
VILLAGE of LOMBARD
The Lilac Village
LOMBARD
SFR DRAINAGE CODE

070216

Problem:

- Increasing numbers of residential infill and teardown developments as well as large additions, patios and garages are resulting in more rainfall running off into poorly drained backyards. Existing residential lots often hold water due to differential settling and drainage swales that have been blocked by landscaping and fences.

Village Assistance:

- The Backyard Drainage Grant Program reimburses up to 50%, $10K maximum, for drainage improvements for areas that retain water for > 3 days over at least 2 properties. Nine grants totaling $47K have been approved since 2002. All projects have been either gravity or pump systems.
- Village staff investigates flooding concerns and follows up with letters.

Village Code:

§ 151.54 SINGLE FAMILY RESIDENTIAL DEVELOPMENT

Any single family residential development that shall increase the impervious areas on a lot by more than 500 square feet, cumulatively, for development occurring on or after September 1, 2001, and that is not part of a major subdivision with a stormwater detention/retention facility per Section 151.55, shall include 1% minimum slope swales along the entire length of the rear and side property lines, if physically possible. If swales are not physically possible, then drain tiles and/or storm drains shall be used to drain such flat or depressional areas into a separated storm sewer or to a swale or ditch having a continuous 1% minimum slope to a separated storm sewer or defined watercourse. The preferred location for storm drain inlets shall be a rear corner of the lot. If swales or storm drains are not possible, then dry wells shall be located and sized to contain volume equal to the new impervious area times 0.58 foot of runoff. Wells shall not be located in utility easements or public right-of-ways. The existing impervious area shall be subtracted from proposed impervious area to determine the increase in impervious area.

SOP's:

1. Determine if the proposed project would increase post-9/1/01 impervious areas on the lot by at least 500 sf. No particular drainage improvement is required if less than 500 sf, although an improvement may be recommended to the property owner. Continue to the next step if at least 500 sf.

2. Locate the lot on the topographic map to determine whether runoff from the lot contributes to a depressional area or other problem area caused by grades flatter than 1%. If so, then continue to the next step.

3. Research the files for drainage inquiries and inspect the site to determine the scope of the problem. Topographic information should seldom be required from the applicant.

4. Send a letter to the property owner to provide options available to comply with the ordinance. These will include one or more of the following, in order of preference:

    a) Revise the project to limit the increase in net impervious area to less than 500 sf. This might mean moving a proposed garage, reducing a driveway width or removing an existing structure, such as a shed.

    b) Excavate a swale to direct the runoff as necessary. Credit may be given (swapped) for existing roof areas that are redirected away from the low area.

→

SOP's (continued):

c) Install a storm drain to discharge to grade or a separated storm sewer.

d) Install a dry well per the Village's standard specification sized to contain volume equal to the new (post 9/1/01) impervious area times 0.58 foot of runoff. This runoff depth is based on a permeability of 0.40 for 3" stone and a difference in 100-yr, 24-hr runoff depth of 2.79 inches (paved vs. grassed). The well shall not be located in a utility easement or public right-of-way.

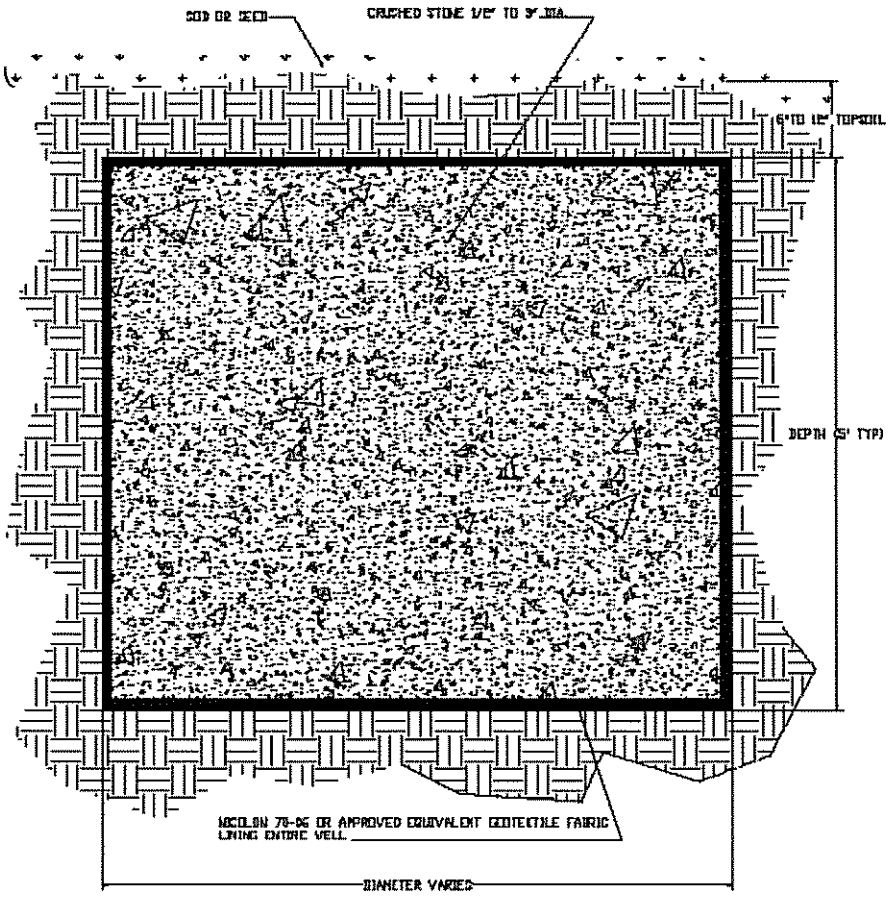
e) Install an alternate form of dry well, such as a field of perforated pipe sized to contain volume equal to the new (post 9/1/01) impervious area times 2.79 inches of runoff.

f) Obtain the signatures of all property owners affected by the flooding to waive the requirement.

5. Red-line the permit documents with the required improvement and place a condition that the improvement must be in place prior to any approvals being given for concrete work. Ask BIS to add the condition to the computer as a "flag" to prevent those inspections until PES approval has been given.

6. Appeals may be petitioned to the Public Works Committee and then to the Board of Trustees.

Dry Well Spec:



REV.:	REV.:	DRY WELL	VILLAGE OF LOMBARD
REV.:	REV.:		STORM-18
DRAWN BY: ERH	DATE: 04-09-01		

Dry Well Sizing:

Proposed Condition: Add impervious areas such as roofs, driveways and patios, CN = 98

Existing Condition: Assume grassed area with C group soils, CN = 74

S = 1000/CN – 10 ==> S (existing) =3.51, S (proposed) = 0.204

Q = (P - 0.2S)^2/(P + 0.8S)

P = Bulletin 70 Depths			Q (exist.)	Q (prop.)	Difference	
2yr, 1hr =	1.43 in	==>	0.12 in	1.21 in	1.09 in	
2yr, 24hr =	3.04 in	==>	0.94 in	2.81 in	1.87 in	
10yr, 1hr =	2.10 in	==>	0.40 in	1.87 in	1.47 in	
10yr, 24hr =	4.47 in	==>	1.95 in	4.23 in	2.28 in	
100yr, 1hr =	3.56 in	==>	1.28 in	3.33 in	2.05 in	
100yr, 24hr =	7.58 in	==>	4.55 in	7.34 in	2.79 in	<== Choose as policy

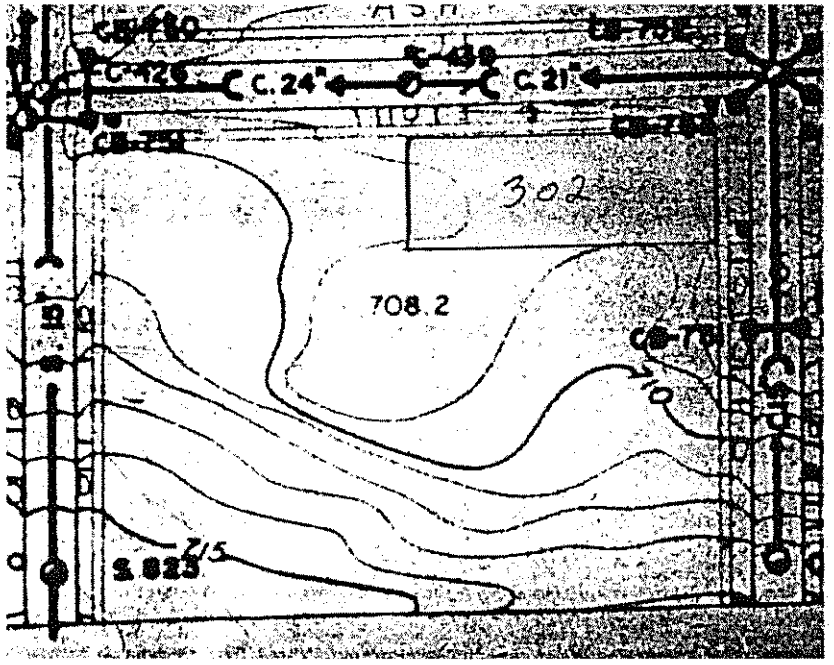
Assume a 40% porosity in open-graded course aggregate (1/2" - 2" crushed stone).
(per IDOT's Manual of Instructions for Design of Concrete Mixtures)

To determine well volume required, multiply impervious area by runoff depth and divide by void ratio:

= ((tributary impervious area in sf.) x (2.79in)) / ((12in/ft) x (0.40))

=> The total volume required for dry well = tributary impervious area in sf. x 0.58 ft.

Example 1:



VILLAGE OF LOMBARD
255 E. Wilson Ave.
Lombard, Illinois 60148
630/620-5700 FAX: 630/620-8222
TDD: 630/620-5812
www.villageoflombard.org

April 1, 2005

Happy Home Builders
138 E. Morningside Avenue
Lombard, Illinois 60148

RE: Permit Application #05-404 – Proposed Single Family Residence at 302 S. Lombard Ave.

Dear Sir or Madam:

The Village of Lombard is reviewing the permit application for your proposed single family residence. The existing topography and the proposed grading indicates that the property is now and will continue to be flat. Therefore, typical 1% pitched swales will not be possible in this case to properly drain the property.

The attached Village Code §151.54 applies to new impervious areas over 500 square feet. The proposed conditions would add 1,100 square feet of impervious area. Typical solutions to meet the Code include installing 1% pitched swales, yard drains and dry wells. However, swales are not feasible due to the flatness of the property. Also, yard drains are not an option since the Ash Street and Lombard Avenue sewers are combined, rather than separated. That is, the sewers carry both sanitary effluent as well as storm water runoff. Additional storm drain connections are not allowed into combined sewers per Village Code because they would contribute to worsened basement backups and treatment plant overflows.

The most feasible solution to meet the Code requirements is to install one or more dry wells per the attached specification sized to hold a volume of 636 cubic feet of stone. It is suggested that a 500 cf well should be placed in the northwest corner of the property and a 136 cf well should be placed at the southeast corner of the property to meet this requirement. These wells would be 6 feet deep with one foot of topsoil cover and 11'-4" and 5'-11" in diameter, respectively. A condition would be placed on the permit to require that the dry wells shall be completed prior to starting the house framing. The downspouts and sump pump would discharge into the wells.

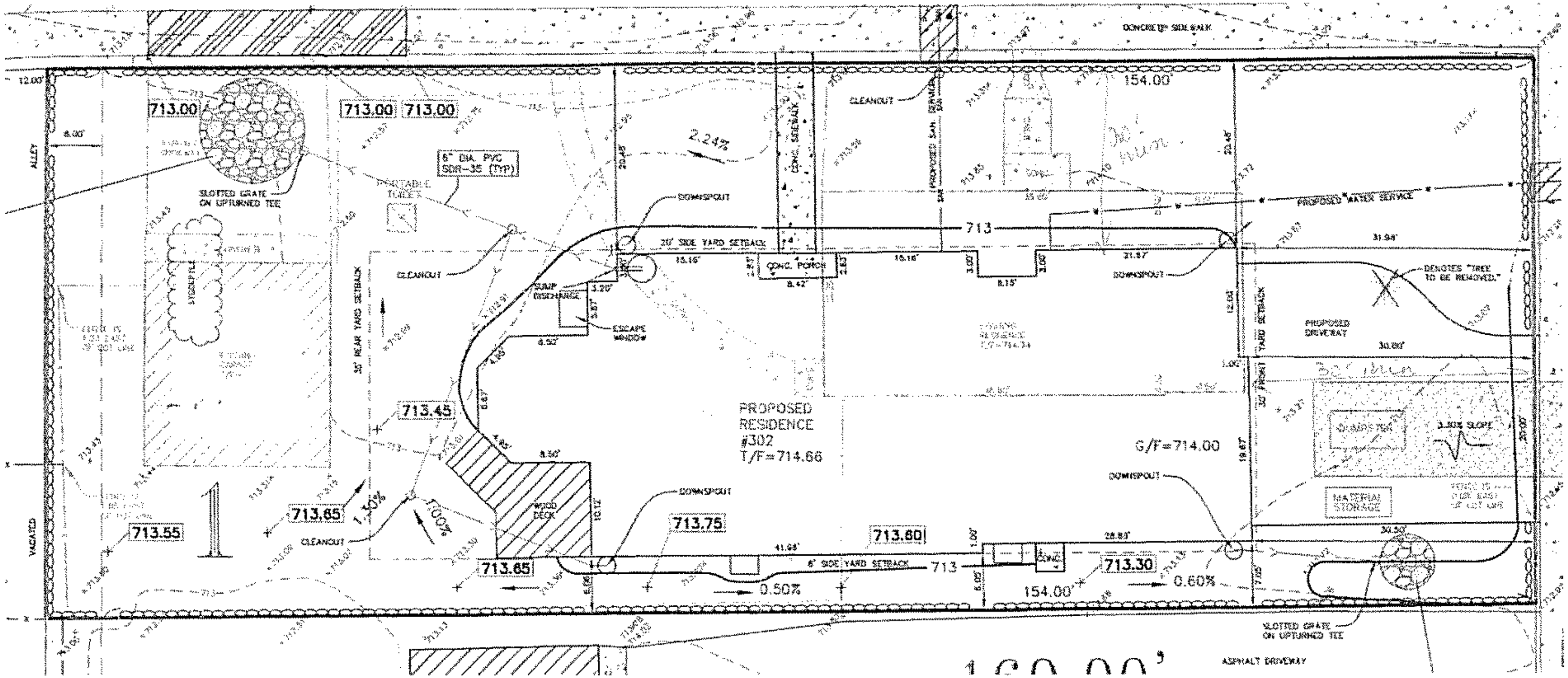
Thank you in advance for your understanding and cooperation to meet this Code requirement. Please review these options and call me at 620-5973 to discuss this matter. Your engineer may also contact me to suggest other options.

Respectfully,

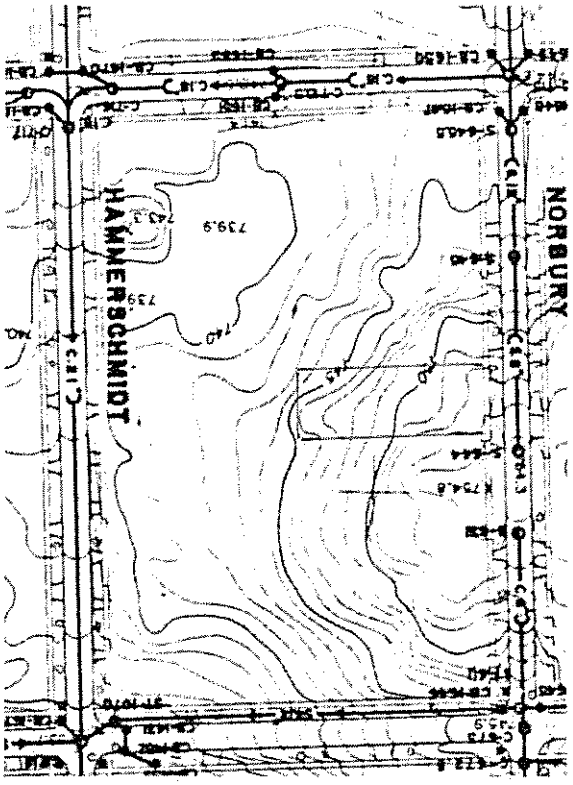
David P. Gorman, PE
Development Engineer

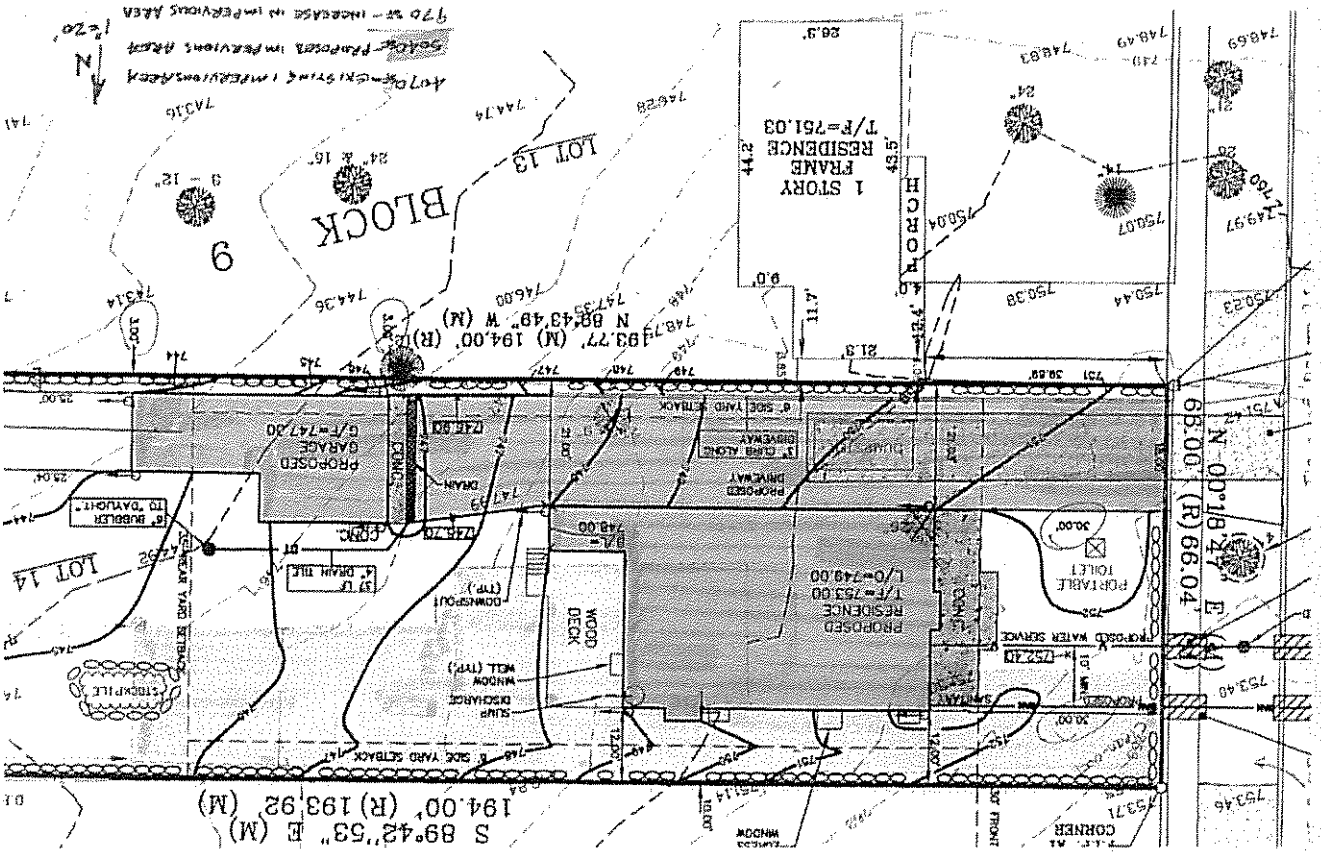
DG:dg 302 S Lombard
attachments: annotated plan, topo map, aerial photo, §151.54 and STORM 10 & 18
cc: Concept Partners, 823 Holiday Drive, Sandwich, IL 60548
Sigitas Vaznelis, PE, Morris Engineering, 5100 S. Lincoln, Suite 100, Lisle, IL 60532

Example 1:


VACATED
ALLEY
CONCRETE SIDEWALK
713.00
713.00
713.00
154.00'
SLOTTED GRATE ON UPTURNED TEE
6" DIA. PVC SDR-35 (TYP)
PORTABLE TOILET
2.24%
CLEANOUT
PROPOSED SAN. SERVICE
PROPOSED WATER SERVICE
DOWNSPOUT
20' SIDE YARD SETBACK
CONC. SIDEWALK
CONC. PORCH
713
30' REAR YARD SETBACK
SUMP DISCHARGE
ESCAPE WINDOW
DENOTES "TREE TO BE REMOVED."
PROPOSED DRIVEWAY
30' FRONT YARD SETBACK
713.45
PROPOSED RESIDENCE
#302
T/F=714.66
G/F=714.00
DUMPSTER
3.30% SLOPE
MATERIAL STORAGE
713.65
1.30%
1.00%
WOOD DECK
713.55
713.75
713.60
713.30
713.65
6' SIDE YARD SETBACK
0.50%
0.60%
154.00'
ASPHALT DRIVEWAY
160.00'

Example 2:


HAMMERSCHMIDT
NORBURY


BLOCK 9
LOT 13
LOT 14
1 STORY FRAME RESIDENCE T/F=751.03
PROPOSED GARAGE G/F=747.30
PROPOSED RESIDENCE T/F=753.00 L/O=749.00
WOOD DECK
PORTABLE TOILET
S 89°42'53" E (M) 194.00' (R) 193.92' (M)
N 00°18'47" E (M) 66.00' (R) 66.04'

Example 2:

A 6-foot deep, 12-foot diameter dry well per the attached specification and holding 563 cf of stone shall be installed prior to framing the house. The well shall be at least five feet away from the lot lines. The driveway shall be pitched to direct runoff over the well and the house downspouts and sump pump shall discharge into the well. Call 620-5750 for an inspection once the well is excavated and lined with geotextile.

VILLAGE OF LOMBARD
255 E. Wilson Avenue
Lombard, IL 60148-3926
(630) 620-5700 FAX: (630) 620-8222
TDD: (630) 620-5812
www.villageoflombard.org

June 26, 2006

Mr. Matt Wrenn
Happy Home Builders LLC
138 E. Morningside Avenue
Lombard, IL 60148

RE: Permit Application #06-1132 – Proposed Single Family Residence at 823 S. Norbury Ave.

Dear Mr. Wrenn:

The Village of Lombard is reviewing the permit application for your proposed single family residence at 823 S. Norbury Avenue. A review of our files found that there is a low-lying area at the south end of the block that retains storm water.

The attached Village Code §151.54 applies to new impervious areas over 500 square feet. The proposed conditions would add 970 square feet of impervious area that would drain to the backyard and, thus, to the low area on the block. Typical solutions to meet the Code include installing 1% pitched swales, yard drains and dry wells. However, a swale is not possible since the lot pitches entirely to the rear. Also, a yard drain is not possible since the block is served by combined sewers (carrying storm runoff as well as sanitary effluent) and new storm drain connections are disallowed. Therefore, the following options are available to meet the requirements of the Code:

1. Install a dry well per the attached specification to hold a volume of 563 cubic feet of stone. This well would have a diameter of 12'-0" and a depth of 6', including 1' of topsoil cover. Downspouts and the sump pump would discharge into the well. A condition would be placed on the permit to require that the dry well shall be completed prior to framing the house.

2. Obtain the signatures of the owners of 832, 836 & 840 S. Hammerschmidt Avenue on this letter to indicate that they understand and accept that the new residence would contribute more runoff to the low area on the block and they recommend that the Village not require either of the previously mentioned drainage improvements. Please note the attached photos of past flooding at those properties.

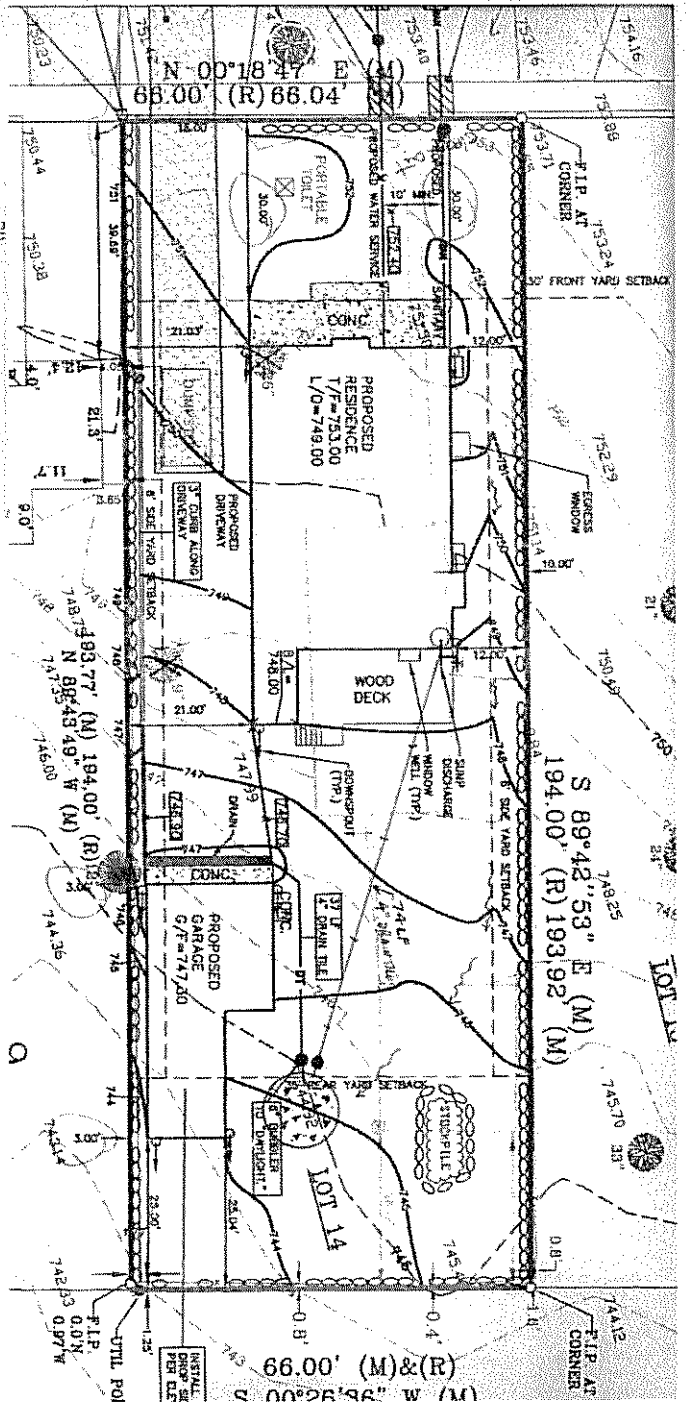
Thank you in advance for your understanding and cooperation to meet this Code requirement. Please review these options and then call me at 620-5973 to discuss your choice.

Respectfully,

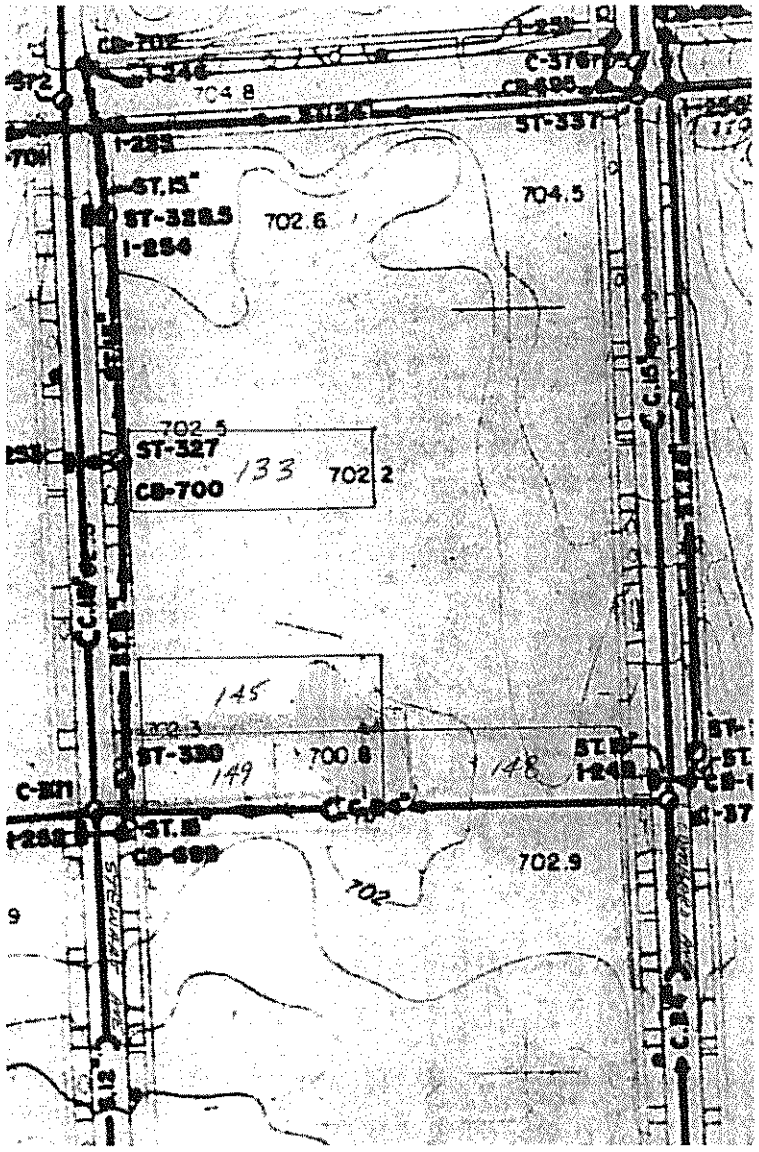
VILLAGE OF LOMBARD

David P. Gorman, PE
Development Engineer

DG:dg 823 S Norbury
attachments: proposed plan, aerial topo map, §151.54 and STORM 10 & 18
cc: David A. Hulseberg, AICP, Director of Community Development



Example 3:



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May 11, 2006

Mr. Dan Wrangler
533 S. York
Elmhurst, IL 60126

RE: Building Permit Application 06-713 – Proposed Single Family Residence at 133 S. Stewart

Dear Mr. Wrangler:

The Village of Lombard is reviewing the permit application for your proposed single family residence at 133 S. Stewart Avenue. A review of our files found that there is a low-lying area on the block that may retain storm water.

The attached Village Code §151.54 applies to new impervious areas over 500 square feet. The proposed conditions would add 1,500 square feet of impervious area that would drain to the backyard and, thus, to the low area on the block. Typical solutions to meet the Code include installing 1% pitched swales, yard drains and dry wells. However, a swale is not possible due to a lack of gradient. Therefore, the following options are available to meet the requirements of the Code:

1. Install a drain from the southeast corner of the lot to the public storm sewer in Stewart Avenue. Such a drain would be 6" diameter PVC pipe (SDR 35 or 26) within the yard and either ductile iron or concrete in the public right of way. An inlet would be placed just inside the property line where the pipe material changes. The connection to the public storm sewer would be made with a saddle.

2. Install a dry well to hold a volume of 870 cubic feet of stone. This well would have a diameter of 14'-11" and a depth of 6', including 1' of topsoil cover. Downspouts and the sump pump would discharge into the well. A condition would be placed on the permit to require that the dry well shall be completed prior to framing the house.

3. Obtain the signatures of the owners of 145 & 149 S. Stewart Avenue and 148 S. Lombard Avenue on this letter to indicate that they understand and accept that the proposed conditions would contribute more runoff to the low area on the block and they recommend that the Village not require a drain or a dry well.

Thank you in advance for your understanding and cooperation to meet this Code requirement. Please review these options and then call me at (630) 620-5973 to discuss your choice.

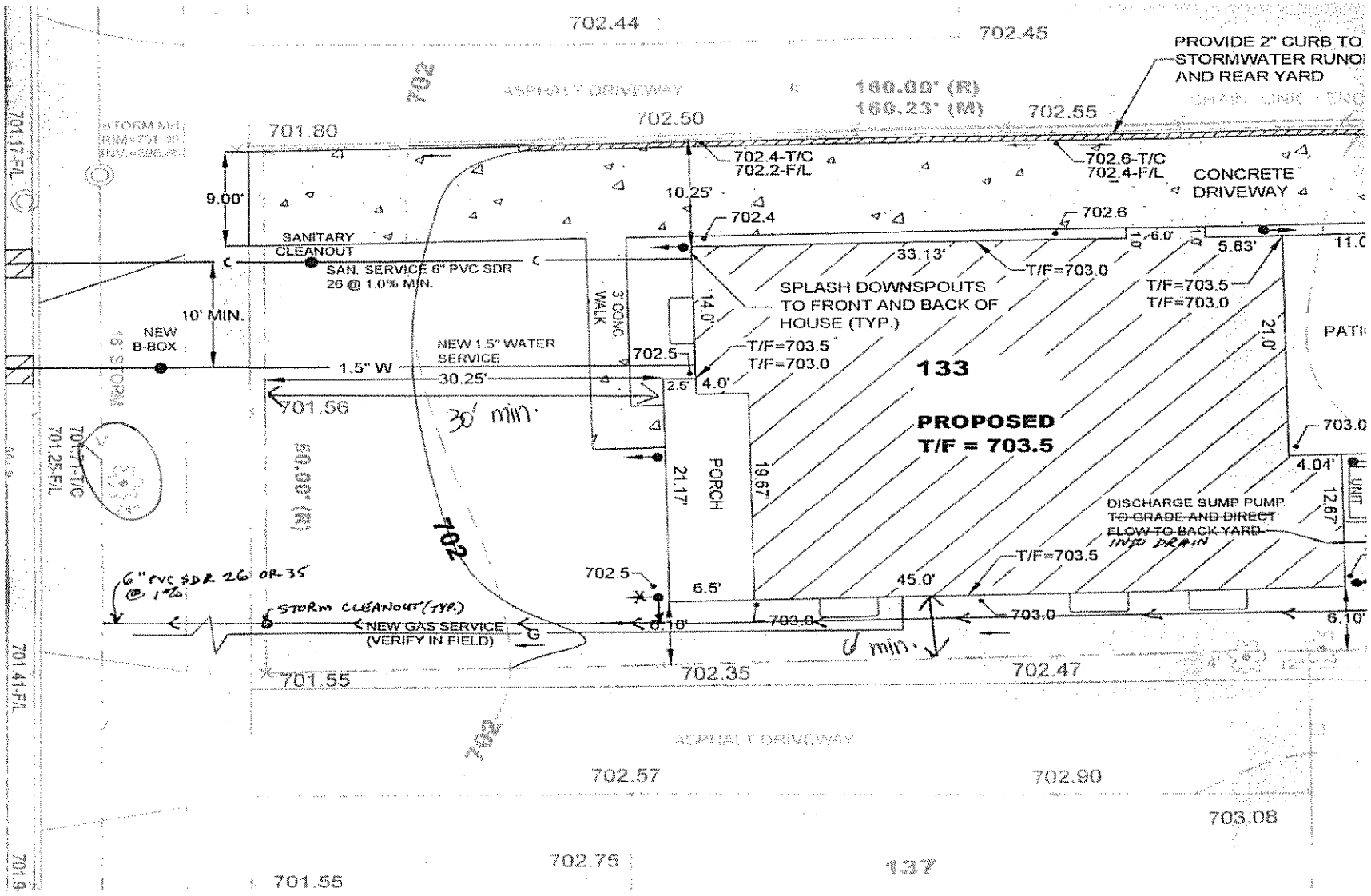
Respectfully,

VILLAGE OF LOMBARD

David P. Gorman, PE
Development Engineer

DG:dg 133 S Stewart
attachments: proposed & existing plans, topo map and §151.54
cc: David A. Hulseberg, AICP, Director of Community Development
Alecs Ho, PE, Gabriel Group, 1 Saint Moritz Court, Elmhurst, IL 60126

Example 3:


702.44
702.45
PROVIDE 2" CURB TO
STORMWATER RUNO
AND REAR YARD
ASPHALT DRIVEWAY
160.00' (R)
160.23' (M)
702.55
701.80
702.50
702.4-T/C
702.2-F/L
702.6-T/C
702_4-F/L
CONCRETE
DRIVEWAY
9.00'
10.25'
702.4
702.6
SANITARY
CLEANOUT
SAN. SERVICE 6" PVC SDR
26 @ 1.0% MIN.
33.13'
T/F=703.0
SPLASH DOWNSPOUTS
TO FRONT AND BACK OF
HOUSE (TYP.)
T/F=703.5
T/F=703.0
10' MIN.
NEW
B-BOX
NEW 1.5" WATER
SERVICE
3' CONC.
WALK
14.0'
702.5
T/F=703.5
T/F=703.0
1.5" W
30.25'
2.5'
4.0'
133
701.56
30' min.
PROPOSED
T/F = 703.5
703.0
4.04'
PORCH
21.17'
19.67'
DISCHARGE SUMP PUMP
TO GRADE AND DIRECT
FLOW TO BACK YARD
INTO DRAIN
T/F=703.5
702.5
6.5'
45.0'
6" PVC SDR 26 OR 35
@ 1%
STORM CLEANOUT (TYP.)
NEW GAS SERVICE
(VERIFY IN FIELD)
703.0
6.10'
703.0
6.10'
701.55
702.35
702.47
min.
ASPHALT DRIVEWAY
702.57
702.90
703.08
702.75
701.55
137

Conclusions:

- Owners *always* understand and accept the requirements without much argument.
- Owners have acquired signatures from the owners of the flooded properties to waive the requirement.
- One project sometimes alleviates flooding on a block.
- Owners occasionally revise a proposed garage & driveway layout to reduce the impervious coverage.
- It helps to explain to neighbors that projects will actually reduce flooding. (The limitation on dry well capacity for slow infiltration and repeat rainfalls is explained.) Neighbor relations have benefited as a result.