PRELIMINARY AND FINAL MINOR SUBDIVISION PLAN

95 JAMES AVENUE
TAX LOT 15, BLOCK 404
TOWNSHIP OF CRANFORD
UNION COUNTY, NEW JERSEY

200 FEET OWNERS LIST

BLOCK	LOT	PROPERTY LOCATION	PROPERTY OWNER & ADDRESS
405	13	106 BURNSIDE AVE	SZUKIS: JOANNA 2 COUNTY RD - 519 NEWTON, NJ 07860
405	5	86 JAMES AVE	CUCCOLO, JOHN T & MARIANNE 86 JAMES AVE CRANFORD, NJ 07016
405	4	84 JAMES AVE	WHEELER: ROBERT & CARLA 84 JAMES AVE CRANFORD, NJ 07016
413	3	3-5 NEW ST	KLIMEK: STANLEY 5 NEW ST CRANFORD, NJ 07016
413	1	95 BURNSIDE AVE	PELLINO, CARMINE & ANGELA 93 BURNSIDE AVE CRANFORD, NJ 07016
413	2	93 BURNSIDE AVE	PELLINO, CARMINE & ANGELA 93 BURNSIDE AVE CRANFORD, NJ 07016
405	11	100 BURNSIDE AVE	DR FABIO: PASQUALE & ANITA 414 HEMLOCK AVE GARWOOD, NJ 07027
405	16	114 BESLER AVE	LA BELLA: RONALD P SR & MARIA ELENA 114 BESLER AVE CRANFORD, NJ 07016
404	16	91 JAMES AVE	SZCZECH-PATRICK & KIMBERLY A 91 JAMES AVE CRANFORD, NJ 07016
405	15	108 BESLER AVE	MARMAROU: GEORGE & SARAH 108 BESLER AVE CRANFORD, NJ 07016
405	9	94 JAMES AVE	DE GEORGE: MICHELINA 94 JAMES AVE CRANFORD, NJ 07016
403	7	112-114 NEW ST	SCHUBERT: WALTER 1064 PROSPECT AVE MOUNTAINSIDE, NJ 07092
404	10	115 NEW ST	JONES, MAXWELL & KAPLAN, EMMA 115 NEW ST CRANFORD, NJ 07016
405	14	104 BESLER AVE	WILSON, ANDREW & WEEN, LORI 104 BESLER AVE CRANFORD, NJ 07016
403	4	120 NEW ST	TAGLIA: D & M/ALFANO: F/DEITZER: G 120 NEW ST CRANFORD, NJ 07016
403	5	118 NEW ST	BRYAN: RICHARD / SPENCER:LAUREN 118 NEW ST CRANFORD, NJ 07016
405	7	90 JAMES AVE	PINHEIRRO: JANUARIO & FILDMENA 90 JAMES AVE CRANFORD, NJ 07016
405	6	88 JAMES AVE	RICHARDSON: STEVEN & AGNES 88 JAMES AVE CRANFORD, NJ 07016
404	5	125 NEW ST	BUONTEMPO: RICHARD A & MARGARET M 4 CRESCENT PL CRANFORD, NJ 07016
405	8	92 JAMES AVE	DE GEORGE: MICHELINA 94 JAMES AVE CRANFORD, NJ 07016
405	12	102 BURNSIDE AVE	TICE, DANIELA 102 BURNSIDE AVE CRANFORD, NJ 07016
404	17	89 JAMES AVE	FLANAGAN: JOHN C & MARY ANN 89 JAMES AVE CRANFORD, NJ 07016
404	14	96 BURNSIDE AVE	VIGLIANTI, CHAD J 96 BURNSIDE AVE CRANFORD, NJ 07016
403	8	110 NEW ST	CARMEJO, HENRY & CAMEJO, ARMONDO 9 ALAN OKELL PL CRANFORD, NJ 07016
404	7	119 NEW ST	OKAY: TIMOTHY 119 NEW ST CRANFORD, NJ 07016
404	12	92 BURNSIDE AVE	OBERGFELL: ANDRE & ANGELA B 92 BURNSIDE AVE CRANFORD, NJ 07016
403	9	88 BURNSIDE AVE	ACTON: JOHN J & CONSTANCE O 88 BURNSIDE AVE CRANFORD, NJ 07016
405	17	116 BESLER AVE	RIVERA: SANDY & BARBARA A 116 BESLER AVE CRANFORD, NJ 07016
404	11	111 NEW ST	ANTHONY JR & LISA K DEVRIES 111 NEW ST CRANFORD, NJ 07016
403	6	116 NEW ST	TOWNSHIP OF CRANFORD 8 SPRINGFIELD AVE CRANFORD, NJ 07016
404	13	94 BURNSIDE AVE	D'ANDREA NICHOLAS & NICOLE L 94 BURNSIDE AVE CRANFORD, NJ 07016
404	9	117 NEW ST	LORD: ESTELLE FLYNN 117 NEW ST CRANFORD, NJ 07016
404	18	87 JAMES AVE	RENO: LAURENCE 87 JAMES AVE CRANFORD, NJ 07016
404	6	123 NEW ST	GRYWALSKI, JOHN P/BOFF:MC & JM 626 CHESTER AVE ROSELLE PARK, NJ 07204

PROPERTY OWNER/APPLICANT:
POMBAL BUILDERS, LLC
887 COLONIAL AVENUE
UNION, NJ 07083

APPROVED BY PLANNING BOARD - TOWNSHIP OF CRANFORD

BOARD SECRETARY: _____ DATE: _____

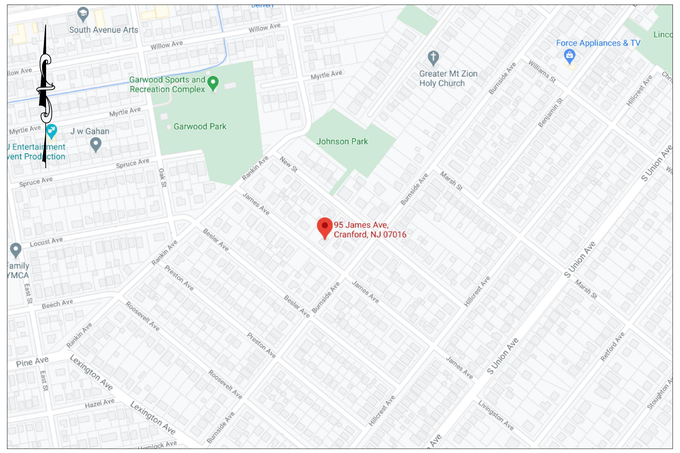
BOARD CHAIRMAN: _____ DATE: _____

TOWNSHIP ENGINEER: _____ DATE: _____

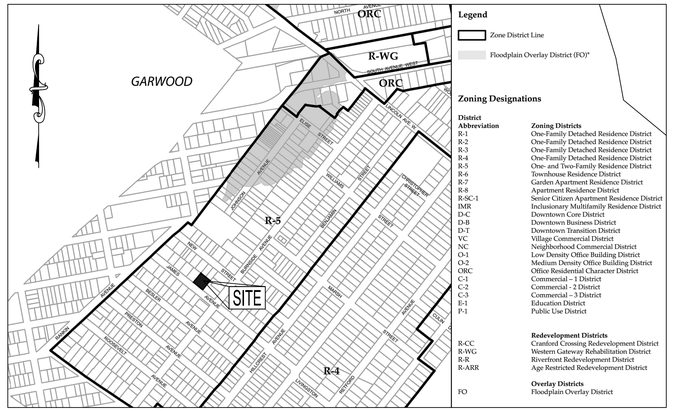
PROTECT YOURSELF
A PHONE CALL
CAN BE YOUR INSURANCE POLICY

GARDEN STATE UNDERGROUND LOCATION 1-800-272-1000 STOP - CALL BEFORE YOU DIG!

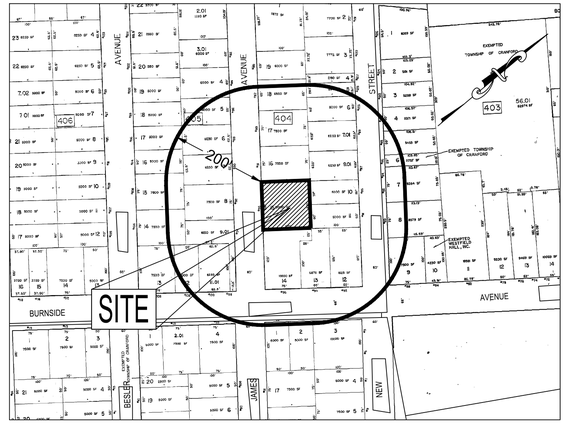
WHAT YOU DON'T KNOW CAN HURT YOU.
THE STATE OF NEW JERSEY REQUIRES NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE.



SITE MAP
SCALE: 1" = ±150'



ZONING MAP
SCALE: ±1"=600'



200' TAX MAP
SCALE: ±1"=150'

SCHEDULE OF GENERAL ZONING REQUIREMENTS (ZONE R-5, RESIDENTIAL DISTRICT)
BLOCK 404 - 95 JAMES AVENUE - TOWNSHIP OF CRANFORD

Regulation	General Requirements	Existing Lot 15	Proposed Lot 15.01	Proposed Lot 15.02	Comment
Principal Permitted Uses	One and Two-Family Residence District (Single-Family)	One-Family Residence	One-Family Residence	One-Family Residence	Conforming
Min. Lot Area (Interior Lot)	5,000 sf	10,000 sf	5,000 sf	5,000 sf	Conforming
Min. Lot Width (Interior Lot)	50 ft.	100.00 ft.	50.00 ft.	50.00 ft.	Conforming
Min. Front Yard*	25.25 ft.	24.35 ft. (e)	25.25 ft.	25.25 ft.	Conforming
Min. Rear Yard** (Lot Depth = 100 ft.)	30 ft.	35.00 ft.	30 ft.	30.00 ft.	Conforming
Min. Side Yard (one) 10% Lot Width/ 7 ft. Min.	10 ft. (Exist.)/ 7 ft. (Prop.)	11.08 ft.	7.50 ft.	7.50 ft.	Conforming
Min. Side Yard (both) 30% Lot Width	30 ft. (Exist.)/ 15 ft. (Prop.)	73.09 ft.	15 ft.	15.00 ft.	Conforming
Min. Rear Yard (Accessory Structure)	3 ft.	2.06 ft. (e)	N/A	N/A	Not Applicable
Min. Side Yard (Accessory Structure)	5 ft.	4.33 ft. (e)	N/A	N/A	Not Applicable
Max. Floor Area Ratio	N/A	N/A	N/A	N/A	Not Applicable
Max. Lot Impervious Coverage***	45%	35.92%	42.30%	42.08%	Conforming
Max. Lot Impervious Coverage (Pavement, Front Yard)	35%	< 35%	33.33%	33.33%	Conforming
Max. Building Coverage	30%	18.05%	29.08%	29.08%	Conforming
Max. Building Height (story/ft.) Principal Structure ****	2.5-Sty / 32 ft.	2.5-Sty /31.32 ft.	2-Sty /31.90 ft.	2 Sty /32.00 ft.	Conforming
Max. Building Height (story/ft.) Accessory Structure	1-Sty / 16 ft.	1-Sty /≤16 ft.	N/A	N/A	Not Applicable
Max. Distance from Front ROW that Minimum Lot Area May be Measured*****	100 ft.	100 ft.	100 ft.	100 ft.	Conforming
Min. Distance from Principal Bldg. to a Railroad or Garden State Parkway	100 ft.	≥100 ft.	≥100 ft.	≥100 ft.	Conforming
Min. Distance from Principal Bldg. to 1 or 2-Family Residence Zone	N/A	N/A	N/A	N/A	Not Applicable

Notes:
(e) Pre-existing Nonconformity — N/A - Denotes Not Applicable
(V) Variance is Required — NA - Denotes Not Available

*In the R-1 through R-5 Zones, the minimum front yard setback shall be maintained, except that, where a prevailing setback has been established on improved lots within 200 feet of the subject lot, the prevailing setback shall govern, but in no case shall the front yard be less than the minimum nor need be greater than the maximum set forth below:

Zone	Minimum	Maximum
R-1	25	45
R-2	25	45
R,3 through R-5	20	35

** Thirty percent of the first 100 feet of lot depth; 45% of the next 50 feet of lot depth; 65% of the next 50 feet of lot depth; and 90% of the balance of lot depth

*** No more than 35% of the required front yard area in any residential zone shall be paved for use as a driveway or off-street parking

**** Whichever is less

***** Distance from the street right-of-way shall be measured parallel to the lot depth. The minimum depth of all lots in the R-1 Zone shall be 120 feet and in the R-2 through R-5 Zones 100 feet.

PARKING ANALYSIS

Single-family detached and two-family	Required	Existing Lot 15	Proposed Lot 15.01	Proposed Lot 15.02	Comment
4 Bedrooms	2.5 Spaces	4 Spaces	3 Spaces	3 Spaces	Conforming
TOTAL (Car Parking)	2.5 Spaces	4 Spaces	3 Spaces	3 Spaces	Conforming

DESIGN WAIVER SCHEDULE
BLOCK 404 - 95 JAMES AVENUE - TOWNSHIP OF CRANFORD

Code Regulation	Required	Proposed Lot 15.01	Proposed Lot 15.02
§ 255-26 Design standards: specific. G. Circulation, driveways, parking and loading and unloading requirements	(c) Minimum distances between driveways. Where two or more driveways connect a single site to any public or private road or individual driveways serve separate and adjoining sites, it is recommended that a minimum clear distance of 50 feet measured along the right-of-way line shall separate the closest of any two such driveways measured from the rights-of-way. A maximum of two driveways is recommended for any single site of a frontage of 300 feet or less.	N/A	11.24 ft. from driveway on lot 16.

SHEET	TITLE	ISSUED	REVISED
1	COVER SHEET	02/18/21	10/07/21
2	SITE DEVELOPMENT PLAN	02/18/21	10/07/21
3	GRADING AND UTILITY PLAN	02/18/21	10/07/21
4	CONSTRUCTION DETAILS	02/18/21	10/07/21
5	SOIL EROSION AND SEDIMENT CONTROL PLAN	02/18/21	N/A
6	SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	02/18/21	N/A

NO.	REVISIONS	DATE:	BY:	APR:
3	PER TOWNSHIP REVIEW COMMENTS	10/07/21	LF	AAK
2	PER ARCHITECTURAL LAYOUT CHANGES	08/05/21	LF	AAK
1	PER PLANNING REVIEW COMMENTS	07/23/21	LF	AAK

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DRAWN BY: EC — DATE: 12/14/20
DESIGNED BY: AK — DATE: 12/14/20
APPROVED BY: AK — DATE: 10/07/21

ADNAN A. KHAN, P.E., C.M.E.
PROFESSIONAL ENGINEER
10/07/21 DATE
N.J. LICENSE NO. 50812 — P.A. LICENSE NO. 45052E
N.Y. LICENSE NO. 086435 — M.D. LICENSE NO. 41803

AWZ ENGINEERING, INC.
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New Jersey Certificate of Authorization No.: 24GA2831840
Pennsylvania Certificate of Authority No.: 3771354

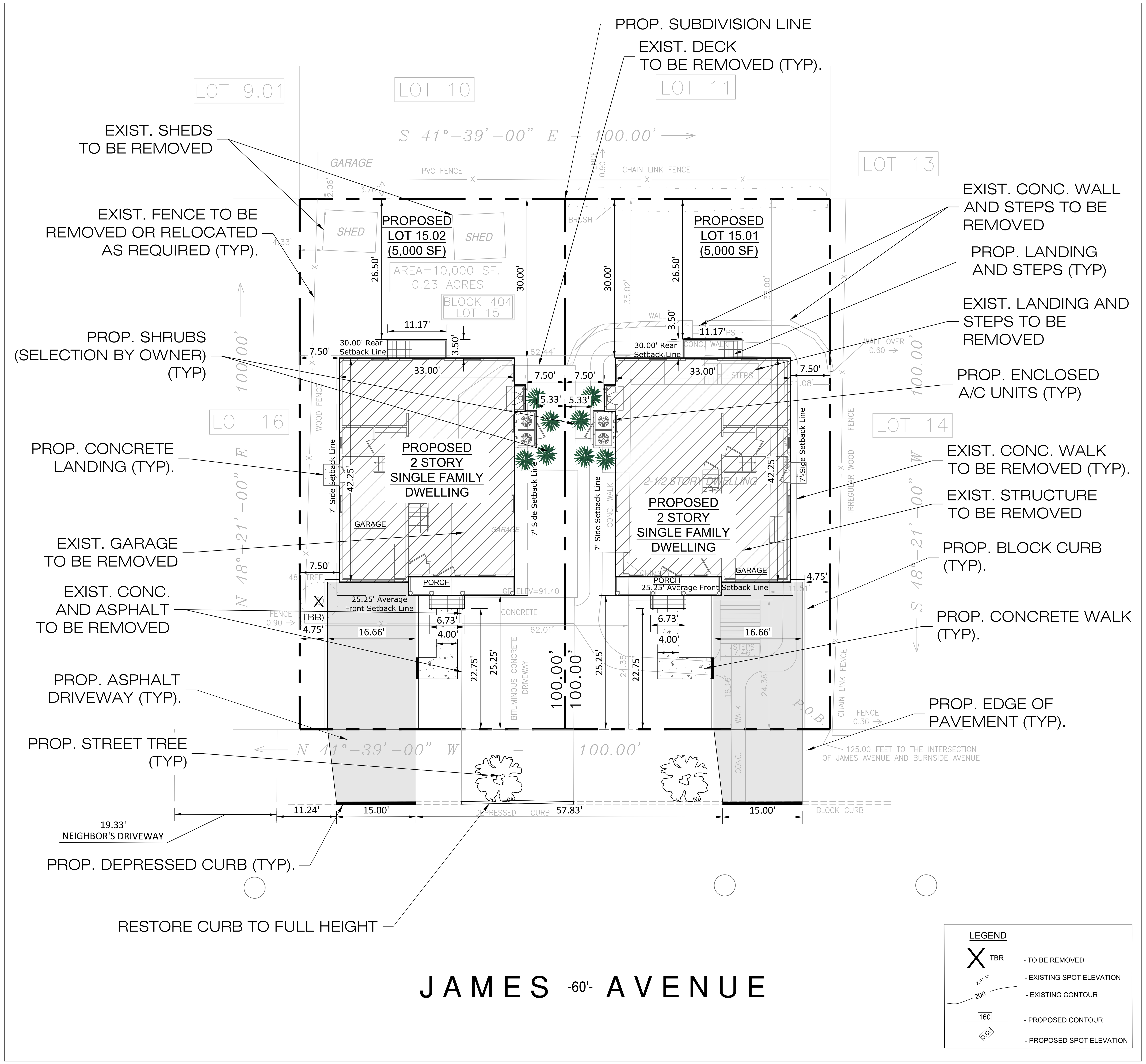
TAX LOT 15 — BLOCK 404
95 JAMES AVENUE
TOWNSHIP OF CRANFORD
UNION COUNTY, NEW JERSEY

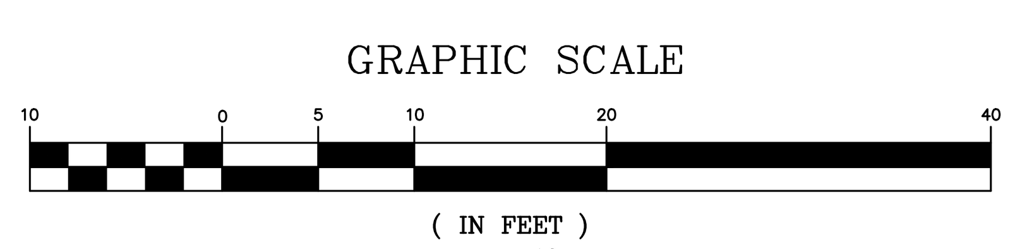
COVER SHEET

JOB NUMBER: 20-1206

SCALE: AS SHOWN

C-01
SHEET 1 OF 4





PROPOSED PLANTING SCHEDULE

KEY	QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
TREE(S)						
AROG	2		ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	3" RANGE	B+B

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN IN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE.

GENERAL NOTES:

1. PARCEL IS KNOWN AS TAX LOT 15, IN BLOCK 404 AS SHOWN ON THE TAX MAPS OF THE TOWNSHIP OF CRANFORD.
2. AREA OF PARCEL = 10,000 S.F. OR 0.23 ACRES.
3. PARCEL IS LOCATED ENTIRELY IN THE R-5 (RESIDENTIAL) DISTRICT AS SHOWN ON THE ZONING MAP OF THE TOWNSHIP OF CRANFORD.
4. IF THIS DOCUMENT DOES NOT CONTAIN A RAISED IMPRESSION SEAL OF THE PROFESSIONAL, IT IS NOT AN AUTHORIZED ORIGINAL, AND MAY HAVE BEEN ALTERED.
5. THIS IS A SITE DEVELOPMENT PLAN AND NOT A SURVEY. DO NOT SCALE DRAWINGS FOR LOCATIONS OF ADJACENT STRUCTURES AND SURROUNDING PHYSICAL CONDITIONS. THESE ITEMS MAY BE SCHEMATIC ONLY EXCEPT WHERE DIMENSIONS ARE SHOWN THERETO.
6. THE CONTRACTOR SHALL NOTIFY THE UNDERSIGNED PROFESSIONAL IMMEDIATELY IF ANY FIELD CONDITIONS ENCOUNTERED DIFFER FROM THOSE SHOWN HEREON.
7. ELEVATIONS AND CONTOURS SHOWN ON THIS PLAN ARE BASED ON THE SURVEY PERFORMED AND PROVIDED BY MARTIN A. GRANT SURVEYING, INC. OF MONROE TOWNSHIP, NJ, DATED 11/16/20, AND ARE BASED ON NAVD-88 DATUM.
8. PROPOSED BUILDING FOOTPRINT AS PER THE ARCHITECTURAL PLANS PREPARED AND PROVIDED BY ZEN ARCHITECTURE & ENGINEERING OF ELIZABETH, NJ, DATED 08/05/21, RECEIVED AS DIGITAL FILE.
9. UTILITY INFORMATION SHOWN HEREON HAS BEEN COLLECTED FROM VARIOUS SOURCES AND IS NOT GUARANTEED AS TO ACCURACY AND COMPLETENESS. THE CONTRACTOR SHALL VERIFY ALL UTILITY INFORMATION TO HIS SATISFACTION PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL PERFORM TEST PITS WHERE EXISTING UTILITIES ARE TO BE CROSSED. TEST PIT INFORMATION SHALL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION TO PERMIT ADJUSTMENTS AS MAY BE REQUIRED TO AVOID CONFLICTS.
10. ALL EXISTING UTILITIES THAT ARE TO BE RELOCATED OR ALTERED IN ANY MANNER ARE TO BE DONE IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANIES STANDARDS. ALL THE EXISTING UTILITIES EXPOSED DURING CONSTRUCTION ARE TO BE SUPPORTED UNTIL BACKFILL IS IN PLACE. ANY CROSSING LESS THAN ONE FOOT CLEAR TO BE SUPPORTED WITH A SADDLE (CONCRETE OR SAND) AS NOTED.
11. ALL SEWER LINES SHALL BE LOCATED AT LEAST 10 FEET HORIZONTALLY FROM POTABLE WATER LINES AND/OR AT LEAST 18 INCHES BELOW POTABLE WATER LINES AND IN SEPARATE TRENCHES.
12. ALL UTILITIES SHALL BE INSTALLED UNDERGROUND. DESIGN AND INSTALLATION OF WATER, ELECTRIC, GAS, TELEPHONE AND CABLE TO BE PROVIDED BY RESPECTIVE UTILITY COMPANIES.
13. WATER AND GAS SERVICE MATERIALS, BURIAL DEPTH, AND COVER REQUIREMENTS SHALL BE SPECIFIED BY THE LOCAL UTILITY COMPANY. CONTRACTOR'S PRICE FOR WATER SERVICE SHALL INCLUDE ALL FEES AND APPURTENANCES REQUIRED BY THE UTILITY TO PROVIDE A COMPLETE WORKING SERVICE. UTILITY CONNECTIONS SHALL COMPLY WITH THE COUNTY/MUNICIPAL ROAD OPENING PERMIT REQUIREMENTS.
14. SITE GRADING AND UTILITY WORK ARE TO BE PERFORMED IN A MANNER TO MINIMIZE DAMAGE TO EXISTING VEGETATION AND TREES. ALL AREAS NOT AFFECTED BY CONSTRUCTION ARE TO REMAIN NATURAL AND UNDISTURBED.
15. LOCATION OF PROPOSED ROOF DRAINS SHALL BE COORDINATED WITH THE PROJECT ARCHITECT PRIOR TO CONSTRUCTION. ALL PROPOSED ROOF LEADERS SHALL HAVE CLEANOUTS AND SHOULD BE TIED INTO THE STORMWATER SYSTEM AS SHOWN.
16. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE. NO MATERIAL IS TO BE STORED ON TOWNSHIP PROPERTY.
17. COMPACTING IN FILL AREAS BENEATH ALL PROPOSED UTILITIES AND STRUCTURES SHOULD MEET ALL MANUFACTURERS AND MUNICIPAL REQUIREMENTS AND BE EQUAL TO THE MINIMUM 95% MODIFIED PROCTOR DENSITY.
18. THIS SET OF PLANS HAS BEEN PREPARED FOR PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND THE DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
19. ALL MATERIAL, WORKMANSHIP AND CONSTRUCTION FOR SITE IMPROVEMENTS SHOWN HEREON SHALL BE PERFORMED IN STRICT CONFORMANCE WITH:
   - NJDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", A CURRENTLY AMENDED.
   - CURRENT PREVAILING MUNICIPAL AND/OR COUNTY SPECIFICATIONS,
   - STANDARDS, AND REQUIREMENTS.
   - CURRENT PREVAILING UTILITY COMPANY/AUTHORITY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS.
   - "RESIDENTIAL SITE IMPROVEMENT STANDARDS", N.J. ADMINISTRATIVE CODE TITLE 5, CHAPTER 21, AS CURRENTLY AMENDED.
   - STANDARDS AND/OR CONDITIONS OF ANY OTHER GOVERNING BODIES HAVING JURISDICTION.
20. CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, WHO SHALL ALSO BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, AND SEQUENCING OF CONSTRUCTION OPERATIONS. UNDER NO CIRCUMSTANCES SHOULD THE INFORMATION PROVIDED HERE BE INTERPRETED TO MEAN THAT AWZ ENGINEERING, INC. IS ASSUMING RESPONSIBILITY FOR CONSTRUCTION SITE SAFETY OR THE CONTRACTOR'S ACTIVITIES; SUCH RESPONSIBILITY IS NOT BEING IMPLIED AND SHOULD NOT BE INFERRED.
21. THE EXISTING BUILDING, DRIVEWAY, AND OTHER STRUCTURES TO BE RAZED AND MATERIALS SHOULD BE REMOVED FROM SITE AND PROPERLY DISPOSED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
22. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE. NO MATERIAL IS TO BE STORED ON TOWNSHIP PROPERTY, UNLESS PRIOR APPROVAL IS OBTAINED FROM THE TOWNSHIP ENGINEER. UNDER NO CIRCUMSTANCES CAN THE CONTRACTOR PLACE EXCAVATED MATERIAL WITHIN TOWNSHIP OWNED PROPERTY.
23. ALL REQUIRED SOIL EROSION AND SEDIMENT CONTROL DEVICES MUST BE INSTALLED PRIOR TO ANY SITE DISTURBANCE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY ANY ADDITIONAL SOIL EROSION & SEDIMENT CONTROL MEASURES AS REQUESTED BY THE GOVERNING SOIL CONSERVATION DISTRICT.
24. ANY SITE SOIL DISTURBANCE SHALL BE PERFORMED IN ACCORDANCE WITH THE TOWNSHIP REQUIREMENTS.
25. THE APPLICANT SHALL REPAIR ANY DAMAGE TO IMPROVEMENTS WITHIN THE TOWNSHIP RIGHT-OF-WAY, INCLUDING BUT NOT LIMITED TO, SIDEWALK, DRIVEWAY APRON, CURB AND ASPHALT PAVEMENT AS PER THE TOWNSHIP REQUIREMENTS.
26. THE APPLICANT SHALL COORDINATE INSPECTIONS WITH THE TOWNSHIP ENGINEERING DEPARTMENT 24-HOURS PRIOR TO START OF ANY CONSTRUCTION RELATED TO SITE GRADING AND DRAINAGE IMPROVEMENTS.
27. THE CURB LOCATED ALONG JAMES AVENUE SHALL BE REPLACED IN-KIND WITH CONCRETE CURB.
28. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM SITE. NO MATERIAL IS TO BE STORED ON TOWNSHIP PROPERTY UNLESS PRIOR APPROVAL IS OBTAINED FROM THE TOWNSHIP ENGINEER. UNDER NO CIRCUMSTANCES CAN THE CONTRACTOR PLACE EXCAVATED MATERIAL WITHIN THE TOWNSHIP PROPERTY. ANY SOIL DISTURBANCE SHALL BE DONE AS SET FORTH BY SUBSECTION 351-1.
29. THE APPLICANT SHALL NOT DIRECT ANY STORMWATER TOWARDS ADJOINING PROPERTIES. THE SIE GRADING AND DRAINAGE SHOULD NOT ADVERSELY AFFECT OR BURDEN THE ADJACENT PROPERTY OWNERS OR POSE A NEGATIVE IMPACT AS SET FORTH BY SUBSECTION 364-5E. (3).

NO.	REVISIONS	DATE:	BY:	APR:
3	PER TOWNSHIP REVIEW COMMENTS	10/07/21	LF	AAK
2	PER ARCHITECTURAL LAYOUT CHANGES	08/05/21	LF	AAK
1	PER PLANNING REVIEW COMMENTS	07/23/21	LF	AAK

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New Jersey Certificate of Authorization No.: 24GA28118400
Pennsylvania Certificate of Authority No.: 3771354

TAX LOT 15 BLOCK 404
95 JAMES AVENUE
TOWNSHIP OF CRANFORD
UNION COUNTY, NEW JERSEY

SITE DEVELOPMENT PLAN

JOB NUMBER: 20-1206

SCALE: AS SHOWN

C-02

SHEET 2 OF 4

LEGEND

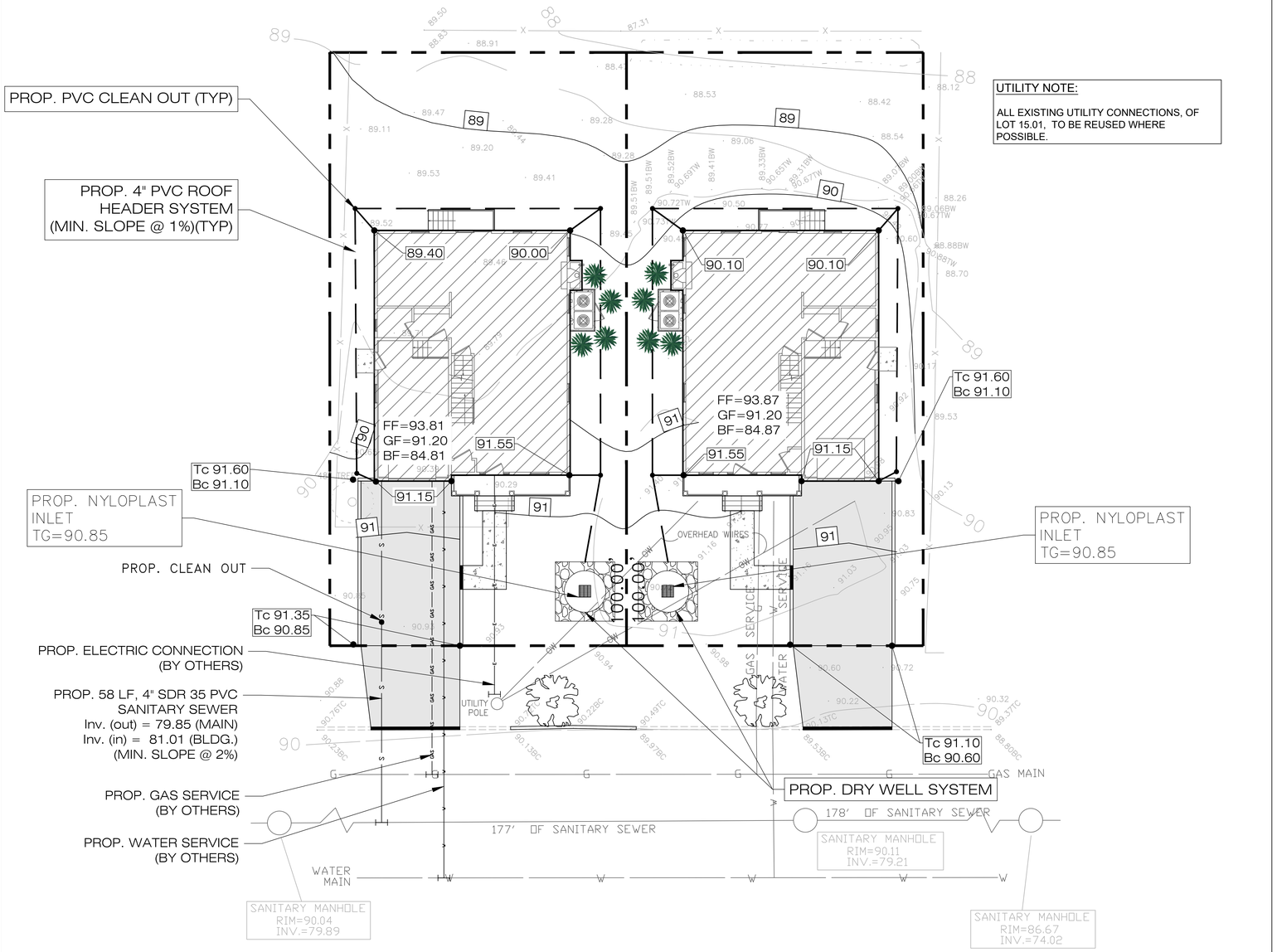
X TBR - TO BE REMOVED

X 87.30 - EXISTING SPOT ELEVATION

200 - EXISTING CONTOUR

160 - PROPOSED CONTOUR

92.00 - PROPOSED SPOT ELEVATION



UTILITY NOTE:

ALL EXISTING UTILITY CONNECTIONS, OF LOT 15.01, TO BE REUSED WHERE POSSIBLE.

NOTE:

ACCORDING TO FEMA MAP (NO. 34039C0031F, EFFECTIVE DATE 09/20/06), THE ENTIRE SITE IS LOCATED OUTSIDE THE FLOOD HAZARD AREA LIMITS.

DRAINAGE AREA NOTE:

UNDER EXISTING CONDITIONS, 100% OF THE SITE SLOPES DOWN TOWARDS THE REAR AREA. UNDER PROPOSED CONDITIONS, 71.25% SLOPES DOWNS TOWARDS THE REAR AND 28.75% SLOPES DOWNS TOWARDS JAMES AVENUE.

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

1 inch = 10 ft.

MAINTENANCE OF UNDERGROUND STORM FACILITIES:

UNDERGROUND STORM SYSTEM - The underground drainage system, including all pipes, manholes, catch basins, inlets and appurtenances must be inspected for clogging and excessive debris and sediment accumulation at least annually as well as after every storm exceeding 2 inches of rainfall. Sediment removal should take place when all runoff has drained from the conveyance network and the systems are reasonably dry. Disposal of debris, trash, sediment, and other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state, and federal waste regulations.

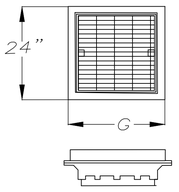
All structural components must be inspected for cracking, subsidence, breaching, wearing, and deterioration at least annually. The condition of surrounding and above lying materials shall be inspected for evidence of potential failures or deterioration.

Two people will be needed to perform routine maintenance of the conveyance systems. The routine equipment to be utilized for the maintenance tasks include a jet vacuum vehicle, shovels, lighting equipment and a wheel barrel or truck for the hauling off of debris. No manufacturer's instructions or user manuals are available for maintenance of these components. Maintenance would only take place in the adjacent components of the system, i.e. the catch basins, pipes, and other units outside the seepage pit system. Water, mosquito control chemicals, and concrete repair materials may also be required depending on the condition of the structure.

PROPERTY OWNER SHALL BE RESPONSIBLE PARTY FOR ALL STORM STRUCTURE MAINTENANCE.

LOT COVERAGE CALCULATIONS
95 JAMES AVENUE - TOWNSHIP OF CRANFORD
Block 404, Lot 15

DESCRIPTION	EXISTING LOT 15	EXISTING LOT 15.01	EXISTING LOT 15.02	PROPOSED LOT 15.01	PROPOSED LOT 15.02
Lot Area	10,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Exist. 2 1/2 Story Dwelling	1,075.56	1,075.56	0.00	0.00	0.00
Garage	571.58	57.57	514.01	0.00	0.00
Shed	157.44	0.00	157.44	0.00	0.00
Proposed Porch	0.00	0.00	0.00	70.00	70.00
Proposed Building	0.00	0.00	0.00	1,384.24	1,384.24
Proposed Garage	0.00	0.00	0.00	0.00	0.00
Total Building	**1,804.58**	**1,133.13**	**671.45**	**1,454.24**	**1,454.24**
Conc. Walk	790.38	694.84	95.54	89.32	78.33
Conc. Landing and steps	101.81	101.81	0.00	55.75	55.75
Conc. Wall	57.52	57.52	0.00	0.00	0.00
Conc. Curb	0.00	0.00	0.00	27.87	27.87
Misc.	4.02	4.02	0.00	29.05	29.05
Total Concrete	**953.73**	**858.19**	**95.54**	**201.99**	**191.00**
Wood Deck	**410.81**	**38.22**	**372.59**	**0.00**	**0.00**
Pavement	**422.64**	**34.31**	**388.33**	**458.89**	**458.89**
Green Area/Dirt	**6,408.24**	**2,936.15**	**3,472.09**	**2,884.88**	**2,895.87**
TOTAL	**10,000.00**	**5,000.00**	**5,000.00**	**5,000.00**	**5,000.00**
Pervious	6,408.24	2,936.15	3,472.09	2,884.88	2,895.87
Impervious	3,591.76	2,063.85	1,527.91	2,115.12	2,104.13
Lot Coverage	35.92%	41.28%	30.56%	42.30%	42.08%
Building Coverage	18.05%	22.66%	13.43%	29.08%	29.08%
Front Yard Coverage (Paved)				33.33%	33.33%



HANCOR - NYLOPLAST INLET			
A*	B*	2'x2'	2'x3'
12"	4'-12"	24"	NA
15"	4'-15"	24"	NA
18"	4'-18"	24"	36"
24"	4'-24"	24"	36"
30"	4'-30"	24"	36"

* NOMINAL SIZE
C = VARIABLE INVERT HEIGHT
D = VARIABLE OVERALL HEIGHT (10" MAXIMUM)
E = 12"-24" PIPE (6" MINIMUM)
E = 30" PIPE (10" MINIMUM)
F* = ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 359°

1 - 12" - 30" FRAMES, GRATES, & BASE PLATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
2 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
3 - ALL ROAD & HIGHWAY GRATE OPTIONS SHALL MEET H-20 LOAD RATING

NYLOPLAST INLET STRUCTURE
N.T.S.

BUILDING HEIGHT CALCULATION (LOT 15.01)
- AVERAGE FINISHED GRADE ELEVATION = 90.81'
- BUILDING HEIGHT FROM FINISHED FLOOR = 28.84'
- FINISHED FLOOR = 93.87'
- DIFFERENCE BETWEEN FINISHED FLOOR AND AVERAGE FINISHED GRADE = 93.87'-90.81'= 3.06'
- BUILDING HEIGHT = 3.06'+28.84'=31.90'

BUILDING HEIGHT CALCULATION (LOT 15.02)
- AVERAGE FINISHED GRADE ELEVATION = 90.65'
- BUILDING HEIGHT FROM FINISHED FLOOR = 28.84'
- FINISHED FLOOR = 93.81'
- DIFFERENCE BETWEEN FINISHED FLOOR AND AVERAGE FINISHED GRADE = 93.81'-90.65'= 3.16'
- BUILDING HEIGHT = 3.16'+28.84'=32.00'

NO.	REVISIONS	DATE:	BY:	APP:
3	PER TOWNSHIP REVIEW COMMENTS	10/07/21	LF	AAK
2	PER ARCHITECTURAL LAYOUT CHANGES	08/05/21	LF	AAK
1	PER PLANNING REVIEW COMMENTS	07/23/21	LF	AAK

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DRAWN BY LF DATE: 12/14/20
DESIGNED BY AK DATE: 12/14/20
APPROVED BY AK DATE: 10/07/21

ADNAN A. KHAN, P.E., C.M.E.
PROFESSIONAL ENGINEER
10/07/21
DATE
N.J. LICENSE NO. 39812
N.Y. LICENSE NO. 086435
P.A. LICENSE NO. 450525E
M.D. LICENSE NO. 41803

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New Jersey Certificate of Authorization No.: 24GA28318400
Pennsylvania Certificate of Authority No.: 57713-54

TAX LOT 15 BLOCK 404
95 JAMES AVENUE
TOWNSHIP OF CRANFORD
UNION COUNTY, NEW JERSEY

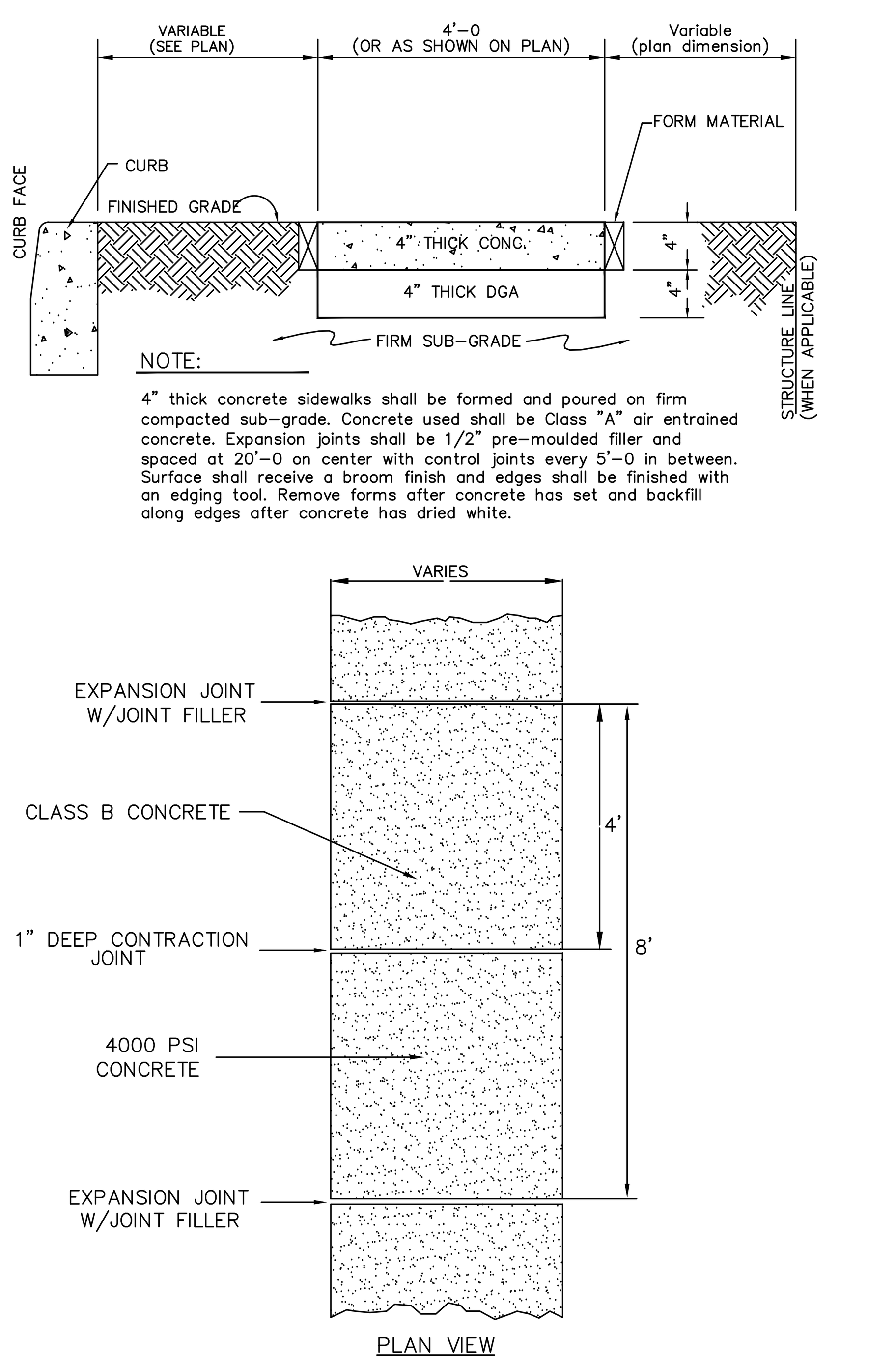
GRADING AND UTILITY PLAN

JOB NUMBER: 20-1206

SCALE: AS SHOWN

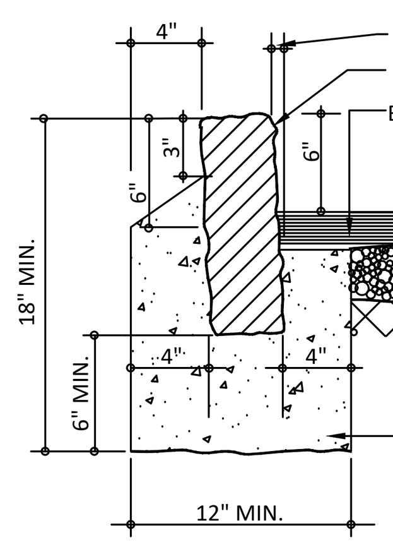
C-03

SHEET 3 OF 4



NOTE:
4" thick concrete sidewalks shall be formed and poured on firm compacted sub-grade. Concrete used shall be Class "A" air entrained concrete. Expansion joints shall be 1/2" pre-moulded filler and spaced at 20'-0 on center with control joints every 5'-0 in between. Surface shall receive a broom finish and edges shall be finished with an edging tool. Remove forms after concrete has set and backfill along edges after concrete has dried white.

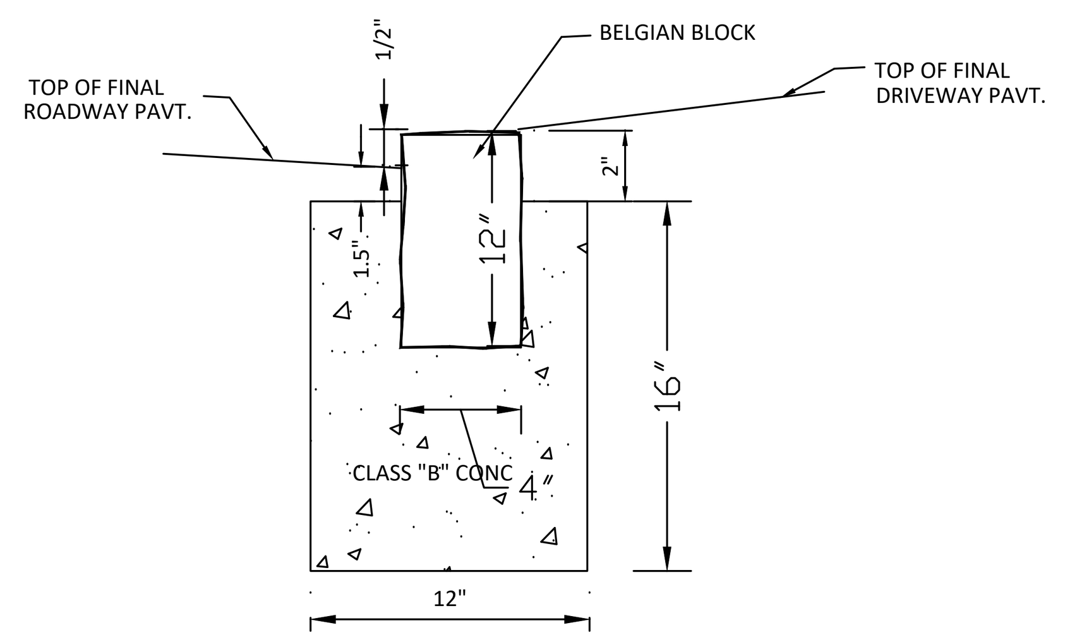
CONCRETE SIDEWALK DETAIL
N.T.S.



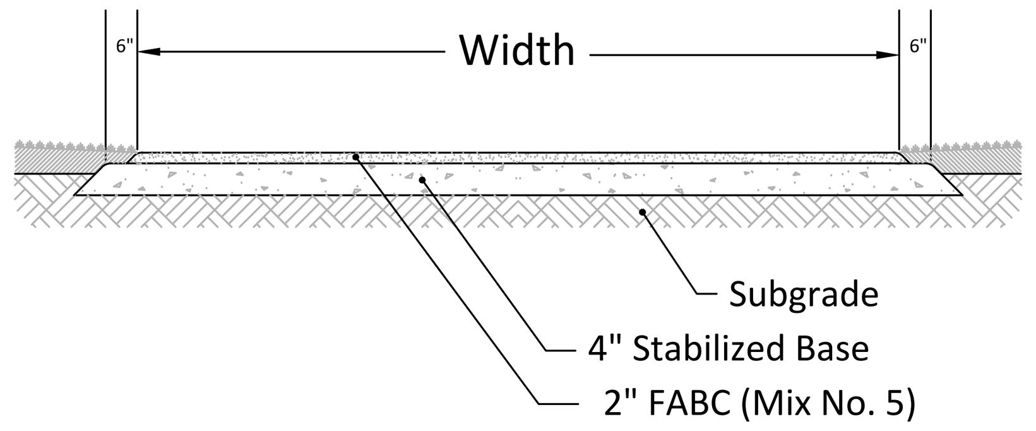
NOTES:
1. Concrete to be NJDOT Class "B" (Air Entrained)
2. Transverse joints 1/2" wide shall be installed in the curb 20'-0" apart and shall be filled with preformed, bituminous impregnated fiber joint filler, complying with the requirements of AASHTO M-213, recessed 1/4" from the front face and top of the curb.

NOTES:
1. ON TRANSITIONS FROM AND TO DROPPED CURB, USE ONE LARGE BLOCK SLOPED & CUT TO FIT
2. CURB IMMEDIATELY NEXT TO INLET CASTING MUST HAVE PREFORMED EXPANSION MATERIAL
3. CONCRETE JOINTS- 2 SAND/1 CEMENT

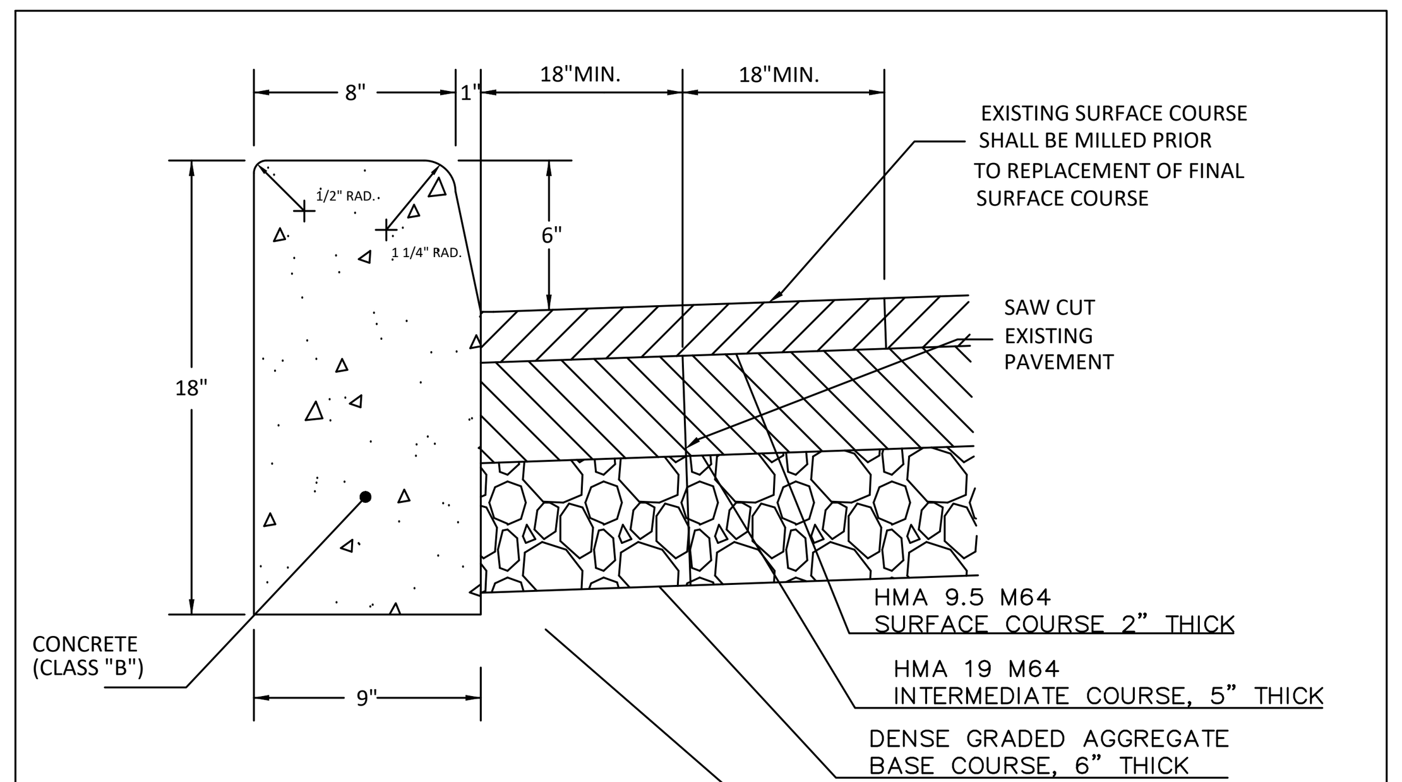
VERTICAL BELGIAN BLOCK CURB DETAIL
NTS



DEPRESSED BELGIAN BLOCK CURB DETAIL

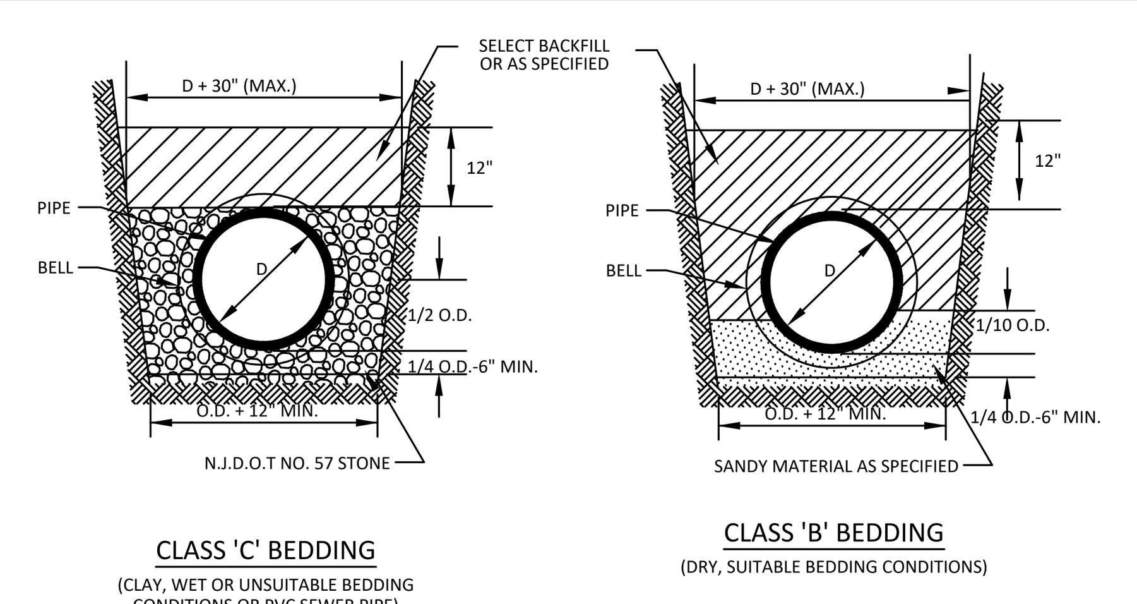


RESIDENTIAL DRIVEWAY PAVEMENT DETAIL
N.T.S.

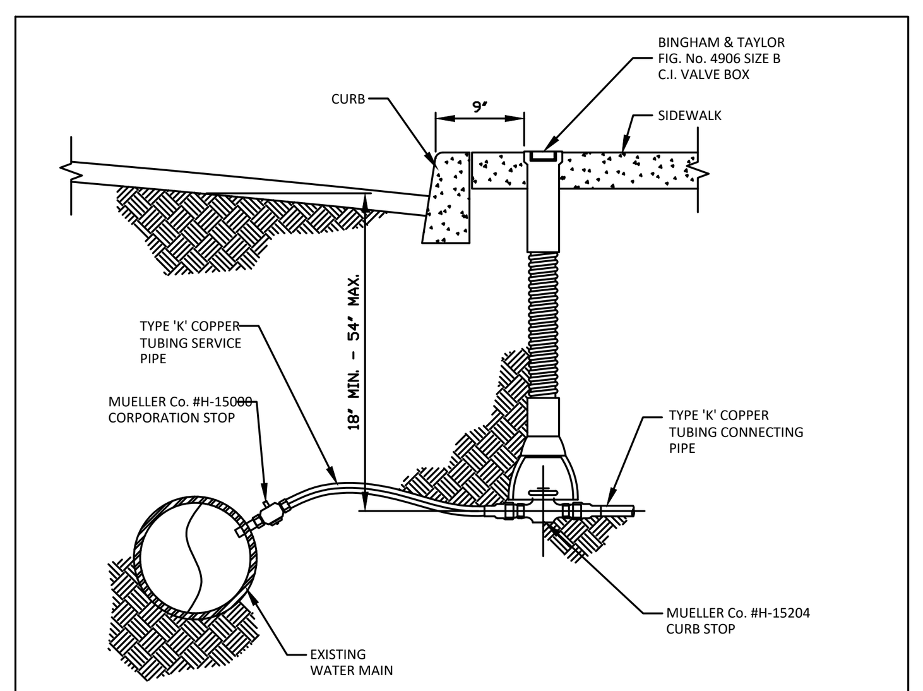


NOTE:
TRANSVERSE JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB 20 FT APART AND SHALL BE FILLED WITH PREFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER, COMPLYING WITH THE REQUIREMENTS OF AASHO SPECIFICATION M-213, RECESSED 1/4" IN FROM FRONT FACE AND TOP OF CURB.

CONCRETE CURB DETAIL
N.T.S.

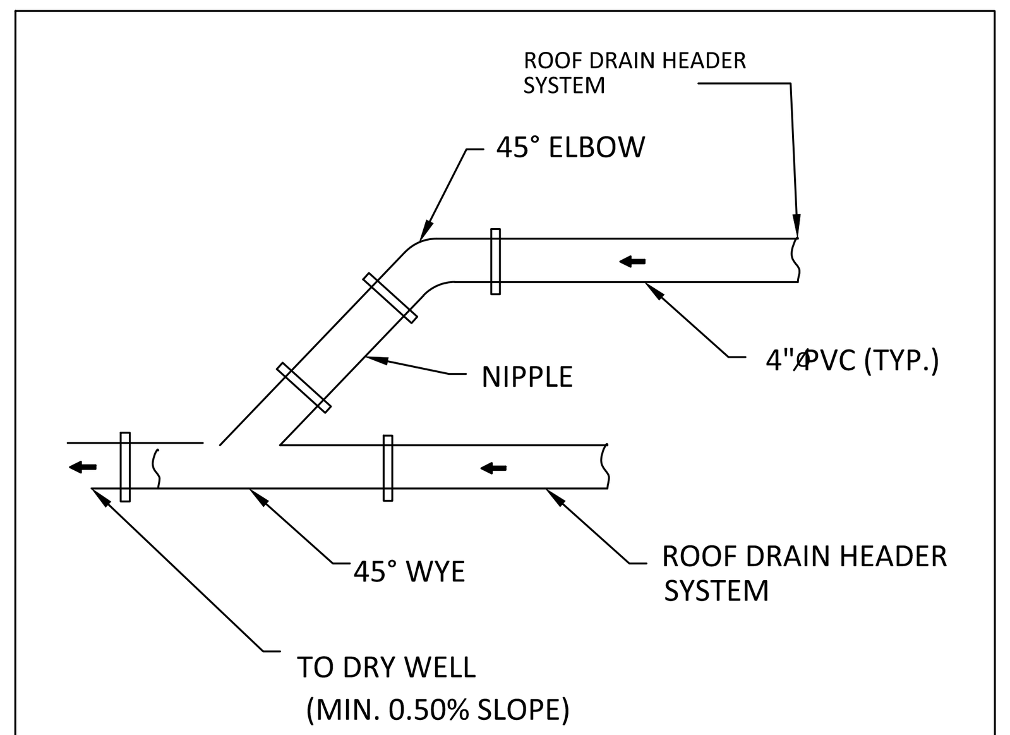


SANITARY SEWER PIPE BEDDING DETAIL
N.T.S.

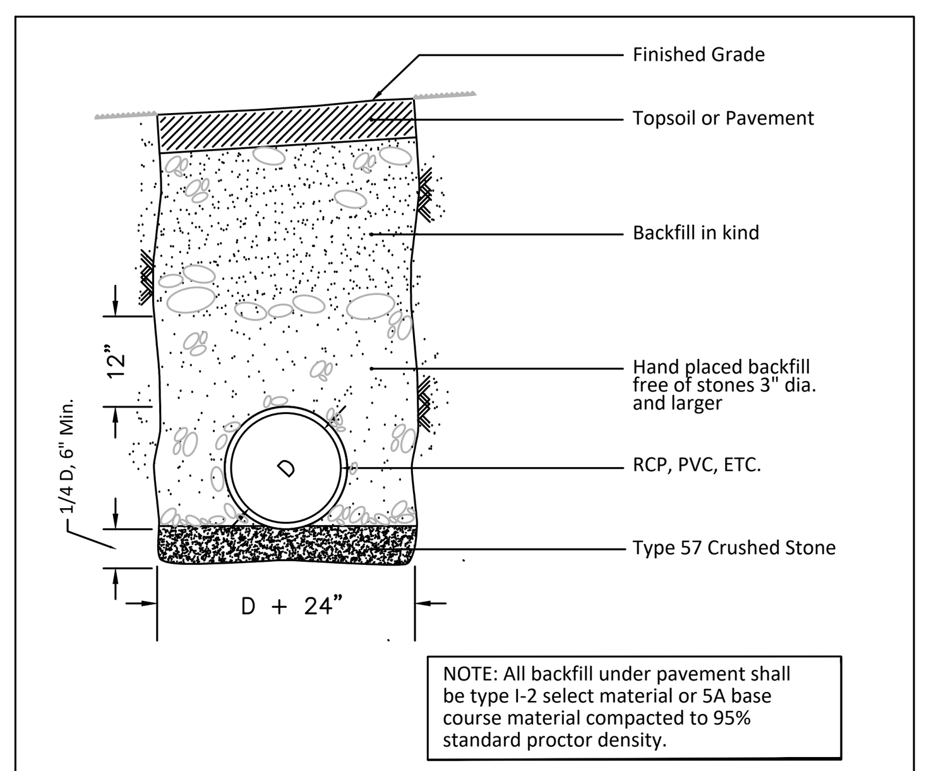


NOTES:
1) The corporation stop,copper tubing and curb stop shall be all of the same size and shall be determined by the Engineer in the field.
2) *-The location of the curb boxes along roads without curbs,

SERVICE CONNECTION SCHEMATIC
N.T.S.

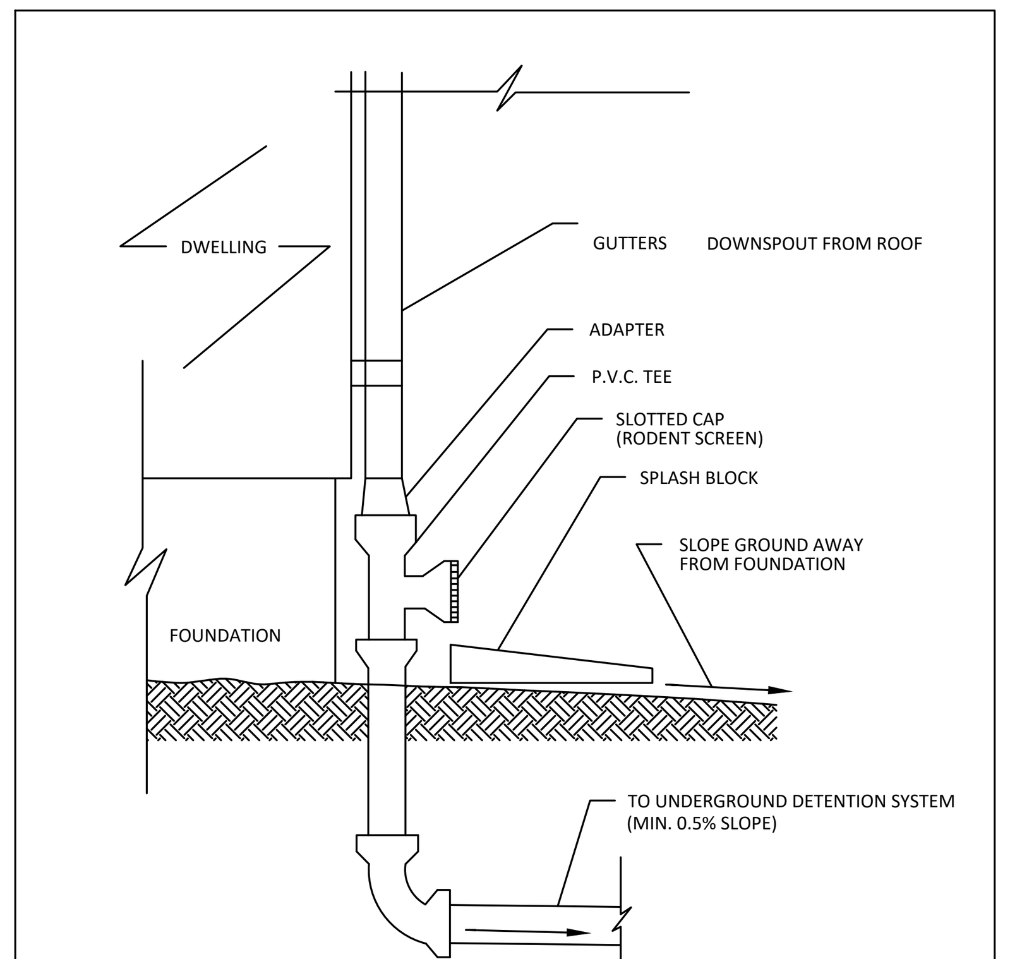


ROOF DRAIN CONNECTION
N.T.S.

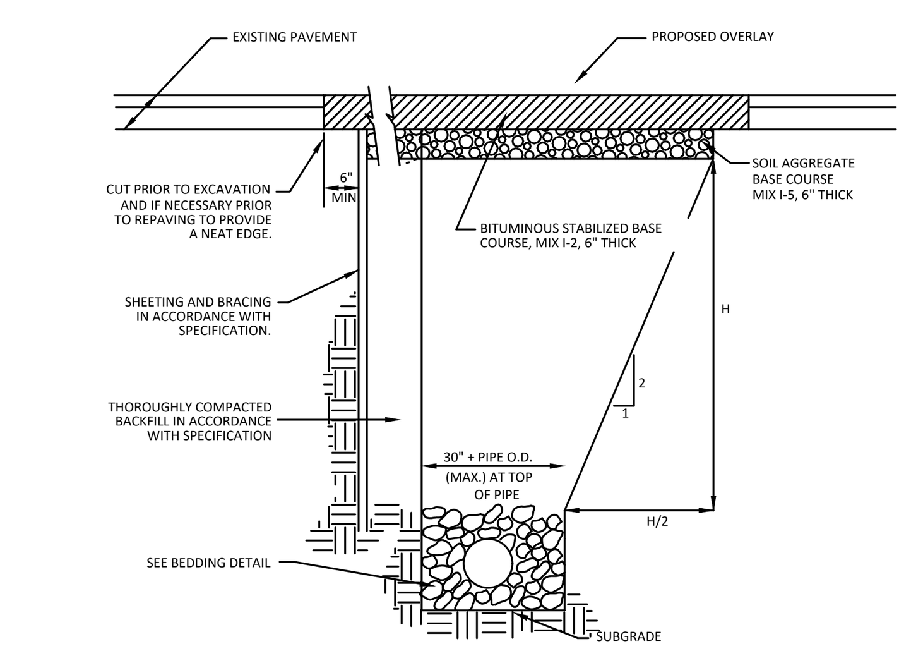


NOTE: All backfill under pavement shall be type I-2 select material or 5A base course material compacted to 95% standard proctor density.

PIPE BEDDING AND BACKFILL DETAIL
N.T.S.



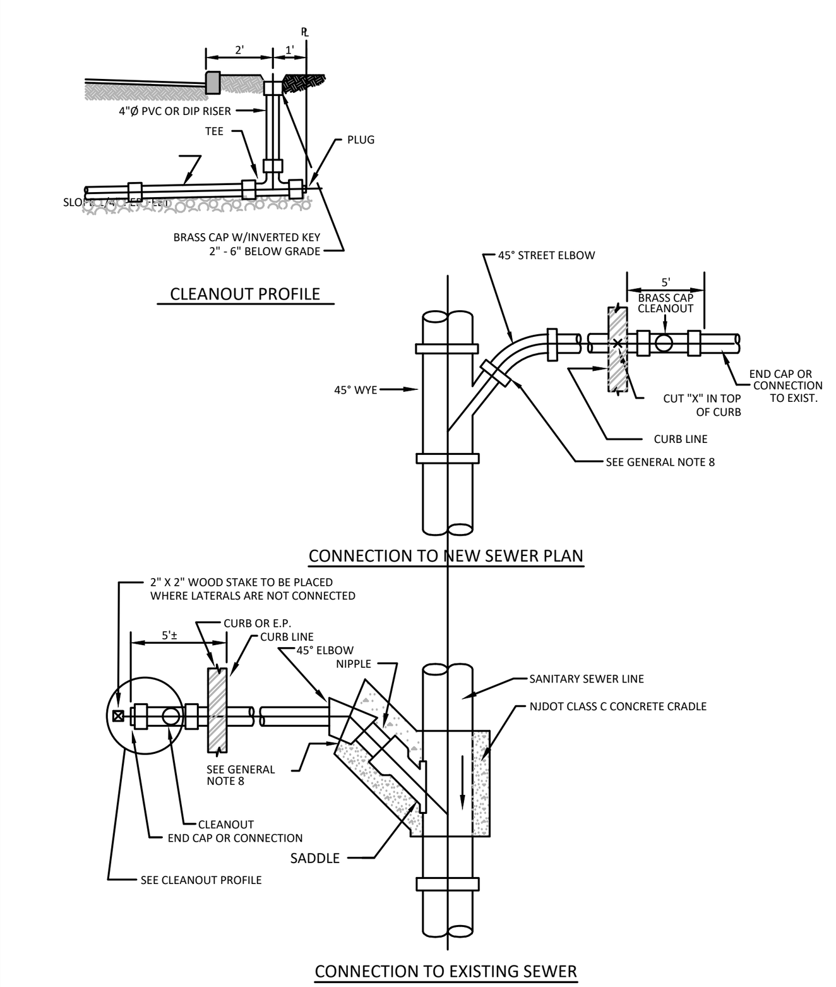
DOWN-SPOUT OVERFLOW DETAIL (TYP.)
N.T.S.



CONSTRUCTION NOTES:

1. AT MANHOLES BITUMINOUS STABILIZED BASE IS TO BE PLACED 6" BEYOND THE TRENCH LIMIT OR 6" BEYOND DAMAGED PAVEMENT BASE COURSE WHICHEVER IS GREATER.
2. SERVICE CONNECTION TRENCHES ARE TO BE REPAIRED AS ABOVE
3. ANY SUPERFICIAL SURFACE DAMAGE CAUSED BY THE CONTRACTOR OUTSIDE THE LIMIT SHOWN, SHALL BE REPAIRED. WHEN THE EXISTING PAVEMENT IS DAMAGED BEYOND THE LIMITS SHOWN THE CONTRACTOR SHALL REMOVE THE DAMAGED PAVEMENT AND REPLACE WITH 6" STABILIZED BASE AS SHOWN ABOVE.

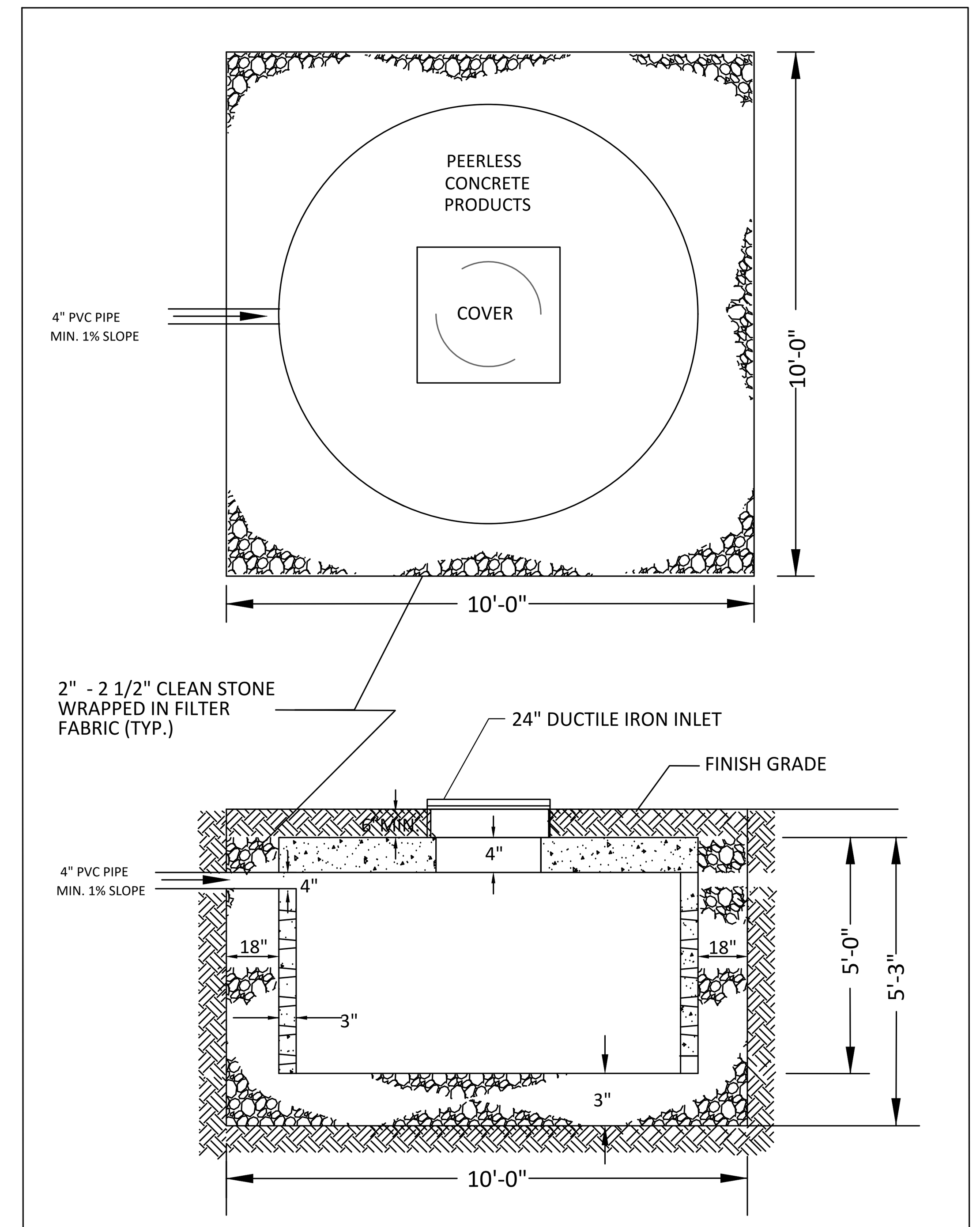
TRENCH AND
TEMPORARY PAVEMENT REPAIR
N.T.S.



CONSTRUCTION NOTES:

1. DETAIL SHOWS CONSTRUCTION OF A "BRANCH CONNECTION" AND OF TWO DIFFERENT TYPES OF "LATERAL HOUSE CONNECTION". TYPE CONNECTION IS AT CONTRACTOR'S OPTION.
2. SIZE OF LATERAL AS SHOWN ON THE PLANS OR AS REQUIRED BY THE ENGINEERING DEPARTMENT

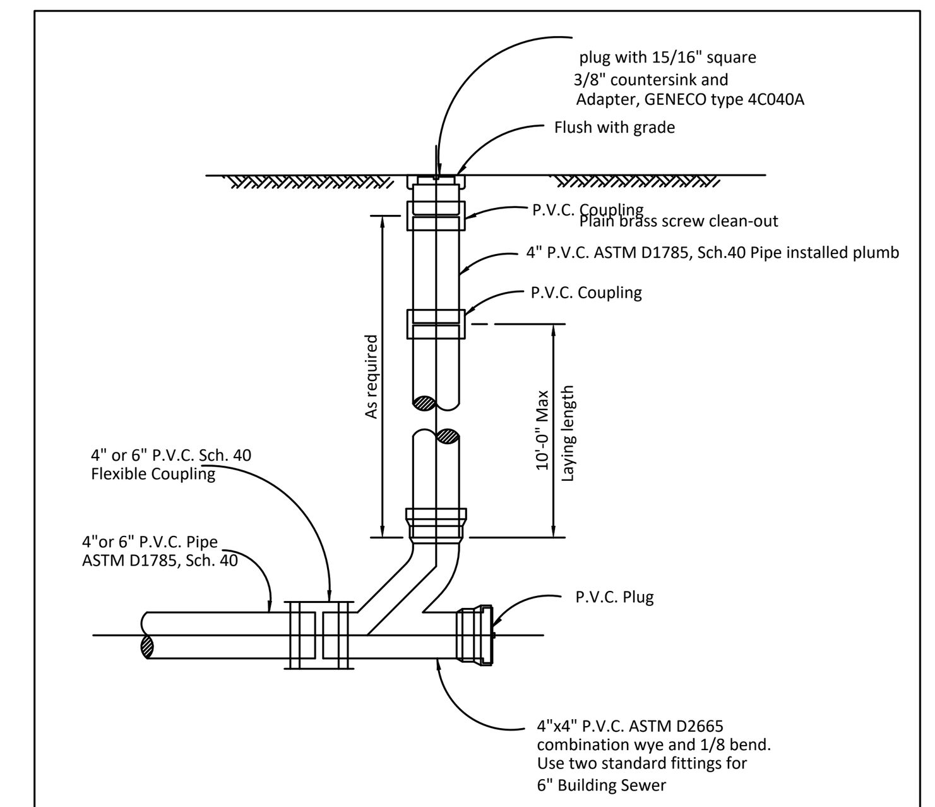
BRANCH AND LATERAL
HOUSE CONNECTIONS
N.T.S.



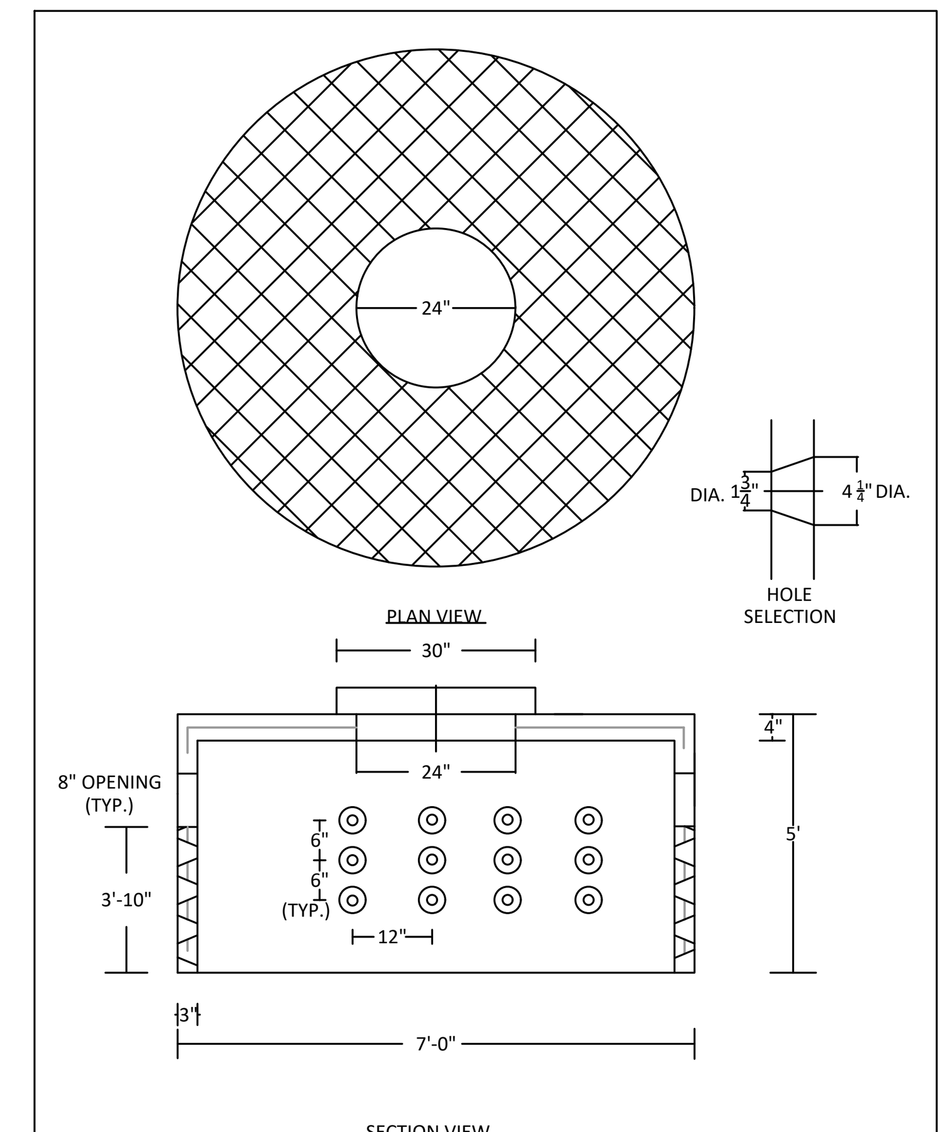
DRY WELL DETAIL (TYP)
N.T.S.

STORMWATER RETENTION VOLUME CALCULATION

DRY WELL VOLUME = 1,159-GALLONS
STONE VOLUME (40% VOIDS) = 995-GALLONS
(AROUND & UNDER DRY WELL)
TOTAL PROPOSED = 2,154-GALLONS



PVC PIPE CLEAN-OUT (TYP.)
N.T.S.



NOTES:
- ±WEIGHT: 6200 LBS
- CONCRETE 4,500PSI @ 28 DAYS
- REINFORCING: DETAILS FURNISHED UPON REQUEST

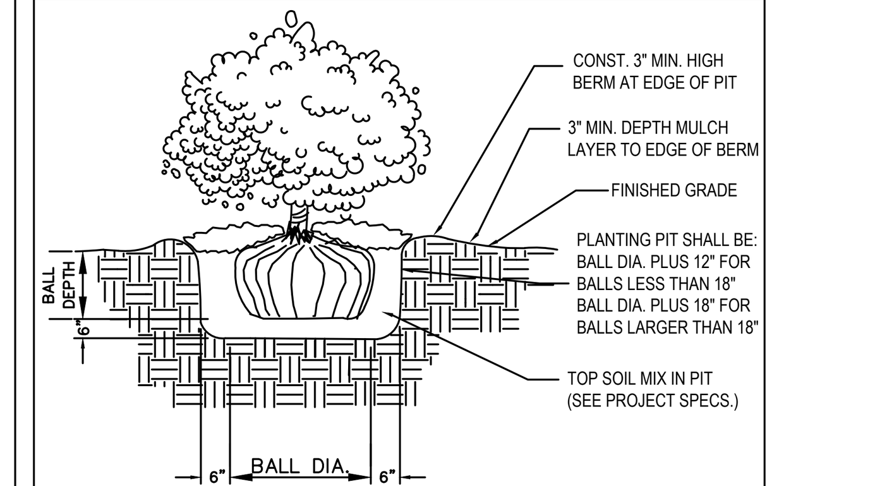
5' SEEPAGE PIT
N.T.S.
PEERLESS CONCRETE PRODUCTS CO.

STORMWATER MANAGEMENT NOTE:

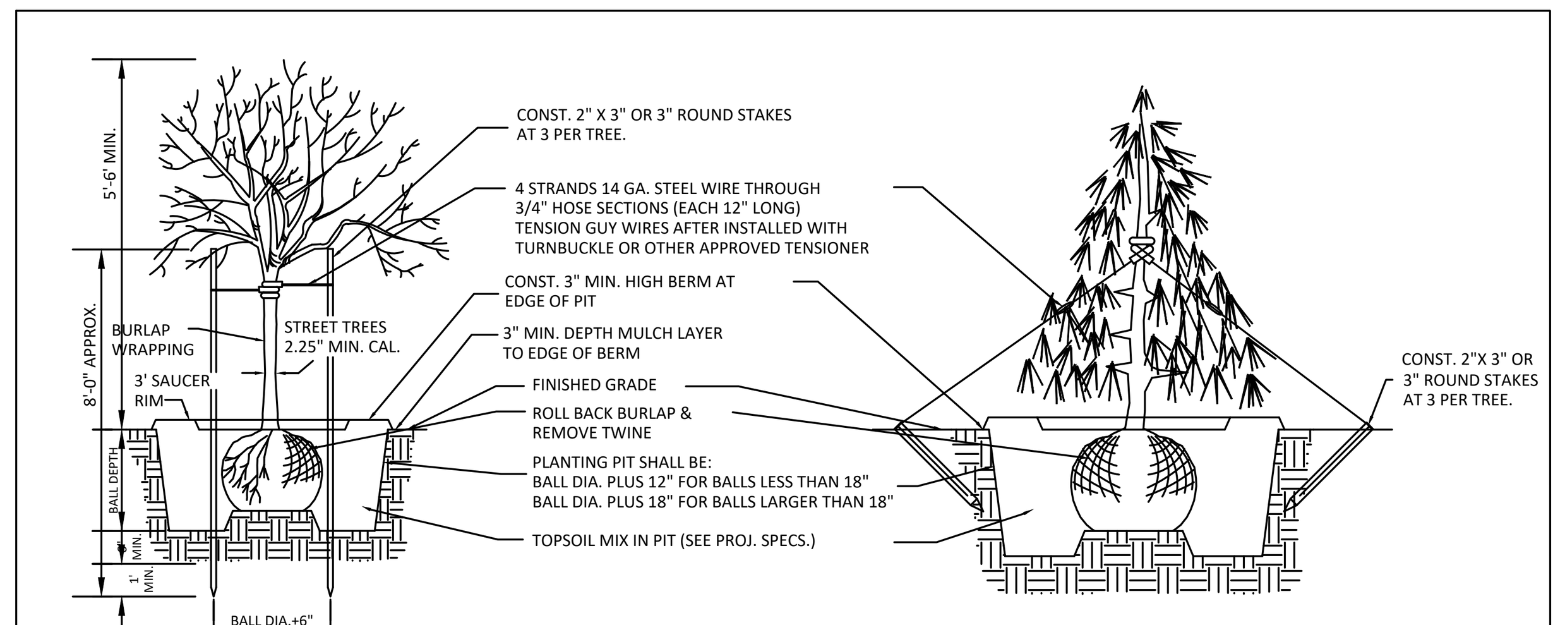
PER SECTION 364-8 C. (SOURCES FOR TECHNICAL GUIDANCE) OF THE TOWNSHIP ORDINANCES, THE "VOLUME OF REQUIRED STORAGE vs. DIFFERENCE IN IMPERVIOUS COVER" CHART HAS BEEN USED TO DETERMINE THE REQUIRED STORAGE VOLUME FOR THE PROPOSED DRY WELL ON LOT 15.02.

LOT 15.02
IMPERVIOUS DIFFERENCE = 948.81 SF
REQUIRED STORAGE VOLUME = 263 CF (1,967.24 GALLONS)
STORAGE PROVIDED = 2,154 GALLONS

LOT 15.01
IMPERVIOUS DIFFERENCE = 89.49 SF
*THE STORMWATER MANAGEMENT RULES DO NOT APPLY TO PROJECTS WITH LESS THAN 300 SF OF NET INCREASE OF IMPERVIOUS COVERAGE, HOWEVER A DRY WELL ,WITH A TOTAL VOLUME OF 2, 154 GALLONS, IS PROVIDED.



SHRUB PLANTING DETAIL
NO TO SCALE



DECIDUOUS & EVERGREEN TREE PLANTING DETAILS
NOT TO SCALE

NO.	REVISIONS	DATE:	BY:	APR:
3	PER TOWNSHIP REVIEW COMMENTS	10/07/21	LF	AAK
2	PER ARCHITECTURAL LAYOUT CHANGES	08/05/21	LF	AAK
1	PER PLANNING REVIEW COMMENTS	07/23/21	LF	AAK

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DRAWN BY EC DATE: 12/14/20
DESIGNED BY AK DATE: 12/14/20
APPROVED BY AK DATE: 10/07/21

ADNAN A. KHAN, P.E., C.M.E.
PROFESSIONAL ENGINEER
10/07/21 DATE
N.J. LICENSE NO. 39812 P.A. LICENSE NO. 45052E
N.Y. LICENSE NO. 086435 M.D. LICENSE NO. 41803

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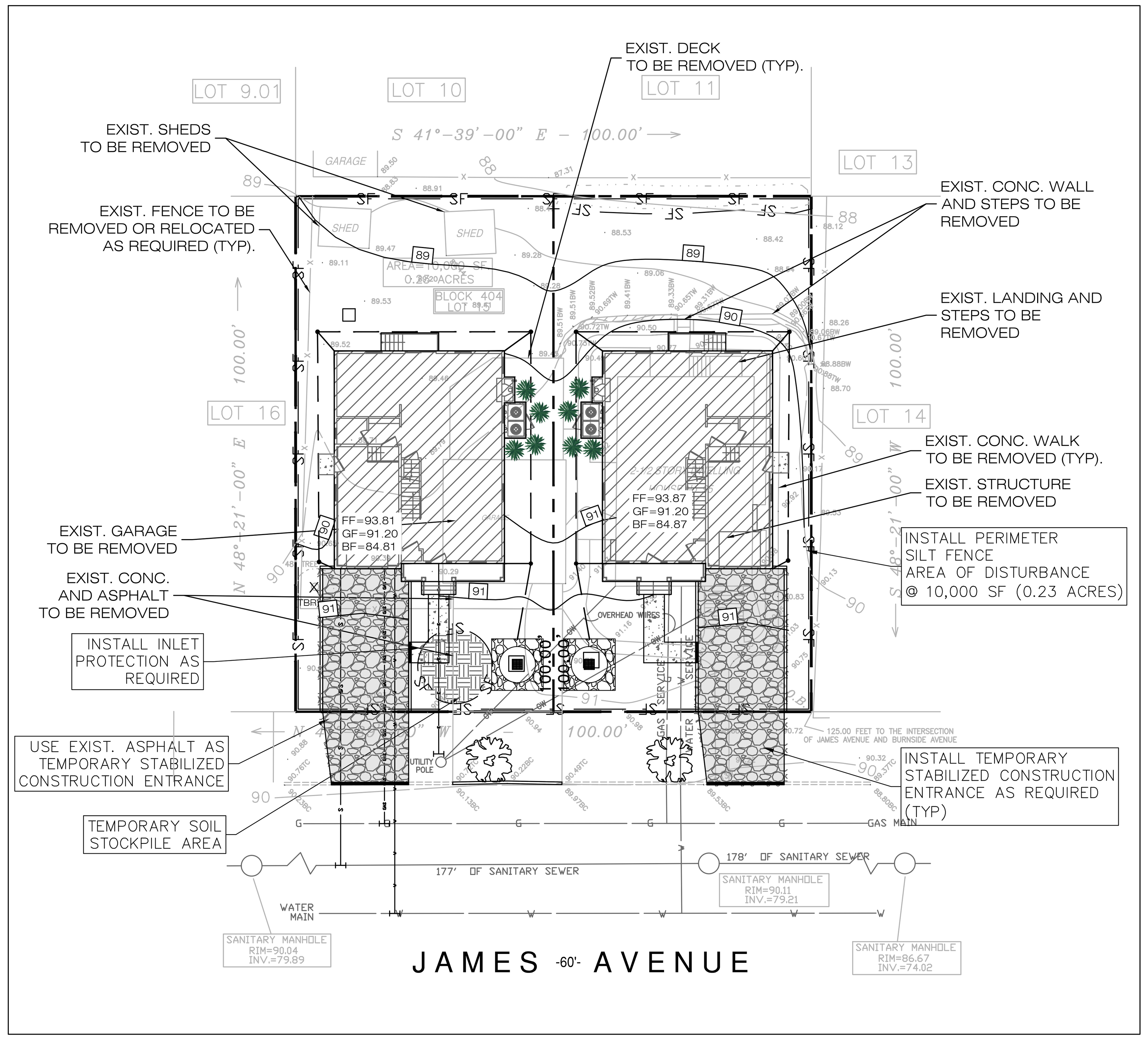
New Jersey Certificate of Authorization No.: 24GA28118400
Pennsylvania Certificate of Authority No.: 3771354

TAX LOT 15 BLOCK 404
95 JAMES AVENUE
TOWNSHIP OF CRANFORD
UNION COUNTY, NEW JERSEY

CONSTRUCTION DETAILS

JOB NUMBER: 20-1206
SCALE: AS SHOWN

C-04
SHEET 4 OF 4



LEGEND

- X TBR - TO BE REMOVED
- - EXISTING SPOT ELEVATION
- - EXISTING CONTOUR
- 160 - PROPOSED CONTOUR
- - PROPOSED SPOT ELEVATION

GRAPHIC SCALE

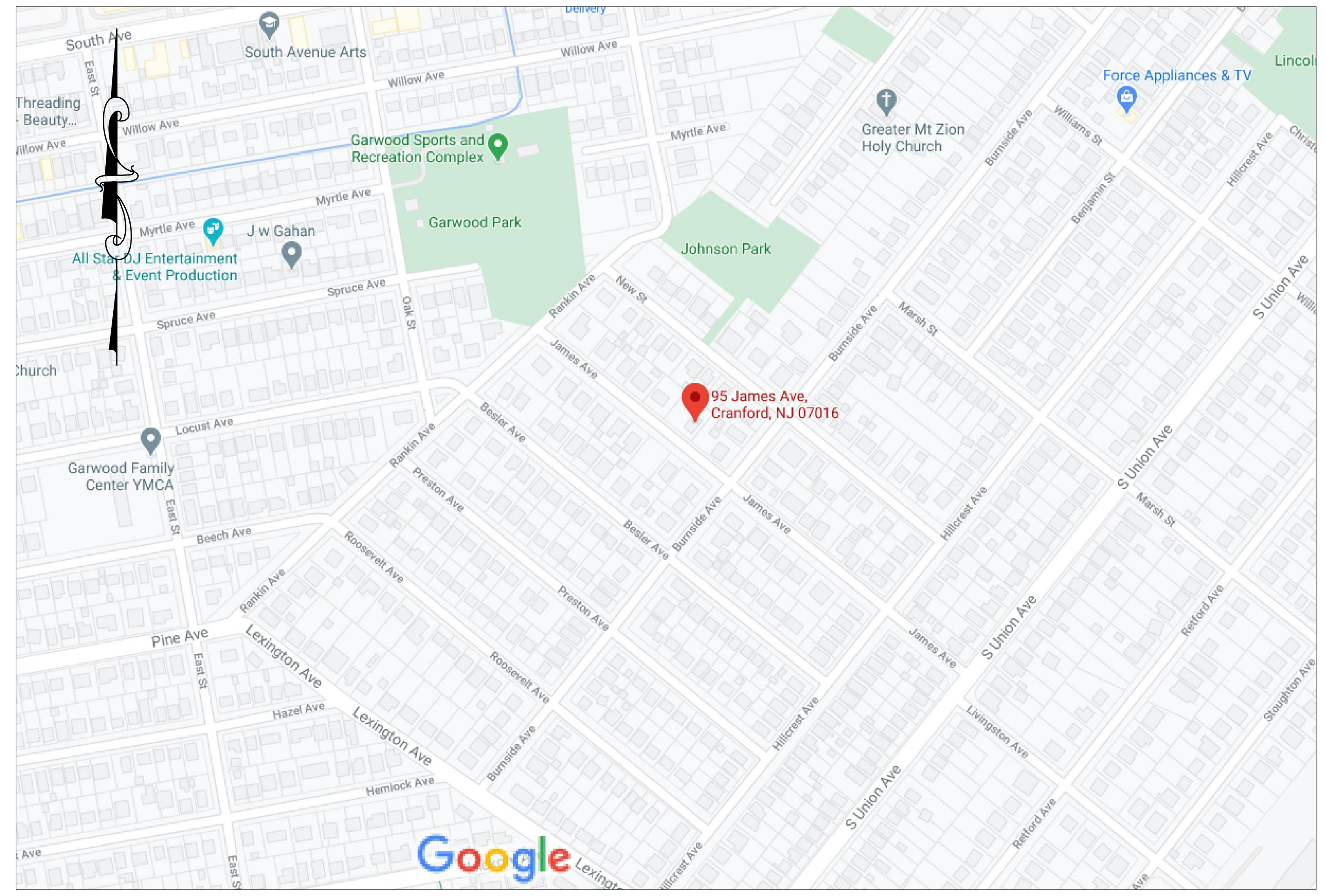
20 0 7.5 15 30 60

(IN FEET)
1 inch = 20 ft.

NOTE:
ACCORDING TO USDA WEB SOIL SURVEY, THE MAP UNIT SYMBOL FOR THE ENTIRE SITE IS "BovB" (BOONTON-URBAN LAND-HALEDON COMPLEX, 0 TO 8 PERCENT SLOPES).

SOIL MANAGEMENT NOTE:
ACCORDING TO STATE OF NEW JERSEY LAND USE CLASSIFICATION SYSTEM, THE SITE IS UNDER URBAN REDEVELOPMENT AREA, LAND USE CODE 1,110. THEREFORE, THE PROPOSED PROJECT DOES NOT REQUIRE COMPACTION REMEDIATION, AS PER EXEMPTION #6 UNDER SOIL MANAGEMENT AND PREPARATION STANDARDS FOR SOIL AND SEDIMENT CONTROL IN NEW JERSEY.

USDA WEB SOIL SURVEY MAP
N.T.S.



KEY MAP
SCALE: 1"=150'

DUST CONTROL NOTES

THE FOLLOWING METHODS SHOULD BE CONSIDERED FOR CONTROLLING DUST: MULCHES - SEE STANDARD FOR STABILIZATION WITH MULCHES ONLY (PG. 5-1) OF STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY. NOTE: ALL PAGE REFERENCES ARE FOR ABOVE DOCUMENT DATED 7/99. VEGETATIVE COVER - SEE STANDARD FOR TEMPORARY VEGETATIVE COVER (PG. 7-1), PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION (PG 4-1), AND PERMANENT STABILIZATION WITH SOD (PG. 6-1) SPRAY-ON ADHESIVES - ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS.

TABLE 16-1: DUST CONTROL MATERIALS

MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS/ACRE
ANIONIC ASPHALT EMULSION	7:1	COARSE SPRAY	1200
LATEX EMULSION	12.5:1	FINE SPRAY	235
BASIN IN WATER	4:1	FINE SPRAY	300
POLYACRYLAMIDE (PAM)-SPRAY ON POLYACRYLAMIDE (PAM)-DRY SPRAY	APPLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS. MAY ALSO BE USED AS AN ADDITIVE TO SEDIMENT BASINS TO FLOCCULATE AND PRECIPITATE SUSPENDED COLLOIDS. SEE SEDIMENT BASIN STANDARD (PG.26-1)		
ACIDULATED SOY BEAN SOAP STICK	NONE	COARSE SPRAY	1200

TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE.
CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART, AND SPRING-TOOTHED HARROWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
SPRINKLING - SITE IS SPRINKLED UNTIL THE SURFACE IS WET.
BARRIERS - SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.
CALCIUM CHLORIDE - SHALL BE IN THE FORM OF LOOSE, DRY GRANULATES OF FLAKES FINE ENOUGH TO FEED THROUGH COMMONLY USED SPREADERS AT A RATE THAT WILL KEEP SURFACE MOIST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE. IF USED ON STEEPER SLOPES, THEN USE OTHER PRACTICES TO PREVENT WASHING INTO STREAMS, OR ACCUMULATION AROUND PLANTS.
STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

NOTES FOR ROAD WORK:

1. THE CONTRACTOR SHALL PREPARE A PLAN FOR THE PROPER DEWATERING OF EACH STREAM CROSSING PRIOR TO EXCAVATING THE STREAM BED. PLAN SHALL BE FORWARDED TO THE ENGINEER AND MORRIS COUNTY SOIL CONSERVATION DISTRICT FOR APPROVAL. THE DISTRICT SHALL BE NOTIFIED FOR INSPECTION PRIOR TO EACH STREAM CROSSING CONSTRUCTION.

2. ANY AREAS USED FOR CONTRACTOR'S STAGING, INCLUDING BUT NOT LIMITED TO, TEMPORARY STORAGE OF STOCKPILE MATERIALS (e.g. CRUSHED STONE, QUARRY PROCESS STONE, SELECT FILL, EXCAVATED MATERIALS, ETC.) SHALL BE ENTIRELY PROTECTED BY A SILT FENCE ALONG THE LOW ELEVATION SIDE TO CONTROL SEDIMENT RUNOFF.

3. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE MORRIS COUNTY SOIL CONSERVATION DISTRICT OF ANY STAGING AND/OR STOCKPILE LOCATION AREAS AND FOR OBTAINING A SOIL EROSION AND SEDIMENT CONTROL CERTIFICATION FOR THESE AREAS.

4. A CRUSHED STONE, VEHICLE WHEEL-CLEANING BLANKET SHALL BE INSTALLED AT THE CONTRACTOR'S STAGING YARD AND/OR STOCKPILE AREAS TO PREVENT OFF-SITE TRACING OF SEDIMENT BY CONSTRUCTION VEHICLE ONTO PUBLIC ROADS. BLANKET SHALL BE 15 FT. x 50 FT. x 6 IN. (MINIMUM), CRUSHED STONE 2-1/2 INCHES IN DIAMETER. SAID BLANKET SHALL BE UNDERLAIN WITH A SUITABLE SYNTHETIC SEDIMENT FILTER FABRIC AND MAINTAINED IN GOOD ORDER.

SOMERSET-UNION COUNTY SOIL CONSERVATION DISTRICT SOIL EROSION AND SEDIMENT CONTROL NOTES:

1. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
2. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO STATE STANDARDS.
3. PERMANENT VEGETATION SHALL BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. MULCH WILL BE USED FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.
4. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
5. 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.
6. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. STEEP SLOPES, ROADWAY EMBANKMENTS) WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO THE STATE STANDARDS.
7. ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (I.E. SLOPES GREATER THAN 3:1).
8. TRAFFIC CONTROL STANDARDS REQUIRE THE INSTALLATION OF A 50'X30'X1" PAD OF 1 1/2" OR 2" STONE, AT ALL CONSTRUCTION DRIVEWAYS, IMMEDIATELY AFTER INITIAL SITE DISTURBANCE.
9. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 48 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.
10. AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER, SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OR PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.
11. IN THAT NJSA 4:24-39 ET SEQ., REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE THE PROVISIONS OF THE CERTIFIED PLAN FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES, ALL SITE WORK FOR SITE PLANS AND ALL WORK AROUND INDIVIDUAL LOTS IN SUBDIVISIONS, WILL HAVE TO BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.
12. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
13. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT STATE SOIL EROSION AND SEDIMENT CONTROL STANDARDS.
14. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES IN OWNERSHIP.
15. MULCHING IN THE STANDARDS IS REQUIRED FOR OBTAINING A CONDITIONAL REPORT OF COMPLIANCE. CONDITIONS ARE ONLY ISSUED WHEN THE SEASON PROHIBITS SEEDING.
16. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ADJACENT ROADS CLEAN DURING THE LIFE OF THE CONSTRUCTION PROJECT.
17. THE DEVELOPER SHALL BE RESPONSIBLE FOR REMEDIATING ANY EROSION OR SEDIMENT PROBLEMS THAT ARISE AS A RESULT OF ONGOING CONSTRUCTION AT THE REQUEST OF THE SOMERSET-UNION SOIL CONSERVATION DISTRICT.
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, HYDRO-MULCH SHOULD BE APPLIED AT A RATE OF 1500 LBS. PER ACRE IN THE SECOND STEP. THE USE OF HYDRO-MULCH, AS OPPOSED TO STRAW, IS LIMITED TO OPTIMUM SEEDING DATES AS LISTED IN THE STANDARDS.

PROTECT YOURSELF
A PHONE CALL
CAN BE YOUR INSURANCE POLICY

GARDEN STATE UNDERGROUND LOCATION
1-800-272-1000
STOP - CALL BEFORE YOU DIG!

WHAT YOU DON'T KNOW CAN HURT YOU.
THE STATE OF NEW JERSEY REQUIRES NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE.

THIS PLAN IS TO BE USED FOR SOIL EROSION CONTROL PURPOSES ONLY

NO.	REVISIONS	DATE:	BY:	APR:

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DRAWN BY EC — DATE: 12/14/20
DESIGNED BY AK — DATE: 12/14/20
APPROVED BY AK — DATE: 02/18/21

ADNAN A. KHAN, P.E., C.M.E.
PROFESSIONAL ENGINEER
10/07/21
DATE
N.J. LICENSE NO. 39812 P.A. LICENSE NO. 45052E
N.Y. LICENSE NO. 086435 M.D. LICENSE NO. 41803

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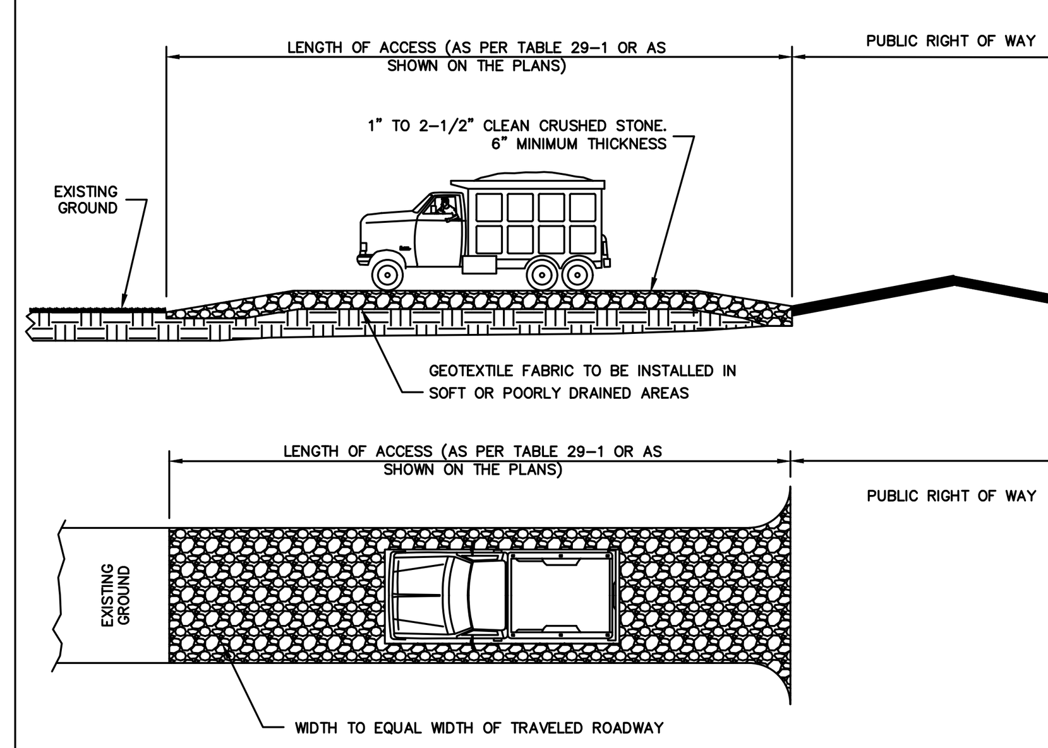
TAX LOT 15 BLOCK 404
95 JAMES AVENUE
TOWNSHIP OF CRANFORD
UNION COUNTY, NEW JERSEY

SOIL EROSION AND SEDIMENT CONTROL PLAN

JOB NUMBER: 20-1206
SCALE: AS SHOWN

S-01
SHEET 1 OF 2

THIS PLAN IS TO BE USED FOR SOIL EROSION CONTROL PURPOSES ONLY



LENGTH OF STABILIZED CONSTRUCTION ACCESS (TABLE 29-1)

PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0 TO 2%	50 FT	100 FT
2 TO 5%	100 FT	200 FT
>5%	Entire surface stabilized with FABC base course per governing authority requirements.	

NOTES:

1. ALL INDIVIDUAL LOT INGRESS/EGRESS POINTS SHALL REQUIRE STABILIZED CONSTRUCTION ENTRANCE ACCESS.

2. PLACE STABILIZED CONSTRUCTION ENTRANCE AT LOCATIONS AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN.

3. STONE SIZE SHALL BE ASTM C-33, SIZE NO. 2 OR 3, CRUSHED STONE.

4. THE THICKNESS OF THE STABILIZED CONSTRUCTION ENTRANCE SHALL NOT BE LESS THAN 6".

5. THE WIDTH AT THE EXISTING PAVEMENT SHALL NOT BE LESS THAN THE FULL WIDTH OF POINTS OF INGRESS AND EGRESS.

6. THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE R.O.W./PAVEMENT. THIS REQUIRES PERIODIC TOP DRESSING WITH ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURE USED TO TRAP SEDIMENT.

7. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO THE PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.

8. WHERE TRACKING OF SOIL ONTO ROADWAYS IS A CONTINUAL OCCURRENCE, ALL CONTRACTORS BOTH SITE AND DWELLING CONTRACTORS, SHALL BE REQUIRED TO BROOM SWEEP THE ROADWAY AT 2 HOUR INTERVALS MINIMUM AND PRIOR TO LEAVING THE CONSTRUCTION SITE AT THE END OF THE DAY.

STABILIZED CONSTRUCTION ACCESS
NTS

PROPOSED SEQUENCE OF DEVELOPMENT

Installation of all sediment and erosion control devices (including silt fences and stabilized construction access) prior to any major soil disturbances or in their proper sequence and maintenance until permanent protection is established.	1 Week
Site demolition, clearing, clear and remove all debris as necessary. All remaining vegetation to be properly protected and to remain in its natural state.	2 Weeks
General and preliminary grading of all pavement areas and storm water management basins.	2 Week
Layout and location of all proposed utilities.	1 Week
Construction of all proposed improvements and drainage facilities. installation of all erosion control measures affected by said facilities such as inlet sediment barriers.	25 Weeks
Pavement subbase course to be applied immediately following preliminary grading and construction of improvements in order to stabilize pavement areas.	1 Week
Installation of all pavement base material.	1 Week
Fine grading of all lot areas and basins including construction of all soil erosion control as necessary.	1 Week
Compaction test on mitigation areas	1 Week
Stabilization of all off pavement areas.	1 Week
Uniformly apply topsoil to an average depth of 5", minimum of 4",firmed in place. Provide permanent vegetative stabilization of all exposed areas.	1 Week
Complete all landscaping and vegetative cover.	1 Week
Removal of all temporary sediment and erosion control devices.	upon completion

STANDARD FOR TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION

DEFINITION
Establishment of temporary vegetative cover on soils exposed for periods of two to six months which are not being graded, not under active construction or not scheduled for permanent seeding within 60 days.

PURPOSE
To temporarily stabilize the soil and reduce damage from wind and water erosion until permanent stabilization is accomplished.

WATER QUALITY ENHANCEMENT
Provides temporary protection against the impacts of wind and rain, slows the over land movement of stormwater runoff, increases infiltration and retains soil and nutrients on site, protecting streams or other stormwater conveyances.

WHERE APPLICABLE
On exposed soils that have the potential for causing off-site environmental damage.

METHODS AND MATERIALS

SITE PREPARATION

A. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standards for Land Grading, page 19-1.

B. Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways. See Standards 11 through 42.

C. Immediately prior to seeding and topsoil application, 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 (cables, irrigation systems, etc.)

SEEDBED PREPARATION

A. Apply limestone and fertilizer according to soil test recommendations such as offered by Rutgers Co-operative Extension.Soil sample mailers are available from the local Rutgers Cooperative Extension offices. Fertilizer shall be applied at the rate of 500 pounds per acre of 11 lbs. per 1000 square feet of 10-20-10 or equivalent with 50% water insoluble nitrogen unless a soil test indicates otherwise.Calcium carbonate is the equivalent and standard for measuring the ability of liming materials to neutralize soil acidity and supply calcium magnesium to grasses and legumes.

B. Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, springtooth harrow, or other suitable equipment. The final harrowing or discing operation should be the general contour. Continue tillage until a reasonable uniform seedbed is prepared.

C. Inspect seedbed just before seeding. If traffic has left the soil compacted, the area must be retilled in accordance with the above.

D. Soils high in sulfides or having a pH of 4 or less refer to Standard for Management of High Acid Producing Soils, pg. 1-1.

SEEDING

A. Select seed from recommendations in Table 7-2.

TABLE 7-2
TEMPORARY VEGETATIVE STABILIZATION GRASSES, SEEDING RATES, DATES AND DEPTH.

SEED SELECTIONS	SEEDING RATE[1] (pounds)		OPTIMUM SEEDING DATE[2] Based on Plant Hardiness Zone[3]			OPTIMUM SEEDING DEPTH[4] (inches)
	Per Acre	Per 1000 Sq. Ft.	ZONE 5b,6s	ZONE 6b	ZONE 7a,b	
COLD SEASON GRASSES						
1. Perennial ryegrass	100	1.0	3/15-6/1 8/1-9/15	3/1-5/15 8/15-10/1	2/15-5/1 8/15-10/15	0.5
2. Spring oats	86	2.0	3/15-6/1 8/1-9/15	3/1-5/15 8/15-10/1	2/15-5/1 8/15-10/15	1.0
3. Winter Barley	96	2.2	8/1-9/15	8/15-10/1	8/15-10/15	1.0
4. Annual ryegrass	110	1.0	3/15-6/1 8/1-9/15	3/15-6/1 8/1-9/15	2/15-5/1 8/15-10/15	0.5
5. Winter Cereal Rye	112	2.8	8/1-11/1	8/1-11/15	8/1-12/15	1.0
WARM SEASON GRASSES						
6. Pearl Millet	20	0.5	6/1-8/1	5/15-8/15	5/1-9/1	1.0
7. Millet (German or Hungarian)	30	0.7	6/1-8/1	5/15-8/15	5/1-9/1	0.25

1. Seeding rate for warm season grass, selections 5-7 shall be adjusted to reflect the amount of Pure Line Seed (PLS) as determined by a germination test result. No adjustment is required for cool season grasses.
2. May be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
3. Plant Hardiness Zone (see figure 7-1, pg. 7-4.)
4. Twice the depth for sandy soils.

B. Conventional Seeding. Apply seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or cultipacker seeder. Except for drilled, hydroseeded or cultipacked seedings, seed shall be incorporated into the soil, to a depth of 1/4 to 1/2 inch, by raking or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soil.

C. Hydroseeding is a broadcast seeding method usually involving a truck or trailer mounted tank, with an agitation system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short fibered mulch may be applied with a hydroseeder following seeding. (also see Section IV Mulching) Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. Poor seed to soil contact occurs reducing seed germination and growth. Hydroseeding may be used for areas too steep for conventional equipment to traverse or too obstructed with rocks, stumps, etc.

D. After seeding, firming the soil with a corrugated roller will assure good seed-to-soil contact, restore capillarity, and improved seedling emergence. This is the preferred method. When performed on the contour, sheet erosion will be minimized and water conservation on site will be maximized.

MULCHING

Mulching is required on all seeding. Mulch will insure against erosion before grass is established and will promote faster and earlier establishment. The existence of vegetation sufficient to control soil erosion shall be deemed compliance with this mulching requirement.

Straw or Hay. Unrotted small grain straw, hay free of seeds, or salt hay to be applied at the rate of 1-1/2 to 2 tons per acre (70 to 90 pounds per 1,000 square feet), except that where a crimper is used instead of a liquid mulch-binder (tackifying or adhesive agent), the rate of application is 3 tons per acre. Mulch chopper-blowers must not grind the mulch. Hay mulch is not recommended for establishing fine turf or lawns due to the presence of weed seed.

Application. Spread mulch uniformly by hand or mechanically so that approximately 85% of the soil surface will be covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 square feet sections and distribute 70 to 90 pounds within each section.

Anchoring shall be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area, steepness of slopes, and costs.

Peg and Twine. Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss-cross and a square pattern. Secure twine around each peg with two or more round turns.

Mulch Nettings. Staple paper, jute, cotton, or plastic nettings to the soil surface. Use a degradable netting in areas to be mowed.

Crimper (mulch anchoring coulter tool). A tractor-drawn implement, somewhat like a disc-harrow, especially designed to push or cut some of the broadcast long fiber mulch 3 to 4 inches into the soil so as to anchor it and leave part standing upright. This technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 tons per acre. No tackifying or adhesive agent is required.

Liquid Mulch-Binders. May be used to anchor salt hay, hay or straw mulch.

a. Applications should be heavier at edges where wind may catch the mulch, in valleys, and at crests of banks. The remainder of the area should be uniform in appearance.

Use one of the following:

(1) Organic and Vegetable Based Binders - Naturally occuring, powder based, hydrophilic materials when with water formulates a gel and when applied to mulch under satisfactory curing conditions will form membraned networks of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turf-grass. Use at rates and weather conditions as recommended by the manufacturer to anchor mulch materials. Many new products are available, some of which may need further evaluation for use in this state.

(2) Synthetic Binders - High polymer synthetic emulsion, miscible with water when diluted and following application to mulch, drying and curing shall no longer be soluble or dispersible in water. It shall be applied at rates recommended by the manufacturer and remain tacky until germination of grass.

Note: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products.

Wood-fiber or paper-fiber mulch. Shall be made from wood, plant fibers or paper containing no growth or germination inhibiting materials, used at the rate of 1,500 pounds per acre (or as recommended by the product manufacturer) and may be applied by a hydroseeder. This mulch shall not be mixed in the tank with seed. Use is limited to flatter slopes and during optimum seeding periods in spring and fall.

Pelletized mulch. Compressed and extruded paper and/or wood fiber product, which may contain co-polymers, tackifiers, fertilizers and coloring agents. The dry pellets, when applied to a seeded area area and watered, form a mulch mat. Pelletized mulch shall be applied in accordance with the manufacturers recommendations. Mulch may be applied by hand or mechanical spreader at the rate of 60-75 lbs./1,000 square feet and activated with 0.2 to 0.4 inches of water. This material has been found to be beneficial for use on small lawn or renovation areas, seeded areas where weed-seed free mulch is desired or on sites where straw mulch and tackifier agent are not practical or desirable.

Applying the full 0.2 to 0.4 inches of water after spreading pelletized mulch on the seed bed is extremely important for sufficient activation and expansion of the mulch to provide soil coverage.

STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

DEFINITION
Establishment of permanent vegetative cover on exposed soils where perennial vegetation is needed for long term protection.

PURPOSE
To permanently stabilize the soil, assuring conservation of soil and water, and to enhance the environment.

WATER QUALITY ENHANCEMENT
Slows the over land movement of stormwater runoff, increases infiltration and retains soil and nutrients on site, protecting streams or other stormwater conveyances.

WHERE APPLICABLE
On exposed soils that have the potential for causing off-site environmental damage.

SITE PREPARATION

A. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standards for Land Grading.

B. Immediately prior to seeding and topsoil application, 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 (cables, irrigation systems, etc.)

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 the STANDARD FOR TOPSOILING.

D. Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways. See Standards 11 through 42.

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. Soil sample mailers are available from the local Rutgers Cooperative Extension offices. Fertilizer shall be applied at the rate of 500 pounds per acre of 11 lbs. per 1000 square feet of 10-10-10 or equivalent with 50% water insoluble nitrogen unless a soil test indicates otherwise and incorporated into the surface 4 inches. If fertilizer is not incorporated, apply one-half the rate described above during seedbed preparation and repeat another one-half rate application of the same fertilizer within 3 to 5 weeks after seeding.

B. Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, springtooth harrow, or other suitable equipment. The final harrowing or discing operation should be 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 a minimum of 12 inches of soil having a pH of 5 or more before initiating seedbed reparation. See Standard for Management of High Acid-Producing Soils for specific requirements.

SEEDING

A. Select a mixture from Table 4-3 or use mixture recommended by Rutgers Cooperative Extension or Natural Resources Conservation Service which is approved by the Soil Conservation District. Seed germaination 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.

(1) Seeding rates specified are required whan a report of compliance is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in rates may be used when permanent vegetation is established prior to a report of compliance inspection. These rates apply to all methods of seeding. Establishing permanent vegetation means 80% vegetative coverage with the specified seed mixture for the seeded area and mowed once.

(2) Warm season mixtures are grasses and legumes which maximize growth at high temperatures, generally 85°F and above. See Table 4-3, mixtures 1 to 7. Planting rates for warm season grasses shall be the amount of Pure Live Seed (PLS) as determined by germination testing results.

(3) Cool Season Mixtures are grasses and legumes which maximize growth at temperatures below 85°F. Many grasses become active at 65°F. See Table 3, mixtures 8-20. Adjustment of planting rates to compensate for the amount of Pure Live Seed is not required for cool season grasses.

B. Conventional Seeding is performed by applying seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or cultipacker seeder. Except for drilled, hydroseeded or cultipacked seedings, seed shall be incorporated into the soil within 24 hours of seedbed preparation to a depth of 1/4 to 1/2 inch, by raking or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soil.

C. After seeding, firming the soil with a corrugated roller will assure good seed-to soil contact restore capillarity, and improve seeding emergence. this is preferred method. When performed on the contour, sheet erosion will be minimize and water conservation on site will be maximized.

D. Hydroseeding is a broadcast seeding method usually involving a truck or trailer mounted tank, with an agitation system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short fibered mulch may be applied with a hydroseeder following seeding. (also see Section IV Mulching) Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. Poor seed to soil contact occurs reducing seed germination and growth. Hydroseeding may be used for areas too steep for conventional equipment to traverse or too obstructed with rocks, stumps, etc.

MULCHING

Mulching is required on all seeding. Mulch will insure against erosion before grass is established and will promote faster and earlier establishment. The existence of vegetation sufficient to control soil erosion shall be deemed compliance with this mulching requirement.

Straw or Hay. Unrotted small grain straw, hay free of seeds, or salt hay to be applied at the rate of 1-1/2 to 2 tons per acre (70 to 90 pounds per 1,000 square feet), except that where a crimper is used instead of a liquid mulch-binder (tackifying or adhesive agent), the rate of application is 3 tons per acre. Mulch chopper-blowers must not grind the mulch. Hay mulch is not recommended for establishing fine turf or lawns due to the presence of weed seed.

Application. Spread mulch uniformly by hand or mechanically so that approximately 85% of the soil surface will be covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 square feet sections and distribute 70 to 90 pounds within each section.

Anchoring shall be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area, steepness of slopes, and costs.

Peg and Twine. Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss-cross and a square pattern. Secure twine around each peg with two or more round turns.

Mulch Nettings. Staple paper, jute, cotton, or plastic nettings to the soil surface. Use a degradable netting in areas to be mowed.

Crimper (mulch anchoring coulter tool). A tractor-drawn implement, somewhat like a disc-harrow, especially designed to push or cut some of the broadcast long fiber mulch 3 to 4 inches into the soil so as to anchor it and leave part standing upright. This technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 tons per acre. No tackifying or adhesive agent is required.

Liquid Mulch-Binders. May be used to anchor salt hay, hay or straw mulch.

a. Applications should be heavier at edges where wind may catch the mulch, in valleys, and at crests of banks. The remainder of the area should be uniform in appearance.

b. Use one of the following:

(1) Organic and Vegetable Based Binders - Naturally occuring, powder based, hydrophilic materials when with water formulates a gel and when applied to mulch under satisfactory curing conditions will form membraned networks of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turf-grass. Use at rates and weather conditions as recommended by the manufacturer to anchor mulch materials. Many new products are available, some of which may need further evaluation for use in this state.

(2) Synthetic Binders - High polymer synthetic emulsion, miscible with water when diluted and following application to mulch, drying and curing shall no longer be soluble or dispersible in water. It shall be applied at rates recommended by the manufacturer and remain tacky until germination of grass.

Note: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products.

Wood-fiber or paper-fiber mulch. Shall be made from wood, plant fibers or paper containing no growth or germination inhibiting materials, used at the rate of 1,500 pounds per acre (or as recommended by the product manufacturer) and may be applied by a hydroseeder. This mulch shall not be mixed in the tank with seed. Use is limited to flatter slopes and during optimum seeding periods in spring and fall.

Pelletized mulch. Compressed and extruded paper and/or wood fiber product, which may contain co-polymers, tackifiers, fertilizers and coloring agents. The dry pellets, when applied to a seeded area area and watered, form a mulch mat. Pelletized mulch shall be applied in accordance with the manufacturers recommendations. Mulch may be applied by hand or mechanical spreader at the rate of 60-75 lbs./1,000 square feet and activated with 0.2 to 0.4 inches of water. This material has been found to be beneficial for use on small lawn or renovation areas, seeded areas where weed-seed free mulch is desired or on sites where straw mulch and tackifier agent are not practical or desirable. Applying the full 0.2 to 0.4 inches of water after spreading pelletized mulch on the seed bed is extremely important for sufficient activation and expansion of the mulch to provide soil coverage.

IRRIGATION (where feasible)

If soil moisture is deficient, and mulch is not used, supply new seedings with adequate water (a minimum of 1/4 inch 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.

TOPDRESSING

Since soil organic matter content and slow fertilizer (water insoluble) are prescribed in Section 2A. Seedbed Preparation in this Standard, 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 300 pounds per acre or 7 pounds per 1,000 square feet every 3 to 5 weeks until the gross until the gross nitrogen deficiency in the turf is ameliorated

ESTABLISHING PERMANENT VEGETATIVE STABILIZATION

The quality of permanent vegetation rests with the contractor. The timing of seeding, preparing the the seedbed, applying nutrients, mulch and other management are essential. The seed application rates in Table 4-3 are required when a Report of Compliance is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in application rates may be used when permanent vegetation is established prior to requesting a Report of Compliance from the district. These rates apply to all methods of seeding. Establishing permanent vegetation means 80% vegetative cover (of the seeded species) and mowed once. Note this designation of mowed once does not guarantee the permanency of the turf should other maintenance factors be neglected or otherwise mismanaged.

TABLE 4-2
PERMANENT STABILIZATION MIXTURES FOR VARIOUS USES

Application	PLANTING MIXTURES BY SOIL DRAINAGE CLASS/[1] (see Table 4-3)		
	Excessively Drained	Well to Moderately Well Drained	Somewhat Poorly to Poorly Drained
Residential/commercial lots	10, 12, 15	6, 10, 12, 13, 14, 15	16
Pond and channel banks, dikes, berms, and dams	2, 5, 6, 10	5, 6, 7, 8, 9, 15	2, 8, 16, 17
Drainage ditches, swales, detention basins	2, 9, 11	2, 7, 9, 11, 12, 17	2, 9, 16, 17
Filter Strips	12	11, 12	11, 12
Grasses waterway, spillways	2, 3, 9, 10, 12	6, 7, 9, 10, 11, 12	2, 9, 11, 12
Recreation areas, athletic fields	5, 12, 15, 18	12, 13, 14, 15, 18	16
Special Problem Sites Steep slope and banks, roadsides, borrow areas	2, 3, 6, 8	2, 3, 5, 7, 8, 9, 10, 15 18	2, 9, 10, 11, 12
Sand and gravel pits, Sanitary landfills	1, 2, 3, 4, 6, 21	1, 2, 3, 4, 5, 6, 8, 15, 20	2, 8
Dredged material, spoilbanks, borrow areas	2, 3, 6, 20	2, 3, 6, 11	2, 8
Streambanks & shorelines[2]	2, 8, 20, 21a	2, 8, 19b, 20, 21a, 21b	2, 8, 19a, 21a,b,c,d
Utility rights-of-way	3, 7, 180	3, 7	8, 9, 17

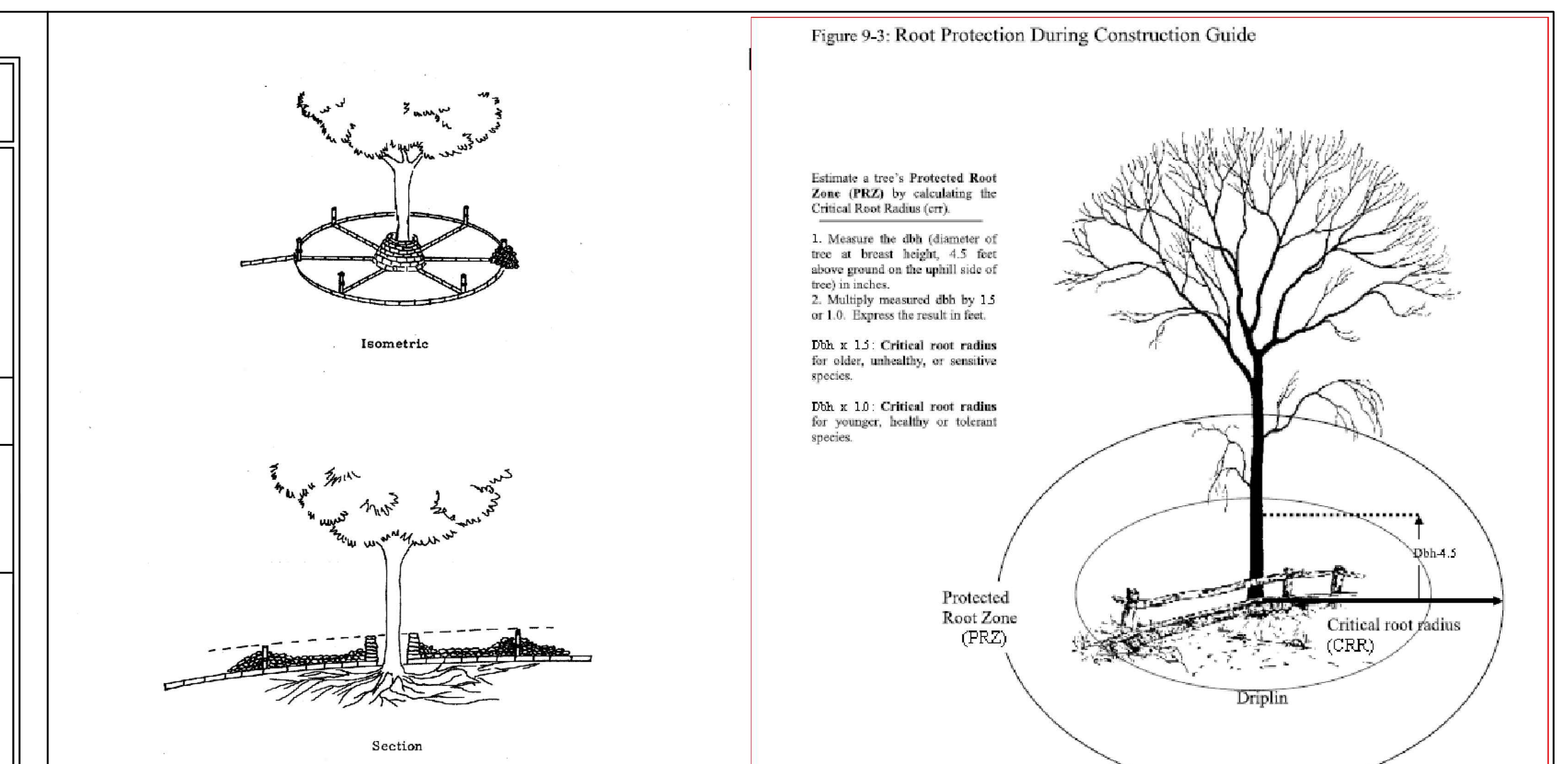
1. Refer to Soil Surveys for drainage class descriptions.
2. Refer to Soil Bioengineering Standard for additional seed mixtures.
3. Spillways only
4. See Appendix E for description of turf grasses and cultivars

TABLE 4-3
PERMANENT VEGETATIVE MIXTURES, PLANTING RATES AND PLANTING DATES[1]

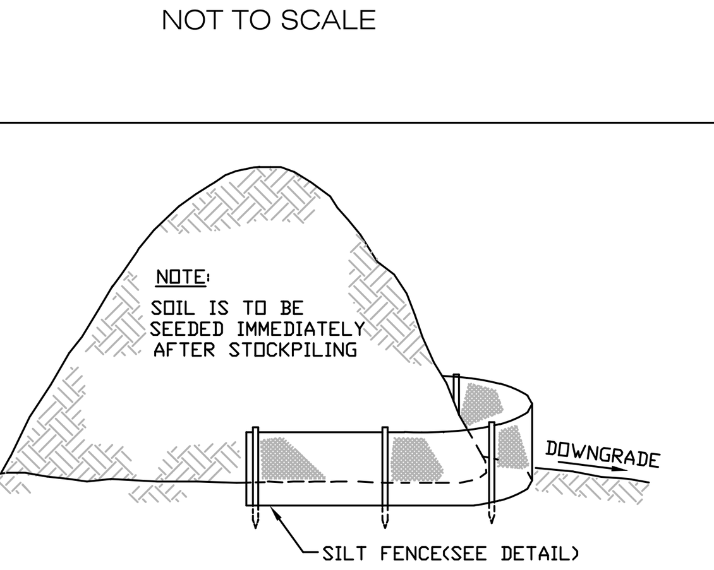
PLANTING DATES: O = Optimal Planting period; A = Acceptable Planting period. PLANT HARDINESS ZONES (see Figure 4-1)

SEED MIXTURE[2]	PLANTING RATE/[3] lbs./acre	PLANTING RATE/[3] lbs./1000 sq. ft.	Zone 5b, 6a 3/15-5/31	Zone 5b, 6a 6/1-7/31	Zone 5b, 6a 8/1-10/1	Zone 6b 3/1-4/30	Zone 6b 5/1-8/14	Zone 6b 8/15-10/15	Zone 7a, 7b 2/1-4/30	Zone 7a, 7b 5/1-8/14	Zone 7a, 7b 8/15-11/30	MAINTENANCE LEVEL/[4]	REMARKS
WARM SEASON SEED MIXTURES													
1 A. FOR PINELANDS NATIONAL RESERVE SEED MIXTURES SEE TABLE 4.4 PG 4-17 OF THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.			O			O			O				
1. SWITCHGRASS AND /OR COASTAL PANICGRASS PLUS OR FLATPEA.	15 15 20	.35 .45 .45	O			O			O			C-D	
2. DEERTONGUE OR SWITCHGRASS REDTOP	15 20 1	.35 .45 .1	O			O			O			C-D	USE DEERTONGUE IF PH <4.0.SWITCHGRASS IS SUPERIOR WILDLIFE PLANT. USE FOR WATERWAYS. REDTOP PROVIDES QUICK COVER.
3. SWITCH GRASS DEERTONGUE LITTLE BLUESTEM SHEEP FESCUE PLUS PARTRIDGE PEA	15 10 20 20 10	.35 .25 .45 .45 .25	O			O			O			C-D	PINELANDS MIXTURE
4. SWITCHGRASS BIG BLUESTEM LITTLE BLUESTEM SAND LOVEGRASS COASTAL PANICGRASS	10 5 5 4 10	.25 .10 .10 .10 .25	O			O			O			C-D	NATIVE WARM-SEASON MIXTURE.
5. BERMUDAS ZOYSIAGRASS (SEED) ZOYSIAGRASS (SPRIGS)	15 30	.35 .70	O			O			O			A-D	BERMUDAGRASS HAS SUPERIOR SALT TOLERANCE. ZOYSIA HAS GREATER WEAR TOLERANCE.
COOL SEASON SEED MIXTURES			A	A[5]	O	A	A[5]	O	A	A[5]	O		GENERAL LOW MAINTENANCE MIXTURE
6. FINE FESCUE (BLEND) HARD FESCUE CHEWINGS FESCUE STRONG CREEPING RED FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS PLUS WHITE CLOVER	45 10 5	.10 .50 .10										B-D	WHITE CLOVER CAN BE REMOVED WHEN USED TO ESTABLISH LAWNS.
7. STRONG CREEPING RED FESCUE KENTUCKY BLUE GRASS PERENNIAL RYEGRASS OR REDTOP PLUS WHITE CLOVER	130 50 20 10 5	3 1 .5 .25 .10	A	A[5]	O	A	A[5]	O	A	A[5]	O	B-D	SUITABLE WATERWAY MIX. CANADA BLUEGRASS MORE DROUGHT TOLERANT. USE REDTOP FOR INCREASES DROUGHT TOLERANCE.
8. TALL FESCUE (TURFT-TYPE) OR STRONG CREEPING RED FESCUE OR PERENNIAL RYEGRASS FLATPEA	30 30 30 25	.70 .70 .70 .60	O	A[6]		O	A[6]		O	A[6]		B-D	TALL FESCUE BEST SELECTED FOR DROUGHTY CONDITIONS. USE CREEPING RED FESCUE IN HEAVY SHADE. USE FLATPEA TO SUPRESS WOODY VEGETATION.
9. DEERTONGE REDTOP WILD RYE (ELYMUS) SWITCHGRASS	20 2 15 25	.45 .05 .35 .60	O			O			O			C-D	NATIVE WET MIX.
10. TALL FESCUE (TURF-TYPE) PERENNIAL RYEGRASS OR WHITE CLOVER	265 20 5	6 5 .10	O	A[5]	A[5]	O	A[5]	A[5]	O	A[5]	A[5]	B-D	WHITE CLOVER CAN BE EXCLUDED ON LAWN SITES
11. KENTUCKY BLUEGRASS TURF-TYPE TALL FESCUE	45 22	1 5	A	A[5]	O	A	A[5]	O	A	A[5]	O	C-D	FILTER STRIP USE FOR NUTRIENT UPTAKE.
12. TURF- TYPE (BLEND OF 3 CULTIVARS)	350	8	A	A[5]	O	A	A[5]	O	A	A[5]	O	C-D	USE IN A MANAGED FILTER STRIP FOR NUTRIENT UPTAKE.
13. HARD FESCUE AND/OR CHEWING FESCUE AND/OR STRONG CREEPING RED FESCUE PRENNIAL RYEGRASS KY. BLUEGRASS (BLEND)	175 45 45	4 1 1	A	A[5]	O	A	A[5]	O	A	A[5]	O	A-C	GENERAL LAWN RECREATION.
14. TALL FESCUE KY. BLUEGRASS (BLEND) PERENNIAL RYEGRASS	265 20 20	6 .50 .50	A	A[5]	O	A	A[5]	O	A	A[5]	O	A-B	ATHLETIC FIELD/3 CULTIVAR MIX OF KY. BLUEGRASS
15. HARD FESCUE CHEWINGS FESCUE STRONG CREEPING RED FESCUE PERENNIAL RYEGRASS	130 45 45 10	3 1 1 .25	A	A[5]	O	A	A[5]	O	A	A[5]	O	C-D	LOW MAINTENANCE FINE FESCUE LAWN MIX.
16. ROUGH BLUEGRASS STRONG CREEPING RED FESCUE	90 130	2.0 3	A	A[5]	O	A	A[5]	O	A	A[5]	O	C-D	MOIST SHADE
17. CREEPING BENTGRASS CREEPING RED FESCUE ALKALI SALTGRASS	45 45 45	1 1 1	A	A[5]	O	A	A[5]	O	A	A[5]	O	B-D	USE BENTGRASS UNDER WETTER CONDITIONS. SALTGRASS WILL ONLY PERSISTENT UNDER SALINE CONDITIONS.
18. HARD OR SHEEPS FESCUE N.E. WILDFLOWER MIXTURE	25 12	.60 .35	O	A	O	O	A	O	O	A	O	C-D	REGIONAL WILDFLOWER MIX HYDROSEEDING NOR RECOMMENDED.
19. A. SMOOTH CORDGRASS B. SALTMEADOWN CORDGRASS	veg veg					O	Before 7/1		O	Before 7/1		D	PLANTED IN THE INTERTIDAL ZONE. PLANTED ABOVE MEAN SEA LEVEL.
20. AMERICAN BEACHGRASS COASTAL PANICGRASS	veg 20	.45				Before 4/1			O			D	COASTAL PANICGRASS MAY BE INTERSEEDED BETWEEN ROWS OF BEACHGRASS
21. A. PURPLEOSIER WILLOW B. DWARF WILLOW C. REDOSIER DOGWOOD D. SILKY DOGWOOD	veg veg veg veg		Before 5/10			Before 5/10			Before 5/1			D	ALSO REFER TO CHAPTERS 16 & 18 USDA NRCS ENGINEERING FIELD HANDBOOK

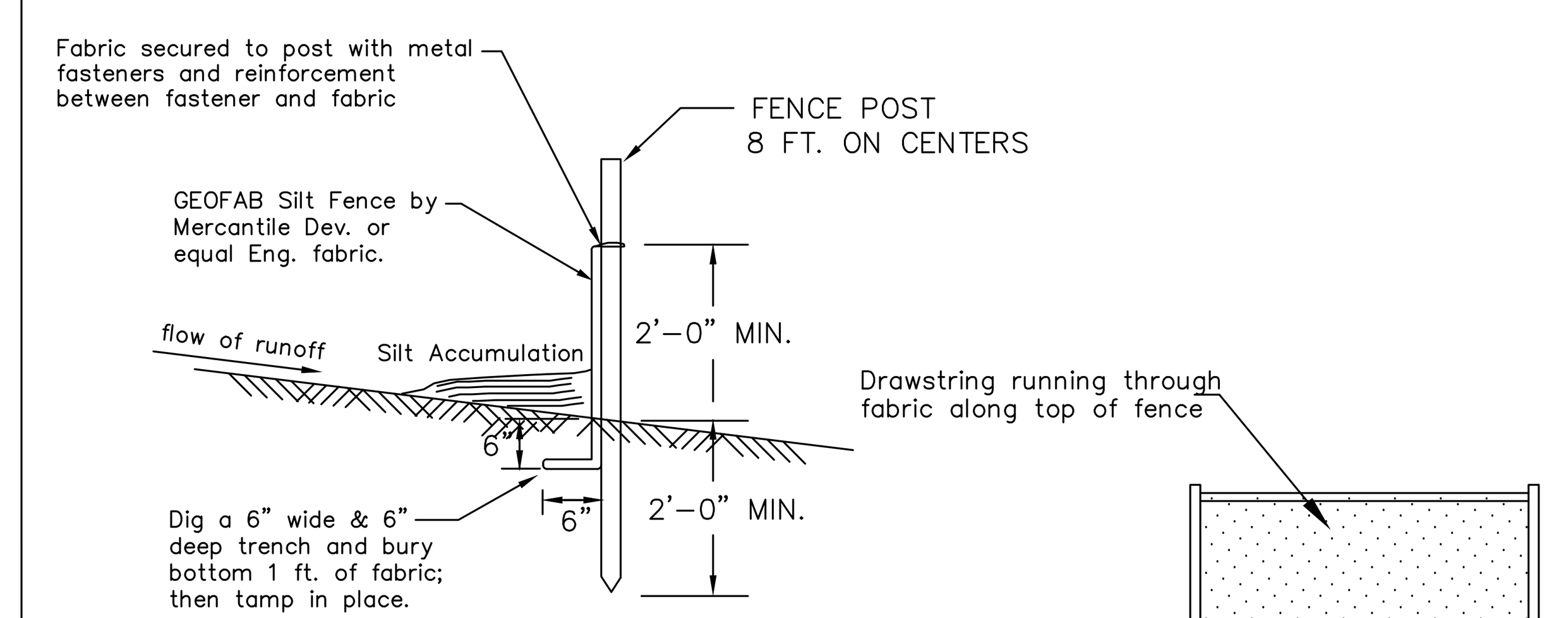
Footnotes:
1 See Appendix B for descriptions of turf grass mixtures and cultivars. The actual amount of warm season grass mixture used in Table 3 (seed mix 1-7) shall be adjusted to reflect the amount of Pure Live Seed (PLS) as determined by germination testing results. No adjustment is required for cool season grasses (seed mixtures 8-20).
2 Seeding mixtures and/or rates not listed above may be used if recommended by the local Soil Conservation District, Natural Resources Conservation Service; recommendations of Rutgers Cooperative Extension may be used if approved by the Soil Conservation District. Legumes (white clover, flatpea, lespedeza) should be mixed with proper innoculant prior to planting.
3 Seeding rates specified are required when a report of compliance is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in rates may be used when permanent vegetation is established prior to a report of compliance inspection. These rates apply to all methods of seeding. Establishing permanent vegetation means 80% vegetative coverage of the seeded area and mowed once. Grass seed mixture checked by the State Seed Analyst, New Jersey Department of Agriculture, Trenton, New Jersey, will assure the purchaser that the mixture obtained is the mixture ordered, pursuant to the N.J. State Seed Law, N.J.S.A. 4:8-17.13 et. seq.
O=optimal planting period A=acceptable planting period
Maintenance Level: Intensive mowing, (2-4 days), fertilization, lime, pest control and irrigation (Examples - high maintenance lawns, commercial and recreation areas, public facilities). Frequent mowing, (4-7 days), occasional fertilization, lime and weed control (Examples - home lawns, commercial sites, school sites). Periodic mowing (7-14 days), occasional fertilization and lime (Examples - home lawns, parks). Infrequent or no mowing, fertilization and lime the first year of establishment (Examples - roadsides, recreation areas, public open spaces).
5 Summer seddings should be only conducted when the site is irrigated. Mixes including white clover require that at least six weeks of growing season after seeding to ensure establishment before freezing conditions.



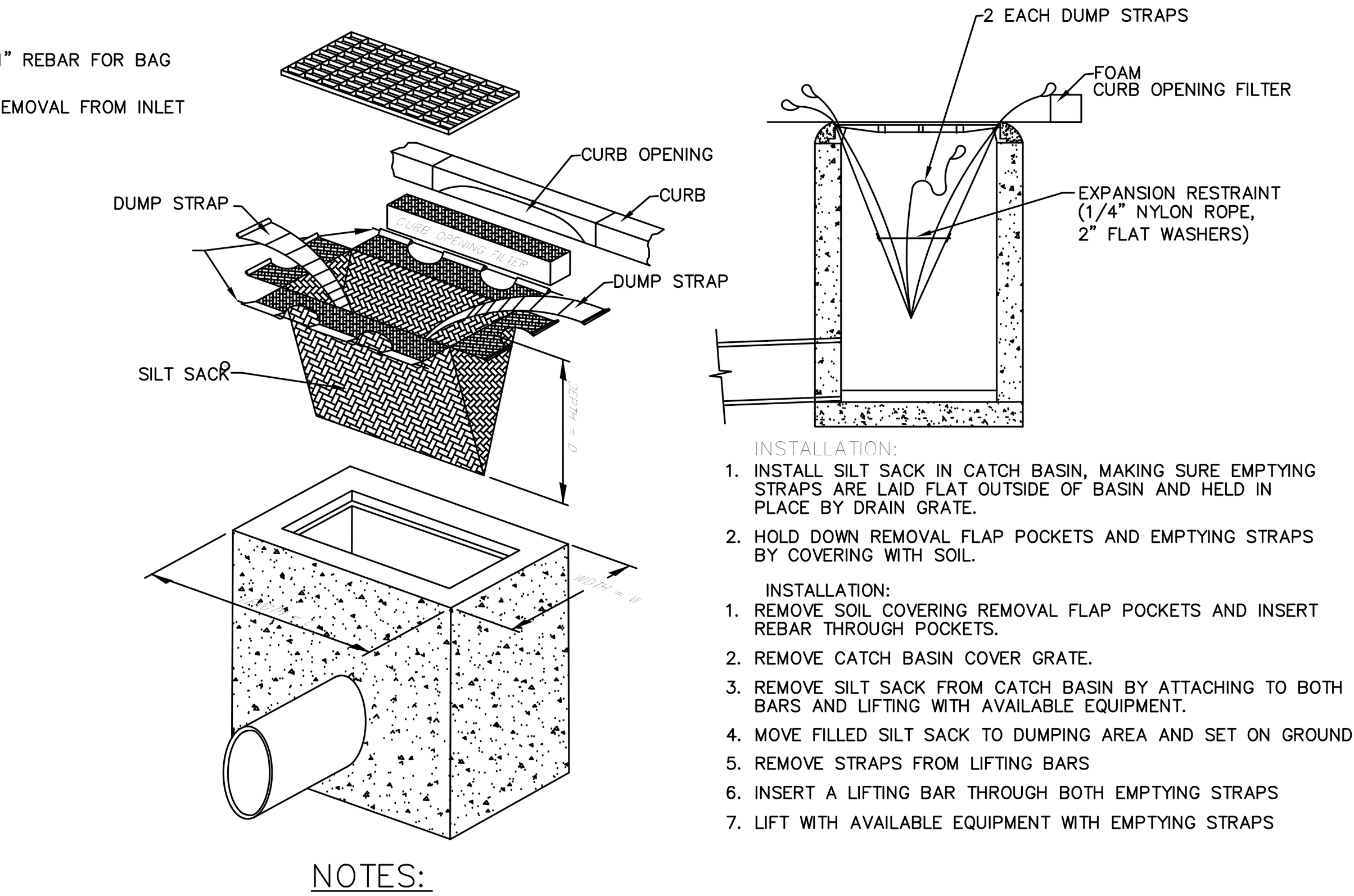
TREE PROTECTION DETAIL
NOT TO SCALE



TOPSOIL STOCKPILING DETAIL
NOT TO SCALE



SILT FENCE DETAIL
NOT TO SCALE



INSTALLATION:
1. INSTALL SILT SACK IN CATCH BASIN, MAKING SURE EMPTYING STRAPS ARE LAID FLAT OUTSIDE OF BASIN AND HELD IN PLACE BY DRAIN GRATE.
2. HOLD DOWN REMOVAL FLAP POCKETS AND EMPTYING STRAPS BY COVERING WITH SOIL.

INSTALLATION:
1. REMOVE SOIL COVERING REMOVAL FLAP POCKETS AND INSERT REBAR THROUGH POCKETS.
2. REMOVE CATCH BASIN COVER GRATE.
3. REMOVE SILT SACK FROM CATCH BASIN BY ATTACHING TO BOTH BARS AND LIFTING WITH AVAILABLE EQUIPMENT.
4. MOVE FILLED SILT SACK TO DUMPING AREA AND SET ON GROUND
5. REMOVE STRAPS FROM LIFTING BARS
6. INSERT A LIFTING BAR THROUGH BOTH EMPTYING STRAPS
7. LIFT WITH AVAILABLE EQUIPMENT WITH EMPTYING STRAPS

NOTES:
1. CONTRACTOR TO CHECK AND IF REQUIRED MAINTAIN AND CLEAN THE SILT SACK AFTER EVERY RAIN EVENT.
2. THE INLET PROTECTION DEVICE WILL BE DESIGNEDTO CAPTURE OR FILTER RUNOFF FROM THE 1 YEAR, 24 HOUR STORM EVENT AND SHALL. SAFELY CONVEY HIGHER FLOWS DIRECTLY INTO THE STORM SEWER SYSTEM.

TRENCH DRAIN INLET PROTECTION DETAIL
NOT TO SCALE

NO.	REVISIONS	DATE:	BY:	APR:

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SOIL EROSION AND SEDIMENT CONTROL NOTES & DETAILS

JOB NUMBER: 20-1206

SCALE: AS SHOWN

S-02

SHEET 2 OF 2