBANCE NOTIFICATION FORM.
12. CONTRACTOR TO NOTIFY THE TOWNSHIP ENGINEER AT LEAST 48 HOURS PRIOR TO THE START OF DEMOLITION.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY DEMOLITION–ASSOCIATED PERMITS.
14. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONARY AND PROTECTIVE MEASURES, INCLUDING BUT NOT LIMITED TO SIGNS, LIGHTS, FENCES, BARRIERS, AND PEDESTRIAN AND TRAFFIC CONTROL MEASURES.
15. ALL UTILITY SERVICES TO BE REMOVED/RELOCATED BY THE CONTRACTOR SHALL BE TERMINATED AND CERTIFIED PRIOR TO THE START OF THE DEMOLITION WORK. CONTRACTOR IS TO CONTACT THE APPROPRIATE UTILITY COMPANIES FOR ALL WORK WITH EXISTING UTILITIES. REMOVAL OF WATER AND SEWER ARE TO BE PERFORMED IN ACCORDANCE WITH TOWNSHIP AND UTILITY PURVEYOR STANDARDS. COORDINATE ALL WORK WITH UTILITY PURVEYOR AND PRINCETON UNIVERSITY
16. EXISTING UTILITIES SHALL BE REMOVED WITHIN THE PROJECT LIMITS, NOT ABANDONED IN PLACE. EXISTING UTILITIES SHALL BE CUT/CAPPED AT THE PROJECT LIMIT AND ABANDONED IN PLACE OUTSIDE OF THE PROJECT LIMITS. EXISTING UTILITIES SHALL BE PLUGGED OR RECEIVE A CONCRETE BULKHEAD.
17. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF ANY UNEXPECTED UNDERGROUND UTILITY SYSTEMS, INCLUDING UNDERGROUND STORAGE TANKS, ARE ENCOUNTERED.
18. THE CONTRACTOR SHALL REMOVE AND PROPERLY BACKFILL UNDERGROUND UTILITIES AND STORM DRAINS AS INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE UPSTREAM SOURCE, IF APPLICABLE, FOR ALL UTILITIES TO BE REMOVED OR RELOCATED. THE CONTRACTOR SHALL MAINTAIN ANY UPSTREAM EXISTING UTILITIES TO REMAIN UNTIL THE RELOCATED SERVICE HAS BEEN INSTALLED.
19. SOIL MATERIAL AND DEMOLITION DEBRIS REMOVAL WILL BE REQUIRED. DISPOSAL SHALL BE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. ANY CONSTRUCTION MATERIAL OR SOIL THAT LEAVES THE SITE FOR DISPOSAL AND/OR RECYCLING MUST BE SENT TO A FACILITY THAT IS PRE–APPROVED BY PRINCETON FACILITIES OPERATIONS CIVIL & ENVIRONMENTAL ENGINEERING DEPARTMENT. THIS INCLUDES BUT IS NOT LIMITED TO DEMOLITION WASTE, CONCRETE, ASPHALT AND SOIL. IN SOME CASES THE MATERIAL WILL NEED TO BE TESTED PRIOR TO LEAVING UNIVERSITY PROPERTY WITH PRINCETON APPROVED SAMPLING PROTOCOL AND RESULTS.
20. DURING DEMOLITION AND DEBRIS REMOVAL OPERATIONS, CONTRACTOR SHALL CONTINUALLY USE WATER SPRINKLING AND OTHER SUITABLE METHODS TO MINIMIZE THE AMOUNT OF DUST AND DIRT, RISING AND SCATTERING IN THE AIR, TO THE LOWEST PRACTICAL LEVEL POSSIBLE.
21. TREES TO BE REMOVED SHALL HAVE STUMPS GROUND AND REMOVED IN THEIR ENTIRETY. ROOTS SHALL ALSO BE FULLY REMOVED. STUMP AND ROOT DEBRIS SHALL BE REMOVED FOR THE SITE AND THE HOLE SHALL BE BACKFILLED WITH APPROVED COMPACTED FILL.
22. CONTRACTOR TO VERIFY EXTENTS OF UTILITY DEMOLITION WITH UTILITY OWNERS. IF NEEDED, CONTRACTOR SHALL PROVIDE TEMPORARY UTILITY LINES TO IMPACTED BUILDINGS DURING UTILITY INSTALLATION/DEMOLITION WORK. UTILITY SERVICE TO EXISTING BUILDINGS TO REMAIN SHALL NOT BE DISRUPTED.
23. FOR ASPHALT DEMOLITION WITHIN CRITICAL ROOT ZONE OF EXISTING TREES TO REMAIN: CONTRACTOR SHALL SCRAPE OFF ASPHALT LAYER, EXPOSING STONE BASE. REMOVE STONE BASE BY HAND, TAKING CARE NOT TO DAMAGE TREE ROOTS. COVER TREE ROOTS TO MATCH FINAL GRADES AND STABILIZE.
24. FOR CONCRETE DEMOLITION WITHIN CRITICAL ROOT ZONE OF EXISTING TREES TO REMAIN: CONTRACTOR SHALL JACKHAMMER CONCRETE AND LIFT STRAIGHT UP, EXPOSING STONE BASE. REMOVE STONE BASE BY HAND, TAKING CARE NOT TO DAMAGE TREE ROOTS. COVER ROOTS WITH SOIL TO MATCH FINAL GRADES AND STABILIZE.

GRADING AND DRAINAGE NOTES:

1. ALL EXISTING FRAMES, COVERS, AND GRATES IN AREAS WHERE GRADES WILL BE REVISED BY FILLING OR CUTTING, OR PAVEMENT OVERLAY, MUST BE RESET TO MATCH FINAL GRADE (THIS INCLUDES MANHOLES, HANDHOLES, VALVE BOXES, INLETS, ETC). IN AREAS OF CUT, CONTRACTOR SHALL PROVIDE REQUIRED COVERAGE OF UTILITY AND STORMWATER LINES AS SPECIFIED BY THE UTILITY PURVEYOR.
2. CONTRACTOR IS RESPONSIBLE FOR LOCATING UTILITY CROSSINGS AND PROVIDING UTILITY DROPS AS REQUIRED. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF CROSSING CONFLICT OCCURS.
3. TEST PITS WILL BE REQUIRED TO CONFIRM ADEQUATE CLEAR DISTANCES BETWEEN PROPOSED AND EXISTING UTILITIES. TEST PITS SHALL BE PERFORMED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
4. ALL GRADING, DRAINAGE, AND UTILITY INSTALLATION AND/OR CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL REQUIREMENTS.
5. GRADE ALL AREAS OTHER THAN PAVED GRADED AREAS AND BUILDINGS, INCLUDING EXCAVATED AREAS, FILLED AND TRANSITION AREAS, AND LANDSCAPED AREAS TO FINISH GRADE ELEVATIONS OR CONTOURS AS INDICATED ON DRAWINGS. FINISHED SUBGRADE SURFACE SHALL BE UNIFORM AND SMOOTH, FREE FROM ROCK, DEBRIS, OR IRREGULAR SURFACE CHANGES. SITE SHALL BE GRADED TO ALLOW FOR PROPER DRAINAGE WITHOUT PONDING AND IN A MANNER THAT WILL MINIMIZE EROSION POTENTIAL.
6. SITE GRADING SHALL NOT PROCEED UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
7. CONTRACTOR IS RESPONSIBLE FOR PREVENTING SOIL AND SEDIMENT–LADEN RUNOFF FROM STORMWATER AND DEWATERING ACTIVITIES FROM ENTERING EXISTING OR PROPOSED STORMWATER FACILITIES.

SOILS NOTES:

1. PER NRCS SOIL MAPPING, SITE SOILS INCLUDE BIRDSBORO GRAVELLY SOLUM VARIANT SOILS (BHSGB), BOWMANSVILLE SILT LOAM (BoyAt), UDORTHENTS (UdgB) AND MARSH (MbaAt).
2. REFER TO SHEET CE–501 AND CE–502 FOR SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
3. RESTORE AND MAINTAIN THE STABILIZED CONSTRUCTION ENTRANCE AT ALL ACCESS POINTS.
4. ALL SOIL WASHED, DROPPED, SPILLED OR TRACKED OUTSIDE THE LIMITS OF DISTURBANCE SHOWN HEREON WILL BE REMOVED IMMEDIATELY TO PREVENT WASHING OR TRACKING OF SOIL AWAY FROM THE PROJECT AREA AND AS A MINIMUM, PRIOR TO THE COMPLETION OF CONSTRUCTION EACH DAY.
5. DUST SHALL BE CONTROLLED DURING CONSTRUCTION VIA THE APPLICATION OF WATER UNTIL THE SURFACE IS WET, OR OTHER APPROVED METHOD IN ACCORDANCE WITH SECTION 16–1 OF THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
6. ANY TEMPORARY RIDING SURFACE WITHIN ROADWAYS MUST BE ¾" CLEAN STONE, DGA, CRUSHED CONCRETE, COLD PATCH OR BASE PAVEMENT. TEMPORARY RIDING SURFACES CONSISTING OF SOIL WILL NOT BE PERMITTED.
7. TEMPORARY TOPSOIL STOCKPILES, CONTRACTOR PARKING & CONSTRUCTION STAGING AREAS SHALL BE LOCATED IN THE APPROVED LIMIT OF DISTURBANCE.
8. ANY DAMAGED CURB, SIDEWALKS AND HARDSCAPE SHALL BE REPAIRED/RECONSTRUCTED AS REQUIRED.
9. EXISTING UTILITIES SHOWN TO REMAIN ON THE SITE DEMOLITION PLAN ARE TO BE PROTECTED DURING ALL CONSTRUCTION ACTIVITIES.
10. GRADING WITHIN TREE PROTECTION AREAS SHALL BE PERFORMED WITHOUT THE USE OF HEAVY MACHINERY/EQUIPMENT.
11. CONTRACTOR TO PROVIDE SILT FENCE AND CONSTRUCTION ENTRANCE AS NECESSARY TO PREVENT SEDIMENT FROM ENTERING THE SURROUNDING STORM SYSTEM.
12. CONTRACTOR TO INSTALL A TEMPORARY CHAIN LINK FENCE AS NECESSARY TO PROVIDE A SAFE WORK SITE. CONTRACTOR IS RESPONSIBLE FOR SAFE PEDESTRIAN ACCESS THROUGHOUT CONSTRUCTION. CONTRACTOR TO RELOCATE TEMPORARY CONSTRUCTION FENCE AS NECESSARY TO ACCOMMODATE WORK THROUGHOUT THE PROJECT.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL DETAILS TO THE OWNER'S ENGINEER FOR REVIEW

CONTRACTOR SUBMITTAL NOTE

GENERAL CONSTRUCTION NOTES:

1. THESE PLANS REPRESENT OVERALL SITEWORK IMPROVEMENTS REQUIRED FOR DEMOLITION AND ENABLING WORK FOR THE CAMPUS OPERATIONS BUILDING – PRINCETON NURSERIES PROJECT. THE WORK TO BE PERFORMED IS SHOWN ON THE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION; AS SUCH, THESE PLANS DO NOT COMPLETELY REPRESENT ALL SPECIFIC SITE DETAILS OF INSTALLATION REQUIRED FOR SITEWORK CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL IMPROVEMENTS REQUIRED TO ACHIEVE CONSTRUCTION DEPICTED ON THESE PLANS.
2. THE CONTRACTOR SHALL PROVIDE WRITTEN REQUESTS FOR INFORMATION TO THE OWNER AND OWNER'S ENGINEER PRIOR TO THE CONSTRUCTION OF ANY SPECIFIC SITEWORK ITEM IF ANY SITEWORK ITEM DEPICTED ON THE PLANS WARRANTS ADDITIONAL ENGINEERING INFORMATION REQUIRED FOR CONSTRUCTION AND IS NOT RELATED TO MEANS AND METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SPECIFICALLY RESPONSIBLE FOR SITEWORK ITEMS INSTALLED DIFFERENTLY THAN INTENDED AS DEPICTED ON THE PLANS IN THE ABSENCE OF SUBMITTING AND RECEIVING REVIEWS AND/OR DIRECTION ON WRITTEN REQUESTS FOR INFORMATION.
3. THE CONTRACTOR SHALL ACCEPT THE SITE AS IS. THE CONTRACTOR SHALL MAKE A THOROUGH SITE INSPECTION IN ORDER TO FIELD CHECK EXISTING SITE CONDITIONS, CORRELATE CONDITIONS WITH THE DRAWINGS AND RESOLVE ANY POSSIBLE CONSTRUCTION CONFLICTS WITH THE OWNER AND OWNER'S ENGINEER PRIOR TO COMMENCEMENT OF WORK. THIS INCLUDES A TOPOGRAPHIC SURVEY OF ALL AREAS THE CONTRACTOR REQUIRES ADDITIONAL TOPOGRAPHIC INFORMATION. ANY CONDITIONS THAT DIFFER FROM THE SURVEY SHOWN ON THE DRAWINGS THAT ARE NOT BROUGHT TO THE ATTENTION OF THE OWNER AND OWNER'S ENGINEER PRIOR TO THE START OF WORK SHALL NOT BE CONSIDERED GROUNDS FOR A CHANGE ORDER.
4. INFORMATION RELATED TO ELEVATIONS AND PROPOSED UTILITIES (SUCH AS ROADWAY GRADES, INVERT ELEVATIONS, RIM ELEVATIONS, GRATE ELEVATIONS, BUILDING FINISHED FLOOR ELEVATIONS, ETC.) MAY BE FOUND IN MORE THAN ONE LOCATION ON THE DRAWINGS. CONTRACTOR SHALL SPECIFICALLY REVIEW ALL PLANS, PROFILES AND ANY INFORMATION/DATA TABLES FOR CONSISTENCY PRIOR TO CONSTRUCTION. ANY INCONSISTENCIES OR DISCREPANCIES THAT ARE FOUND SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER'S ENGINEER IN WRITING PRIOR TO CONSTRUCTION.
5. THERE ARE ADDITIONAL NOTES, SPECIFICATIONS AND REQUIREMENTS CONTAINED ON SHEETS THROUGHOUT THE PLAN SET AND AVAILABLE REFERENCES TO SPECIFICATIONS FROM APPLICABLE GOVERNING AUTHORITIES AND INDUSTRY STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN, REVIEW AND ADHERE TO ALL APPLICABLE REQUIREMENTS.

UTILITY NOTES:

1. THE TOWNSHIP ENGINEER SHALL BE NOTIFIED IN ADVANCE OF SEWER INSTALLATION. NO SEWERS SHALL BE INSTALLED WITHOUT INSPECTION BY THE TOWNSHIP ENGINEER.
2. THE CONTRACTOR SHALL PERFORM AN INFILTRATION OR A LOW PRESSURE EXFILTRATION TEST, DEFLECTION TEST, AIR TEST AND VIDEO INSPECTION (VIA CLOSED–CIRCUIT TELEVISION) ON EACH SECTION OF SEWER PIPE BETWEEN MANHOLES. THE TOWNSHIP ENGINEER SHALL DESIGNATE THE TYPE OF TEST TO BE PERFORMED AND THE MANNER IN WHICH IT SHALL BE CONDUCTED. THE TEST SHALL BE WITNESSED BY THE TOWNSHIP ENGINEER.
3. ALL SEWER WORK SHALL BE DONE IN ACCORDANCE WITH THE TOWNSHIP RULES AND REGULATIONS AND STANDARD DETAILS.
4. ALL PROPOSED UTILITIES SHALL BE INSTALLED UNDERGROUND AND COORDINATED WITH APPLICABLE UTILITY COMPANIES.
5. EXISTING UTILITY INFORMATION SHOWN HEREON HAS BEEN COLLECTED FROM VARIOUS SOURCES AND IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION TO HIS/HER SATISFACTION PRIOR TO EXCAVATION. WHERE EXISTING UTILITIES ARE TO BE CROSSED BY PROPOSED CONSTRUCTION, TEST PITS SHALL BE DUG BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ASCERTAIN EXISTING INVERTS, MATERIALS, AND SIZES. TEST PIT INFORMATION SHALL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION TO PERMIT ADJUSTMENTS AS REQUIRED TO AVOID CONFLICTS.
6. THE CONTRACTOR SHALL CALL THE "ONE NUMBER TO CALL SYSTEM" 1–800–272–1000, NOT LESS THAN 72 HOURS NOR MORE THAN 10 WORKING DAYS PRIOR TO PLANNED WORK TO NOTIFY UTILITY OWNERS OF THE INTENT TO START WORK. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING "PRIVATE" NON–MEMBER UTILITY OWNERS INDIVIDUALLY. ALL WORK SHALL BE COORDINATED WITH UTILITY OWNERS INCLUDING, BUT NOT LIMITED TO, PUBLIC SERVICE ELECTRIC AND GAS CO., VERIZON TELEPHONE CO., THE SERVICING WATER COMPANY, PRIOR TO THE START OF CONSTRUCTION (IF REQUIRED).
7. FINAL BUILDING ENTRY LOCATIONS OF ALL UTILITY PER FINAL MEP PLANS.

LANGAN

PROJECT NO. 130183501

No.	Description	Date
1.	NJDEP FHA SUBMISSION	6/9/2022
2.	DESIGN DEVELOPMENT FINAL	6/30/2022
3.	NJDEP FHA SUBMISSION #2	8/10/2022
4.	NJDEP FHA SUBMISSION #3	9/16/2022
5.	NJDEP FHA SUBMISSION #4	11/11/2022

REVISIONS

Digitally signed by Christian M Roche
Date: 2022.11.14 07:34:15-05'00'

SIGNATURE CHRISTIAN ROCHE 8/10/2022
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Project
CAMPUS OPERATIONS BUILDING - PRINCETON UNIVERSITY LAKE CAMPUS
PRINCETON UNIVERSITY
WEST WINDSOR TOWNSHIP (BLOCK 3, LOT 1.012)
MERCER COUNTY **NEW JERSEY**

Drawing Title
CONSTRUCTION DETAILS

Project No. 130183501	Drawing No. CS-503
Date 06/09/2022	
Drawn By CJS	
Checked By CMR	Sheet 14 of 14

Filename: \\langan.com\data\LAW\data5\130183501\Project Data\CAD\01\SheetFiles\Site 2\130183501-CS501-0101.dwg Date: 11/10/2022 Time: 16:46 User: mkohut Style Table: Langan.stb Layout: CS-503(DD)