

CHAPTER 21**RESIDENTIAL SITE IMPROVEMENT STANDARDS****Authority**

N.J.S.A. 40:55D-40.4.

Source and Effective Date

R.1997 d.5, effective January 6, 1997 (operative June 3, 1997).
See: 28 N.J.R. 2671(a), 28 N.J.R. 3491(a), 29 N.J.R. 159(a).

Executive Order No. 66(1978) Expiration Date

Chapter 21, Residential Site Improvement Standards, expires on January 6, 2002.

Chapter Historical Note

Chapter 21, Uniform Standards Code for Mobile Homes, was adopted pursuant to authority of N.J.S.A. 52:2D-25.1 et seq. and was filed and became effective December 7, 1972, as R.1972 d.248. See: 4 N.J.R. 260(f), 5 N.J.R. 7(a). Chapter 21 was amended by R.1974 d.275, effective January 1, 1975. See: 6 N.J.R. 343(a), 6 N.J.R. 427(b); and R.1975 d.166, effective July 1, 1975. See: 7 N.J.R. 200(a), 7 N.J.R. 306(a). Chapter 21, Uniform Standards Code for Mobile Homes, was repealed by R.1982 d.7, effective February 1, 1982. See: 13 N.J.R. 717(a), 14 N.J.R. 142(a).

Chapter 21, Residential Site Improvement Standards, was adopted as R.1997 d.5, effective January 6, 1997. See: Source and Effective Date.

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SUBCHAPTER 1. GENERAL PROVISIONS**5:21-1.1 Title; division into subchapters**

(a) These rules shall be known as the “New Jersey Residential Site Improvement Standards” and are referred to herein as “the rules.”

(b) This chapter consists of the following subchapters:

1. “General Provisions,” which may be cited throughout the rules as N.J.A.C. 5:21-1 and when referred to in subchapter 1 of this chapter, may be cited as “this subchapter.”

2. “Application and Review Procedures,” which may be cited throughout the rules as N.J.A.C. 5:21-2 and when

referred to in subchapter 2 of this chapter, may be referred to as "this subchapter."

3. "Exceptions, Waivers, and Special Area Standards," which may be cited throughout these rules as N.J.A.C. 5:21-3 and when referred to in subchapter 3 of this chapter, may be referred to as "this subchapter."

4. "Streets and Parking," which may be cited throughout these rules as N.J.A.C. 5:21-4 and when referred to in subchapter 4 of this chapter, may be referred to as "this subchapter."

5. "Water Supply," which may be cited throughout these rules as N.J.A.C. 5:21-5 and when referred to in subchapter 5 of this chapter, may be referred to as "this subchapter."

6. "Sanitary Sewers," which may be cited throughout these rules as N.J.A.C. 5:21-6 and when referred to in subchapter 6 of this chapter, may be referred to as "this subchapter."

7. "Stormwater Management," which may be cited throughout these rules as N.J.A.C. 5:21-7 and when referred to in subchapter 7 of this chapter, may be referred to as "this subchapter."

8. "Referenced Standards," which may be cited throughout these rules as N.J.A.C. 5:21-8 and referred to in subchapter 8 of this chapter, may be referred to as "this subchapter."

5:21-1.2 Authority

These rules are promulgated by the Commissioner of the Department of Community Affairs pursuant to the authority of P.L. 1993, c.32 (N.J.S.A. 40:55D-40.1 et seq.)

5:21-1.3 Intent and purpose

(a) It is the intent and purpose of these rules:

1. To reduce the multiplicity of standards for residential subdivisions and site improvements which currently exists in this State in order to eliminate unnecessary increases in the cost of housing where there are noncommensurate gains in the protection of public health and safety;

2. To avoid unnecessary cost in the construction process, and to provide site improvement standards that are both sound and cost effective;

3. To ensure predictability in the site improvement standards applicable to residential construction;

4. To provide for development reviews of residential projects that are based, to the greatest extent possible, upon sound objective site improvement standards rather than upon discretionary design standards;

5. To streamline the development approval process and improve the efficiency of the application process by providing a uniform set of technical site improvement standards for land development;

6. To provide the widest possible range of design freedom and promote diversity through performance-oriented site improvement standards; and

7. To separate the policy-making aspects of development review from the making of technical determinations.

5:21-1.4 Definitions and abbreviations

The following words, terms, and abbreviations, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise. Where a word or term is defined in this chapter and the Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.), then the definition of that word or term found in the Municipal Land Use Law shall govern. Words and terms found in the Municipal Land Use Law, and defined here for convenience, have been designated by the use of "(MLUL)" following their meaning.

"AASHTO" means American Association of State Highway and Transportation Officials.

"ABS" means acrylonitrile-butadiene-styrene.

"ACI" means American Concrete Institute.

"Administrative Officer" means the clerk of the municipality, unless a different municipal official or officials are designated by ordinance or statute. (MLUL).

"ADT" (see average daily traffic.)

"Aggressive Soils" means soils which may be corrosive to metallic pipe or tubing.

"Aisle" means the traveled way by which cars enter and depart parking spaces.

"Alley" means a service road that provides a secondary means of access to lots.

"ANSI" means American National Standards Institute.

"Applicant" means a developer submitting an application for development. (MLUL).

"Application For Development" means the application form and all accompanying documents required by ordinance for approval of a subdivision plat, site plan, planned development, conditional use, zoning variance, or direction of the issuance of a permit pursuant to the Municipal Land Use Law. (MLUL).

SUBCHAPTER 8. REFERENCED STANDARDS

5:21-8.1 Referenced standards

(a) The following is a list of the standards referenced in this chapter. The standards are listed by the promulgating

agency of the standard, the standard identification, the edition of the standard (where no edition is listed, the edition in effect at the time of reference shall govern), the title of the standard, and the section(s) of this code that reference the standard.

1. American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, N.W., Suite 249, Washington, D.C. 20001. Tel. (202) 624-5800.

Standard reference number	Title	Referenced in N.J.A.C. section number
†M33-93	Preformed Expansion Joint Filler for Concrete (Bituminous Type)	Figure 4.1 (Concrete Vertical Curb)
†M43-88	Sizes of Aggregate for Road and Bridge Construction	Exhibit 6.1
†M213-92	Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)	Figure 4.1 (Concrete Vertical Curb)
†M294-93	Corrugated Polyethylene Pipe, 12- to 36-in. Diameter	5:21-7.3(d)3
†T99-93	The Moisture-Density Relations of Soils Using a 5.5-lb. (2.5 kg) Rammer and a 12-in. (305 mm) Drop	5:21-7.3(d)3
1990 Edition	A Policy on Geometric Design of Highways and Streets	5:21-4.19(b)6 5:21-4.20(a) 5:21-4.20 (b)

† Included in Standard Specifications for Transportation Materials and Methods of Sampling and Testing, 17th Edition, 1995.

2. American Concrete Pipe Association, Suite 105, 8618 Westwood Center Drive, Vienna, Virginia 22182. Tel. (703) 821-1990. Concrete Pipe Association of New Jersey, P.O. Box 1013, Dover, New Jersey 07802-1013. Tel. (201) 328-8723.

Standard reference number	Title	Referenced in N.J.A.C. section number
Minimum Cover (Minimum Depth of Coverage over Concrete Pipe)	Published in Concrete Pipe Association of New Jersey Newsletter, "The Pipeline," September/October 1985; table derived from information provided by the American Concrete Pipe Association	Table 7.4

3. American Society for Testing and Materials (ASTM), 100 Barr Harbor, West Conshohocken, Pennsylvania 19428. Tel. (610) 832-9500.

Standard reference number	Title	Referenced in N.J.A.C. section number
A48-92	Standard Specification for Gray Iron Castings	5:21-6.2(c)9.v 5:21-7.4(f)
C33-93	Standard Specification for Concrete Aggregates	Exhibit 6.1
C76-90	Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe	5:21-6.2(c)5.i 5:21-7.3(d)1.i
C361-90	Standard Specification for Reinforced Concrete Low-Head Pressure Pipe	5:21-6.2(c)9.iv
C443-85a (1990)	Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets	5:21-6.2(c)9.iv 5:21-7.3(d)1.iii
C478-90b	Standard Specification for Precast Reinforced Concrete Manhole Sections	5:21-6.2(c)9.iv 7.4(d)
C507-90	Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe	5:21-7.3(d)1.ii
C700-91	Standard Specification for Vitrified	5:21-6.2(c)5.iv

<u>Standard reference number</u>	<u>Title</u>	<u>Referenced in N.J.A.C. section number</u>
C877-91	Clay Pipe, Extra Strength, Standard Strength, and Perforated Standard Specification for External Sealing Bands for Noncircular Concrete Sewer, Storm Drain, and Culvert Pipe	5:21-7.3(d)1.iv
C923-89	Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals	5:21-6.2(c)9.vi 5:21-7.4(d)
D448-86	Standard Classification for Sizes of Aggregate for Road and Bridge Construction	Exhibit 6.1
D1784-90	Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds	5:21-6.2(c)5.ii.(1)
D1785-91	Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120	Table 7.6
D2241-89	Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)	Table 7.6
D2321-89	Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications	5:21-6.2(c)5.ii.(2) 5:21-6.2(c)5.ii.(4) 5:21-7.3(d)3
D2444-92	Standard Test Method for Determination of the Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight)	5:21-6.2(c)5.ii.(2)
D3034-89	Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings	5:21-6.2(c)5.ii
D3139-89	Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals	5:21-5.3(i)3
D3212-92	Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals	5:21-6.2(c)5.ii.(3)
D3350-93	Standard Specification for Polyethylene Plastics Pipe and Fittings Materials	5:21-7.3(d)3
F477-90	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe	5:21-6.2(c)5.ii.(3)

4. American Society of Civil Engineers (ASCE), 345 East 47th Street, New York, New York 10017. Tel. (212) 705-7496 or (800) 548-2723.

<u>Standard reference number</u>	<u>Title</u>	<u>Referenced in N.J.A.C. section number</u>
WEF Manual of Practice No. 9 ASCE Manual on Engineering Practice No. 37 1970 (Sixth Printing 1991) (Prepared jointly with the Water Environment Federation) WEF Manual of Practice FD-20 ASCE Manuals and Reports of Engineering Practice No. 77 (1993) ©1992	Design and Construction of Sanitary and Storm Sewers	5:21-6.2(a) 5:21-6.2(c)8 5:21-6.2(c)9
	Design and Construction of Urban Stormwater Management Systems	5:21-7.3(e)

5. American Water Works Association (AWWA), 6666 West Quincy Avenue, Denver, Colorado 80235. Tel. (303) 794-7711 or (800) 926-7337.

<u>Standard reference number</u>	<u>Title</u>	<u>Referenced in N.J.A.C. section number</u>
ANSI/AWWA C104/A21.4-90	American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water	5:21-5.3(i)1 5:21-6.2(c)5.iii 5:21-7.3(d)2
ANSI/AWWA C105/A21.5-93	American National Standard for Polyethylene Encasement for Ductile- Iron Pipe Systems	5:21-5.3(i)1
ANSI/AWWA C110/A21.10-93	American National Standard for Ductile-Iron and Gray-Iron Fittings, 3 in. through 48 in. (75 mm through 1200 mm) for Water and Other Liquids	5:21-5.3(i)1
ANSI/AWWA C111/A21.11-90	American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings	5:21-5.3(i)1 5:21-7.3(d)2
ANSI/AWWA C115/A21.15-88	American National Standard for Flanged Ductile-Iron Pipe with Threaded Flanges	5:21-5.3(i)1
ANSI/AWWA C150/A21.50-81	American National Standard for the Thickness Design of Ductile-Iron Pipe	5:21-5.3(i)1
ANSI/AWWA C151/A21.51-91	American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water and Other Liquids	5:21-6.2(c)5.iii 5:21-7.3(d)2
ANSI/AWWA C301-92	AWWA Standard for Prestressed Concrete Pressure Pipe, Steel- Cylinder Type, for Water and Other Liquids	5:21-5.3(i)2
ANSI/AWWA C502-85	AWWA Standard for Dry-Barrel Fire Hydrants	5:21-5.4(b)1
ANSI/AWWA C900-89	AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. through 12 in., for Water Distribution	5:21-5.3(i)3
ANSI/AWWA C901-88	AWWA Standard for Polyethylene (PE) Pressure Pipe and Tubing, ½ in. through 3 in., for Water Service	5:21-5.3(i)6
AWWA M31 ©1992 Second Edition	Manual of Water Supply Practices—Distribution System Requirements for Fire Protection	5:21-5.2(e)

6. Asphalt Institute, Research Park Drive, Post Office Box 14052, Lexington, Kentucky 40512-4052. Tel. (606) 288-4960.

<u>Standard reference number</u>	<u>Title</u>	<u>Referenced in N.J.A.C. section number</u>
MS-1, 8th Edition August 1970	Thickness Design—Full-Depth Asphalt Pavement Structures for Highways and Streets	Table 4.7

7. Institute of Transportation Engineers (ITE), Suite 410, 525 School Street, S.W., Washington, D.C. 20024-2729. Tel. (202) 554-8050.

<u>Standard reference number</u>	<u>Title</u>	<u>Referenced in N.J.A.C. section number</u>
©1989	Residential Street Design and Traffic Control	5:21-1.5(d)2
Pub. No. IR-016C 5th Edition Fourth Printing January 1991	Trip Generation	5:21-4.1(b) Table 4.1

8. Insurance Services Office, Inc. (ISO), 7 World Trade Center, New York, New York 10048. Tel. (212) 898-6000.
- | | | |
|---|--|--|
| <u>Standard
reference number</u>
©1980
Edition 6-80 | <u>Title</u>
Fire Suppression Rating Schedule | Referenced in
N.J.A.C. section
number
5:21-5.2(e) |
|---|--|--|
9. National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, Massachusetts 02269. Tel. (617) 770-3000.
- | | | |
|---|--|---|
| <u>Standard
reference number</u>
Standard 291-1995 | <u>Title</u>
Fire Flow Testing and Marking of
Hydrants | Referenced in
N.J.A.C. section
number
5:21-5.4(b)2 |
| Standard 1963-1993 | Fire Hose Connections | 5:21-5.4(b)1 |
10. New Jersey Department of Agriculture, State Soil Conservation Committee, John Fitch Plaza, CN 330, Trenton, New Jersey 08625. Tel. (609) 292-5540.
- | | | |
|--|--|---|
| <u>Standard
reference number</u>
April 1987 | <u>Title</u>
Standards for Soil Erosion and
Sediment Control in New Jersey | Referenced in
N.J.A.C. section
number
5:21-7.5(c)
5:21-7.5(f)3.ii |
|--|--|---|
11. New Jersey Department of Environmental Protection (NJDEP), Bureau of Revenue, Maps and Publications Sales Office, 428 East State Street, Trenton, New Jersey 08625. Tel. (609) 777-1038.
- | | | |
|---|--|---|
| <u>Standard
reference number</u>
February 1981 | <u>Title</u>
New Jersey Stormwater
Quantity/Quality Management Manual | Referenced in
N.J.A.C. section
number
5:21-7.6(c)4 |
| June 1989 | Ocean County Demonstration Study—
Stormwater Management Facilities
Maintenance Manual | 5:21-7.6(c)4 |
| September 1993 | Stormwater and Nonpoint Source
Pollution Control | 5:21-7.6(c)4 |
| Revised September
1995 | Best Management Practices Manual
Technical Manual for Land Use Regulation Program,
Bureaus of Inland and Coastal Regulations,
Stream Encroachment Permits | Table 7.2
5:21-7.6(c)4.iii |
| August 1995 | Pinelands Comprehensive
Management Plan
(New Jersey Pinelands Commission) | 5:21-5.3(a)
5:21-6.2(a) |
12. New Jersey Department of Transportation (NJDOT), 1035 Parkway Avenue, Trenton, New Jersey 08625. Tel. (609) 530-2000.
- | | | |
|--|---|--|
| <u>Standard
reference number</u>
1989 | <u>Title</u>
Standard Specifications for Road and
Bridge Construction | Referenced in
N.J.A.C. section
number
5:21-4.17(b)
Figure 4.1
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Figure 4.3
5:21-7.4(a)
5:21-7.2(c)2
5:21-7.2(c)3
Figure 7.1
Figure 7.2 |
| May 1992 | Design Manual—Roadway
(DOT's Division of Roadway Design,
Bureau of Roadway Design
Standards) | |
13. New Jersey Society of Municipal Engineers (NJSME), 196 West State Street, Trenton, NJ 08608. Tel. (609) 393-0102.
- | | | |
|---|--|--|
| <u>Standard
reference number</u>
Second Edition
November 1991 | <u>Title</u>
Asphalt Handbook for County and
Municipal Engineers | Referenced in
N.J.A.C. section
number
Figure 4.2
Figure 4.3
Table 4.7 |
|---|--|--|
14. Portland Cement Association, 5420 Old Orchard Road, Skokie, Illinois 60077-1083. Tel. (847) 966-6200.

- | <u>Standard
reference number</u>
©1984 | <u>Title</u>
Thickness Design for Concrete
Highway and Street Pavements | Referenced in
N.J.A.C. section
number
Table 4.7 |
|--|--|---|
| 15. United States Army Corps of Engineers, Water Resources Support Center, The Hydrologic Engineering Center, 609 Second Street, Davis, California 95616. Tel. (916) 756-1104. | | |
| <u>Standard
reference number</u>
†Technical Paper No. 82
May 1981 | <u>Title</u>
The New HEC-1 Flood Hydrograph
Package | Referenced in
N.J.A.C. section
number
5:21-7.2(c) |
| 16. United States Department of Agriculture (USDUC), Soil Conservation Service, Post Office Box 2890, Washington, D.C. 20013. Tel. (202) 205-0026. | | |
| <u>Standard
reference number</u>
†Technical Release 20
PB83-223768
May 1982 | <u>Title</u>
Computer Program for Project
Formulation—Hydrology | Referenced in
N.J.A.C. section
number
5:21-7.2(c)
5:21-7.5(d) |
| †Technical Release No. 55
PB87-101580
2nd Edition
June 1986 | Urban Hydrology for Small
Watersheds | 5:21-7.2(c)
5:21-7.2(c)2
5:21-7.2(c)5
5:21-7.5(d) |
| †Technical Release No. 56
PB85-239622
December 1974 | Guide for Design and Layout of
Vegetative Wave Protection for Earth
Dam Embankments | 5:21-7.5(f)5.ii |
| †Technical Release No. 69
PB85-245165
February 1983 | Riprap for Slope Protection Against
Wave Action | 5:21-7.5(f)5.ii |
| †PB85-175164/LT
July 1984 | Engineering Field Manual
for Conservation Practices
National Engineering Handbook
Section 5—Hydraulics
Section 11—Drop Spillways
Section 14—Chute Spillways | 5:21-7.5(f)5.vii
5:21-7.5(f)5.vii |
| †PB 243 644/LT
†PB 243 645/LT
†PB 279 759/LT | | |
| 17. United States Department of Commerce (USDUC), Bureau of the Census, Washington, D.C. 20233. Tel. (202) 482-2000. | | |
| <u>Standard
reference number</u>
1975-1980 | <u>Title</u>
Public Use File—New Jersey
(Data tabulated by Rutgers
University) | Referenced in
N.J.A.C. section
number
Table 4.4
Table 5.1 |
| 18. United States Department of Transportation (USDOT), Federal Highway Administration (FHWA), 820 First Street, S.E., Washington, D.C. 20002. Tel. (301) 322-4961. | | |
| <u>Standard
reference number</u>
AC150/5320-5B
July 1970 | <u>Title</u>
Airport Drainage | Referenced in
N.J.A.C. section
number
5:21-7.2(c)1 |
| †Hydraulic Engineering
Circular No. 15
Report No. FHWA-EPD-86-111
PB86-184835
October 1975 | Design of Stable Channels with
Flexible Linings | 5:21-7.5(f)3.ii |
| †Report No. FHWA-TS-79-225
PB83-259903
August 1979 | Design of Urban Highway Drainage,
The State of the Art | Table 7.3 |
| †Hydraulic Design Series No. 4
Report No. FHWA-EPD-86-103
May 1965
(Reprinted March 1983) | Design of Roadside Drainage
Channels | 5:21-7.2(c)1 |
| †Hydraulic Design Series No. 5 | Hydraulic Design of Highway Culverts | 5:21-7.1(g) |

Standard
reference number
Report No. FHWA-IP-85-15
PB86-196961
September 1985
*1988 Edition

Title

Referenced in
N.J.A.C. section
number

Manual on Uniform Traffic Control
Devices for Streets and Highways

5:21-4.13(a)

† Documents obtainable from the National Technical Information Service, Springfield, Virginia 22161. Tel. (703) 487-4650.

‡ Documents obtainable from the United States Government Printing Office, Superintendent of Documents, Post Office Box 371954, Pittsburgh, Pennsylvania 15250-7954. Tel. (202) 512-1800.

19. Urban Land Institute, Suite 500 West, 1025 Thomas Jefferson Street, N.W., Washington, D.C. 20007-5201. Tel. (800) 321-5011.

Standard
reference number
ULI-ASCE-NAHB
1975

Title
Residential Storm Water
Management: Objectives, Principles,
and Design Considerations

Referenced in
N.J.A.C. section
number
Table 7.5